Entellus™

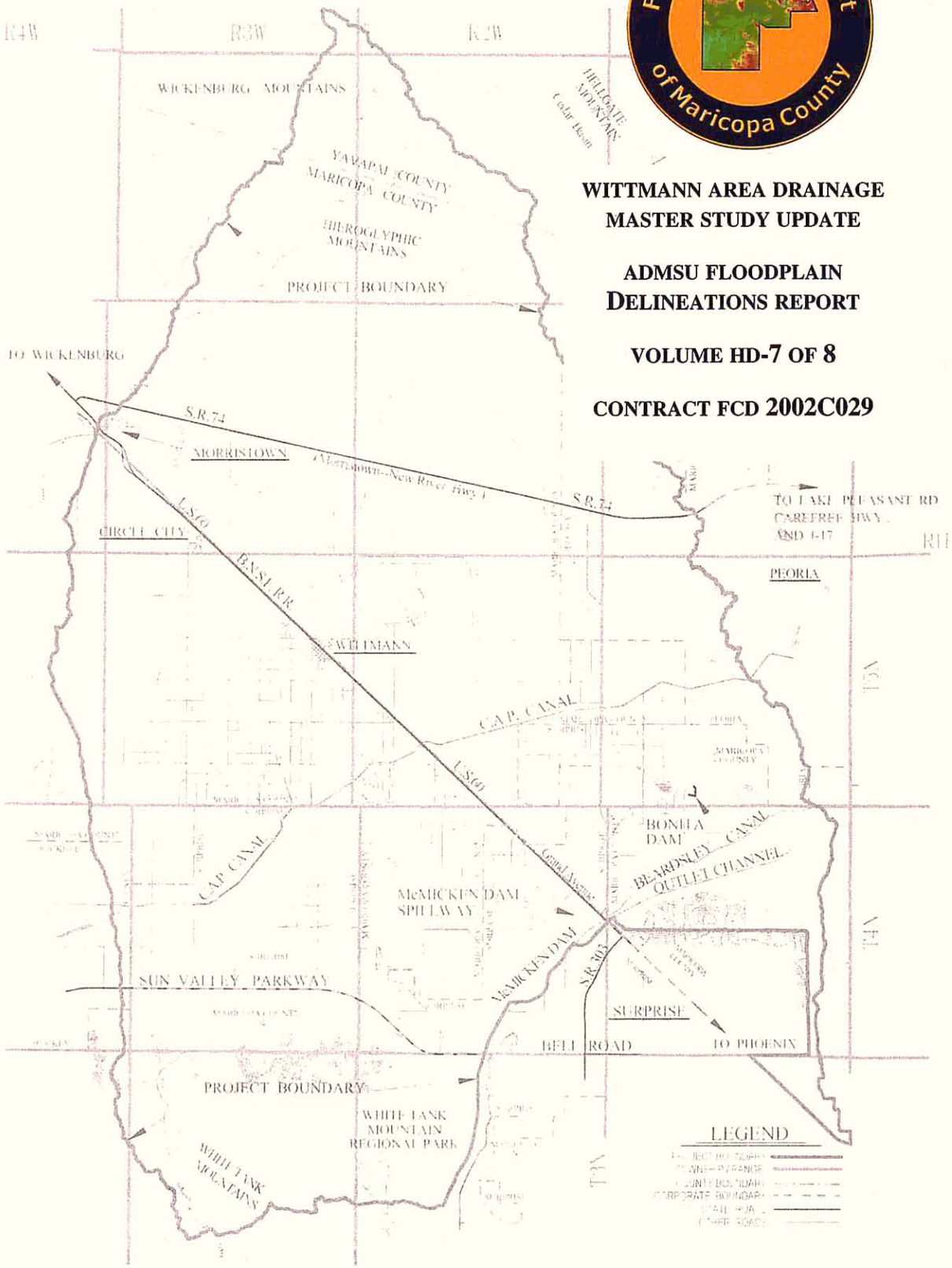
Flood Control District of Maricopa County

WITTMANN AREA DRAINAGE MASTER STUDY UPDATE

ADMSU FLOODPLAIN DELINEATIONS REPORT

VOLUME HD-7 OF 8

CONTRACT FCD 2002C029



WITTMANN AREA DRAINAGE MASTER STUDY UPDATE

CONTRACT 2002C029

VOLUME NAME	VOLUME ID
EXISTING CONDITIONS ANALYSIS (PART I)	EC
ADMSU HYDROLOGY	HY
GEOMORPHOLOGY REPORT	GR
SUBSIDENCE REPORT	SU
ALTERNATIVES IDENTIFICATION (PART II)	AI
RULES OF DEVELOPMENT (PART III)	RD
ALTERNATIVE ANALYSIS MCMICKEN DAM	MA
MCMICKEN DAM HYDROLOGY	MD
MCMICKEN DAM FINAL LANDSCAPE CHARACTER COMPATABILITY ANALYSIS REPORT	LA
FLOODPLAIN DELINEATION	HD
REPORT OF SURVEY	SR
SUN VALLEY PARKWAY CULVERT EVALUATION	SV
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WITTMANN AREA DRAINAGE MASTER STUDY UPDATE

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3. T5N-R3W-S19
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5. IONA WASH (ZONE AO)
6. IONA WASH (NORTH)
7. IONA NORTH WEST SPLIT-1
8. IONA TRIBUTARY (ZONE A)
9. IONA EAST SPLIT-1
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14. 2 WEST TRIBUTARY-1
15. 2 WEST TRIBUTARY-2
16. WITTMANN WASH
17. WITTMANN WASH (NORTH SPLIT)
18. WITTMANN WASH (SOUTH SPLIT)
19. WITTMANN TRIBUTARY
20. T5N-R3W-S24E
21. T5N-R2W-S19E
22. T5N-R2W-S19W
23. T5N-R3W-S01S
24. T5N-R2W-S07
25. WASH 2 EAST (NORTH OF CAP)
26. 2 EAST TRIBUTARY
27. T5N-R2W-S14N (ZONE A)
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29. T5N-R2W-S14W (ZONE A)
30. T5N-R2W-S11 (ZONE A)
31. WASH 7 EAST
32. 7 EAST TRIBUTARY
33. IONA EAST (SOUTH OF CAP)
34. IONA WEST (SOUTH OF CAP)
35. WASH 2 WEST (SOUTH OF CAP)
36. WASH 1 WEST
37. WASH 1 EAST
38. WASH 2 EAST (SOUTH OF CAP)
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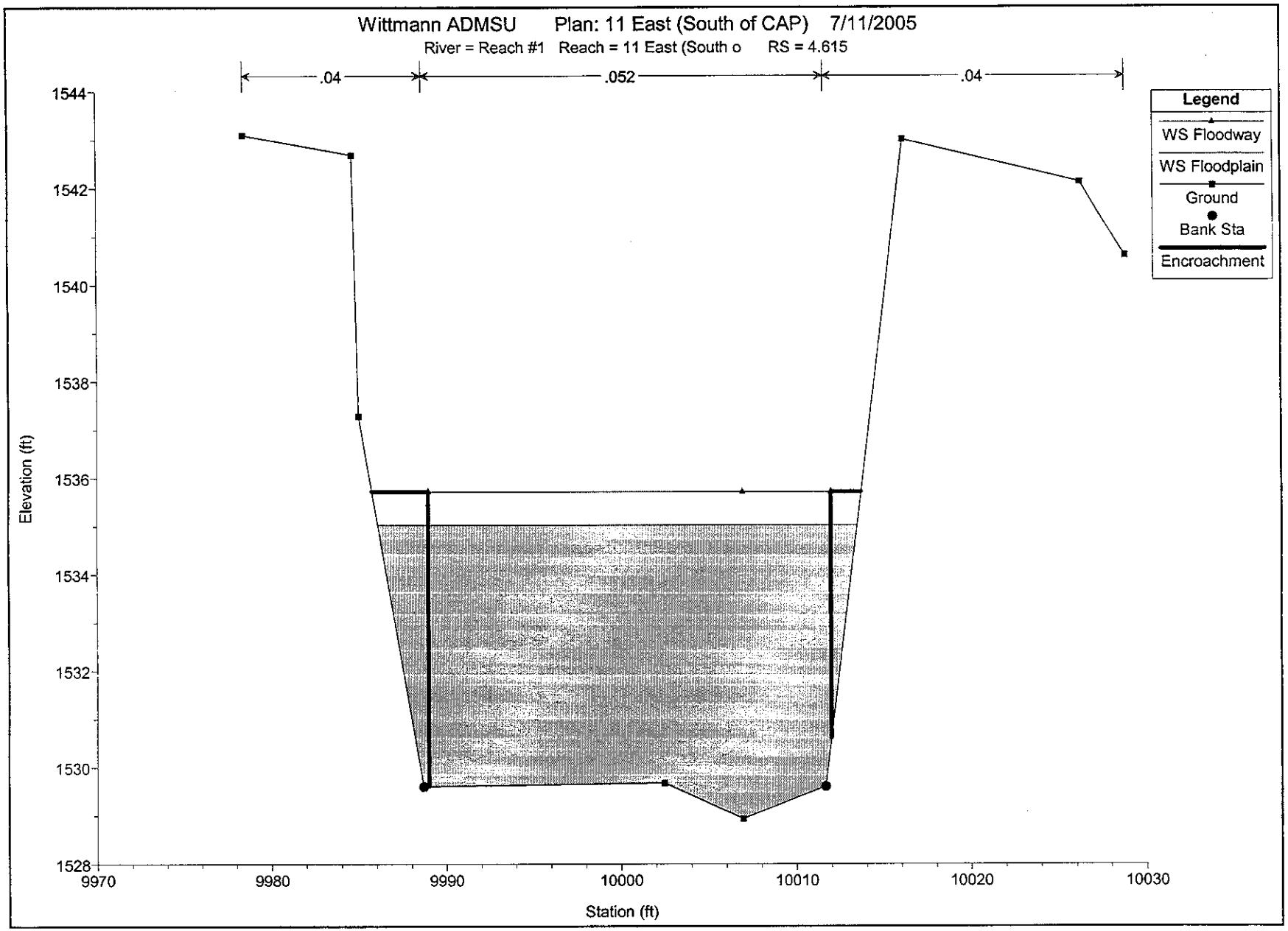
64. WASH 14 EAST

11 EAST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.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1544
1542
1540
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1534
1532
1530
1528
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9980
9990
10000
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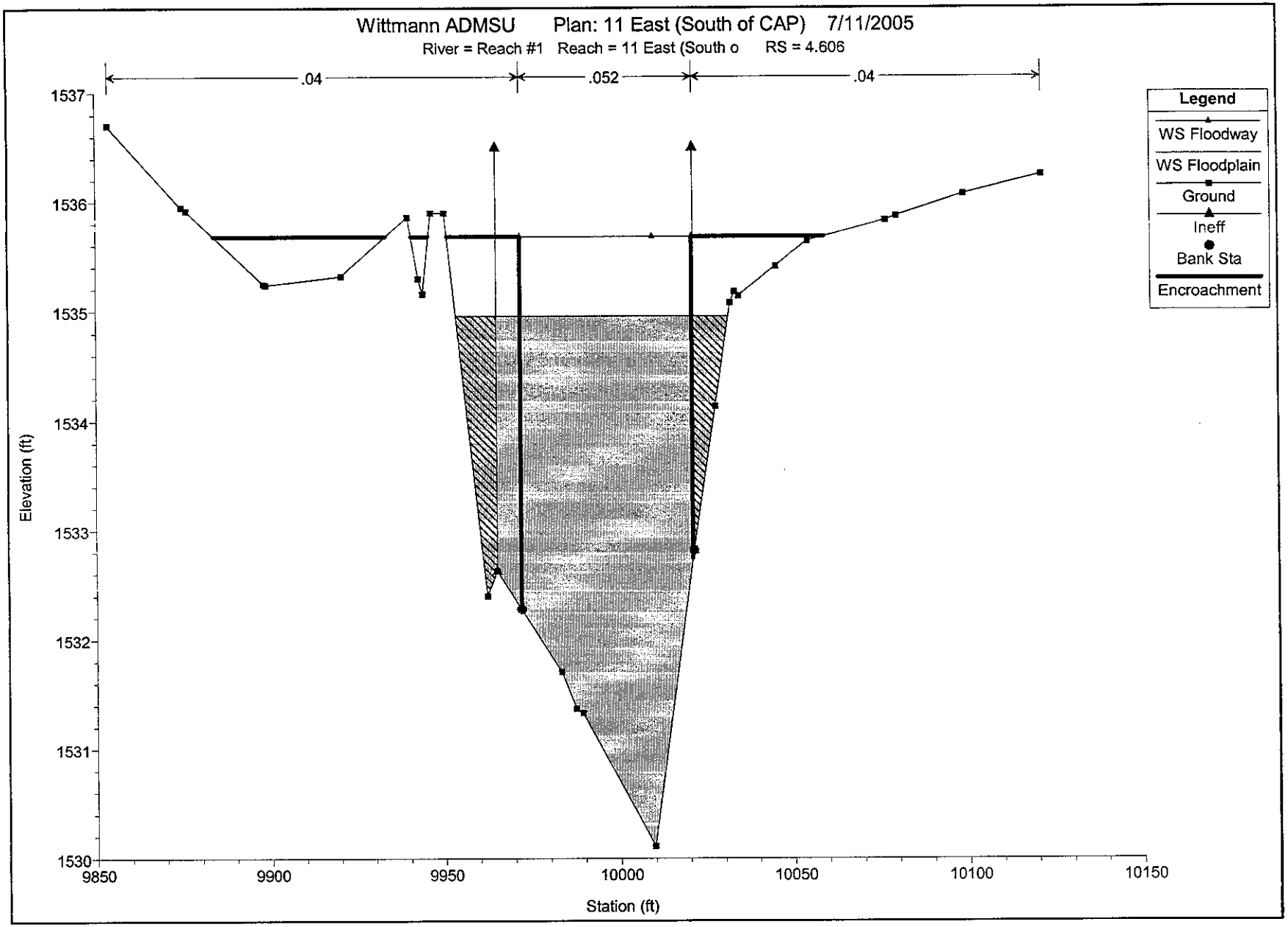
10020
10030
Station (ft)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Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1537
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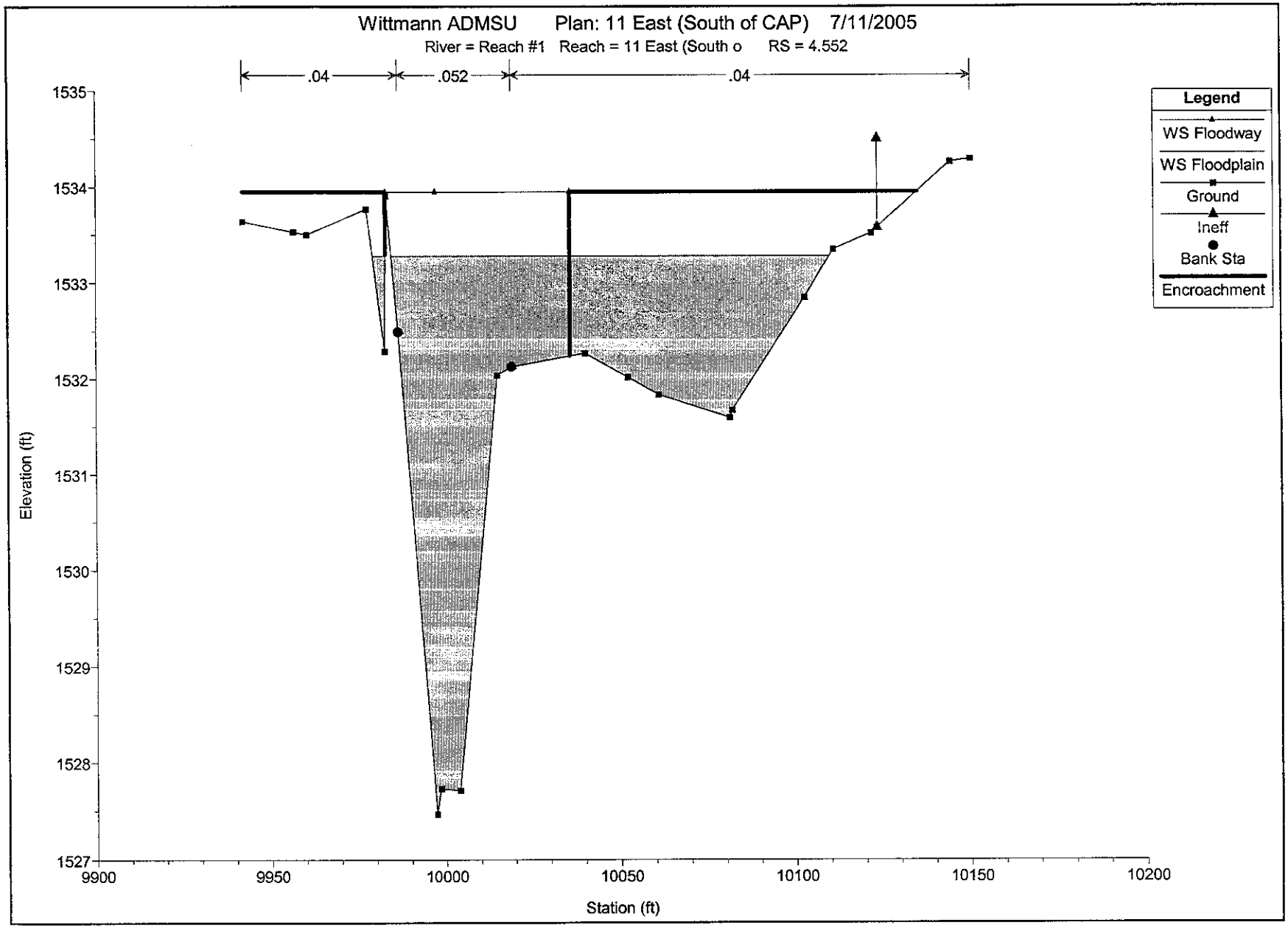
10150
Station (ft)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Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
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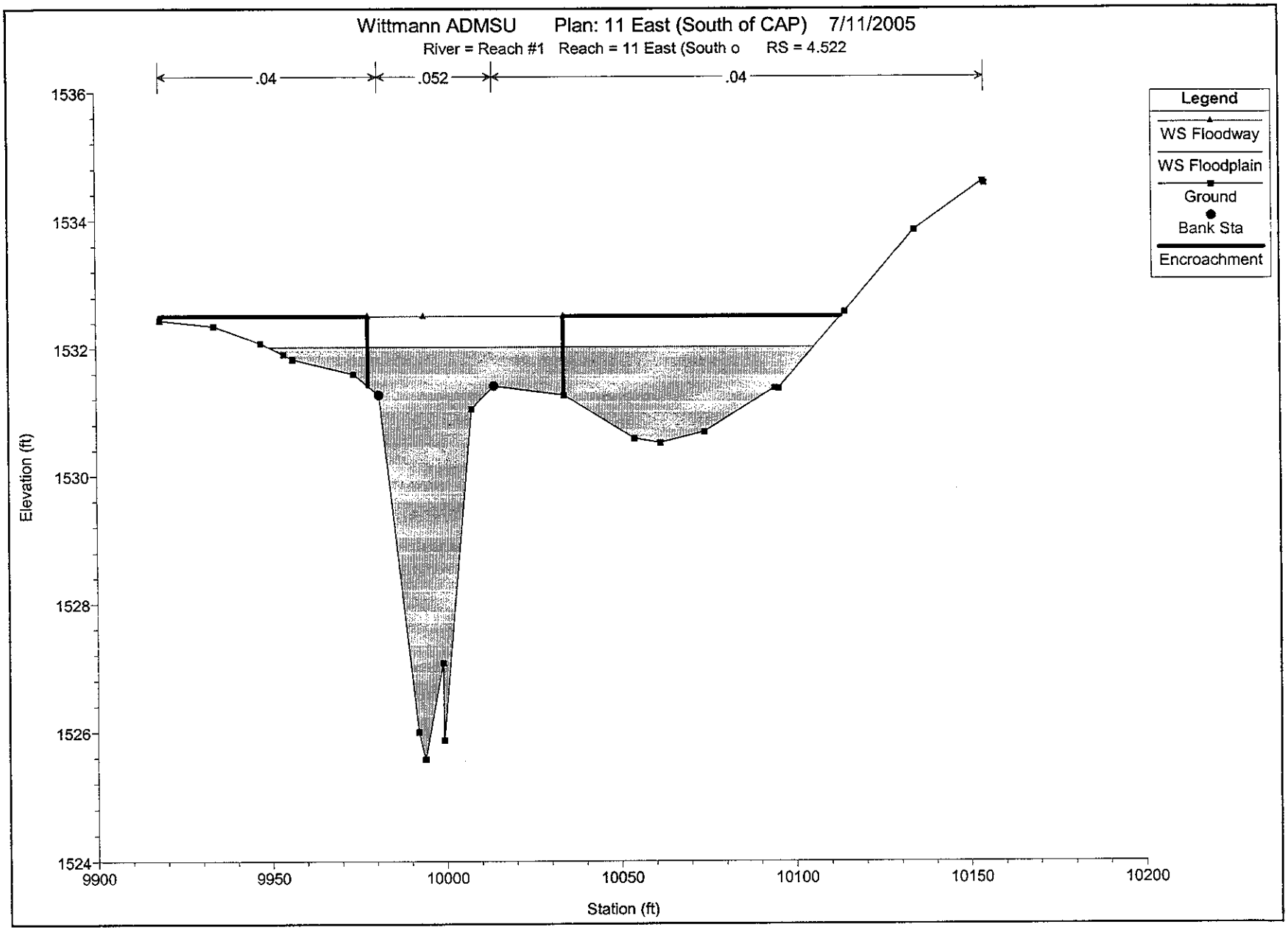
10150
10200
Station (ft)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Ground
Bank Sta
Encroachment
Elevation (ft)
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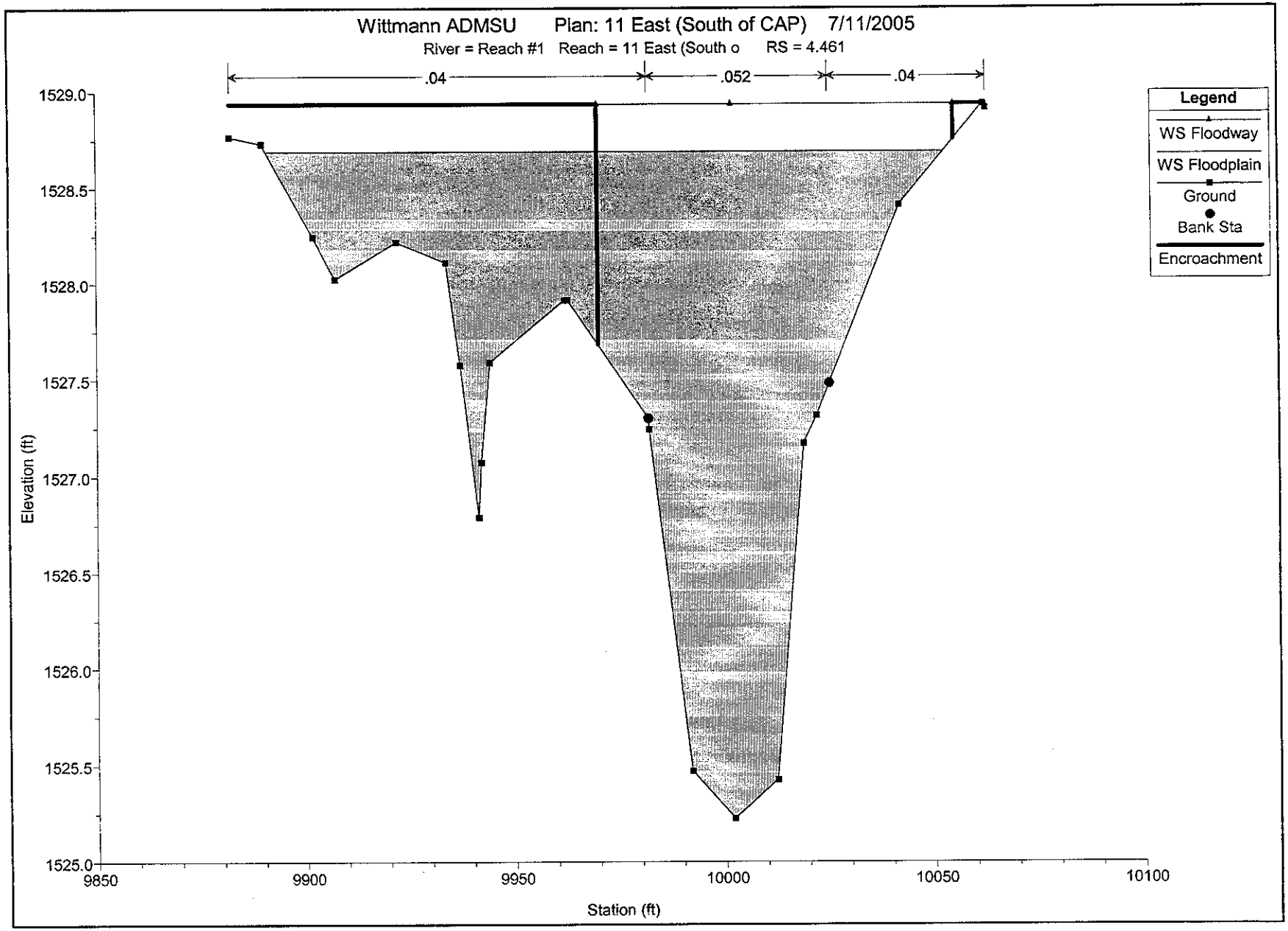
Station (ft)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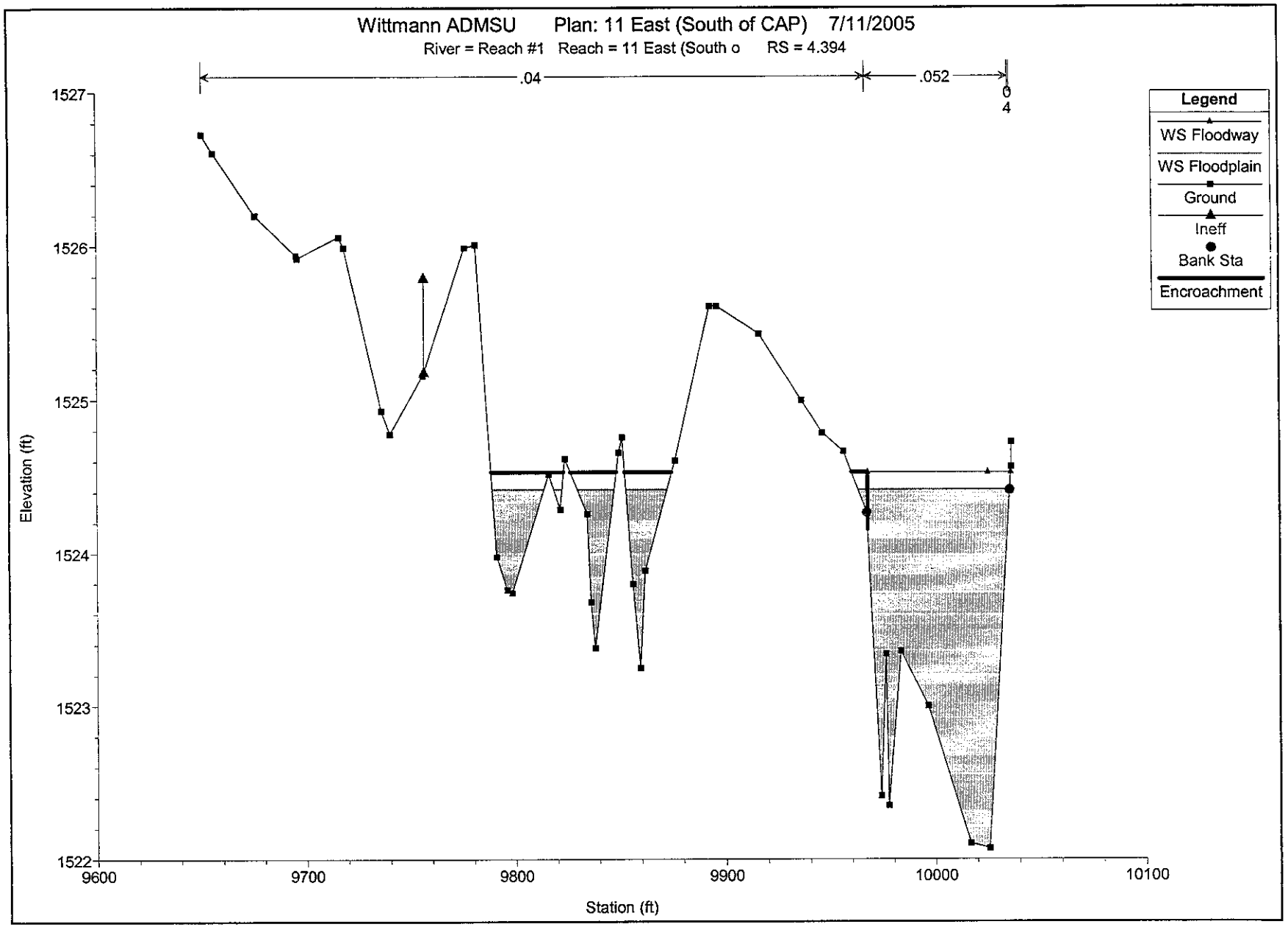
Station (ft)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Ground
Ineff
Bank Sta
Encroachment
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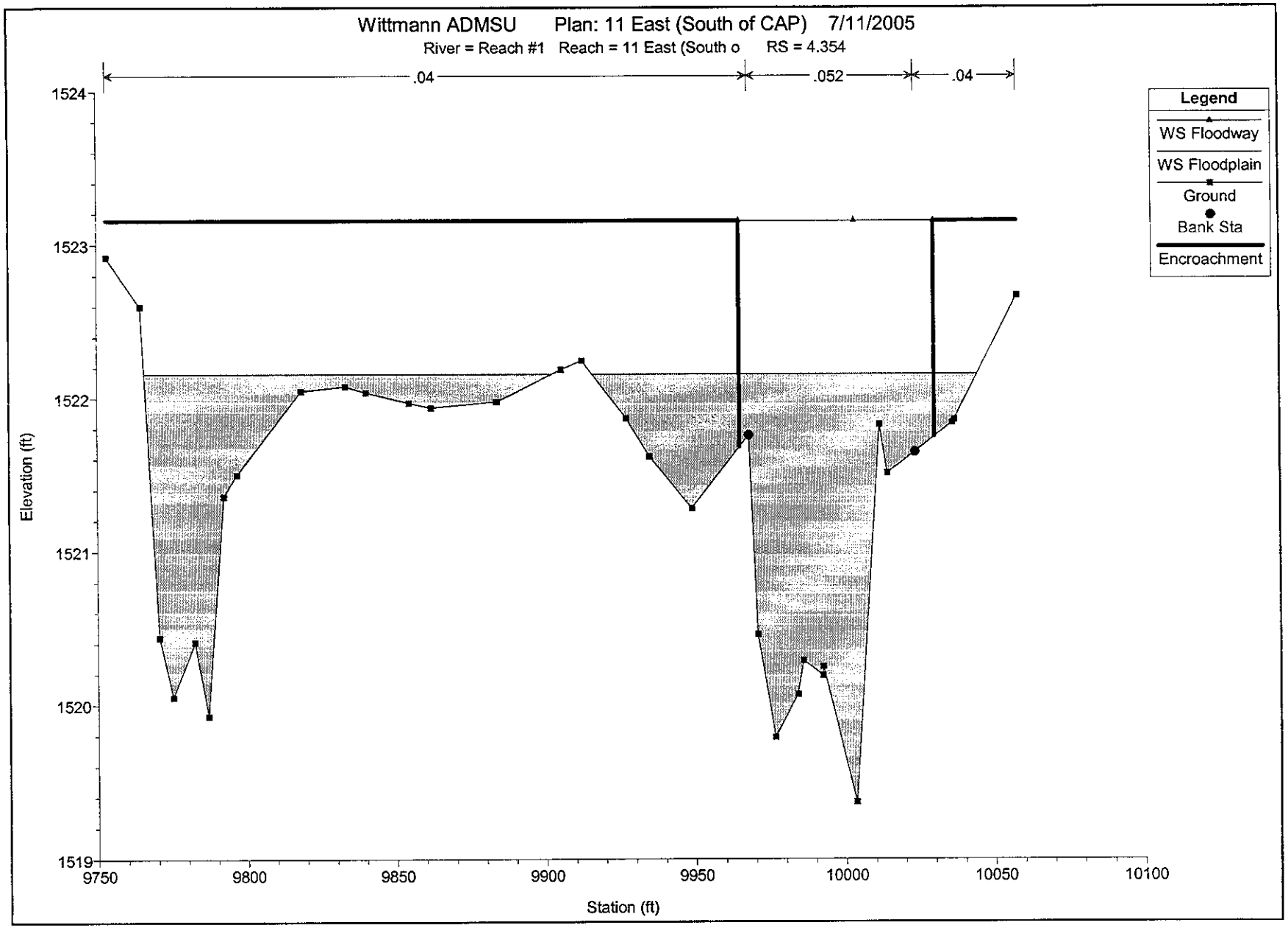
Station (ft)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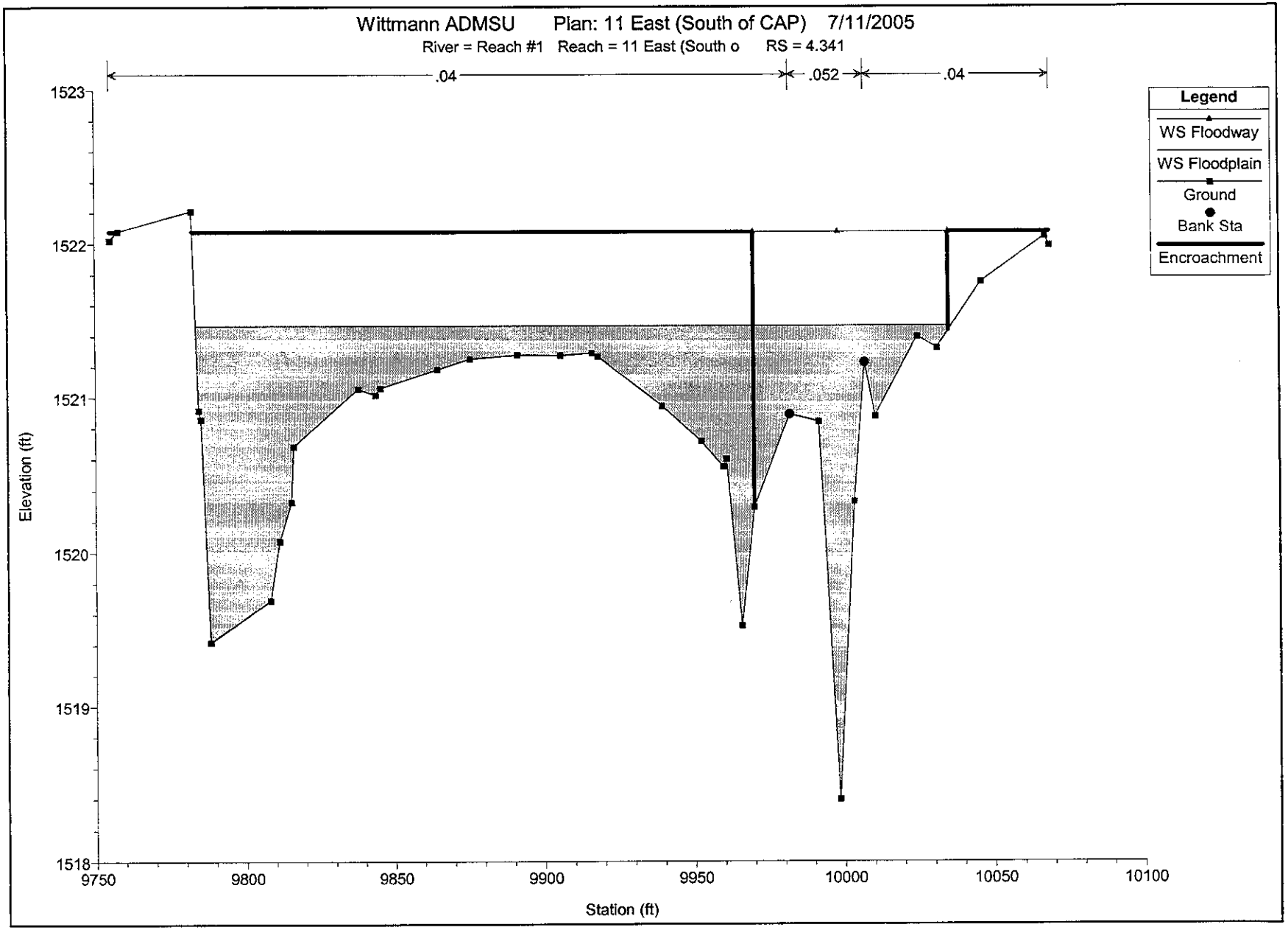
Station (ft)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Ground
Bank Sta
Encroachment
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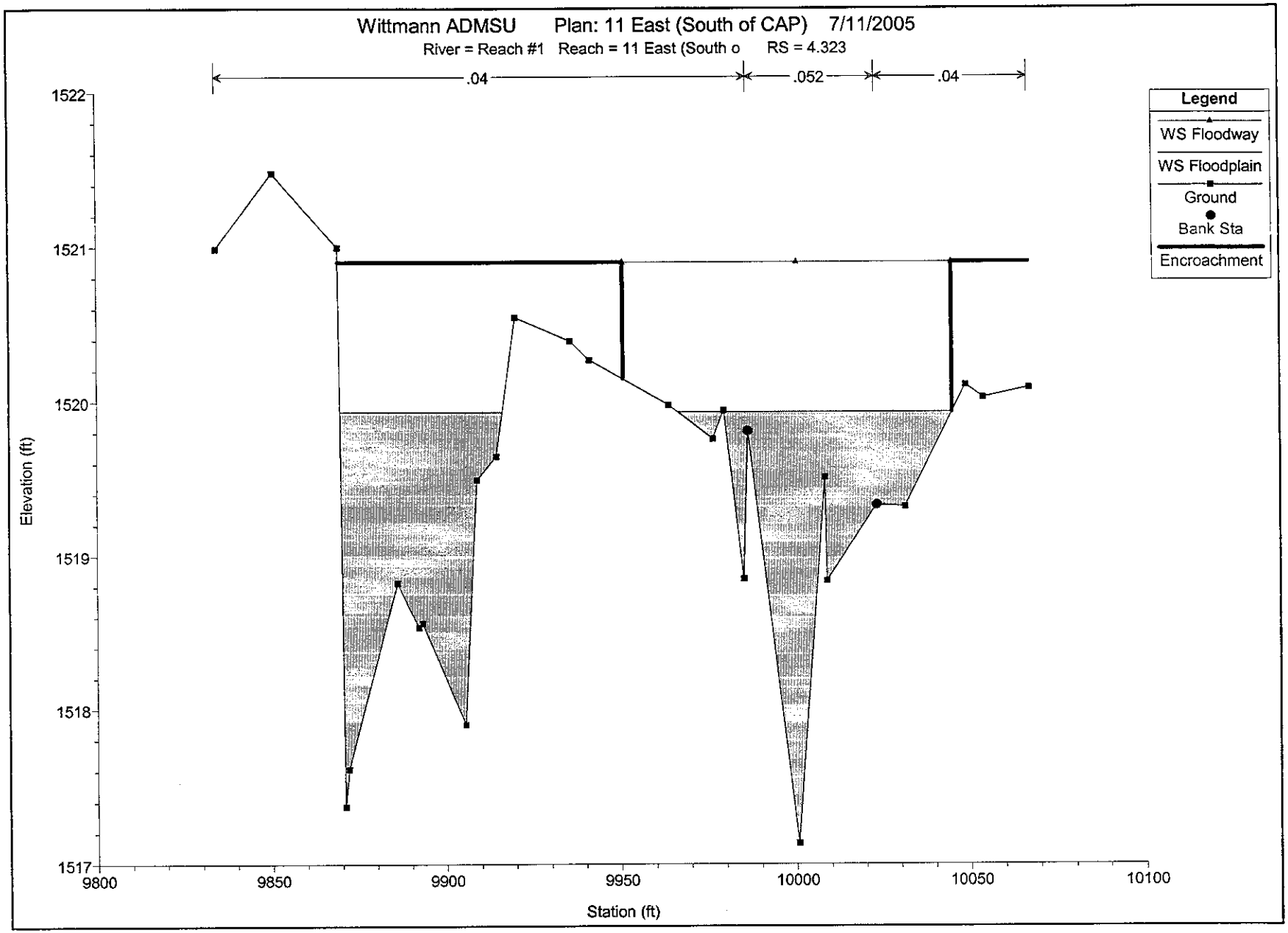
Station (ft)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Ground
Bank Sta
Encroachment
Elevation (ft)
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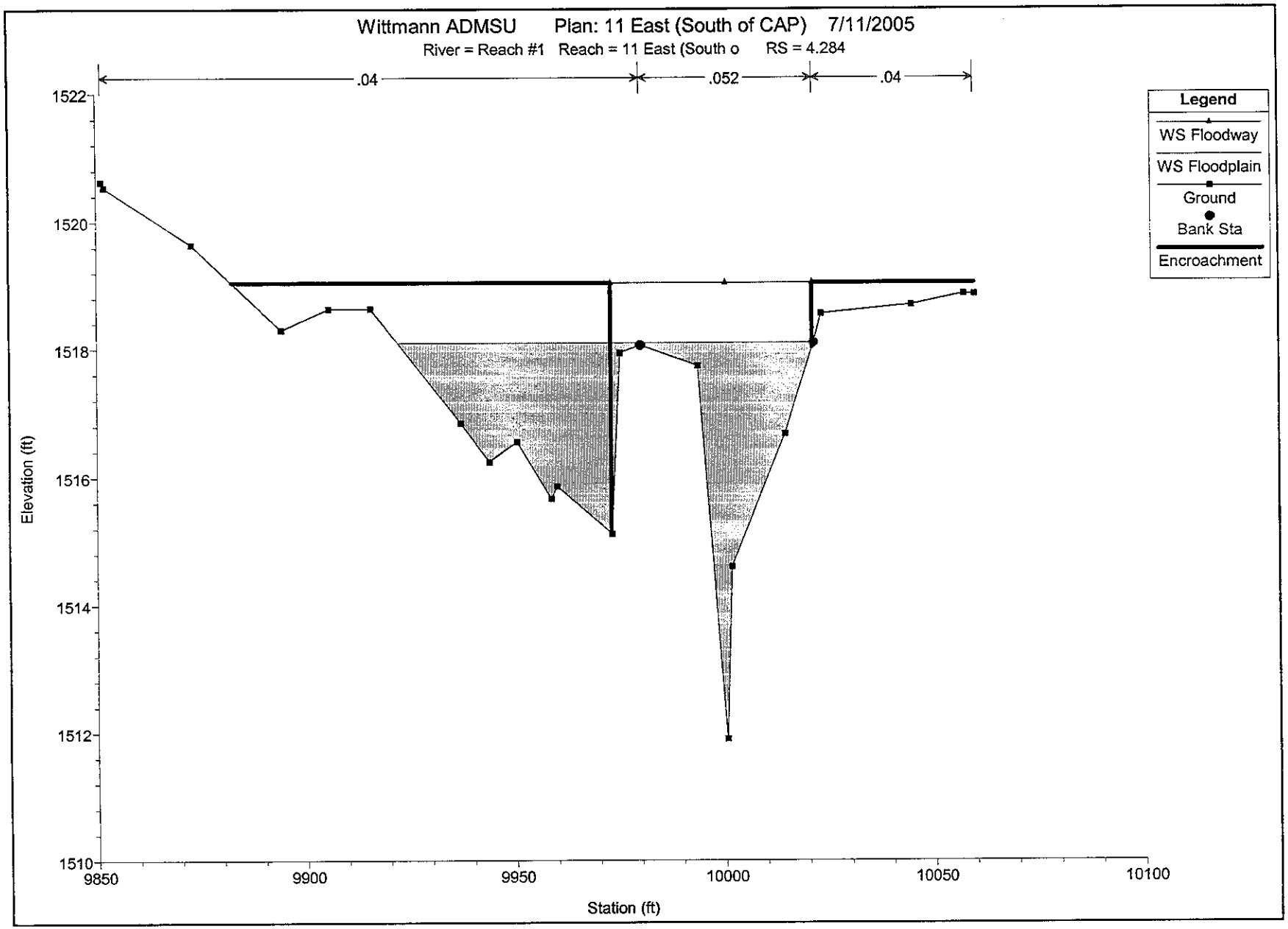
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Ground
Bank Sta
Encroachment
Elevation (ft)
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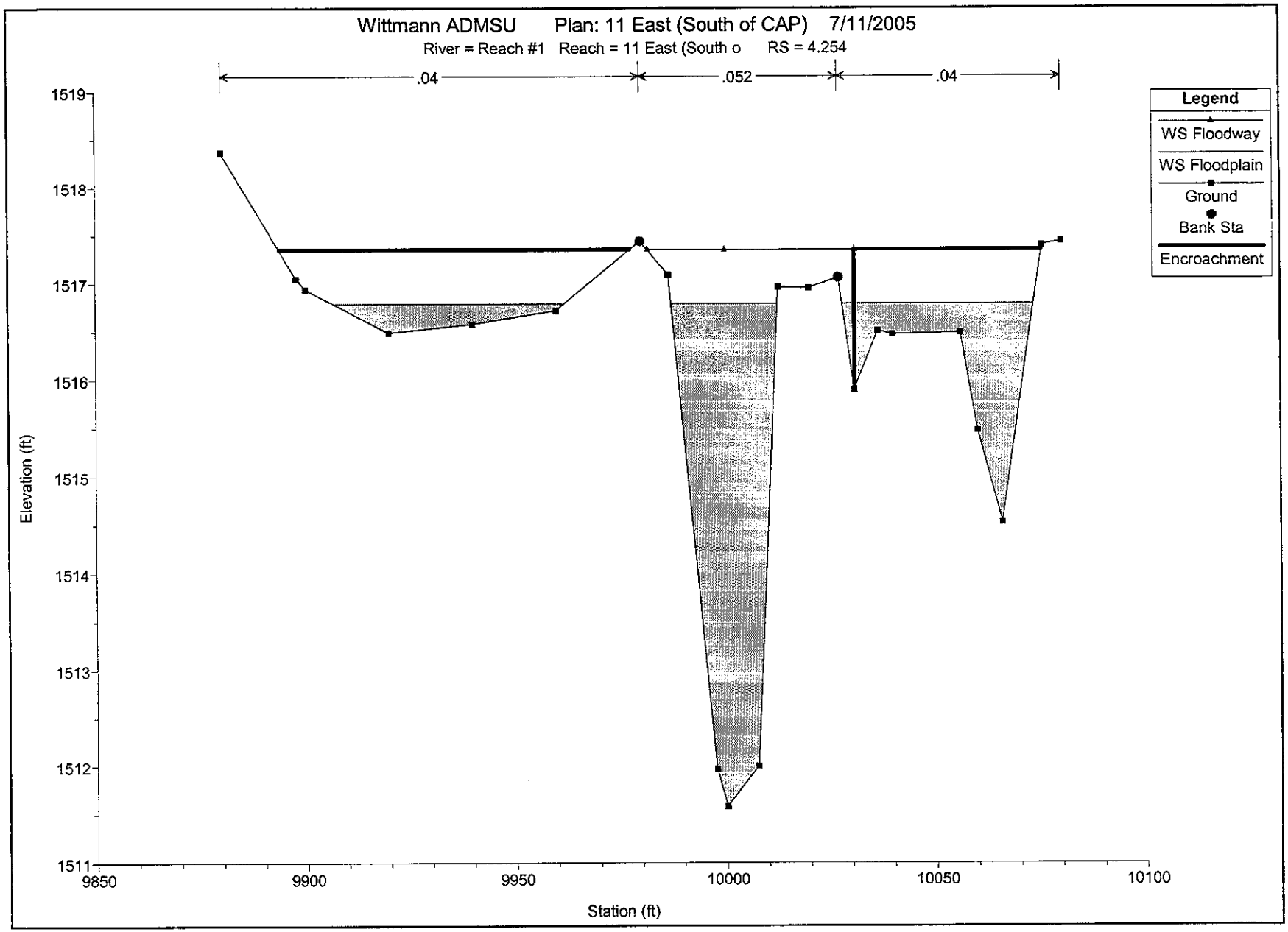
Station (ft)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Ground
Bank Sta
Encroachment
Elevation (ft)
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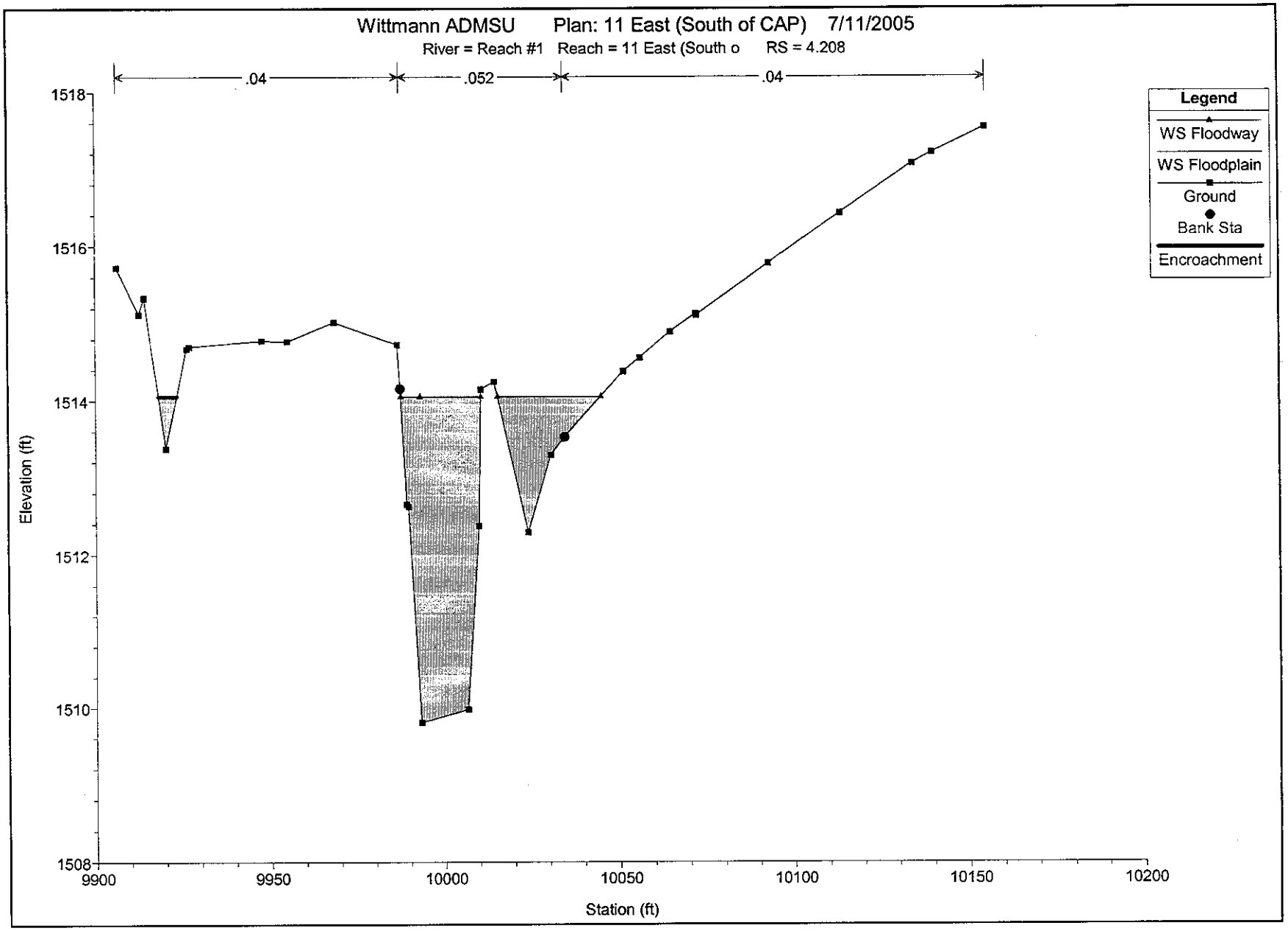
Station (ft)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WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
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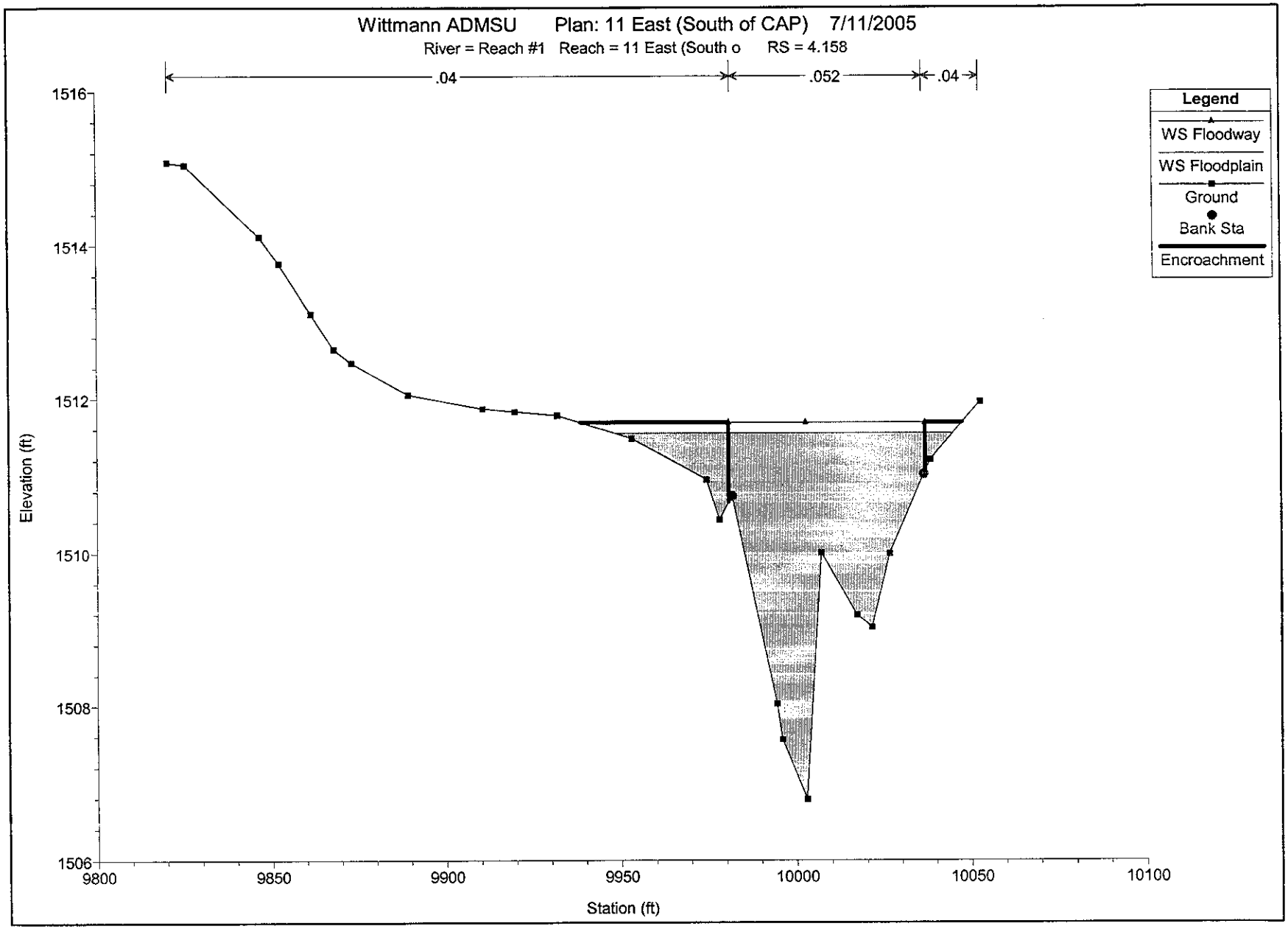
Station (ft)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WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
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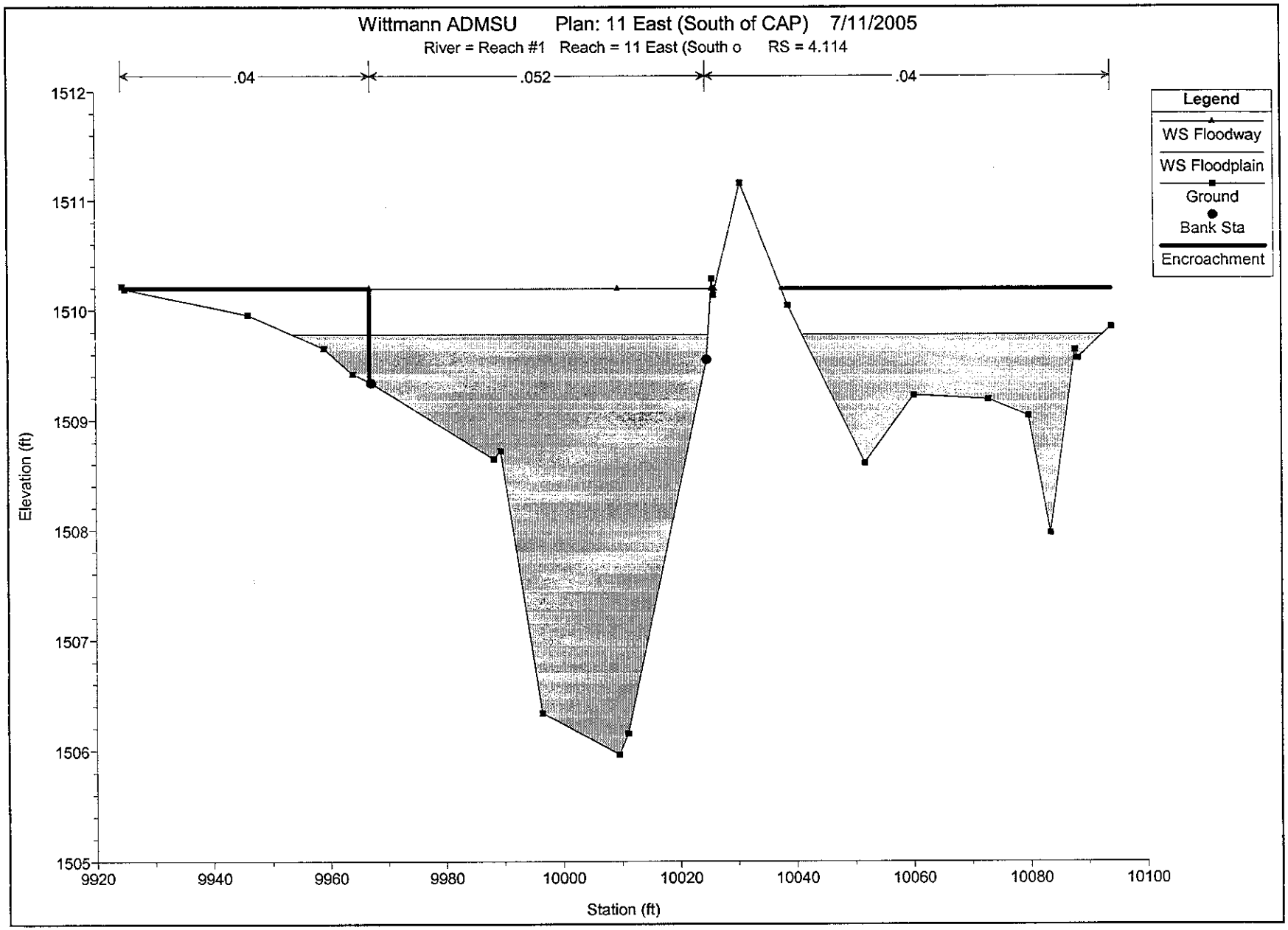
Station (ft)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Ground
Bank Sta
Encroachment
Elevation (ft)
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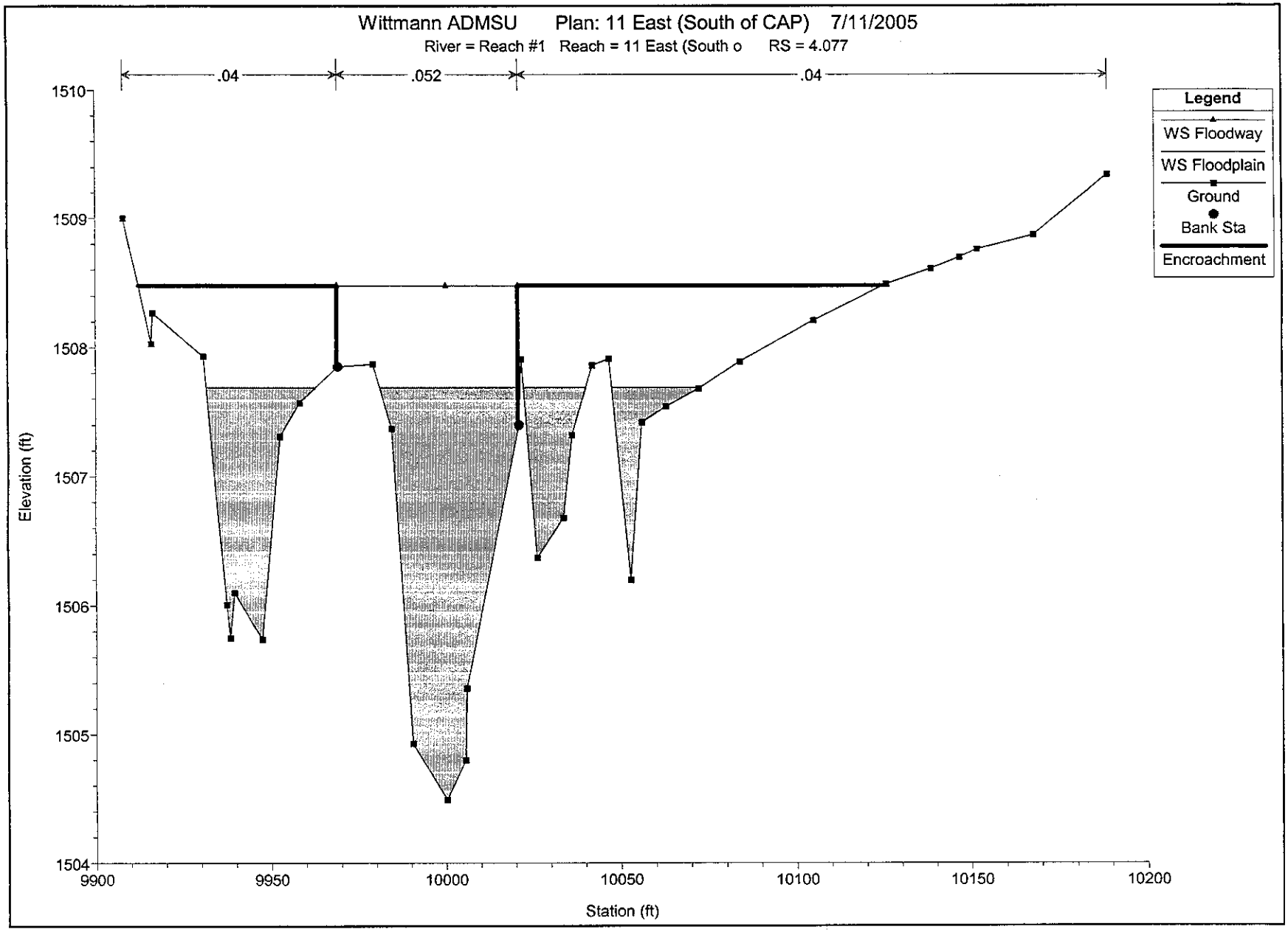
Station (ft)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Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
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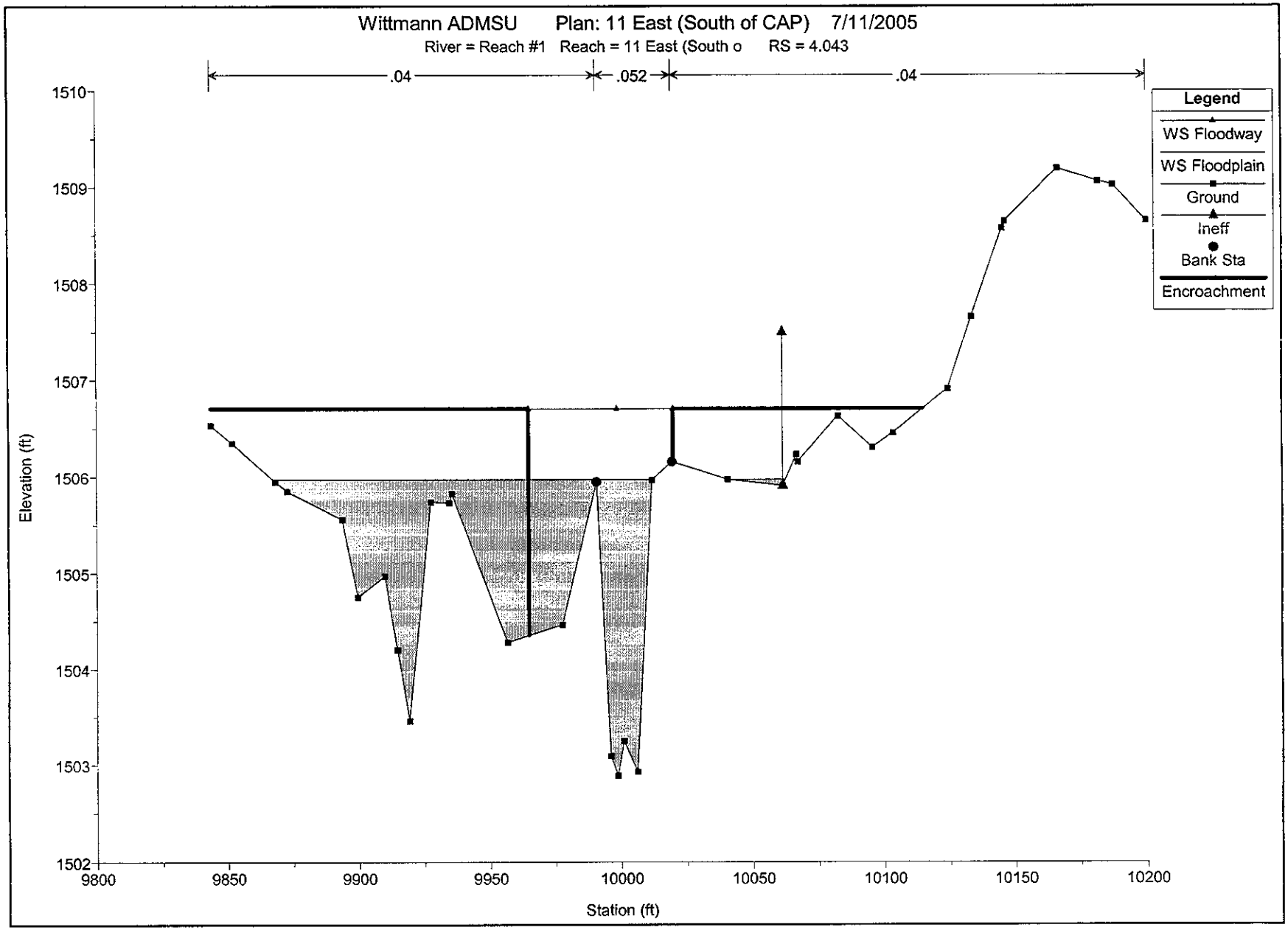
Station (ft)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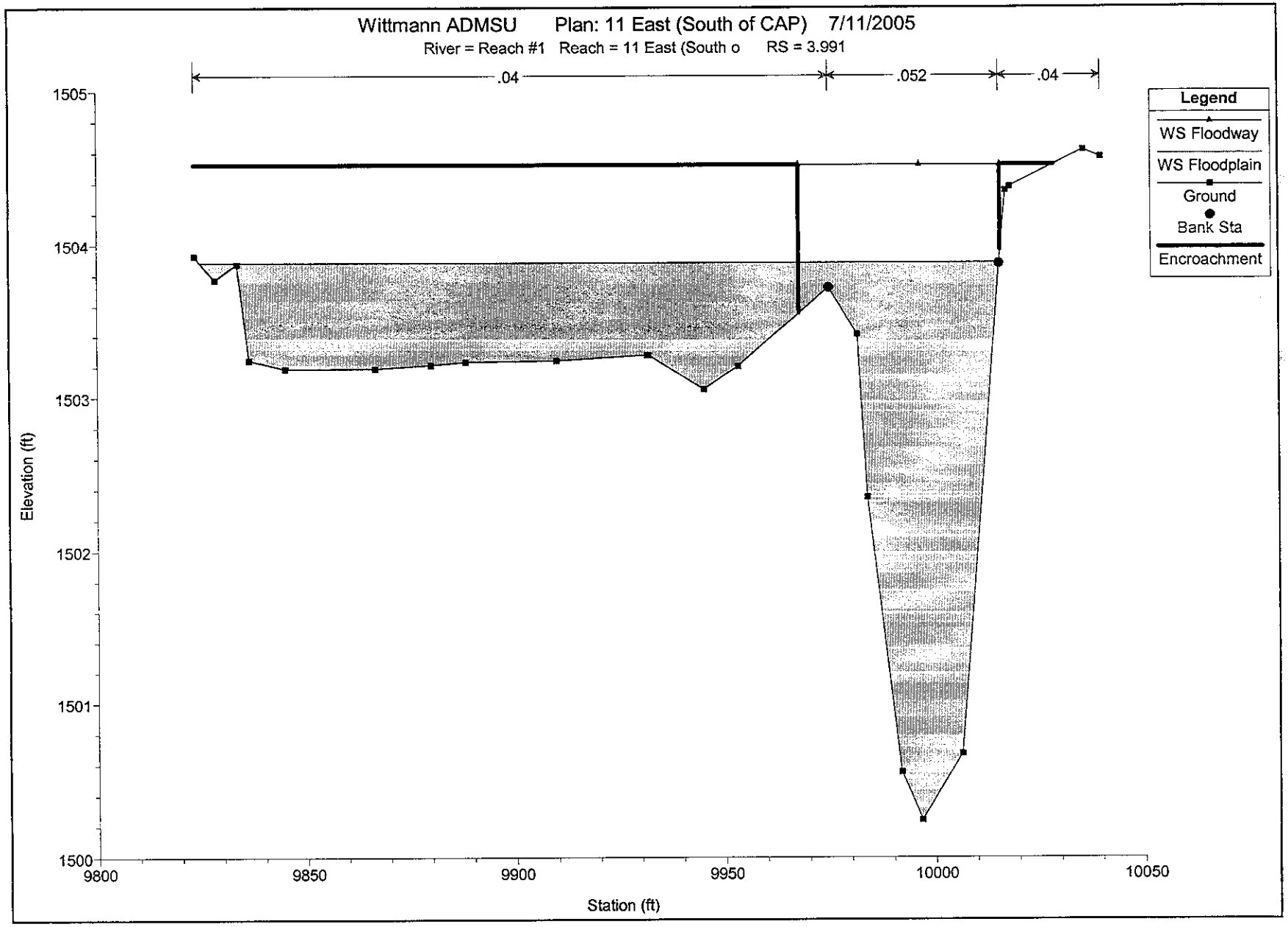
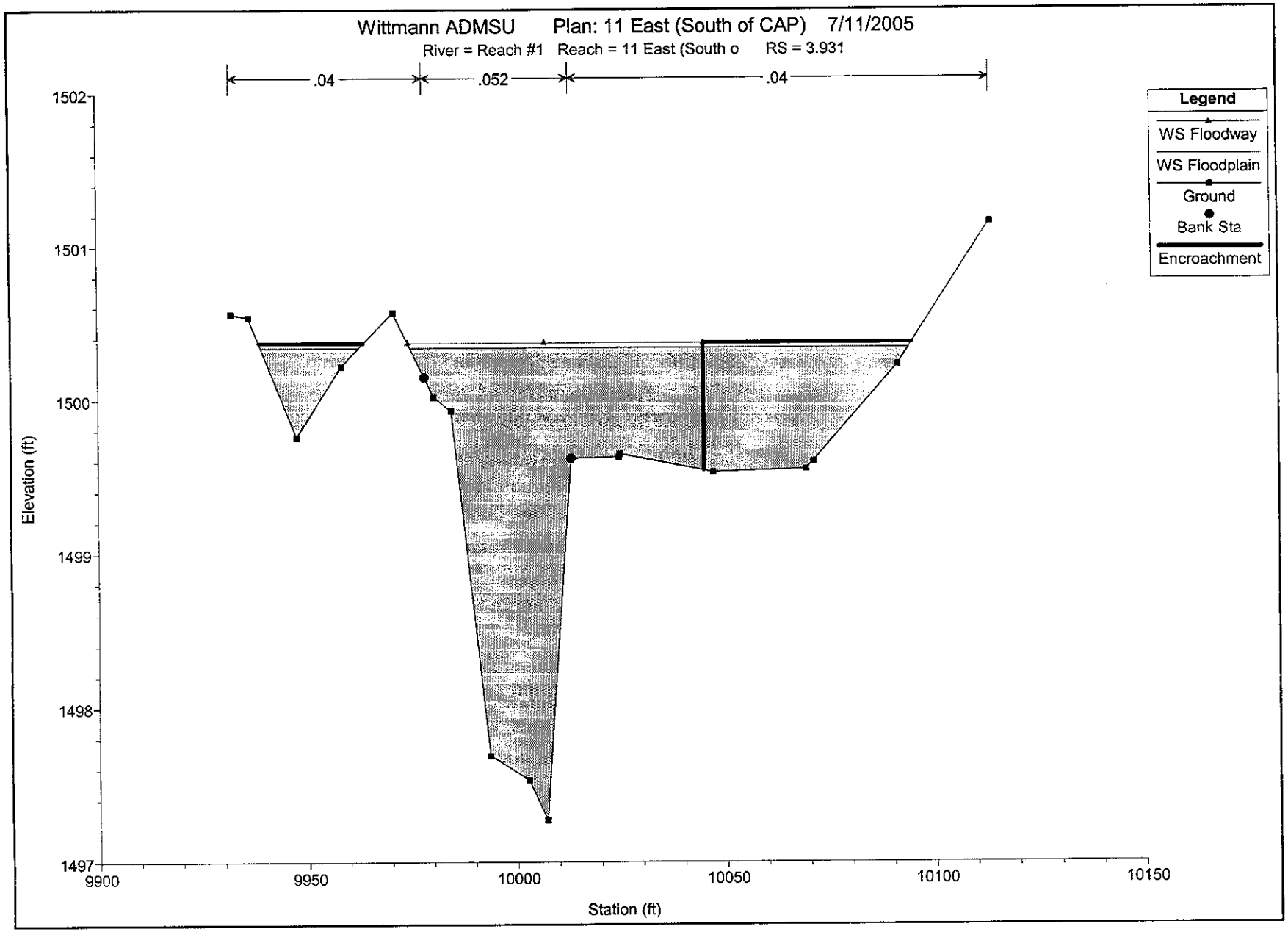
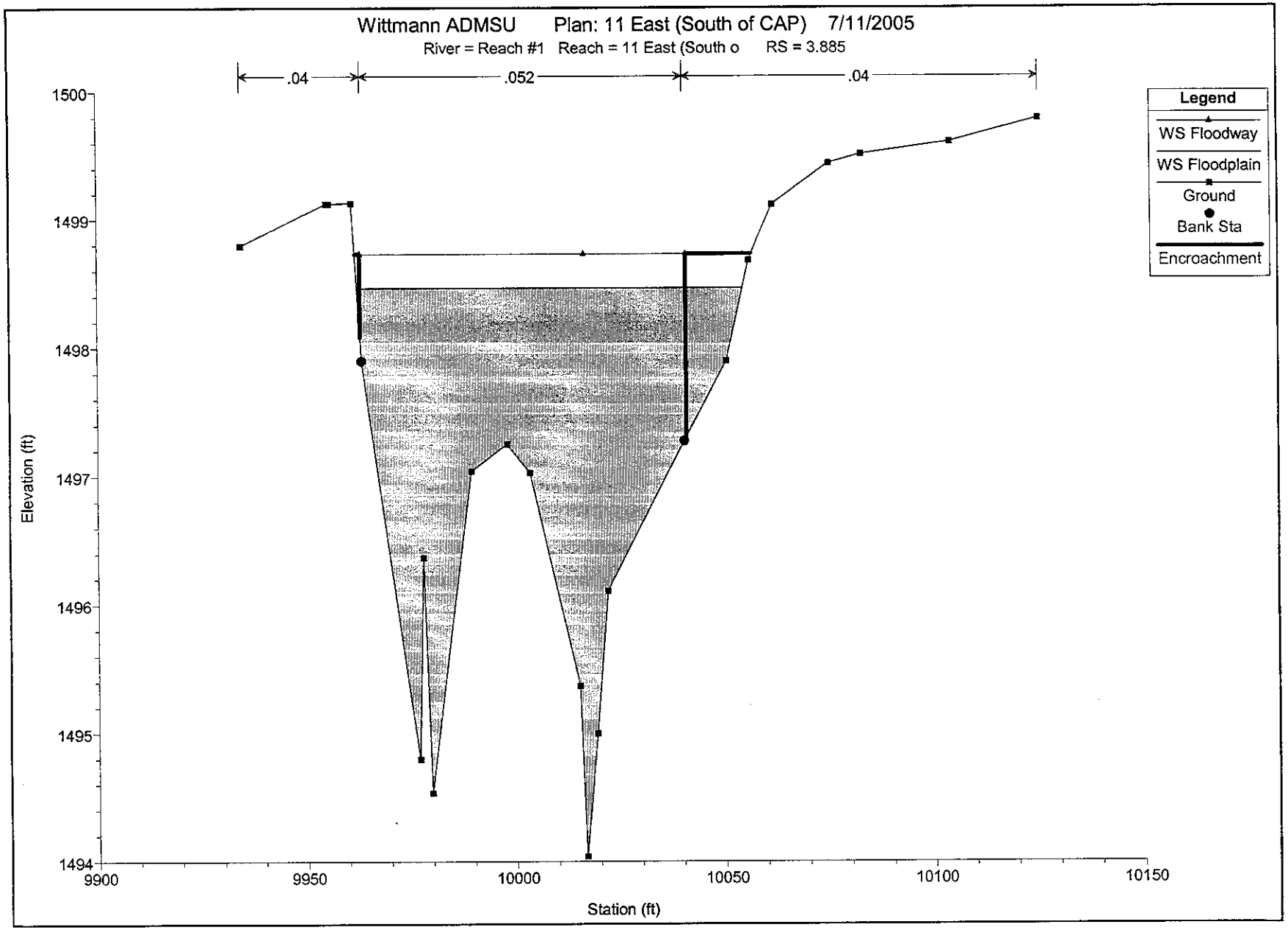
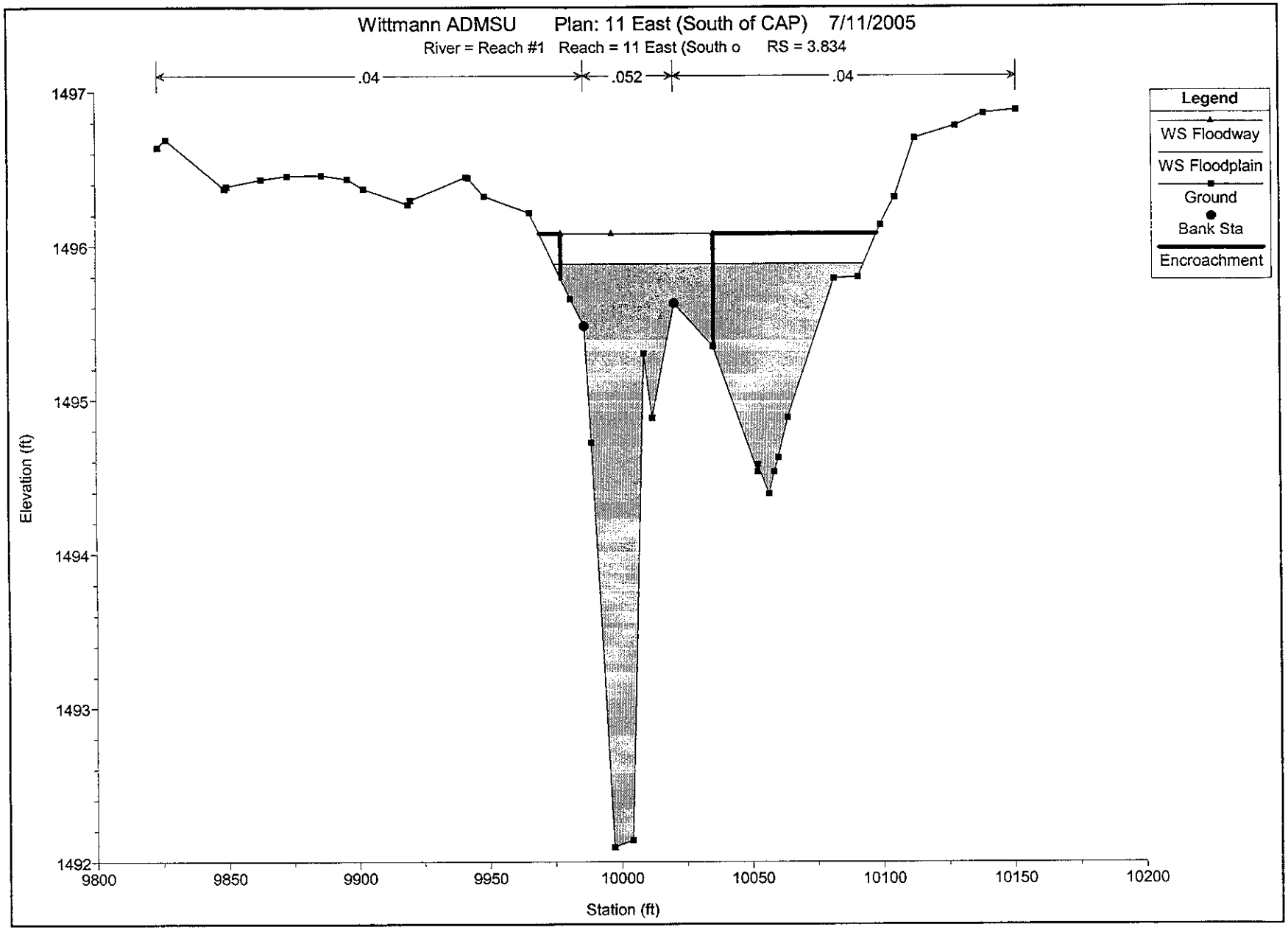
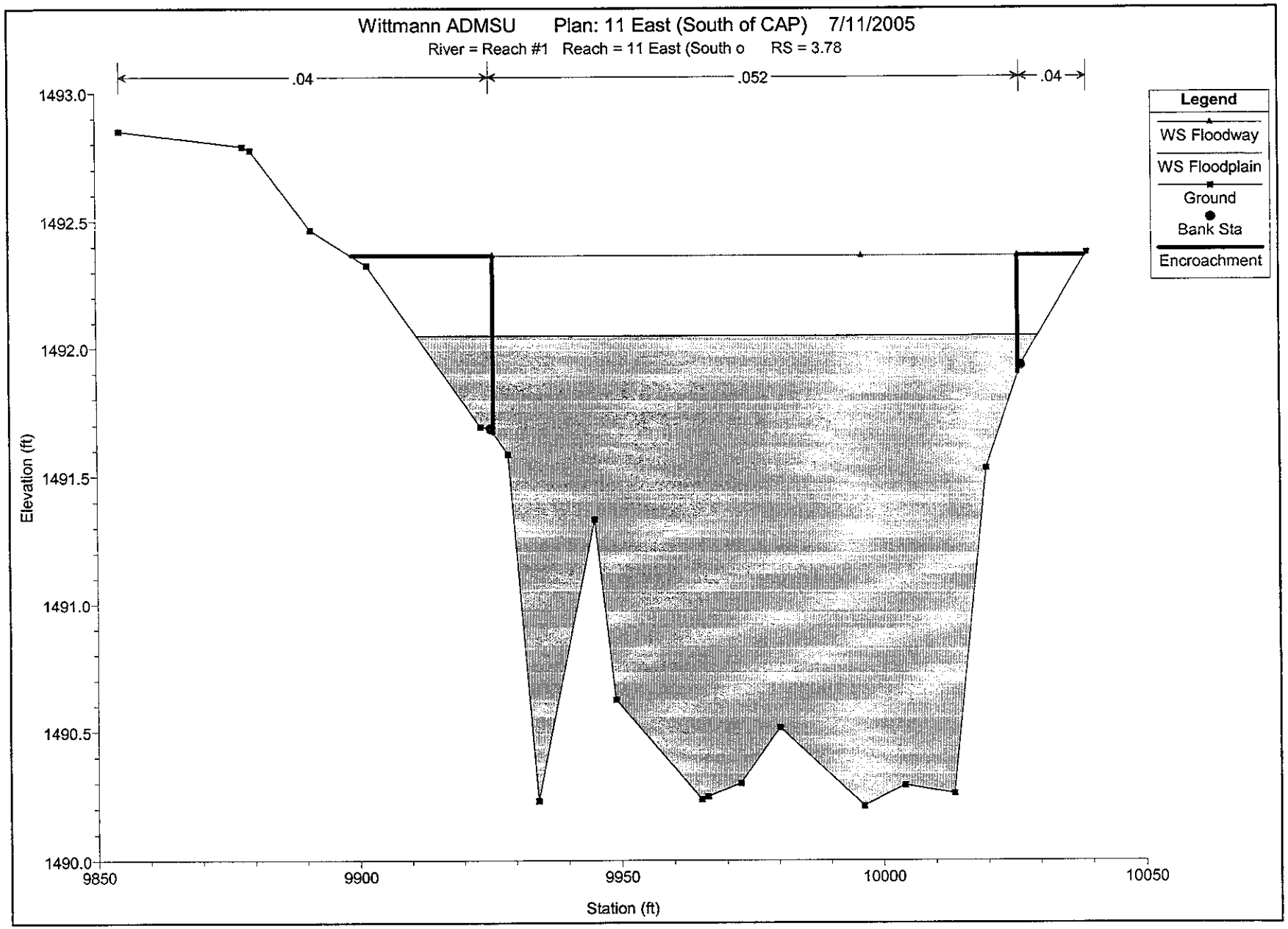
River = Reach #1 Reach = 11 East (South o RS = 4.043
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1510
1509
1508
1507
1506
1505
1504
1503
1502
9800
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

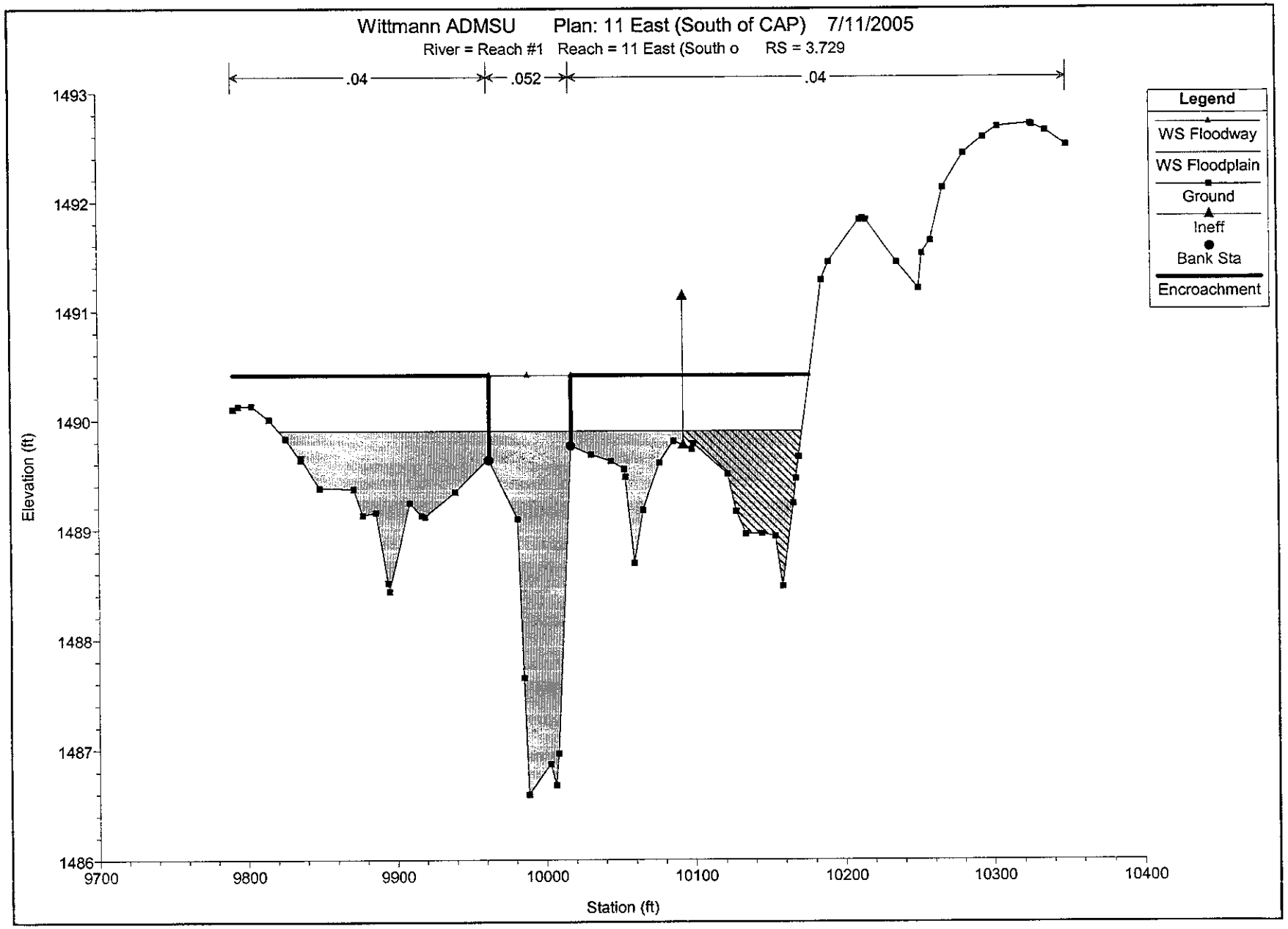

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.991
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1505
1504
1503
1502
1501
1500
9800
9850
9900
9950
10000
10050
Station (ft)

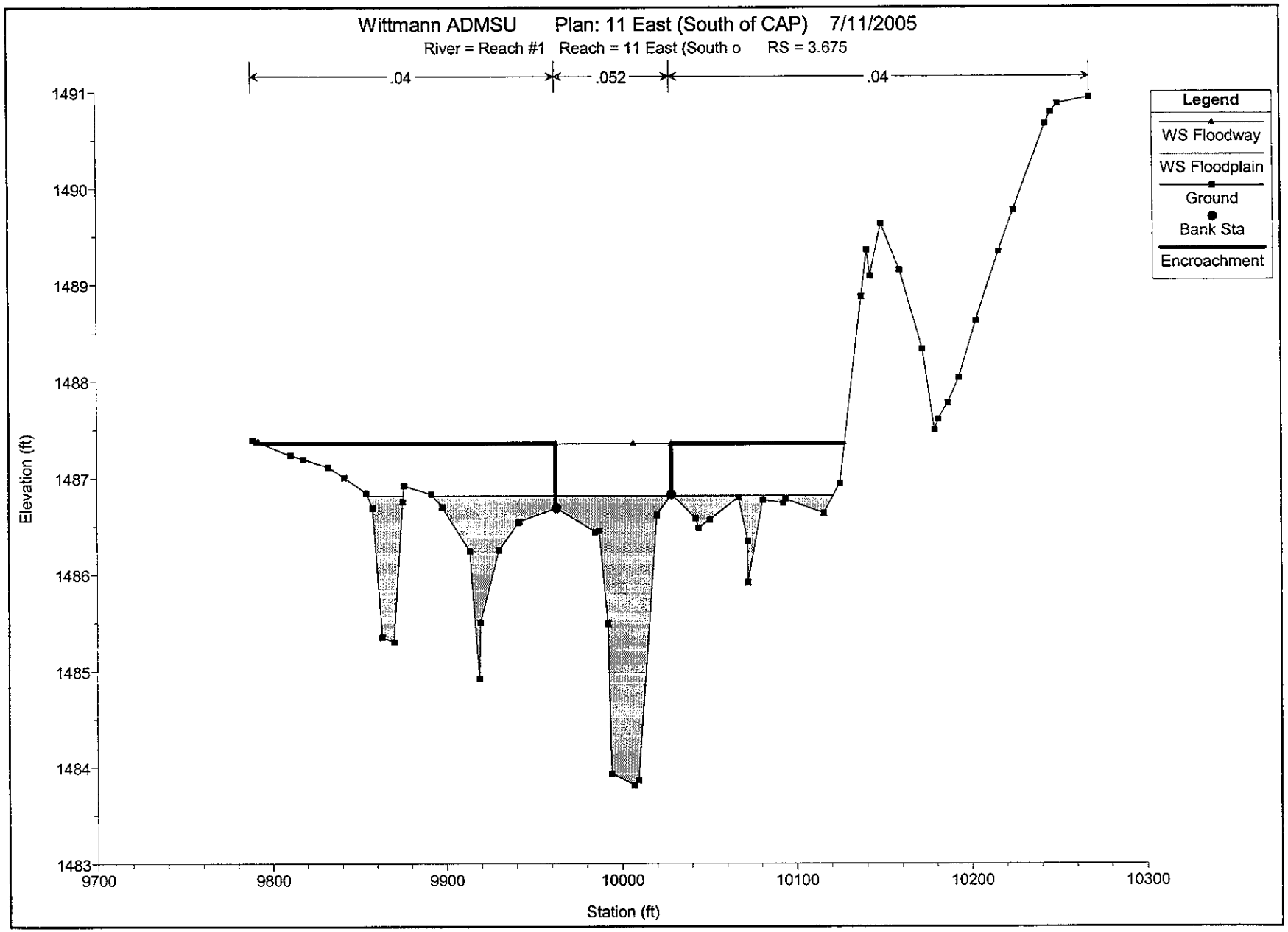

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.931
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1502
1501
1500
1499
1498
1497
9900
9950
10000
10050
10100
10150
Station (ft)

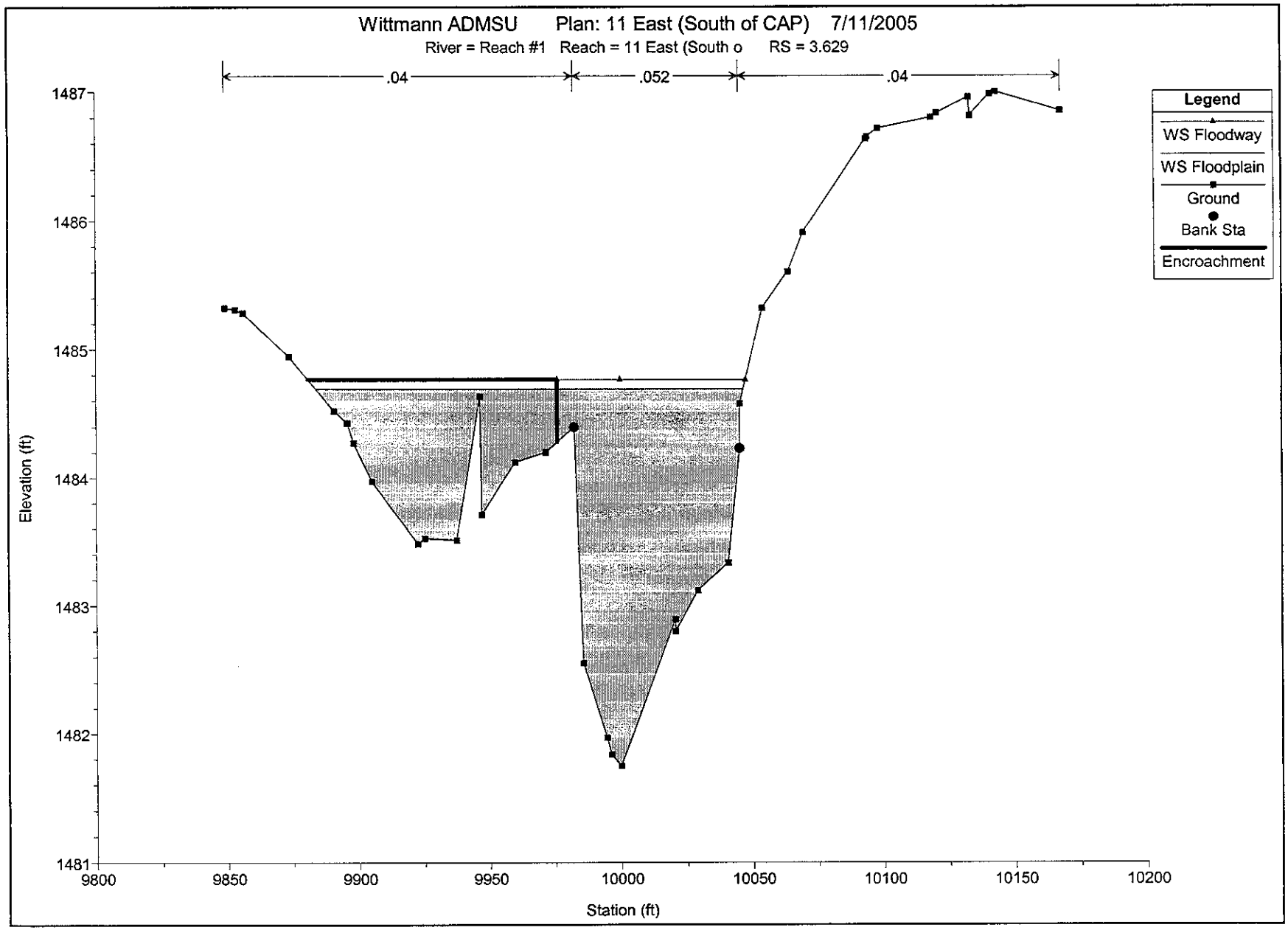

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.885
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1500
1499
1498
1497
1496
1495
1494
9900
9950
10000
10050
10100
10150
Station (ft)

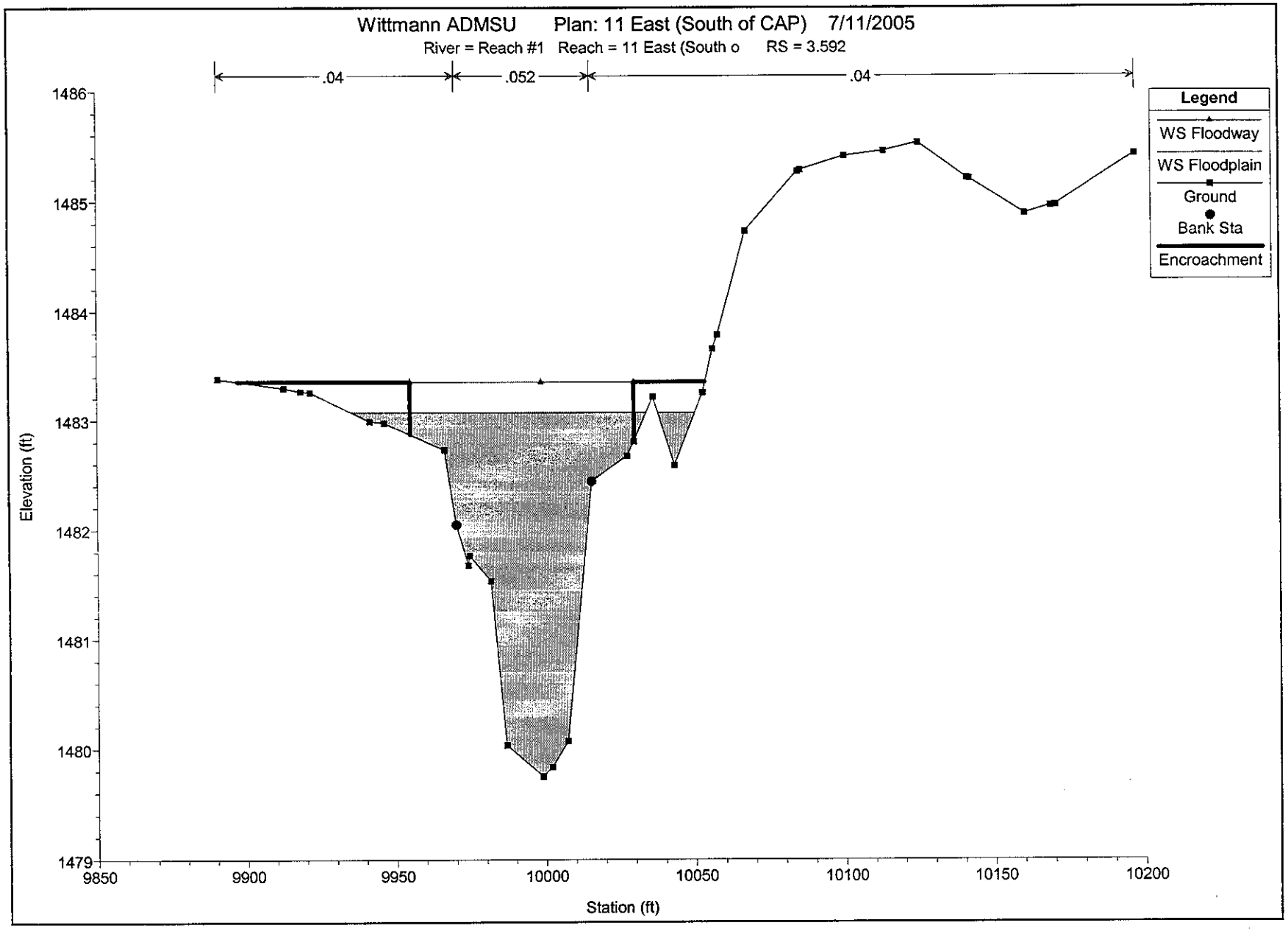

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.834
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1497
1496
1495
1494
1493
1492
9800
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

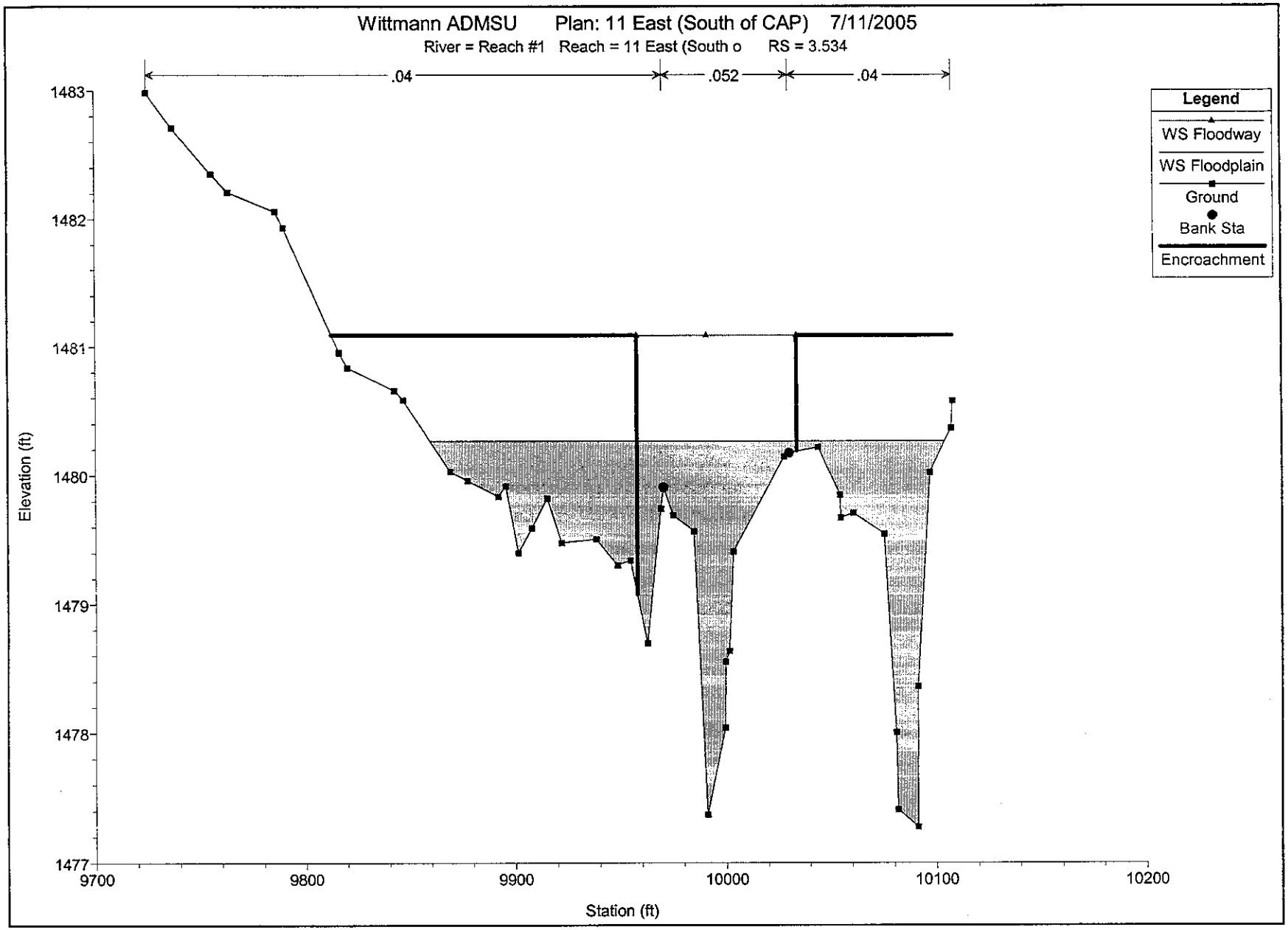

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.78
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1493.0
1492.5
1492.0
1491.5
1491.0
1490.5
1490.0
9850
9900
9950
10000
10050
Station (ft)

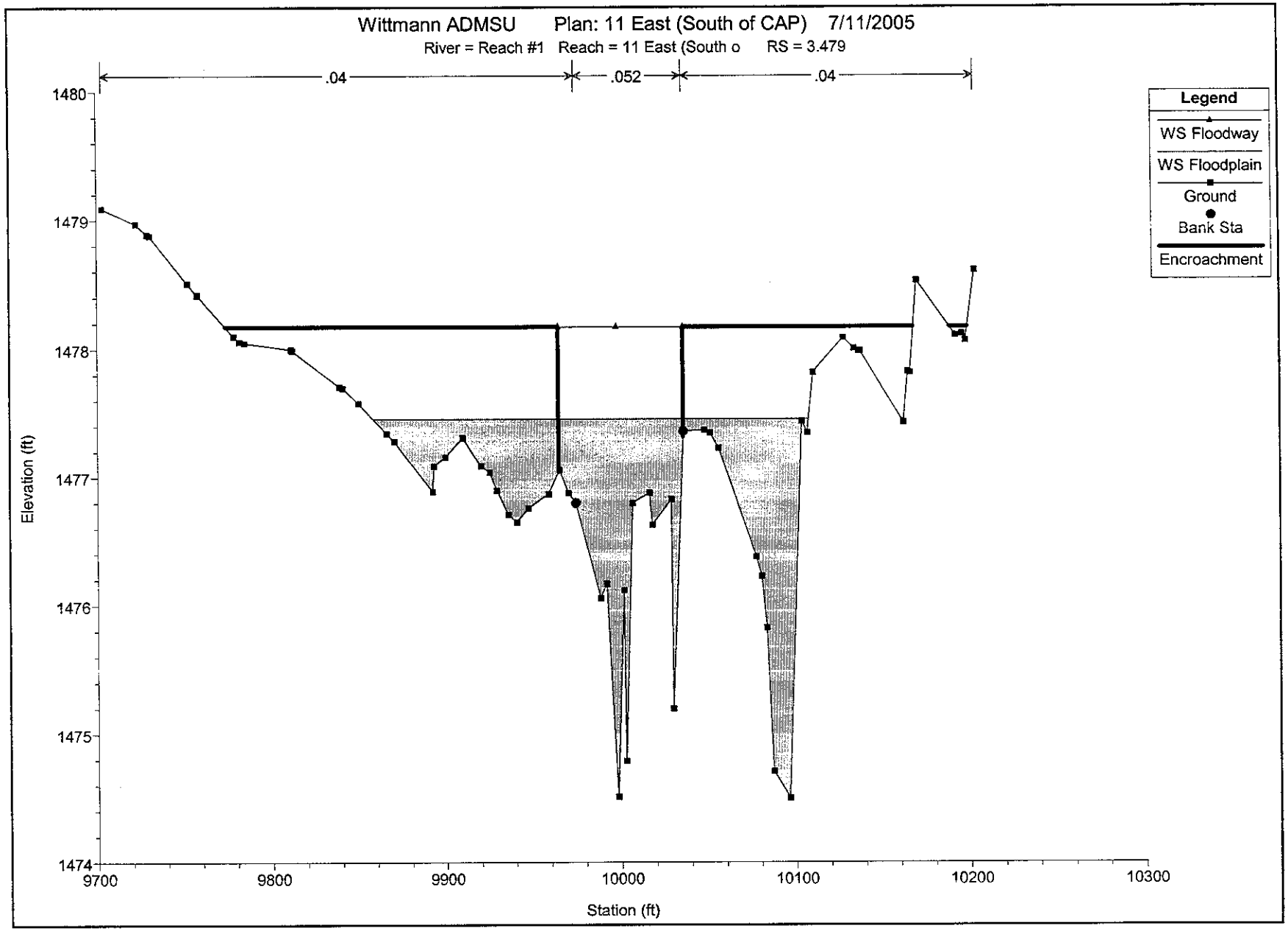

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.729
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1493
1492
1491
1490
1489
1488
1487
1486
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

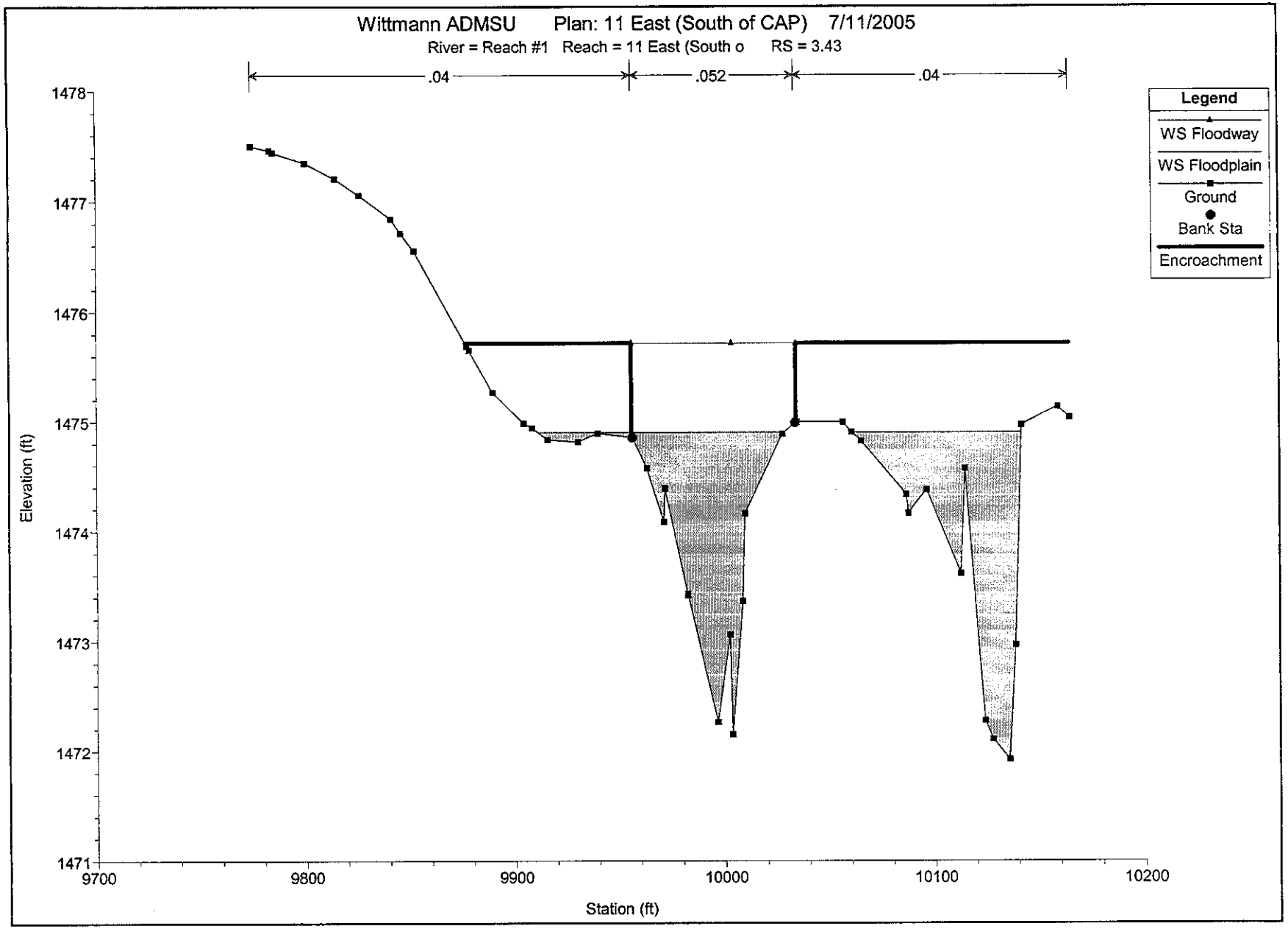

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.675
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1491
1490
1489
1488
1487
1486
1485
1484
1483
9700
9800
9900
10000
10100
10200
10300
Station (ft)

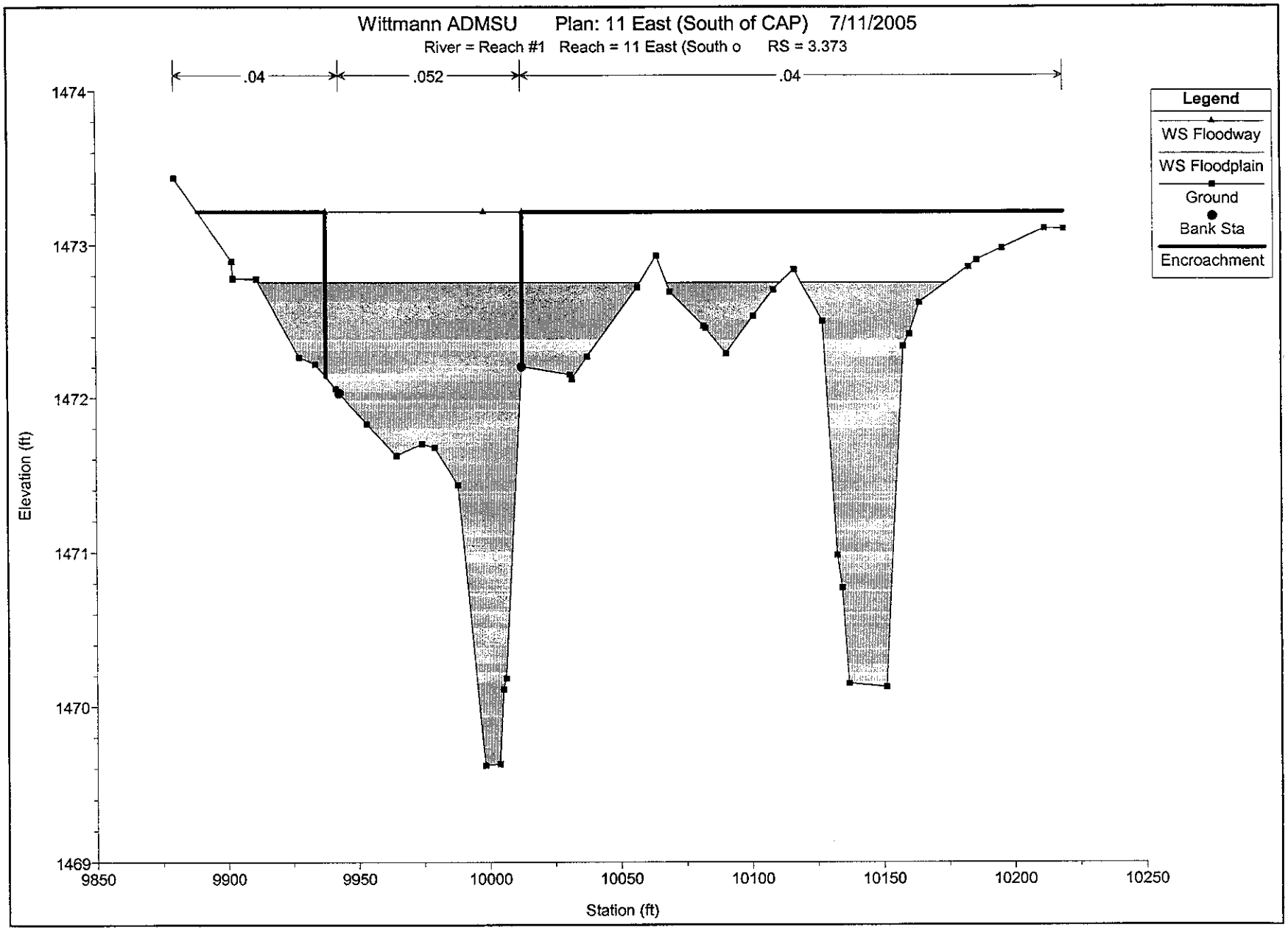

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.629
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1487
1486
1485
1484
1483
1482
1481
9800
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

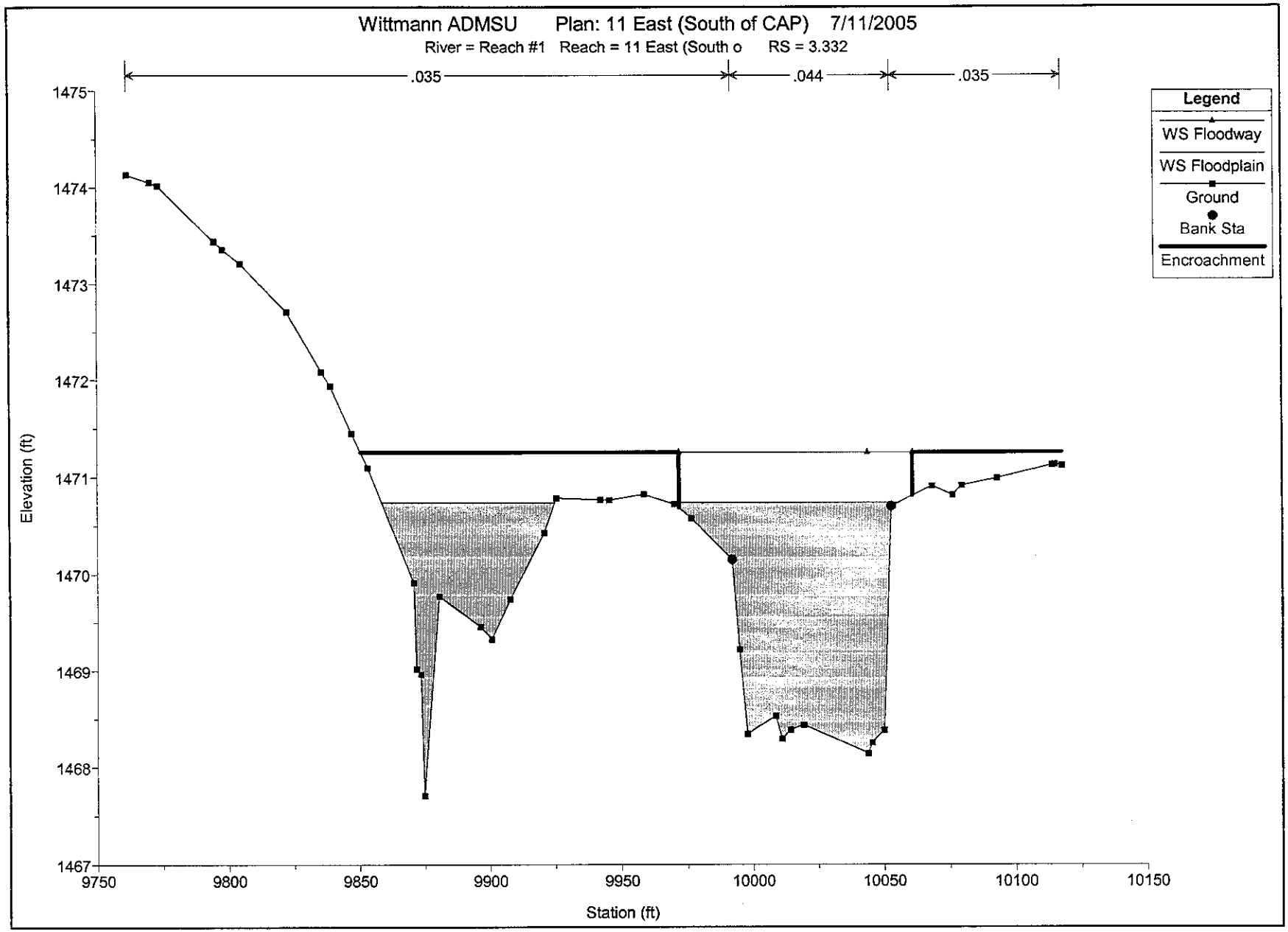

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.592
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1486
1485
1484
1483
1482
1481
1480
1479
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

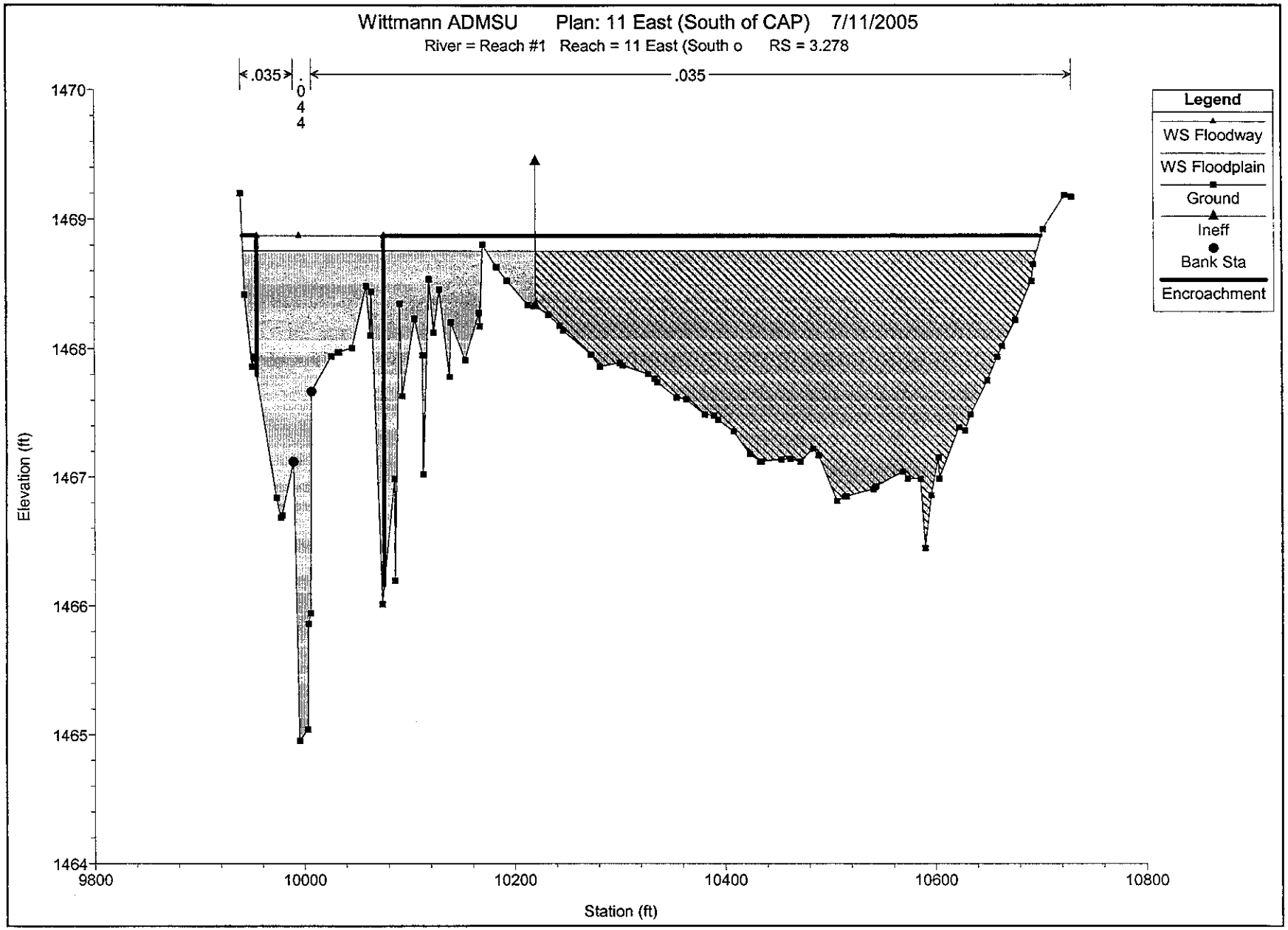

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.534
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1483
1482
1481
1480
1479
1478
1477
9700
9800
9900
10000
10100
10200
Station (ft)

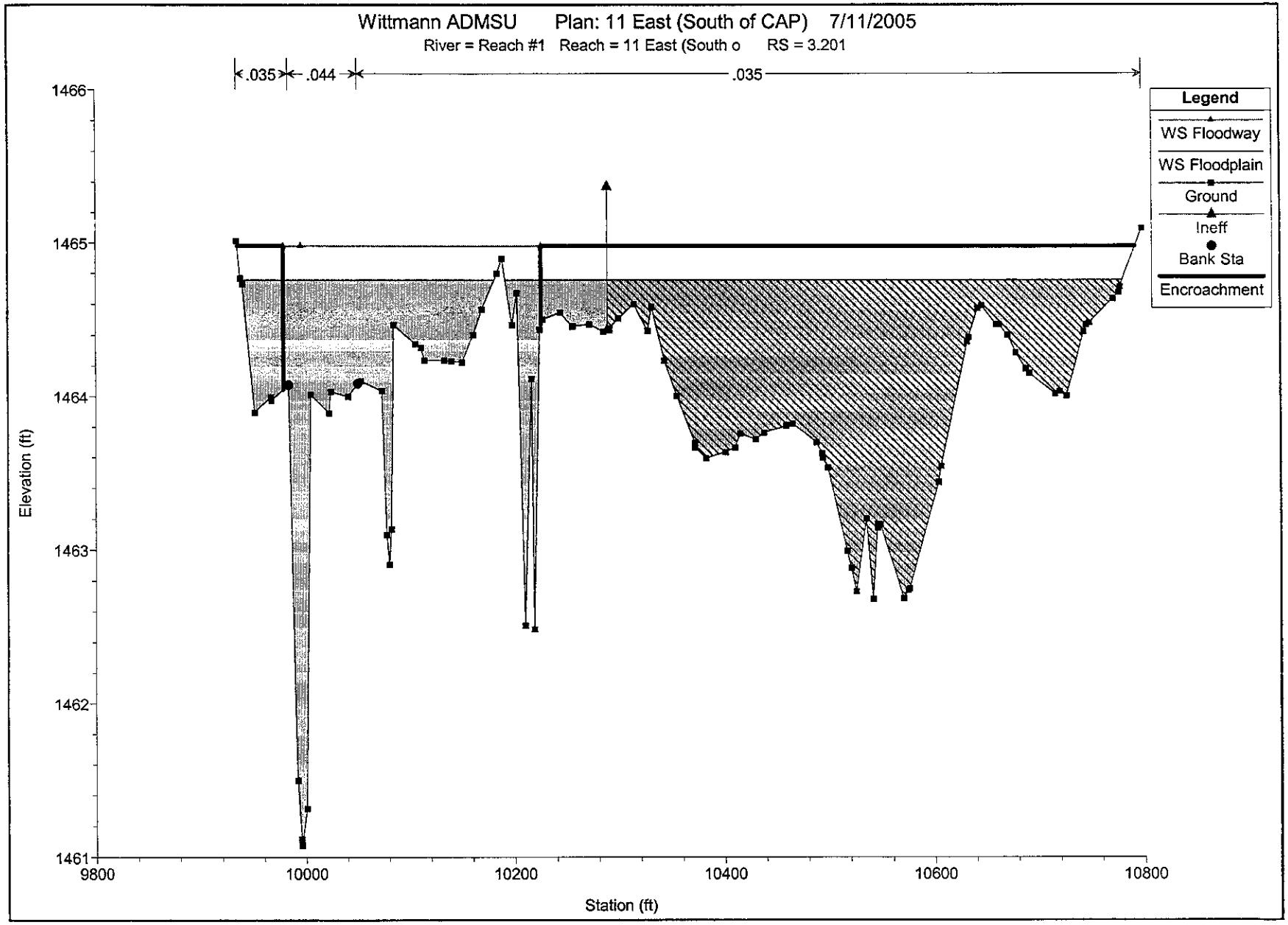

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.479
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1480
1479
1478
1477
1476
1475
1474
9700
9800
9900
10000
10100
10200
10300
Station (ft)

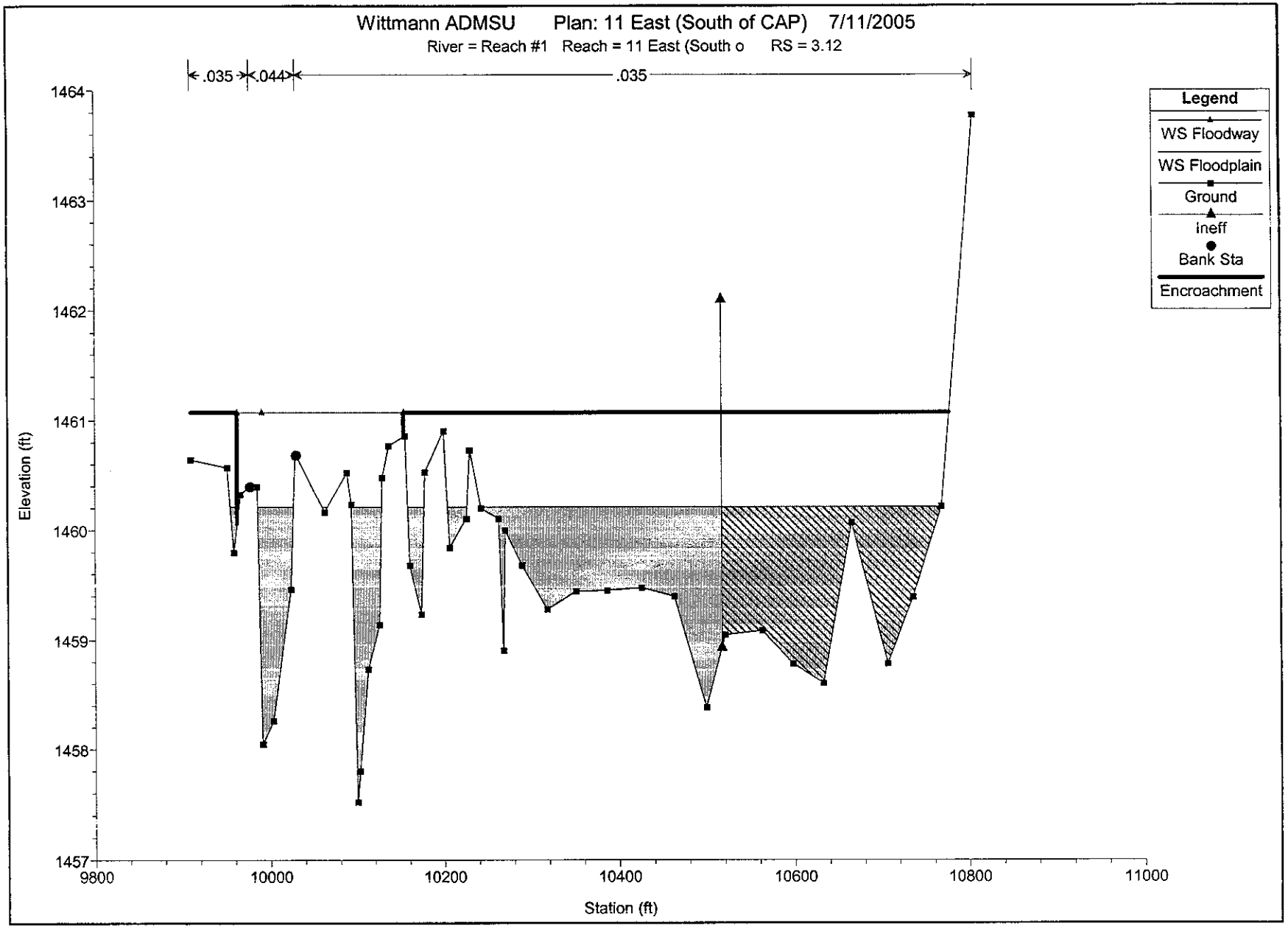

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.43
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1478
1477
1476
1475
1474
1473
1472
1471
9700
9800
9900
10000
10100
10200
Station (ft)

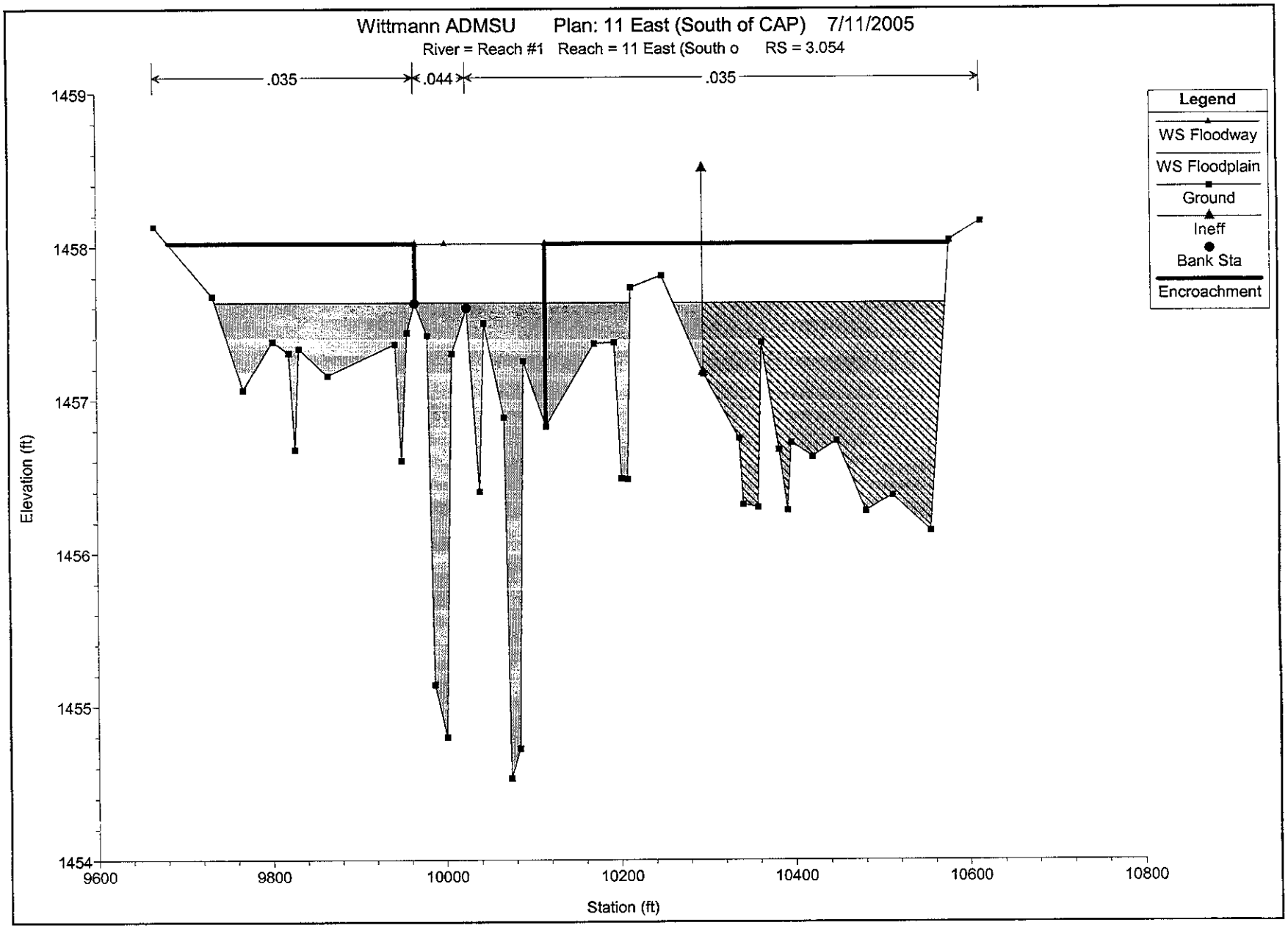

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.373
.04
.052
.04
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1474
1473
1472
1471
1470
1469
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

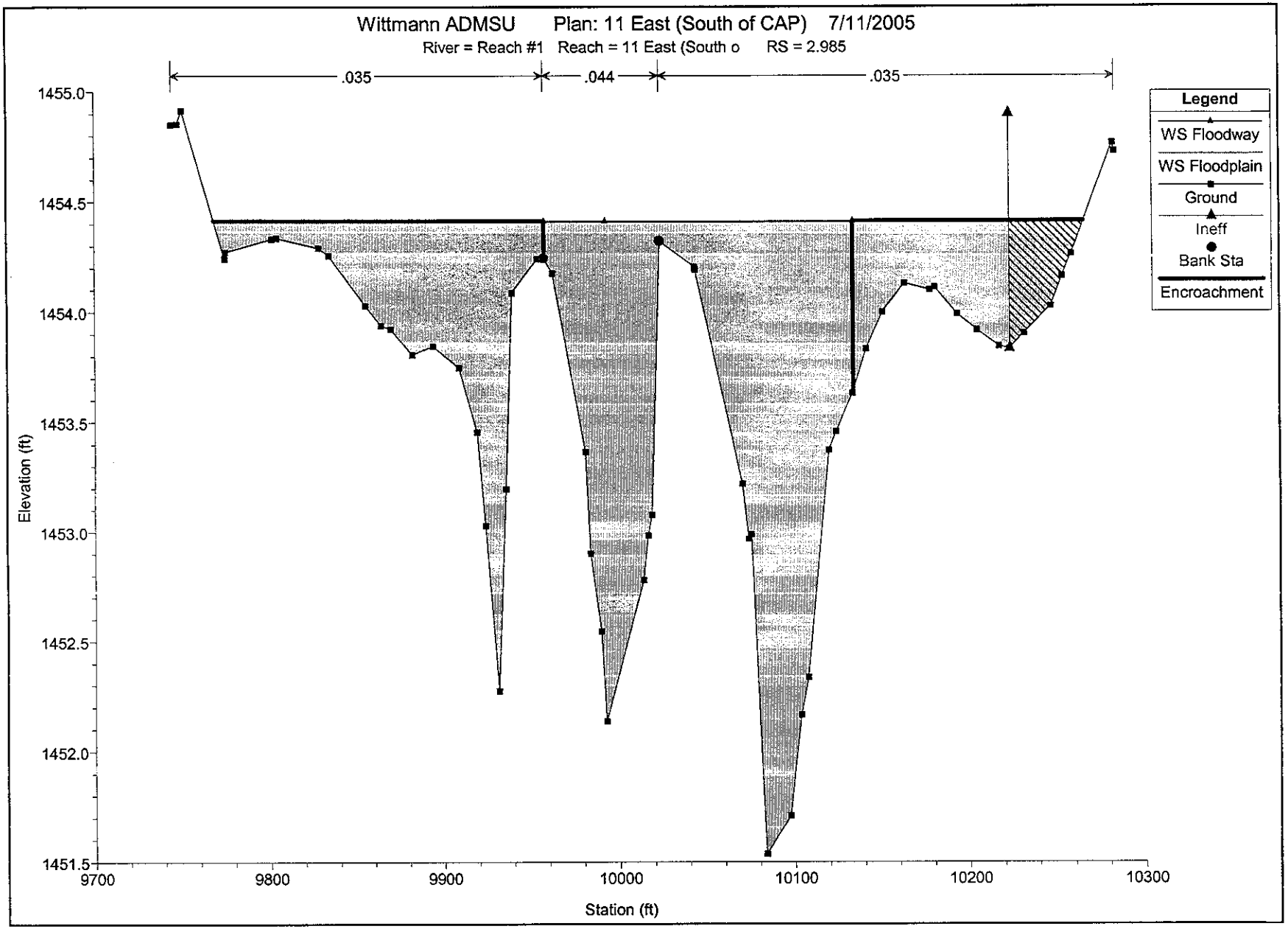

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.332
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1475
1474
1473
1472
1471
1470
1469
1468
1467
9750
9800
9850
9900
9950
10000
10050
10100
10150
Station (ft)

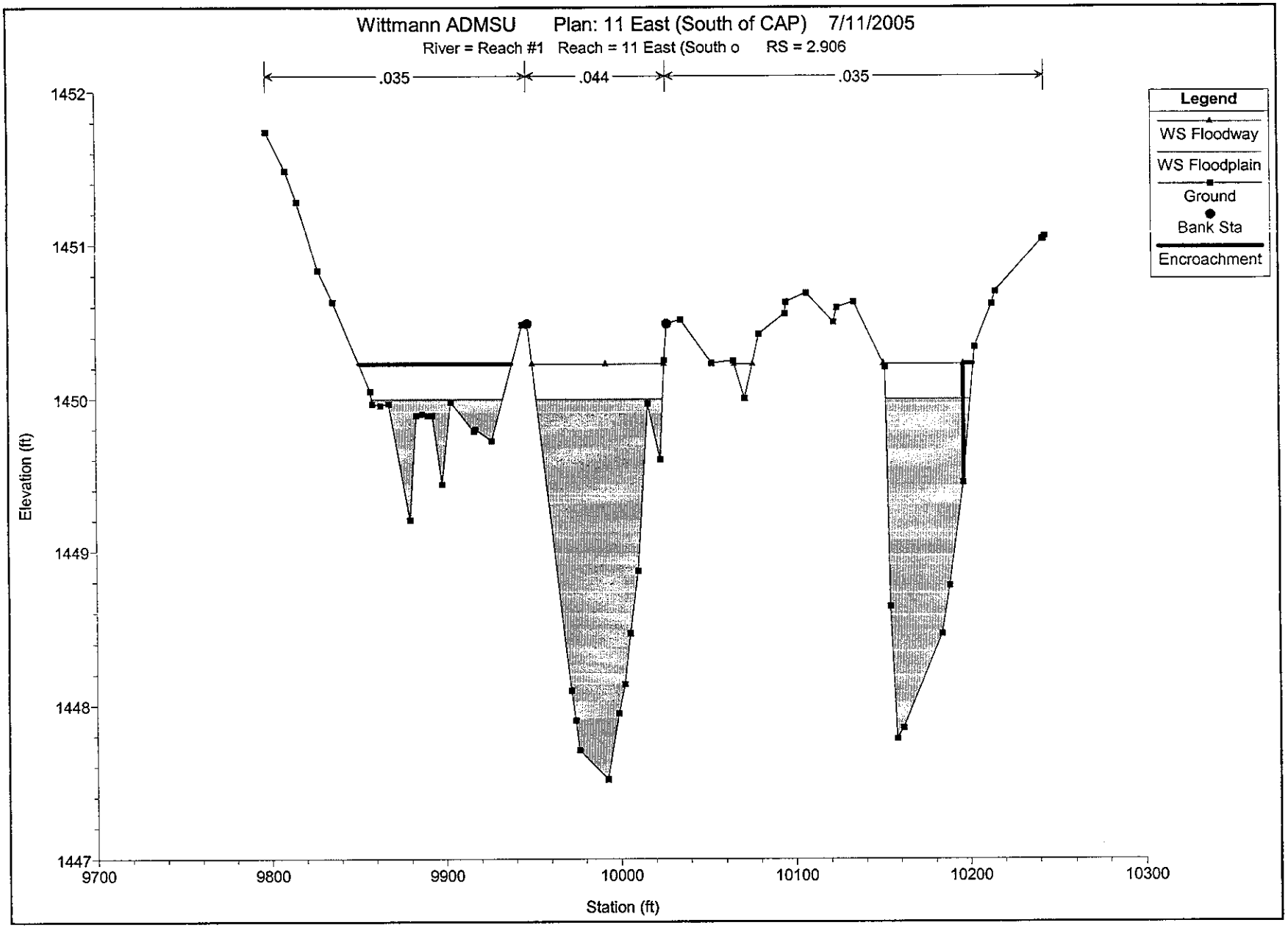

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.278
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1470
1469
1468
1467
1466
1465
1464
9800
10000
10200
10400
10600
10800
Station (ft)

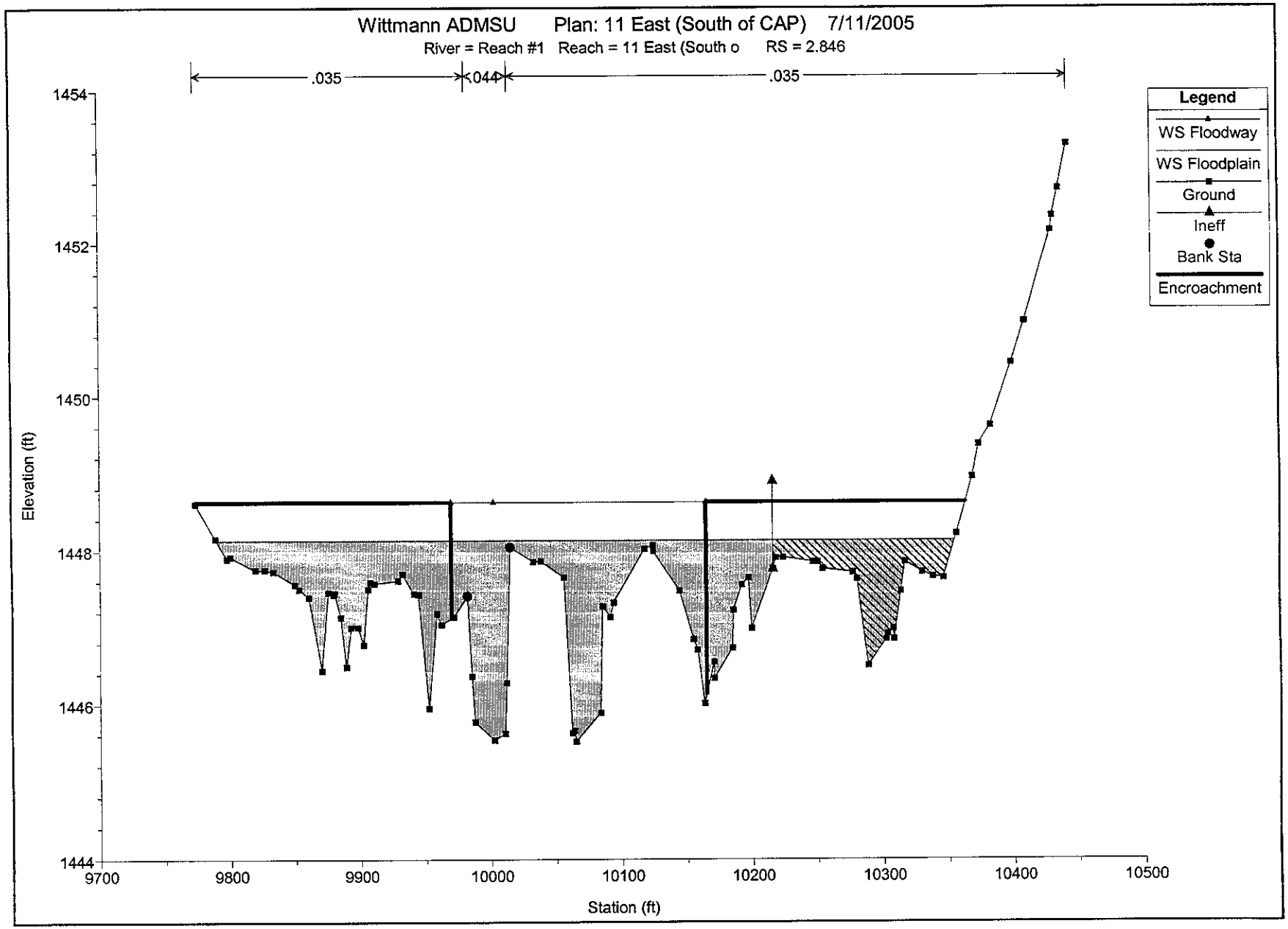

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.201
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1466
1465
1464
1463
1462
1461
9800
10000
10200
10400
10600
10800
Station (ft)

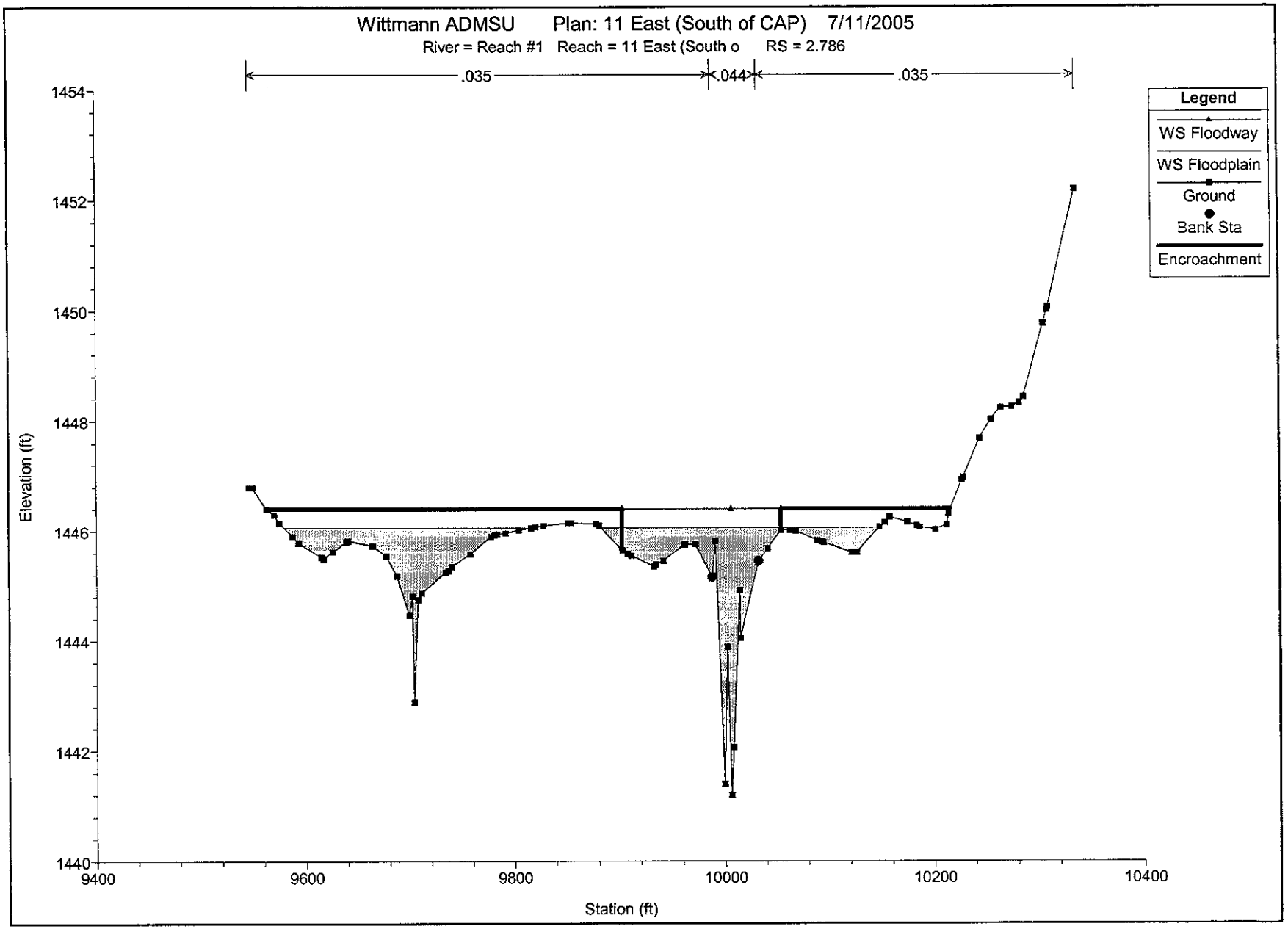

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.12
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1464
1463
1462
1461
1460
1459
1458
1457
9800
10000
10200
10400
10600
10800
11000
Station (ft)

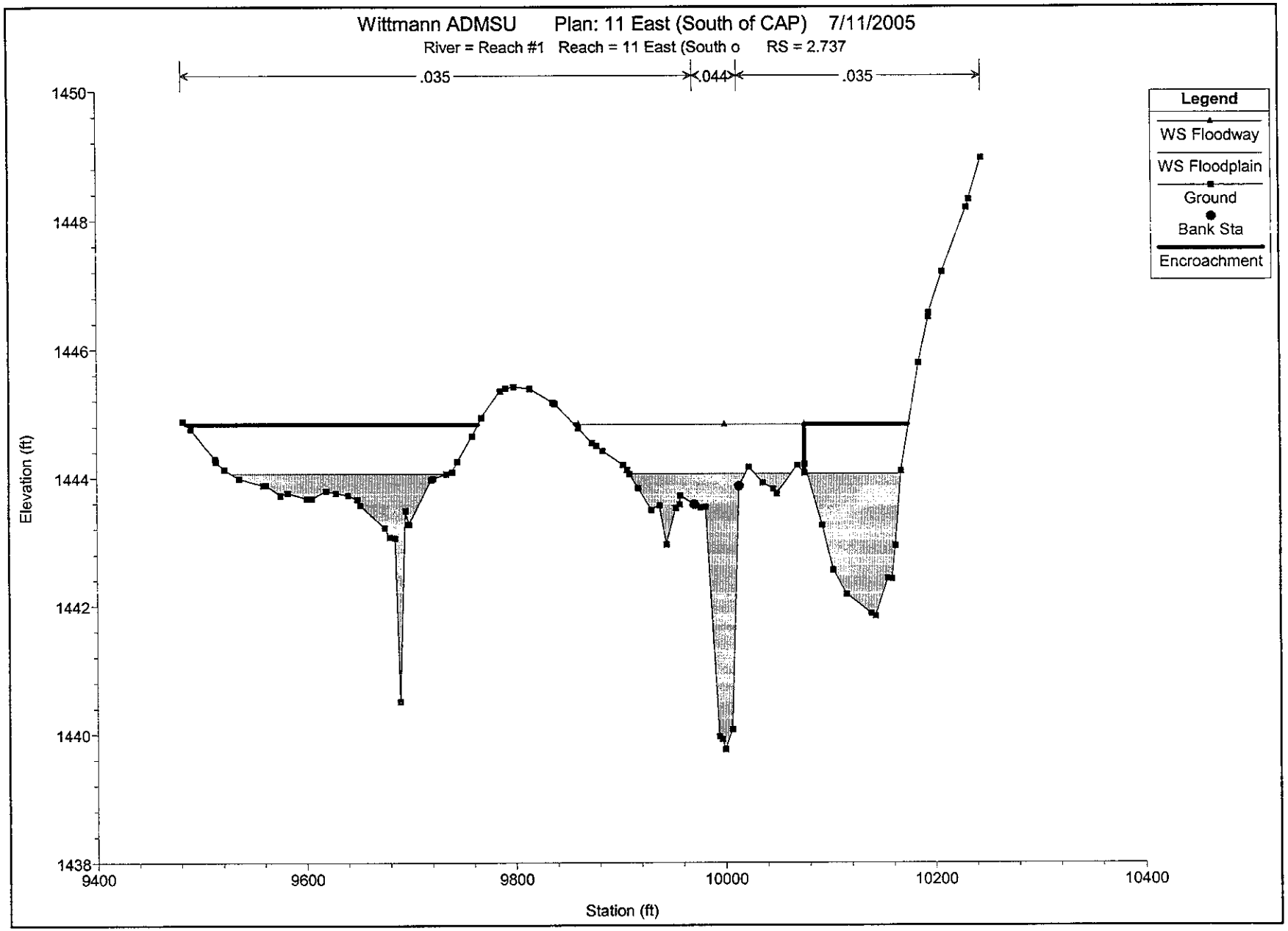

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 3.054
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1459
1458
1457
1456
1455
1454
9600
9800
10000
10200
10400
10600
10800
Station (ft)

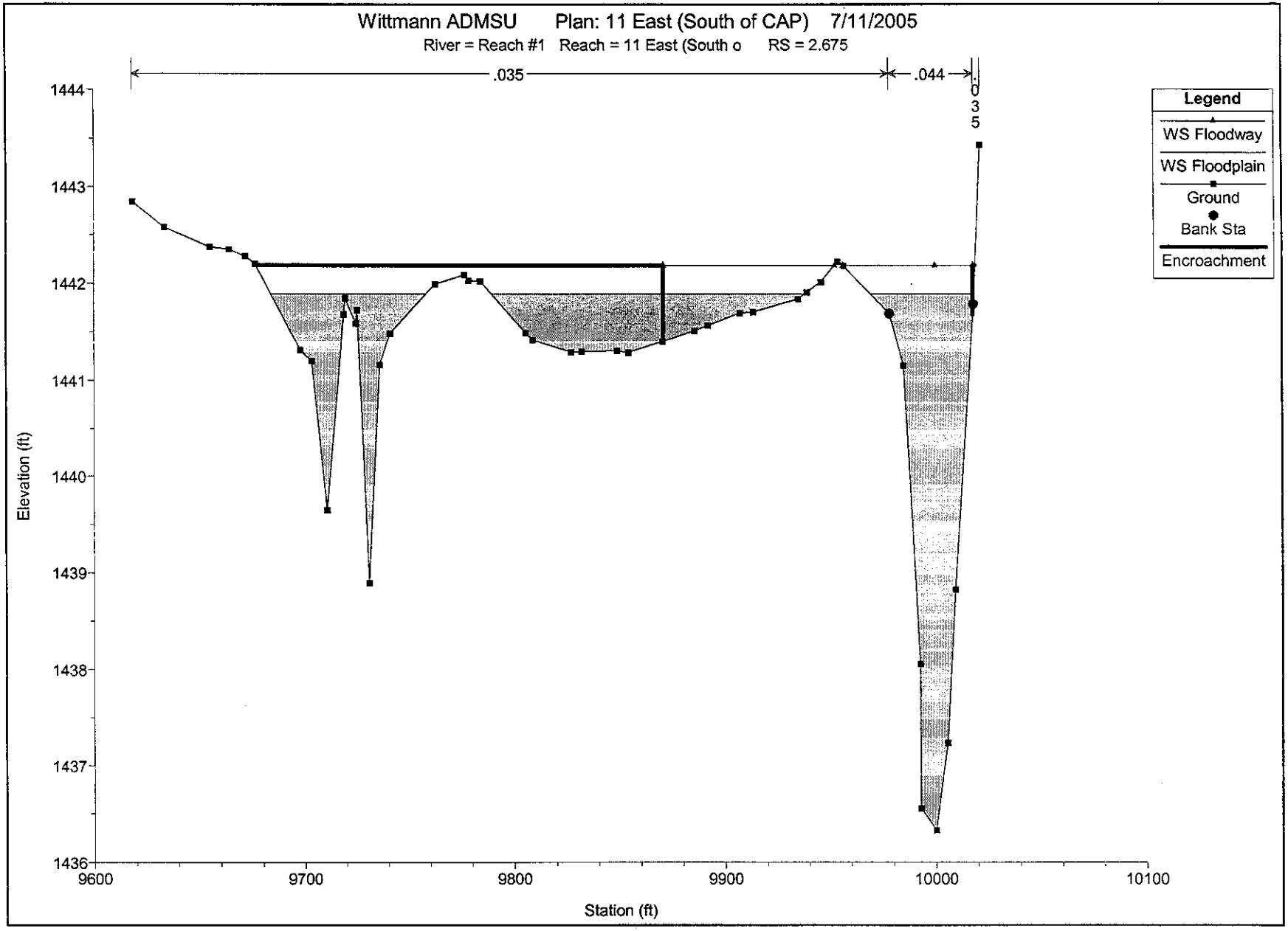

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.985
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1455.0
1454.5
1454.0
1453.5
1453.0
1452.5
1452.0
1451.5
9700
9800
9900
10000
10100
10200
10300
Station (ft)

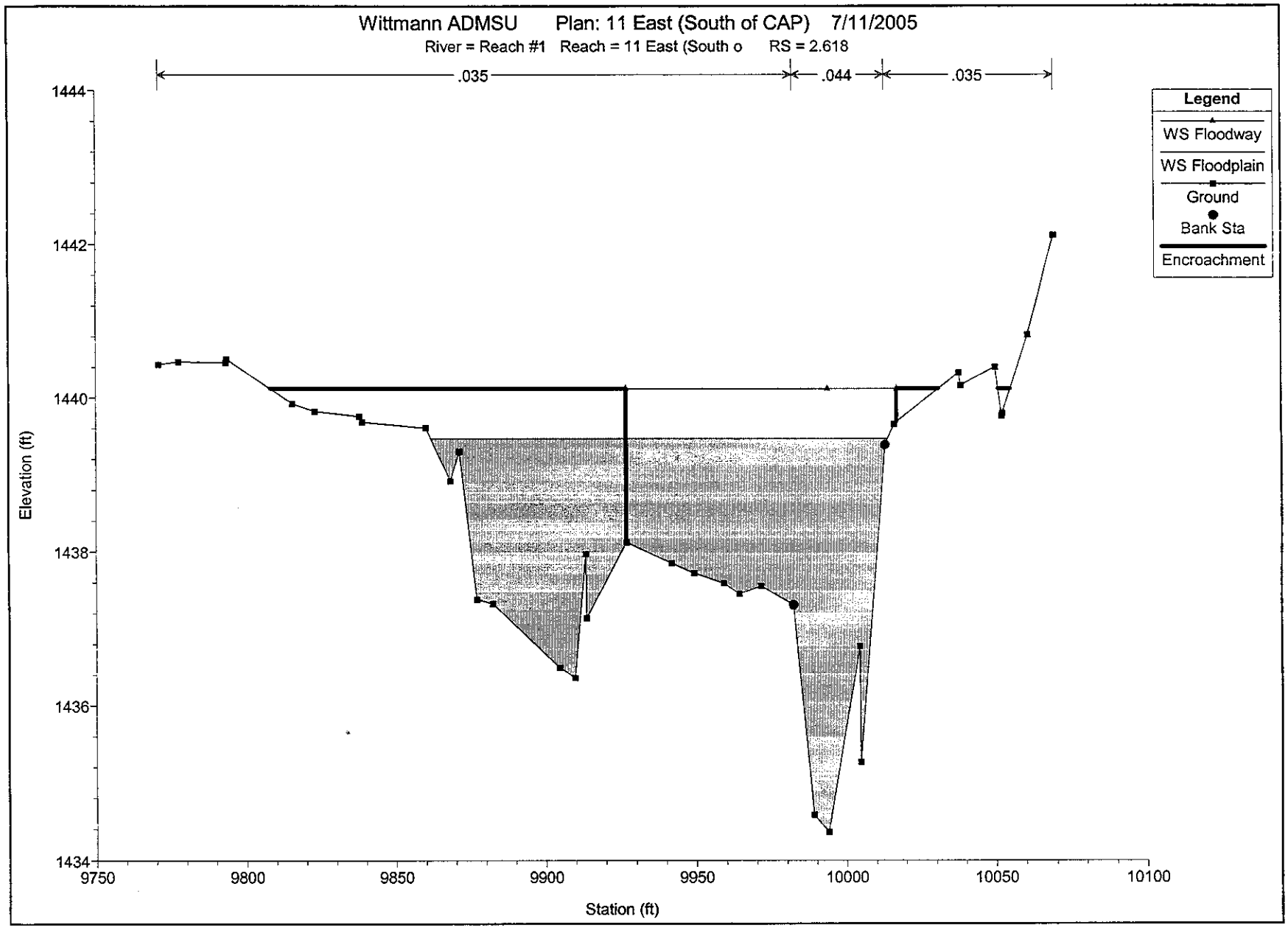

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.906
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1452
1451
1450
1449
1448
1447
9700
9800
9900
10000
10100
10200
10300
Station (ft)

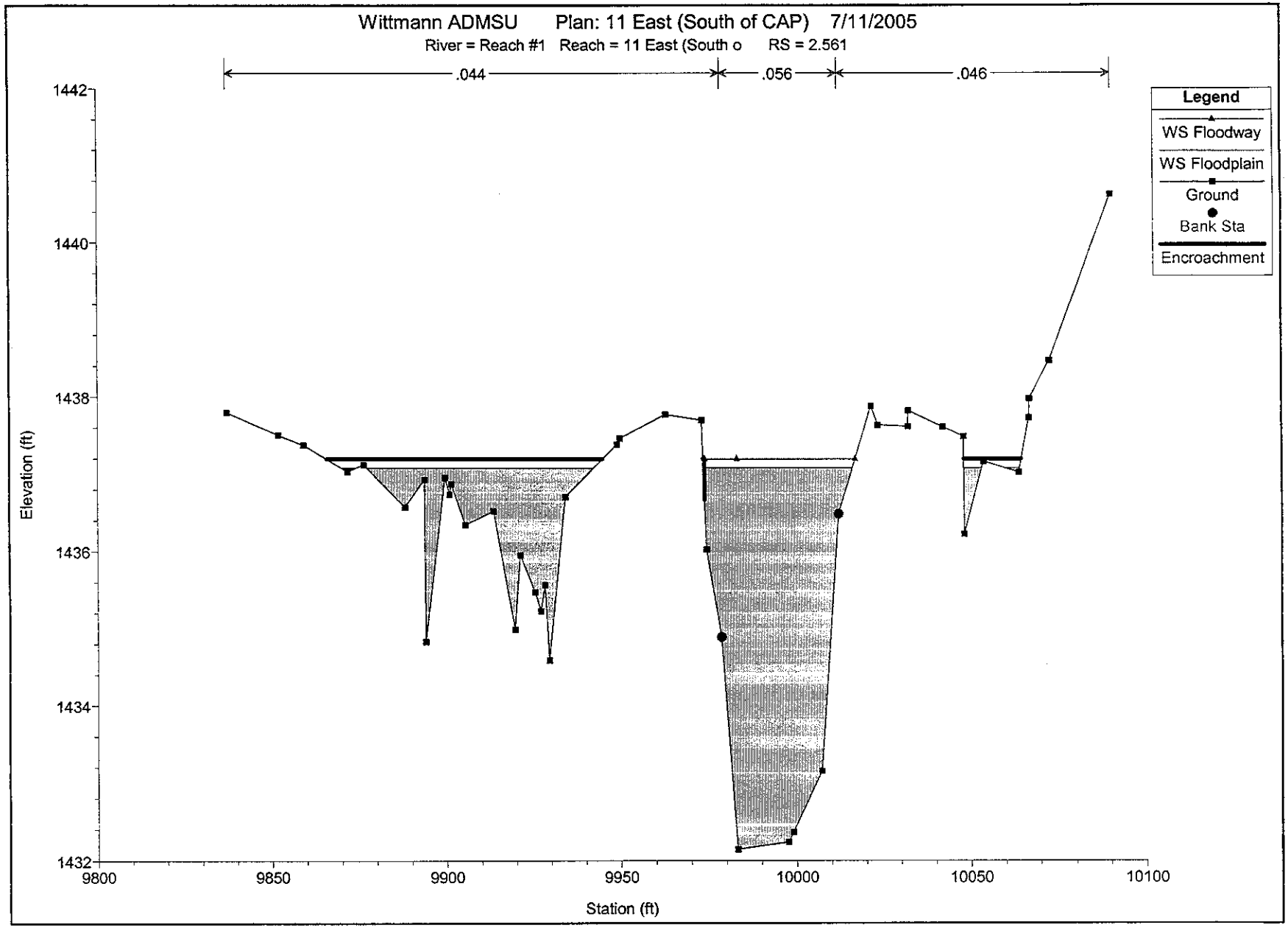

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.846
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1454
1452
1450
1448
1446
1444
9700
9800
9900
10000
10100
10200
10300
10400
10500
Station (ft)

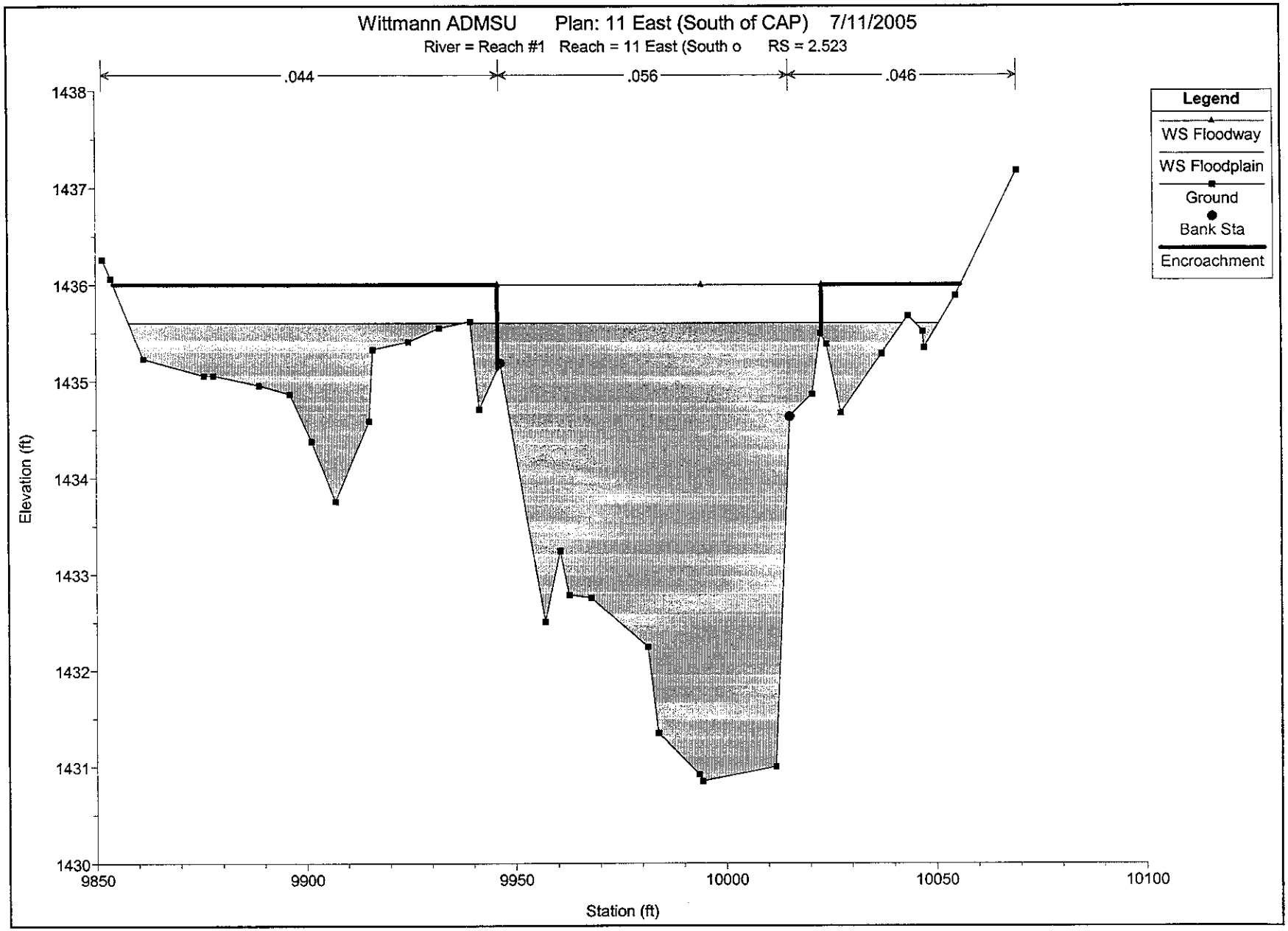

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.786
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1454
1452
1450
1448
1446
1444
1442
1440
9400
9600
9800
10000
10200
10400
Station (ft)

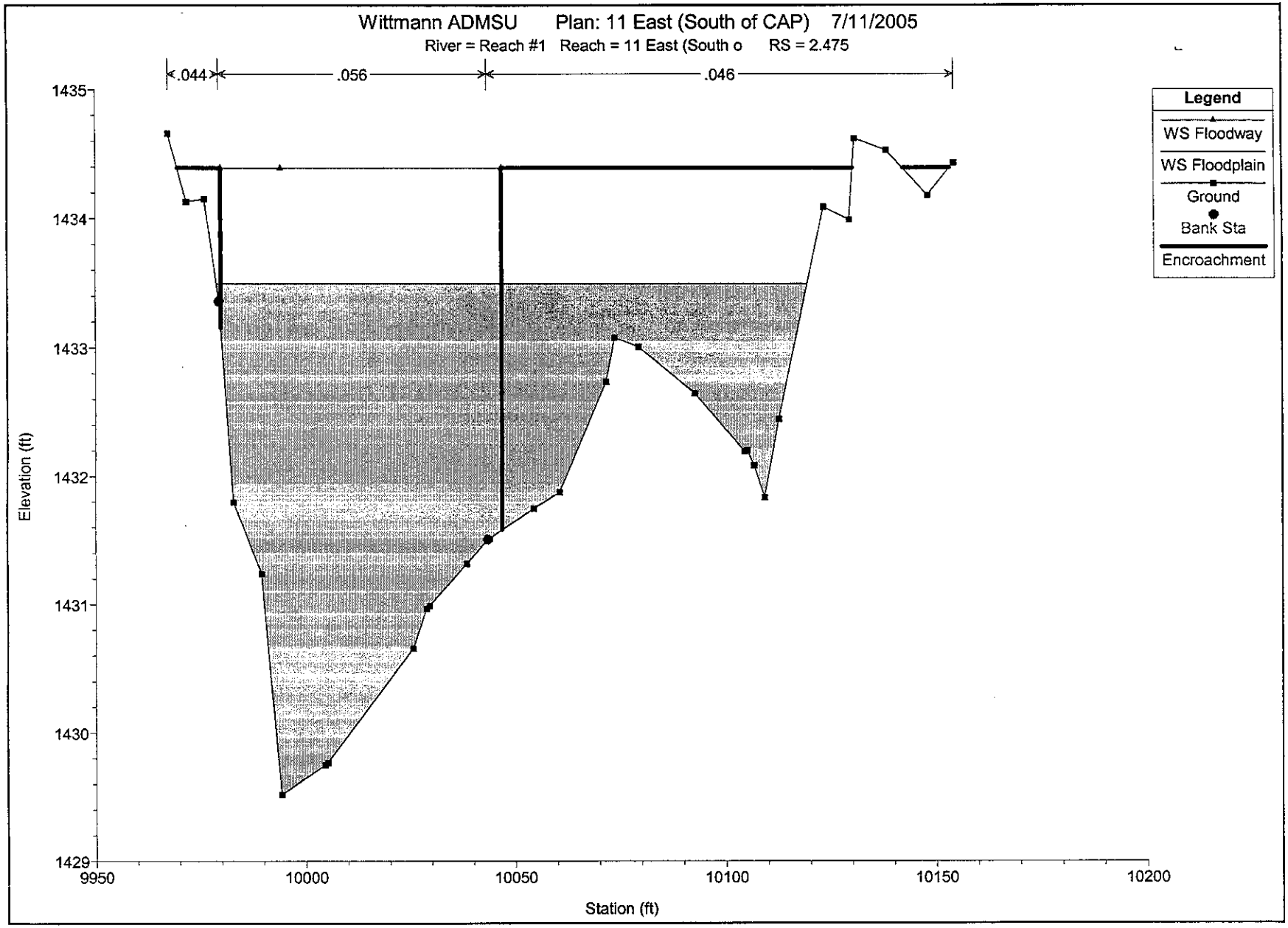

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.737
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1450
1448
1446
1444
1442
1440
1438
9400
9600
9800
10000
10200
10400
Station (ft)

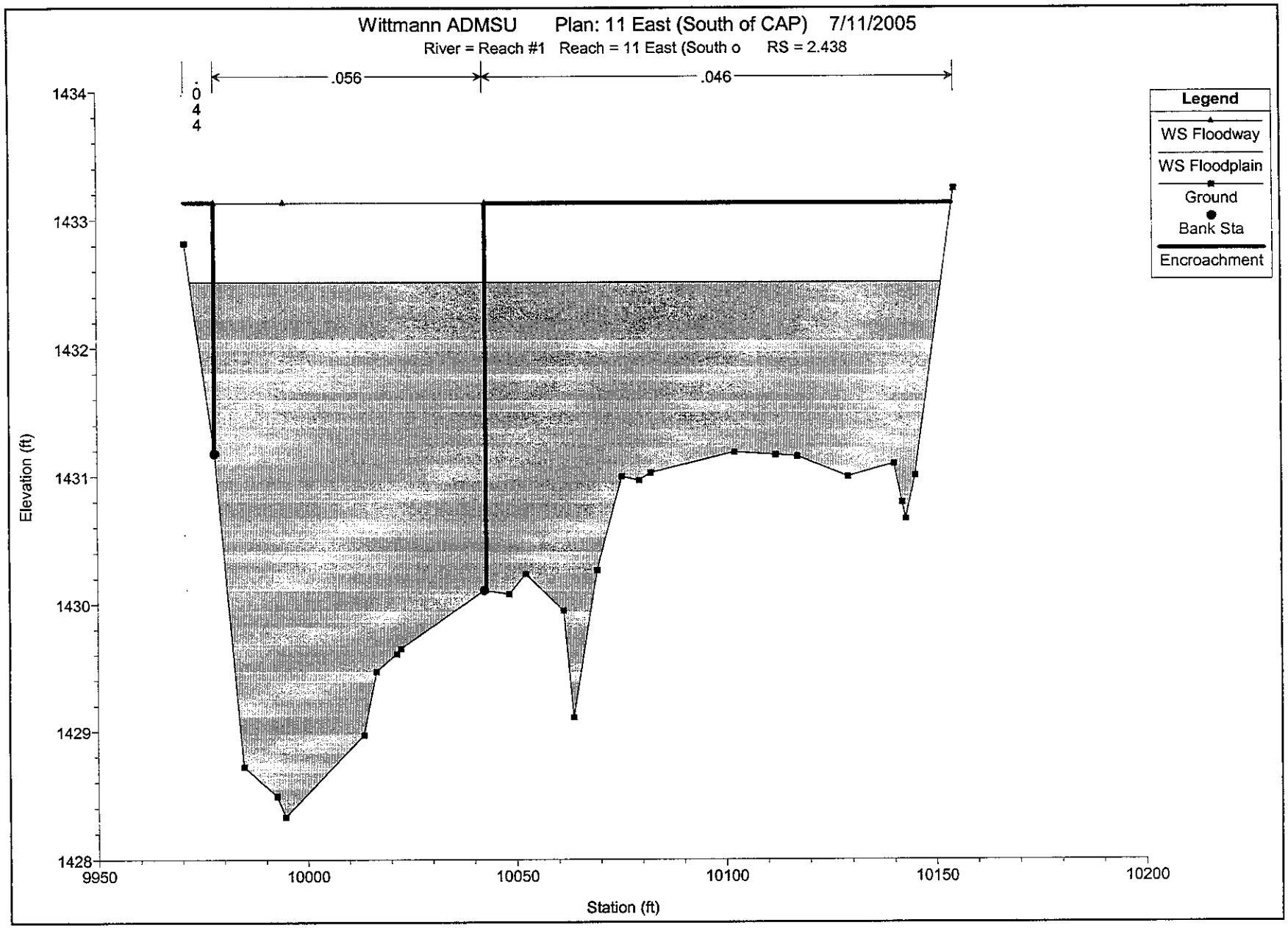

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.675
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1444
1443
1442
1441
1440
1439
1438
1437
1436
9600
9700
9800
9900
10000
10100
Station (ft)

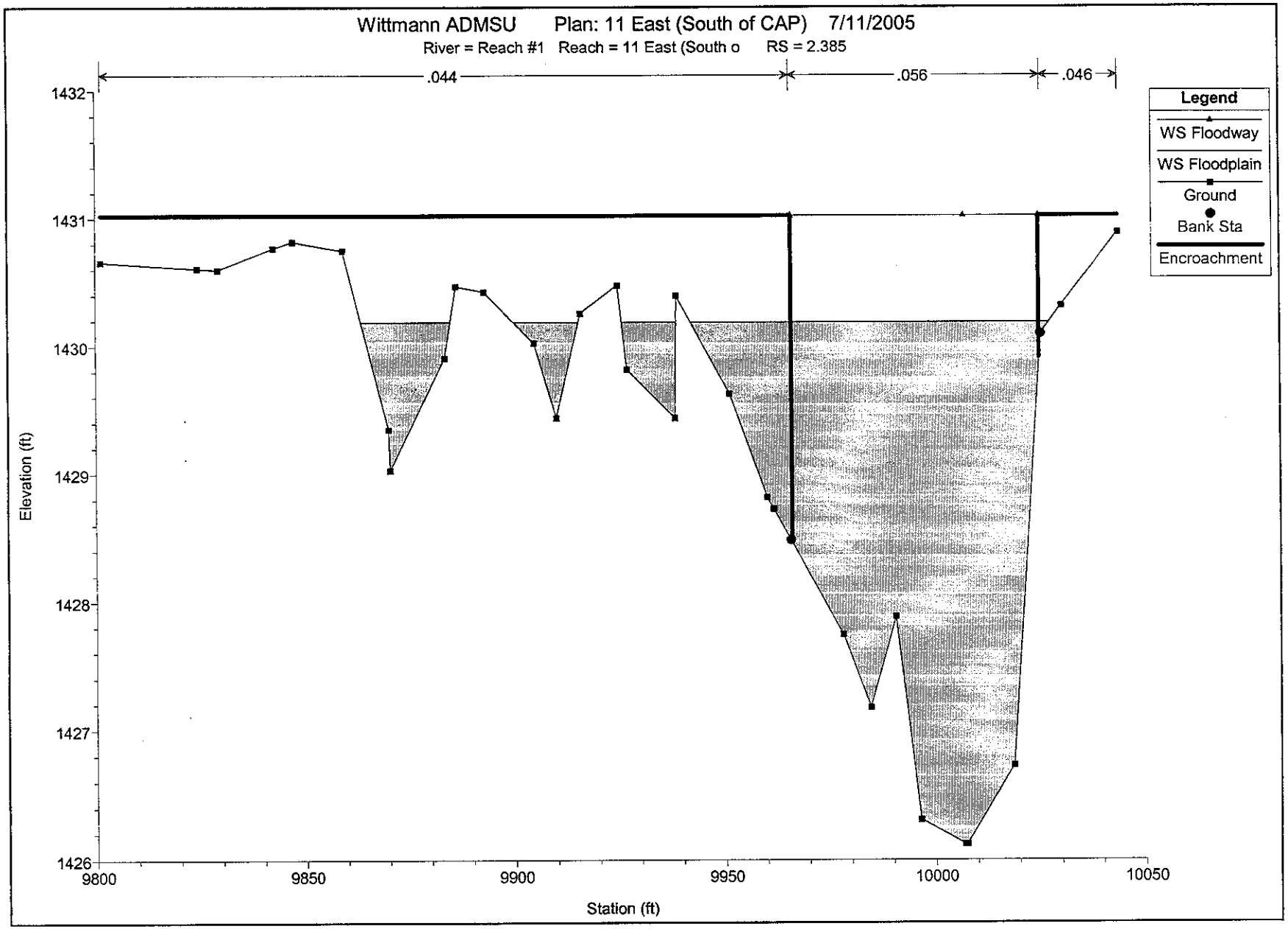

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.618
.035
.044
.035
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1444
1442
1440
1438
1436
1434
9750
9800
9850
9900
9950
10000
10050
10100
Station (ft)

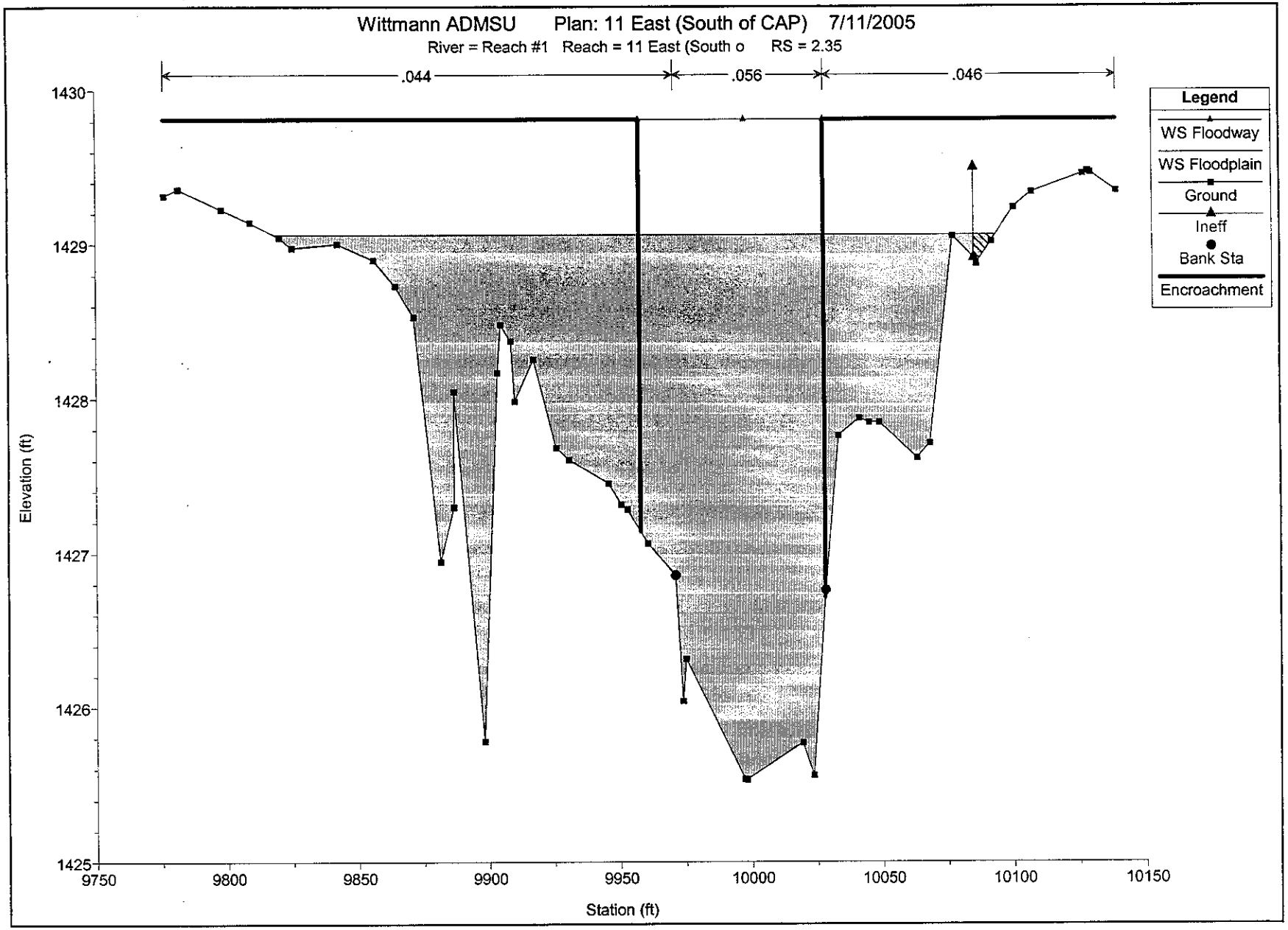

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.561
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1442
1440
1438
1436
1434
1432
9800
9850
9900
9950
10000
10050
10100
Station (ft)

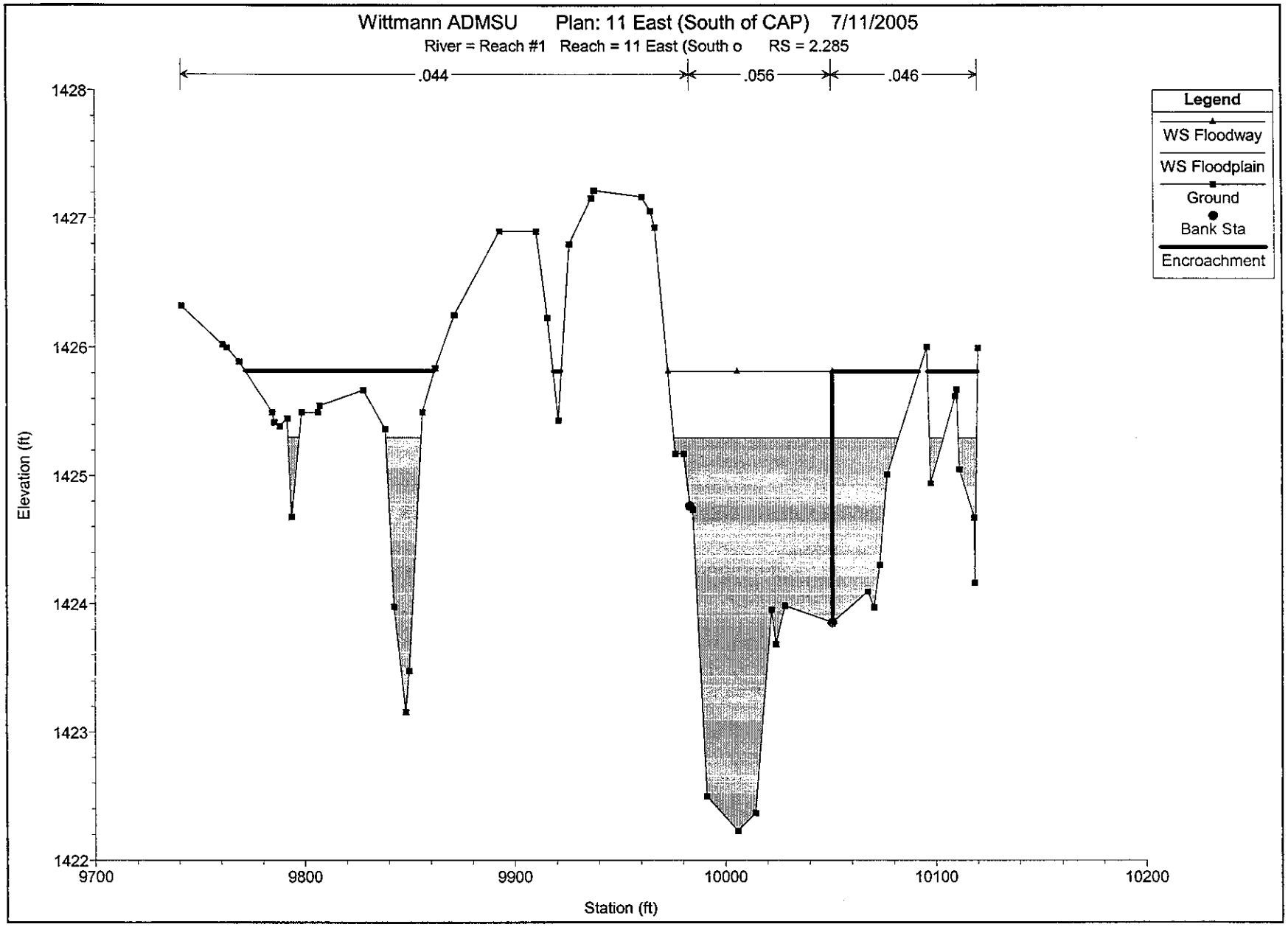

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.523
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1438
1437
1436
1435
1434
1433
1432
1431
1430
9850
9900
9950
10000
10050
10100
Station (ft)

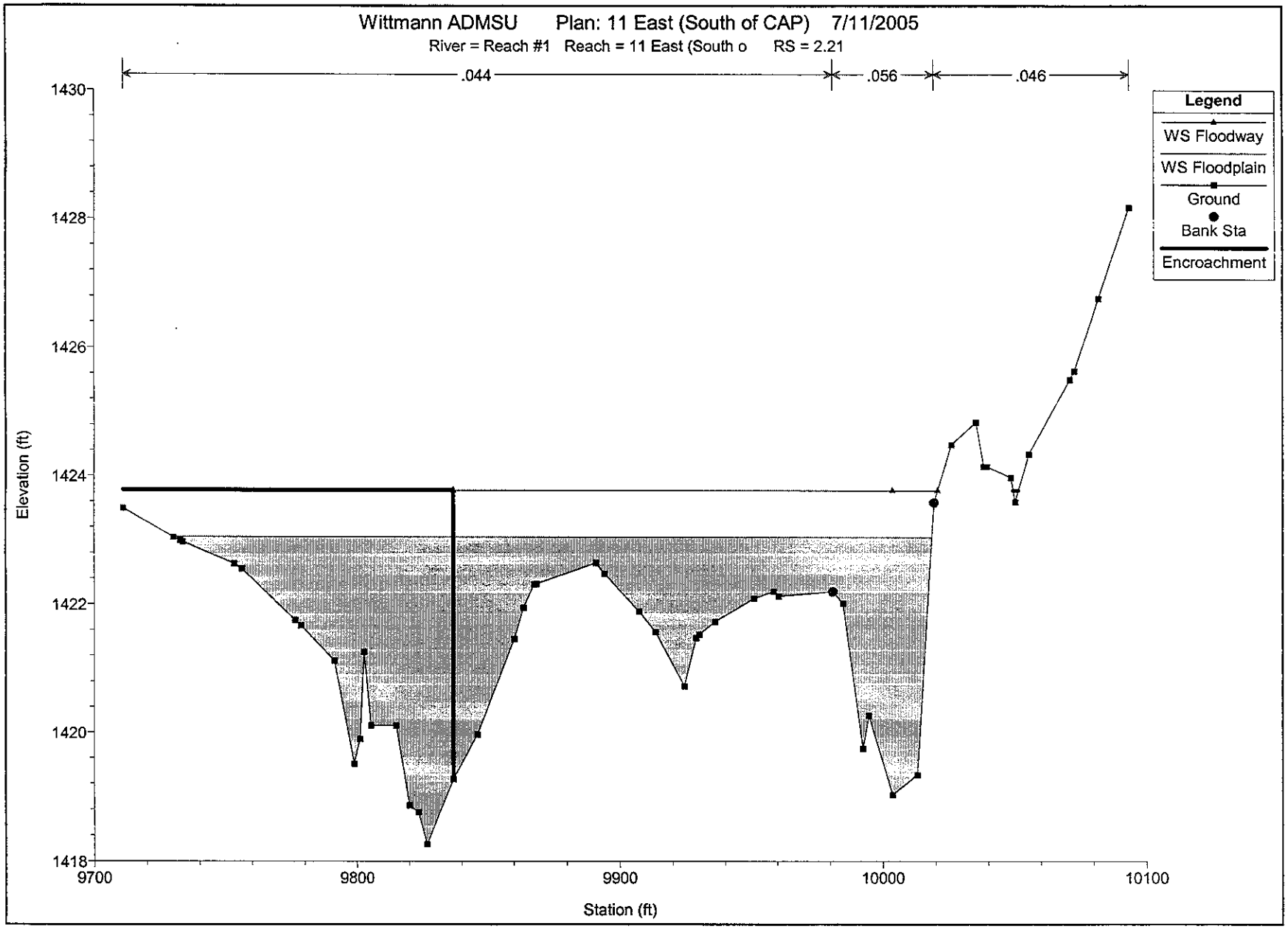

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.475
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1435
1434
1433
1432
1431
1430
1429
9950
10000
10050
10100
10150
10200
Station (ft)

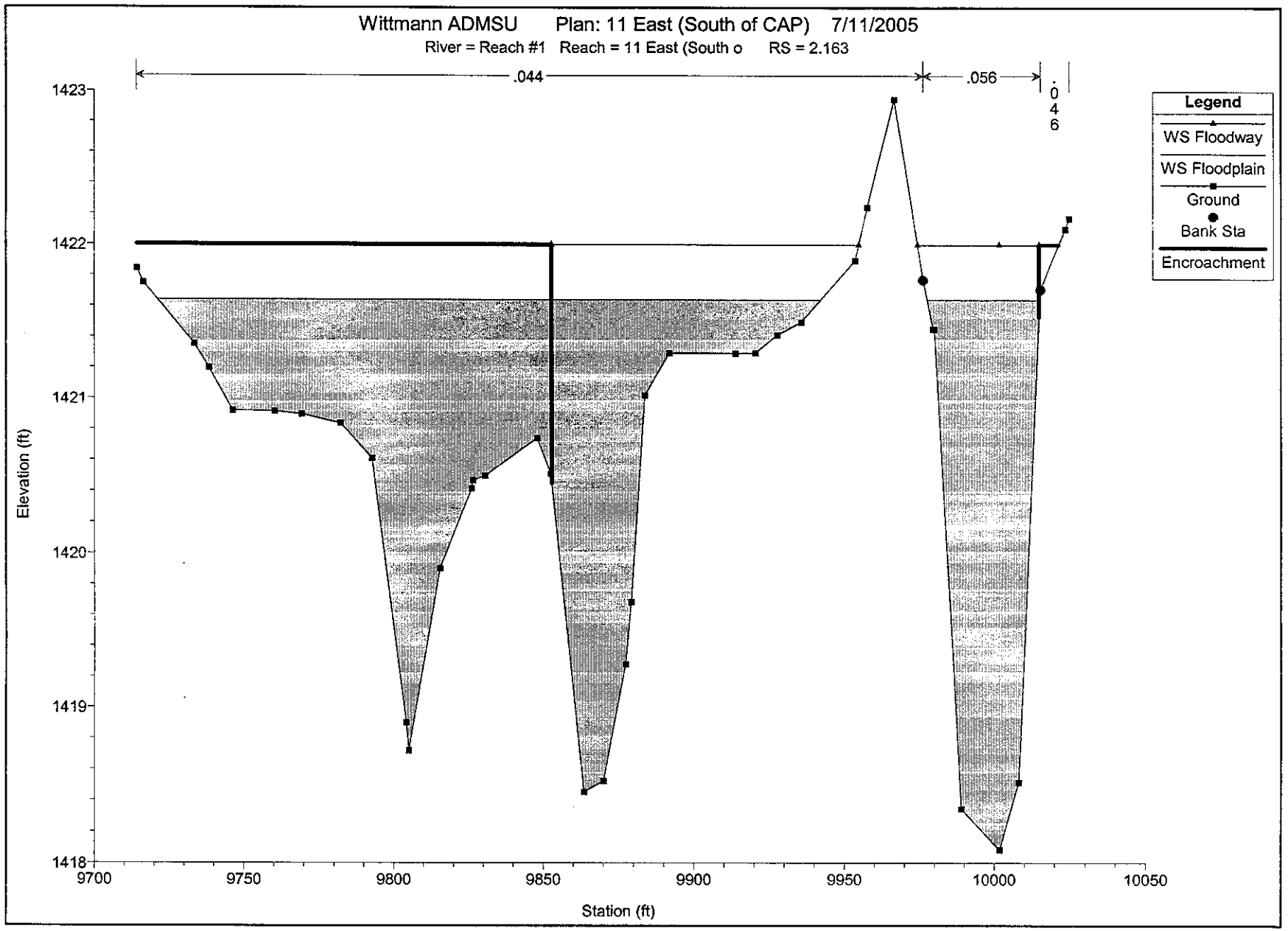

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.438
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1434
1433
1432
1431
1430
1429
1428
9950
10000
10050
10100
10150
10200
Station (ft)

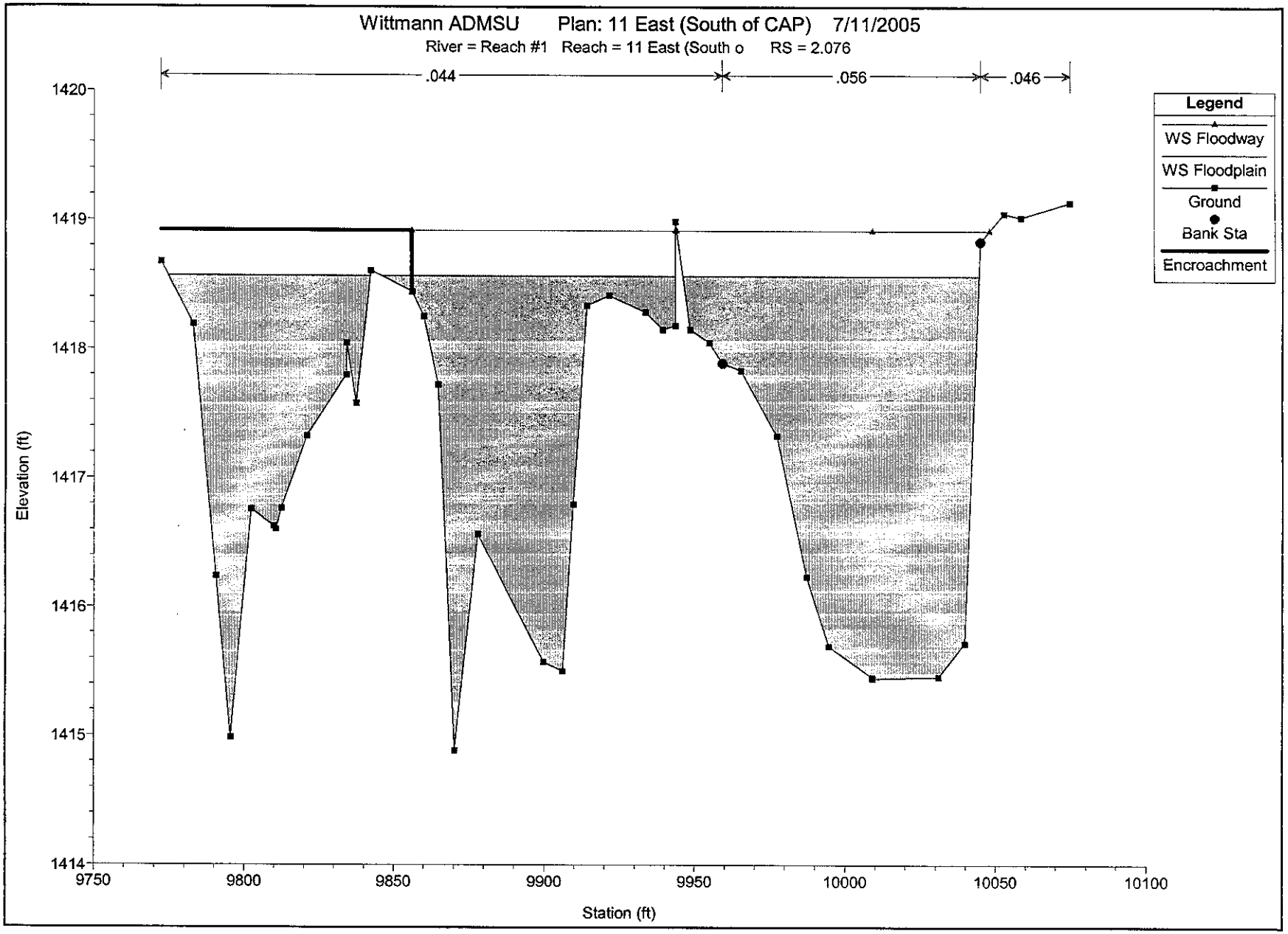

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.385
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1432
1431
1430
1429
1428
1427
1426
9800
9850
9900
9950
10000
10050
Station (ft)

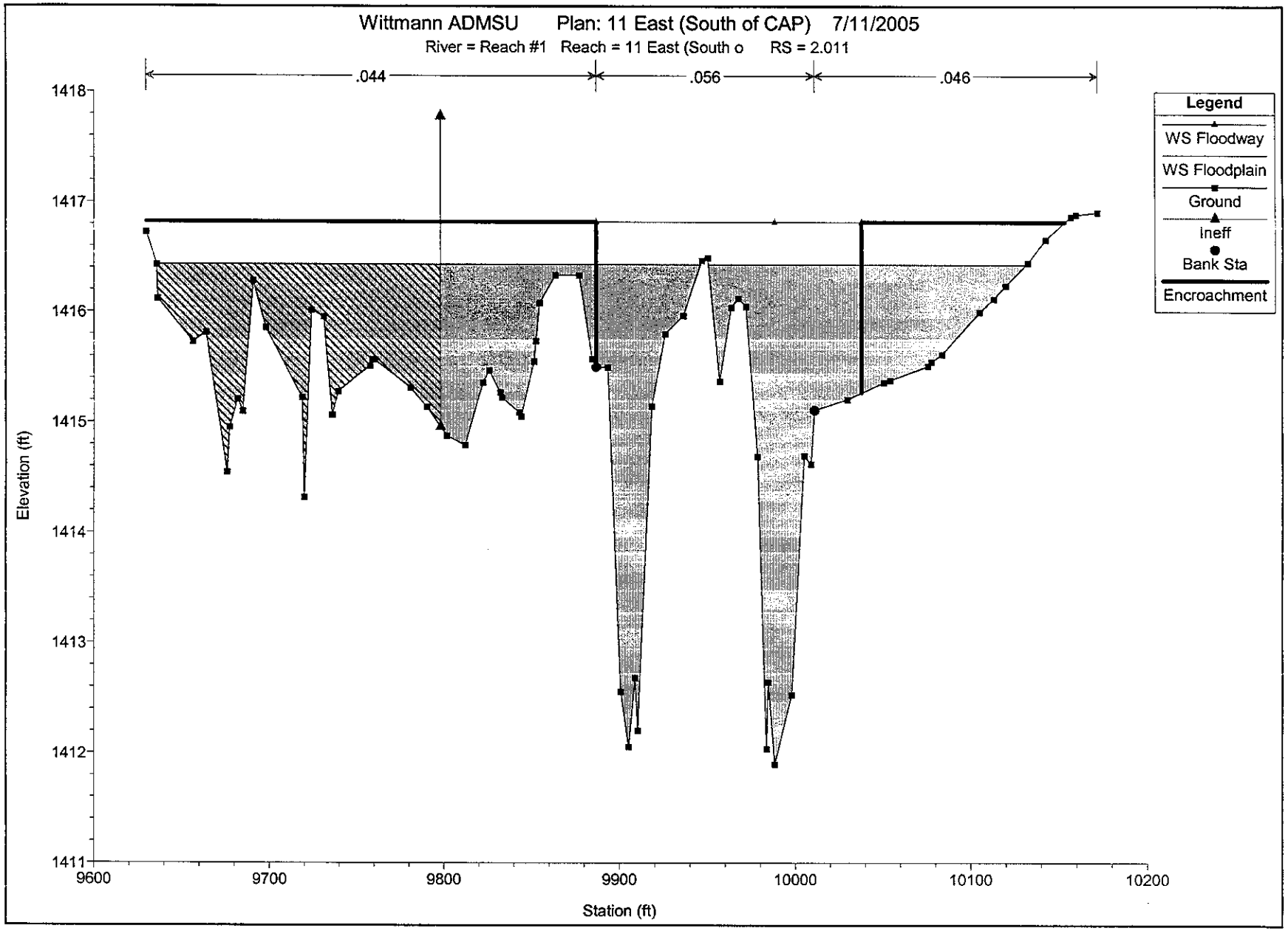

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.35
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1430
1429
1428
1427
1426
1425
9750
9800
9850
9900
9950
10000
10050
10100
10150
Station (ft)

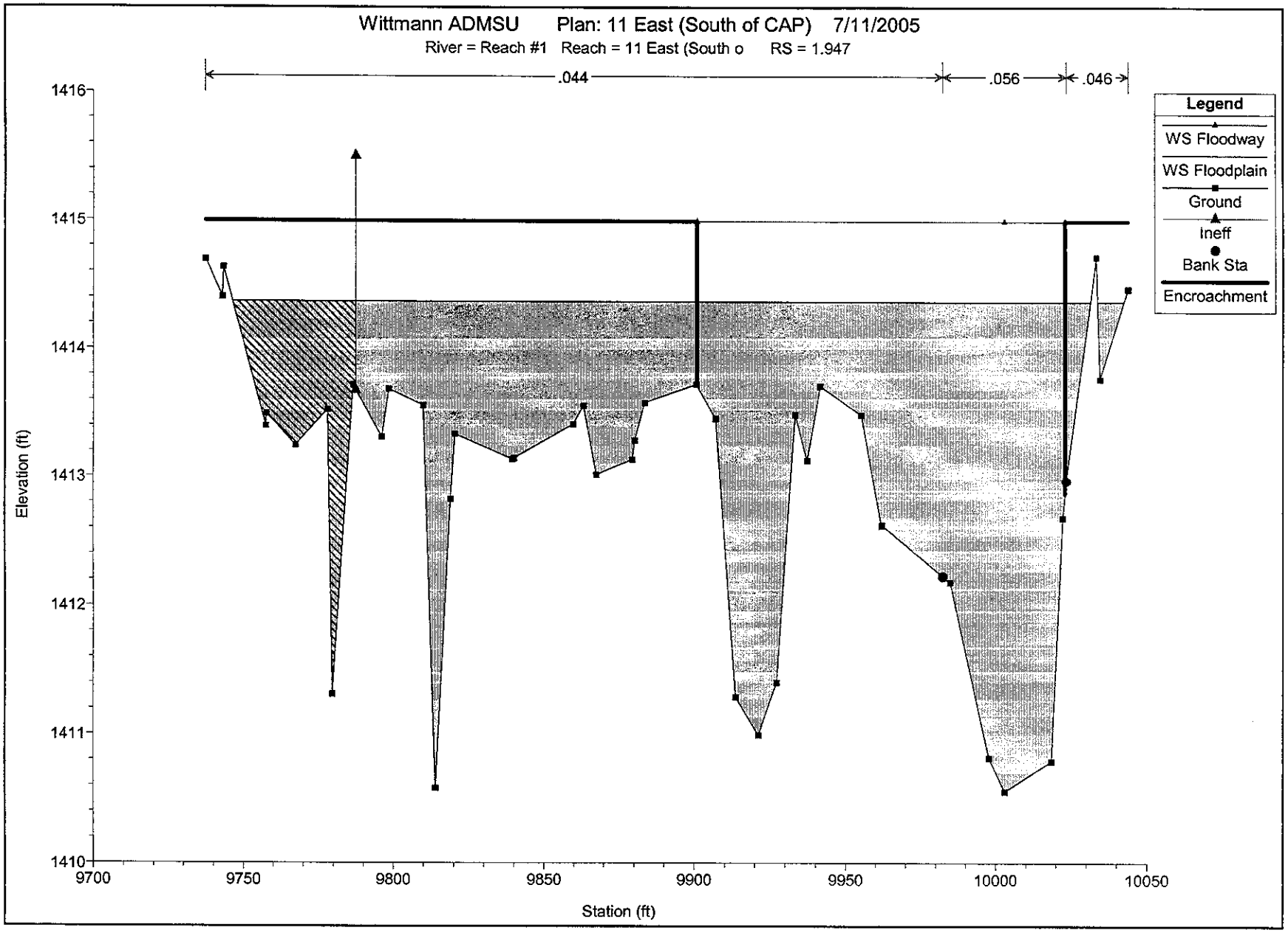

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.285
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1428
1427
1426
1425
1424
1423
1422
9700
9800
9900
10000
10100
10200
Station (ft)

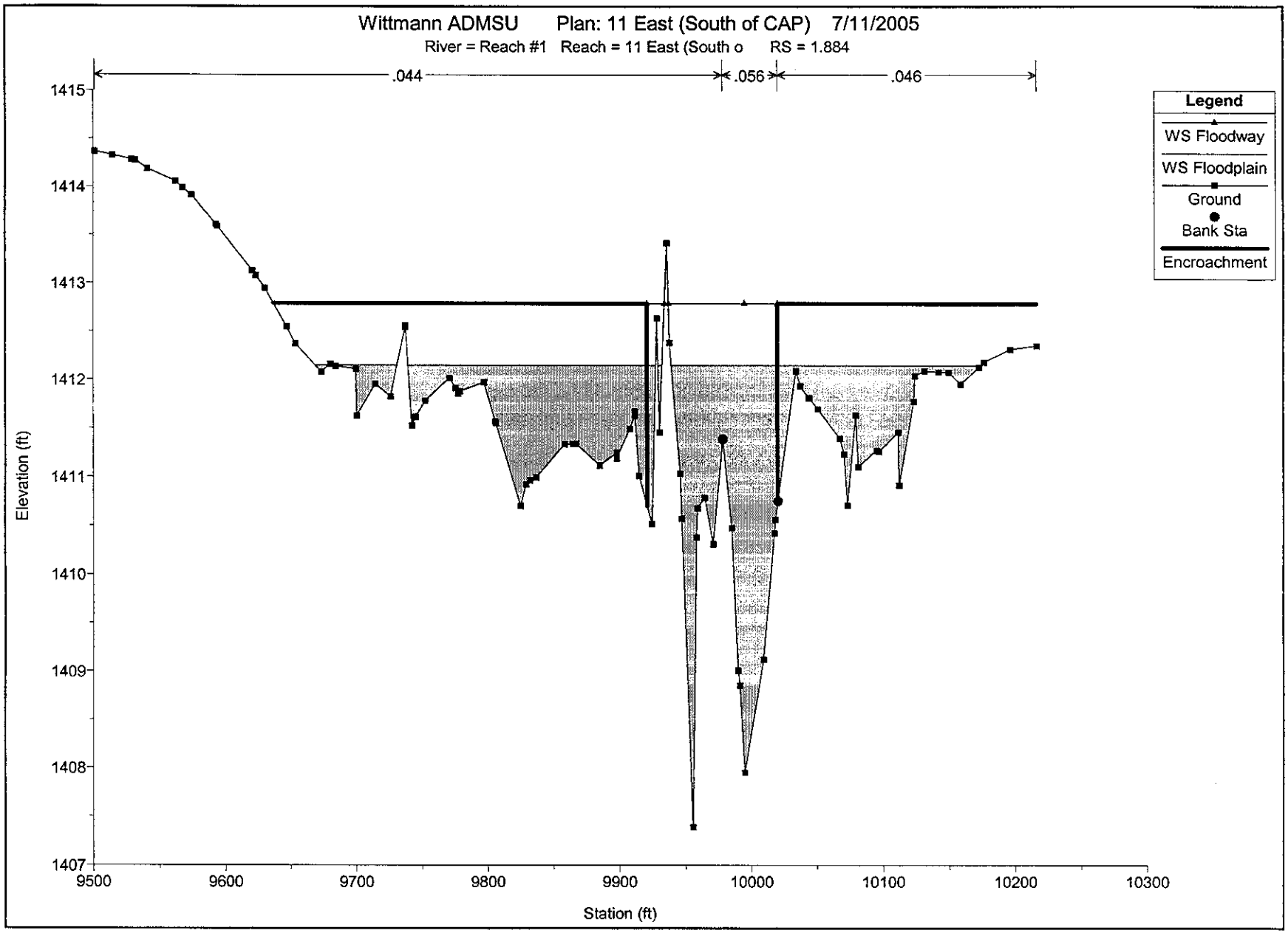

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.21
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1430
1428
1426
1424
1422
1420
1418
9700
9800
9900
10000
10100
Station (ft)

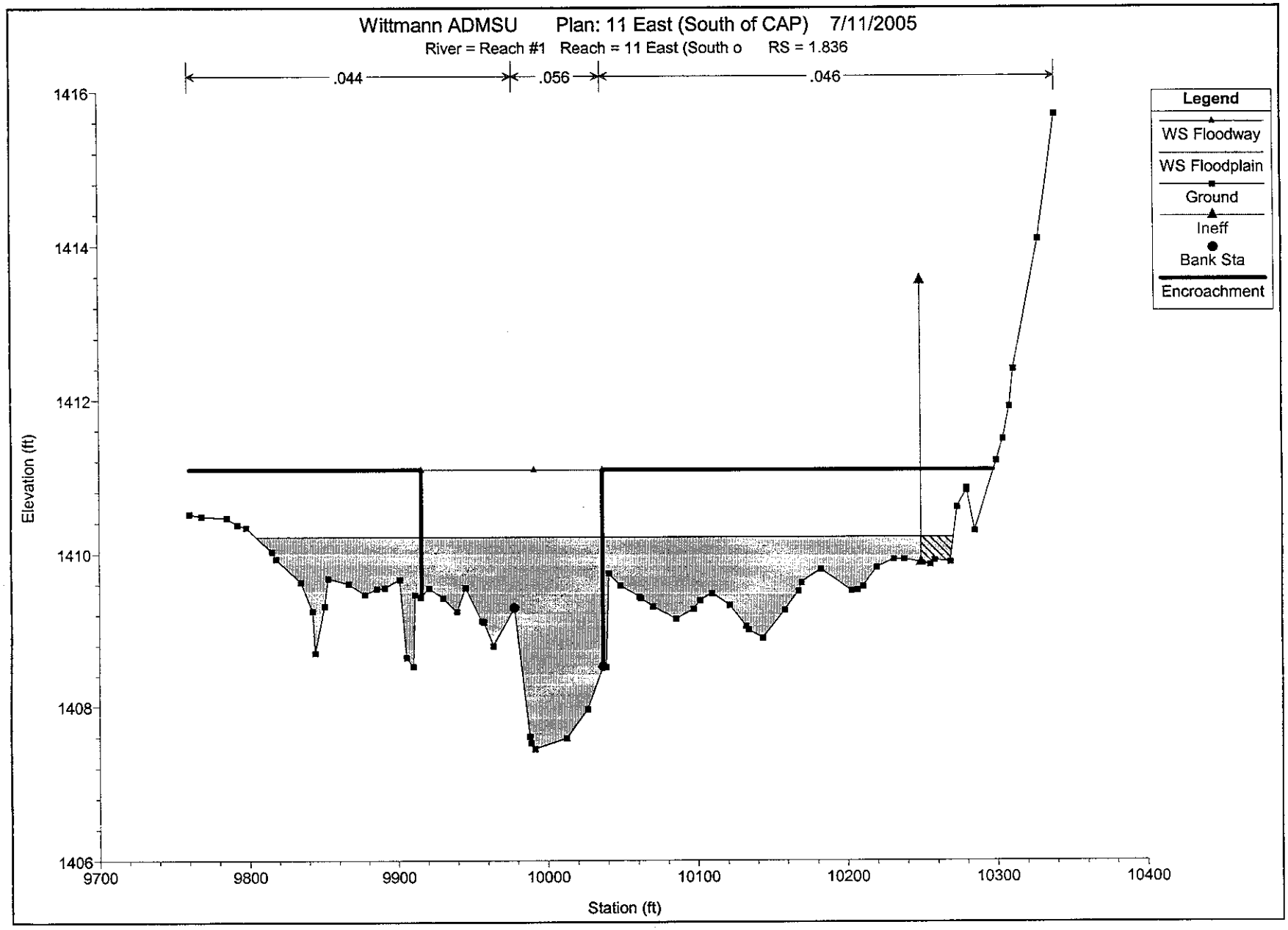

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.163
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1423
1422
1421
1420
1419
1418
9700
9750
9800
9850
9900
9950
10000
10050
Station (ft)

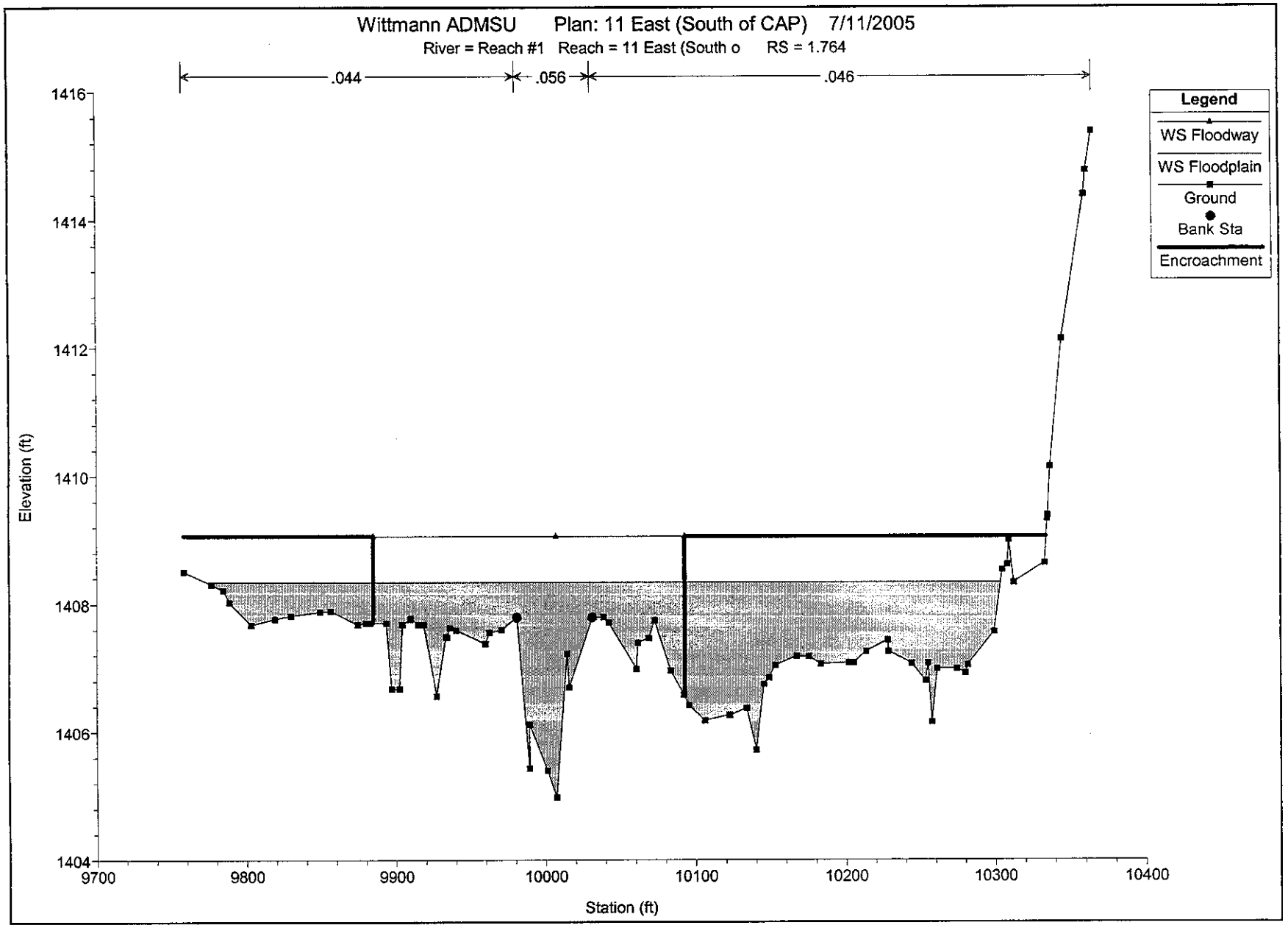

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.076
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1420
1419
1418
1417
1416
1415
1414
9750
9800
9850
9900
9950
10000
10050
10100
Station (ft)

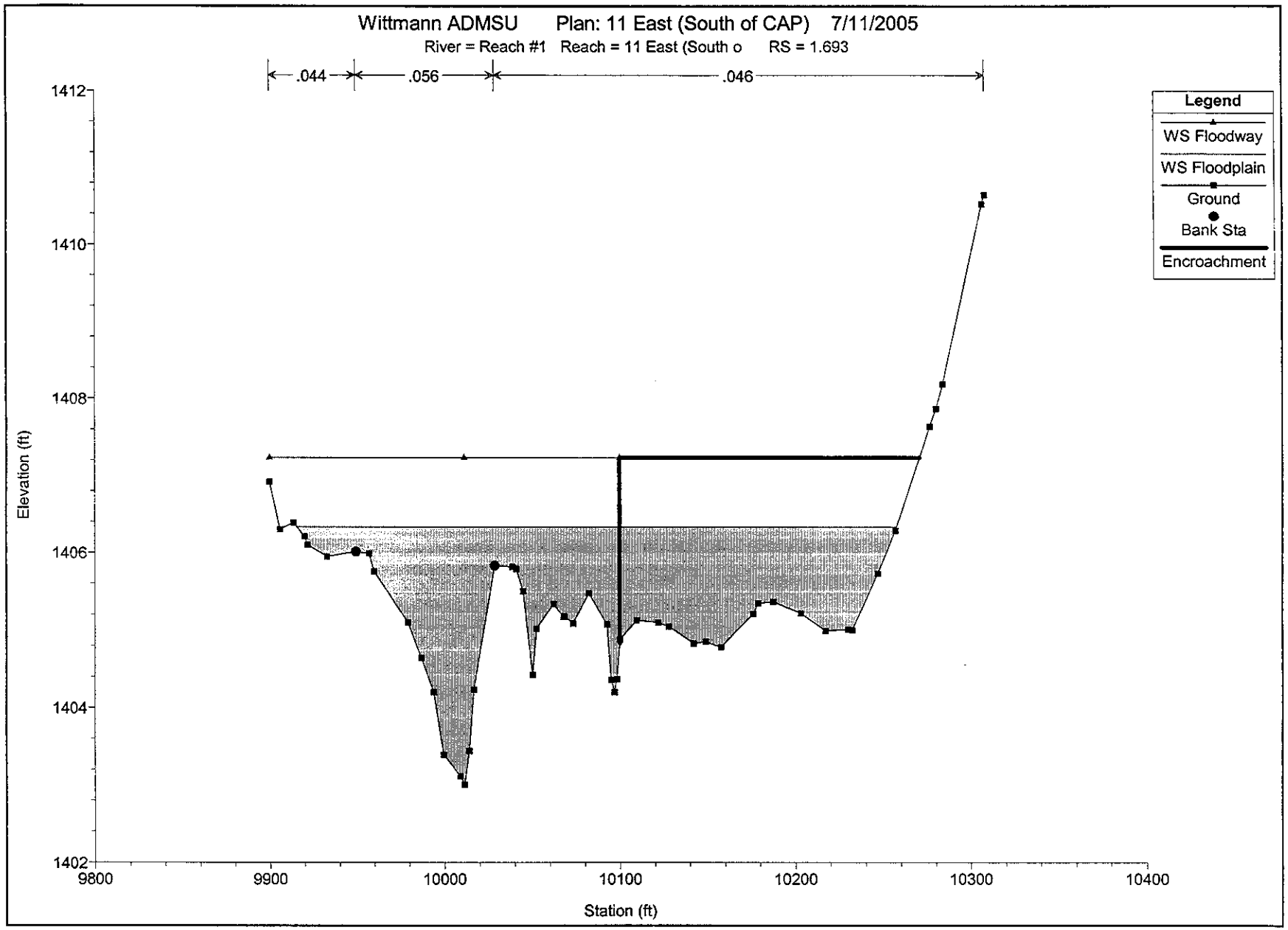

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 2.011
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1418
1417
1416
1415
1414
1413
1412
1411
9600
9700
9800
9900
10000
10100
10200
Station (ft)

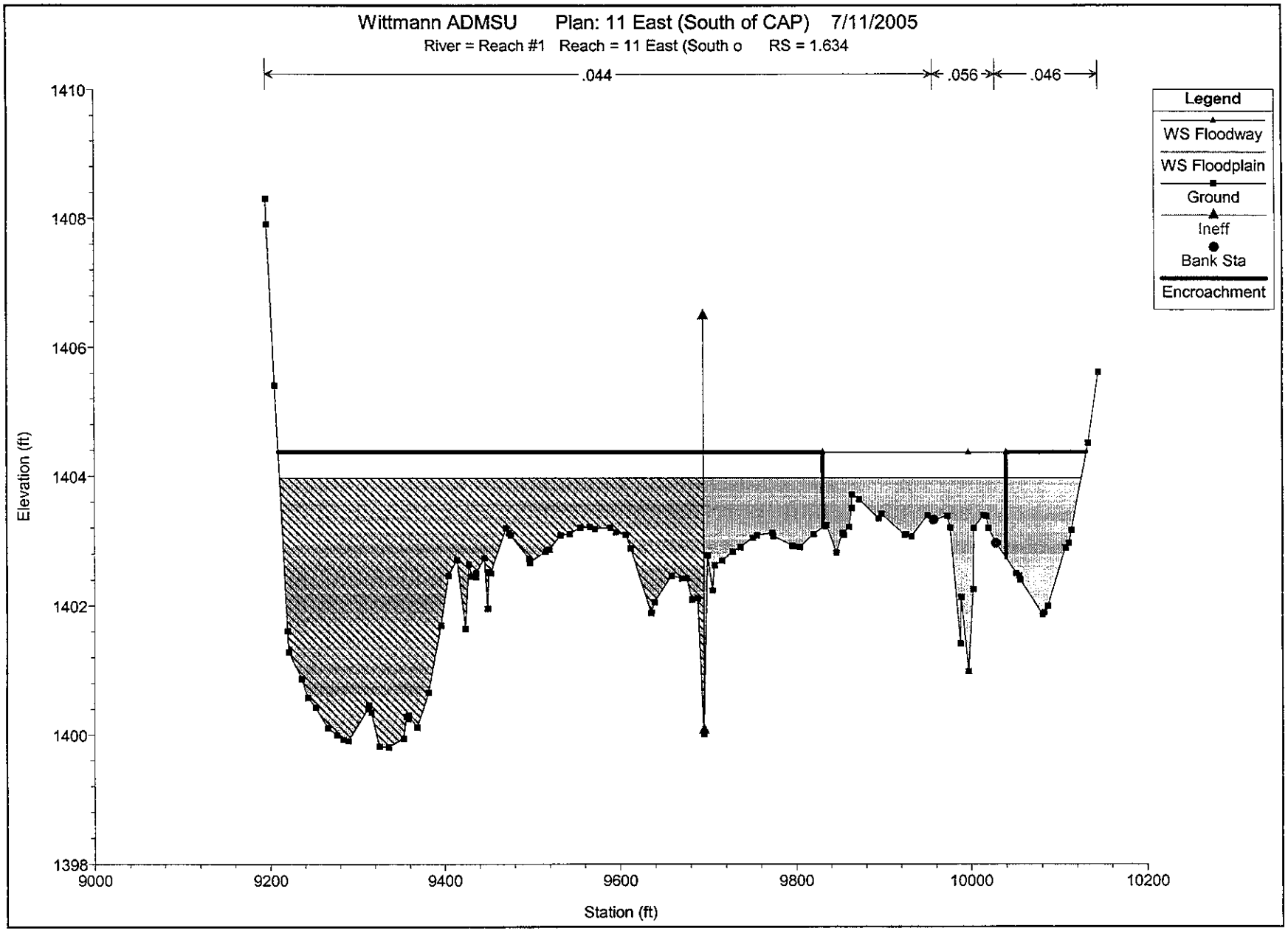

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.947
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1416
1415
1414
1413
1412
1411
1410
9700
9750
9800
9850
9900
9950
10000
10050
Station (ft)

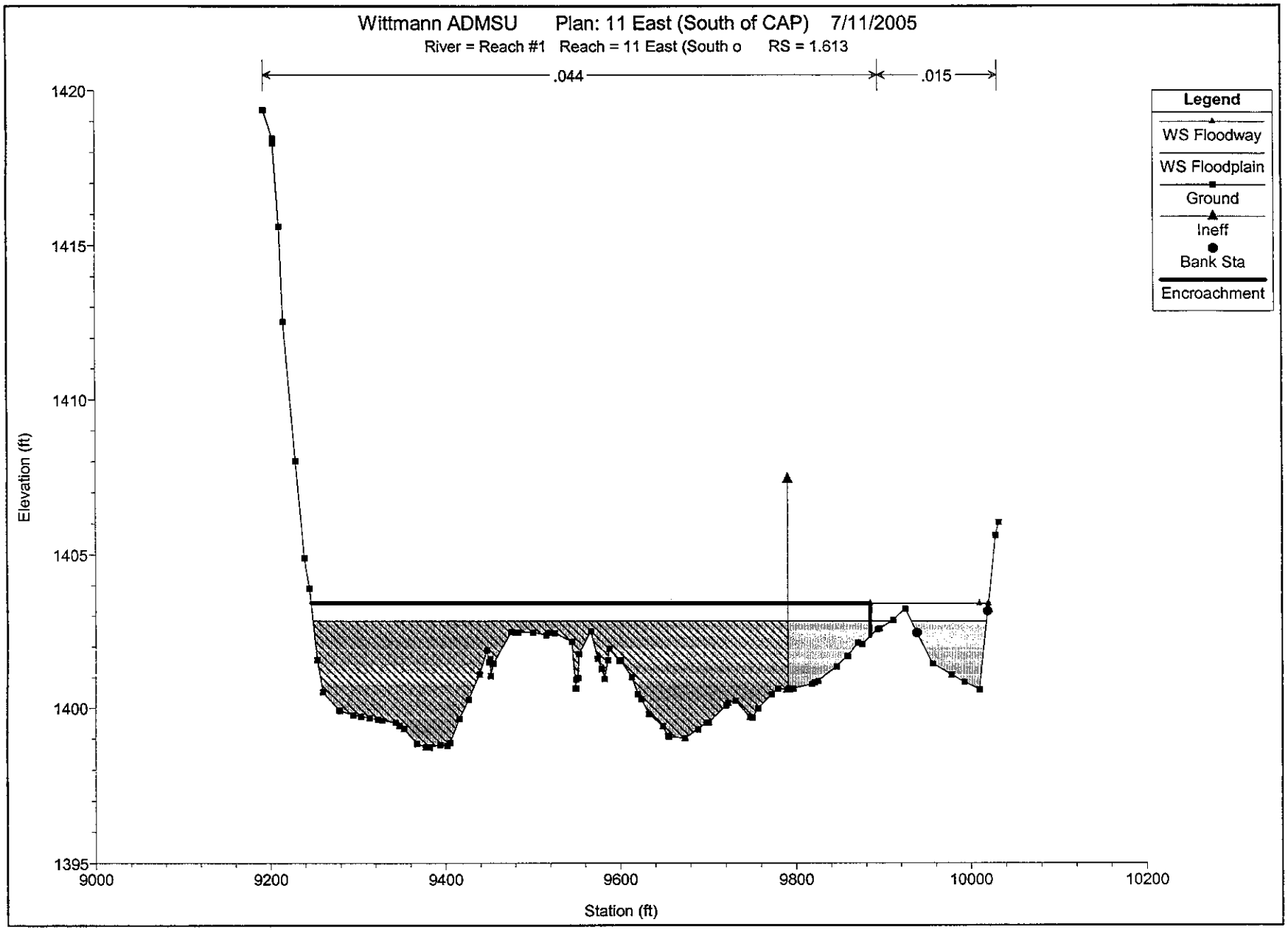

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.884
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1415
1414
1413
1412
1411
1410
1409
1408
1407
9500
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

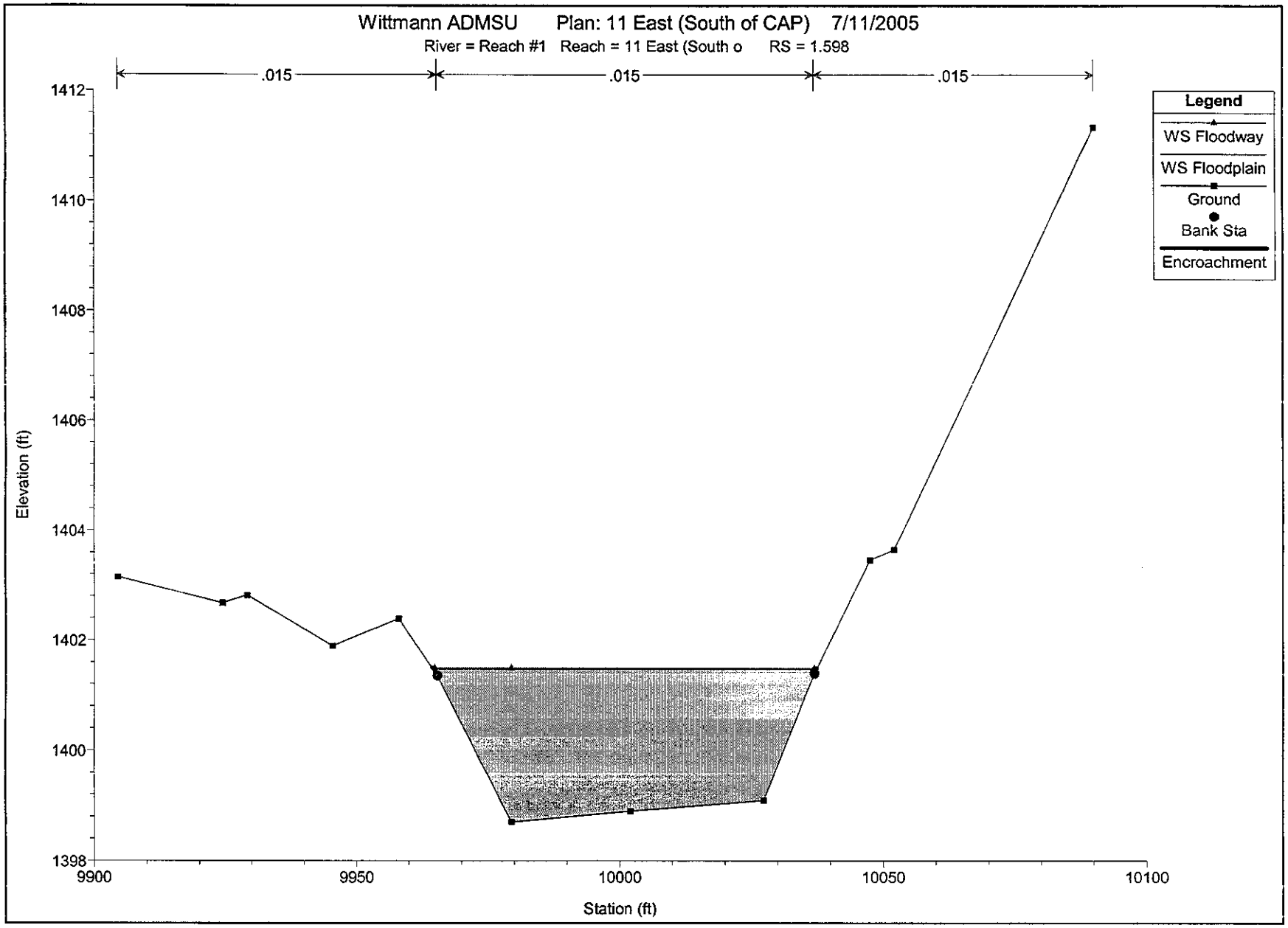

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.836
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1416
1414
1412
1410
1408
1406
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

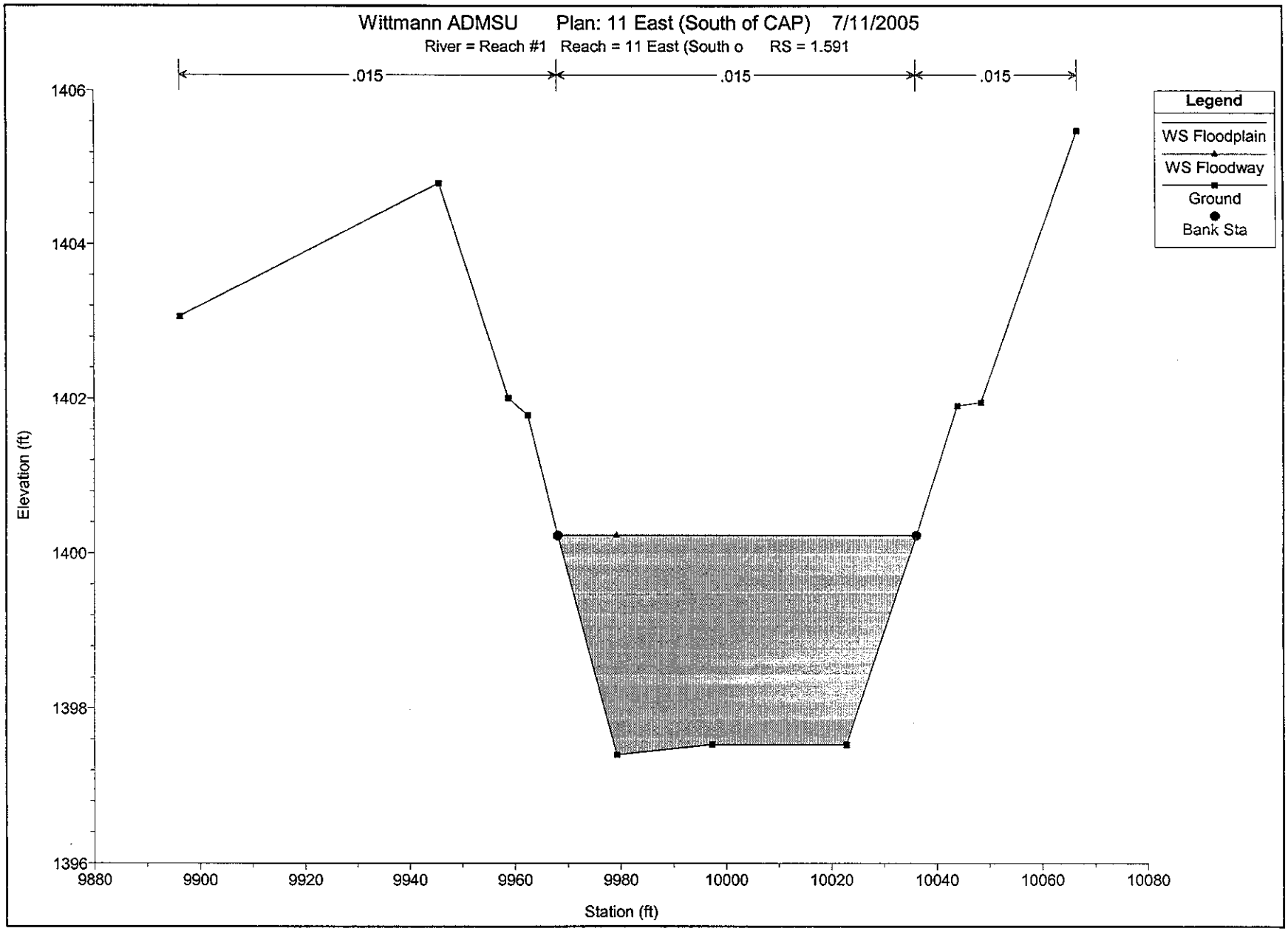

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.764
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1416
1414
1412
1410
1408
1406
1404
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

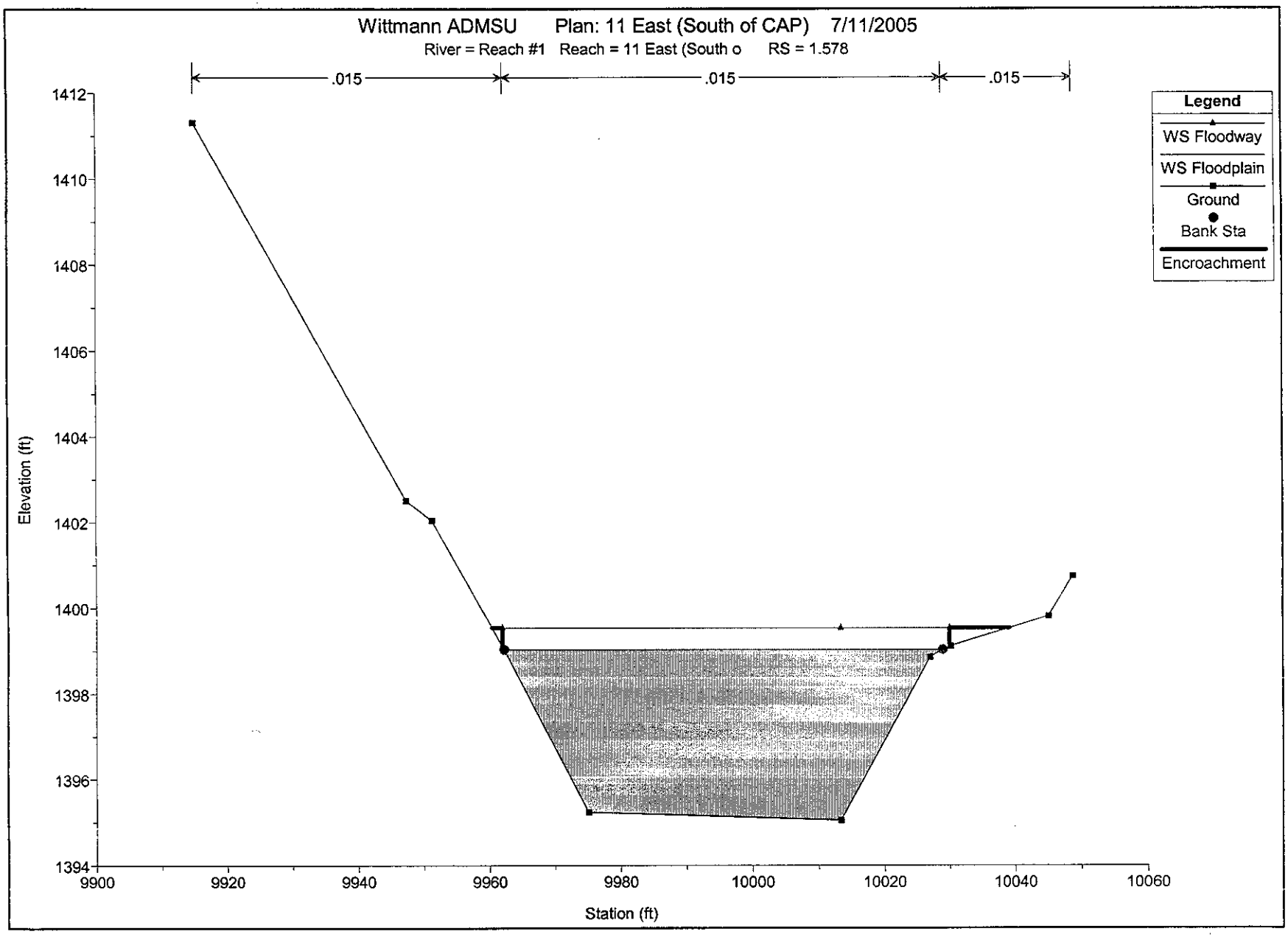

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.693
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1412
1410
1408
1406
1404
1402
9800
9900
10000
10100
10200
10300
10400
Station (ft)

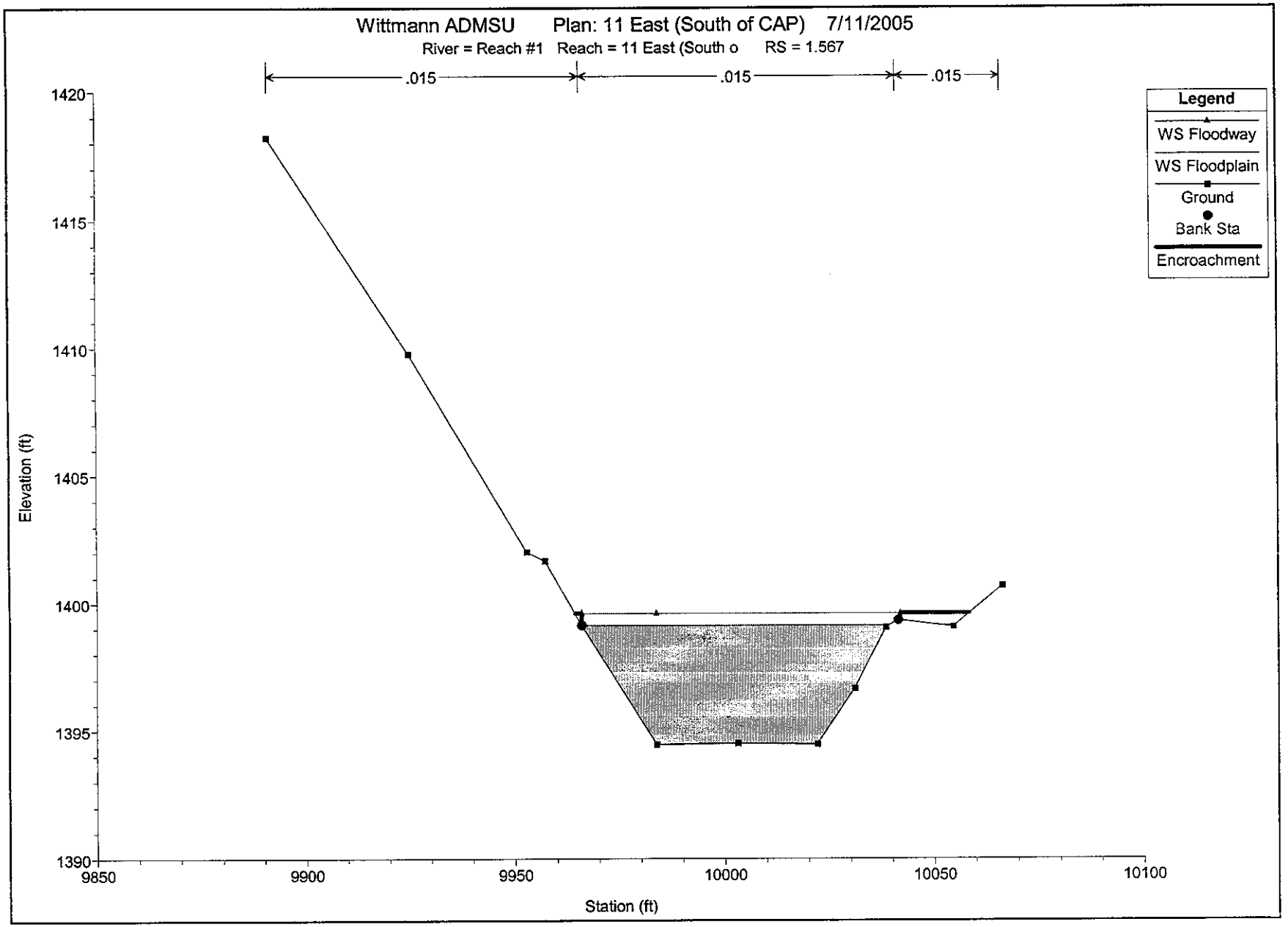

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.634
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1410
1408
1406
1404
1402
1400
1398
9000
9200
9400
9600
9800
10000
10200
Station (ft)

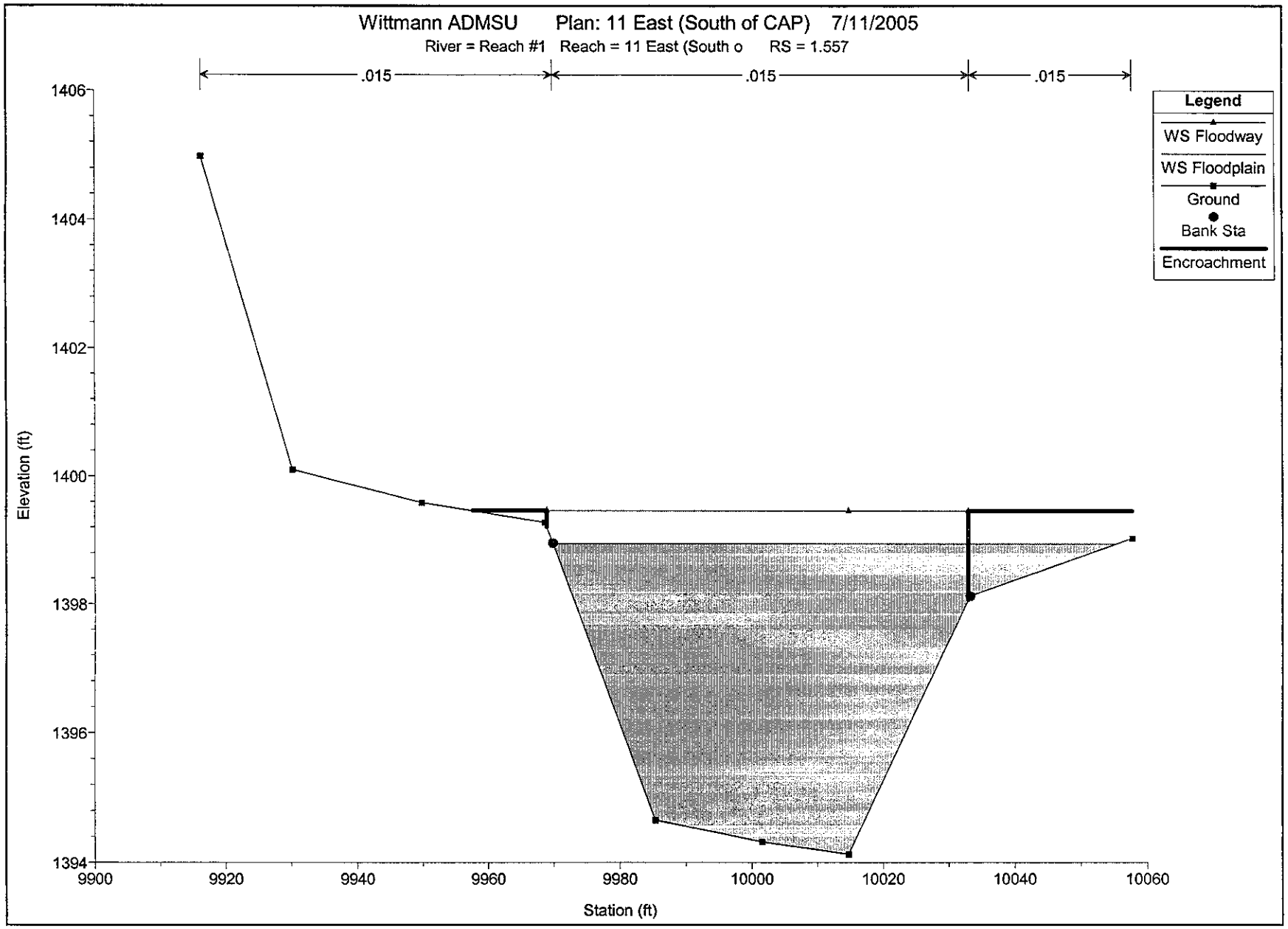

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.613
.044
.015
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1420
1415
1410
1405
1400
1395
9000
9200
9400
9600
9800
10000
10200
Station (ft)

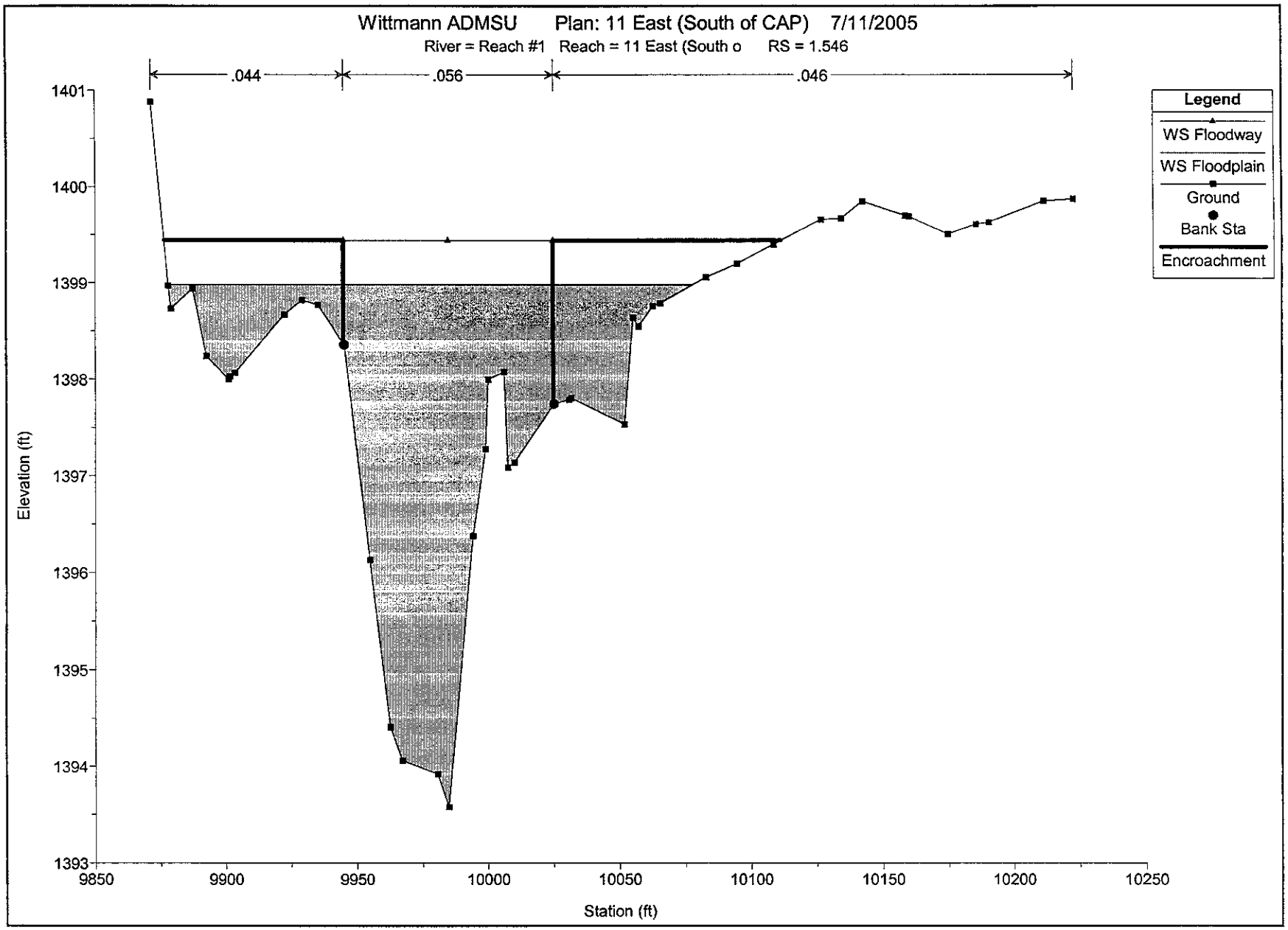

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.598
.015
.015
.015
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1412
1410
1408
1406
1404
1402
1400
1398
9900
9950
10000
10050
10100
Station (ft)

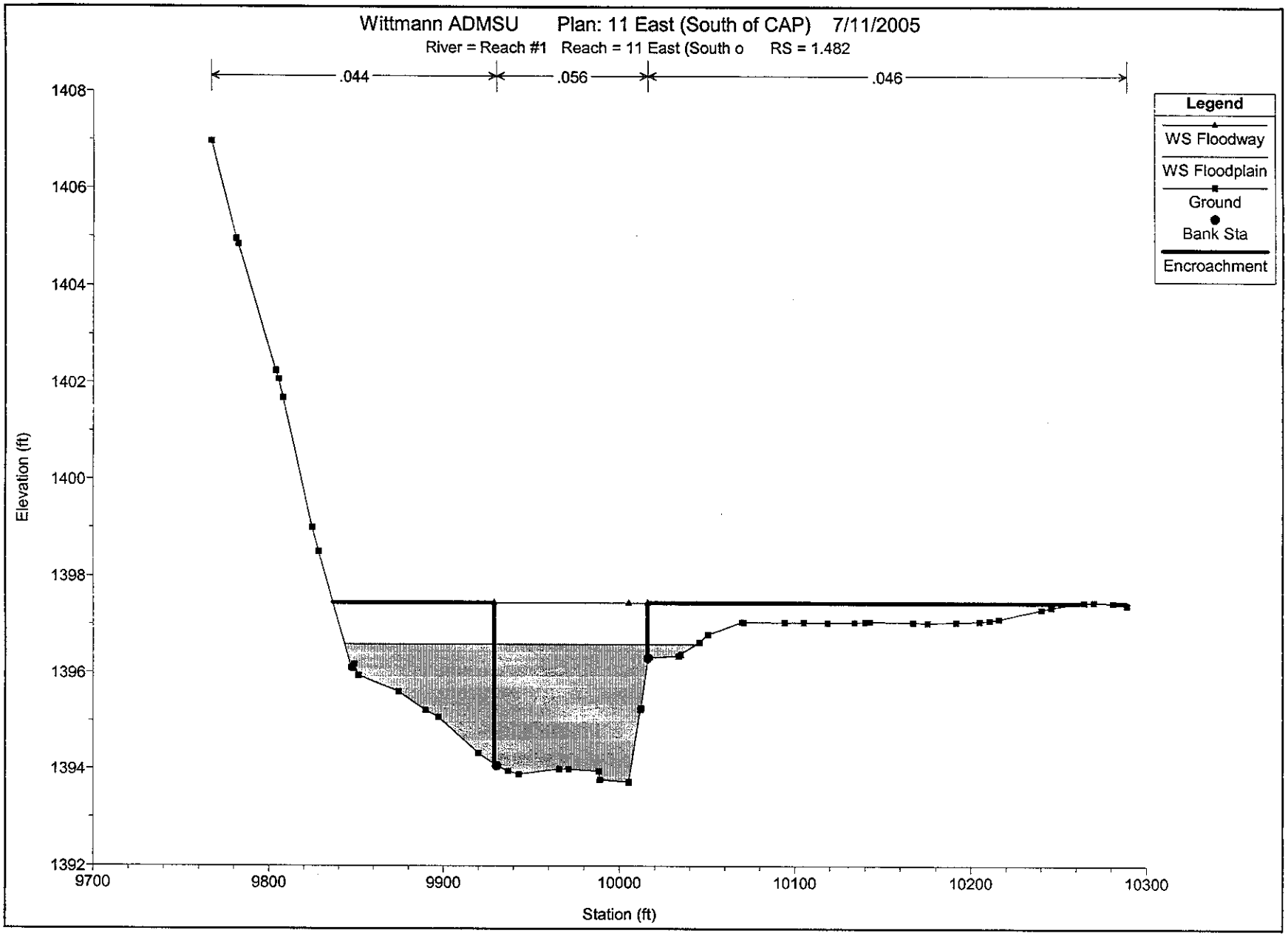

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.591
.015
.015
.015
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Elevation (ft)
1406
1404
1402
1400
1398
1396
9880
9900
9920
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

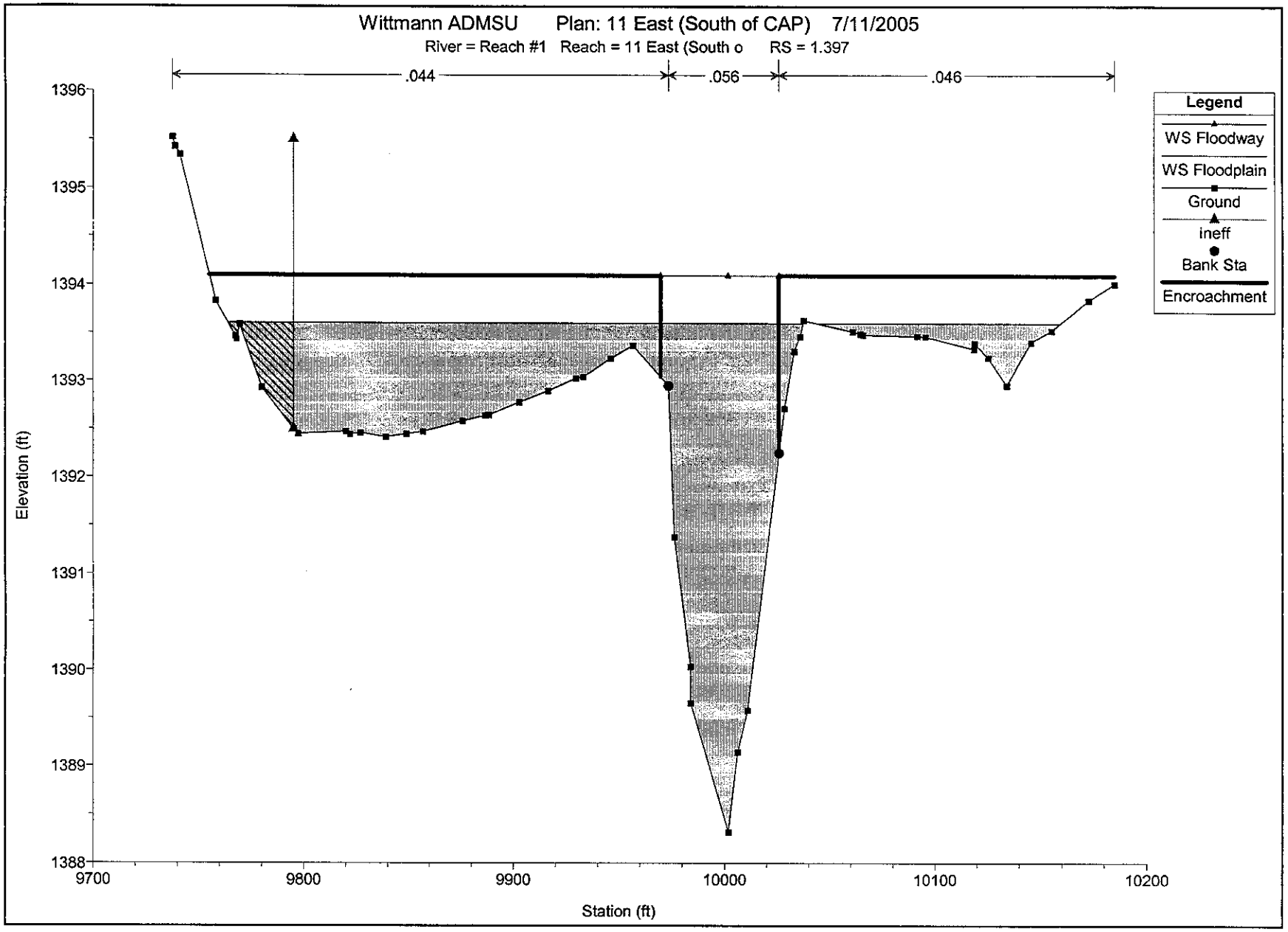

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.578
.015
.015
.015
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1412
1410
1408
1406
1404
1402
1400
1398
1396
1394
9900
9920
9940
9960
9980
10000
10020
10040
10060
Station (ft)

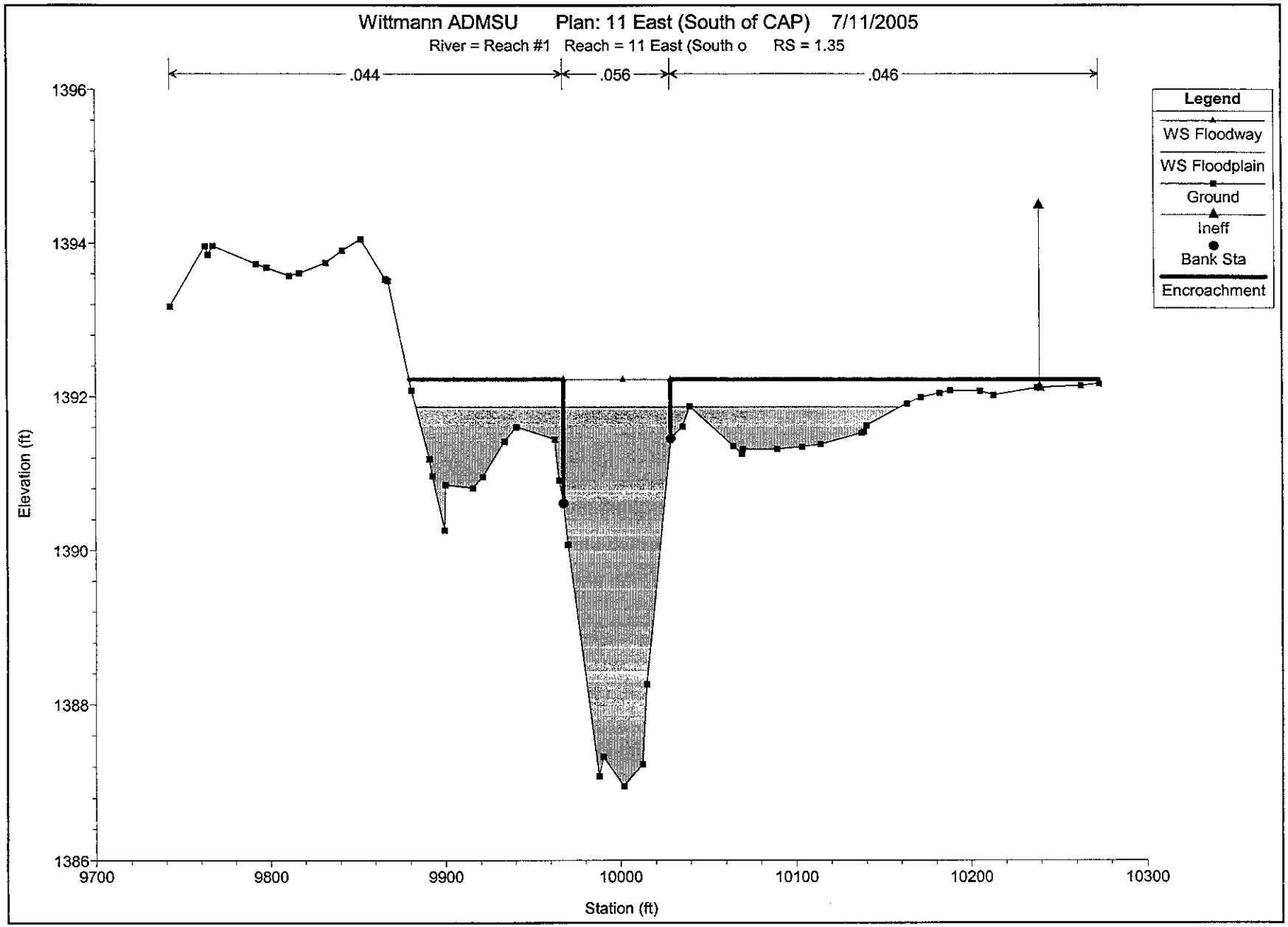

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.567
.015
.015
.015
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1420
1415
1410
1405
1400
1395
1390
9850
9900
9950
10000
10050
10100
Station (ft)

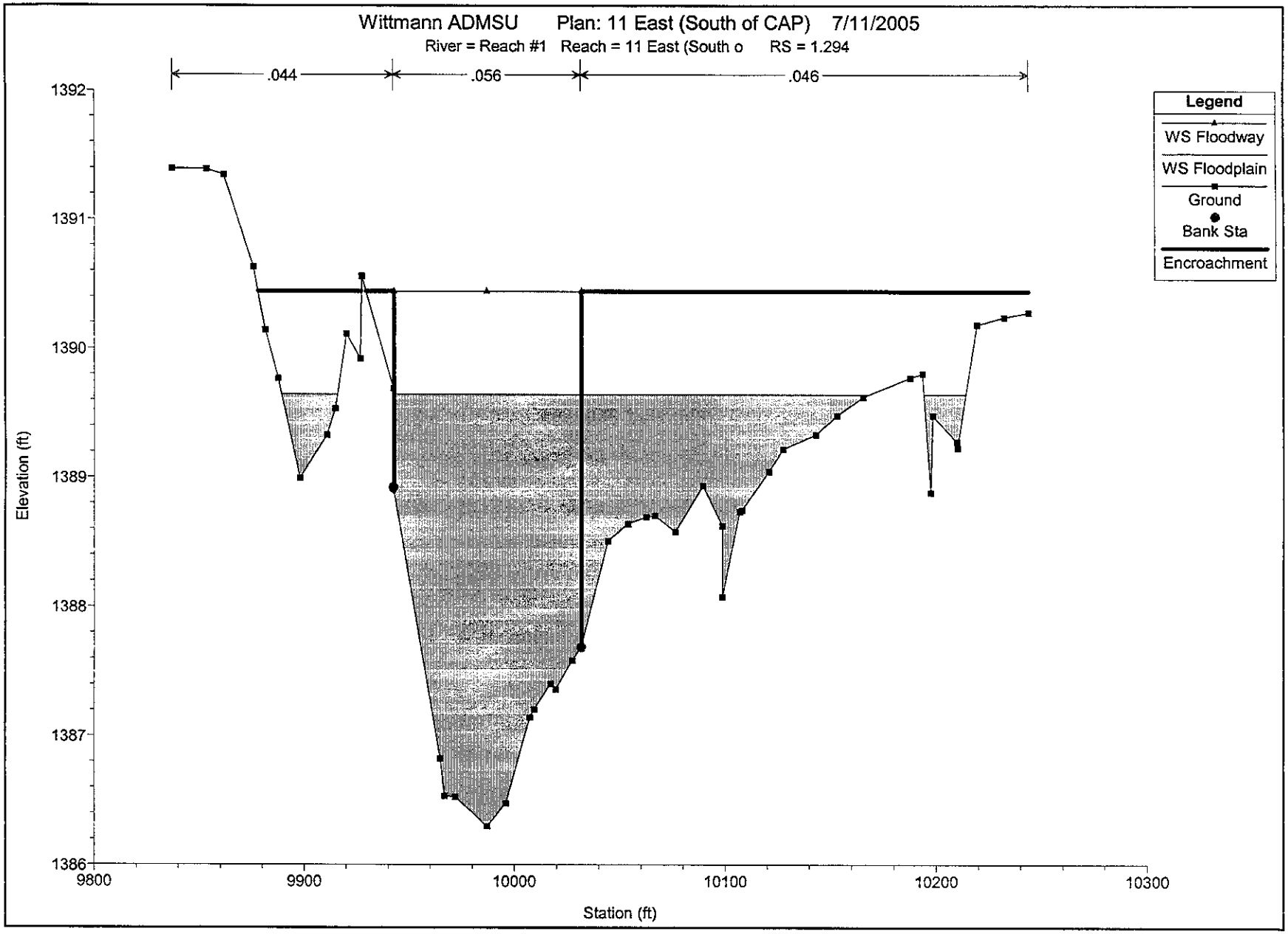

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.557
.015
.015
.015
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1406
1404
1402
1400
1398
1396
1394
9900
9920
9940
9960
9980
10000
10020
10040
10060
Station (ft)

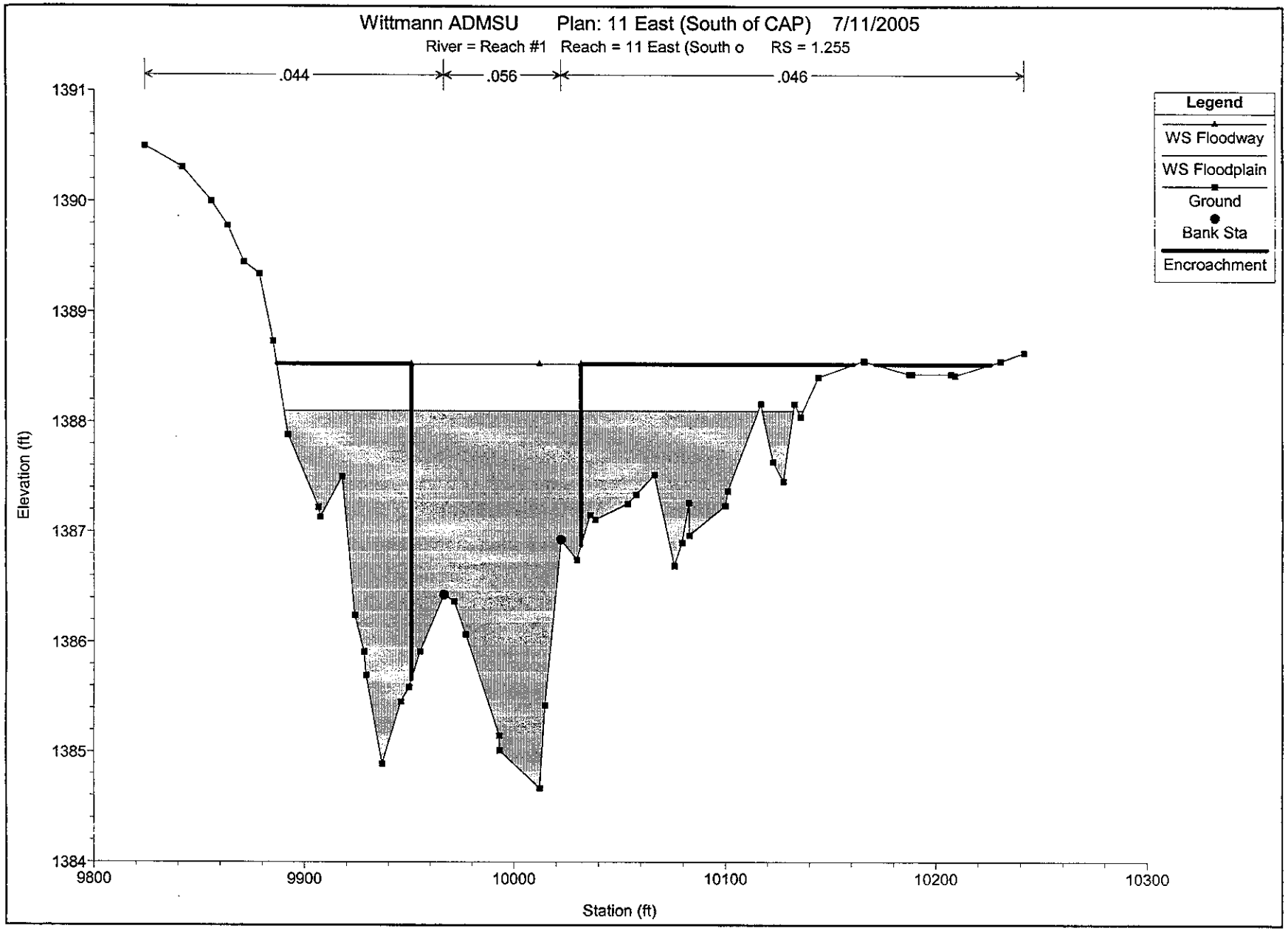

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.546
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1401
1400
1399
1398
1397
1396
1395
1394
1393
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

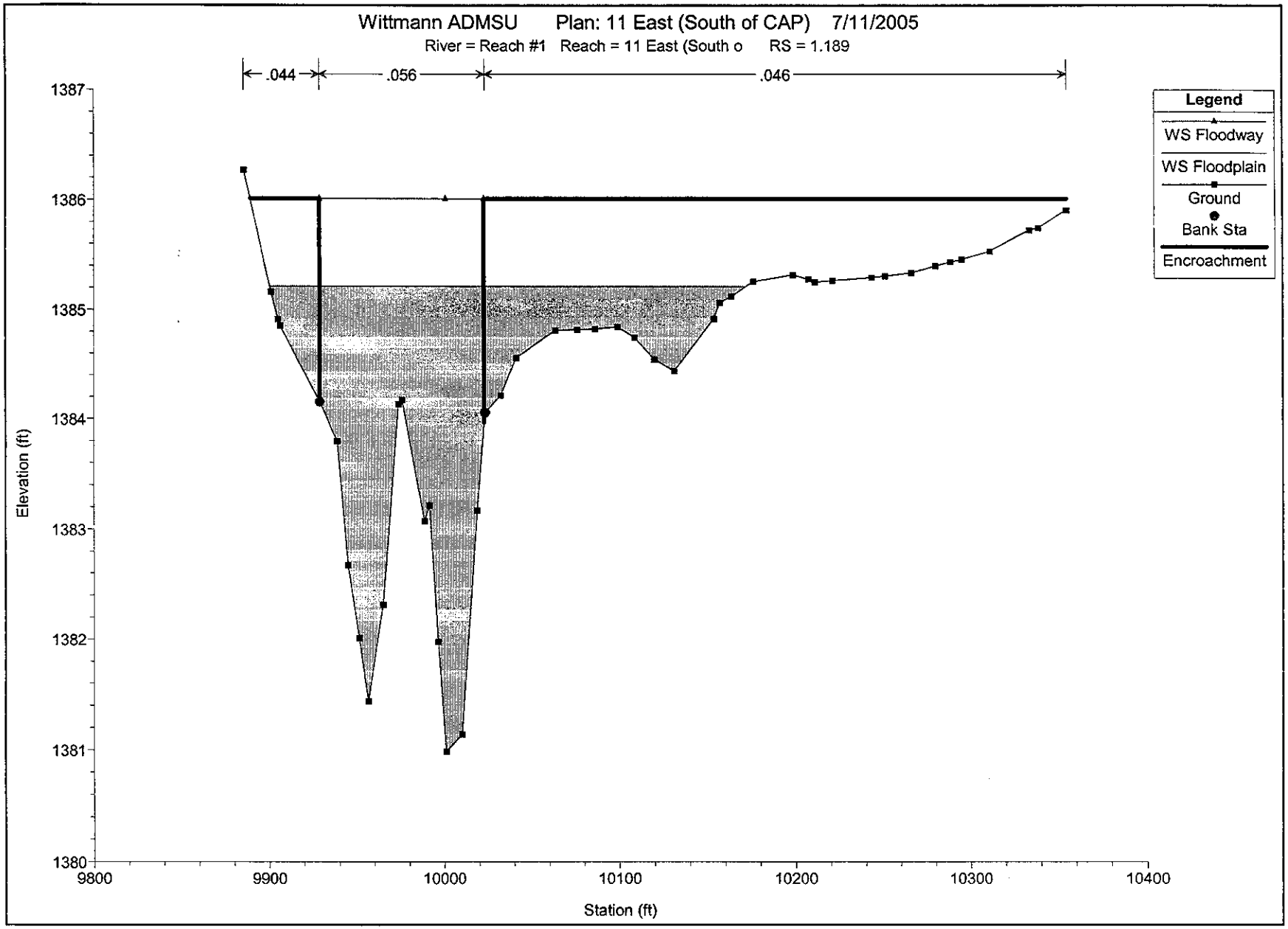

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.482
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1408
1406
1404
1402
1400
1398
1396
1394
1392
9700
9800
9900
10000
10100
10200
10300
Station (ft)

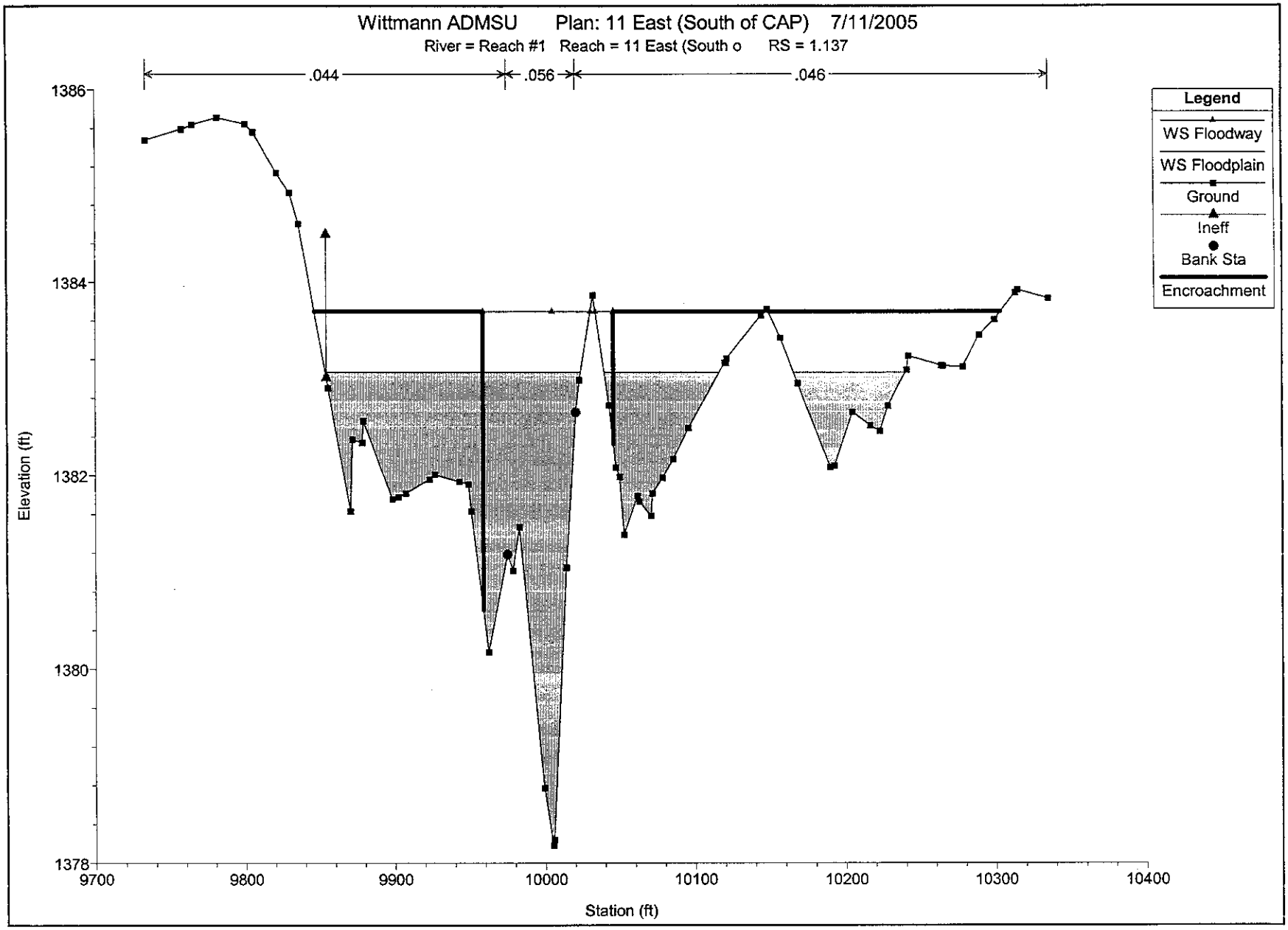

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.397
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1396
1395
1394
1393
1392
1391
1390
1389
1388
9700
9800
9900
10000
10100
10200
Station (ft)

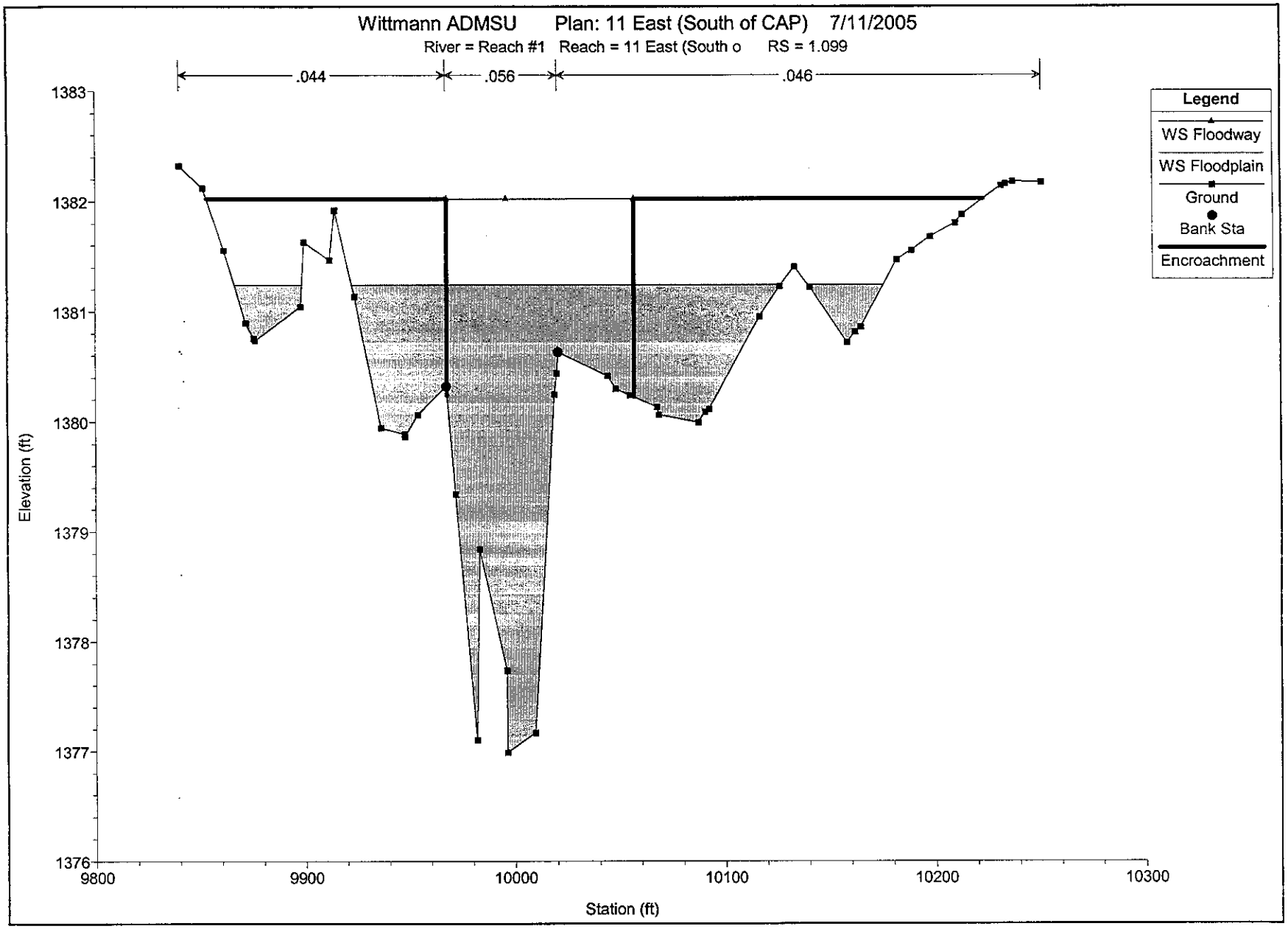

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.35
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1396
1394
1392
1390
1388
1386
9700
9800
9900
10000
10100
10200
10300
Station (ft)

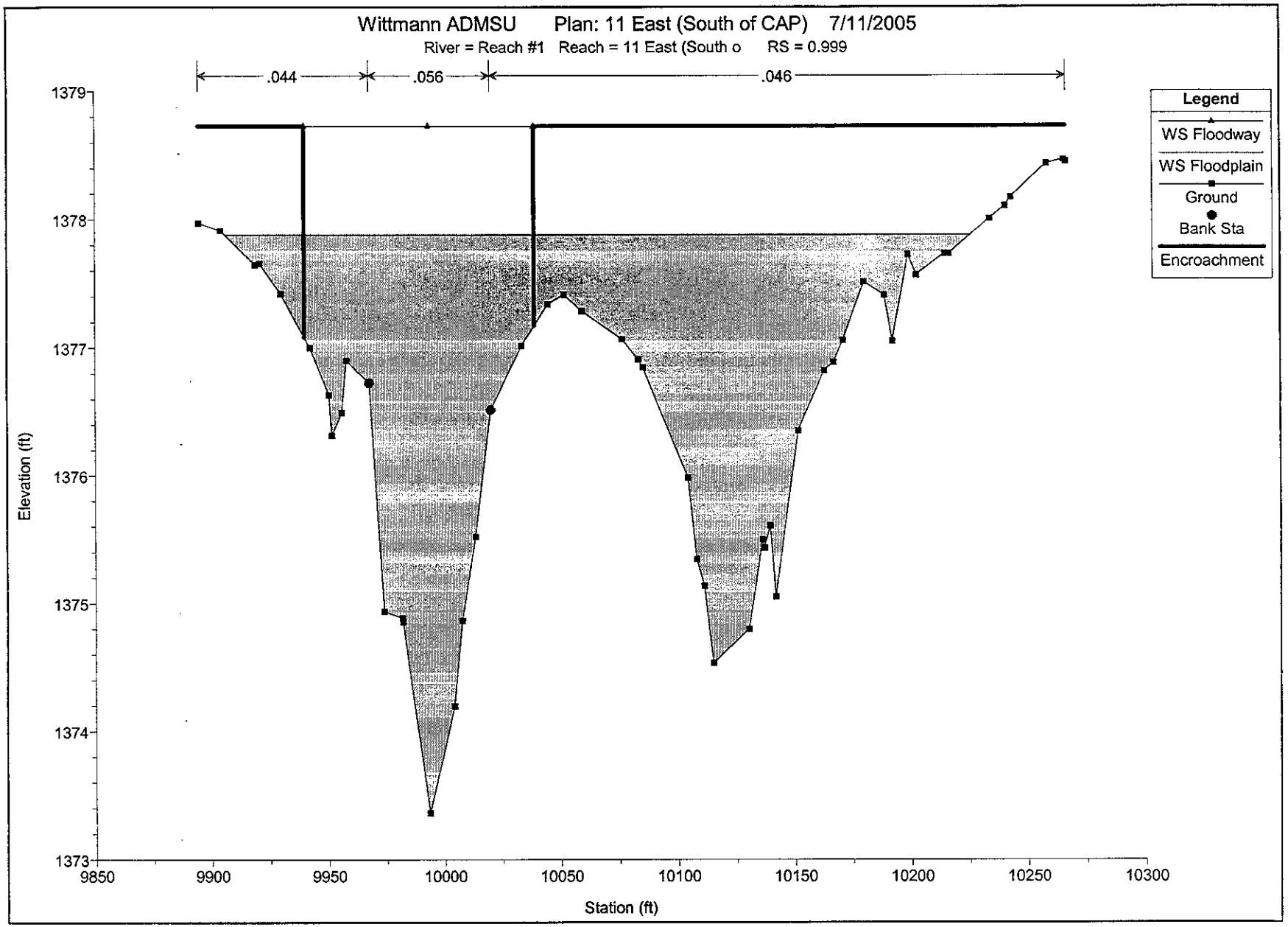

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.294
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1392
1391
1390
1389
1388
1387
1386
9800
9900
10000
10100
10200
10300
Station (ft)

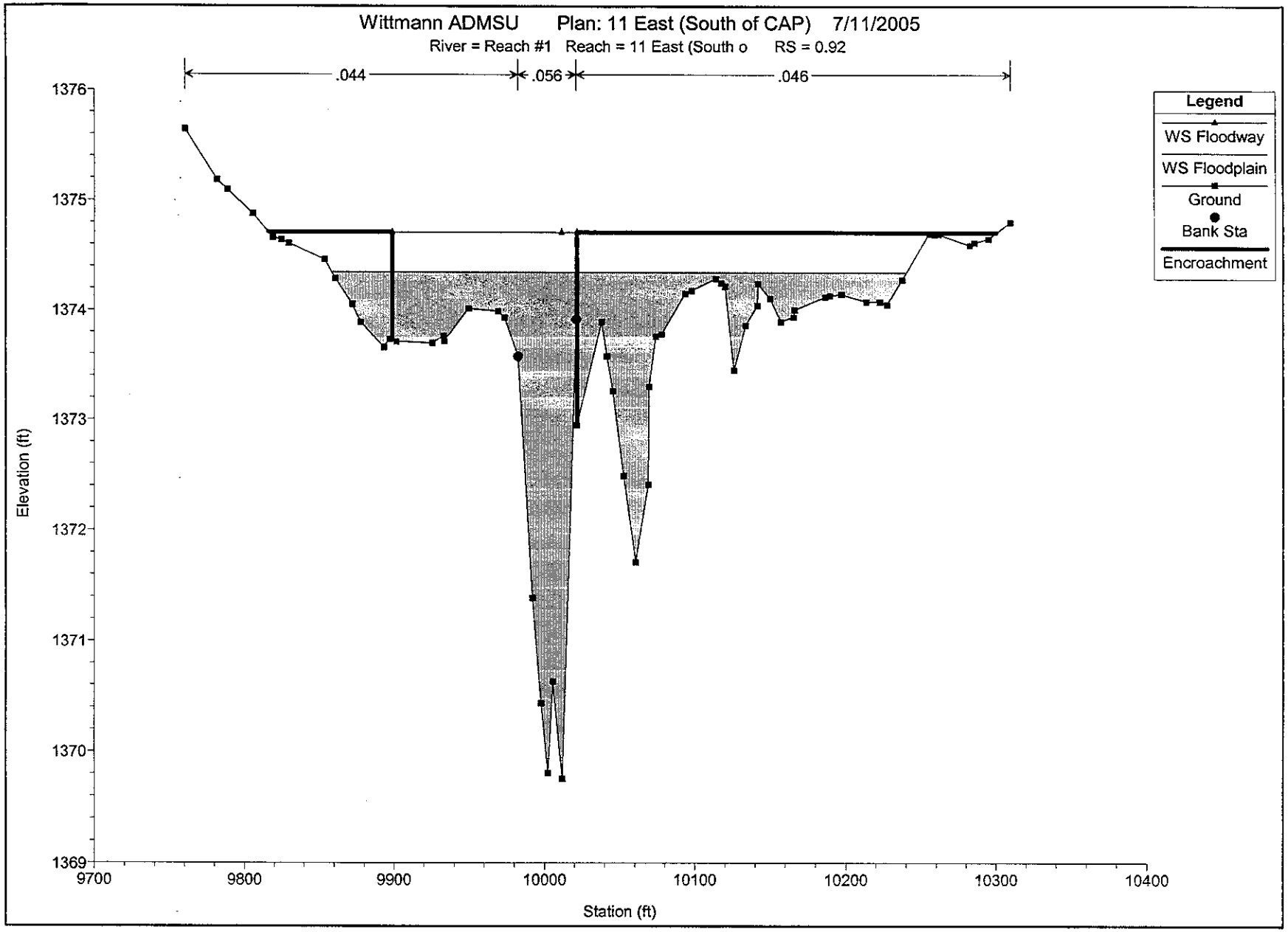

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.255
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1391
1390
1389
1388
1387
1386
1385
1384
9800
9900
10000
10100
10200
10300
Station (ft)

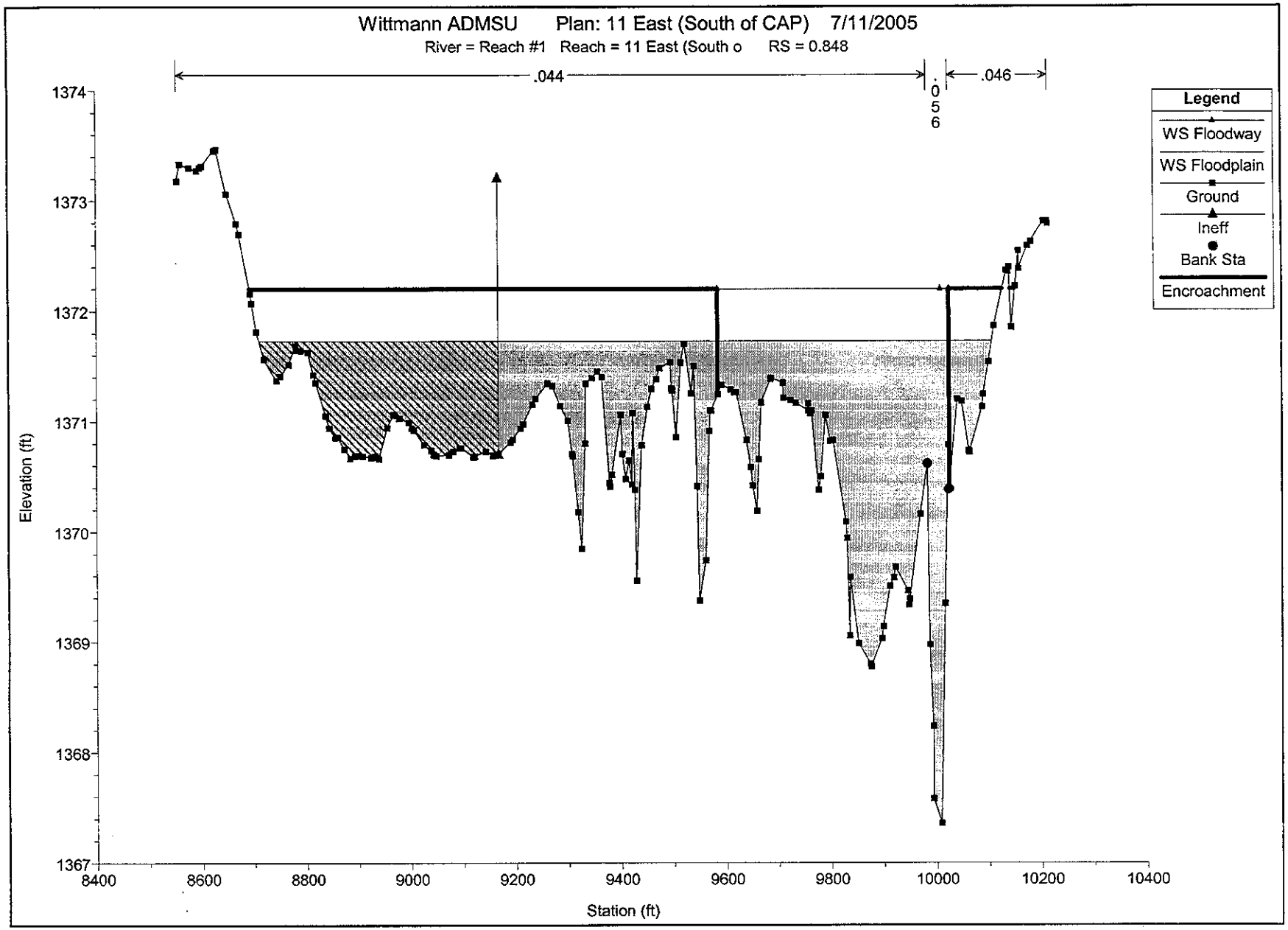

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.189
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1387
1386
1385
1384
1383
1382
1381
1380
9800
9900
10000
10100
10200
10300
10400
Station (ft)

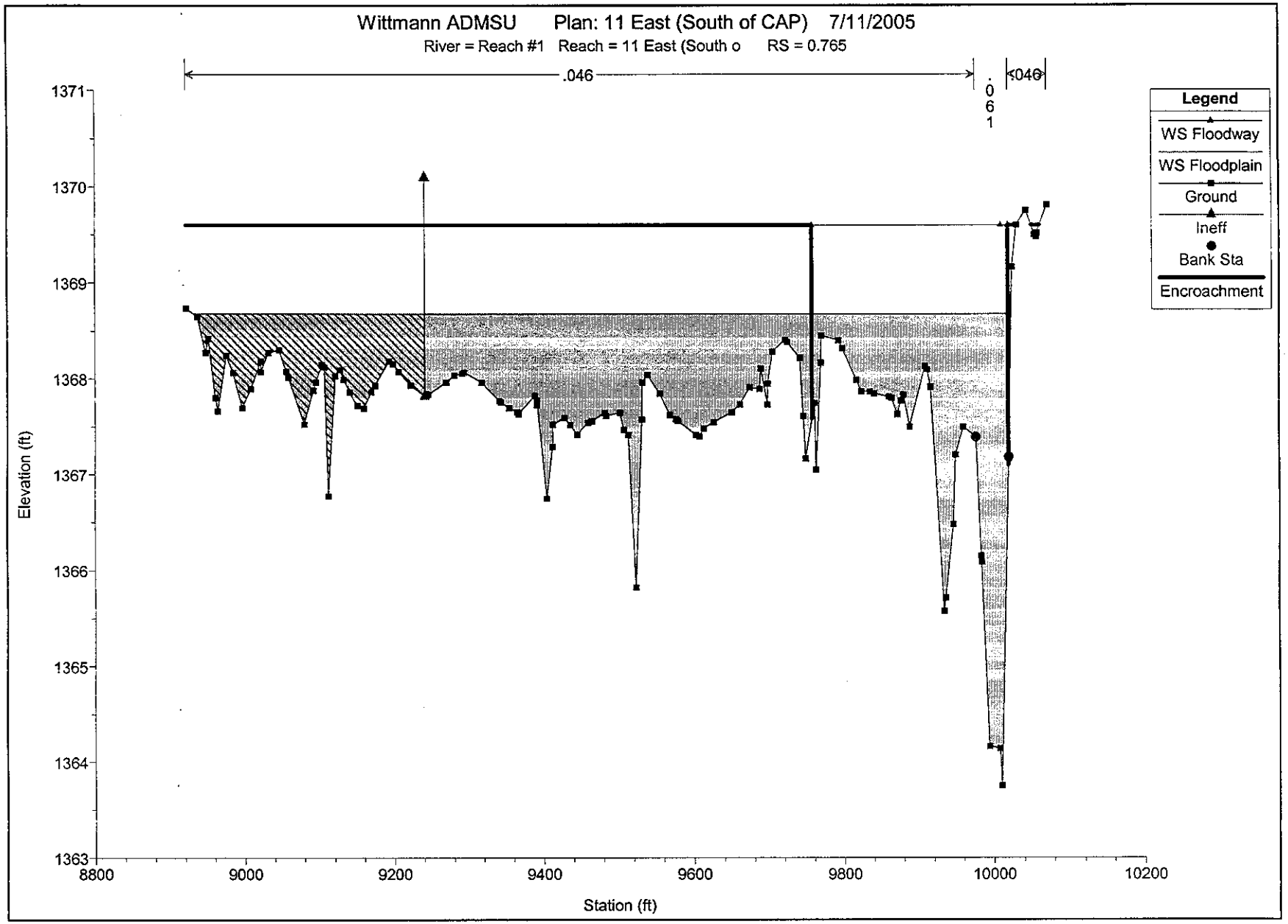

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.137
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1386
1384
1382
1380
1378
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

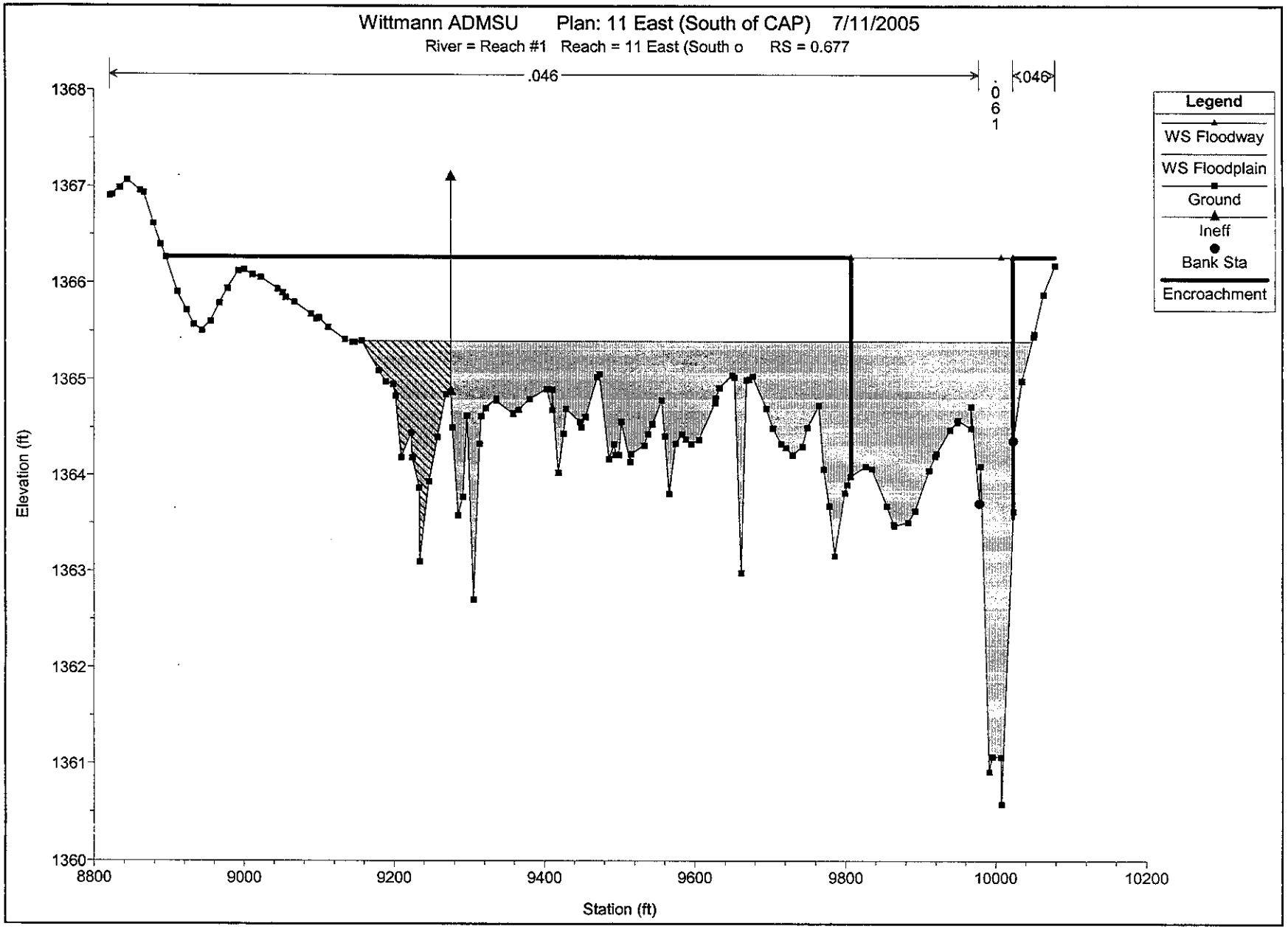

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 1.099
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1383
1382
1381
1380
1379
1378
1377
1376
9800
9900
10000
10100
10200
10300
Station (ft)

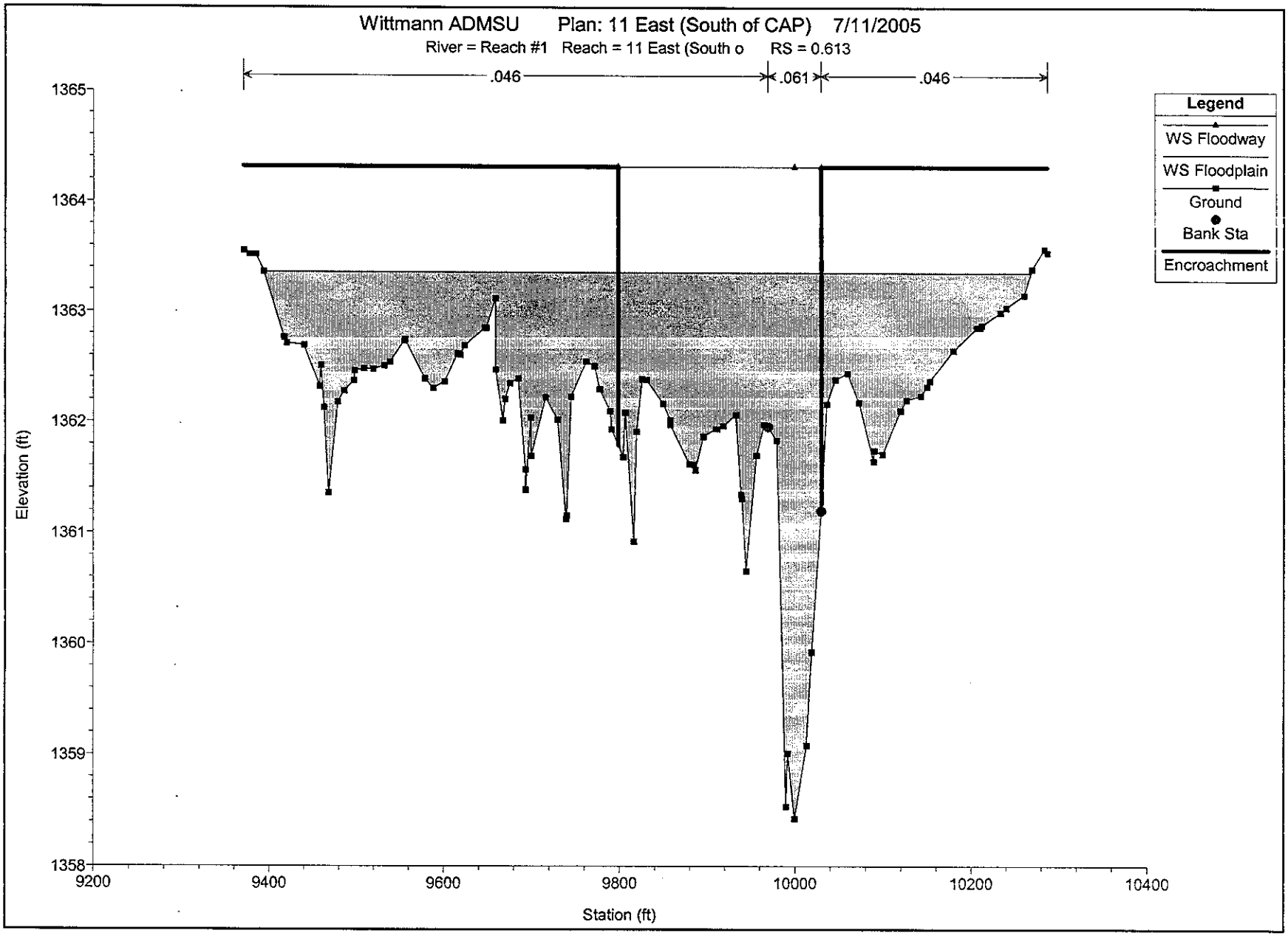

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.999
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1379
1378
1377
1376
1375
1374
1373
9850
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

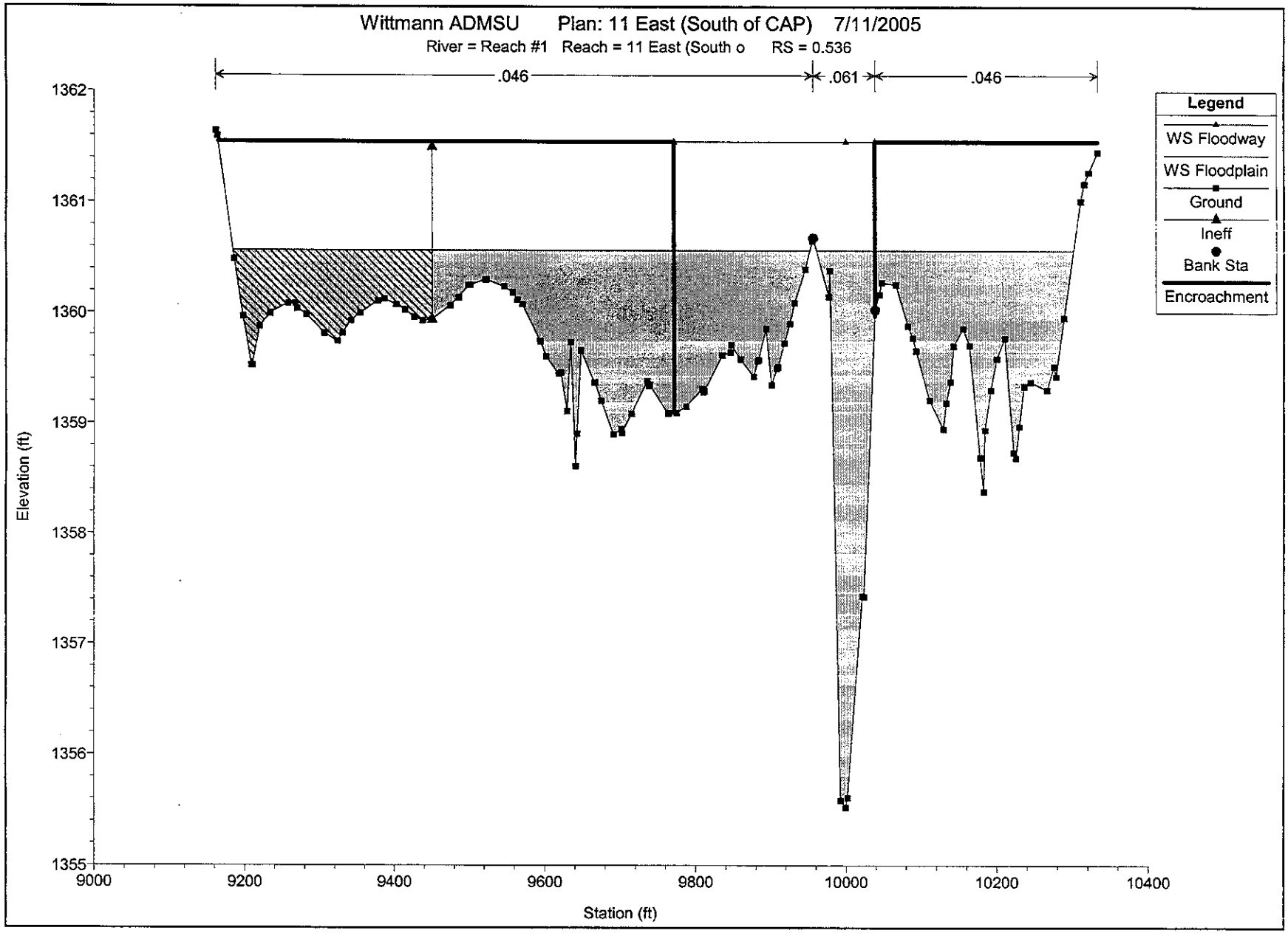

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.92
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1376
1375
1374
1373
1372
1371
1370
1369
9700
9800
9900
10000
10100
10200
10300
10400
Station (ft)

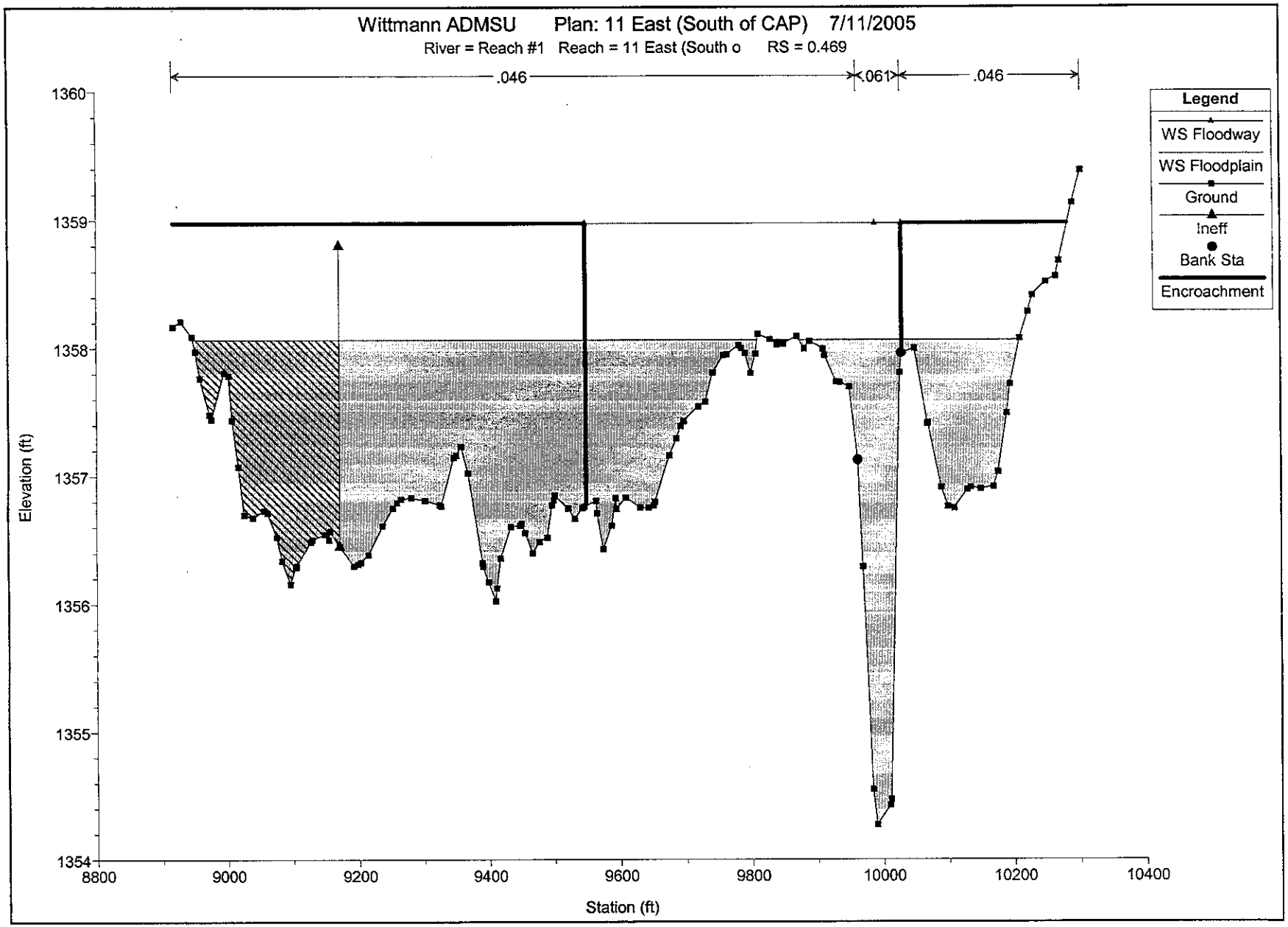

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.848
.044
.056
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1374
1373
1372
1371
1370
1369
1368
1367
8400
8600
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

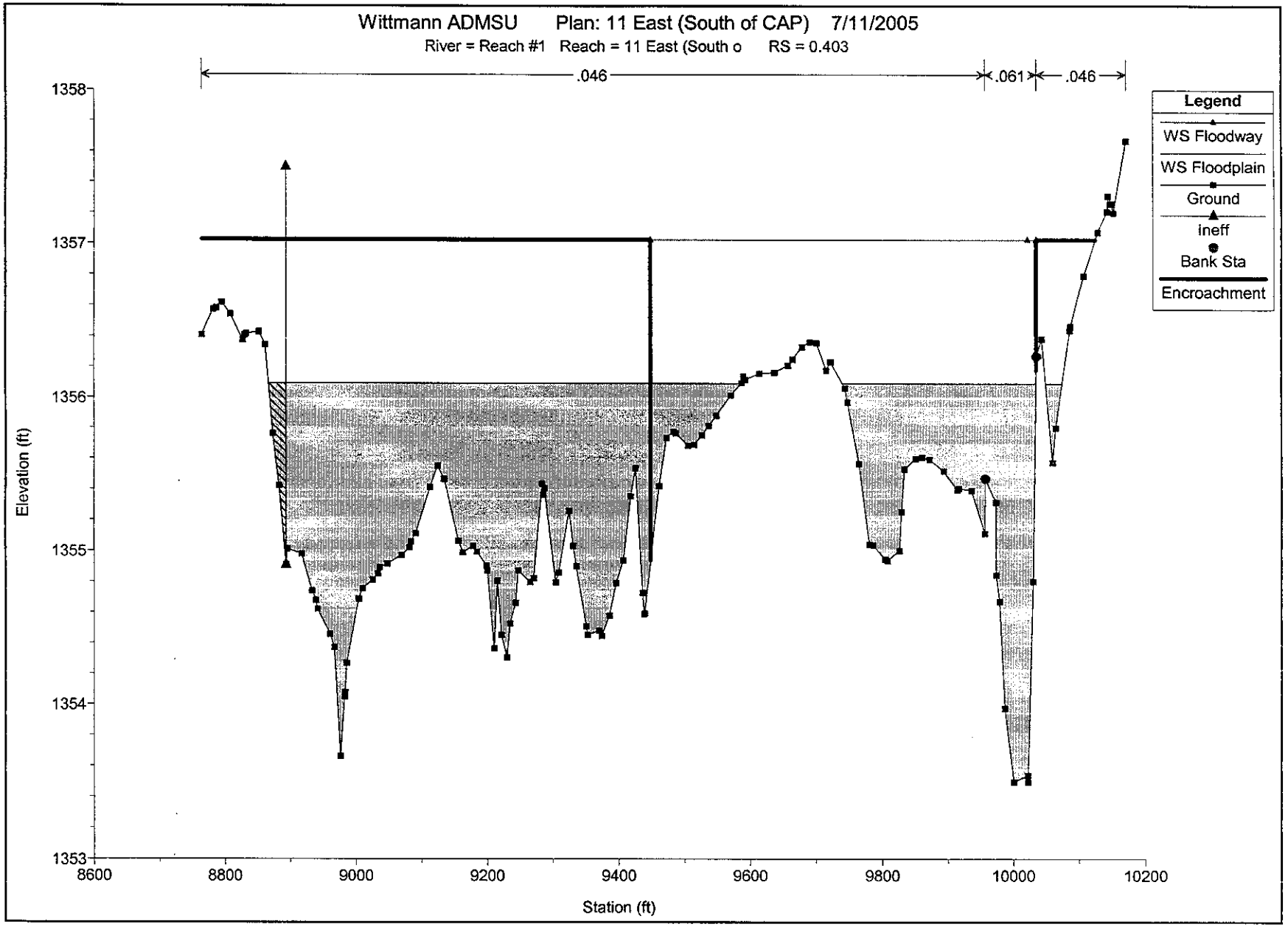

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.765
.046
.061
.040
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1371
1370
1369
1368
1367
1366
1365
1364
1363
8800
9000
9200
9400
9600
9800
10000
10200
Station (ft)

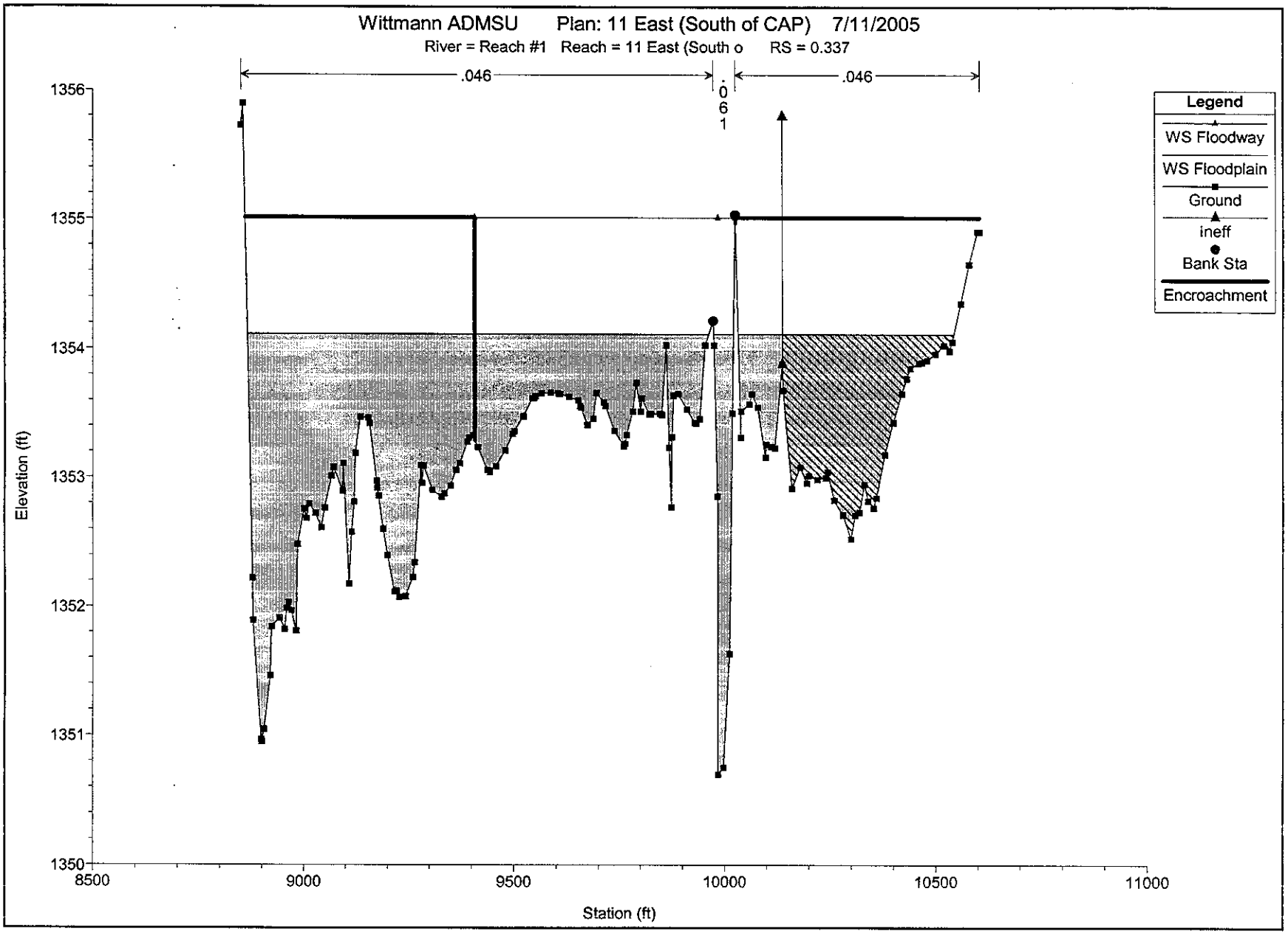

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.677
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1368
1367
1366
1365
1364
1363
1362
1361
1360
8800
9000
9200
9400
9600
9800
10000
10200
Station (ft)

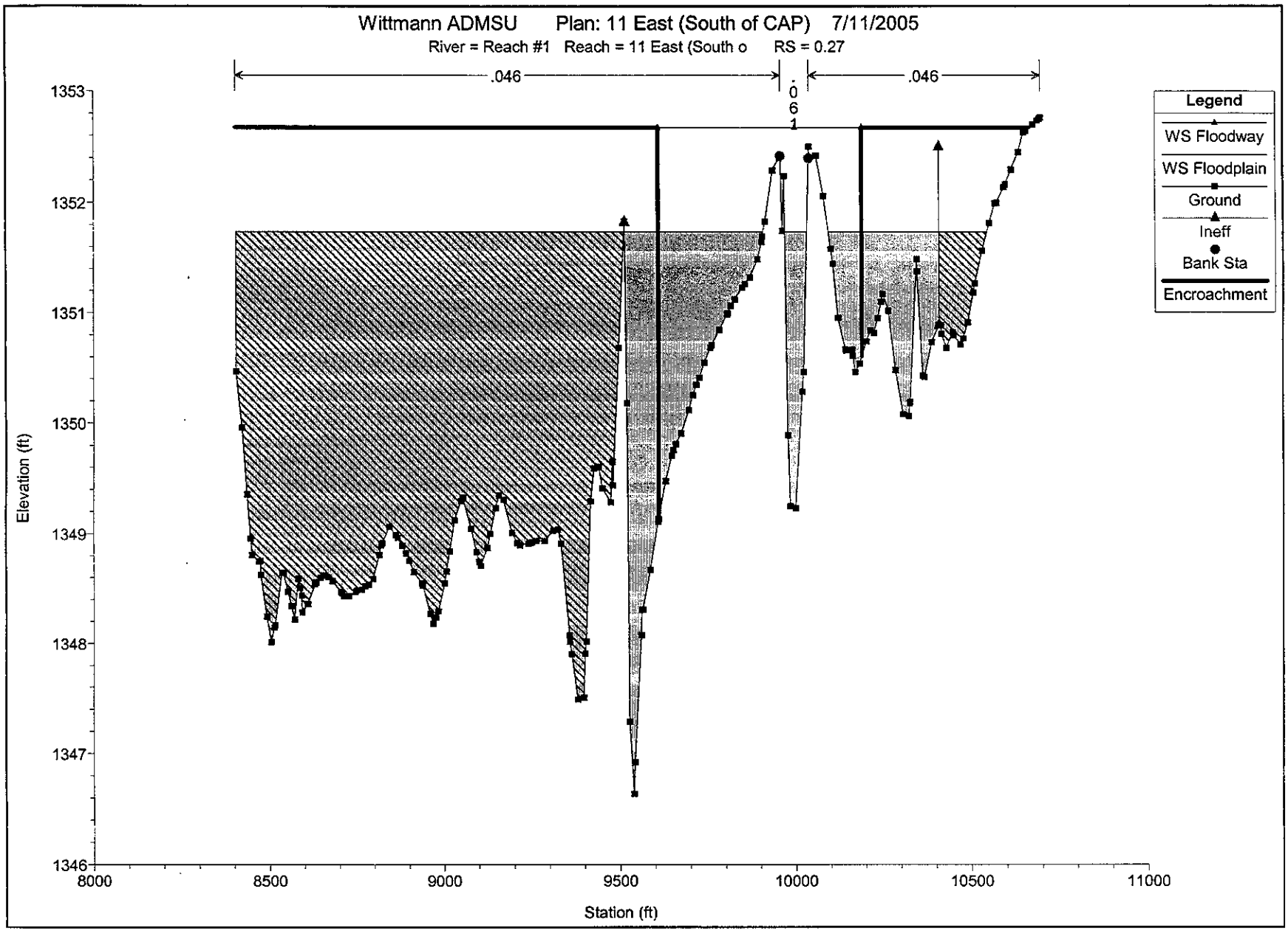

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.613
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1365
1364
1363
1362
1361
1360
1359
1358
9200
9400
9600
9800
10000
10200
10400
Station (ft)

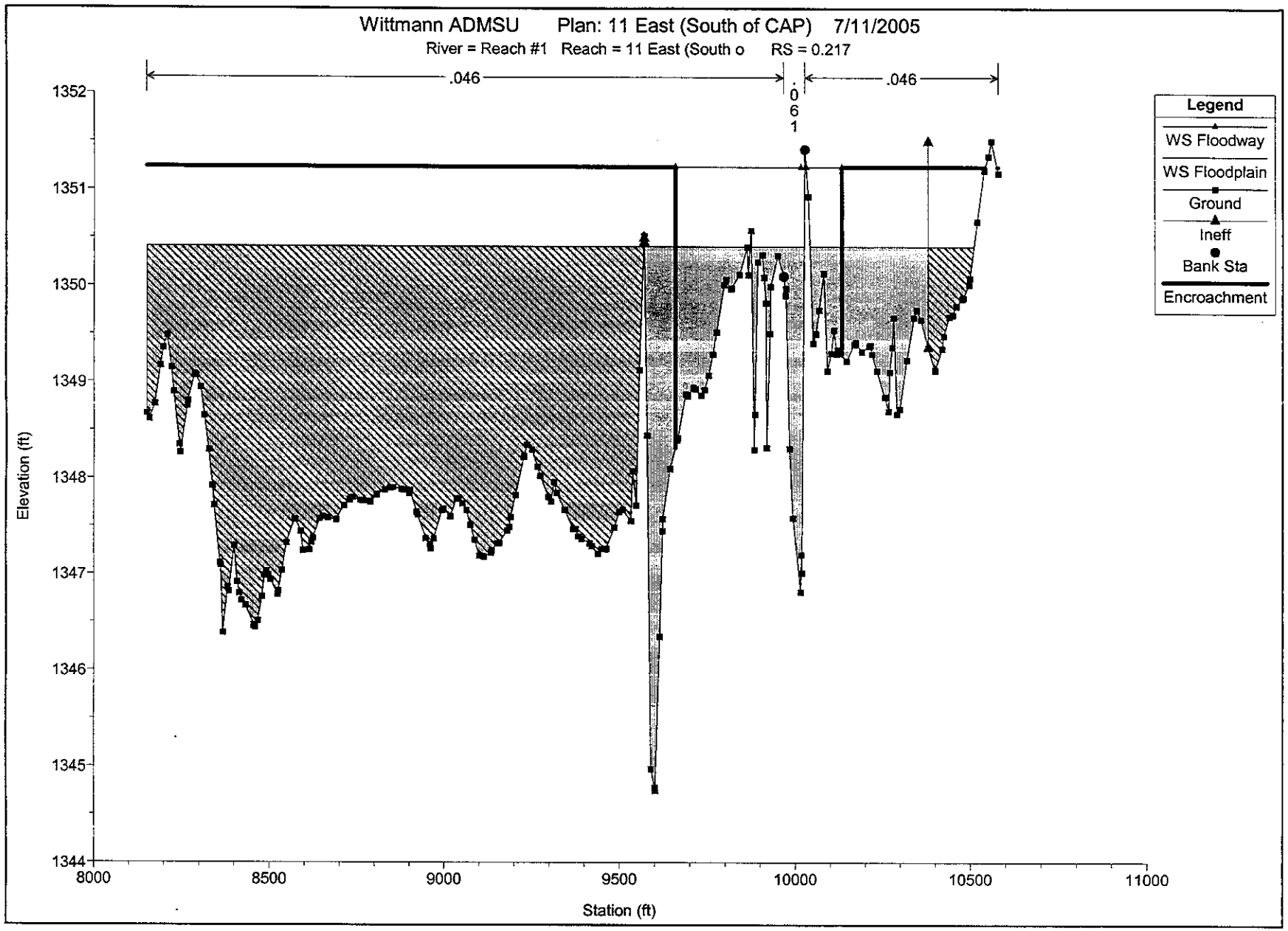

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.536
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1362
1361
1360
1359
1358
1357
1356
1355
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

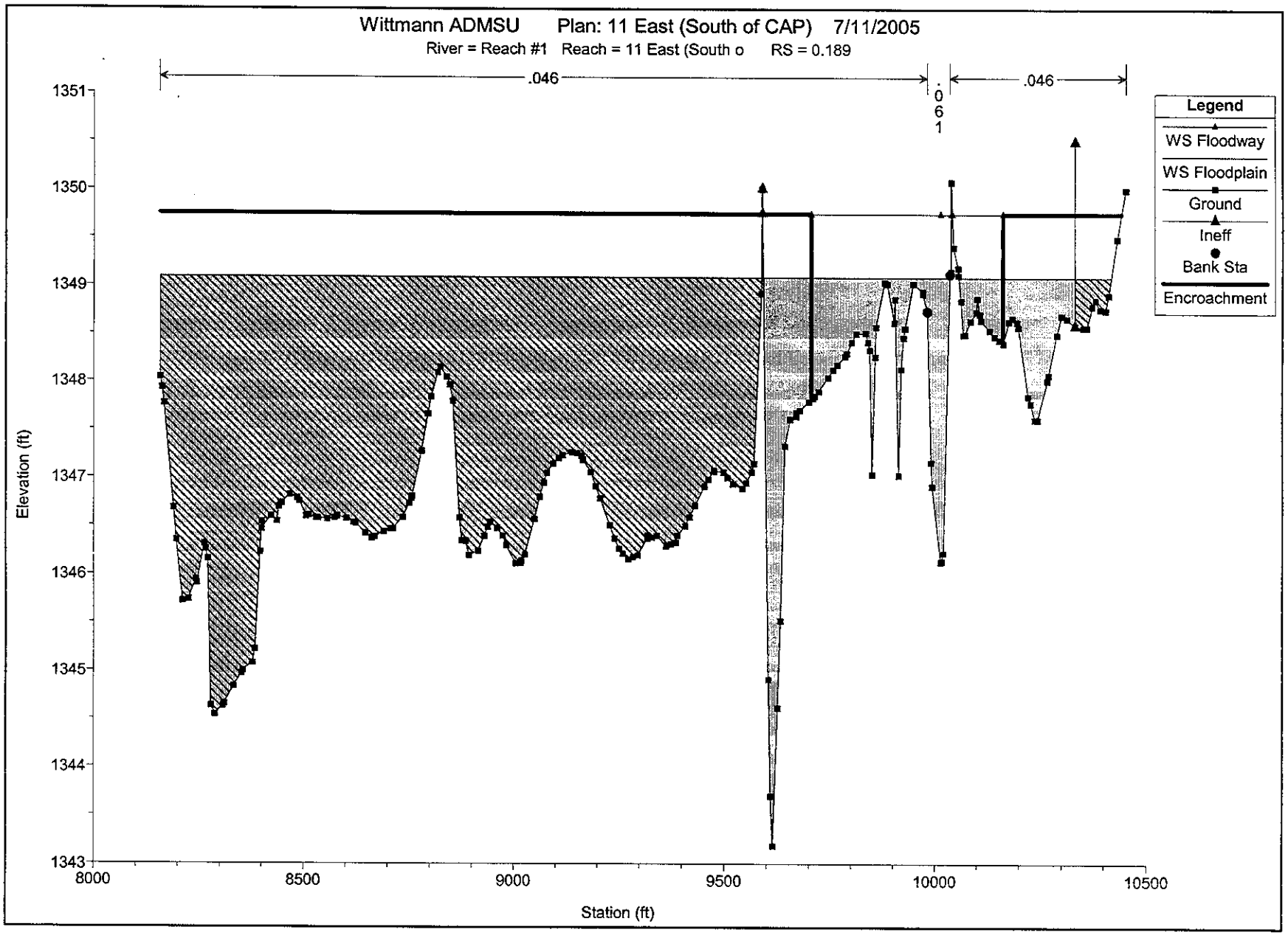

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.469
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1360
1359
1358
1357
1356
1355
1354
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

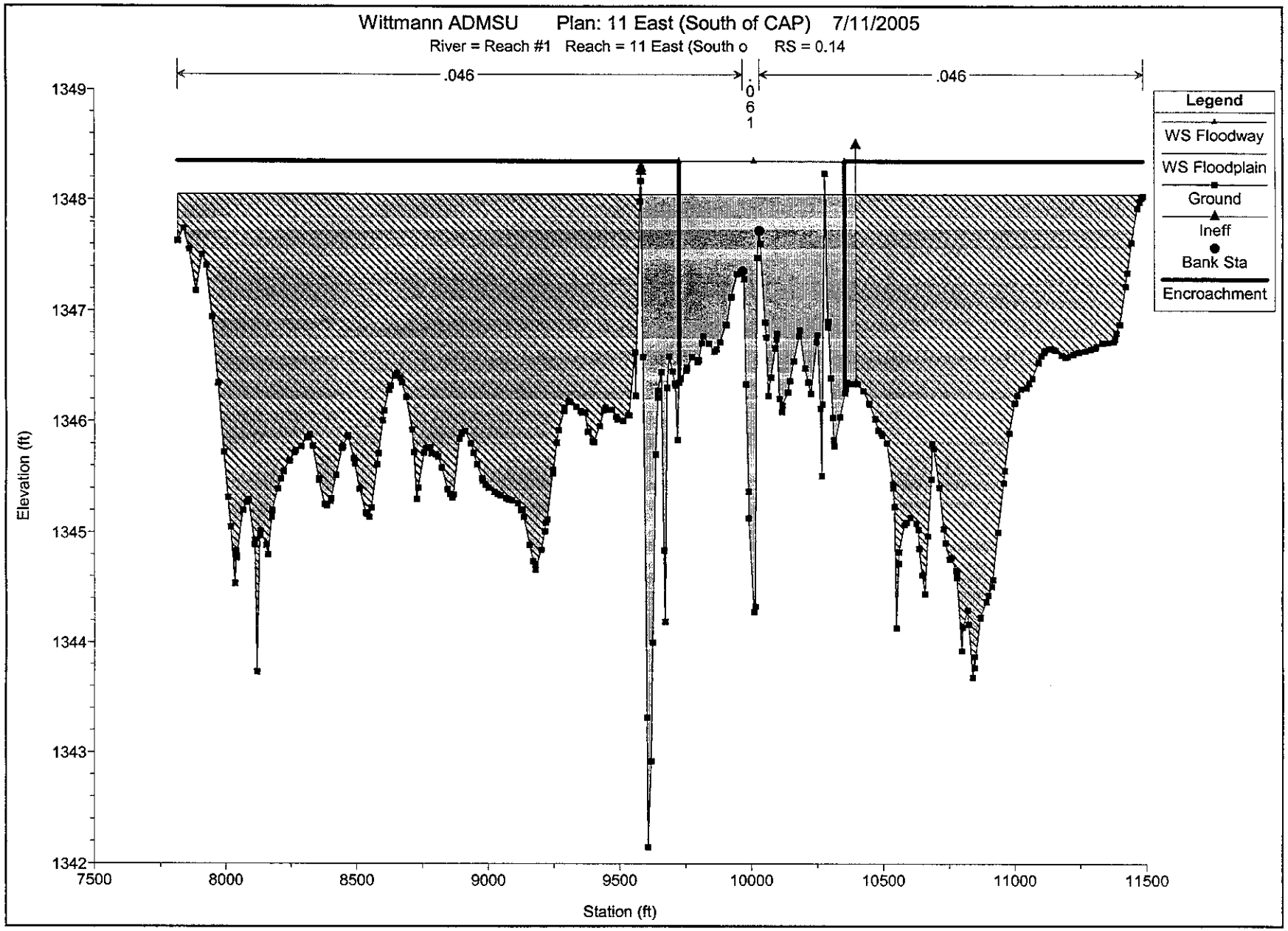

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.403
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1358
1357
1356
1355
1354
1353
8600
8800
9000
9200
9400
9600
9800
10000
10200
Station (ft)

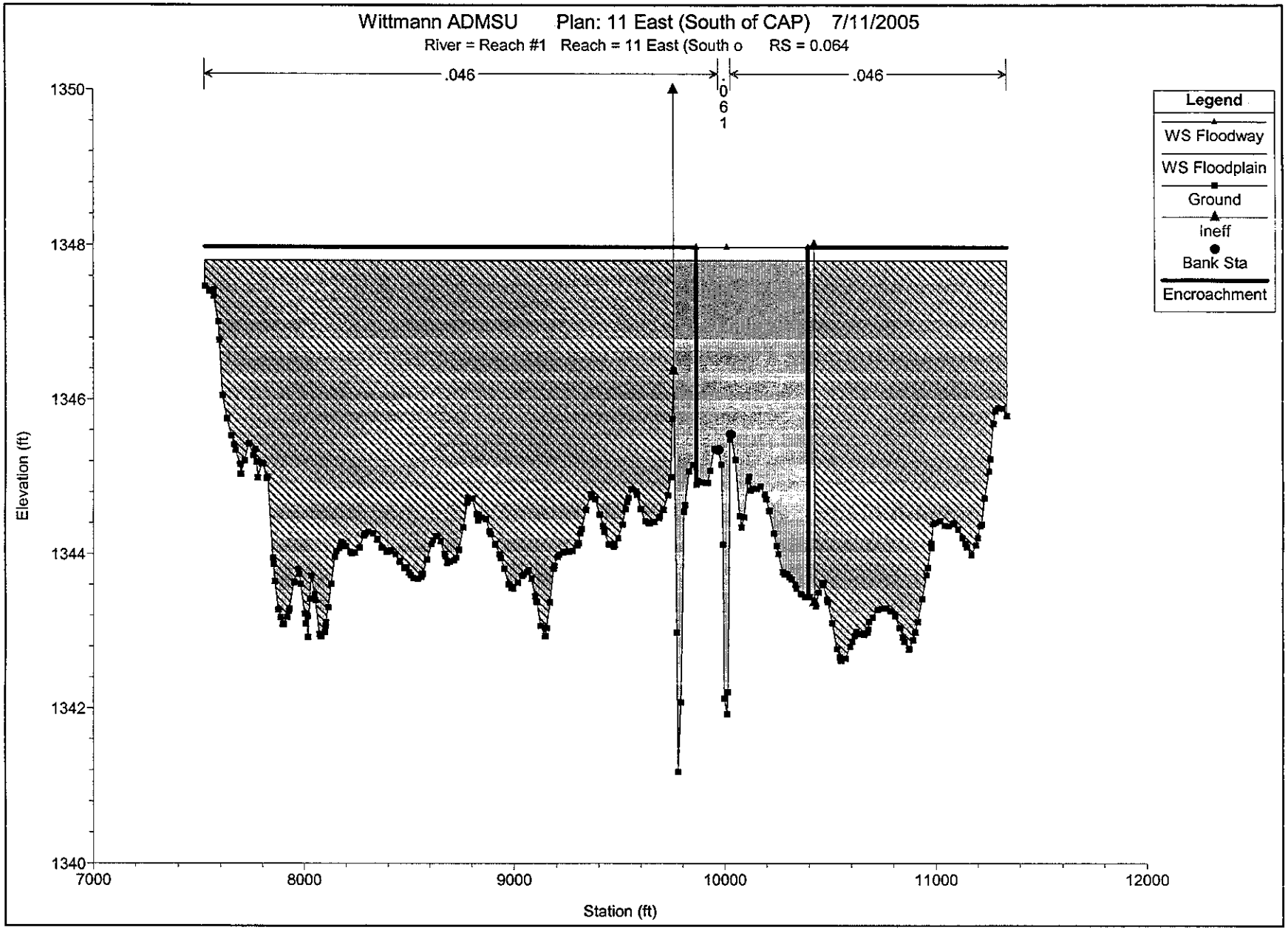

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.337
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
ineff
Bank Sta
Encroachment
Elevation (ft)
1356
1355
1354
1353
1352
1351
1350
8500
9000
9500
10000
10500
11000
Station (ft)

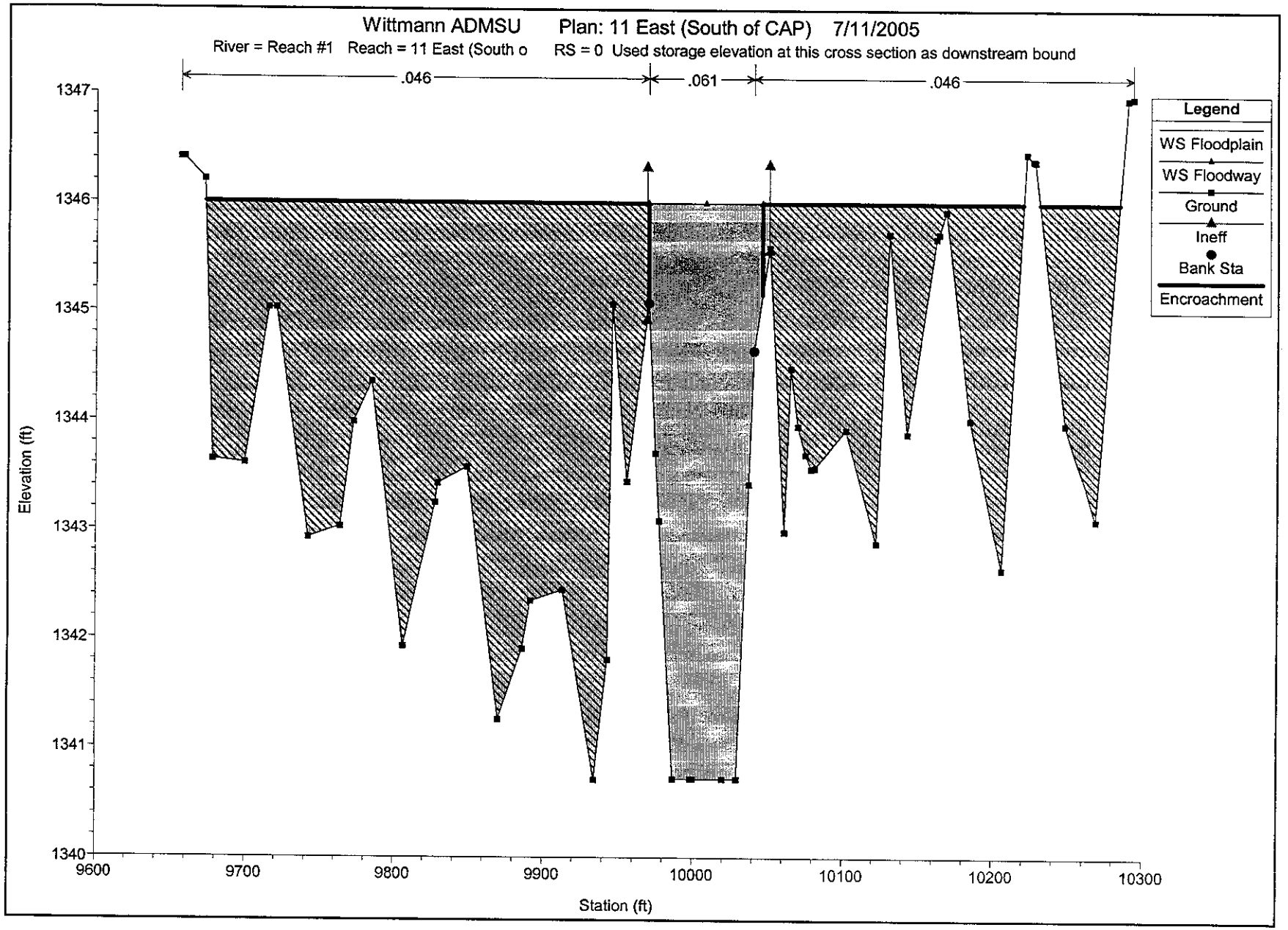

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.27
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1353
1352
1351
1350
1349
1348
1347
1346
8000
8500
9000
9500
10000
10500
11000
Station (ft)


Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.217
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1352
1351
1350
1349
1348
1347
1346
1345
1344
8000
8500
9000
9500
10000
10500
11000
Station (ft)

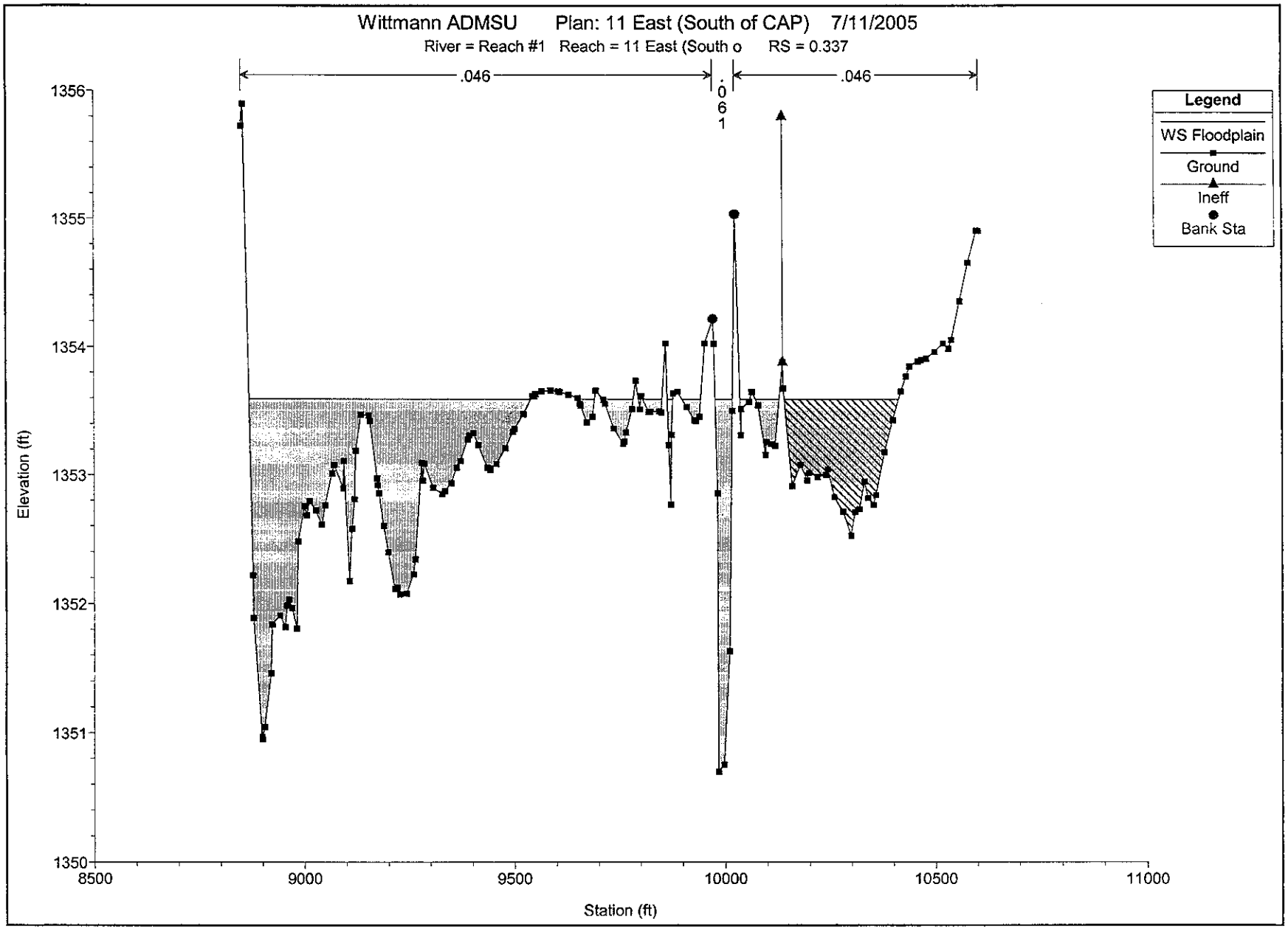

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.189
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1351
1350
1349
1348
1347
1346
1345
1344
1343
8000
8500
9000
9500
10000
10500
Station (ft)

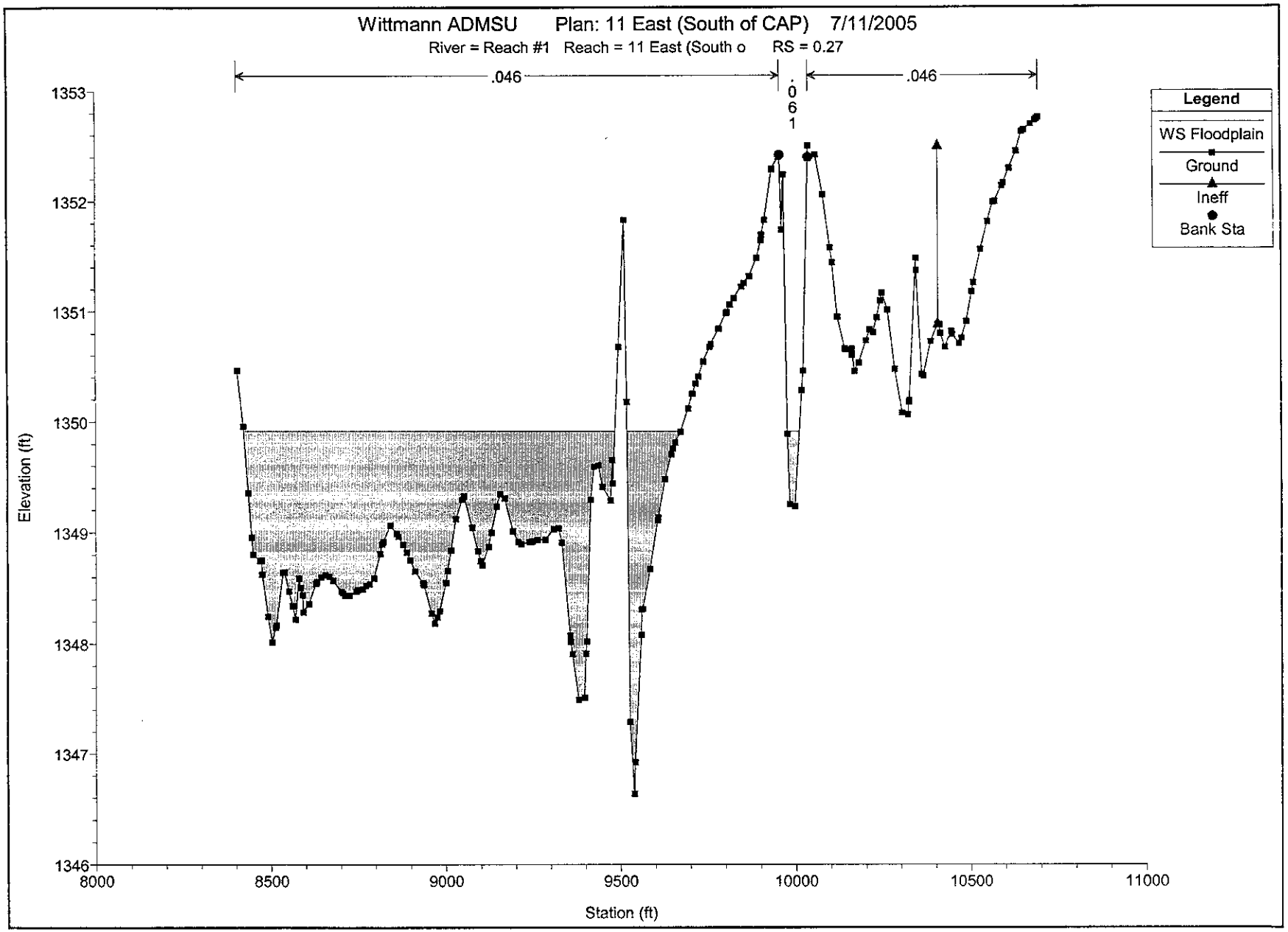

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.14
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1349
1348
1347
1346
1345
1344
1343
1342
7500
8000
8500
9000
9500
10000
10500
11000
11500
Station (ft)

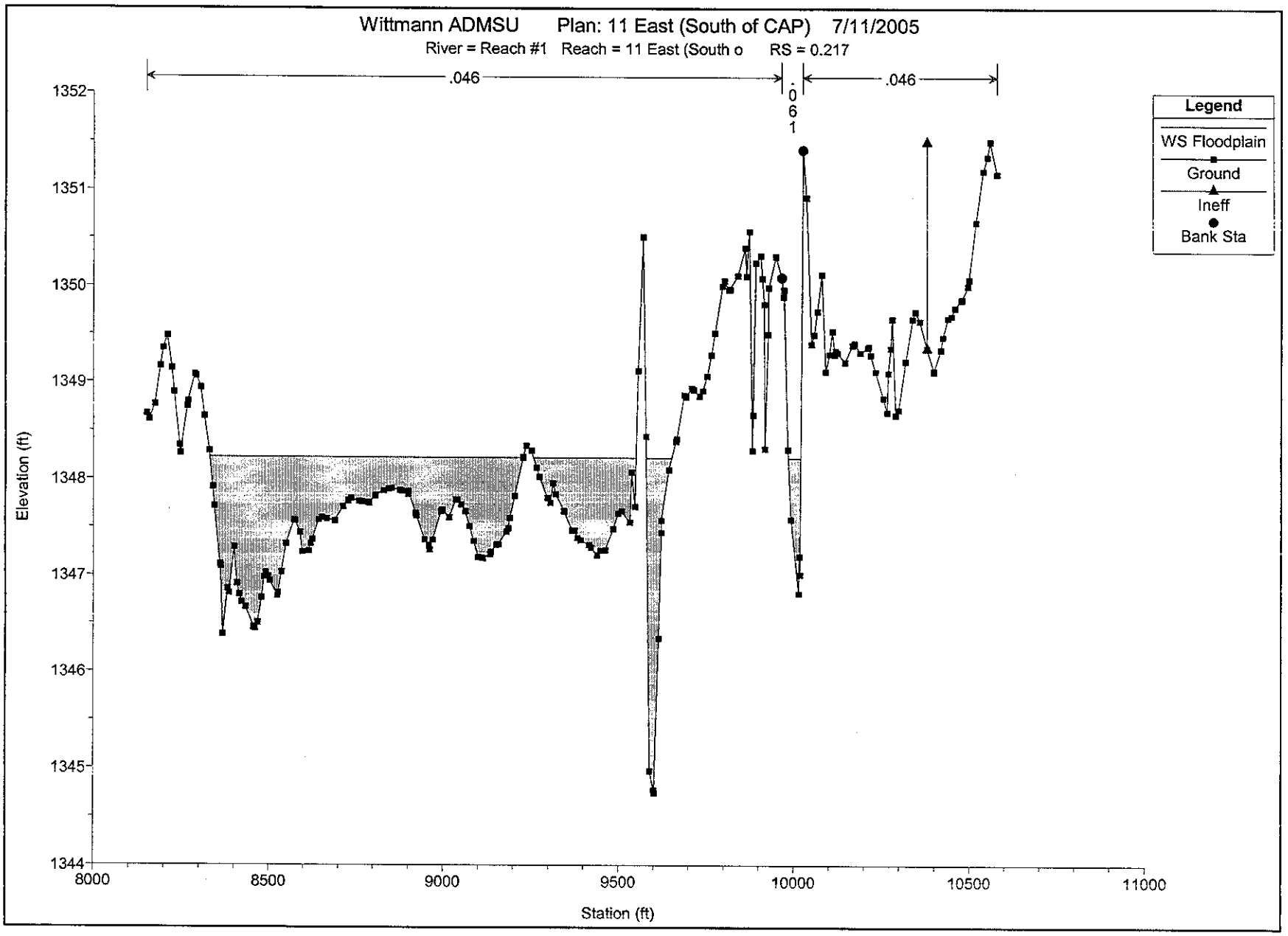

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.064
.046
.061
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1350
1348
1346
1344
1342
1340
7000
8000
9000
10000
11000
12000
Station (ft)

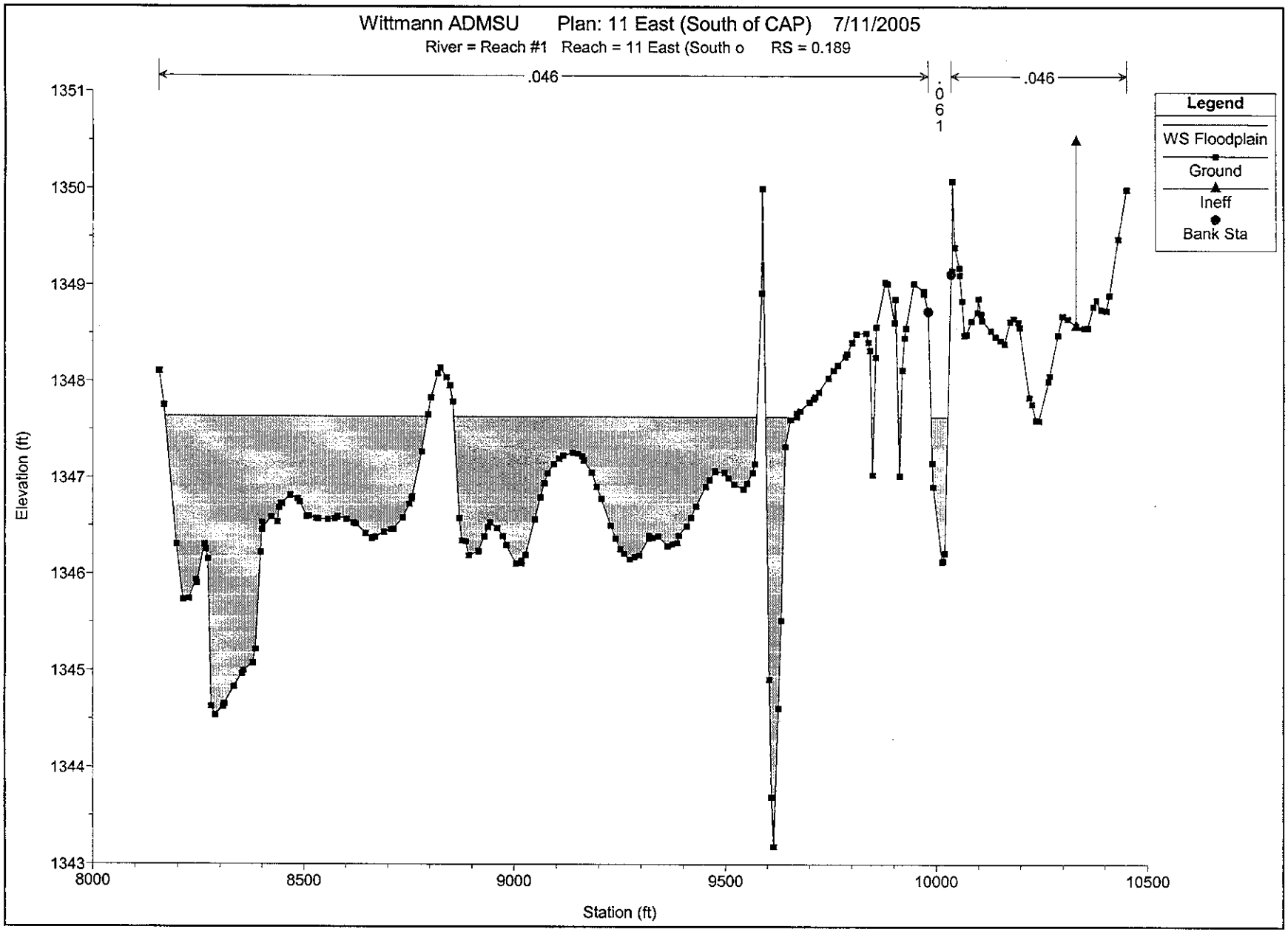

Wittmann ADMSU
Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o
RS = 0 Used storage elevation at this cross section as downstream bound
.046
.061
.046
Legend
WS Floodplain
WS Floodway
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1347
1346
1345
1344
1343
1342
1341
1340
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

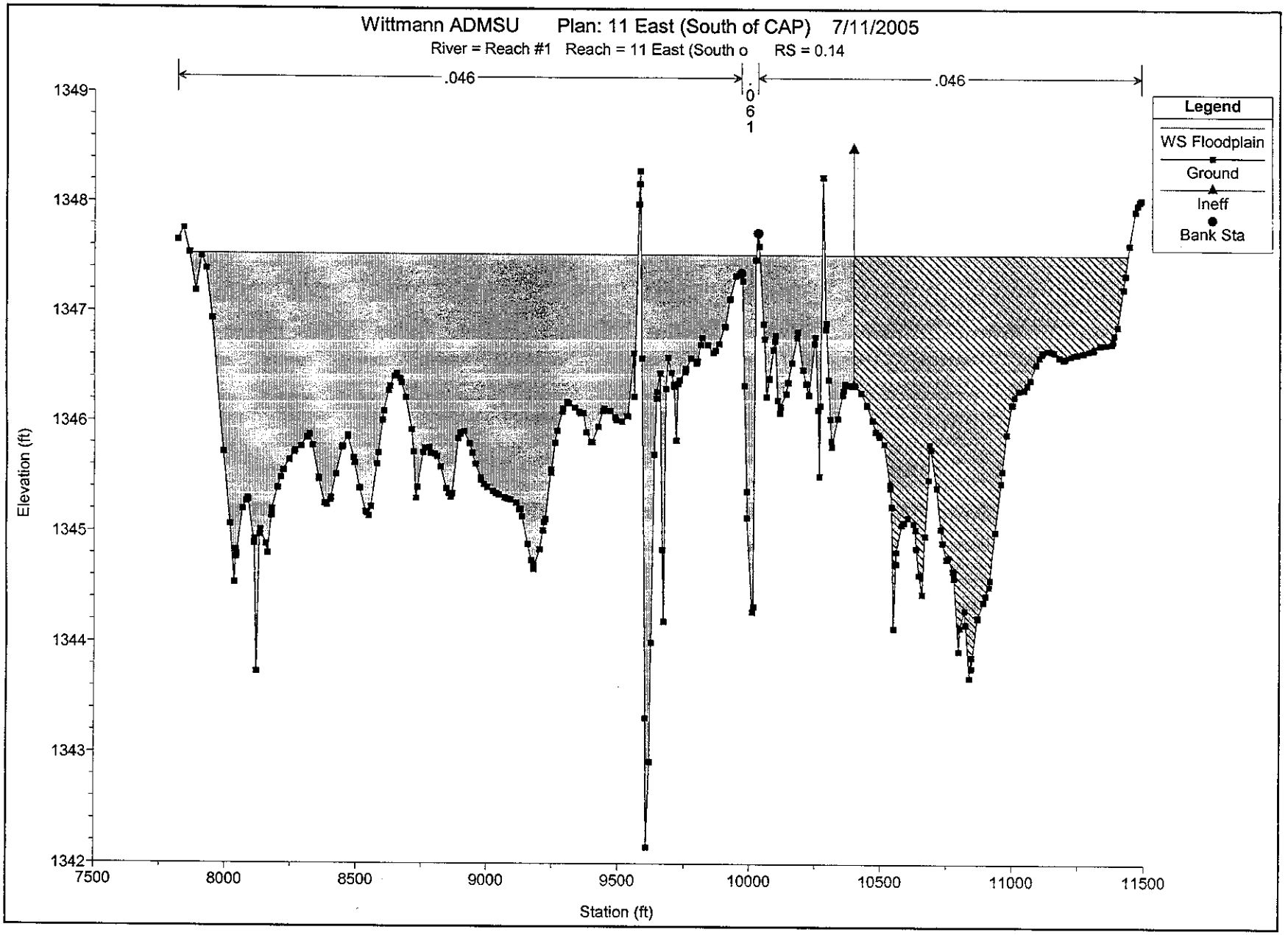
11 EAST DIKE FAILURE

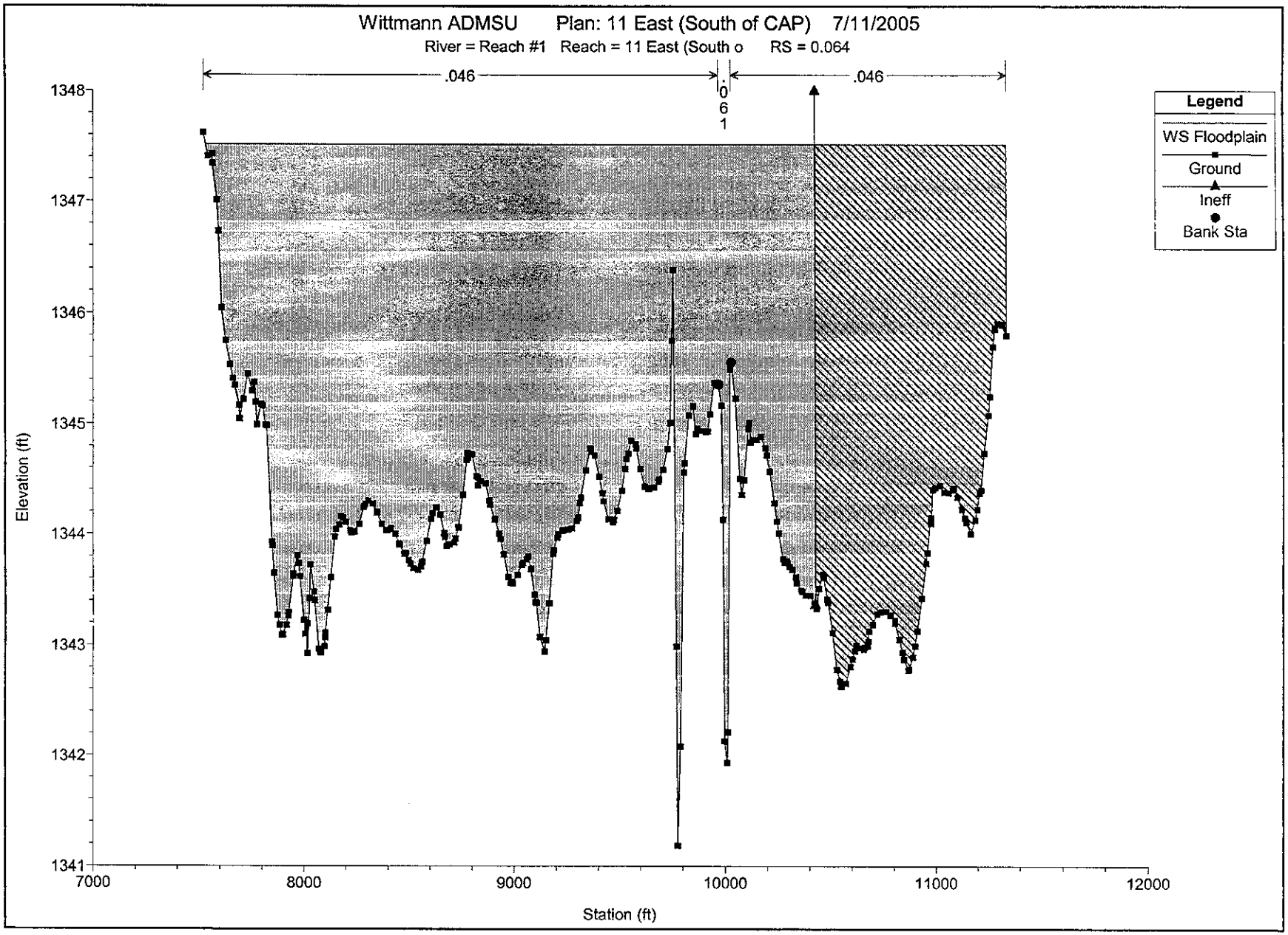

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.337
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1356
1355
1354
1353
1352
1351
1350
8500
9000
9500
10000
10500
11000
Station (ft)

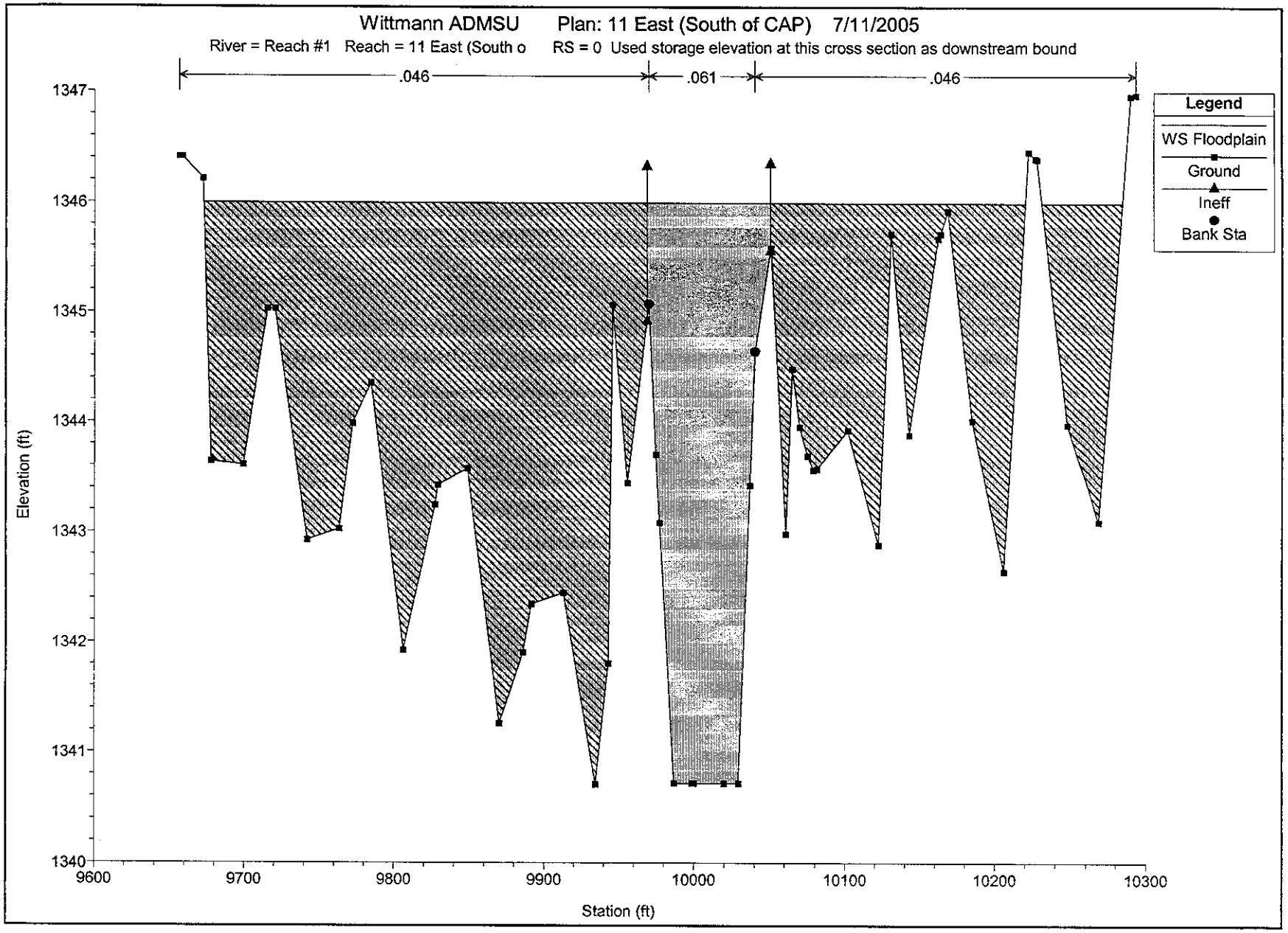

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.27
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1353
1352
1351
1350
1349
1348
1347
1346
8000
8500
9000
9500
10000
10500
11000
Station (ft)


Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.217
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1352
1351
1350
1349
1348
1347
1346
1345
1344
8000
8500
9000
9500
10000
10500
11000
Station (ft)

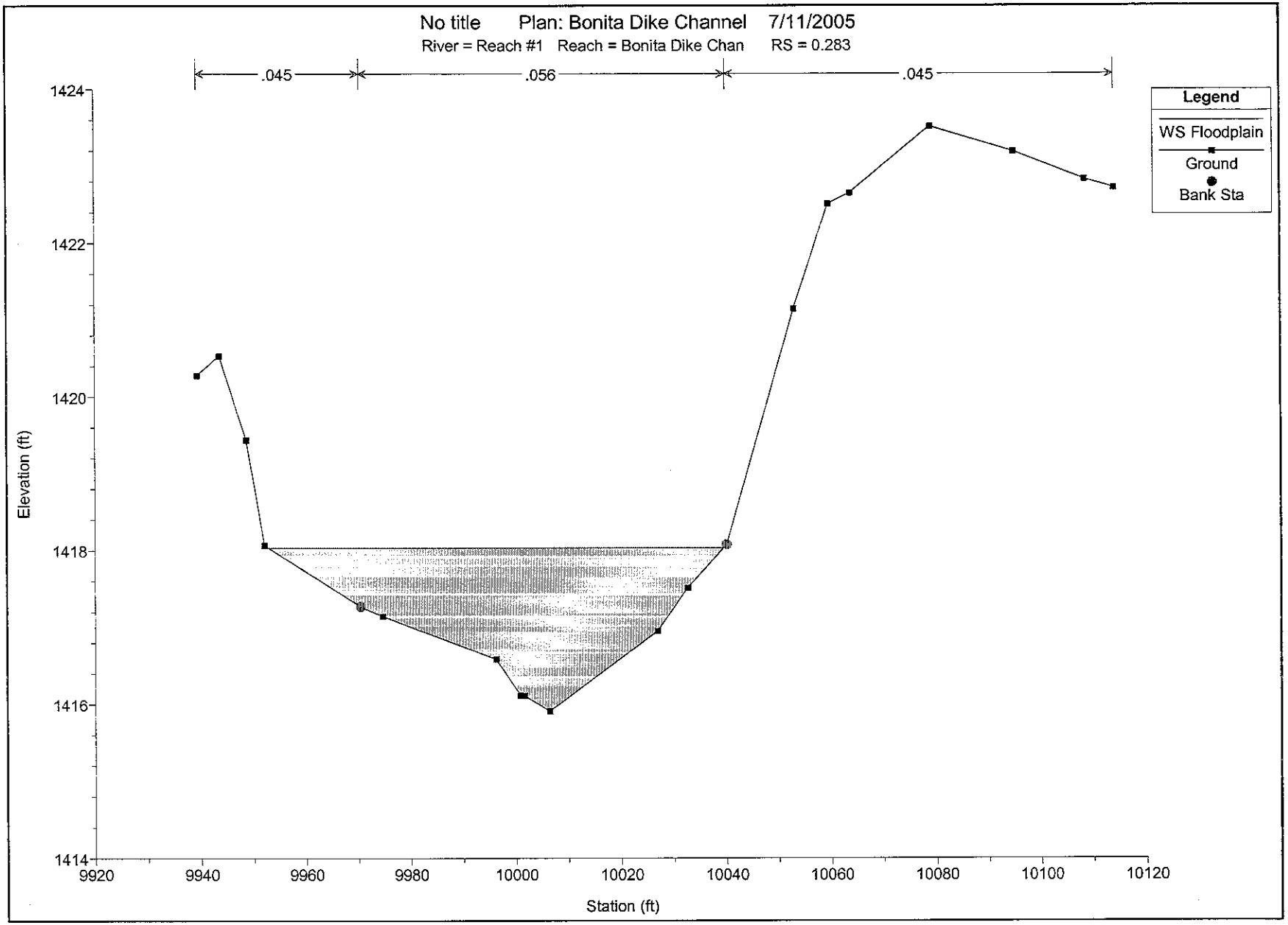

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.189
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1351
1350
1349
1348
1347
1346
1345
1344
1343
8000
8500
9000
9500
10000
10500
Station (ft)

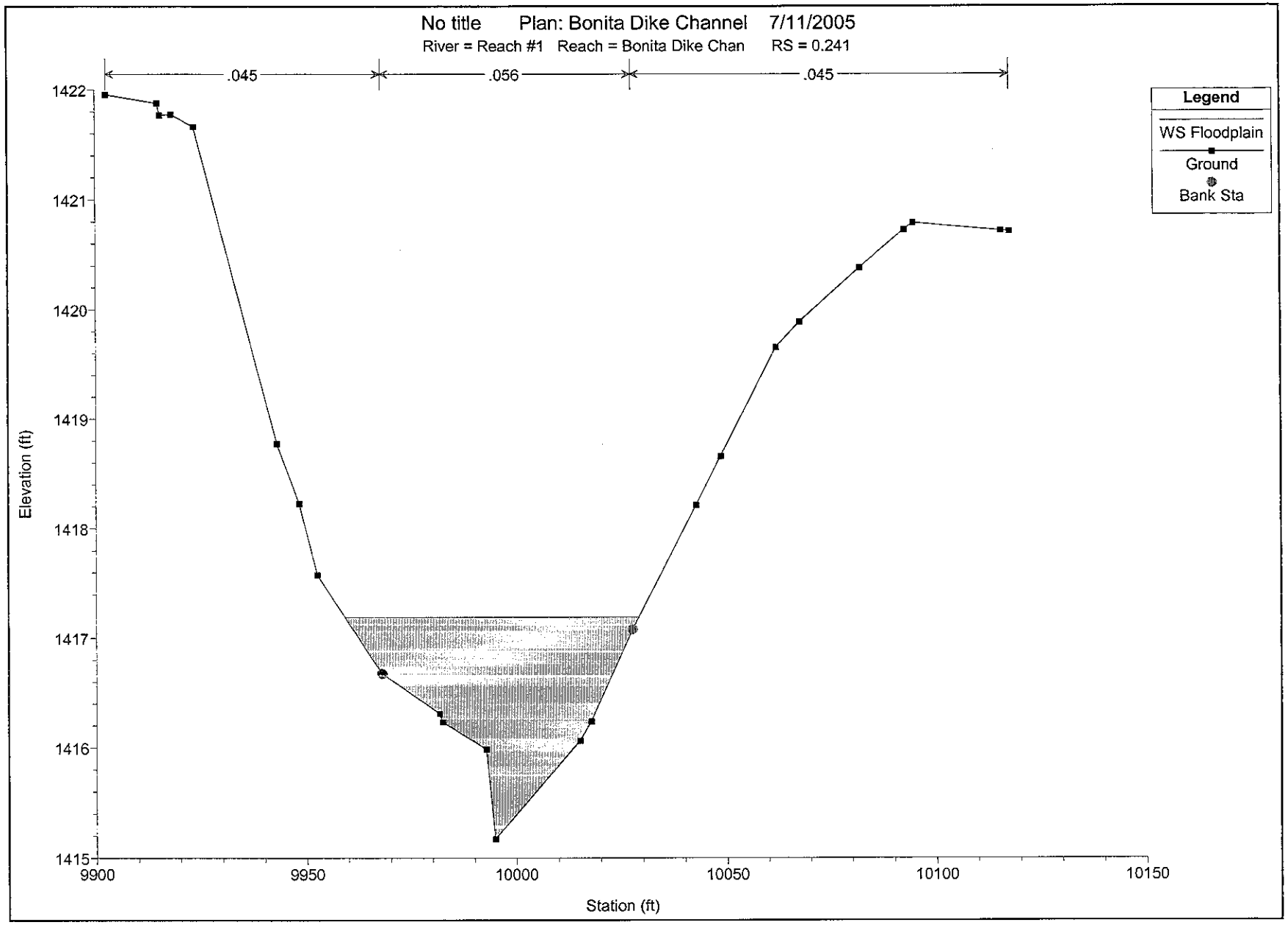

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.14
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1349
1348
1347
1346
1345
1344
1343
1342
7500
8000
8500
9000
9500
10000
10500
11000
11500
Station (ft)

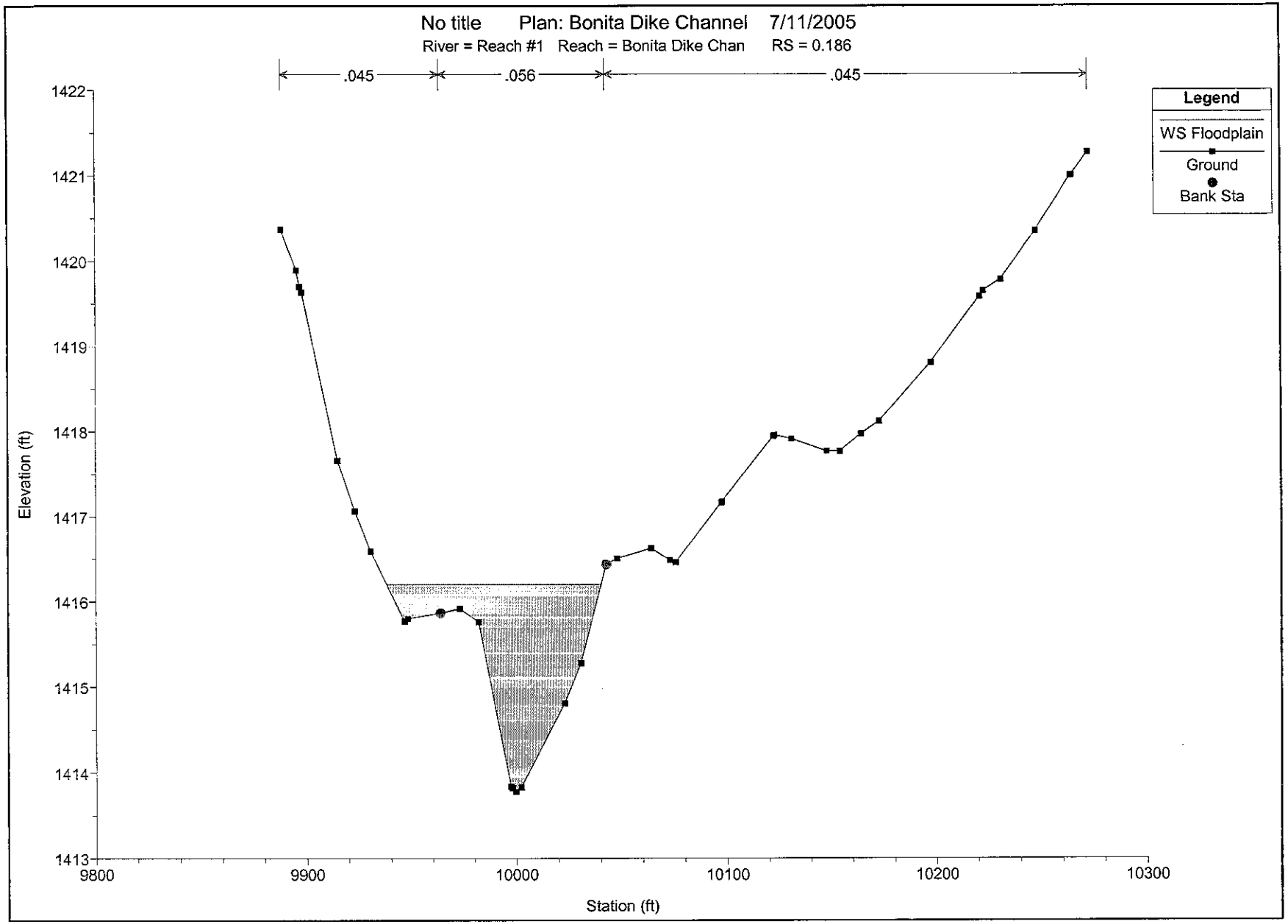

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0.064
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1348
1347
1346
1345
1344
1343
1342
1341
7000
8000
9000
10000
11000
12000
Station (ft)

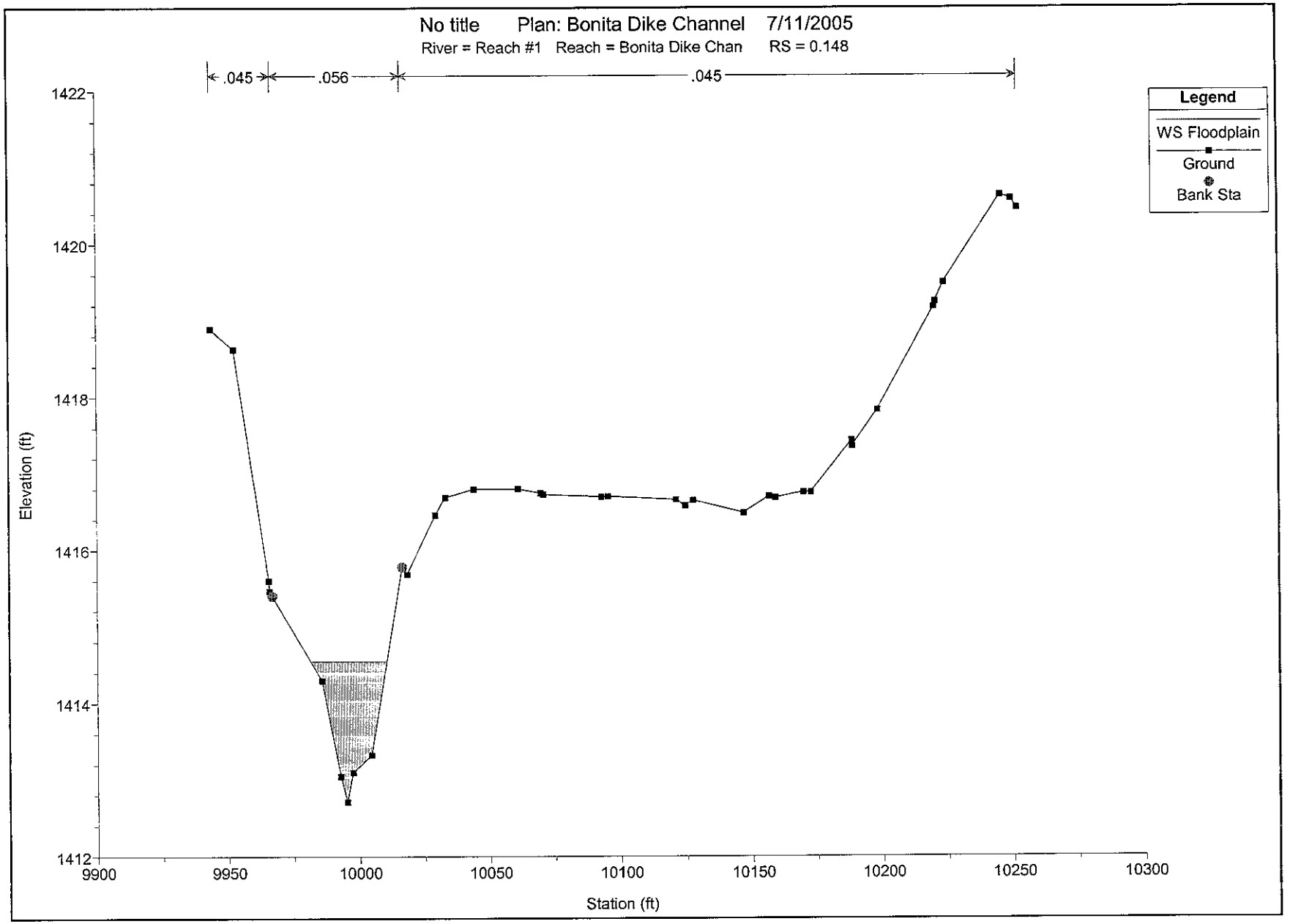

Wittmann ADMSU Plan: 11 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 11 East (South o RS = 0 Used storage elevation at this cross section as downstream bound
.046
.061
.046
Legend
WS Floodplain
Ground
Ineff
Bank Sta
Elevation (ft)
1347
1346
1345
1344
1343
1342
1341
1340
9600
9700
9800
9900
10000
10100
10200
10300
Station (ft)

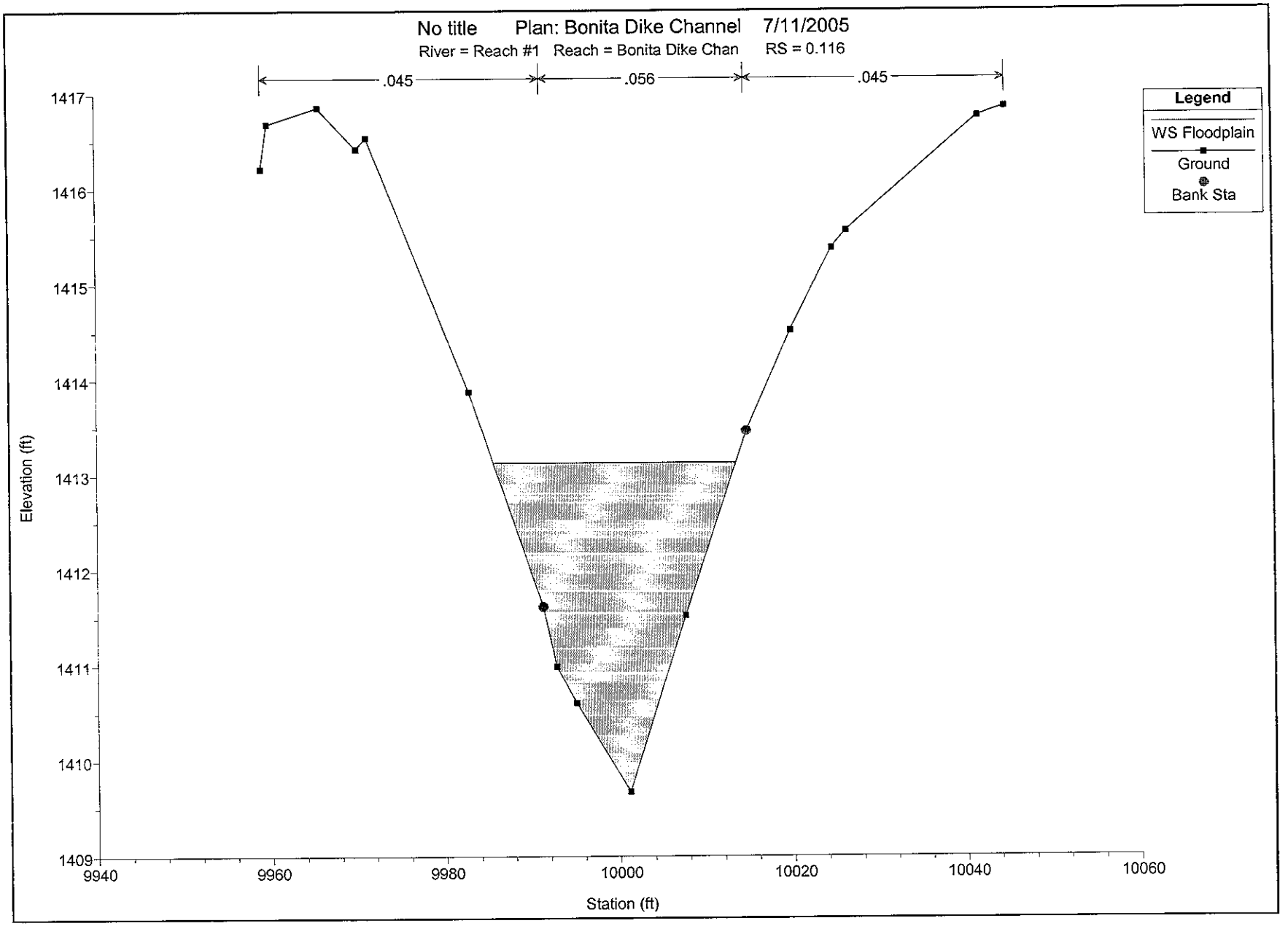
BONITA DIKE CHANNEL

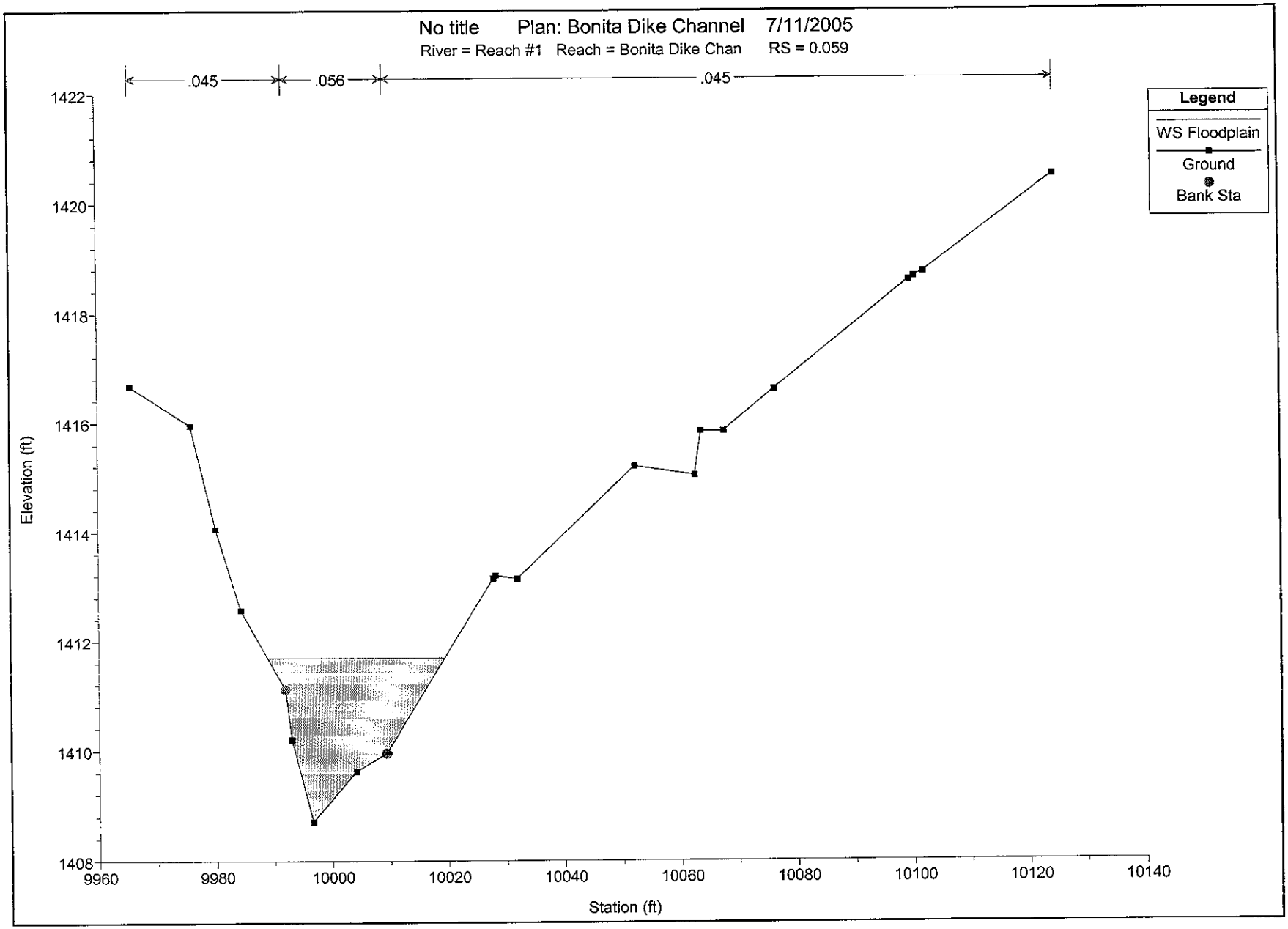

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.283
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1424
1422
1420
1418
1416
1414
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
10120
Station (ft)

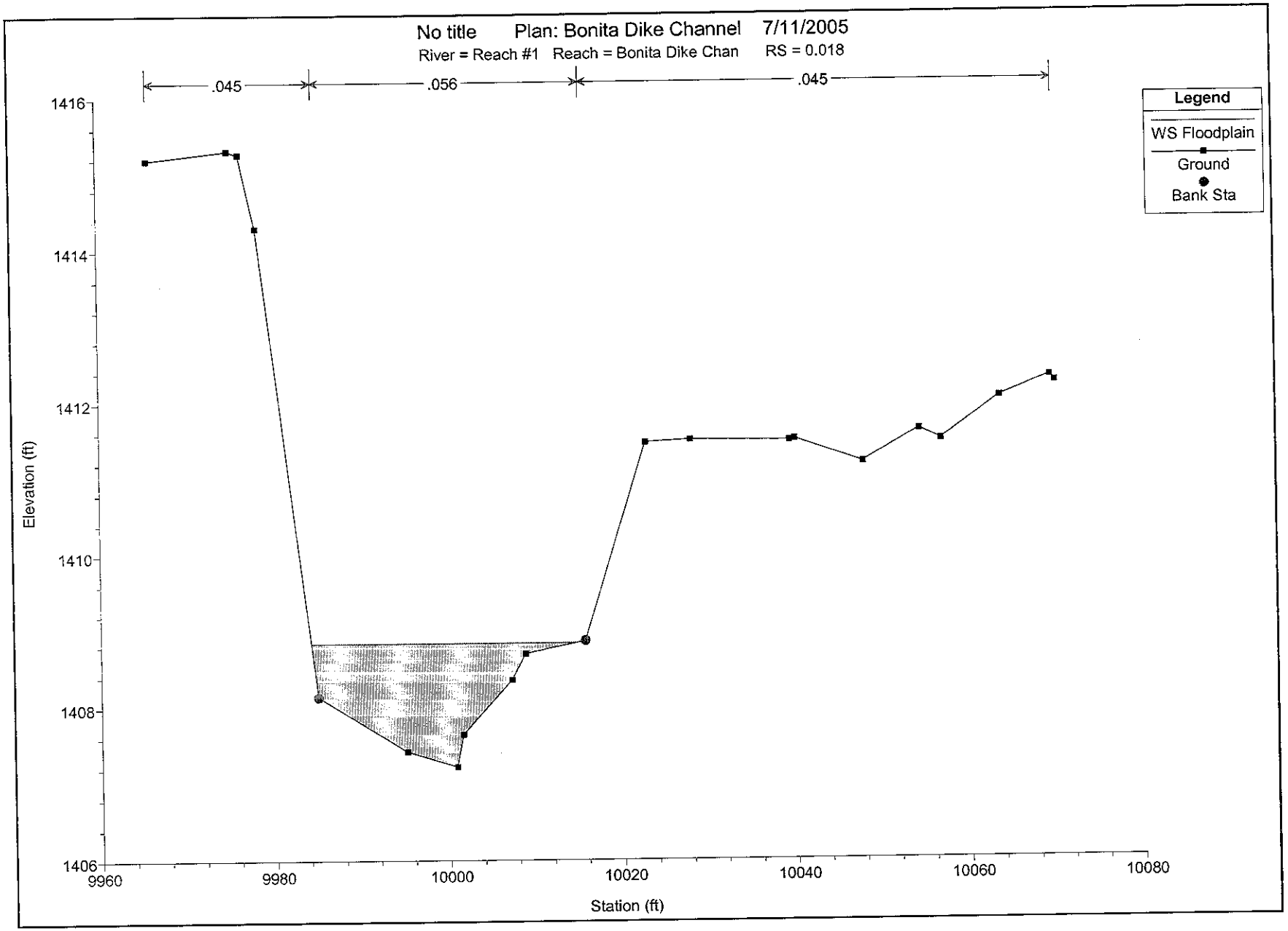

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.241
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1422
1421
1420
1419
1418
1417
1416
1415
9900
9950
10000
10050
10100
10150
Station (ft)

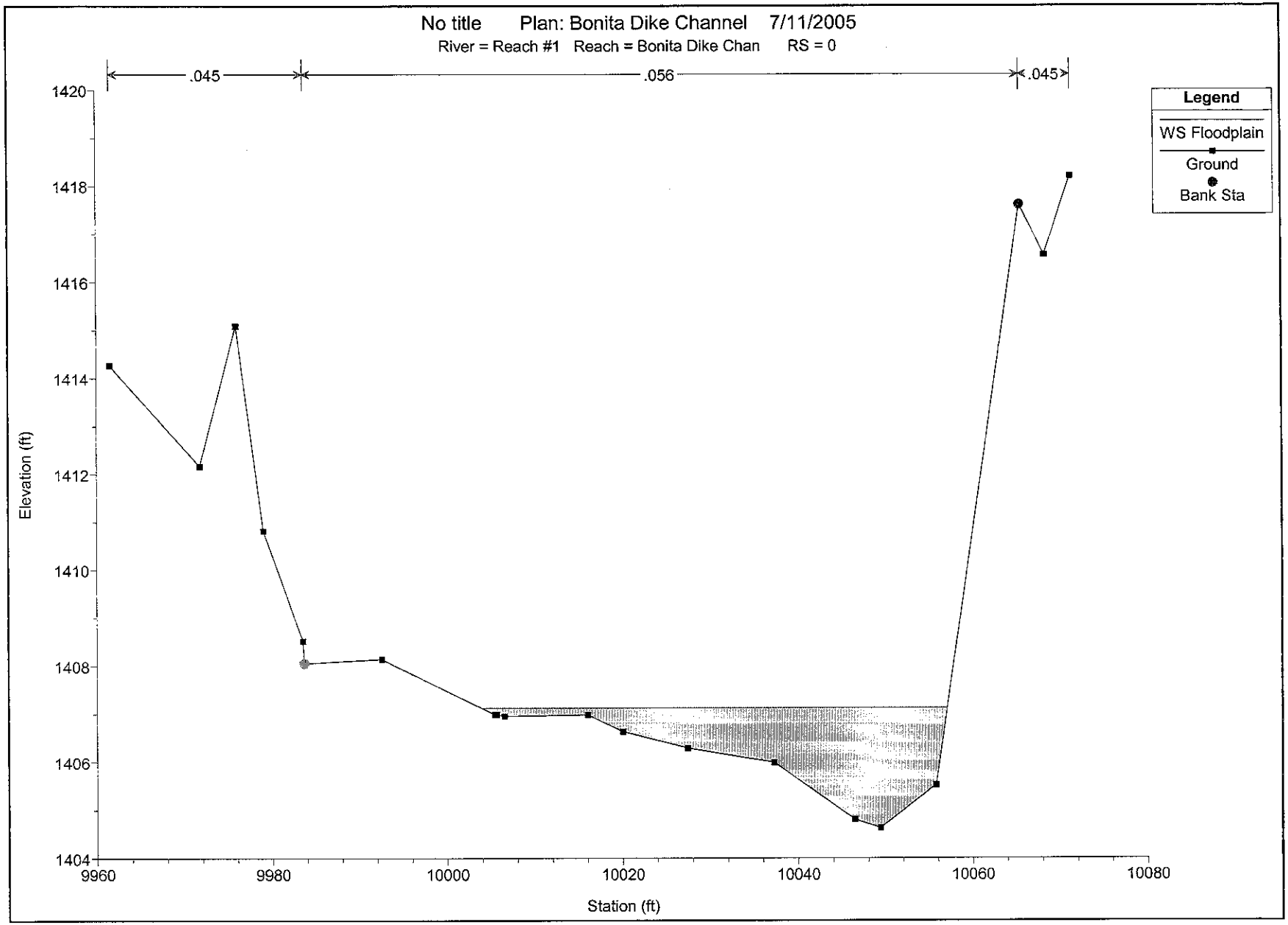

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.186
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1422
1421
1420
1419
1418
1417
1416
1415
1414
1413
9800
9900
10000
10100
10200
10300
Station (ft)


No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.148
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1422
1420
1418
1416
1414
1412
9900
9950
10000
10050
10100
10150
10200
10250
10300
Station (ft)

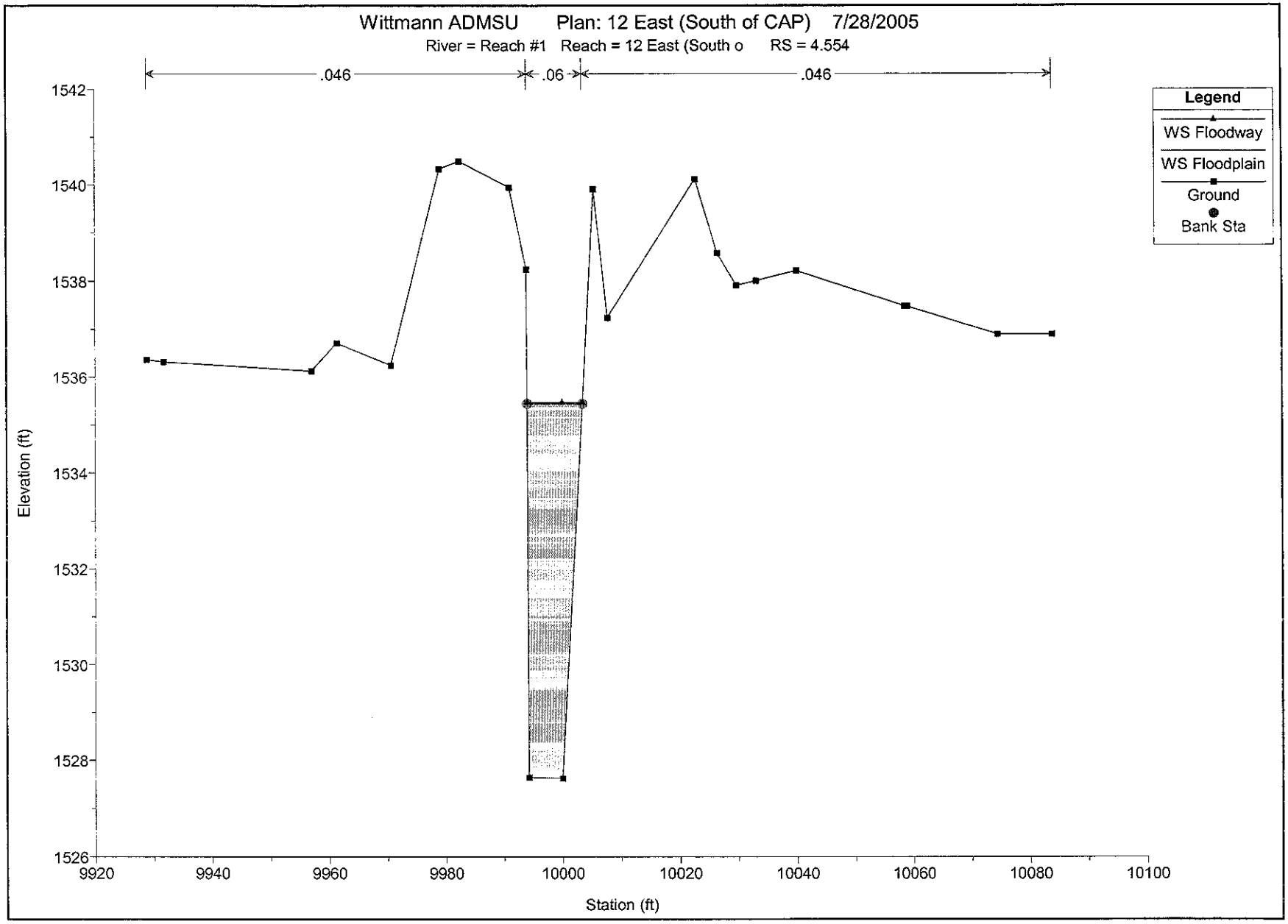

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.116
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1417
1416
1415
1414
1413
1412
1411
1410
1409
9940
9960
9980
10000
10020
10040
10060
Station (ft)

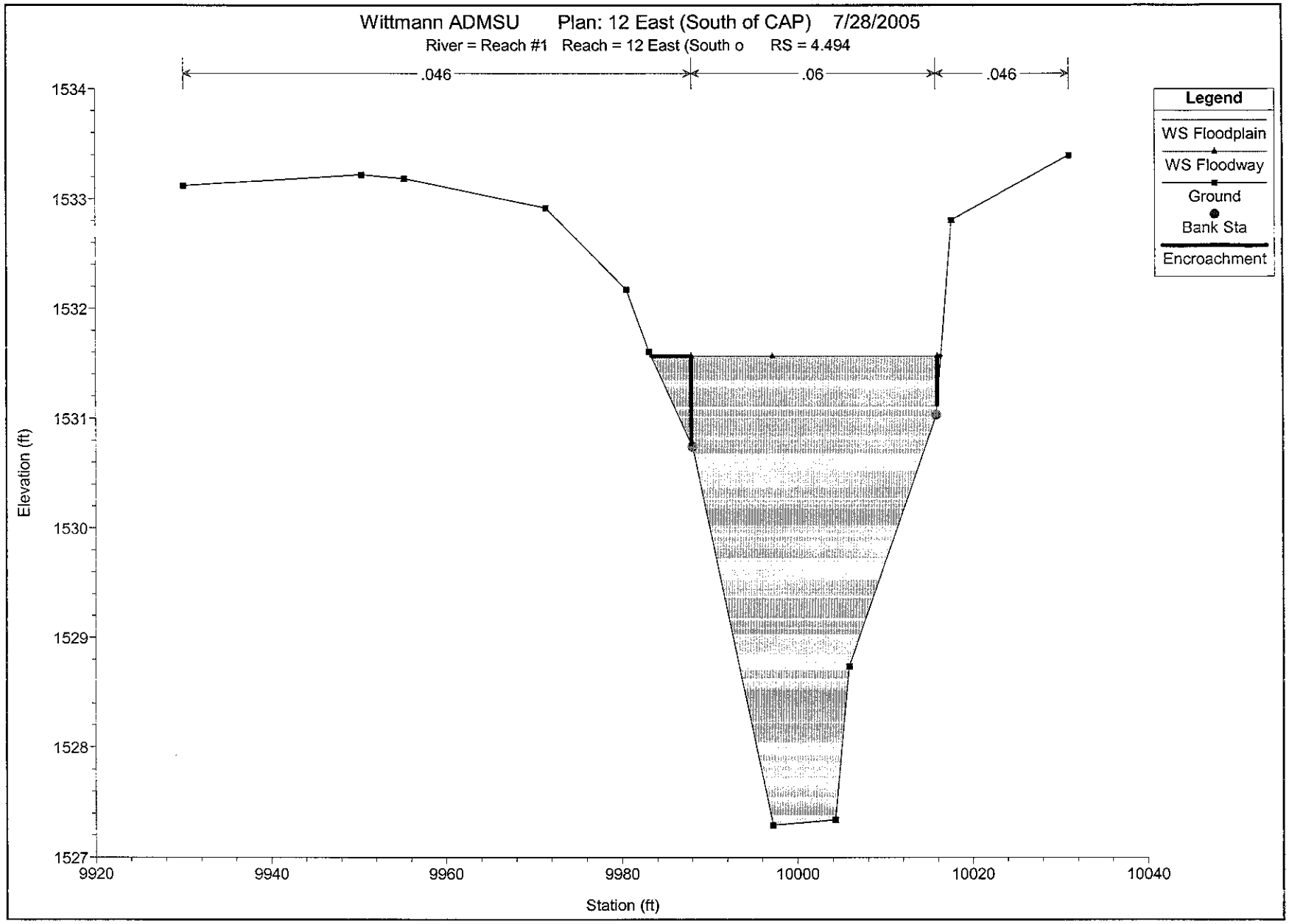

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.059
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1422
1420
1418
1416
1414
1412
1410
1408
9960
9980
10000
10020
10040
10060
10080
10100
10120
10140
Station (ft)

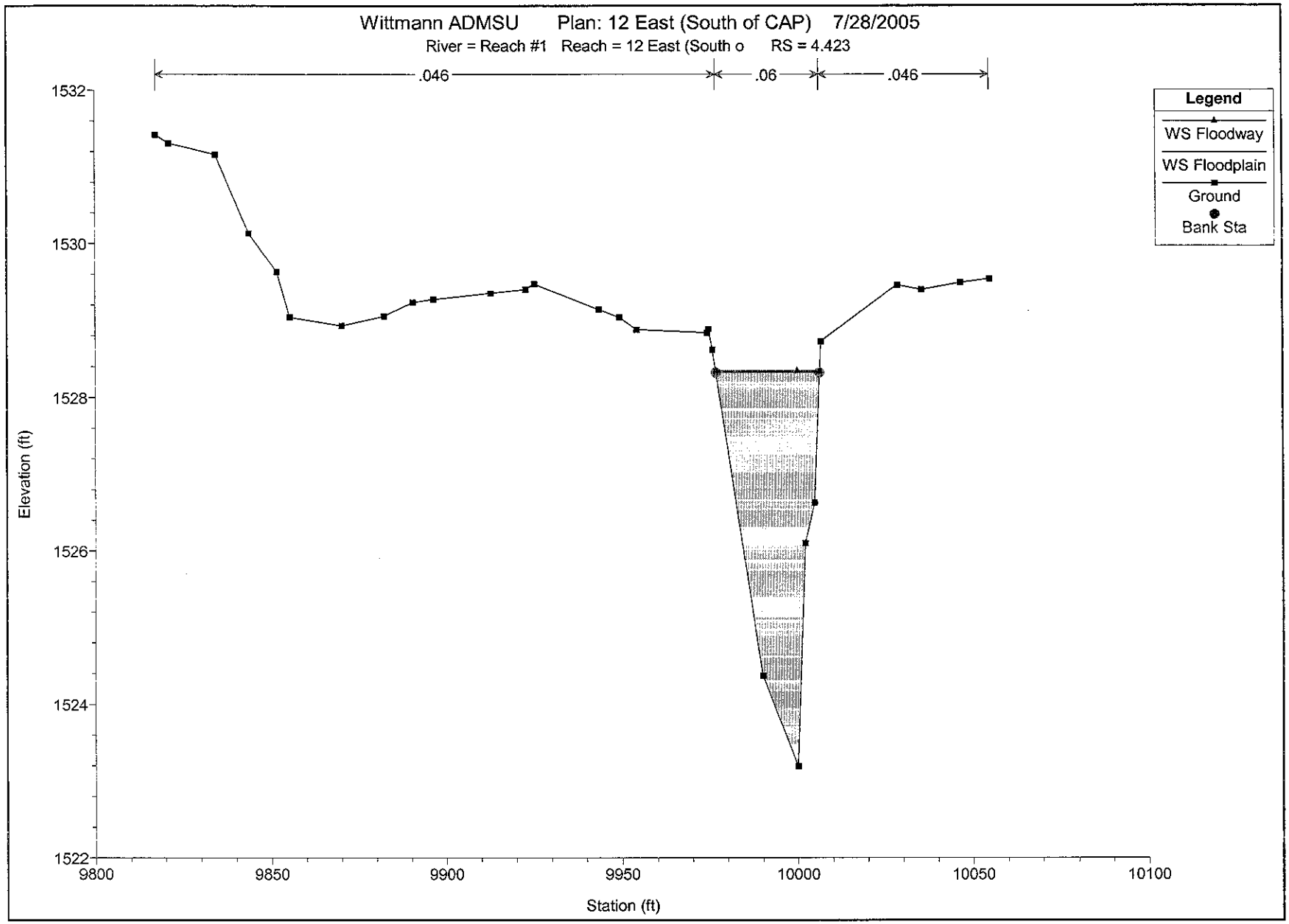

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0.018
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1416
1414
1412
1410
1408
1406
9960
9980
10000
10020
10040
10060
10080
Station (ft)

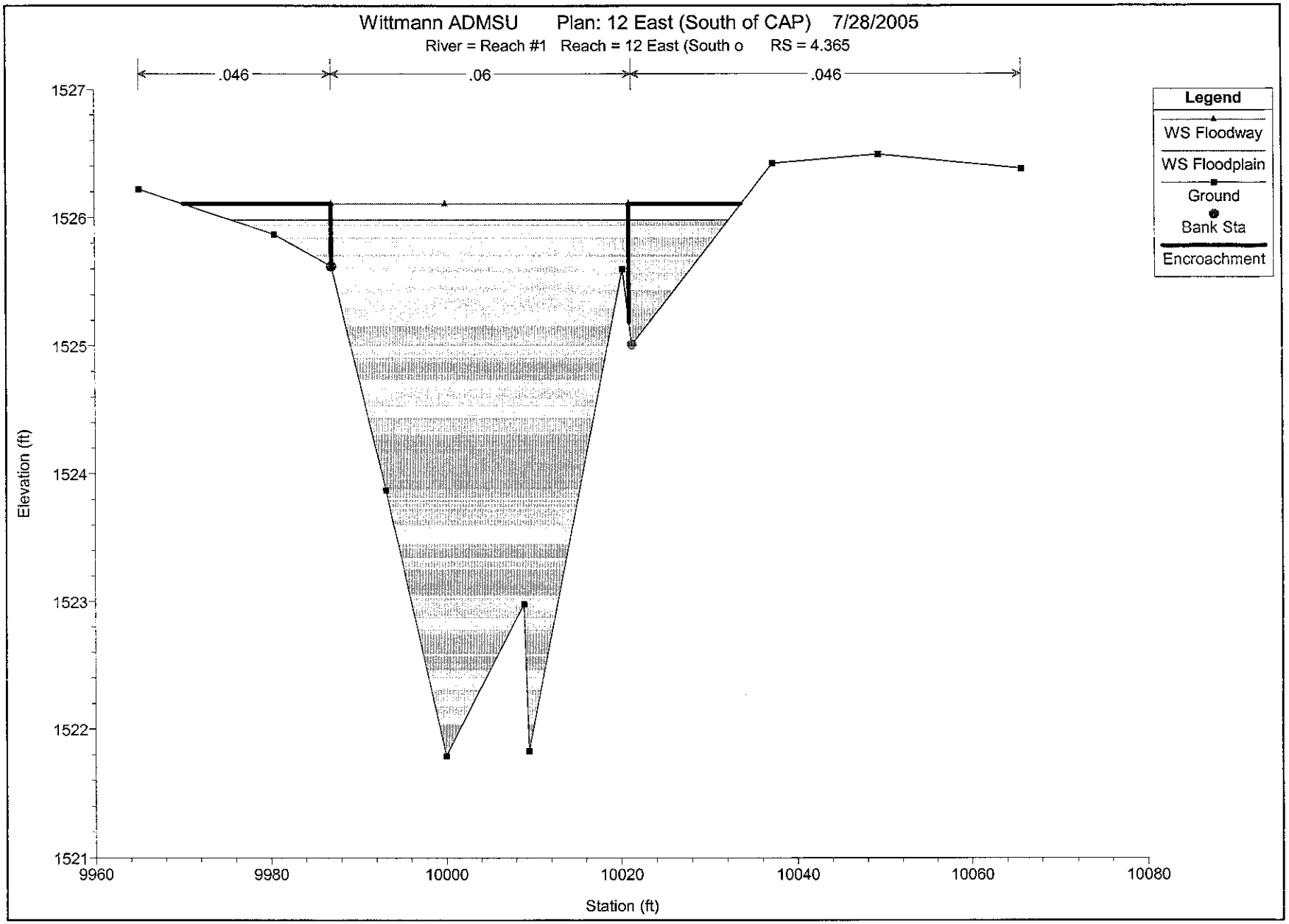

No title Plan: Bonita Dike Channel 7/11/2005
River = Reach #1 Reach = Bonita Dike Chan RS = 0
.045
.056
.045
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1420
1418
1416
1414
1412
1410
1408
1406
1404
9960
9980
10000
10020
10040
10060
10080
Station (ft)

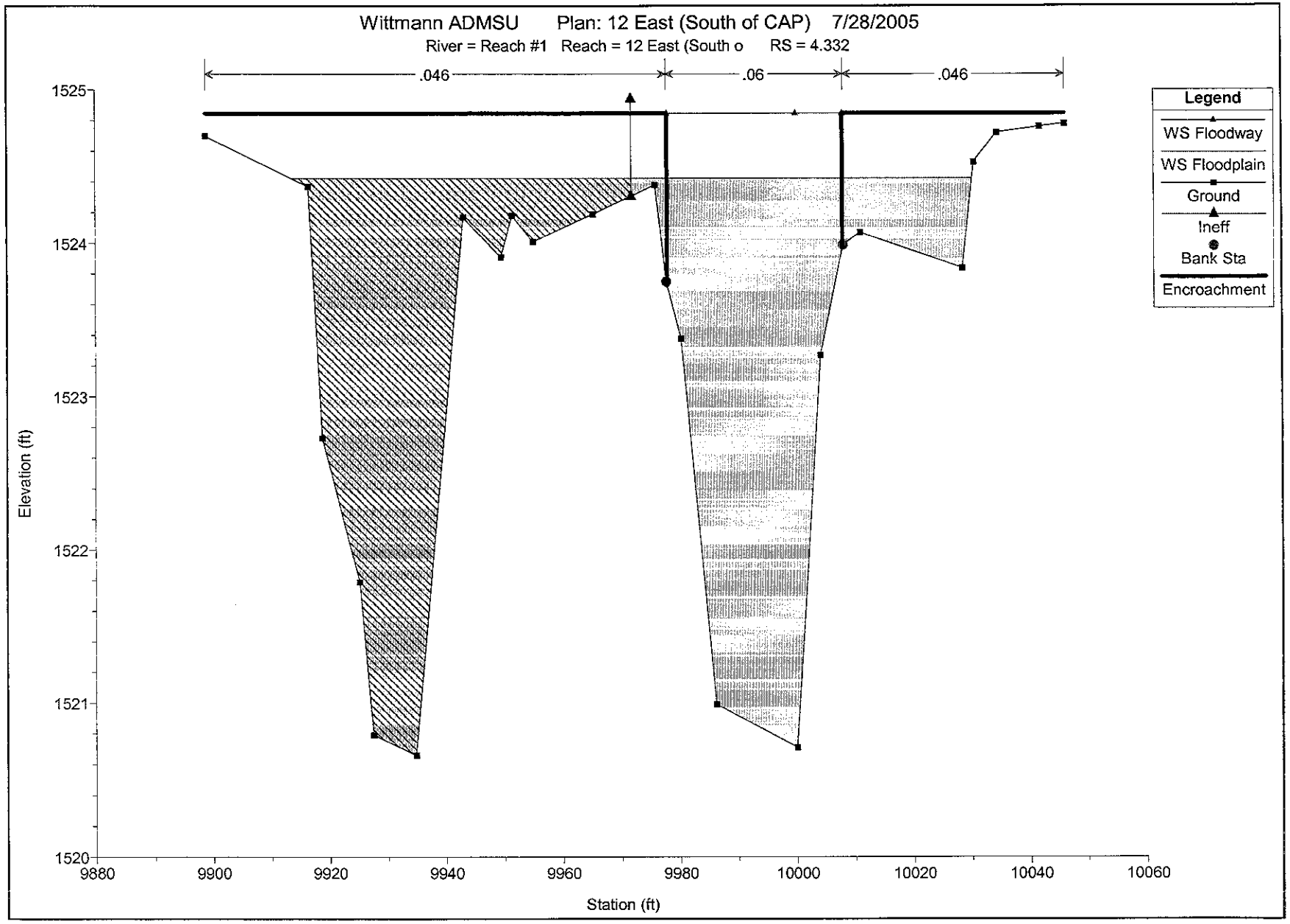
12 EAST

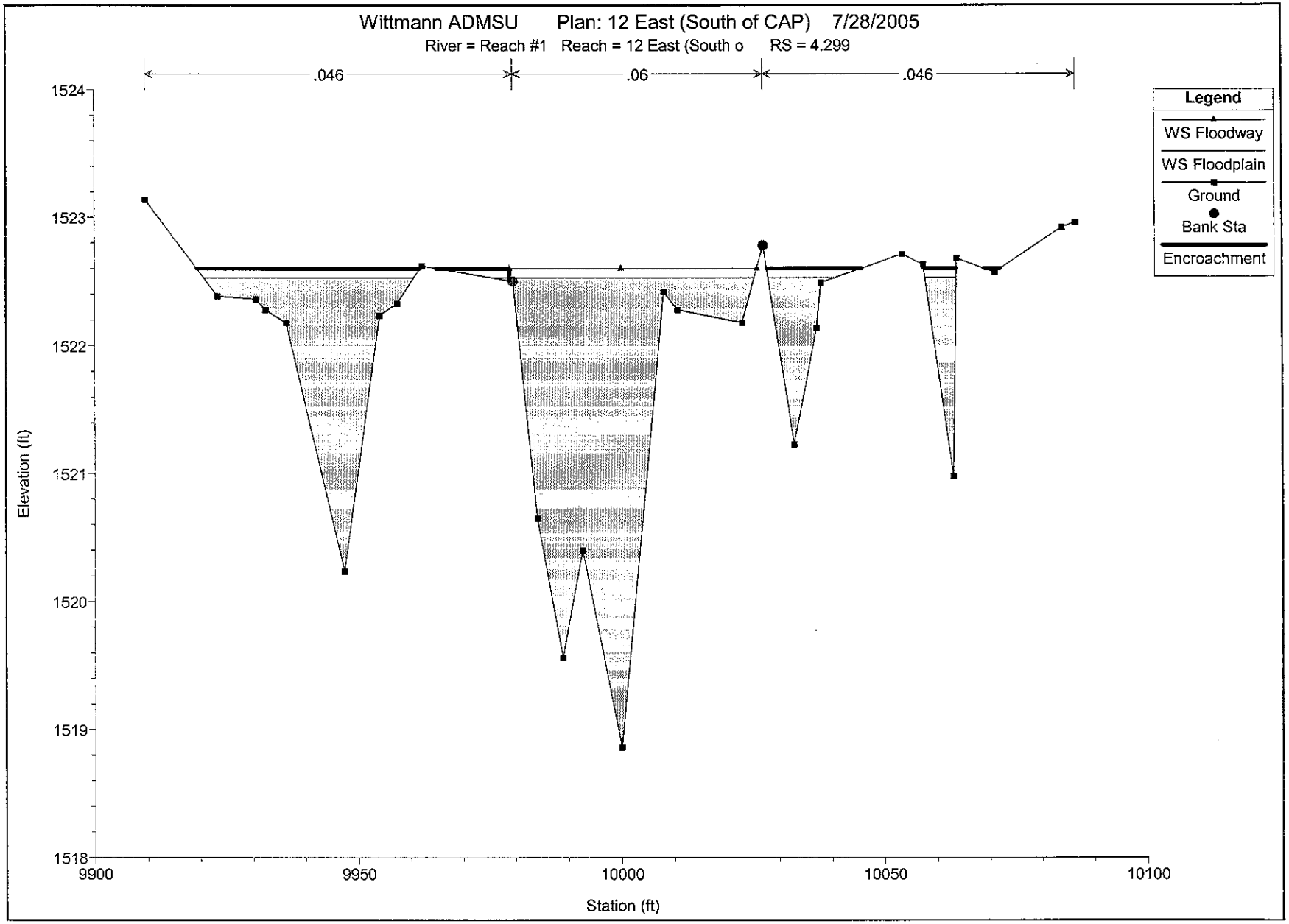

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.554
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1542
1540
1538
1536
1534
1532
1530
1528
1526
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

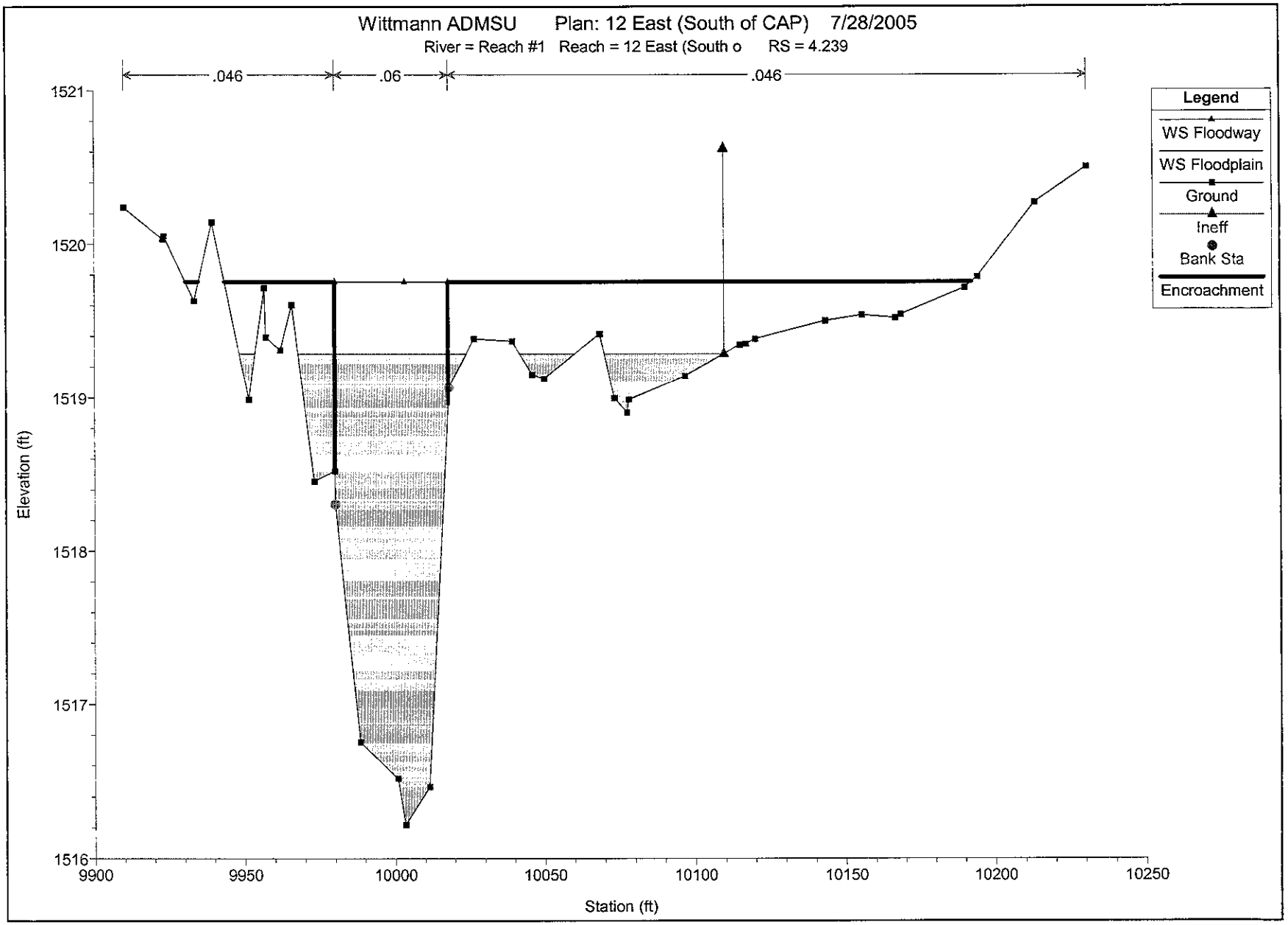

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.494
.046
.06
.046
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Encroachment
Elevation (ft)
1534
1533
1532
1531
1530
1529
1528
1527
9920
9940
9960
9980
10000
10020
10040
Station (ft)

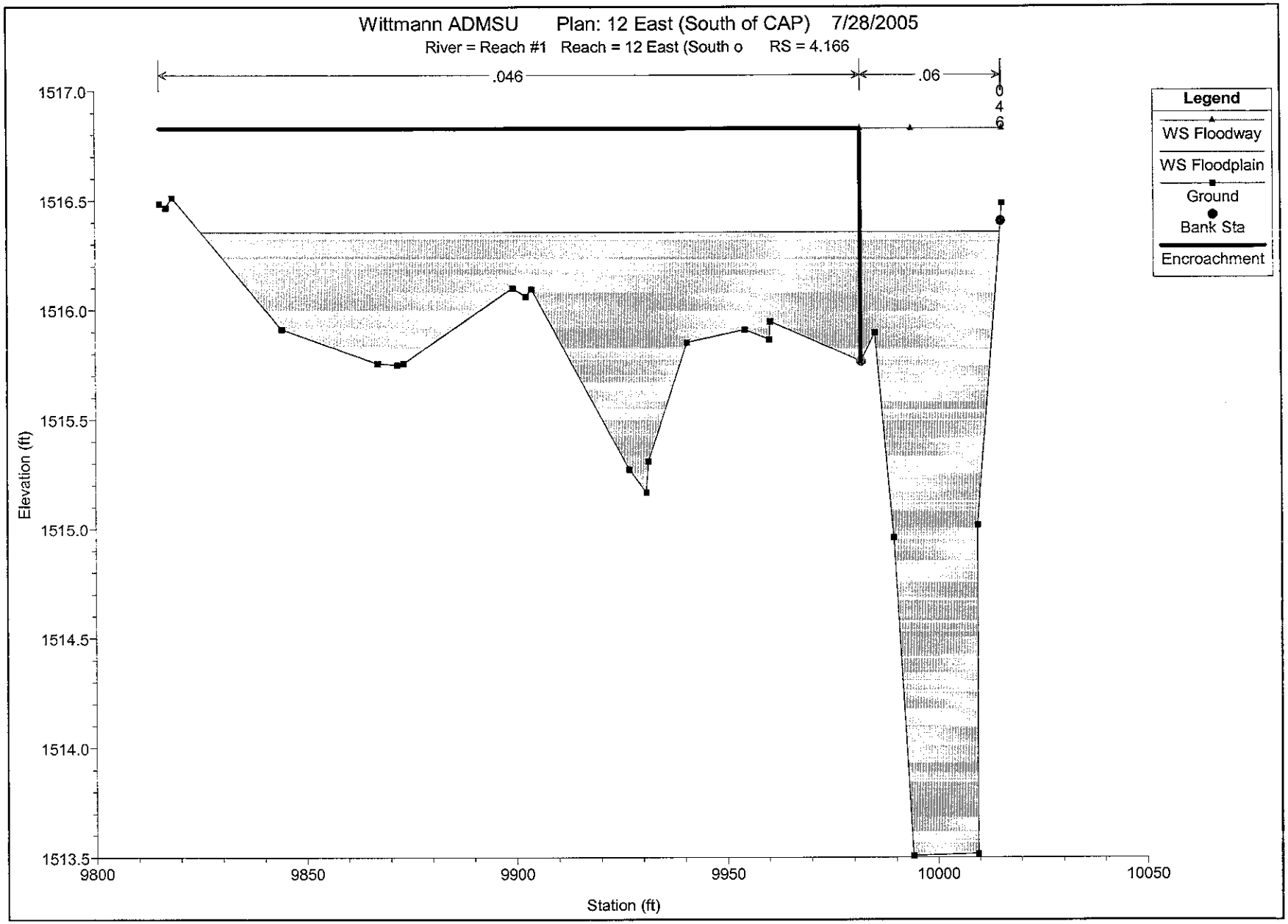

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.423
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1532
1530
1528
1526
1524
1522
9800
9850
9900
9950
10000
10050
10100
Station (ft)

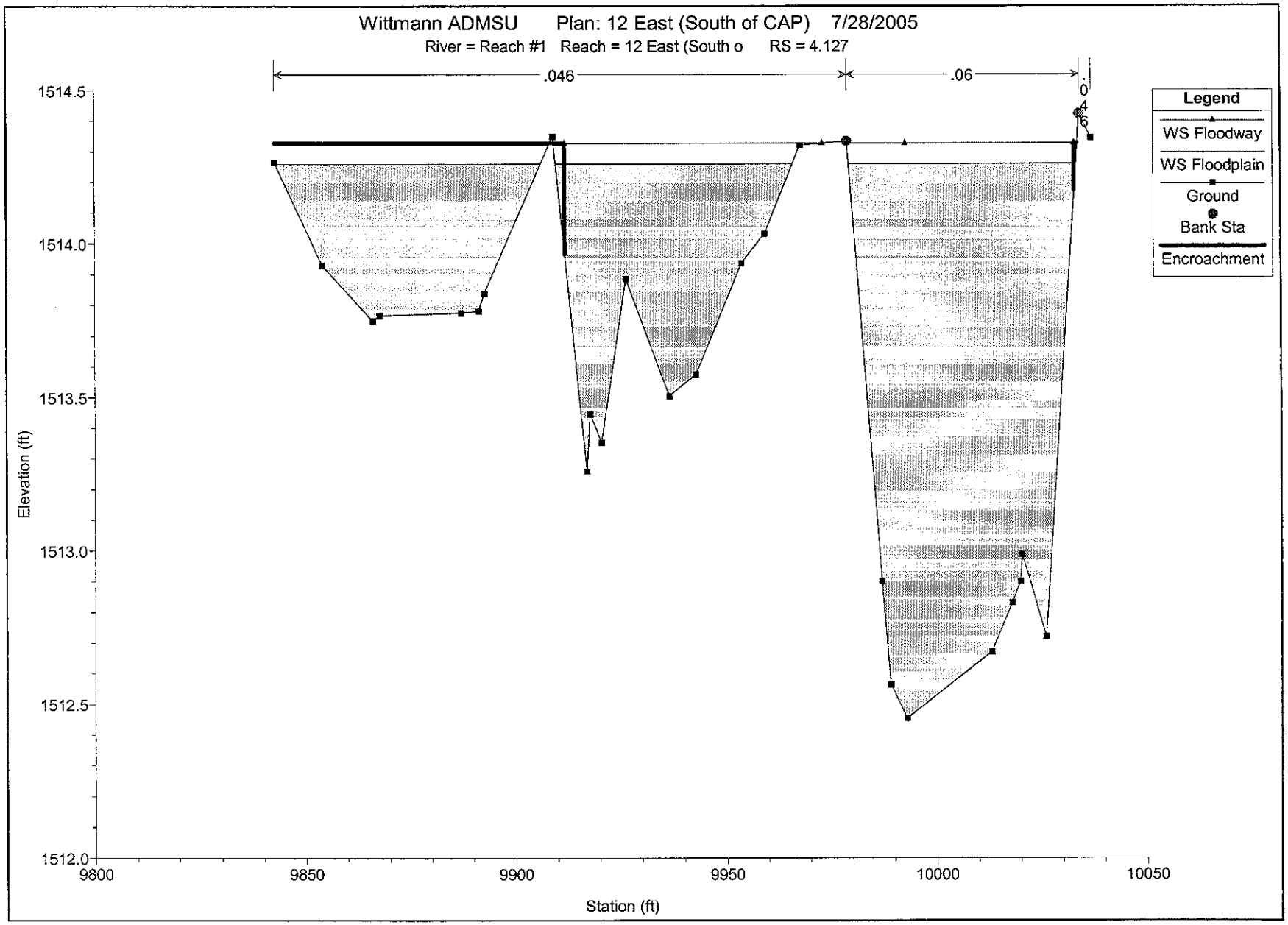

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.365
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1527
1526
1525
1524
1523
1522
1521
9960
9980
10000
10020
10040
10060
10080
Station (ft)

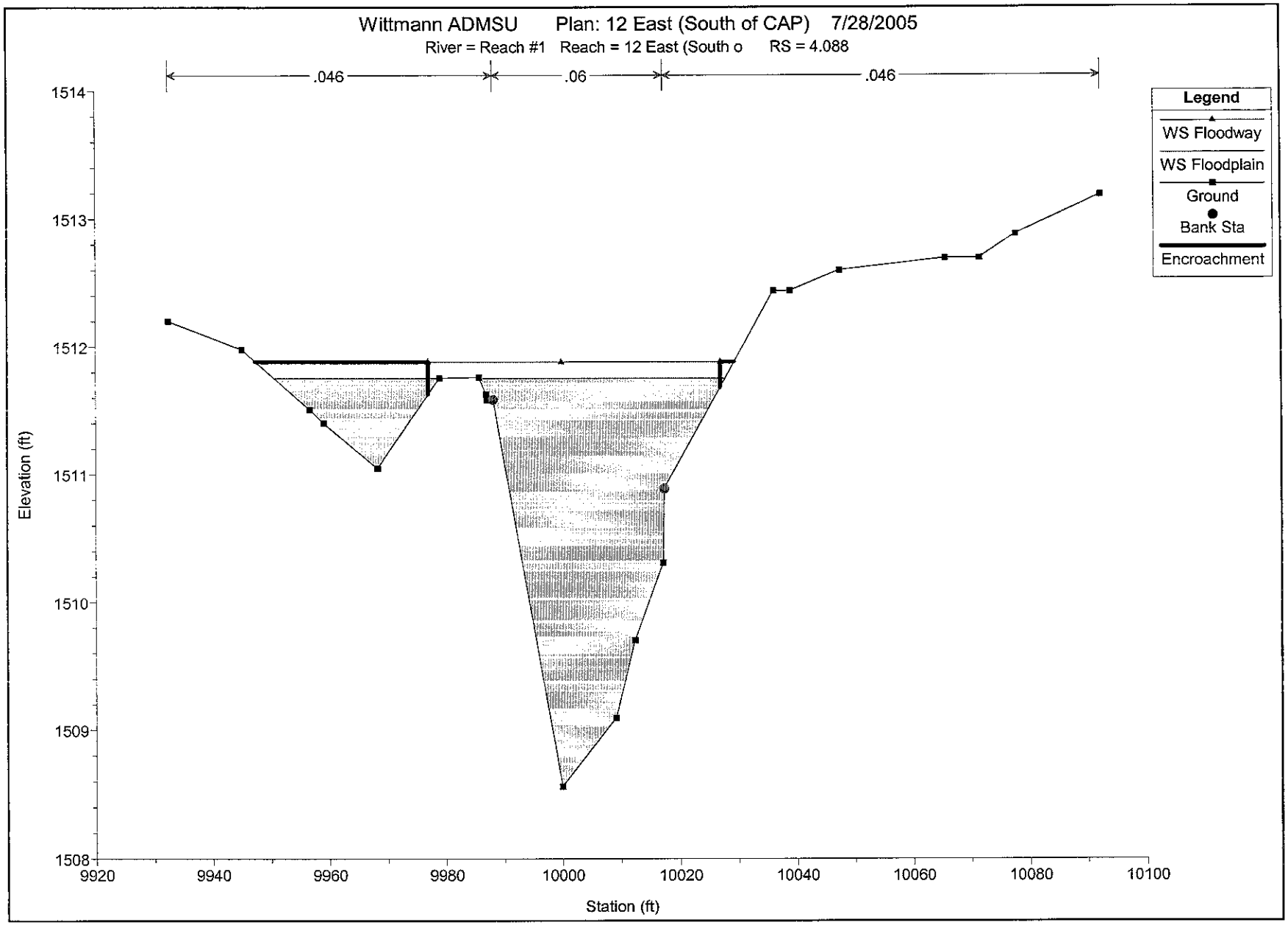

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.332
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1525
1524
1523
1522
1521
1520
9880
9900
9920
9940
9960
9980
10000
10020
10040
10060
Station (ft)

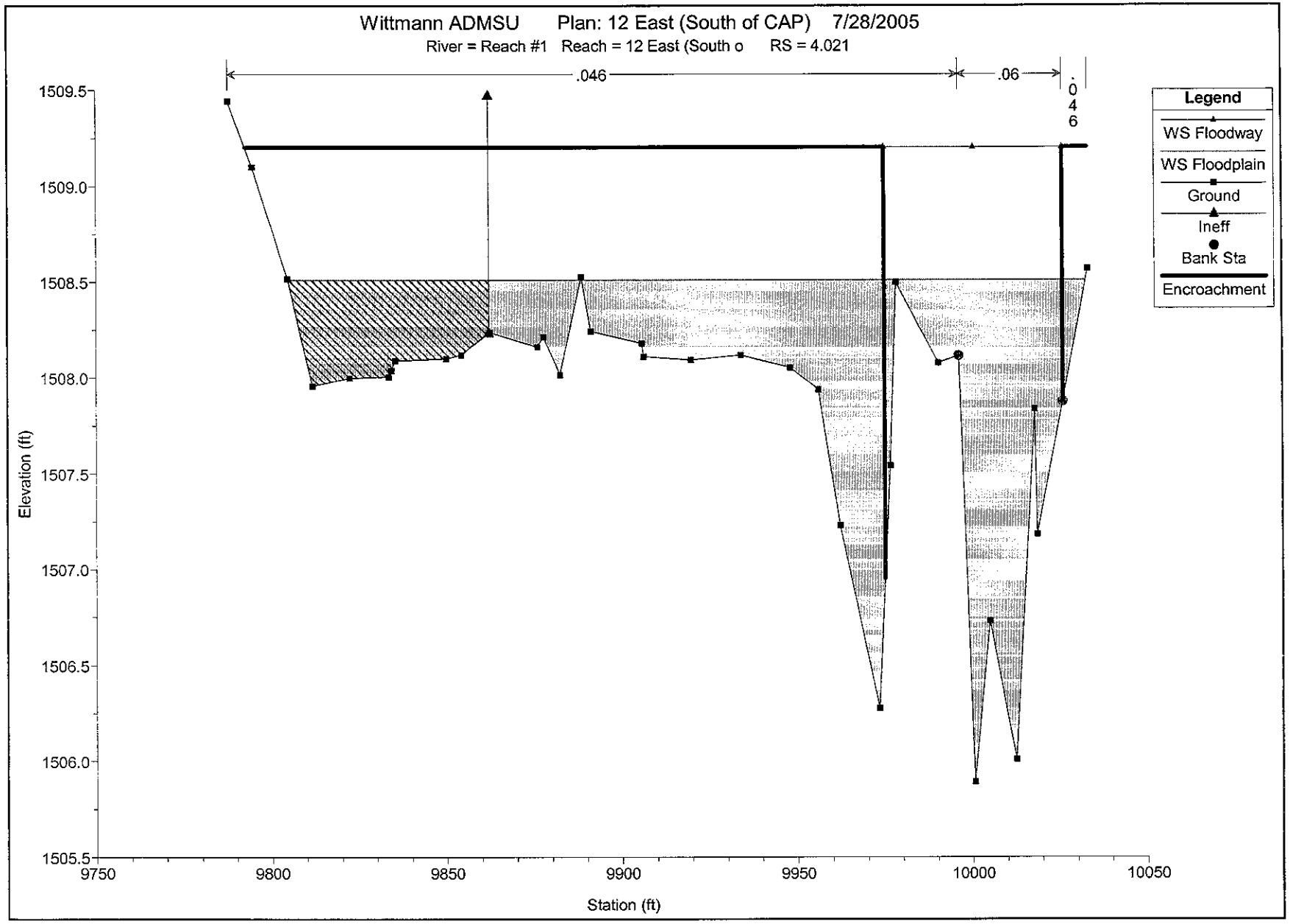

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.299
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1524
1523
1522
1521
1520
1519
1518
9900
9950
10000
10050
10100
Station (ft)

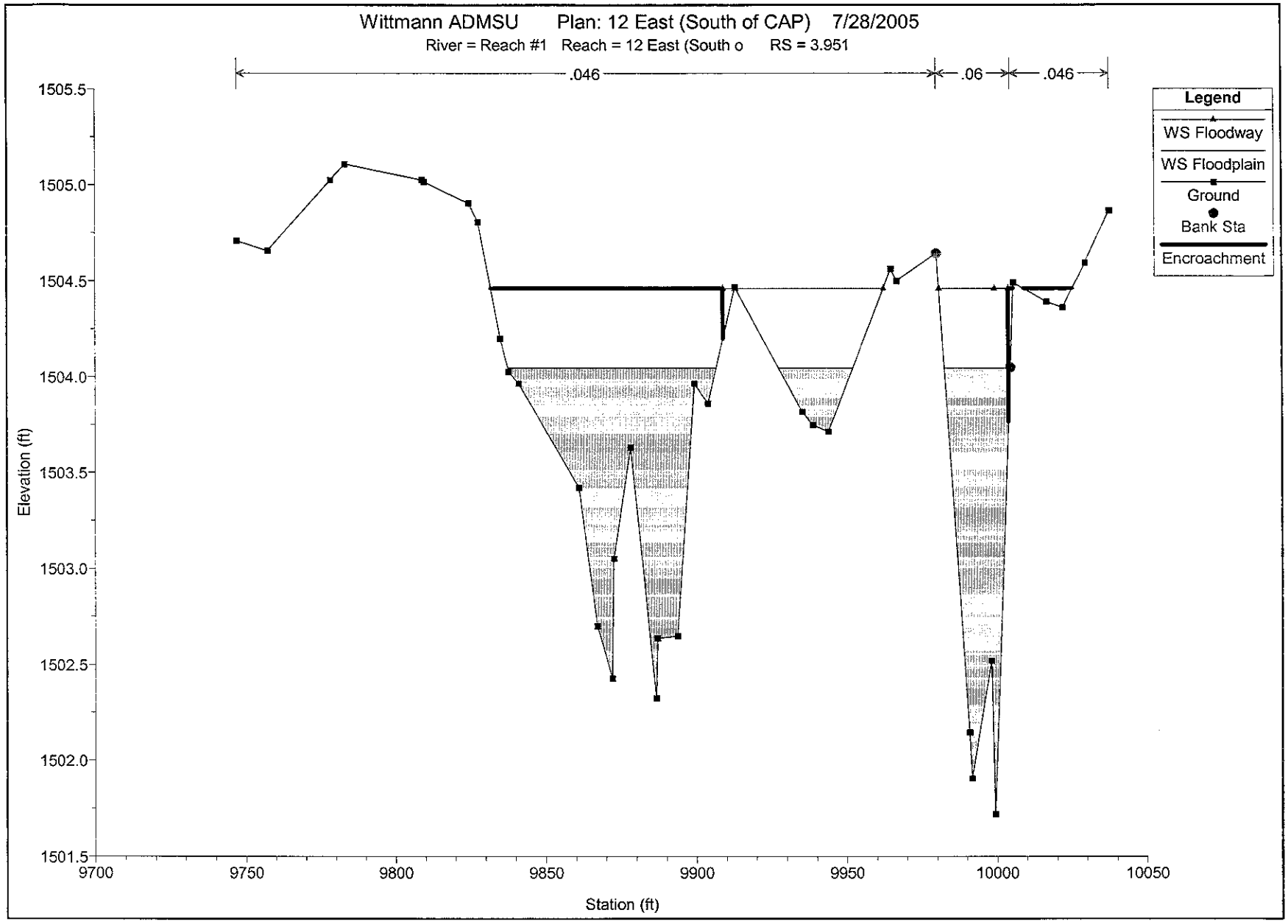

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.239
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1521
1520
1519
1518
1517
1516
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

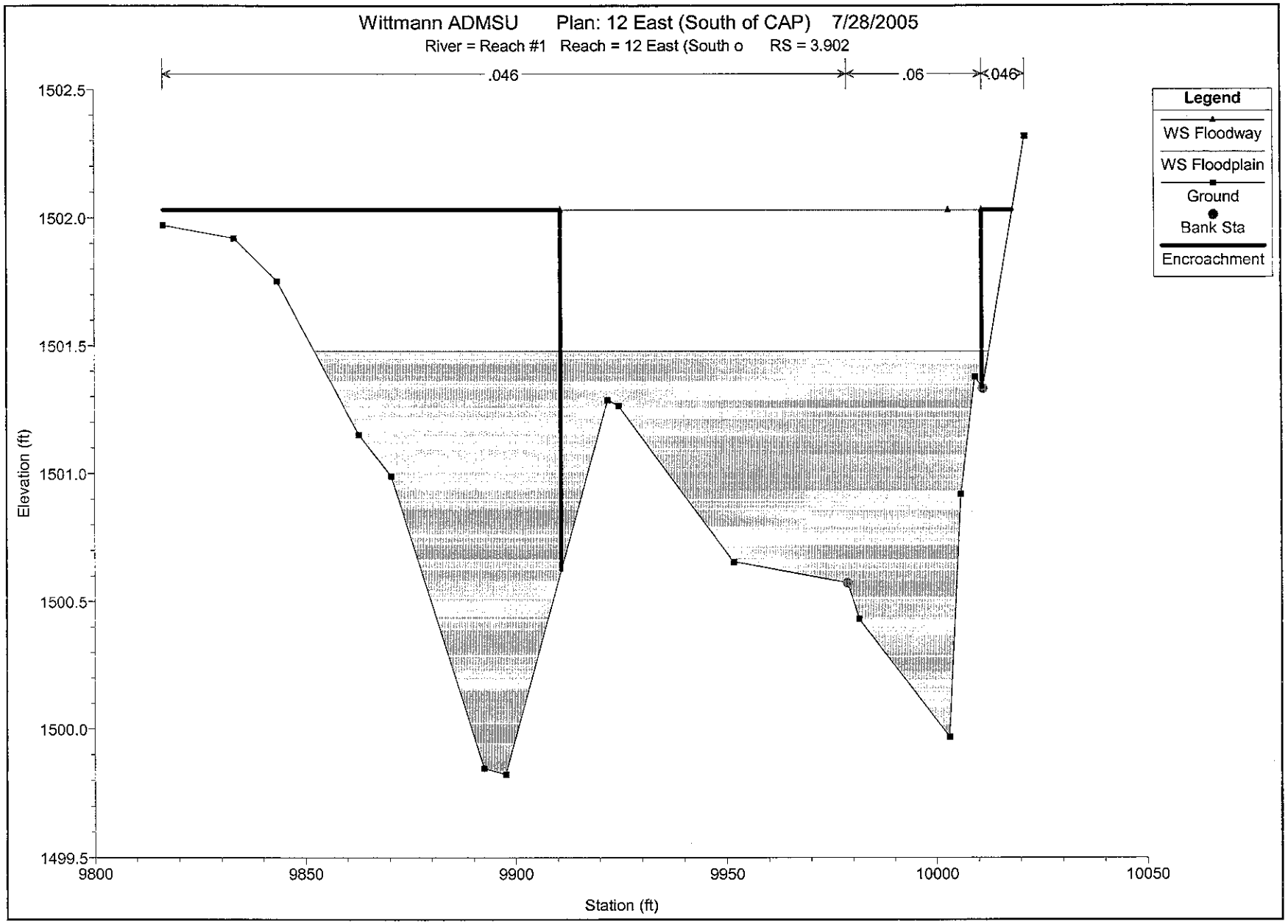

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.166
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1517.0
1516.5
1516.0
1515.5
1515.0
1514.5
1514.0
1513.5
9800
9850
9900
9950
10000
10050
Station (ft)

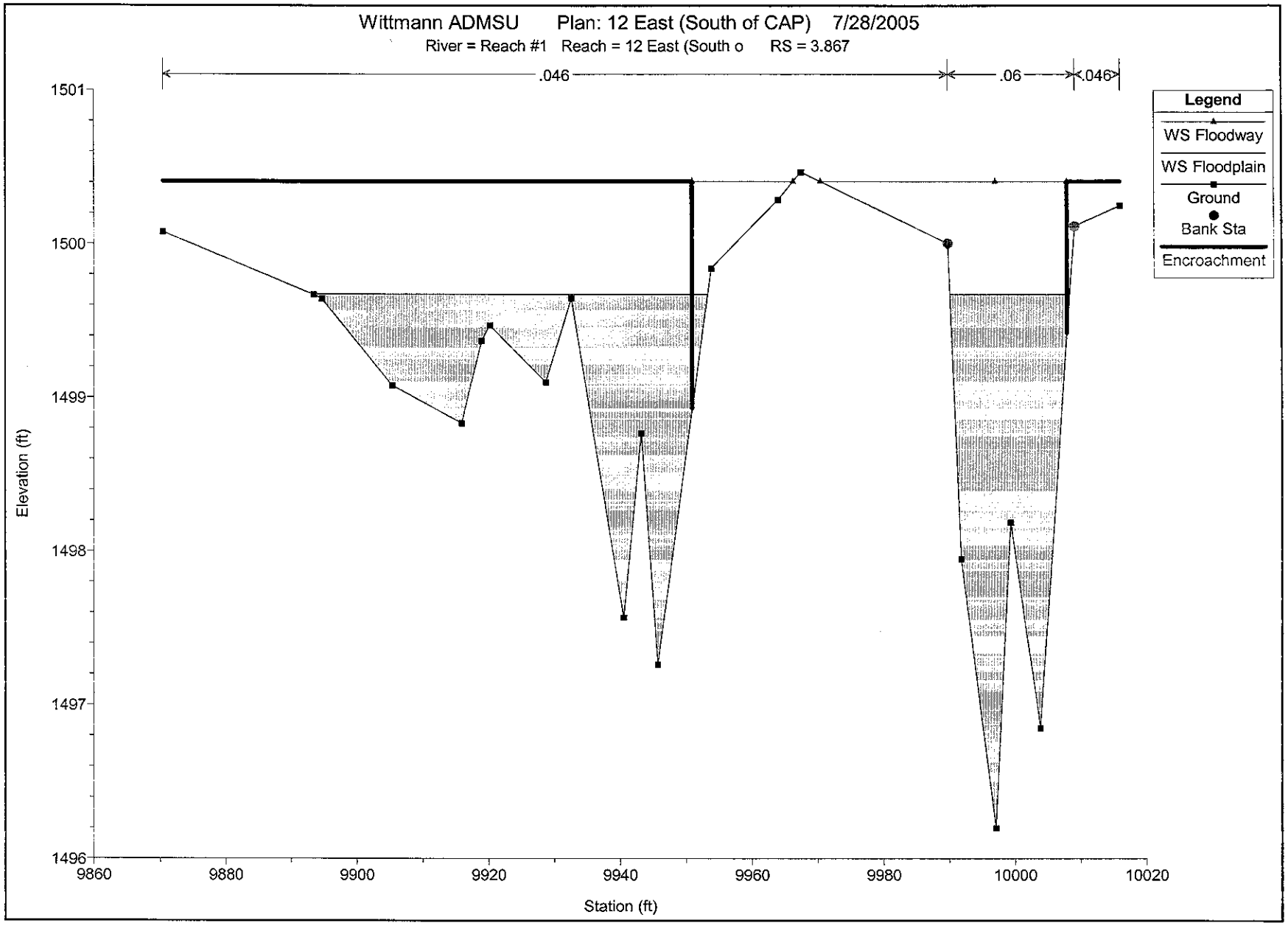

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.127
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1514.5
1514.0
1513.5
1513.0
1512.5
1512.0
9800
9850
9900
9950
10000
10050
Station (ft)

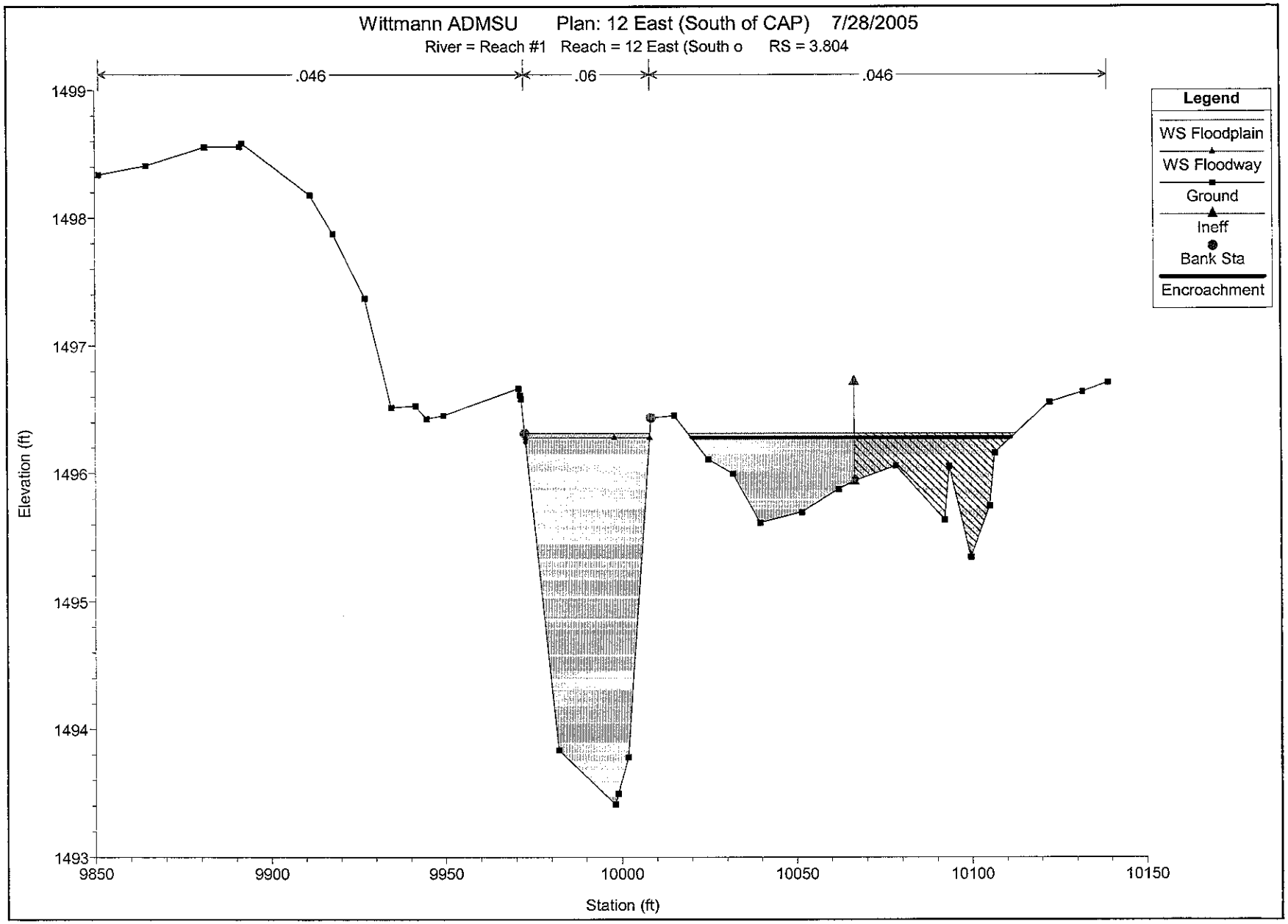

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.088
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1514
1513
1512
1511
1510
1509
1508
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

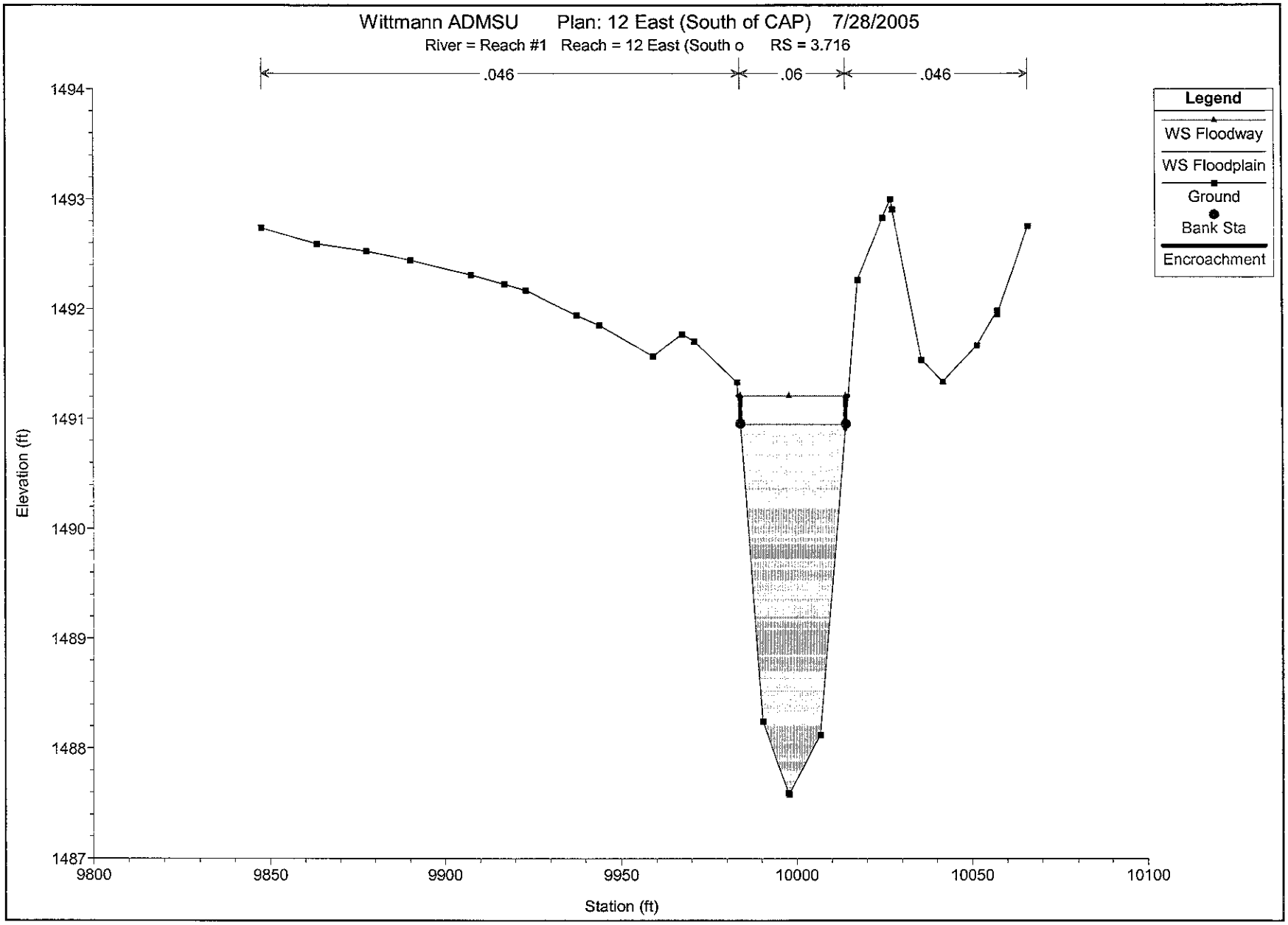

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 4.021
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1509.5
1509.0
1508.5
1508.0
1507.5
1507.0
1506.5
1506.0
1505.5
9750
9800
9850
9900
9950
10000
10050
Station (ft)

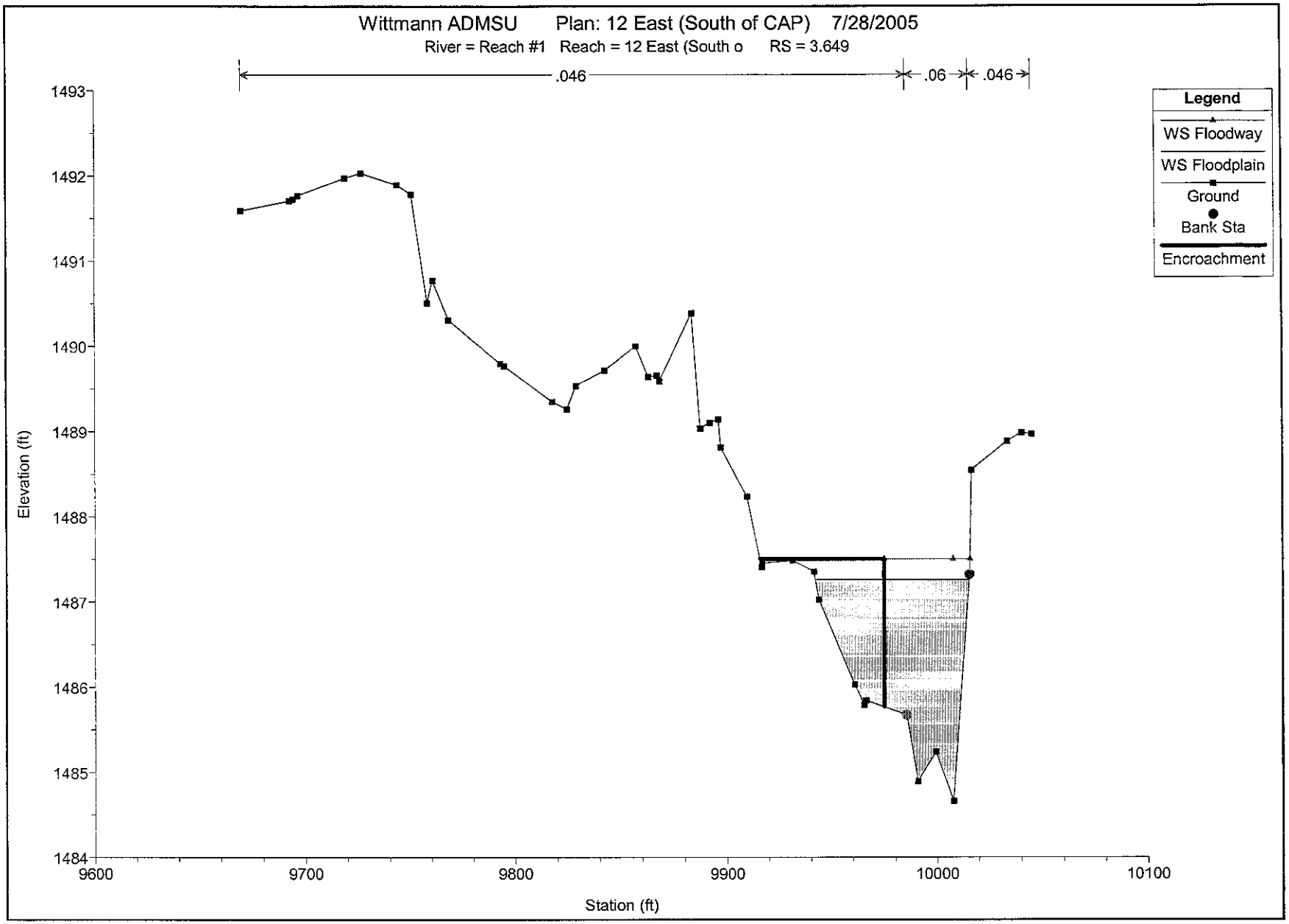

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.951
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1505.5
1505.0
1504.5
1504.0
1503.5
1503.0
1502.5
1502.0
1501.5
9700
9750
9800
9850
9900
9950
10000
10050
Station (ft)

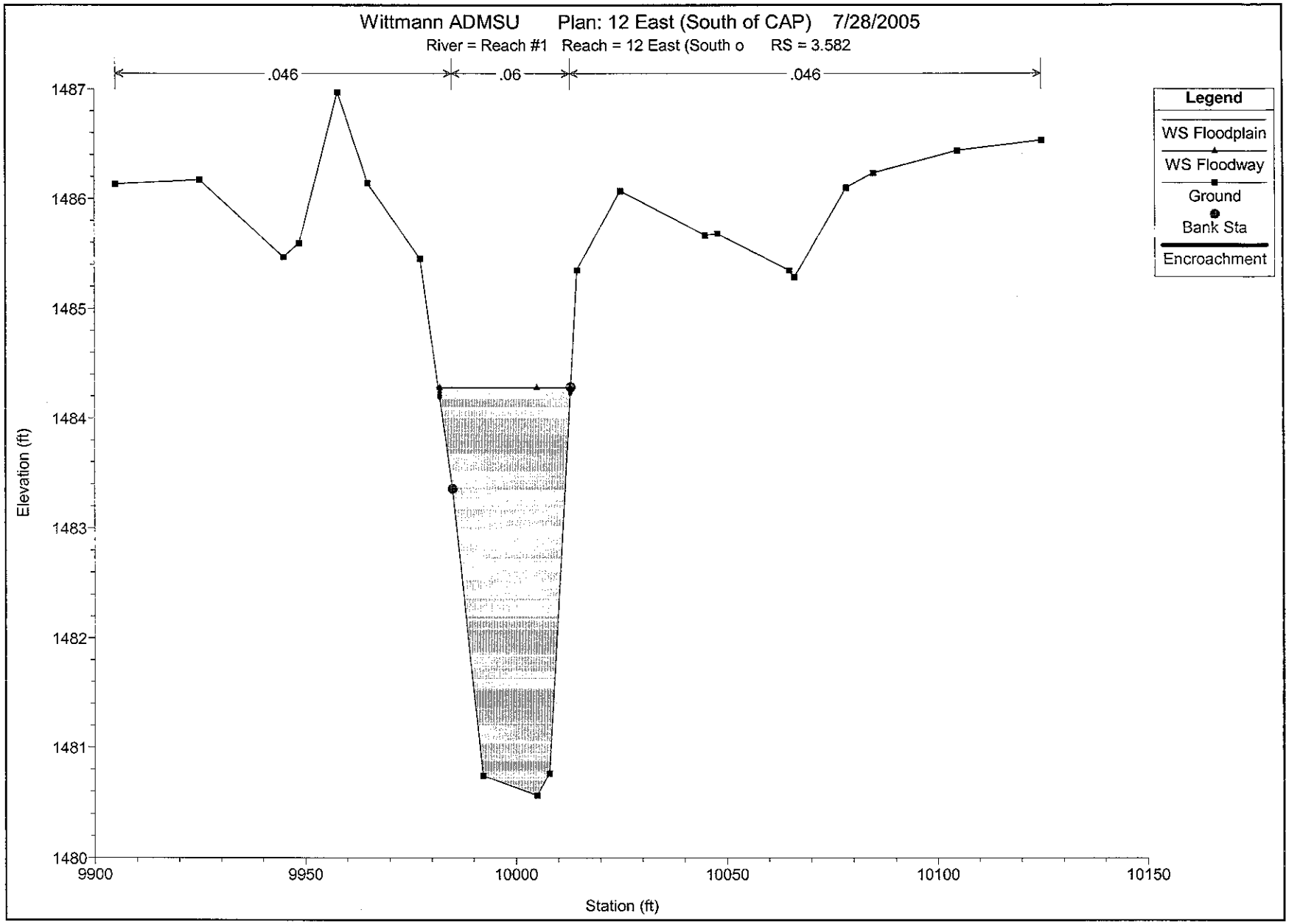

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.902
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1502.5
1502.0
1501.5
1501.0
1500.5
1500.0
1499.5
9800
9850
9900
9950
10000
10050
Station (ft)

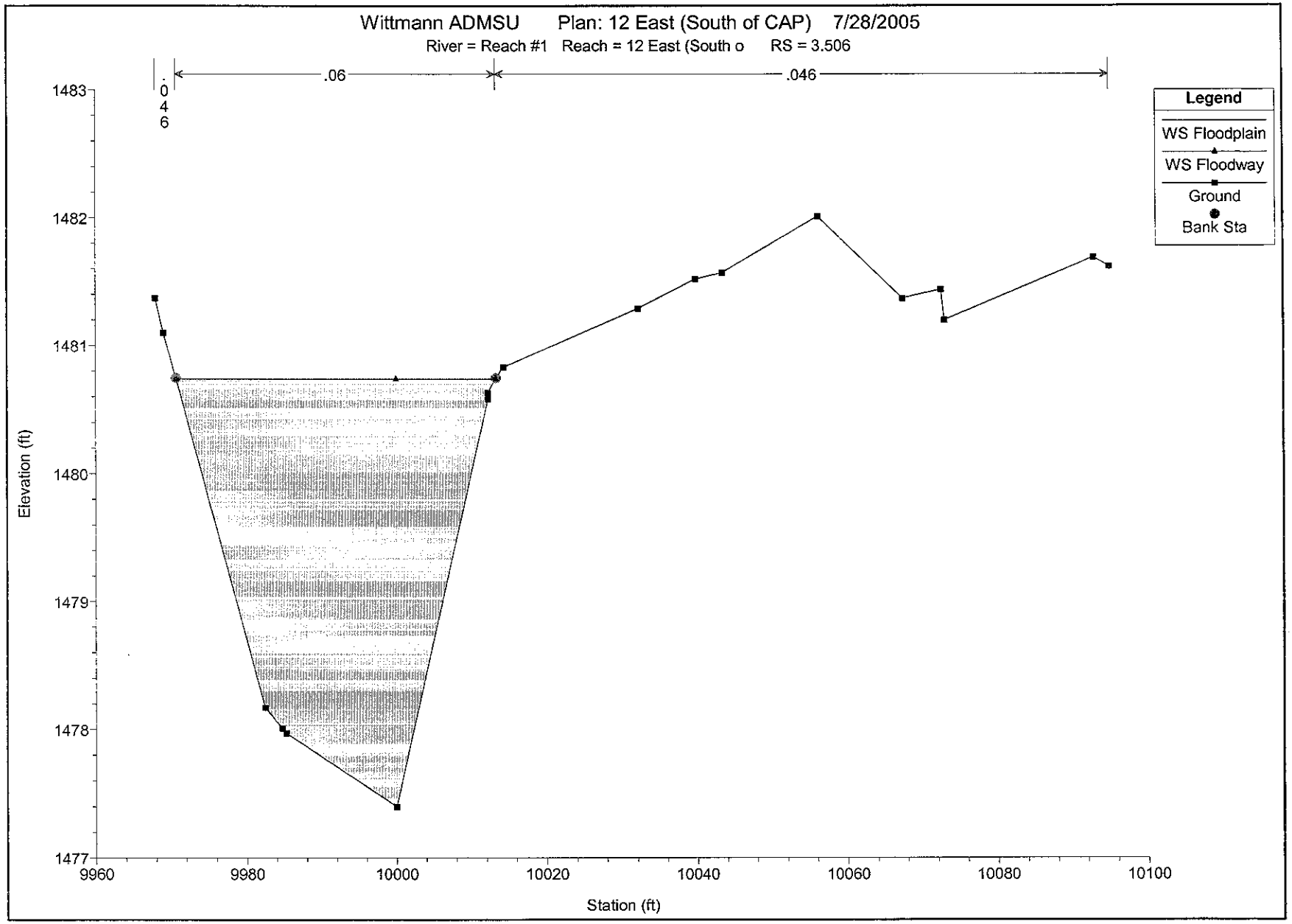

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.867
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1501
1500
1499
1498
1497
1496
9860
9880
9900
9920
9940
9960
9980
10000
10020
Station (ft)

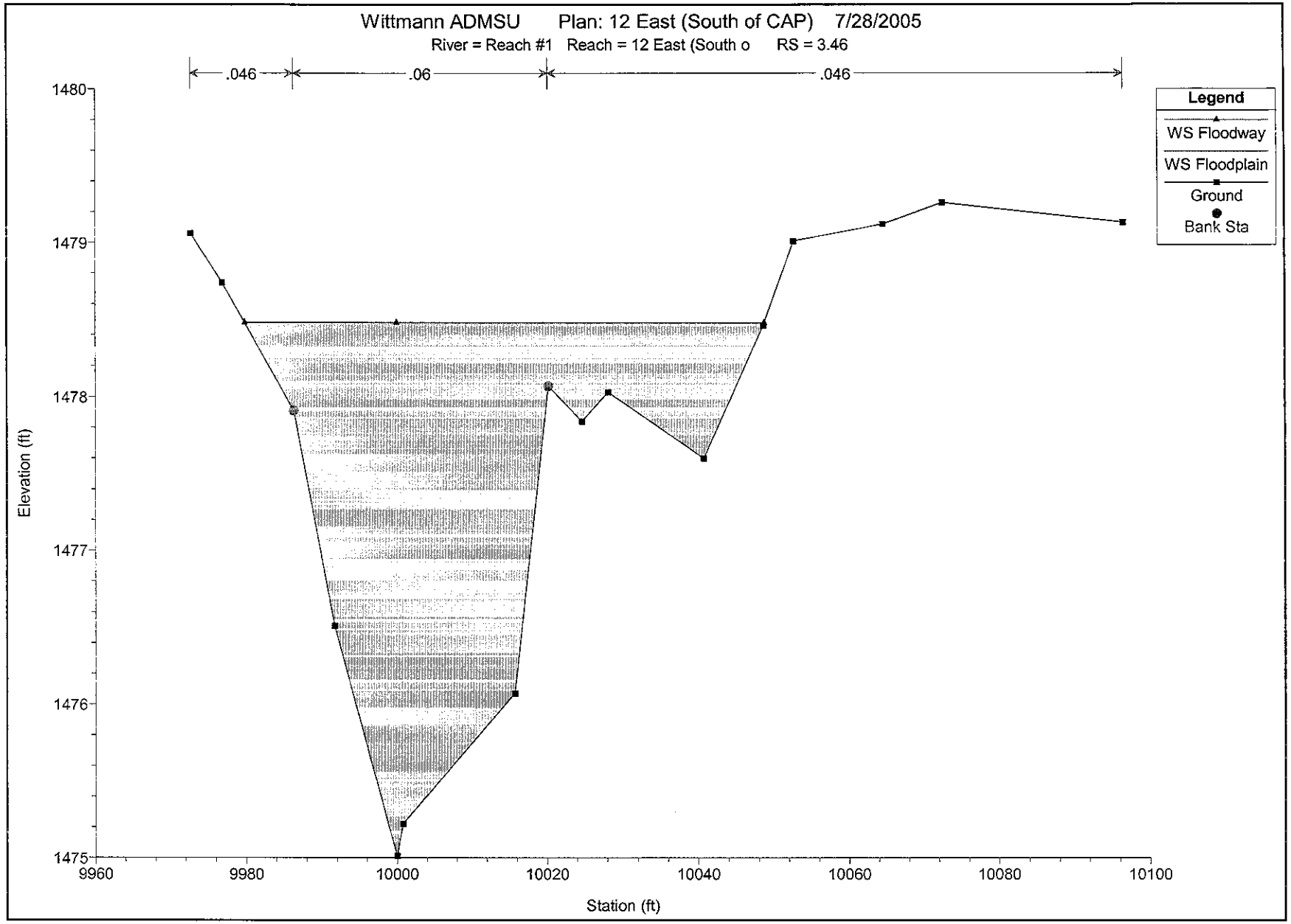

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.804
.046
.06
.046
Legend
WS Floodplain
WS Floodway
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1499
1498
1497
1496
1495
1494
1493
9850
9900
9950
10000
10050
10100
10150
Station (ft)

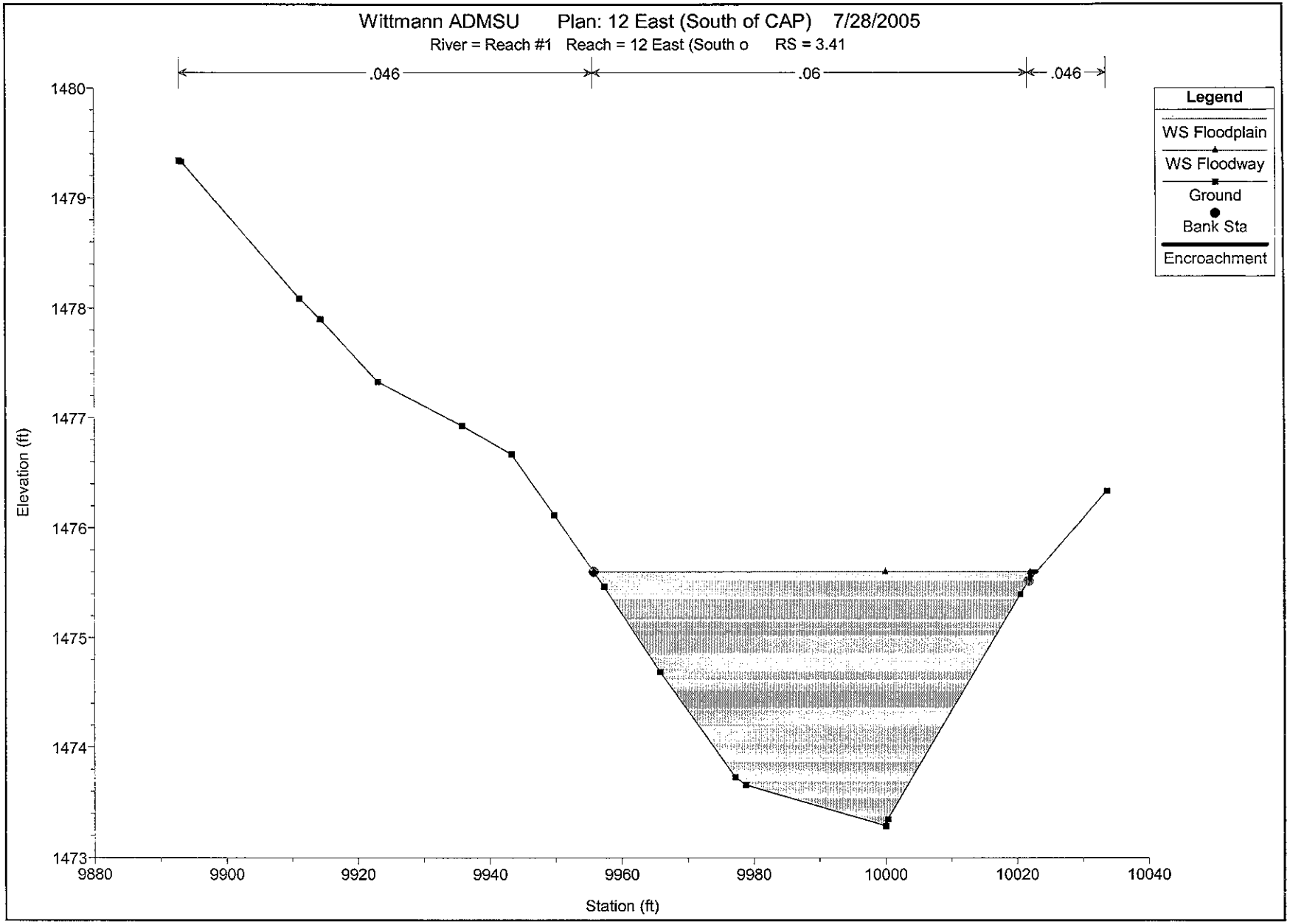

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.716
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1494
1493
1492
1491
1490
1489
1488
1487
9800
9850
9900
9950
10000
10050
10100
Station (ft)

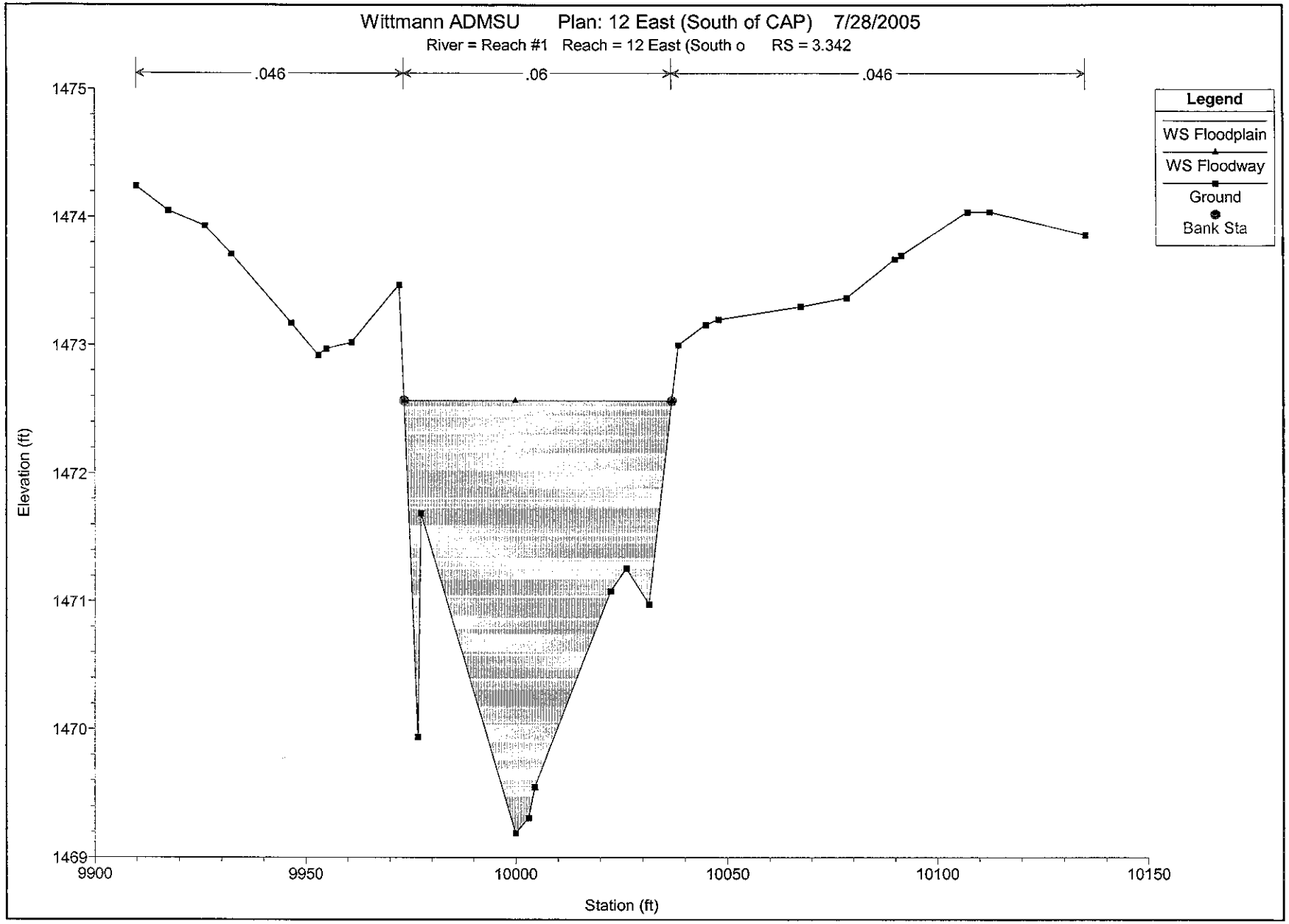

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.649
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1493
1492
1491
1490
1489
1488
1487
1486
1485
1484
9600
9700
9800
9900
10000
10100
Station (ft)

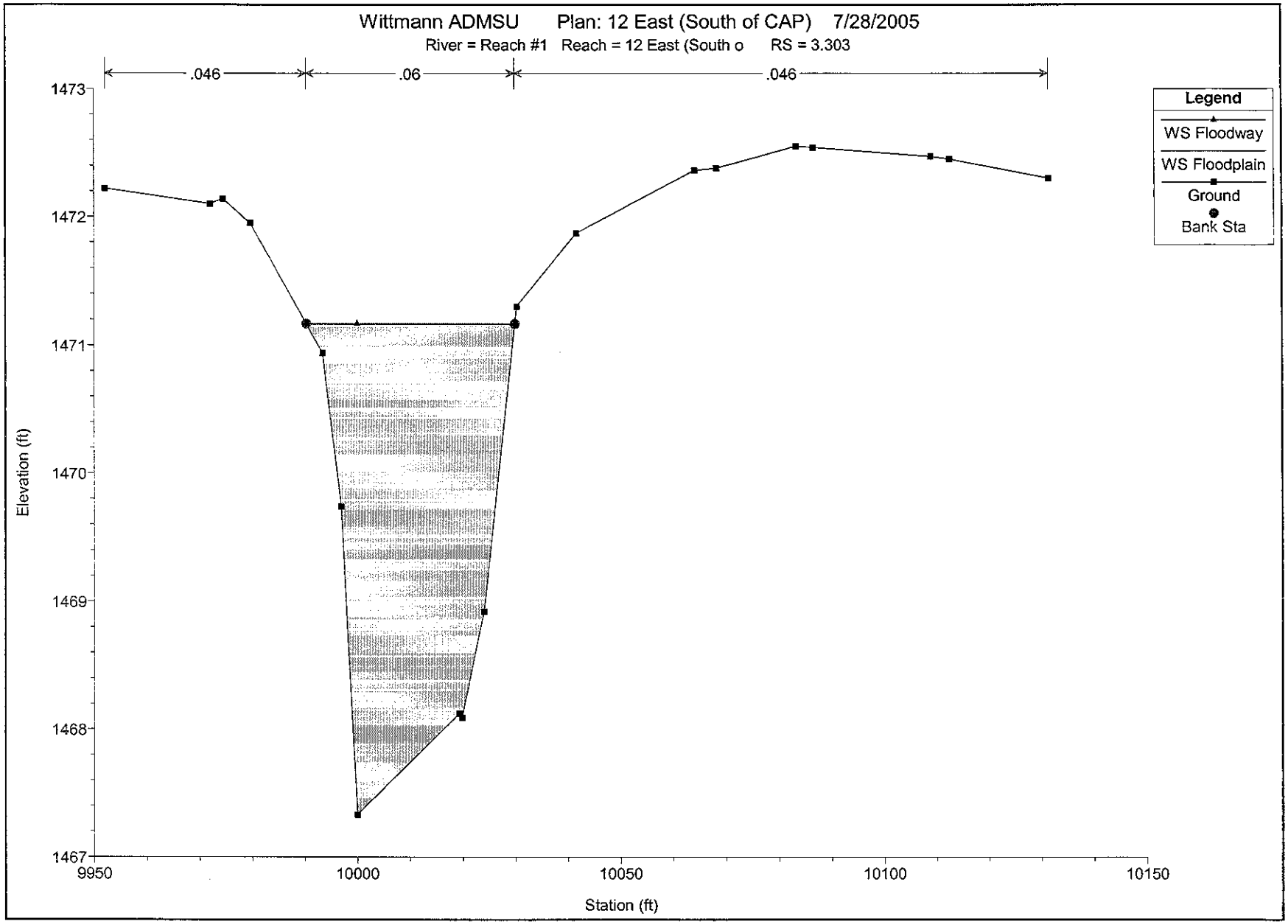

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.582
.046
.06
.046
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Encroachment
Elevation (ft)
1487
1486
1485
1484
1483
1482
1481
1480
9900
9950
10000
10050
10100
10150
Station (ft)

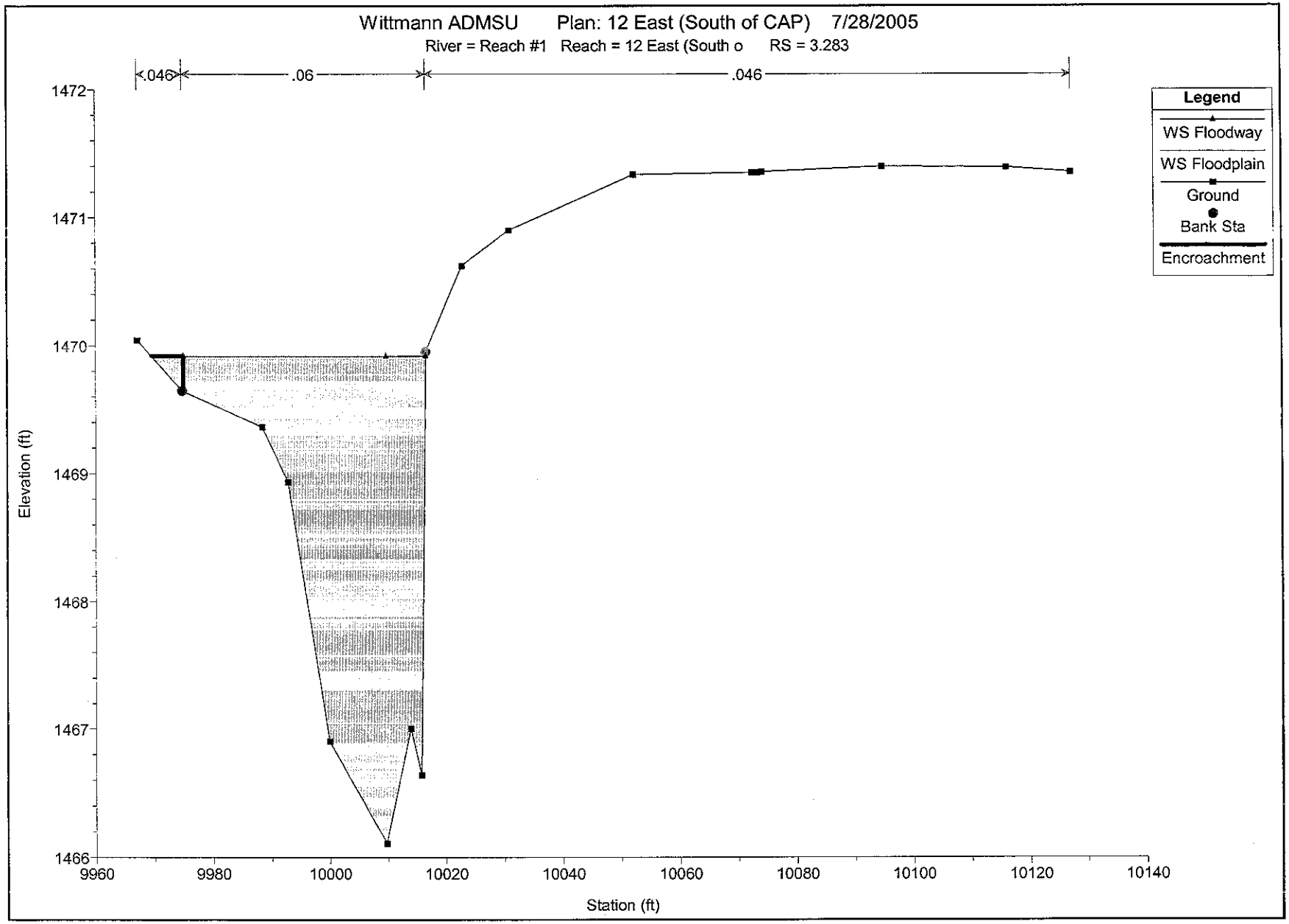

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.506
.06
.046
.046
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Elevation (ft)
1483
1482
1481
1480
1479
1478
1477
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

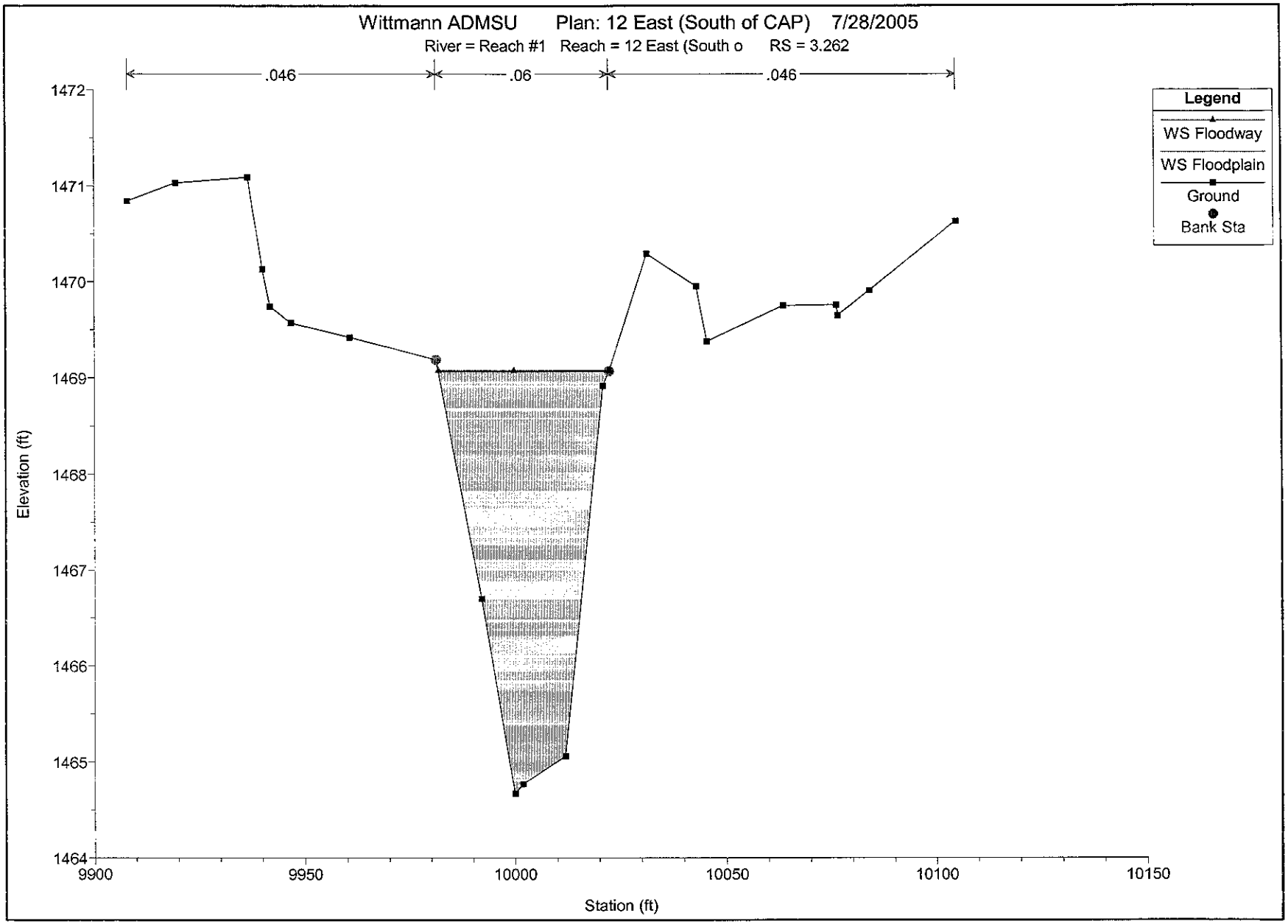

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.46
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1480
1479
1478
1477
1476
1475
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

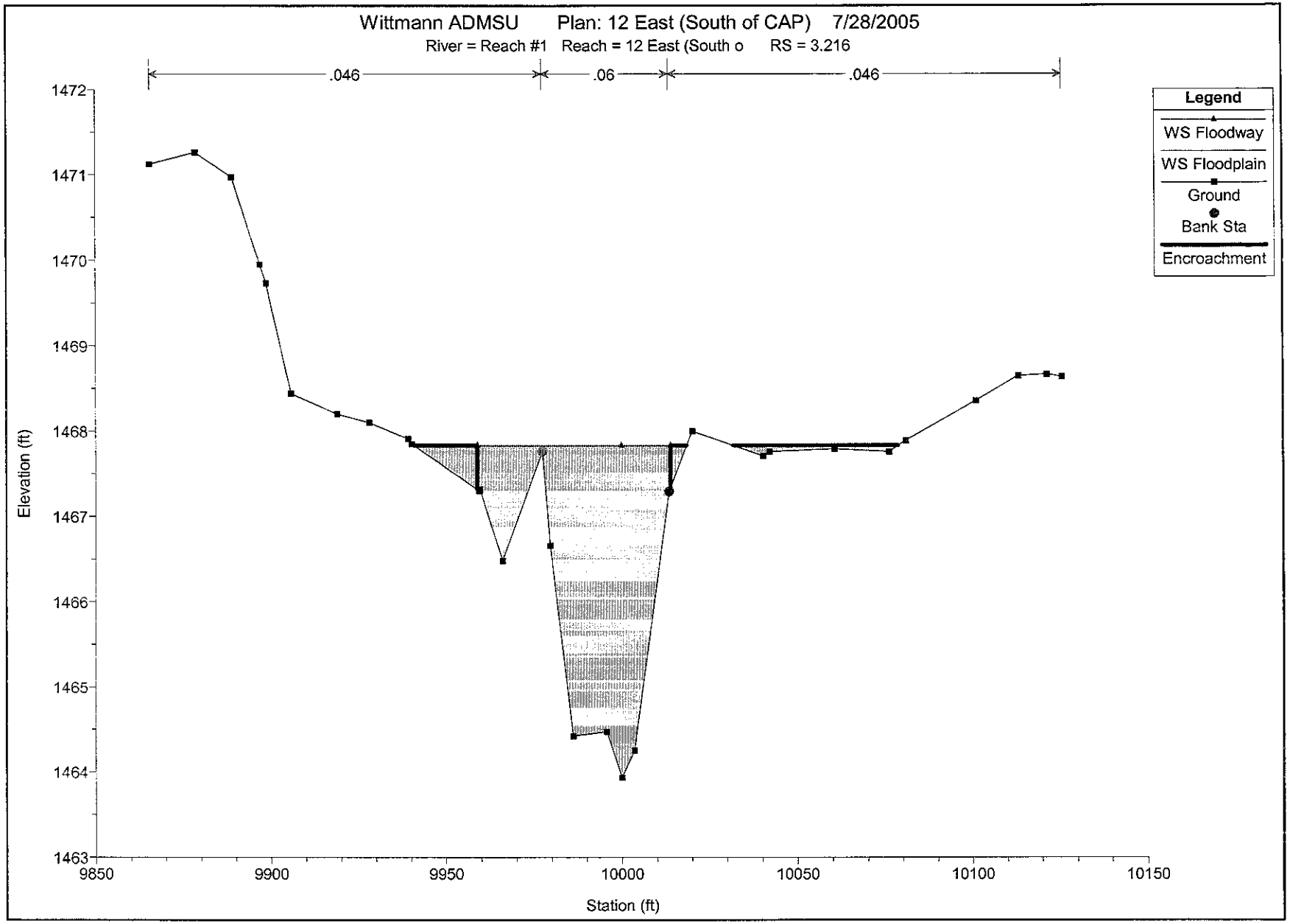

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.41
.046
.06
.046
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Encroachment
Elevation (ft)
1480
1479
1478
1477
1476
1475
1474
1473
9880
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)

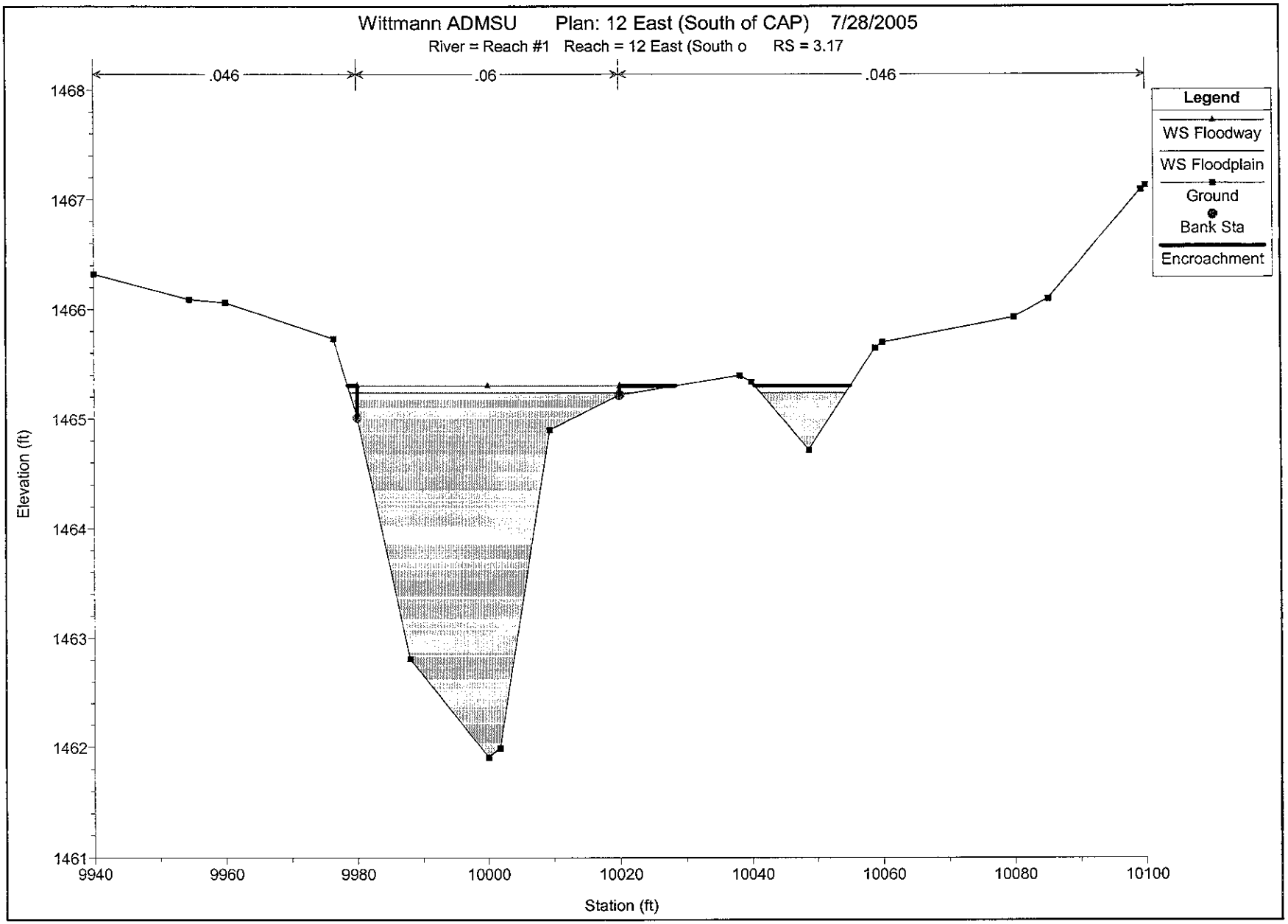

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.342
.046
.06
.046
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Elevation (ft)
1475
1474
1473
1472
1471
1470
1469
9900
9950
10000
10050
10100
10150
Station (ft)

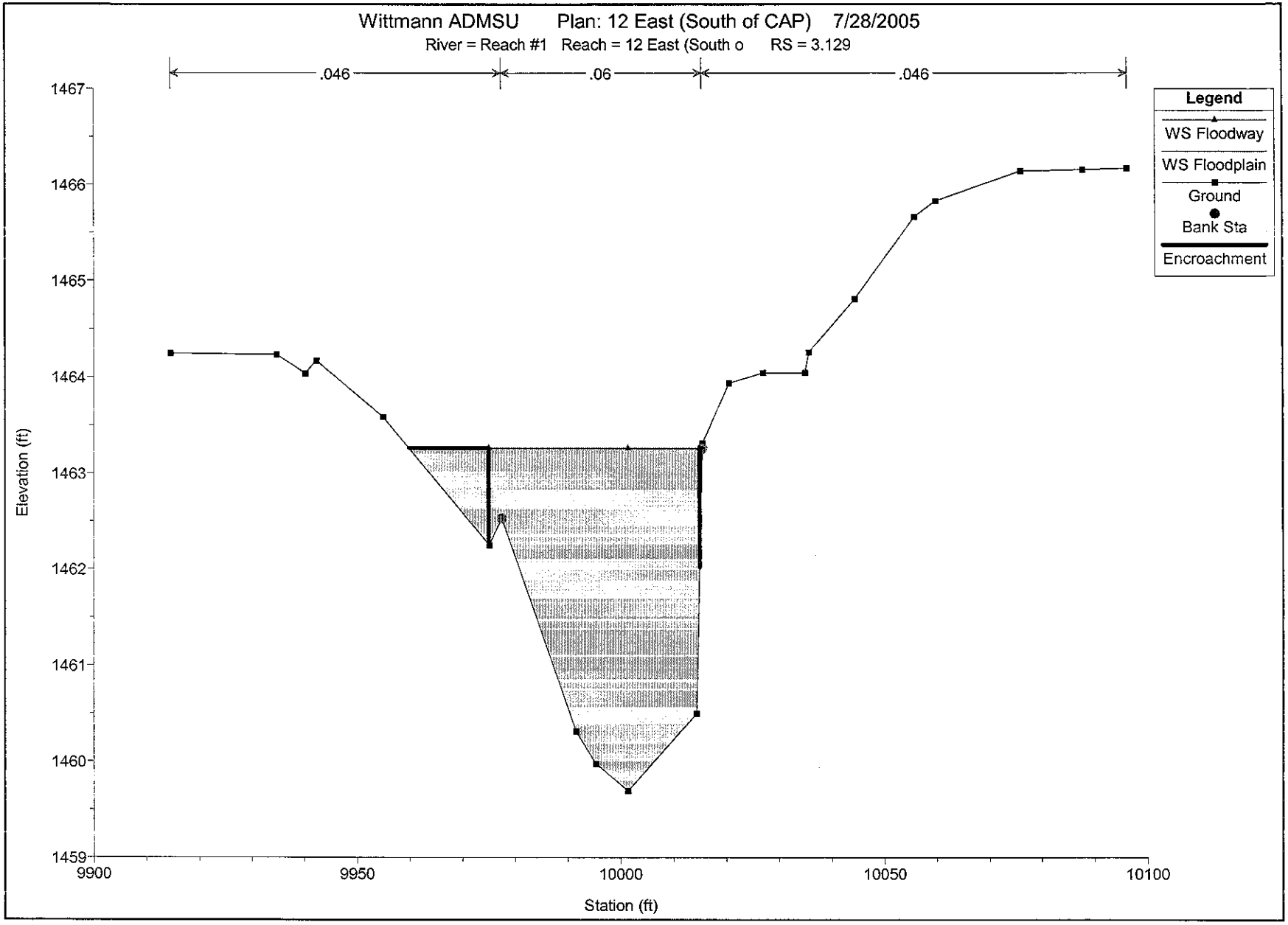

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.303
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1473
1472
1471
1470
1469
1468
1467
9950
10000
10050
10100
10150
Station (ft)

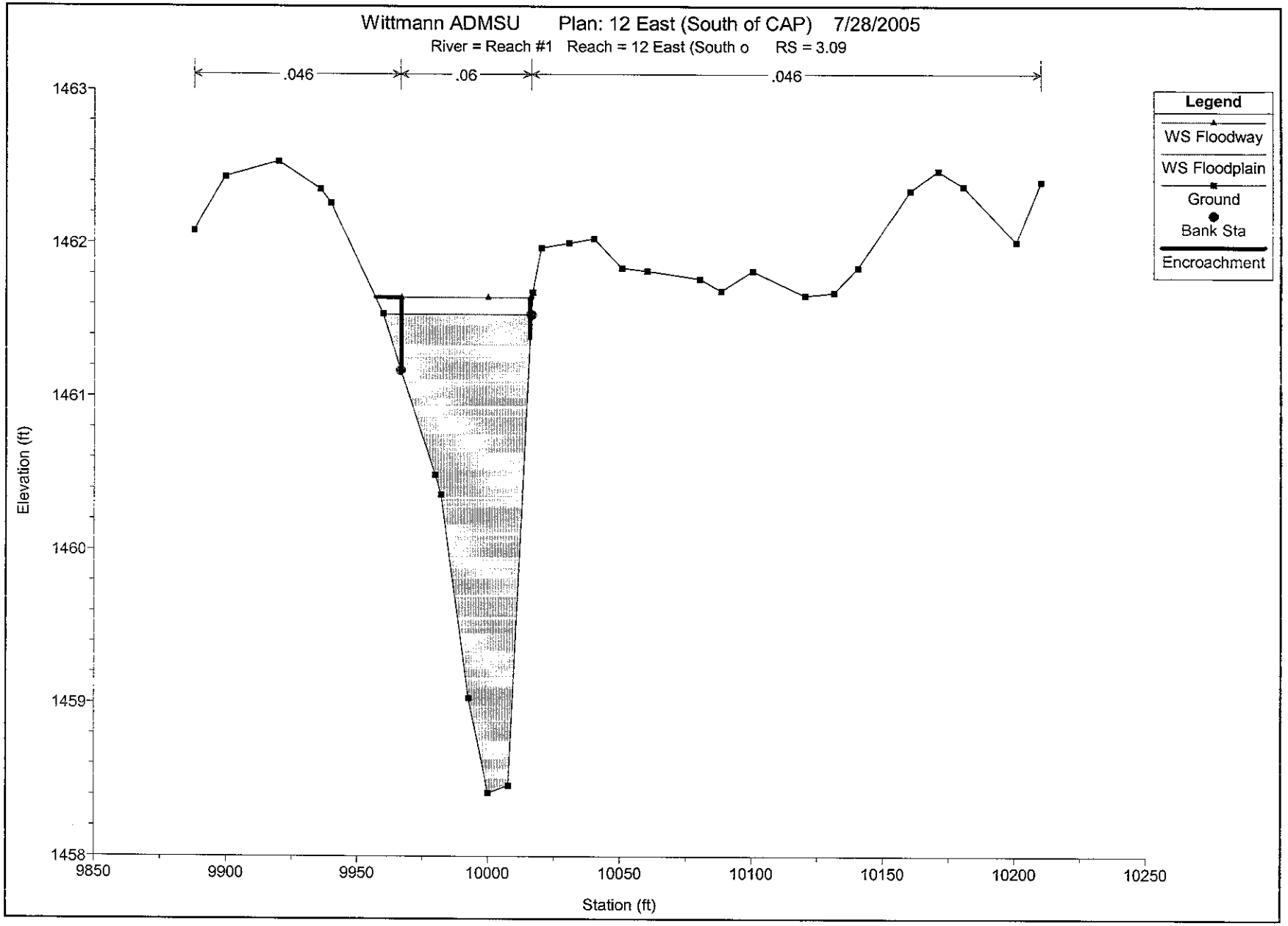

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.283
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1472
1471
1470
1469
1468
1467
1466
9960
9980
10000
10020
10040
10060
10080
10100
10120
10140
Station (ft)

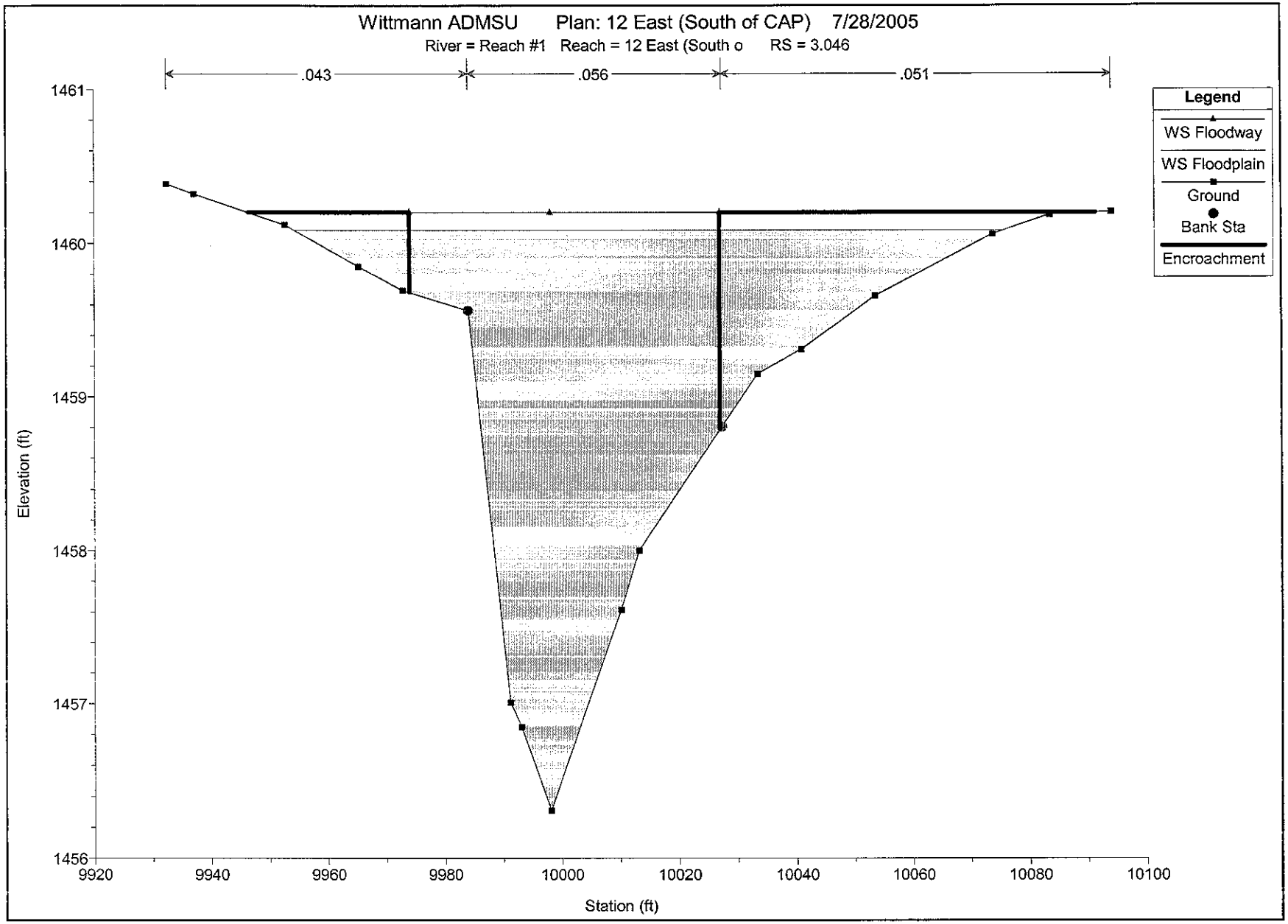

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.262
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1472
1471
1470
1469
1468
1467
1466
1465
1464
9900
9950
10000
10050
10100
10150
Station (ft)

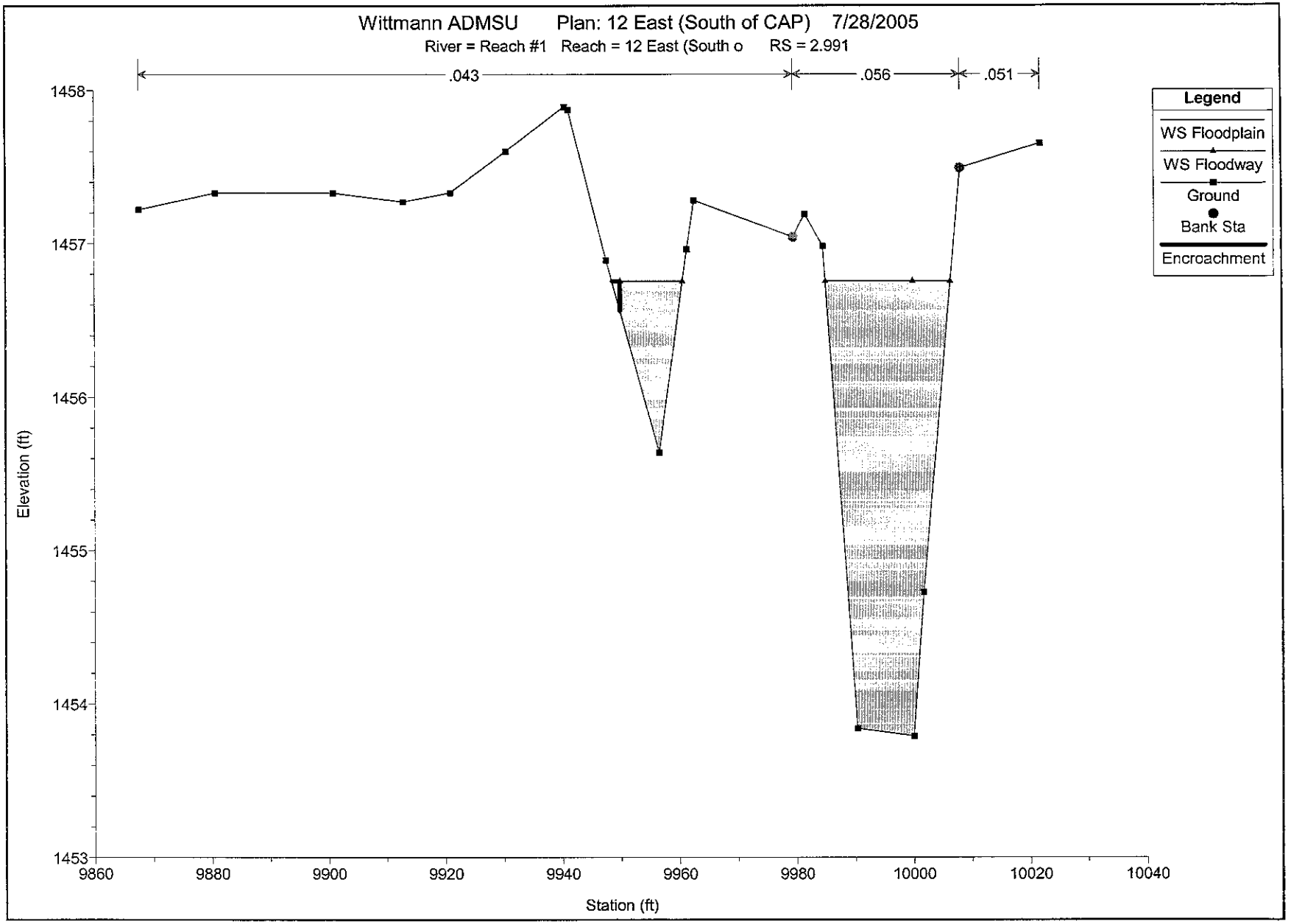

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.216
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1472
1471
1470
1469
1468
1467
1466
1465
1464
1463
9850
9900
9950
10000
10050
10100
10150
Station (ft)

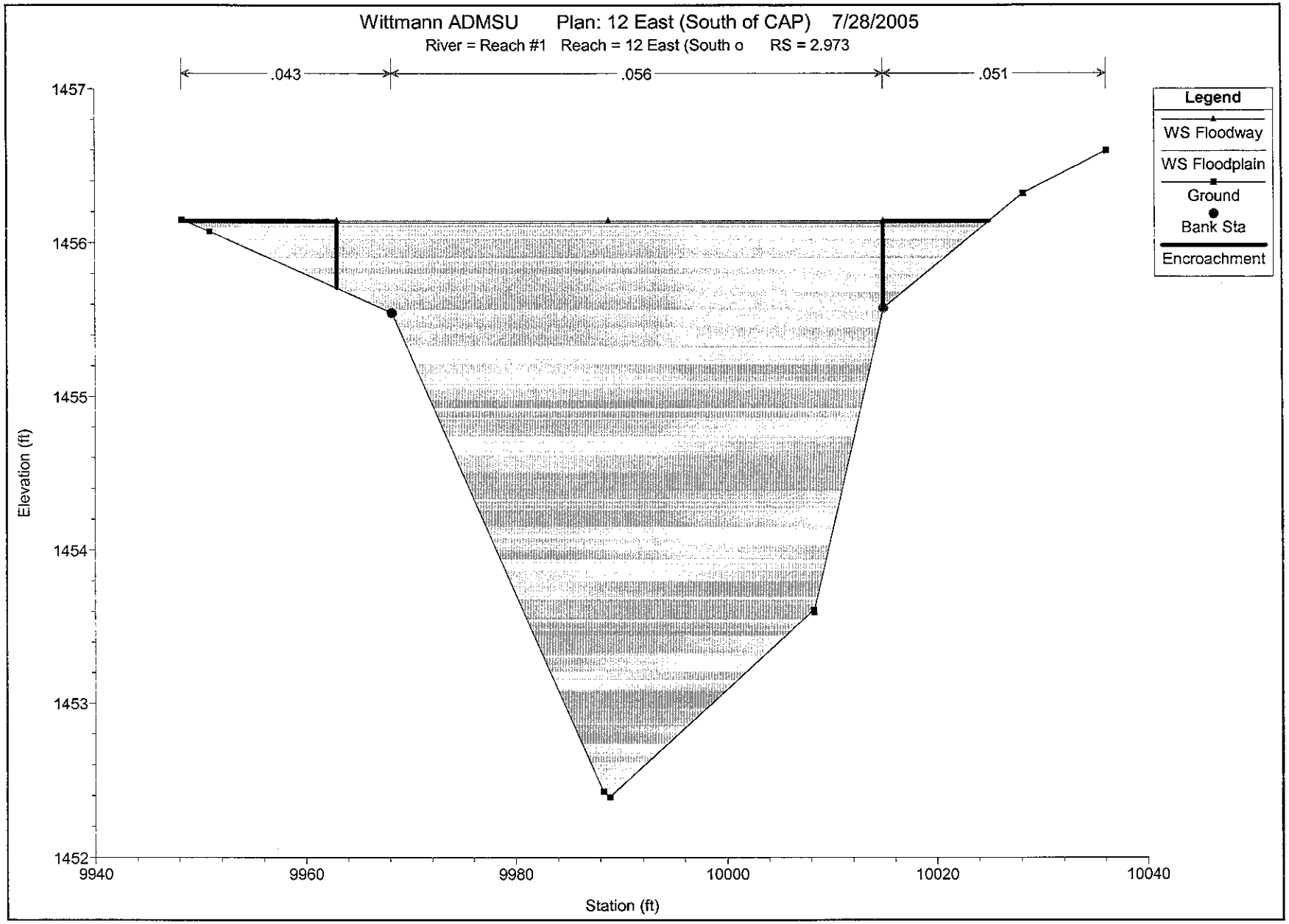

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.17
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1468
1467
1466
1465
1464
1463
1462
1461
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

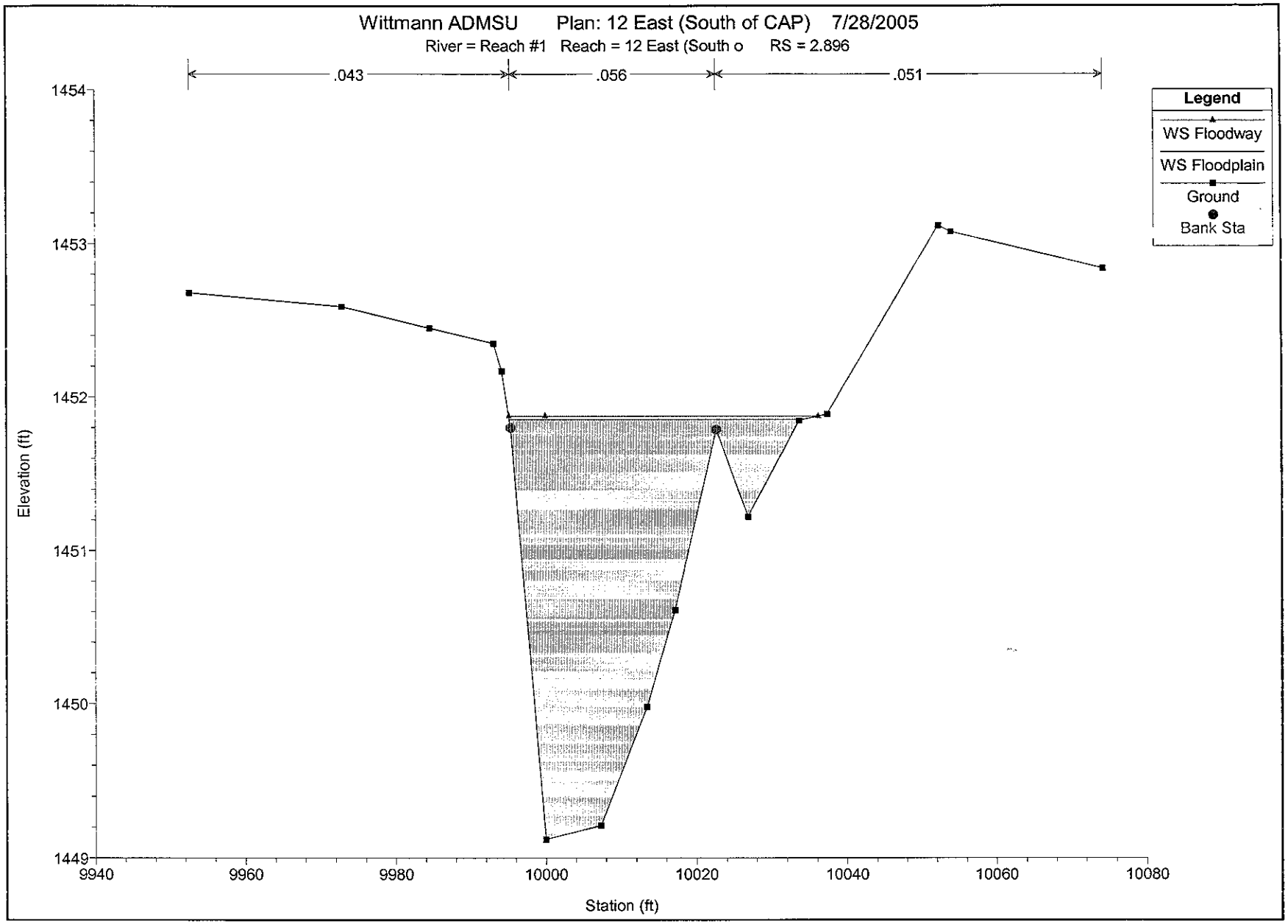

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.129
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1467
1466
1465
1464
1463
1462
1461
1460
1459
9900
9950
10000
10050
10100
Station (ft)

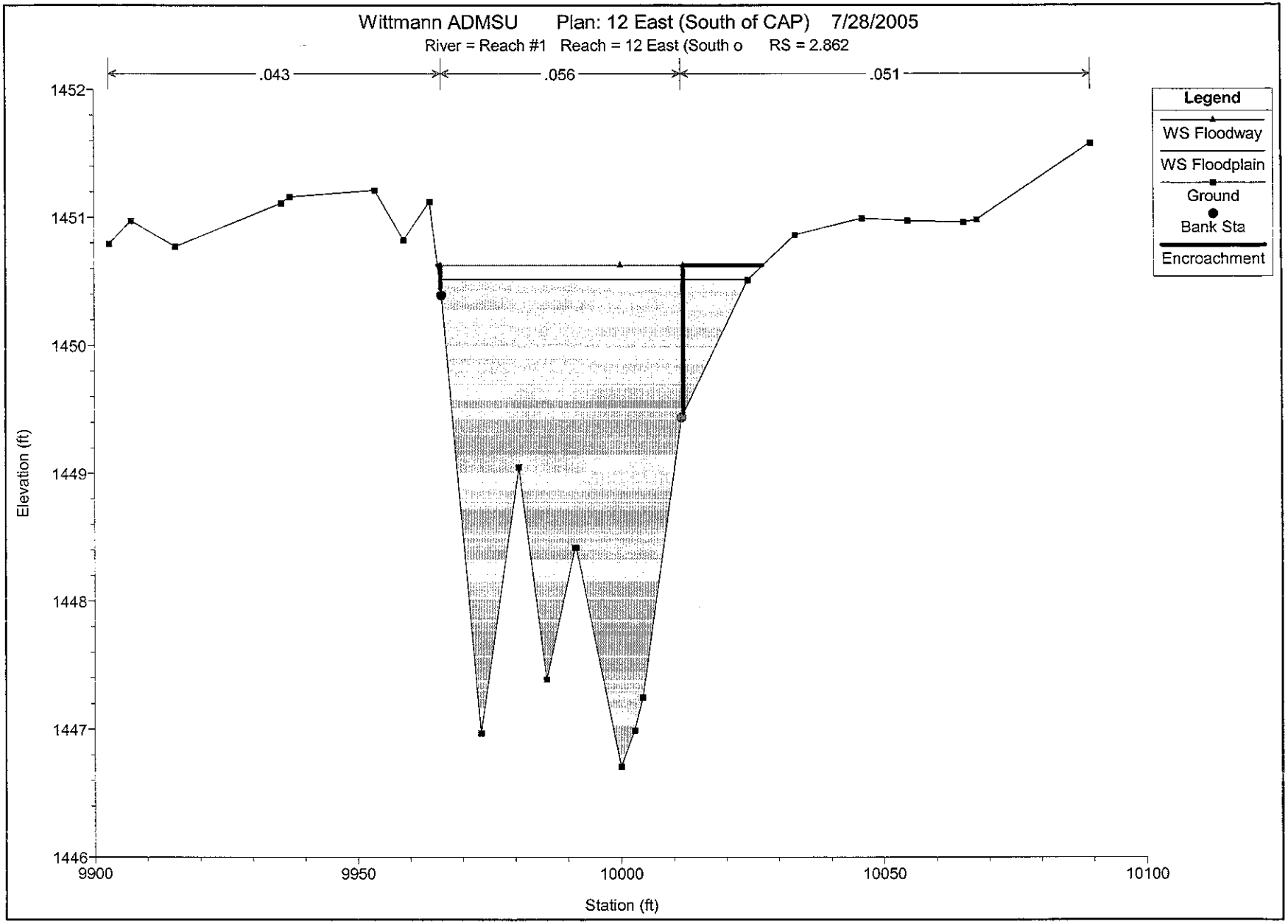

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.09
.046
.06
.046
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1463
1462
1461
1460
1459
1458
9850
9900
9950
10000
10050
10100
10150
10200
10250
Station (ft)

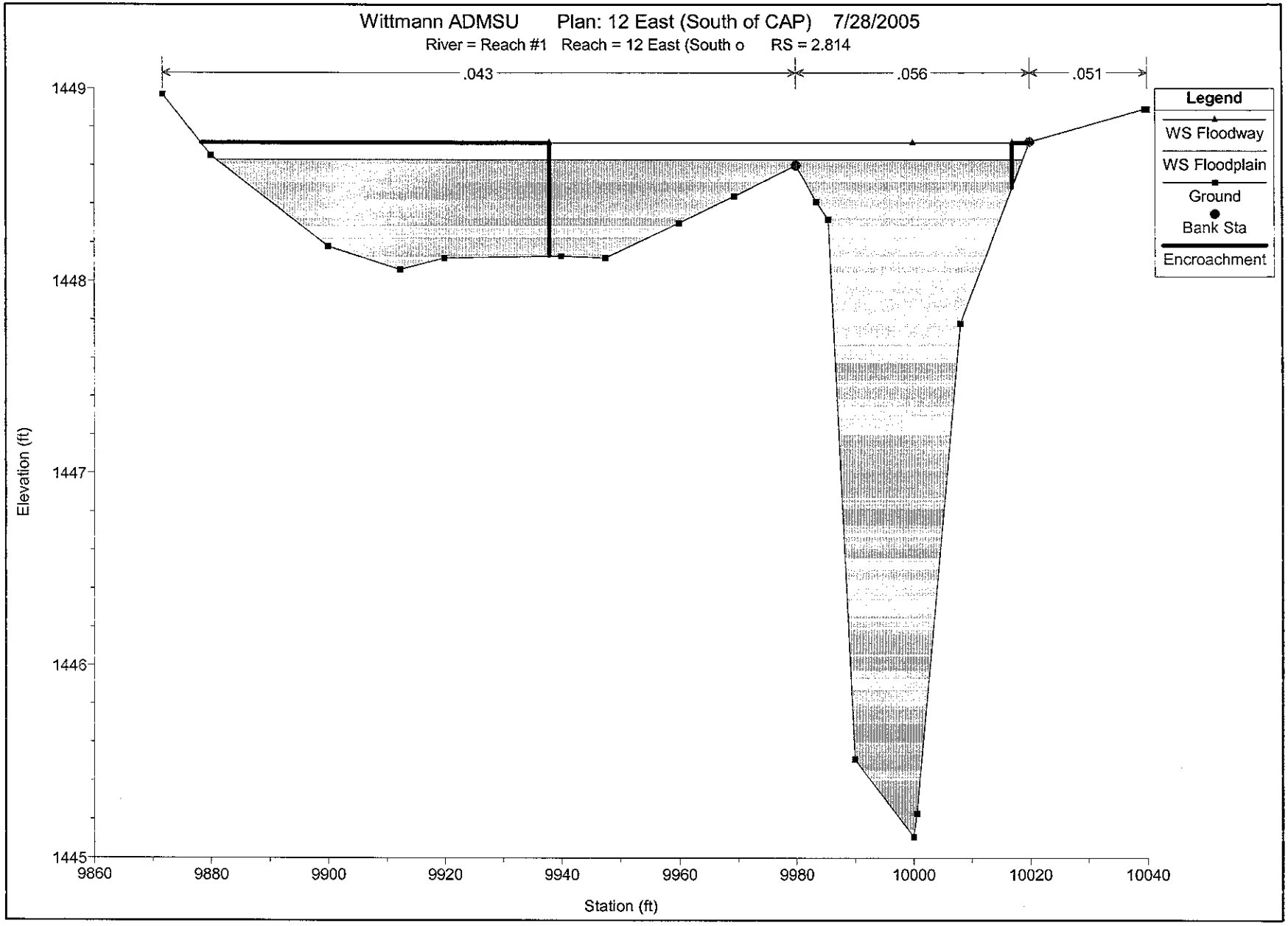

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 3.046
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1461
1460
1459
1458
1457
1456
9920
9940
9960
9980
10000
10020
10040
10060
10080
10100
Station (ft)

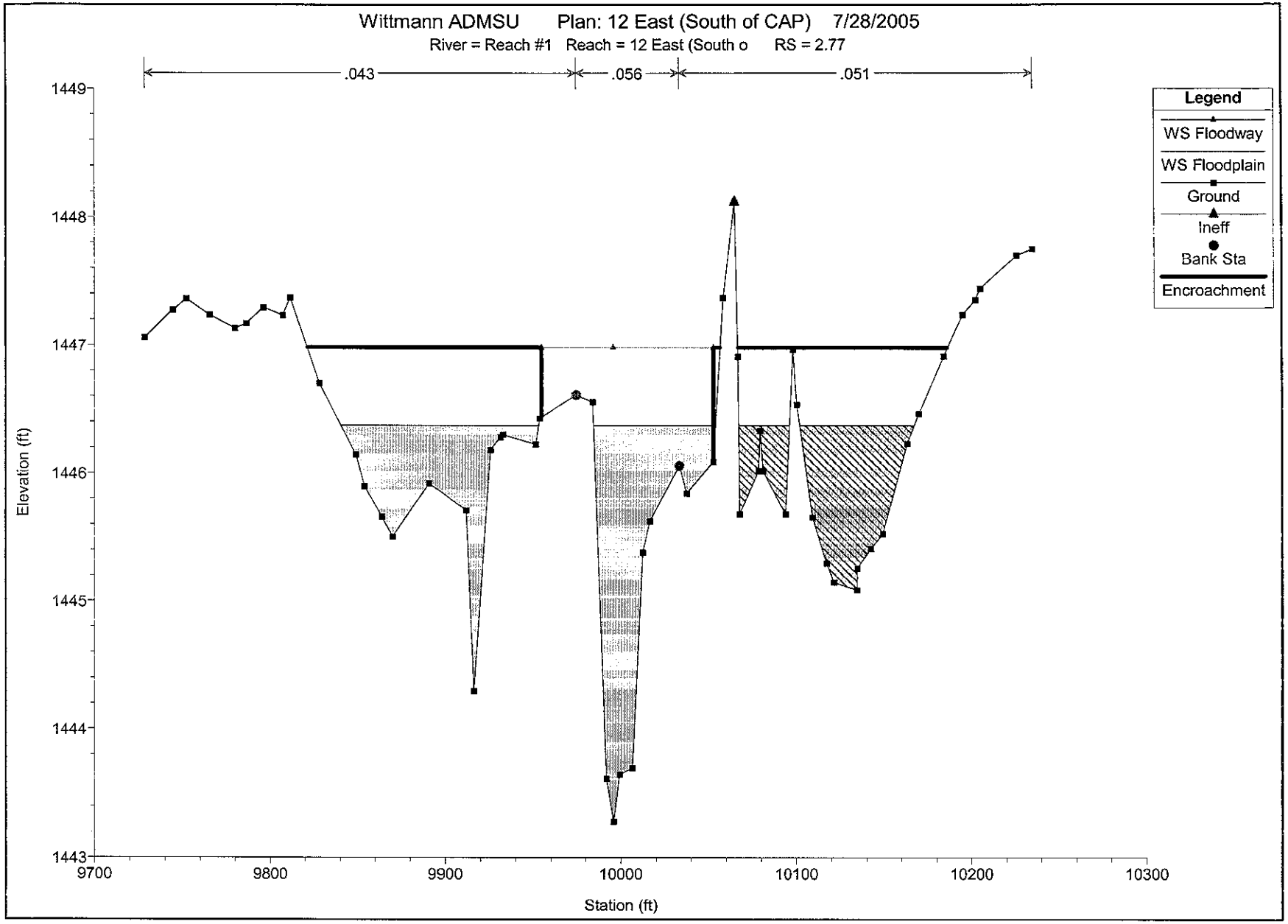

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.991
.043
.056
.051
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Encroachment
Elevation (ft)
1458
1457
1456
1455
1454
1453
9860
9880
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)

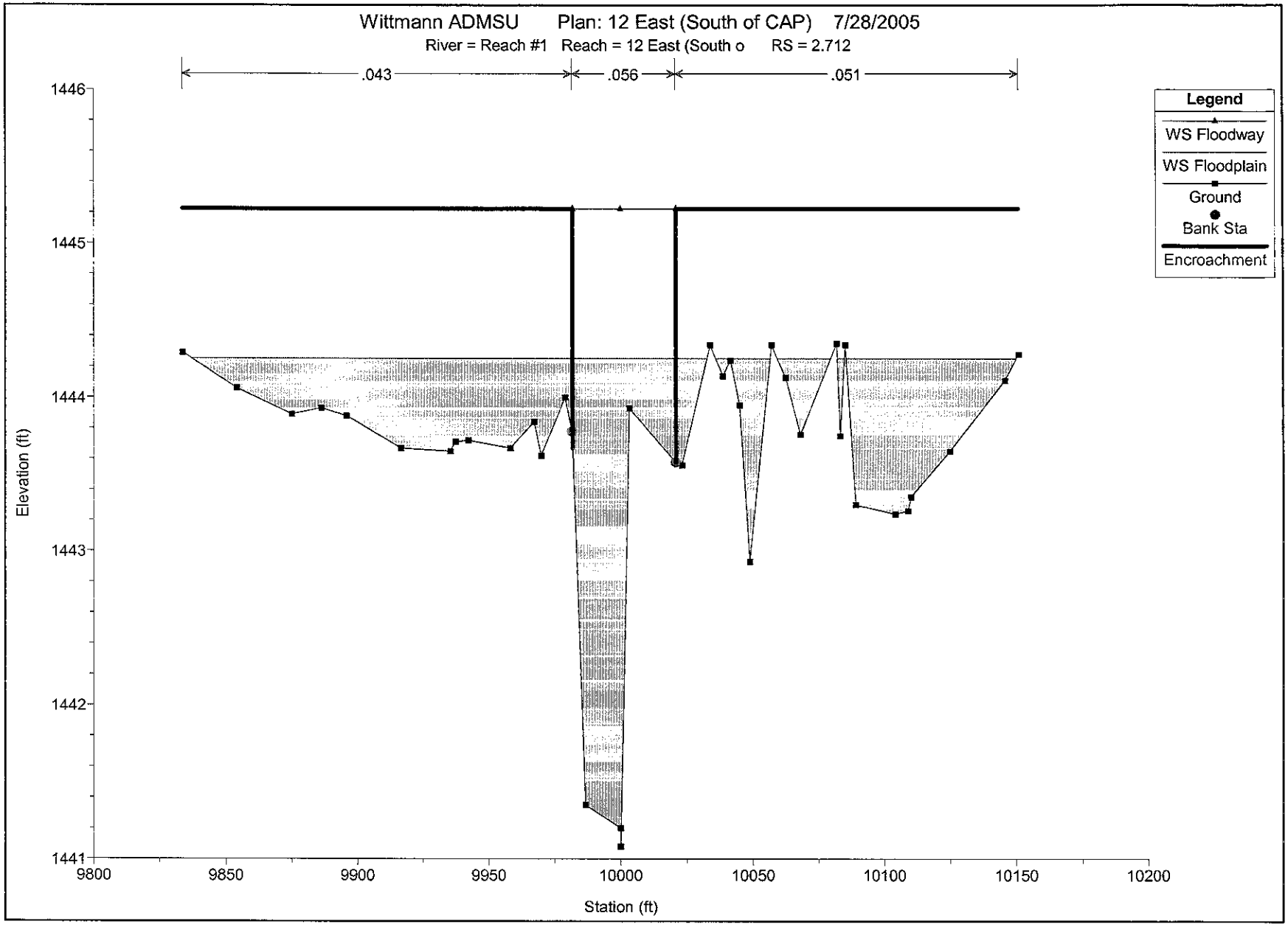

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.973
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1457
1456
1455
1454
1453
1452
9940
9960
9980
10000
10020
10040
Station (ft)

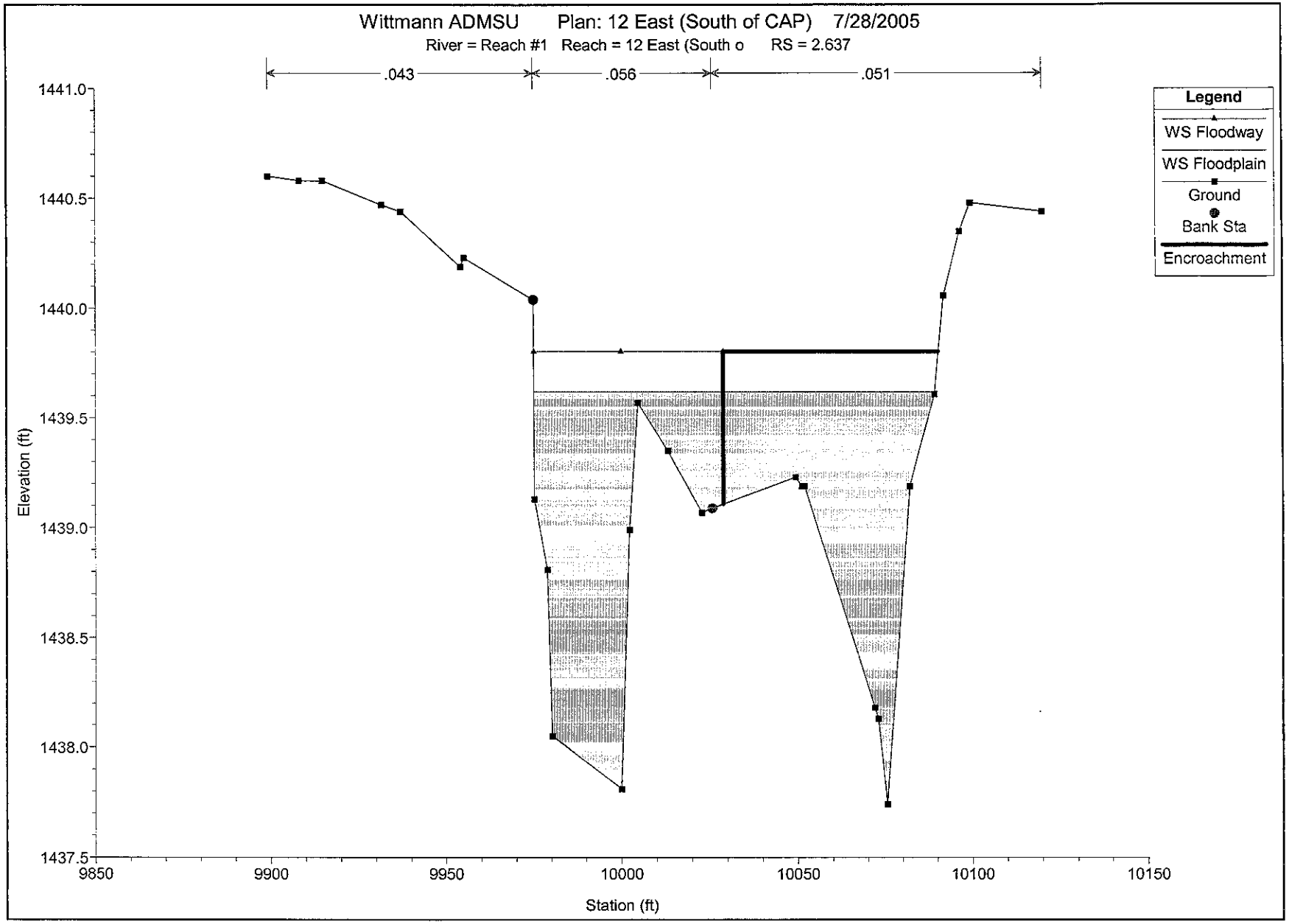

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.896
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1454
1453
1452
1451
1450
1449
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

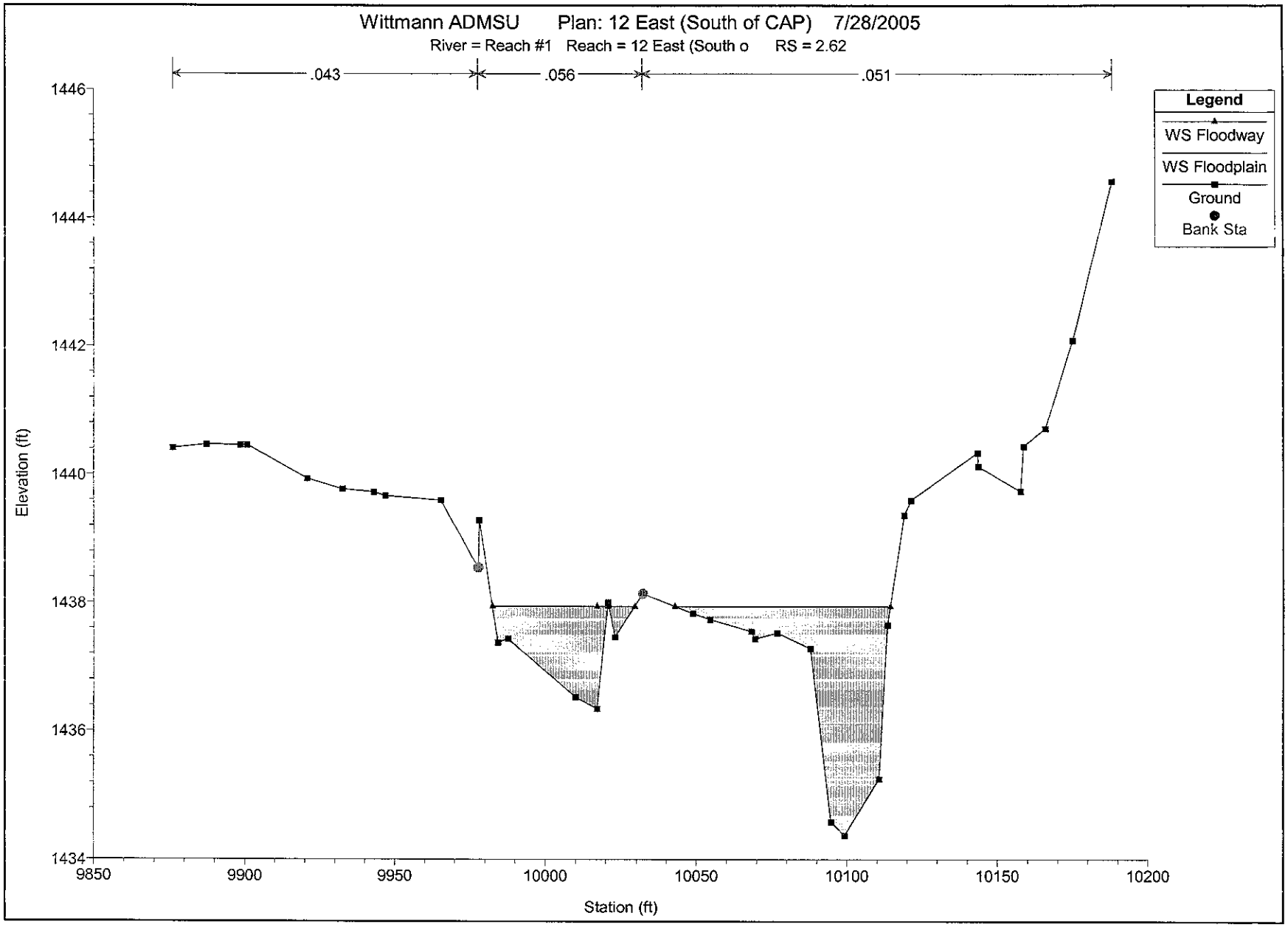

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.862
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1452
1451
1450
1449
1448
1447
1446
9900
9950
10000
10050
10100
Station (ft)


Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.814
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1449
1448
1447
1446
1445
9860
9880
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)

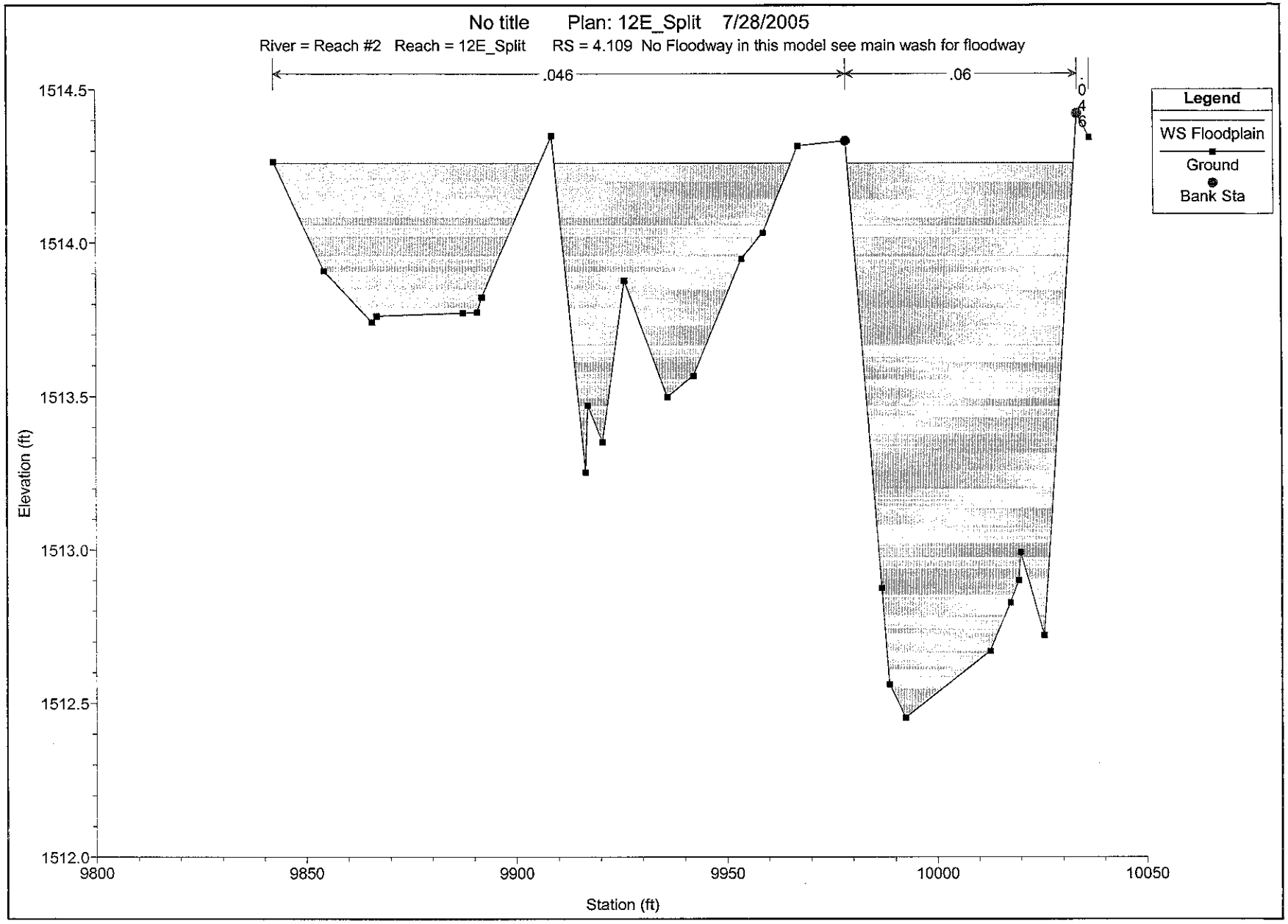

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.77
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1449
1448
1447
1446
1445
1444
1443
9700
9800
9900
10000
10100
10200
10300
Station (ft)

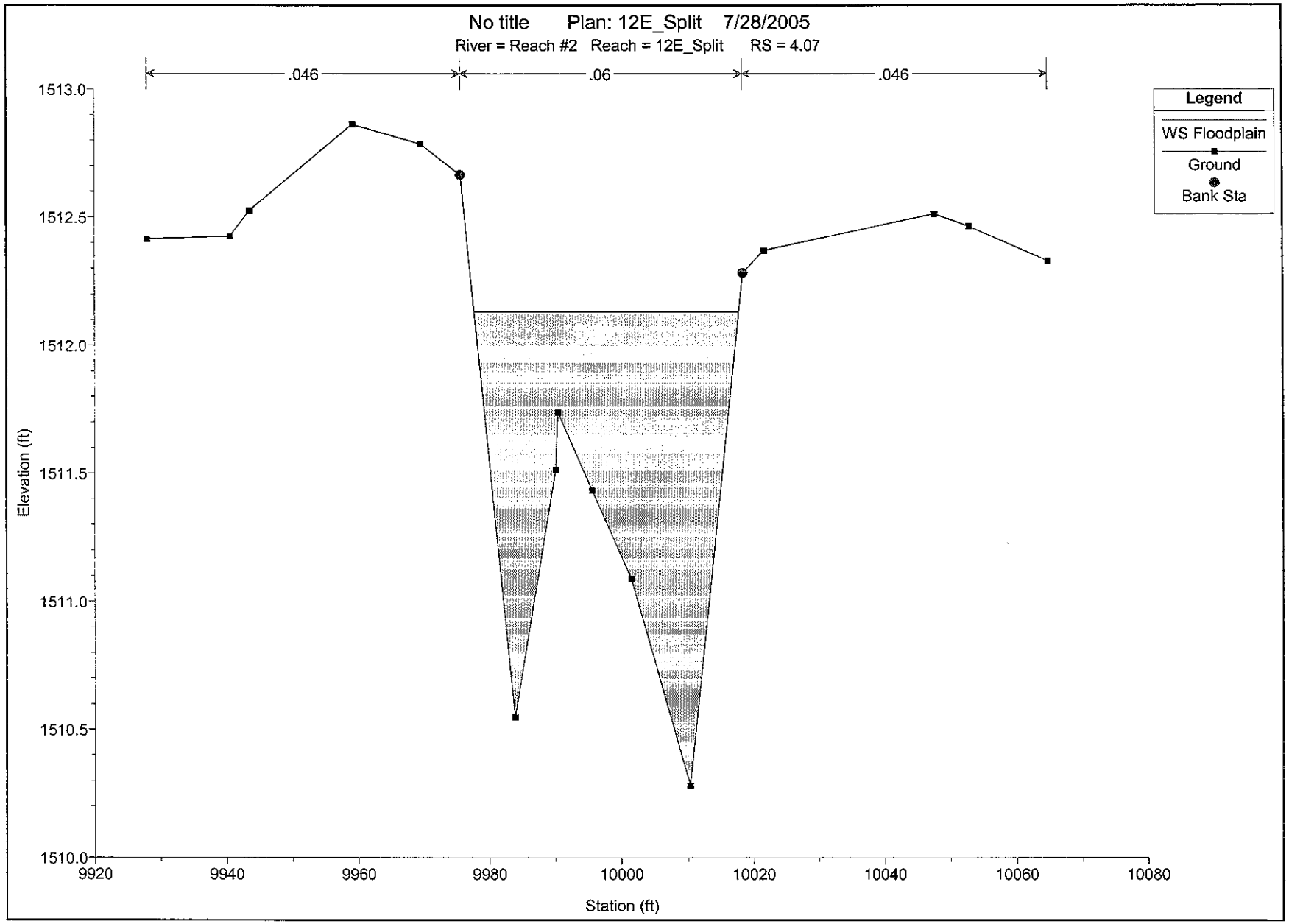

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.712
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1446
1445
1444
1443
1442
1441
9800
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

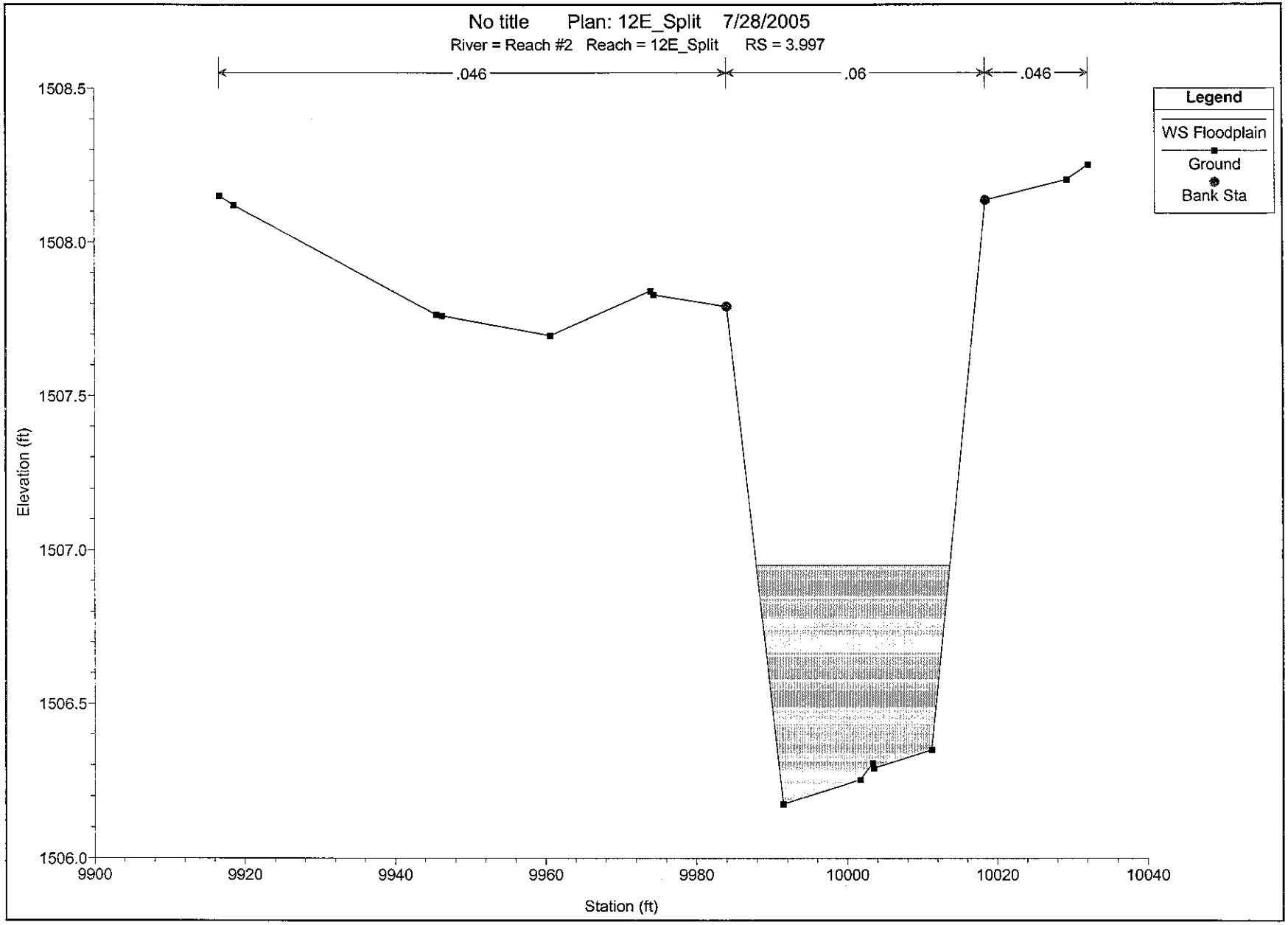

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.637
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1441.0
1440.5
1440.0
1439.5
1439.0
1438.5
1438.0
1437.5
9850
9900
9950
10000
10050
10100
10150
Station (ft)

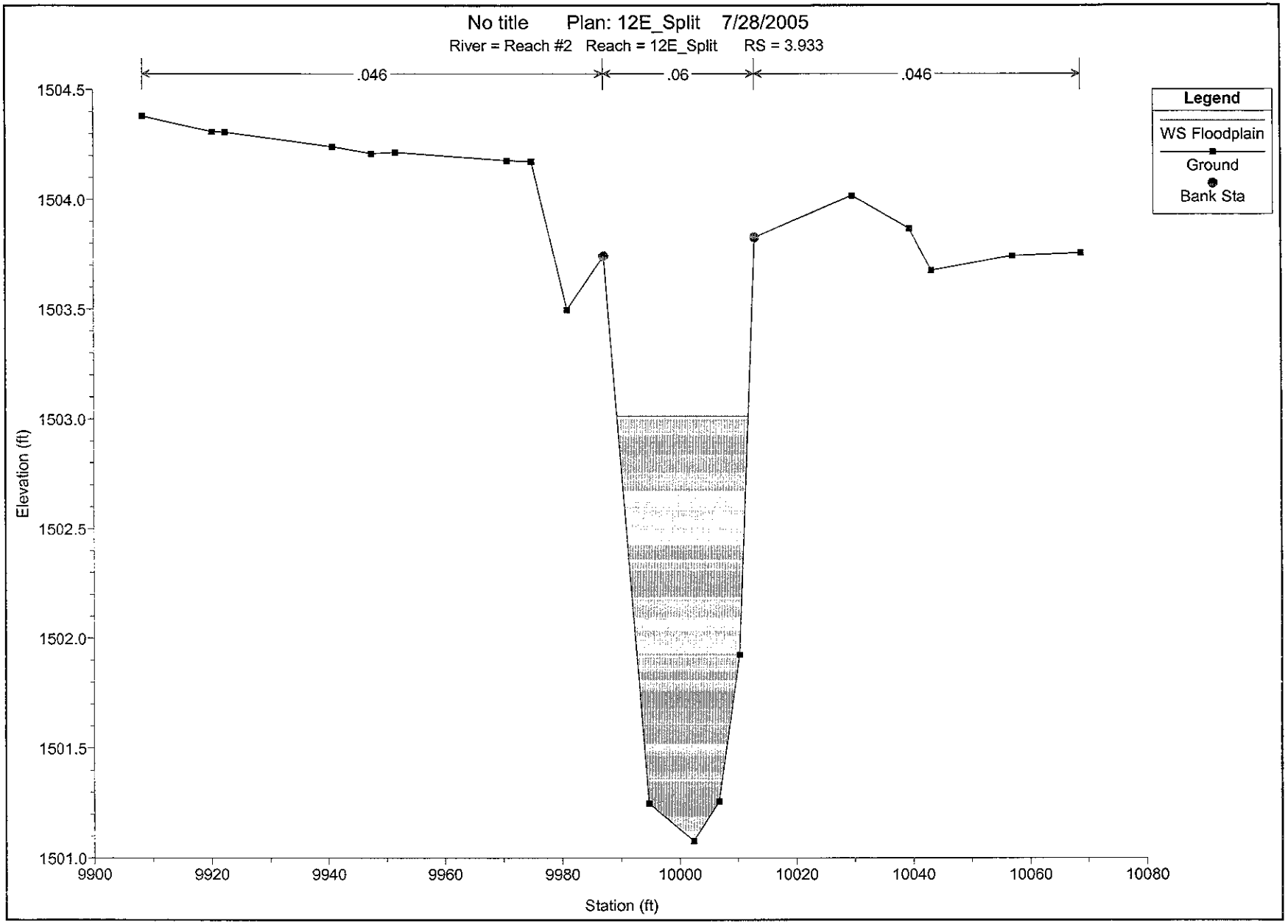

Wittmann ADMSU Plan: 12 East (South of CAP) 7/28/2005
River = Reach #1 Reach = 12 East (South o RS = 2.62
.043
.056
.051
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1446
1444
1442
1440
1438
1436
1434
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

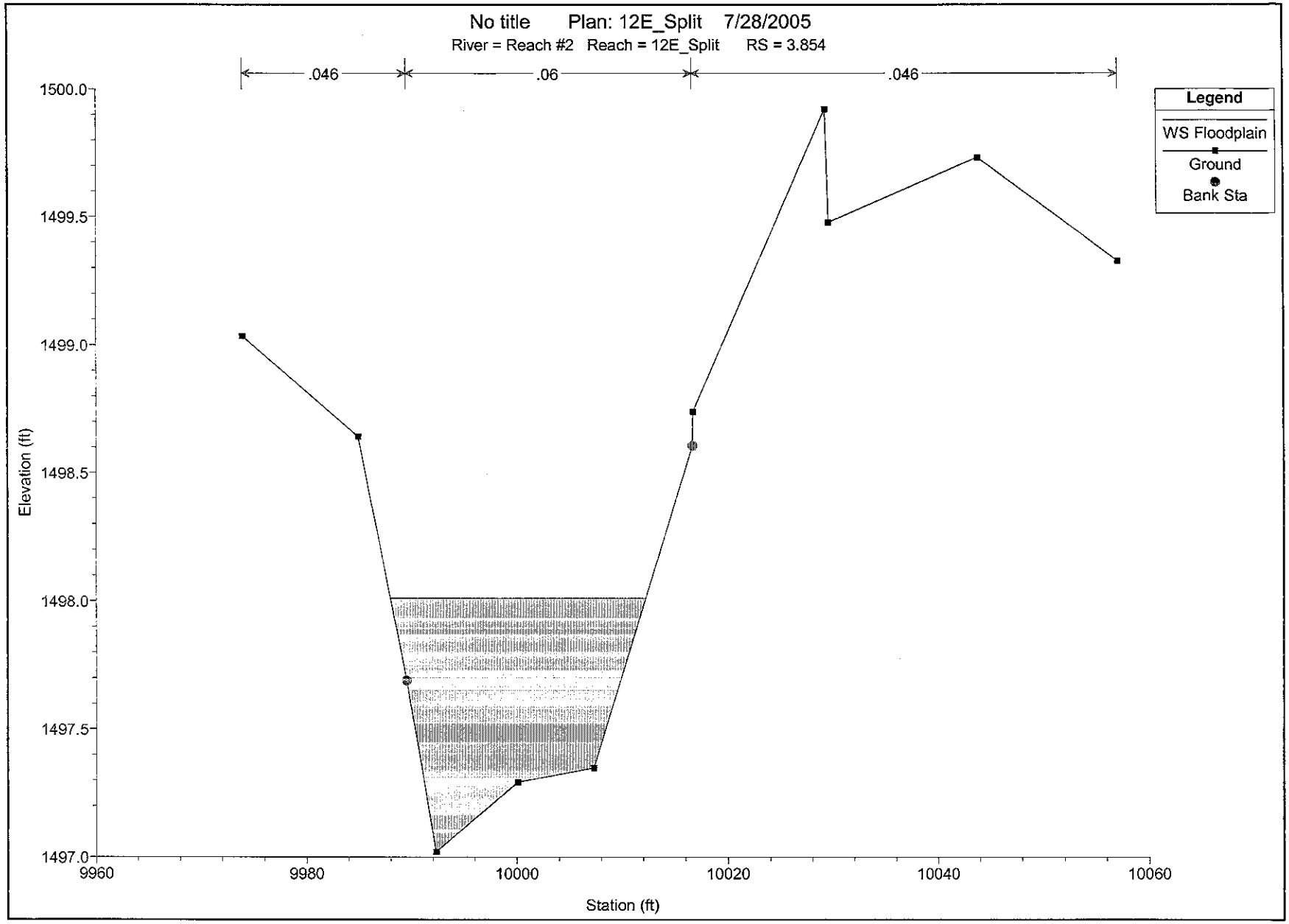
12 EAST SPLIT

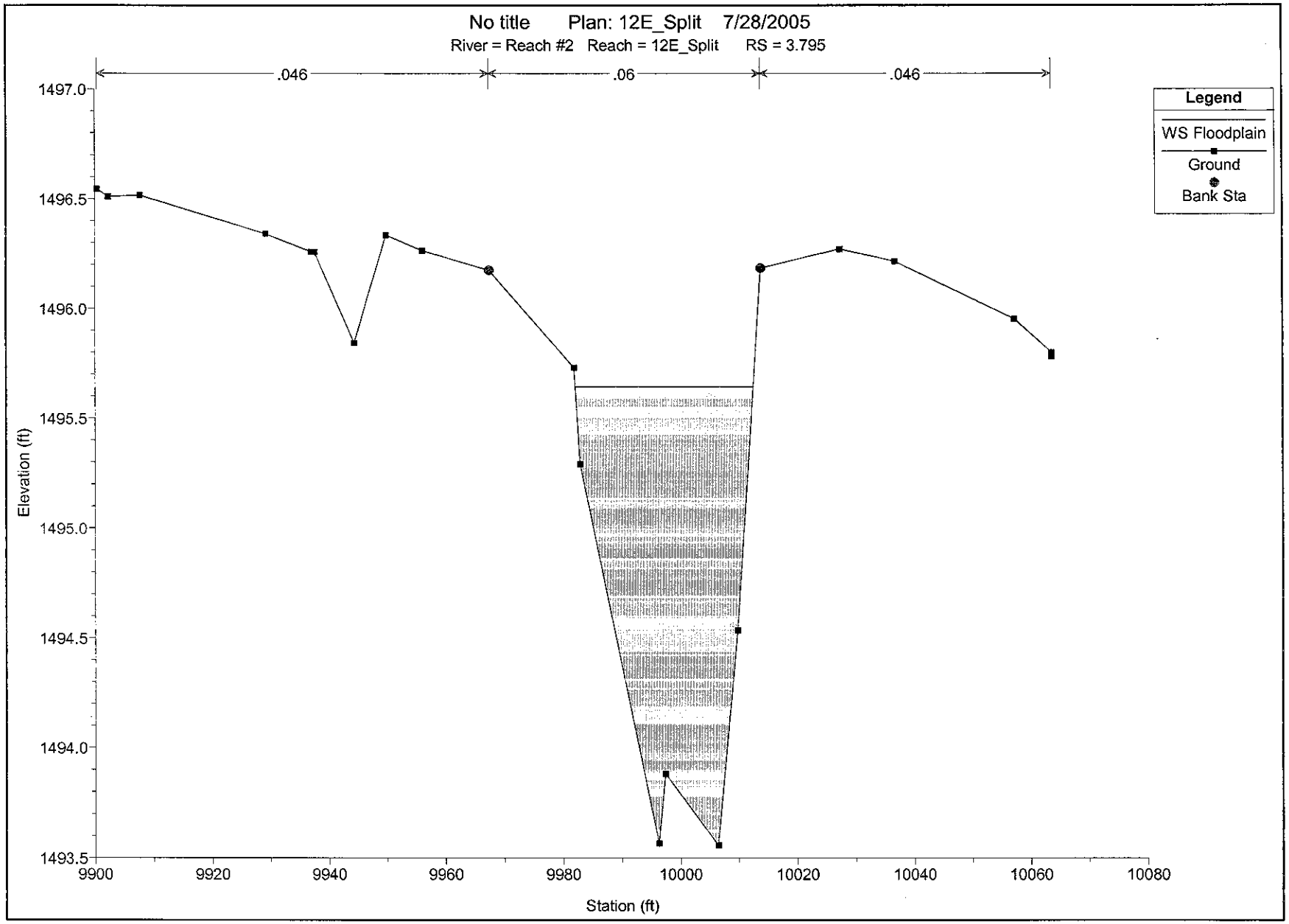

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 4.109 No Floodway in this model see main wash for floodway
.046
.06
.04
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1514.5
1514.0
1513.5
1513.0
1512.5
1512.0
9800
9850
9900
9950
10000
10050
Station (ft)

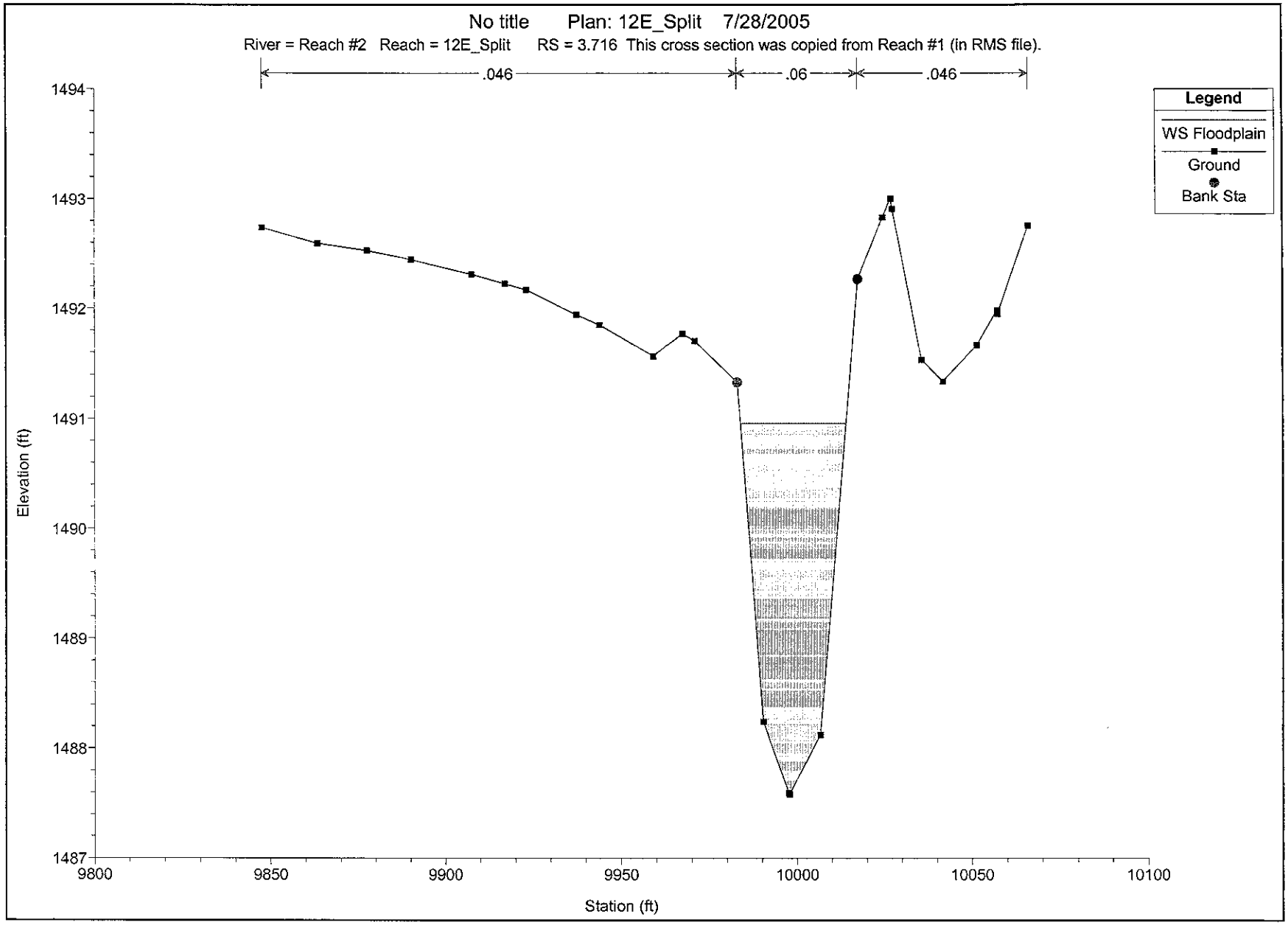

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 4.07
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1513.0
1512.5
1512.0
1511.5
1511.0
1510.5
1510.0
9920
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)


No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 3.997
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1508.5
1508.0
1507.5
1507.0
1506.5
1506.0
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)

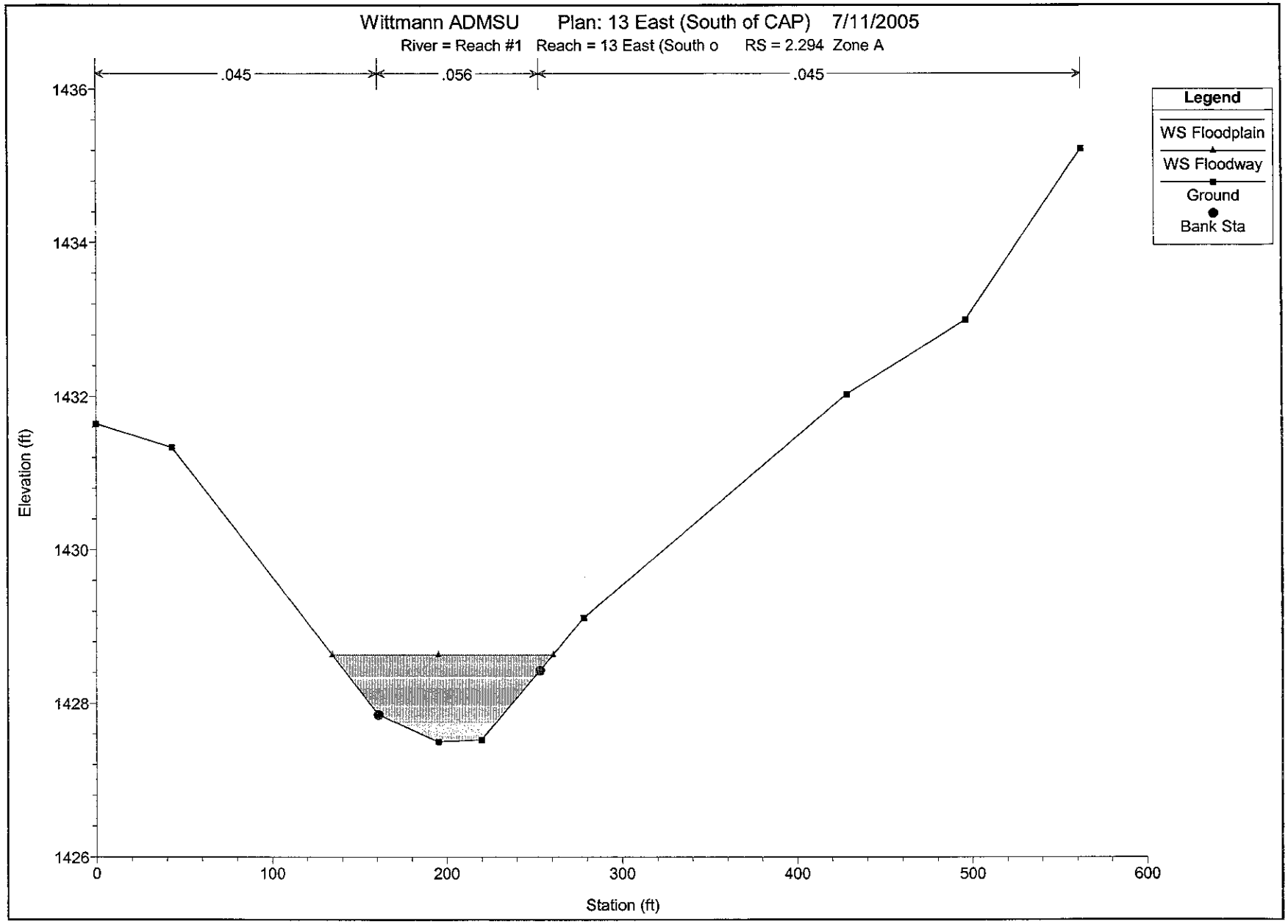

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 3.933
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1504.5
1504.0
1503.5
1503.0
1502.5
1502.0
1501.5
1501.0
9900
9920
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

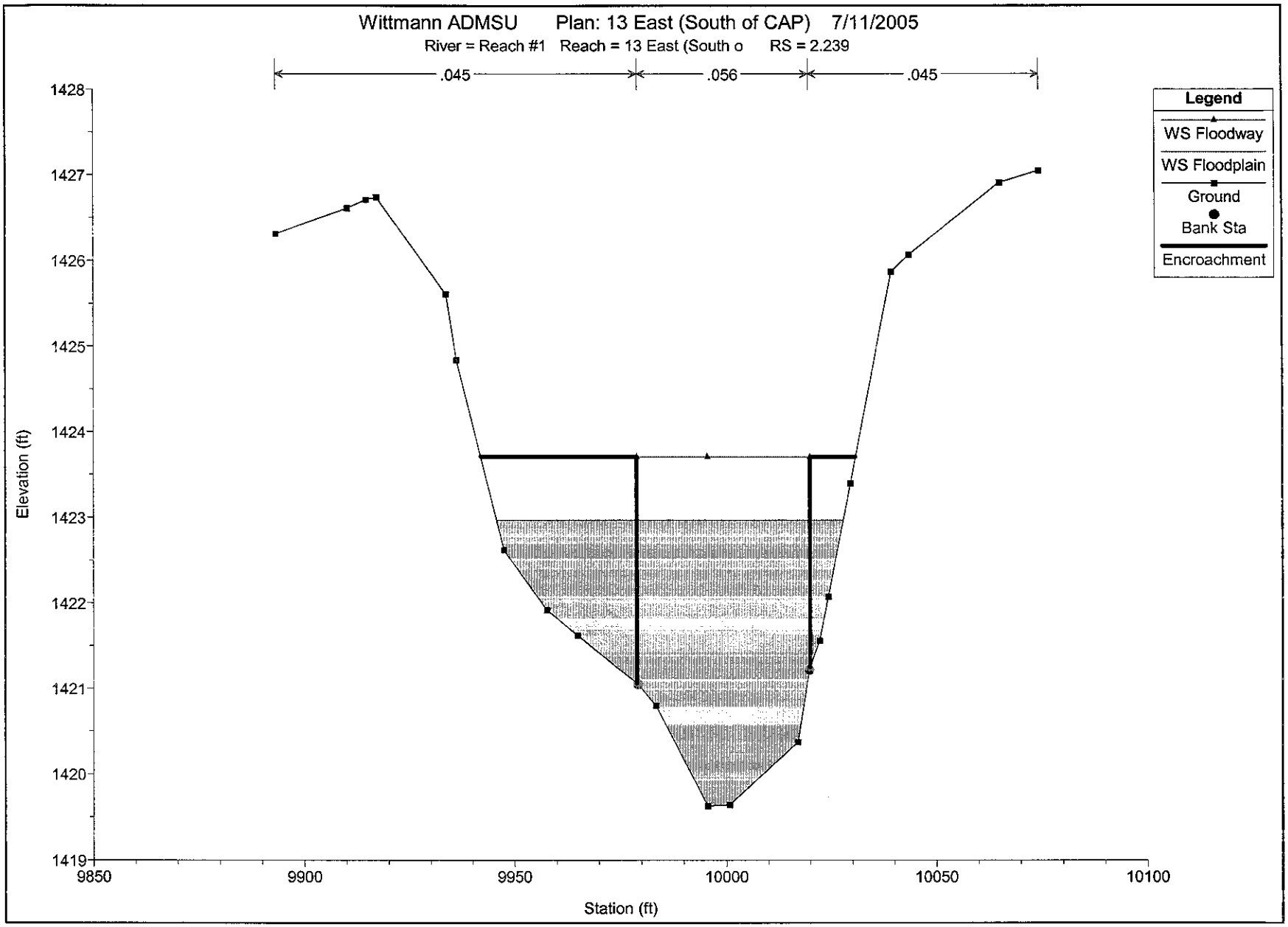

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 3.854
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1500.0
1499.5
1499.0
1498.5
1498.0
1497.5
1497.0
9960
9980
10000
10020
10040
10060
Station (ft)

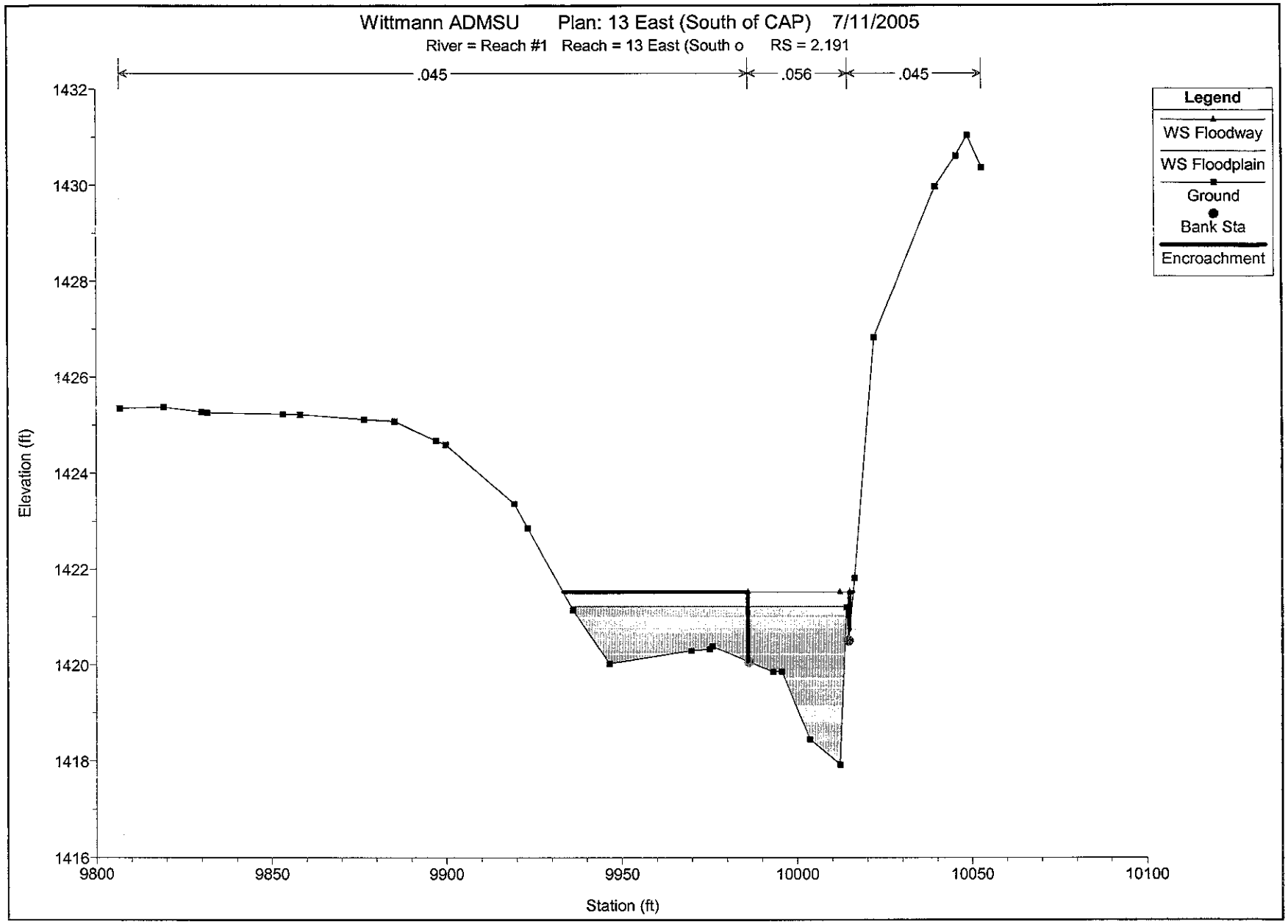

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 3.795
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1497.0
1496.5
1496.0
1495.5
1495.0
1494.5
1494.0
1493.5
9900
9920
9940
9960
9980
10000
10020
10040
10060
10080
Station (ft)

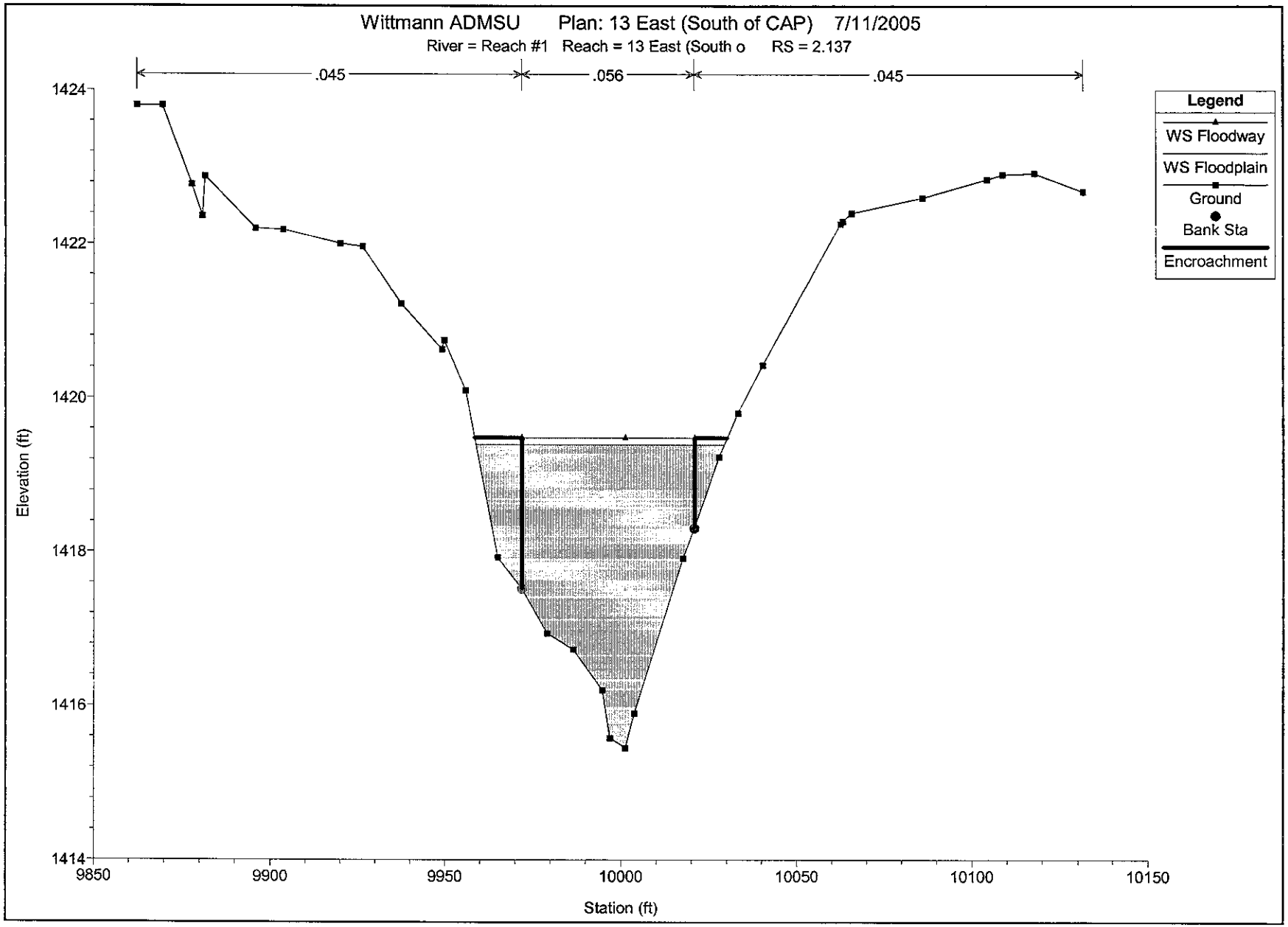

No title Plan: 12E_Split 7/28/2005
River = Reach #2 Reach = 12E_Split RS = 3.716 This cross section was copied from Reach #1 (in RMS file).
.046
.06
.046
Legend
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1494
1493
1492
1491
1490
1489
1488
1487
9800
9850
9900
9950
10000
10050
10100
Station (ft)

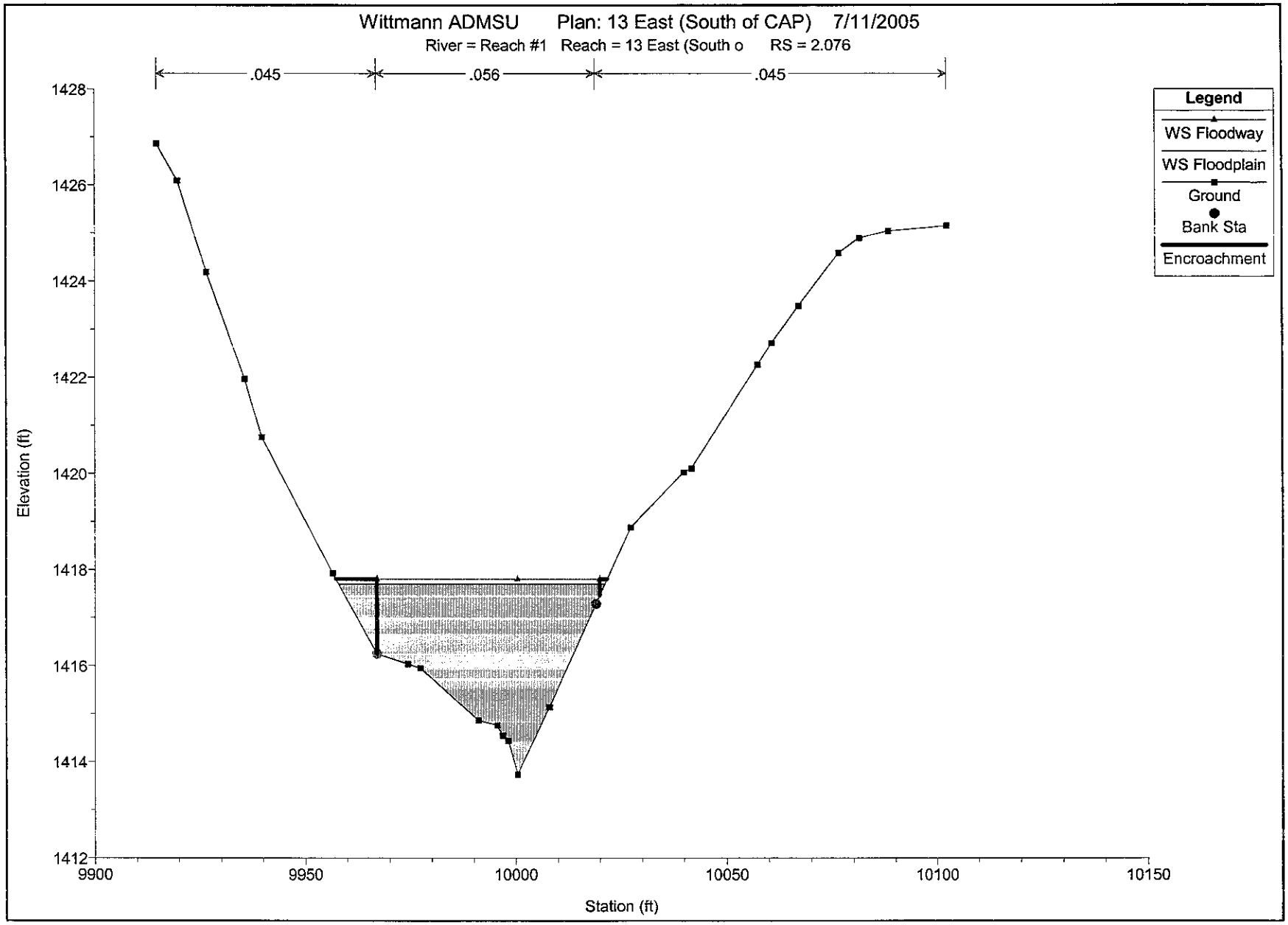
13 EAST

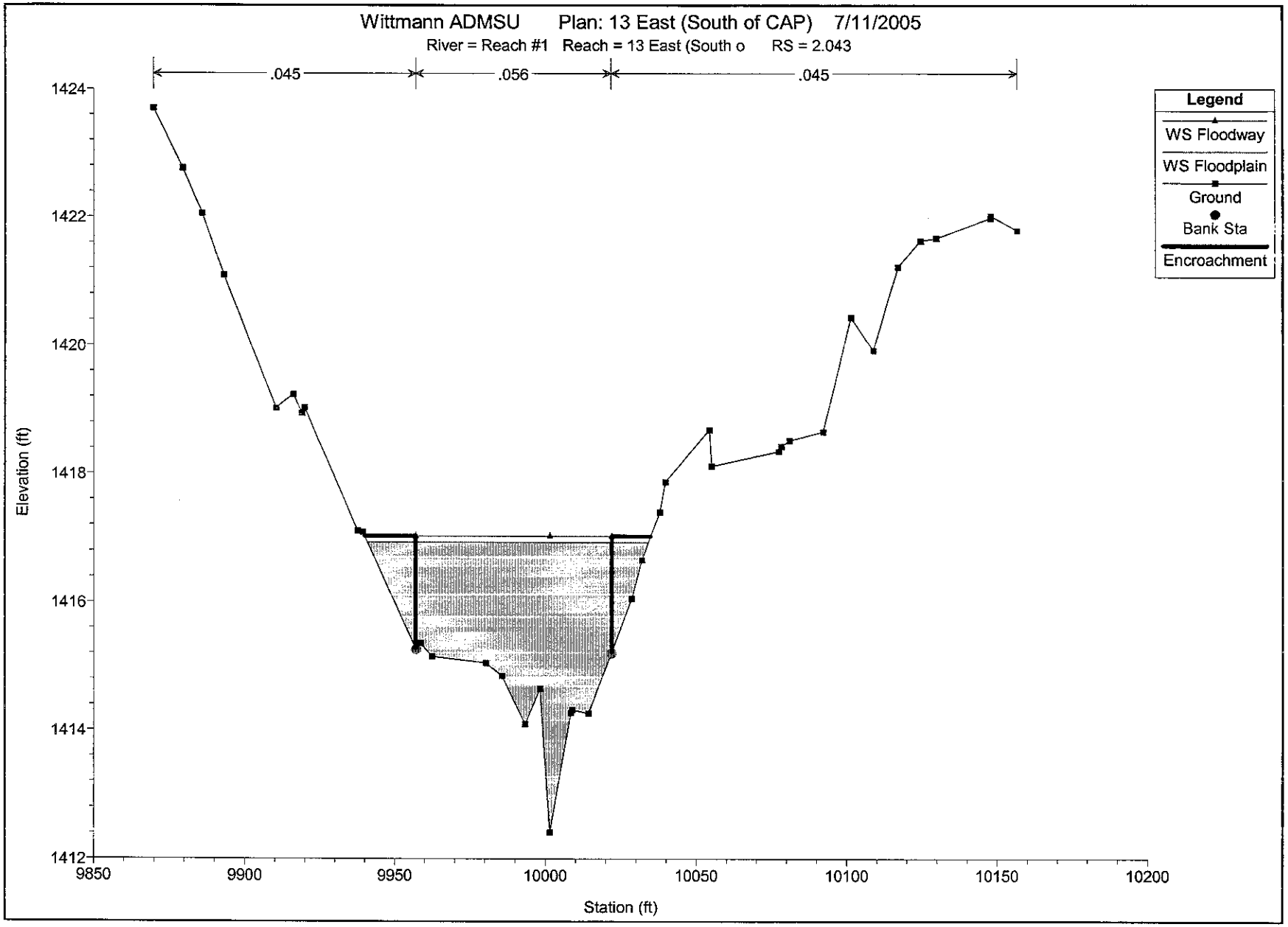

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.294 Zone A
.045
.056
.045
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Elevation (ft)
1436
1434
1432
1430
1428
1426
0
100
200
300
400
500
600
Station (ft)

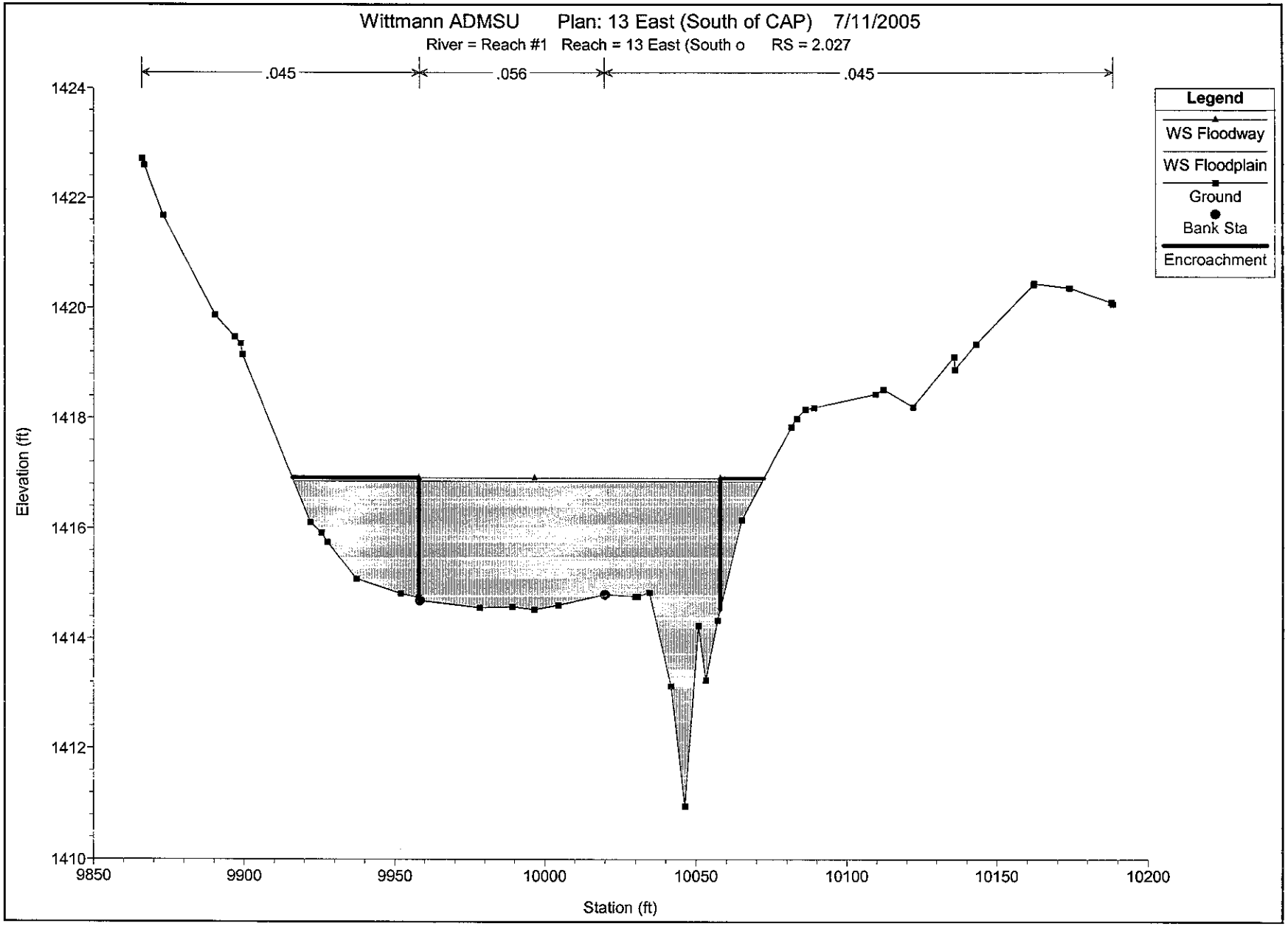

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.239
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1428
1427
1426
1425
1424
1423
1422
1421
1420
1419
9850
9900
9950
10000
10050
10100
Station (ft)

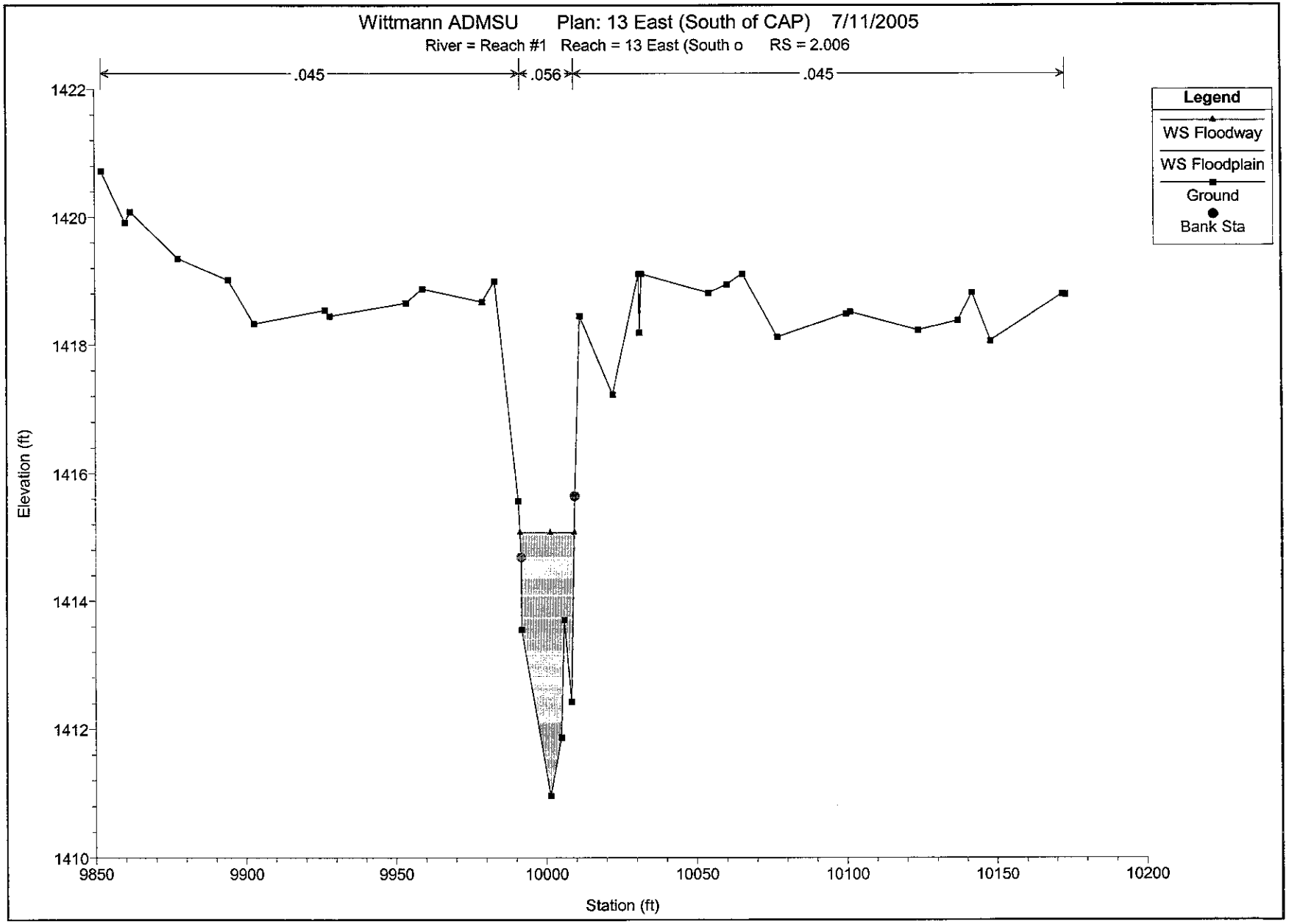

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.191
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1432
1430
1428
1426
1424
1422
1420
1418
1416
9800
9850
9900
9950
10000
10050
10100
Station (ft)

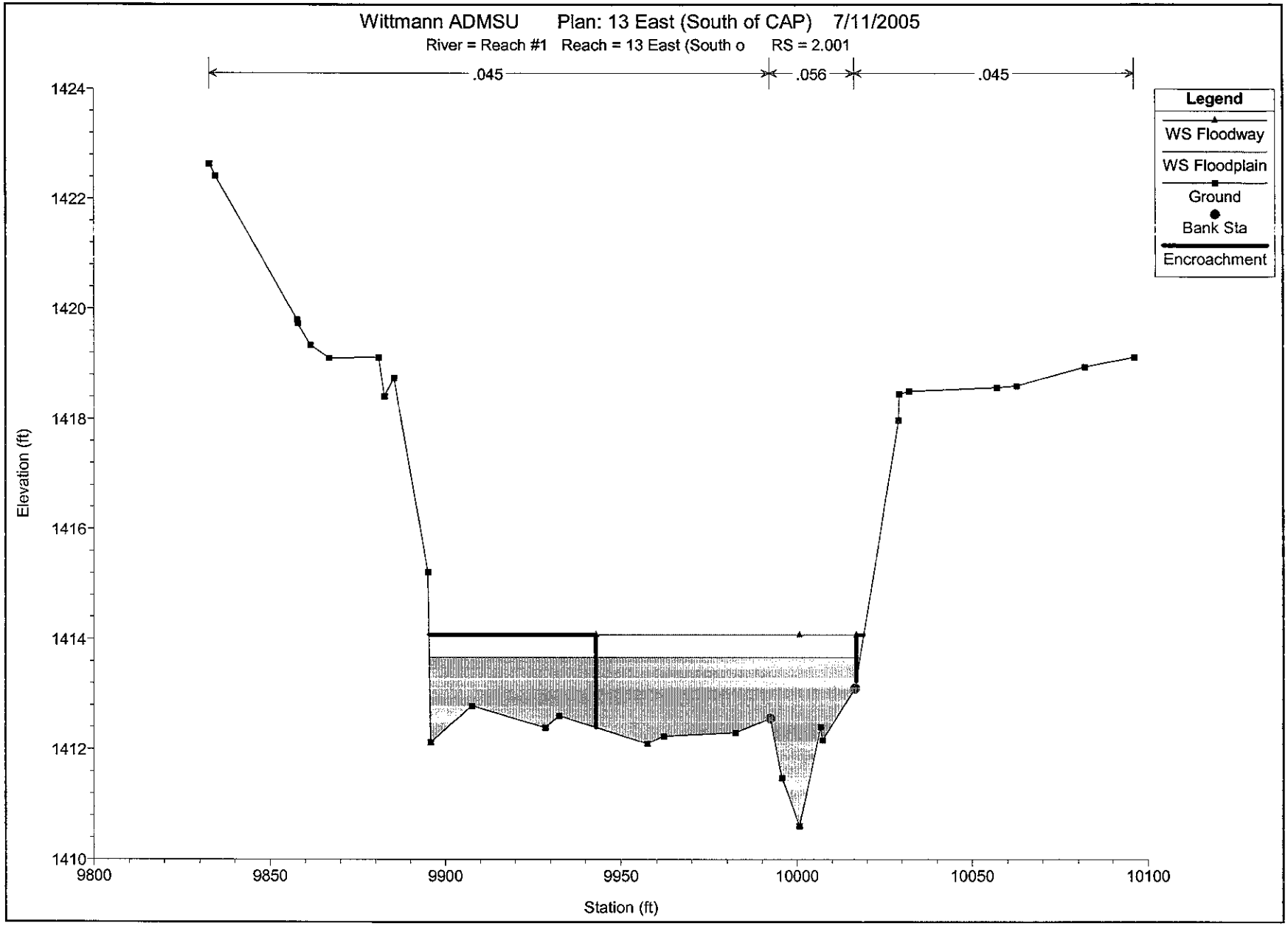

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.137
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1424
1422
1420
1418
1416
1414
9850
9900
9950
10000
10050
10100
10150
Station (ft)

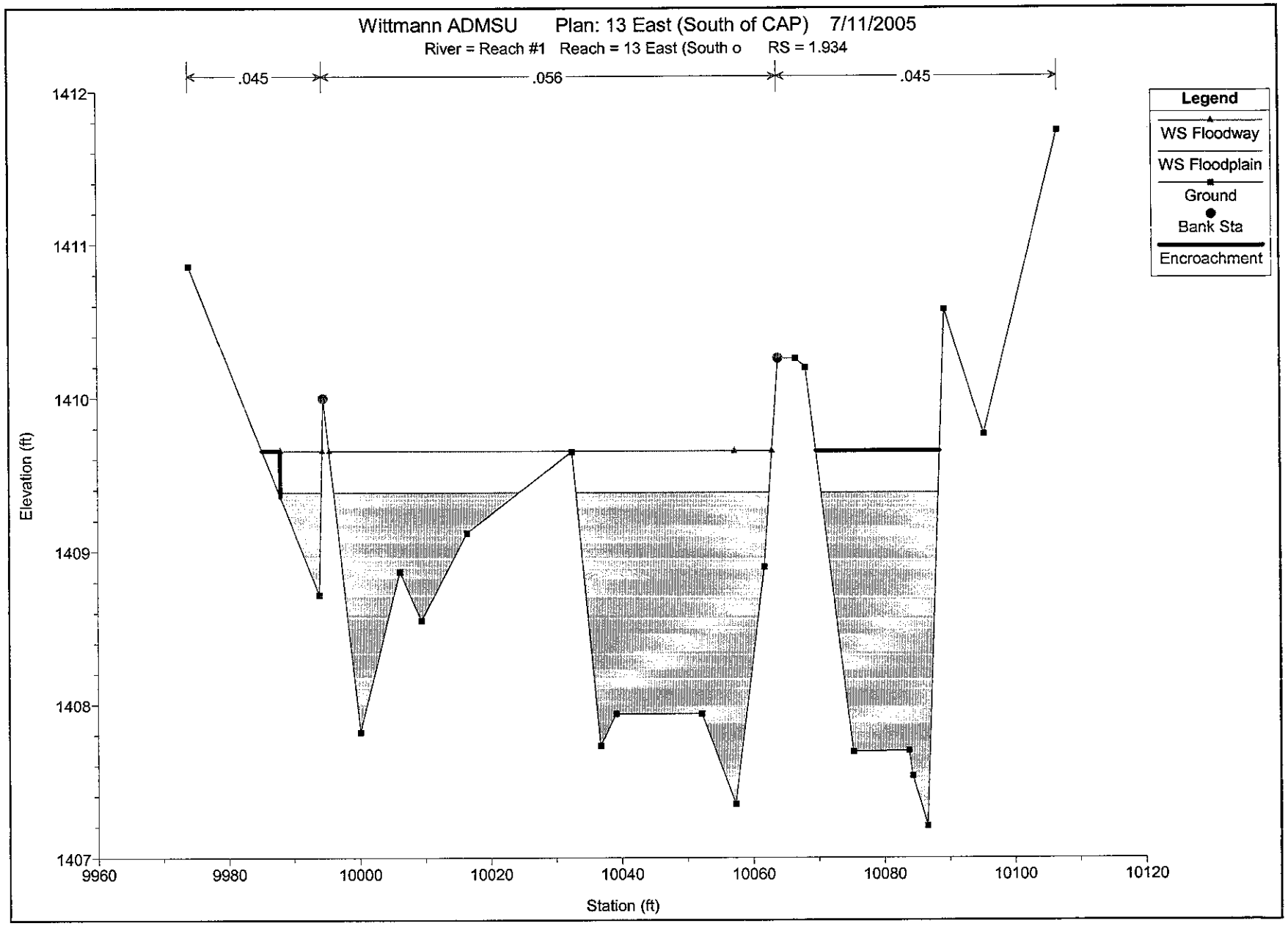

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.076
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1428
1426
1424
1422
1420
1418
1416
1414
1412
9900
9950
10000
10050
10100
10150
Station (ft)

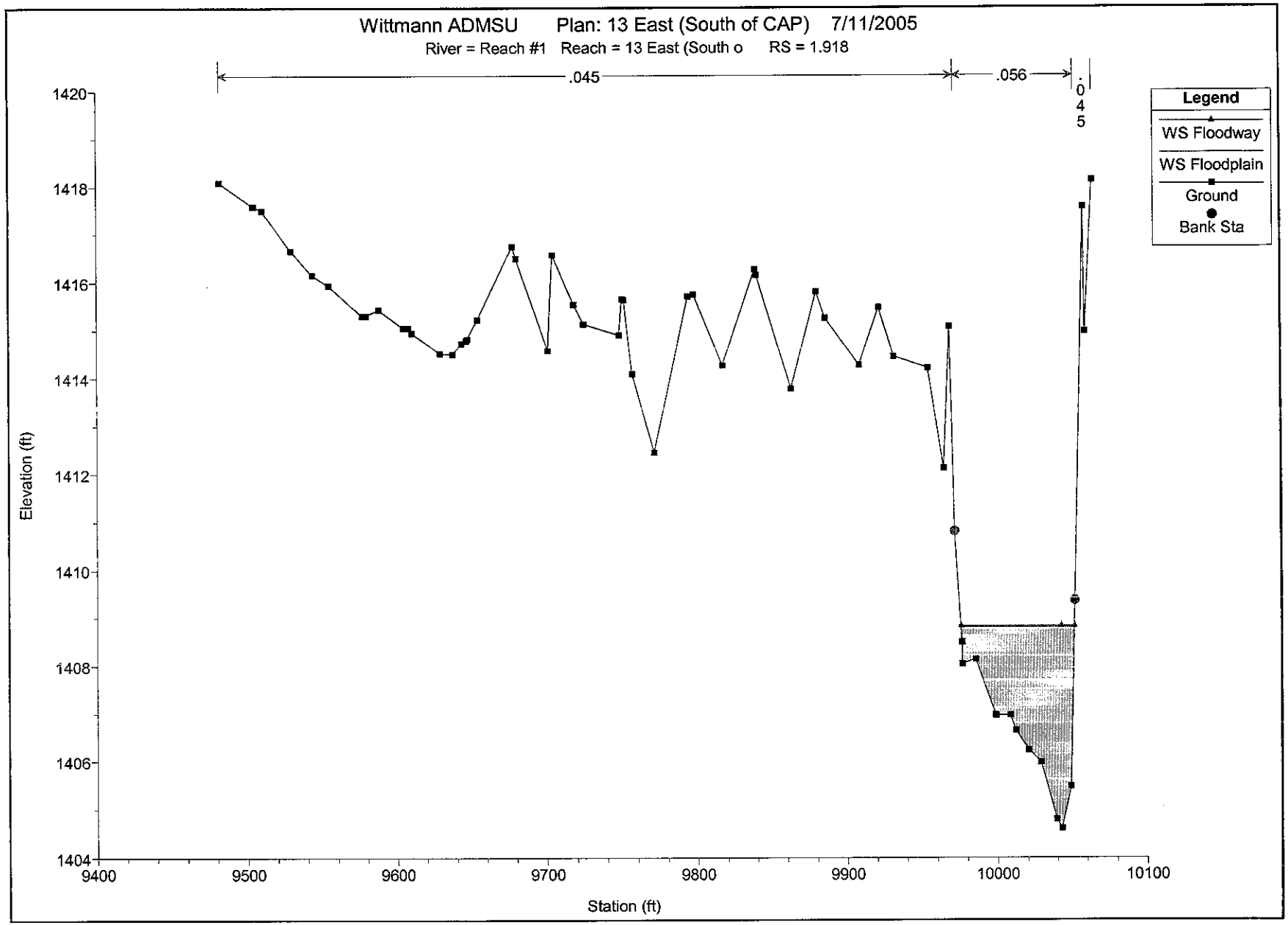

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.043
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1424
1422
1420
1418
1416
1414
1412
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

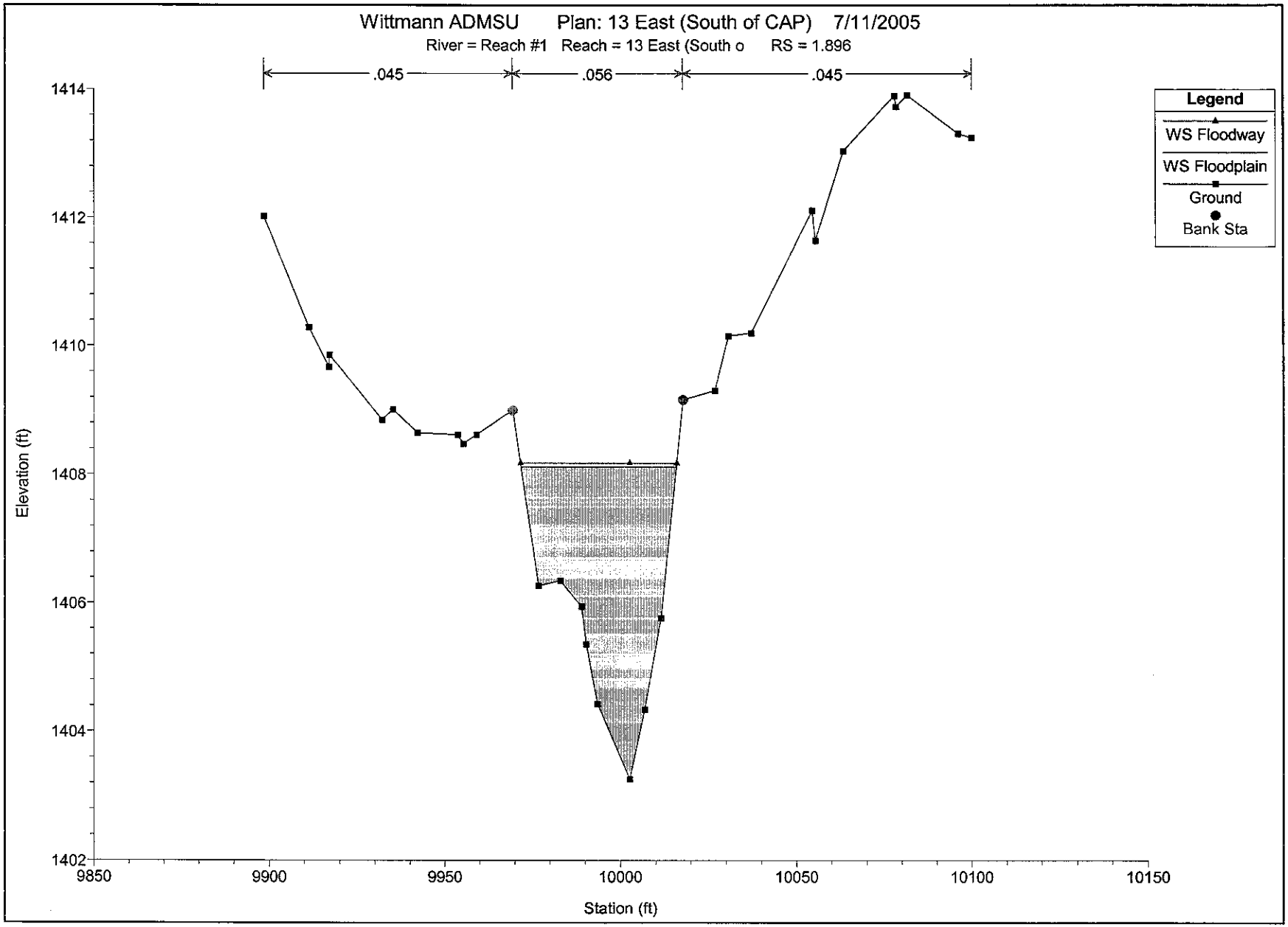

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.027
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1424
1422
1420
1418
1416
1414
1412
1410
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

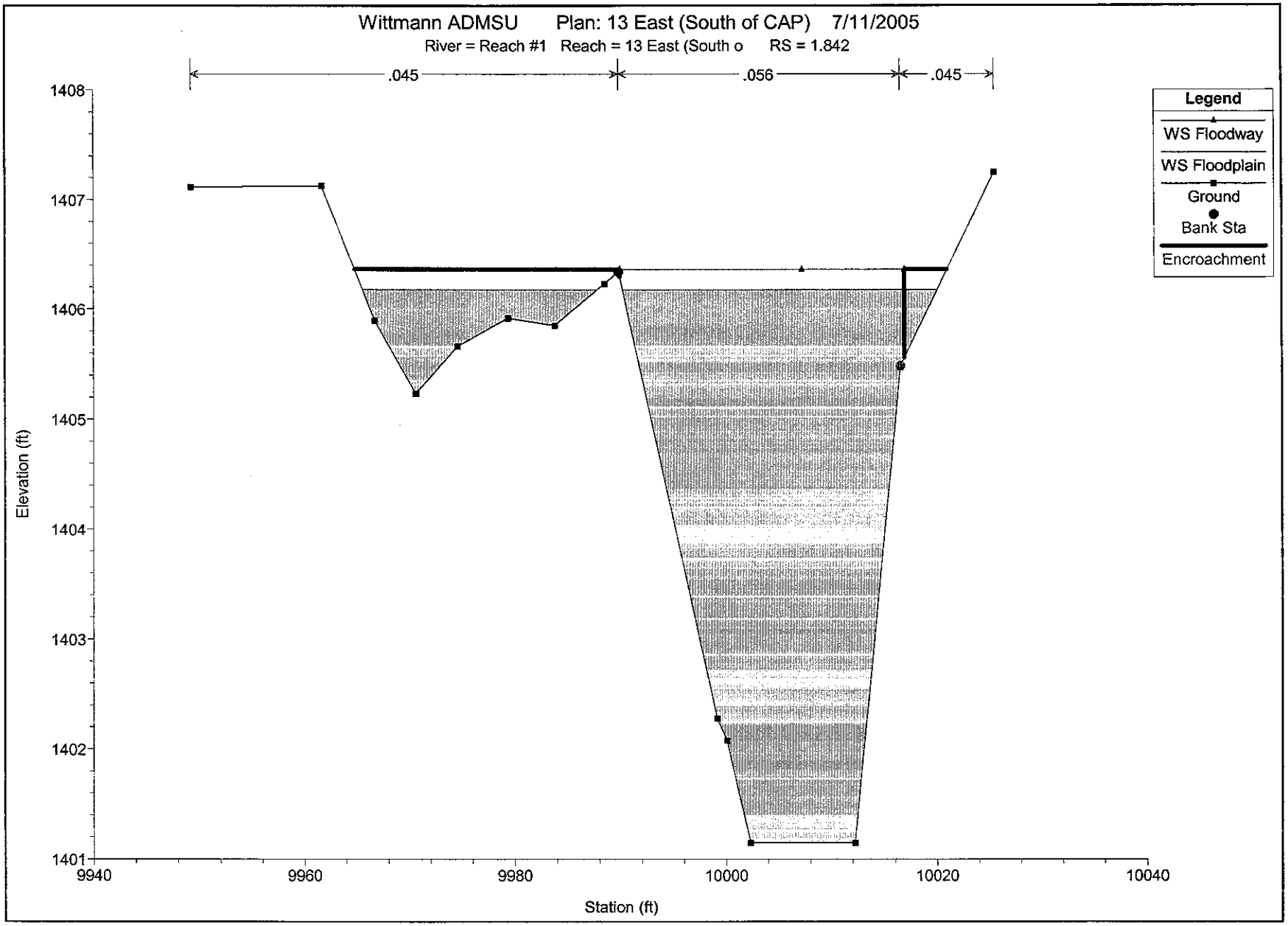

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.006
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1422
1420
1418
1416
1414
1412
1410
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)

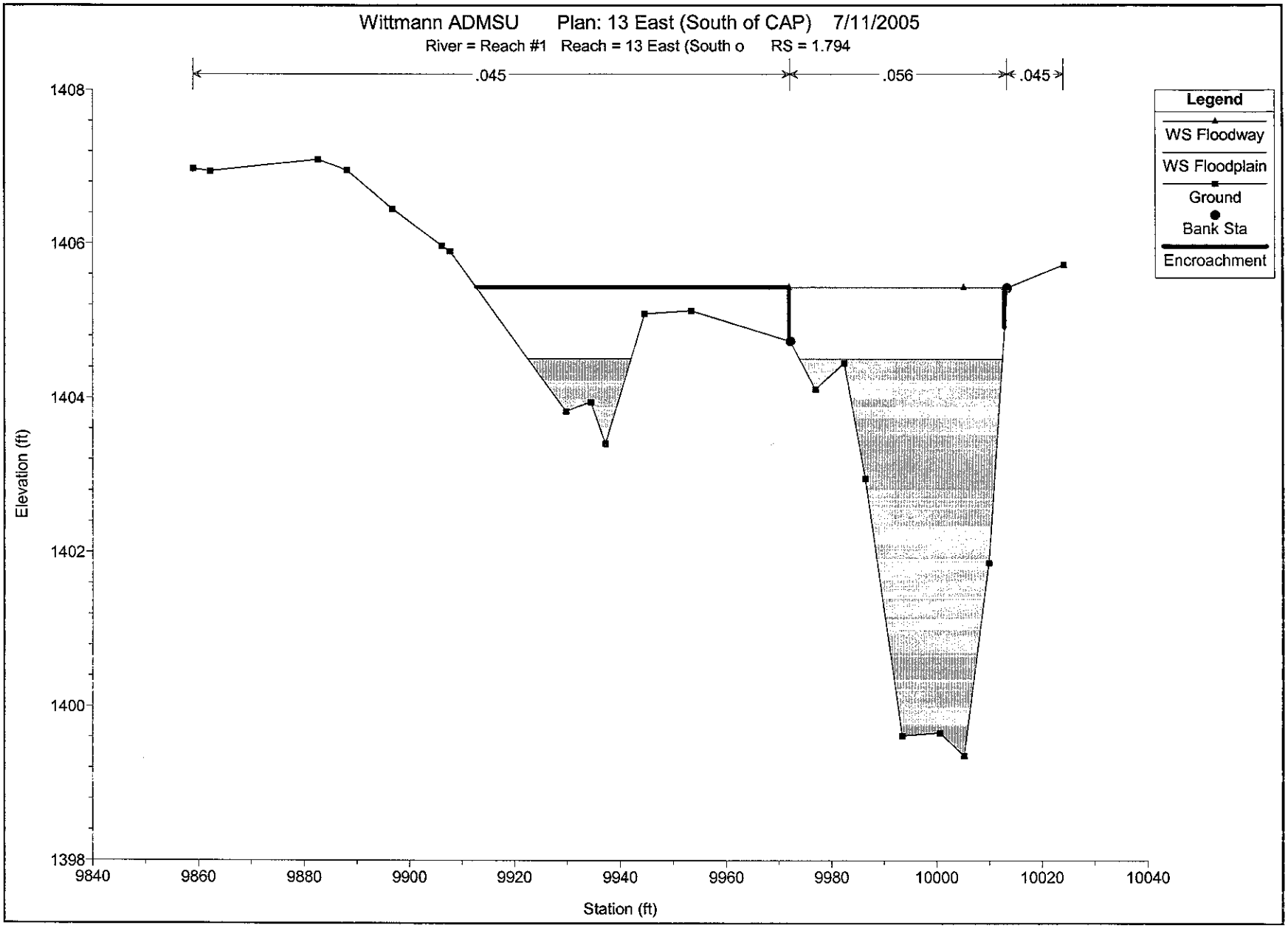

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 2.001
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1424
1422
1420
1418
1416
1414
1412
1410
9800
9850
9900
9950
10000
10050
10100
Station (ft)

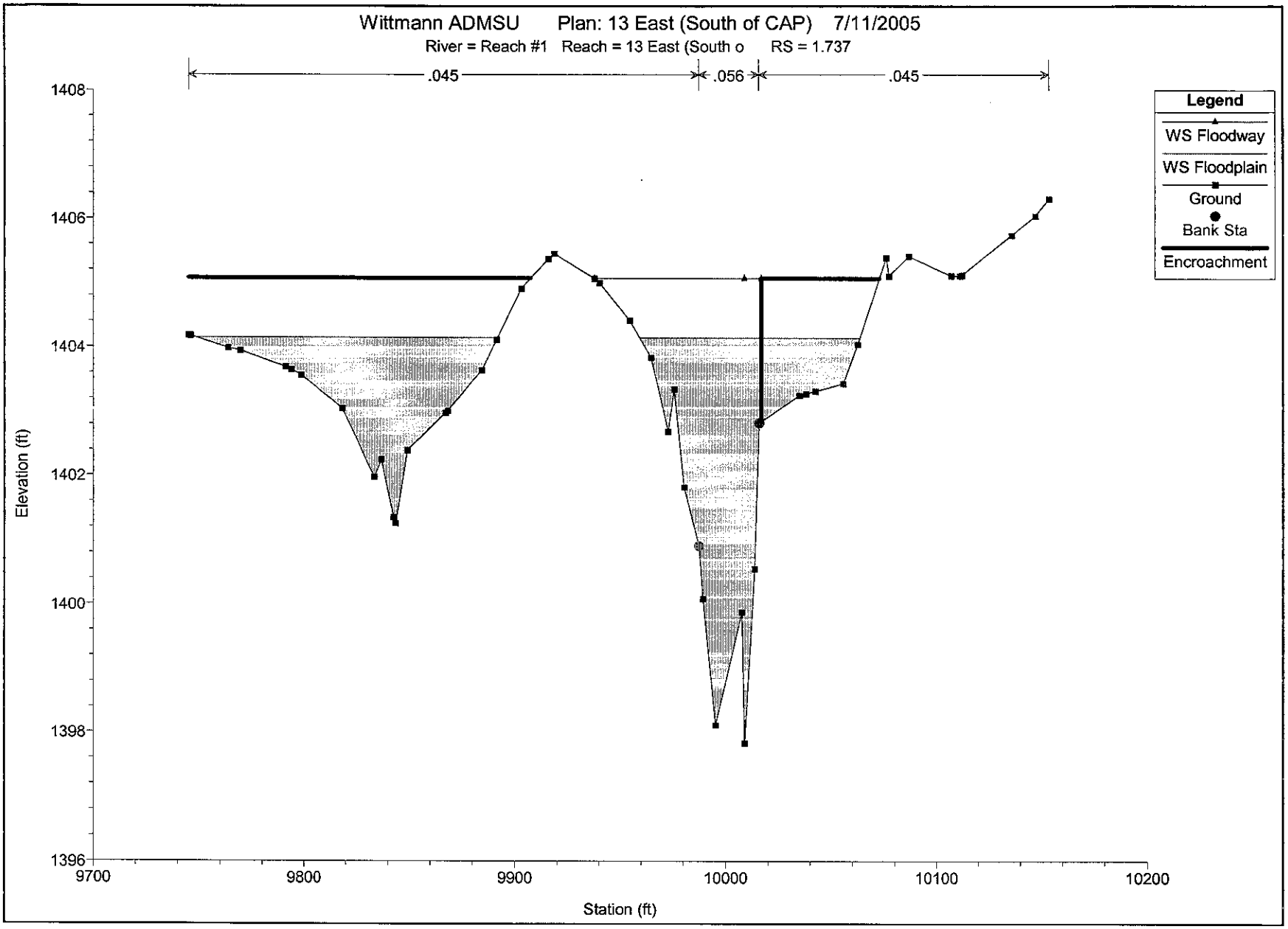

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.934
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1412
1411
1410
1409
1408
1407
9960
9980
10000
10020
10040
10060
10080
10100
10120
Station (ft)

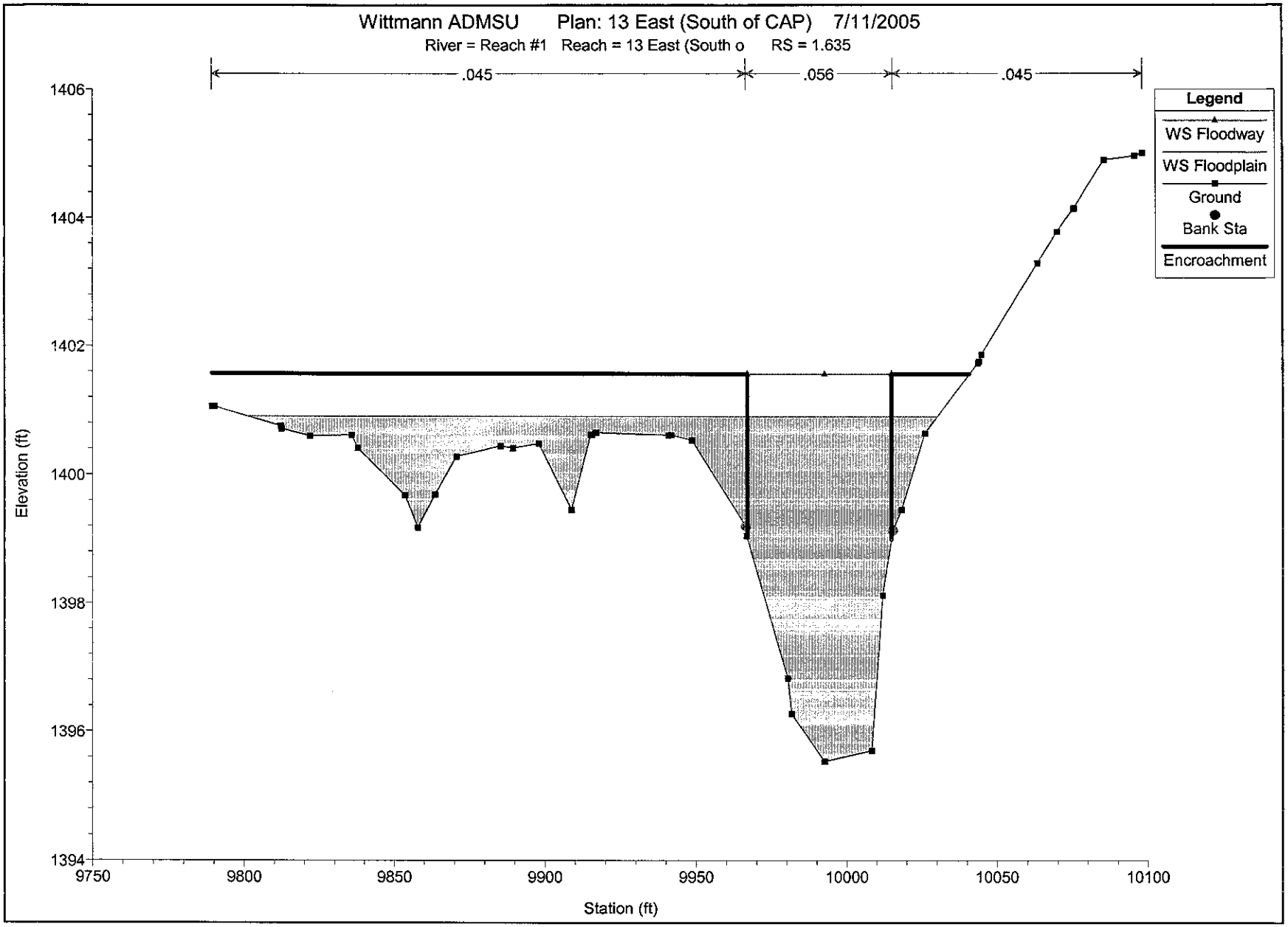

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.918
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1420
1418
1416
1414
1412
1410
1408
1406
1404
9400
9500
9600
9700
9800
9900
10000
10100
Station (ft)

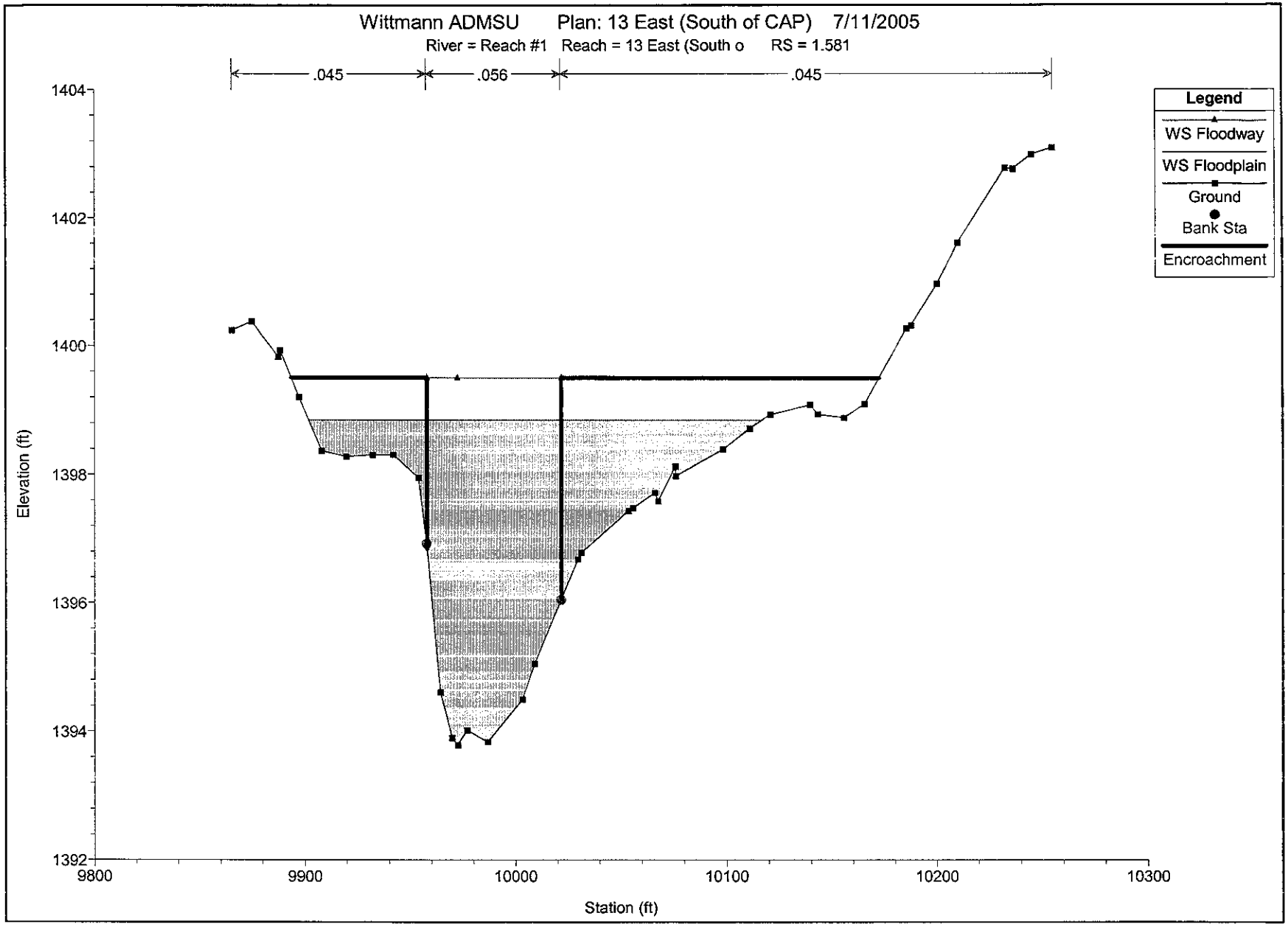

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.896
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1414
1412
1410
1408
1406
1404
1402
9850
9900
9950
10000
10050
10100
10150
Station (ft)

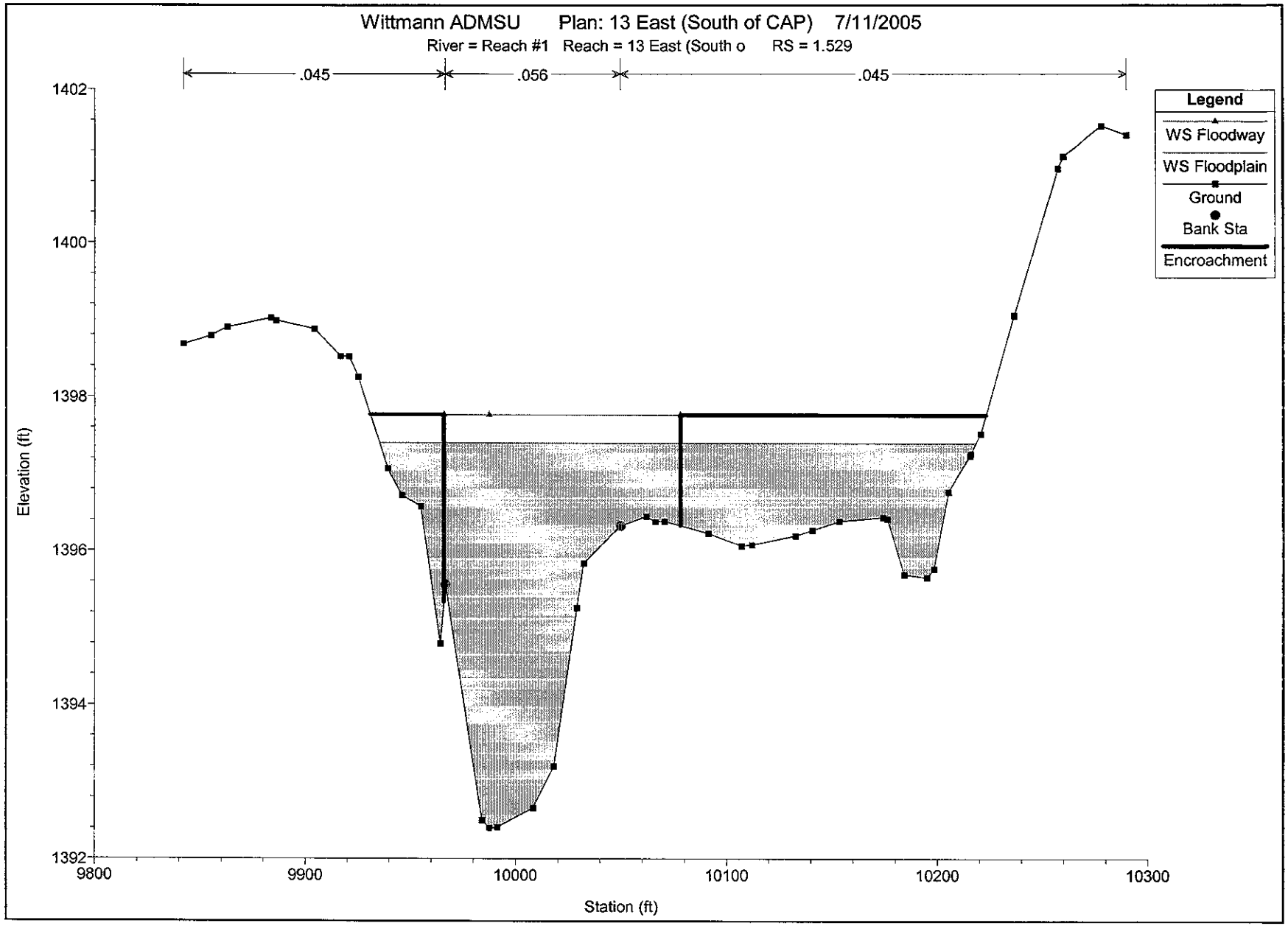

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.842
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1408
1407
1406
1405
1404
1403
1402
1401
9940
9960
9980
10000
10020
10040
Station (ft)

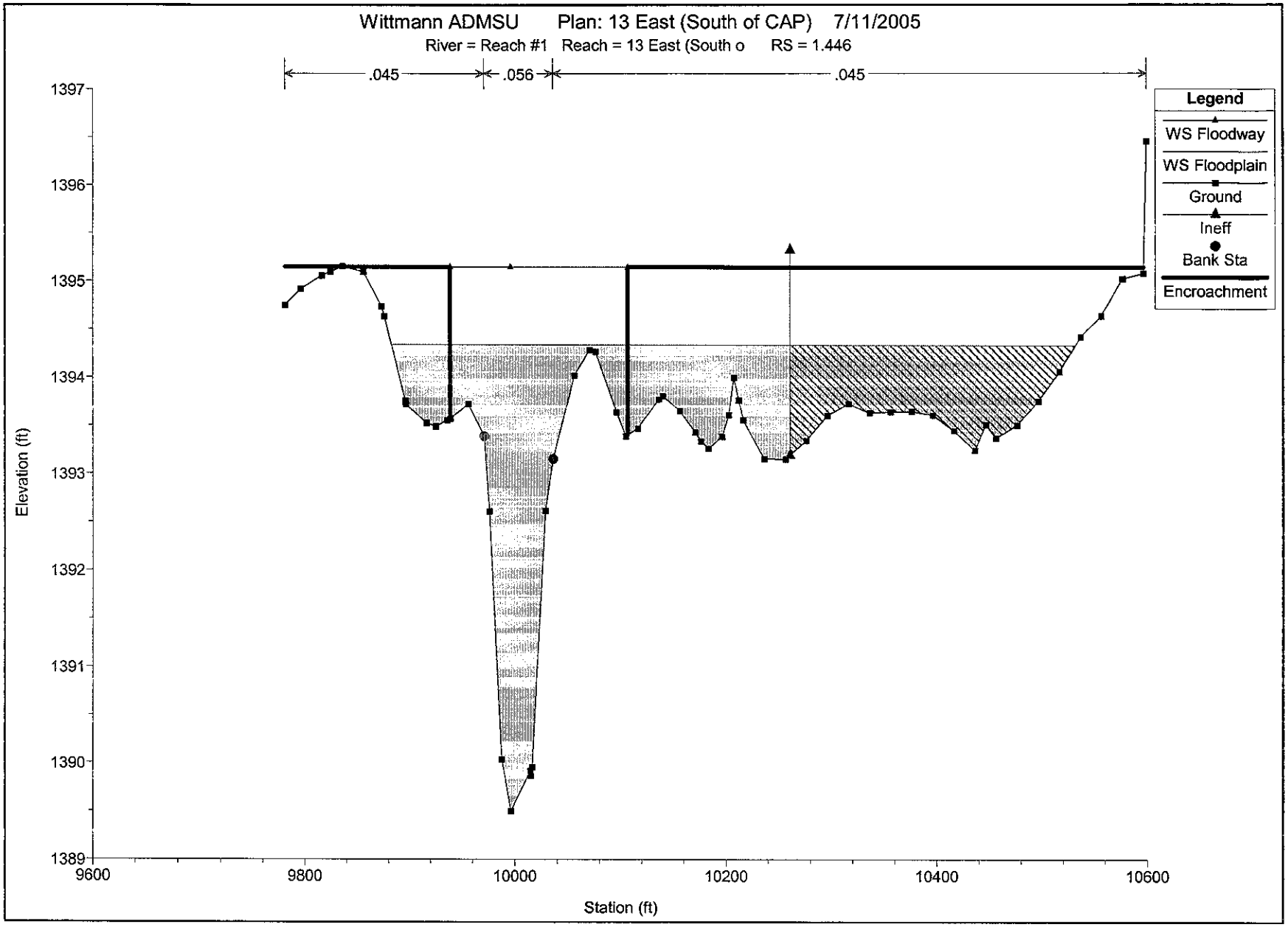

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.794
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1408
1406
1404
1402
1400
1398
9840
9860
9880
9900
9920
9940
9960
9980
10000
10020
10040
Station (ft)

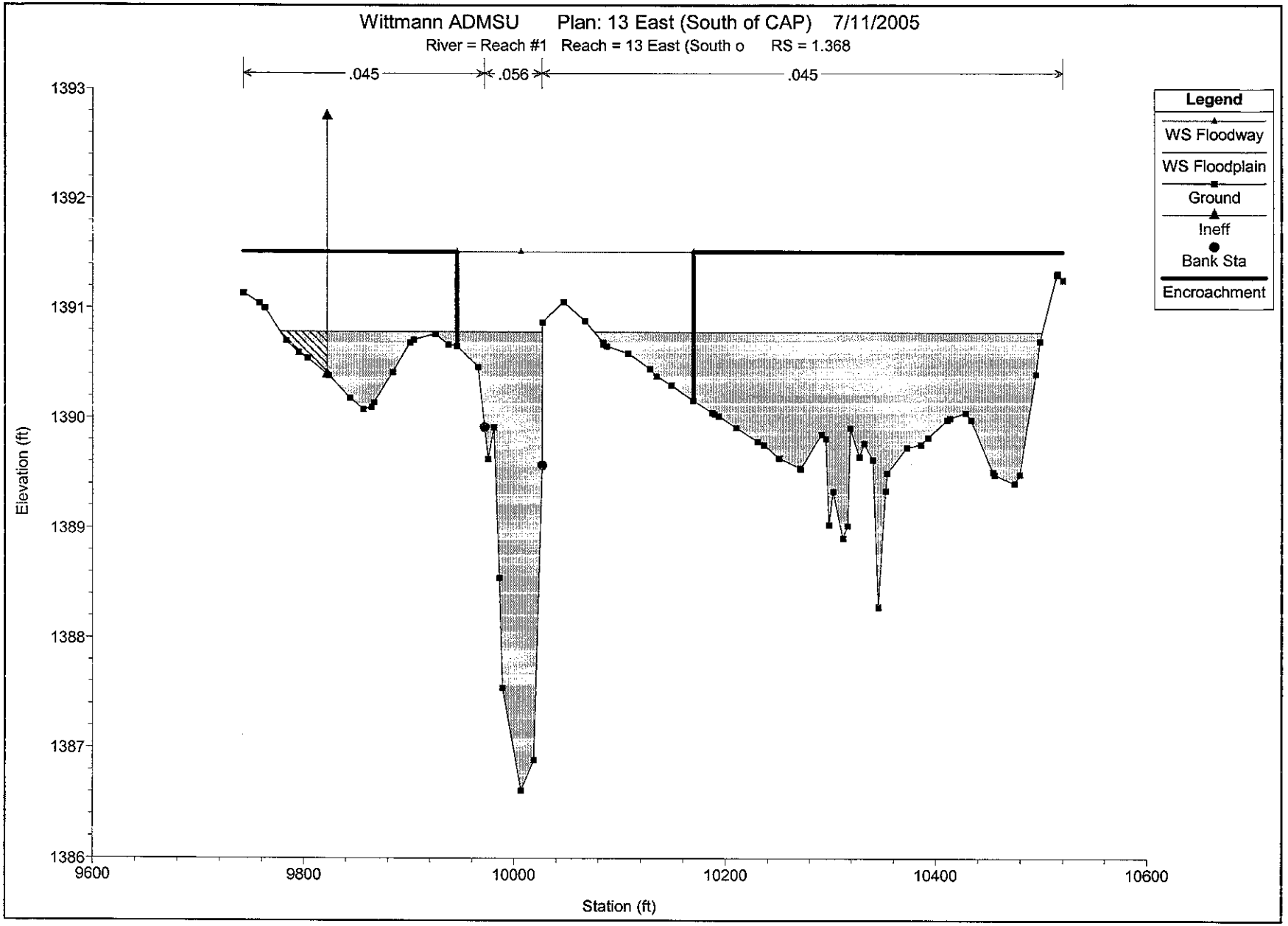

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.737
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1408
1406
1404
1402
1400
1398
1396
9700
9800
9900
10000
10100
10200
Station (ft)

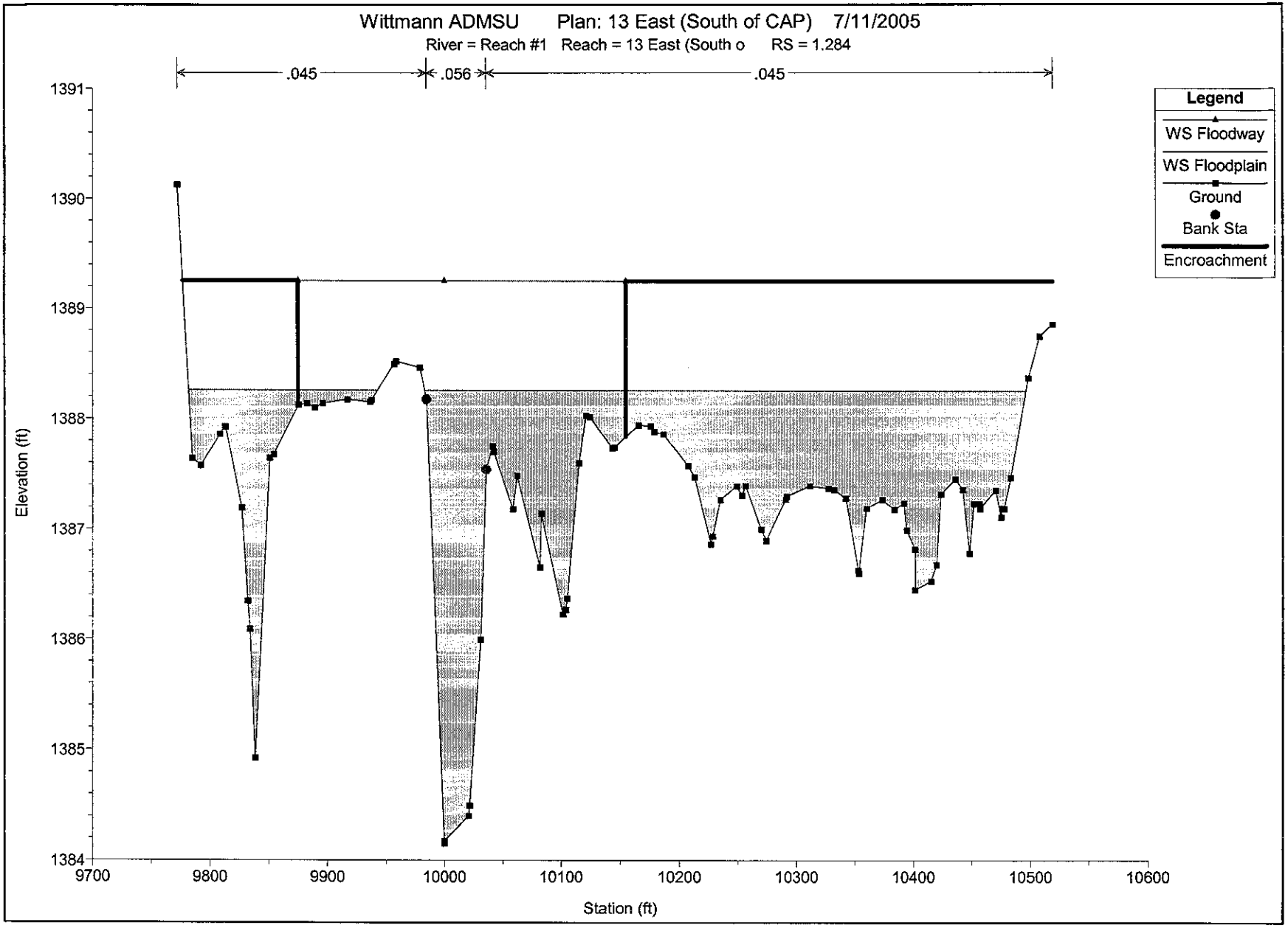

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.635
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1406
1404
1402
1400
1398
1396
1394
9750
9800
9850
9900
9950
10000
10050
10100
Station (ft)

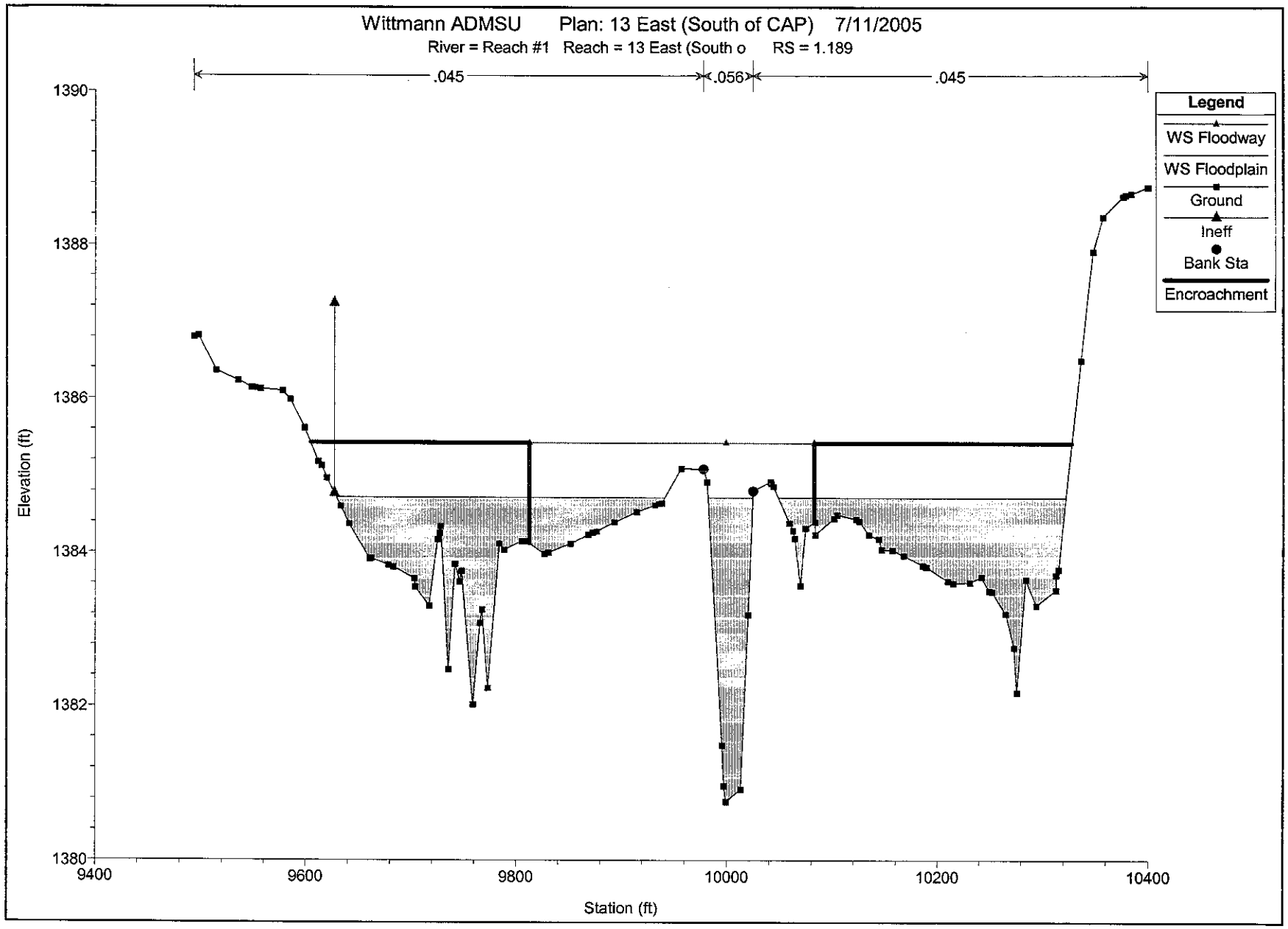

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.581
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1404
1402
1400
1398
1396
1394
1392
9800
9900
10000
10100
10200
10300
Station (ft)

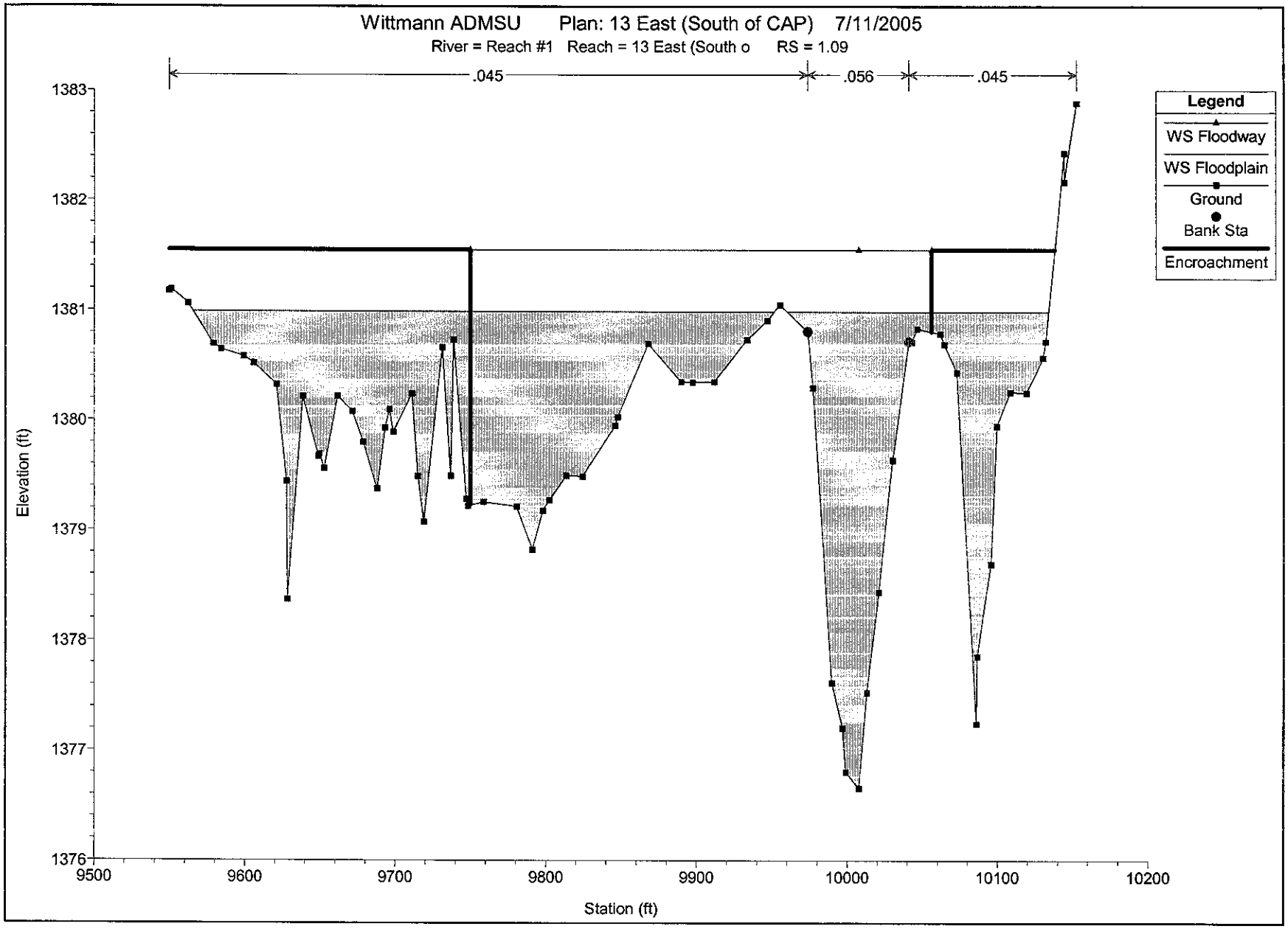

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.529
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1402
1400
1398
1396
1394
1392
9800
9900
10000
10100
10200
10300
Station (ft)

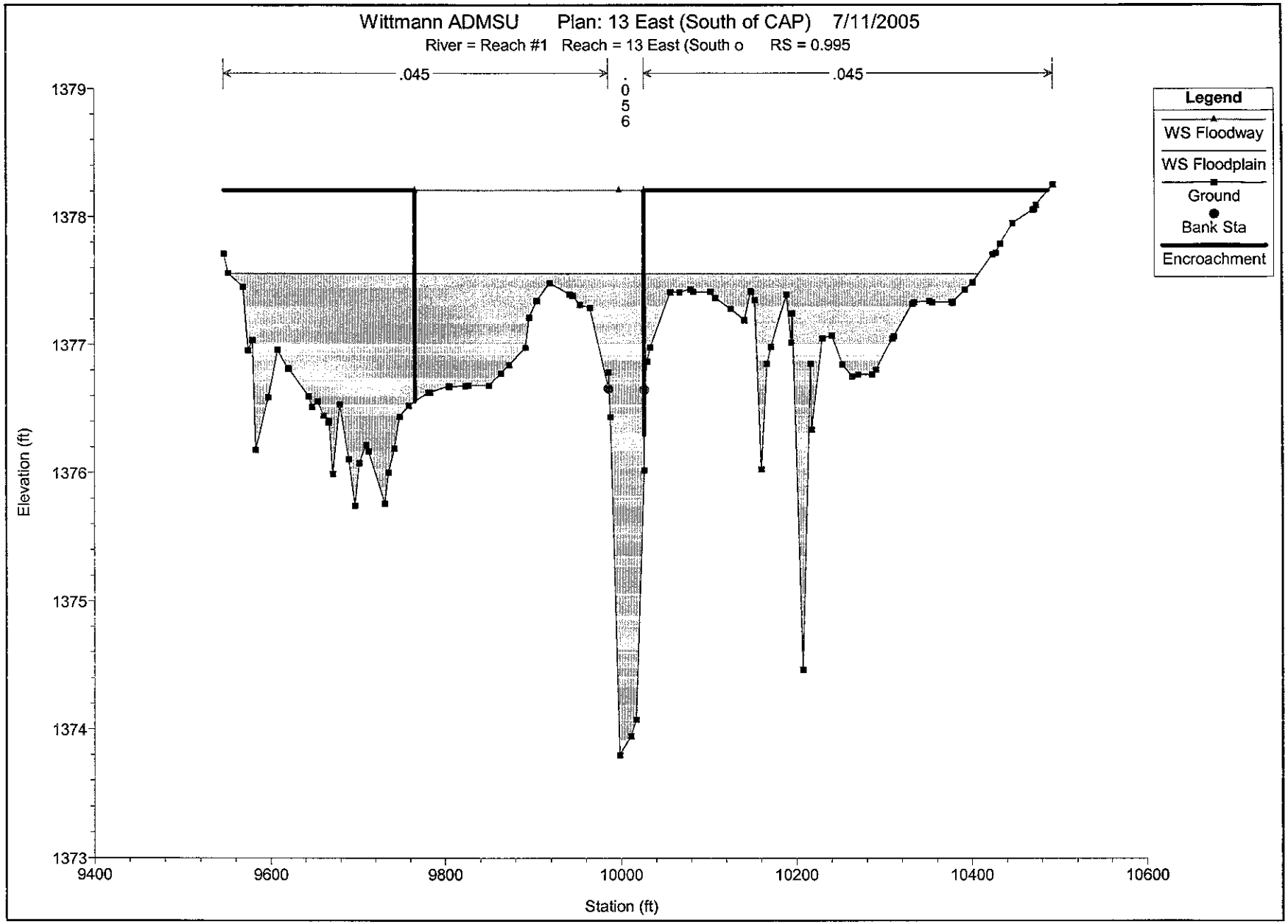

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.446
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1397
1396
1395
1394
1393
1392
1391
1390
1389
9600
9800
10000
10200
10400
10600
Station (ft)

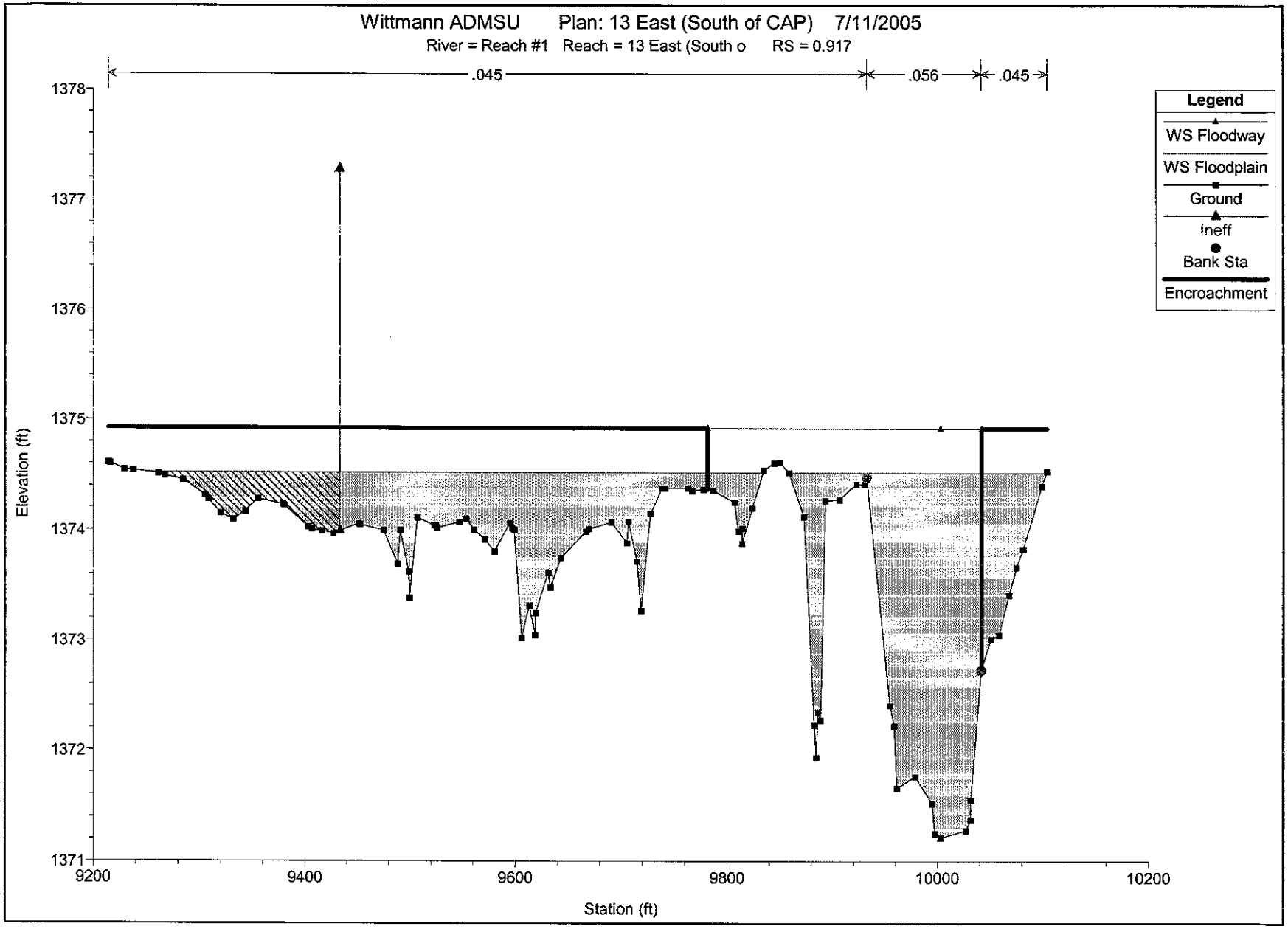

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.368
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1393
1392
1391
1390
1389
1388
1387
1386
9600
9800
10000
10200
10400
10600
Station (ft)

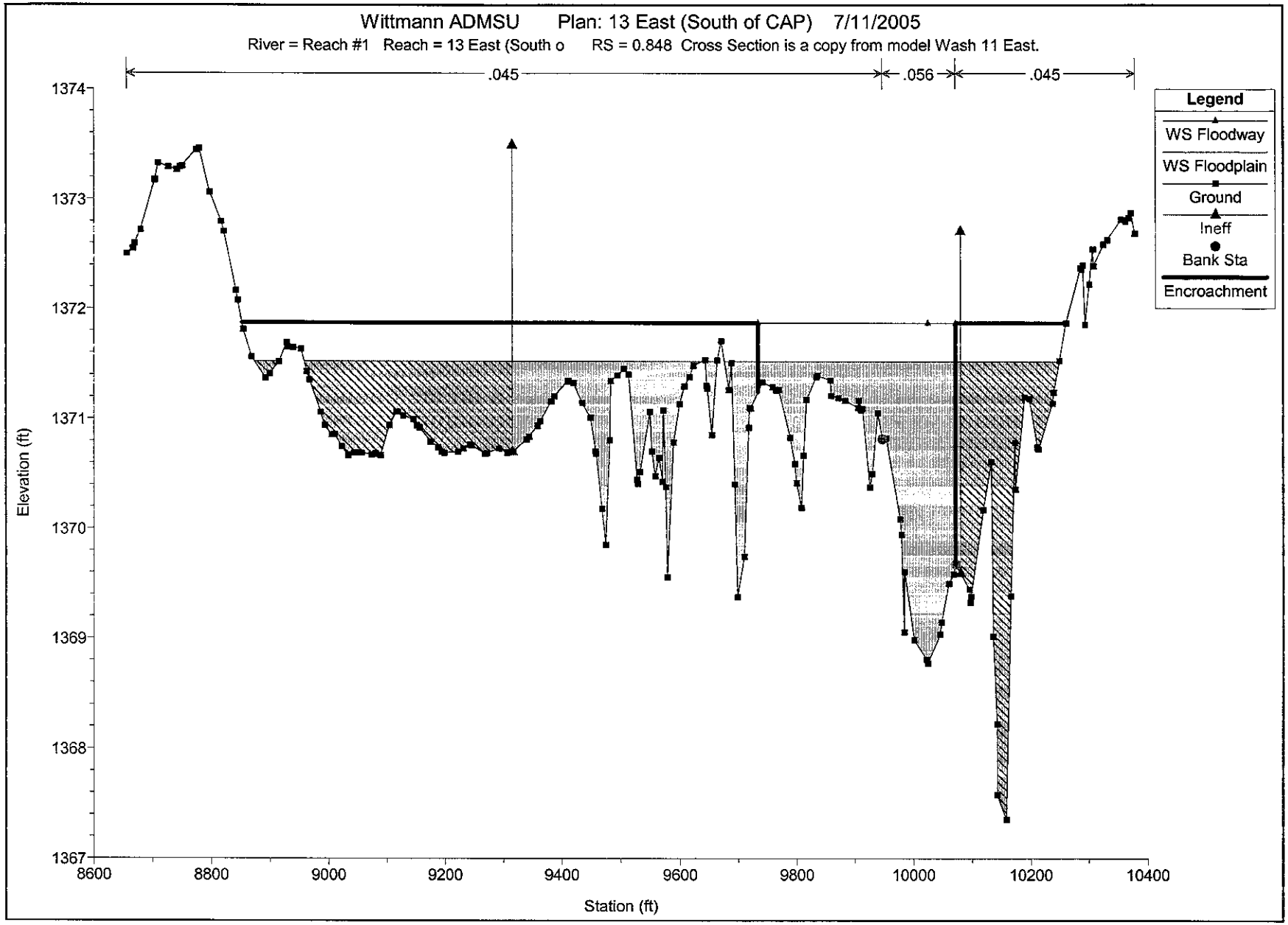

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.284
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1391
1390
1389
1388
1387
1386
1385
1384
9700
9800
9900
10000
10100
10200
10300
10400
10500
10600
Station (ft)


Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.189
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1390
1388
1386
1384
1382
1380
9400
9600
9800
10000
10200
10400
Station (ft)

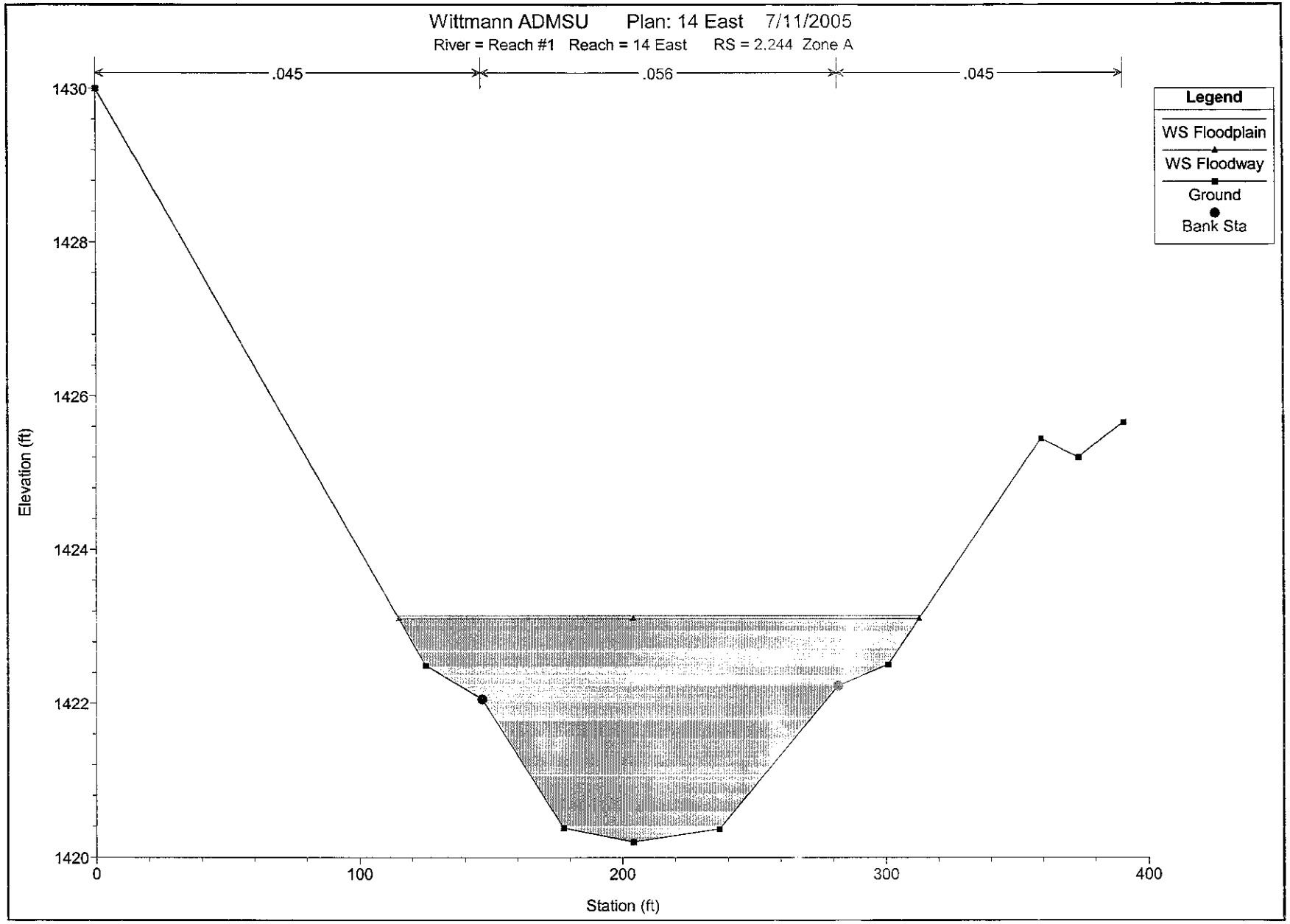

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 1.09
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1383
1382
1381
1380
1379
1378
1377
1376
9500
9600
9700
9800
9900
10000
10100
10200
Station (ft)

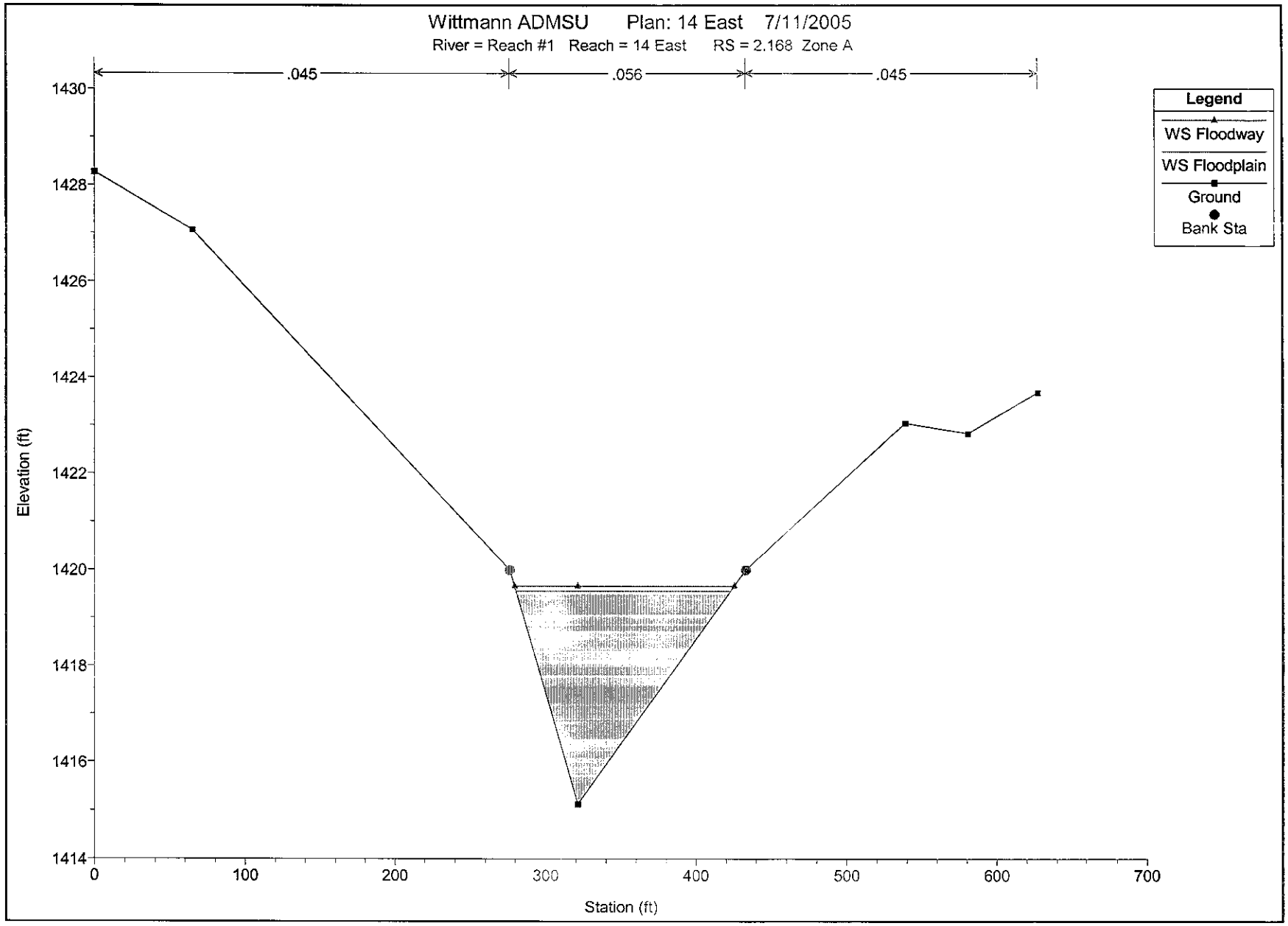

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 0.995
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1379
1378
1377
1376
1375
1374
1373
9400
9600
9800
10000
10200
10400
10600
Station (ft)

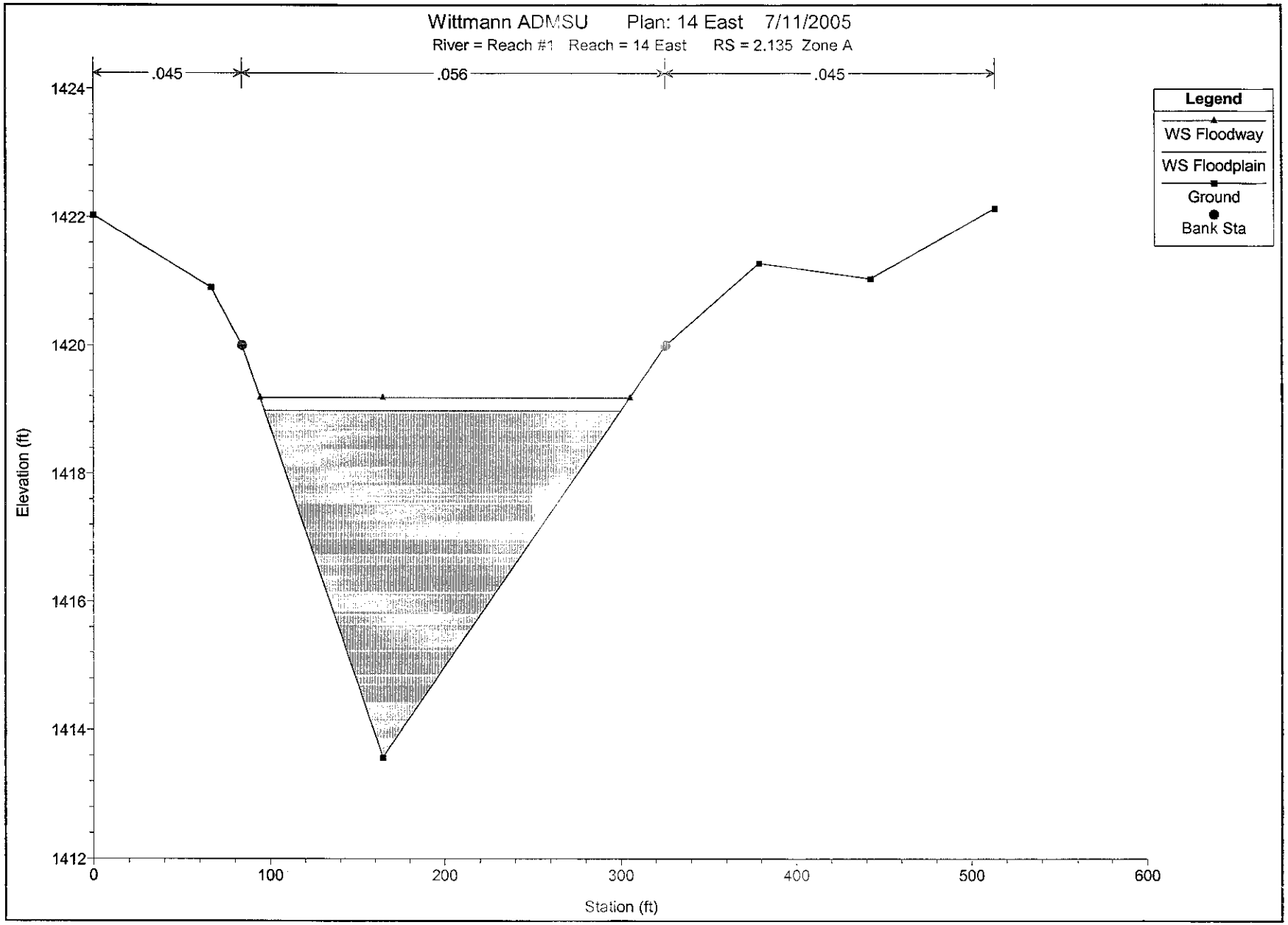

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 0.917
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1378
1377
1376
1375
1374
1373
1372
1371
9200
9400
9600
9800
10000
10200
Station (ft)

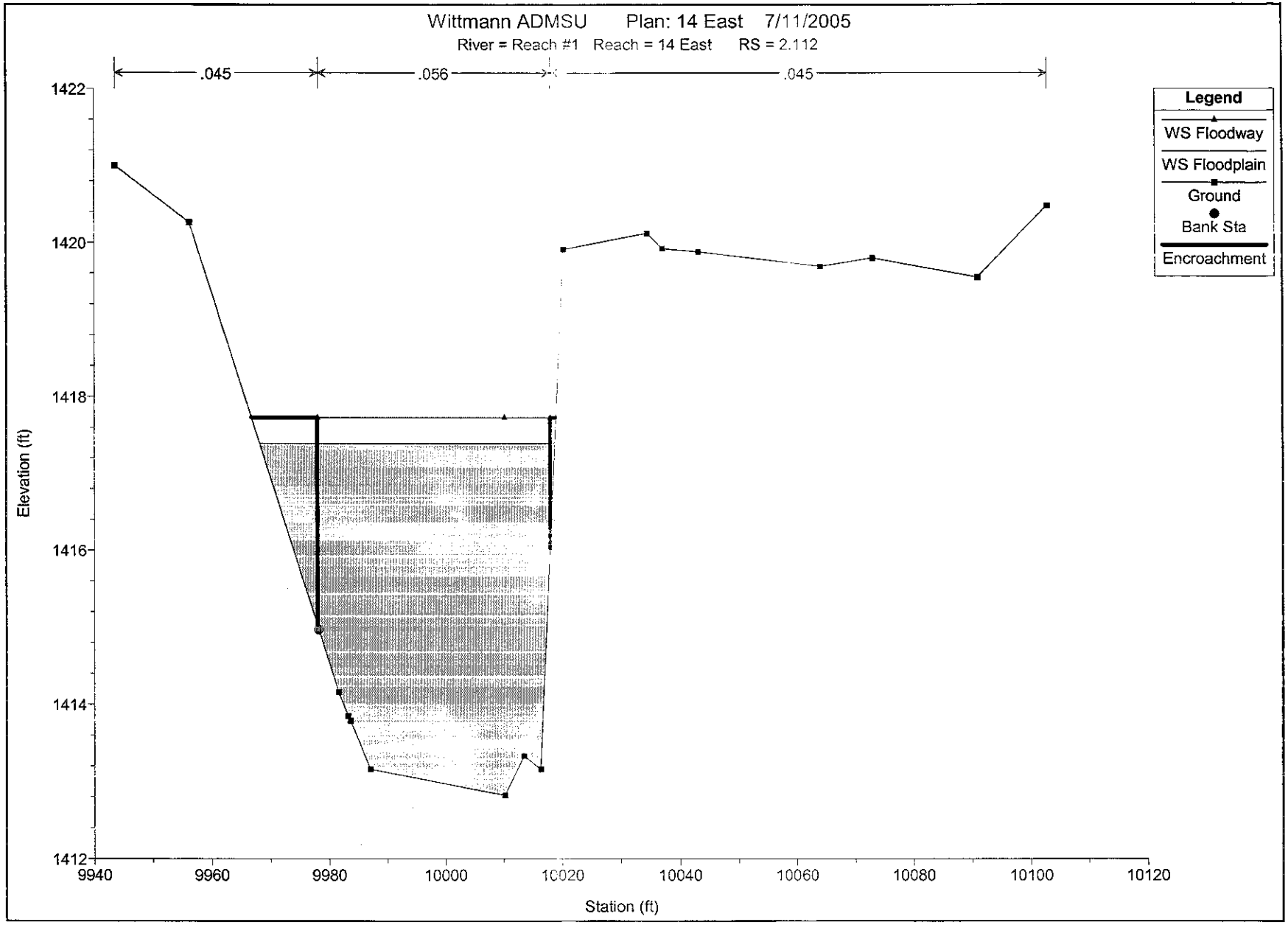

Wittmann ADMSU Plan: 13 East (South of CAP) 7/11/2005
River = Reach #1 Reach = 13 East (South o RS = 0.848 Cross Section is a copy from model Wash 11 East.
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Ineff
Bank Sta
Encroachment
Elevation (ft)
1374
1373
1372
1371
1370
1369
1368
1367
8600
8800
9000
9200
9400
9600
9800
10000
10200
10400
Station (ft)

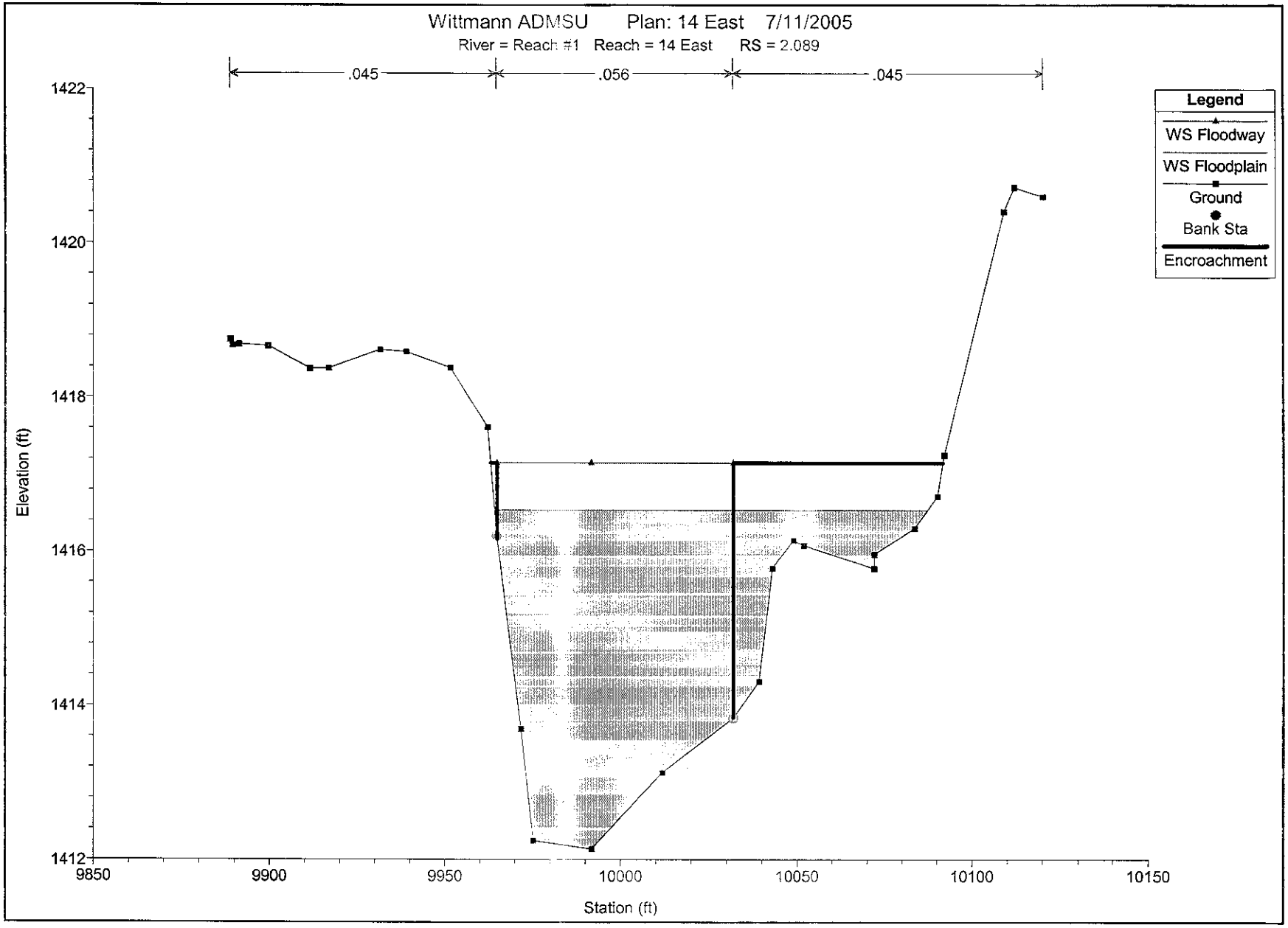
14 EAST

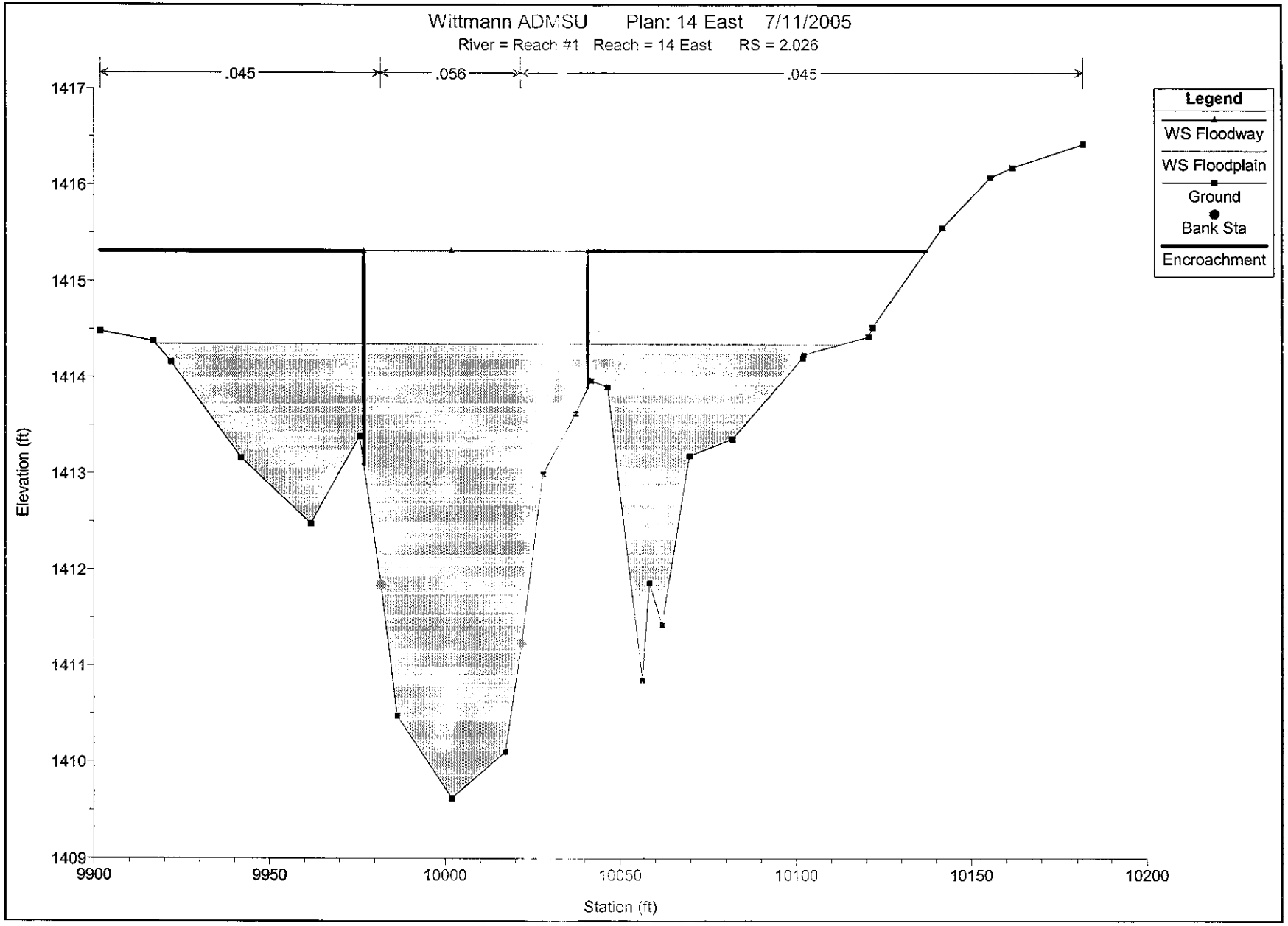

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.244 Zone A
.045
.056
.045
Legend
WS Floodplain
WS Floodway
Ground
Bank Sta
Elevation (ft)
1430
1428
1426
1424
1422
1420
0
100
200
300
400
Station (ft)

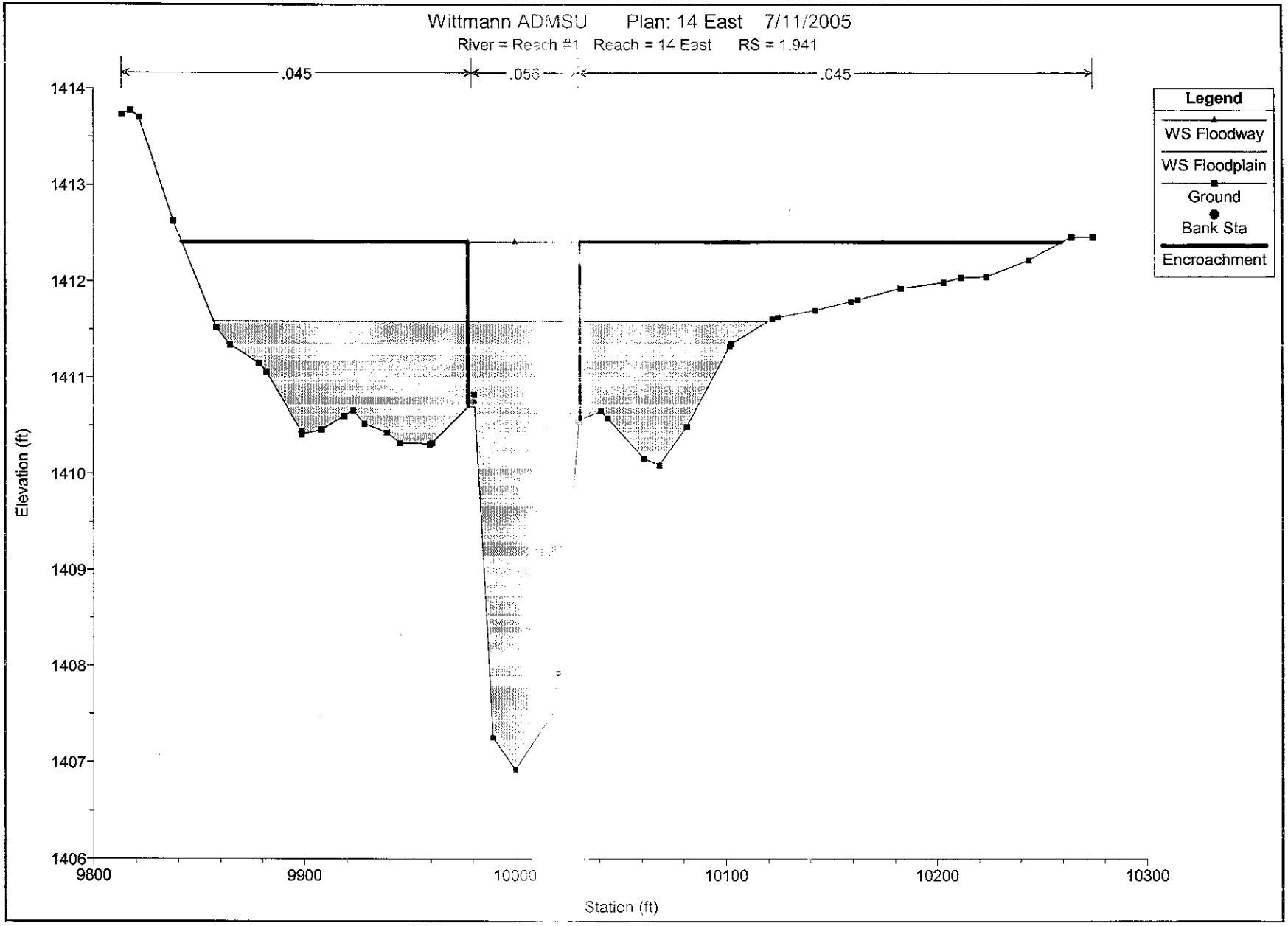

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.168 Zone A
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1430
1428
1426
1424
1422
1420
1418
1416
1414
0
100
200
300
400
500
600
700
Station (ft)

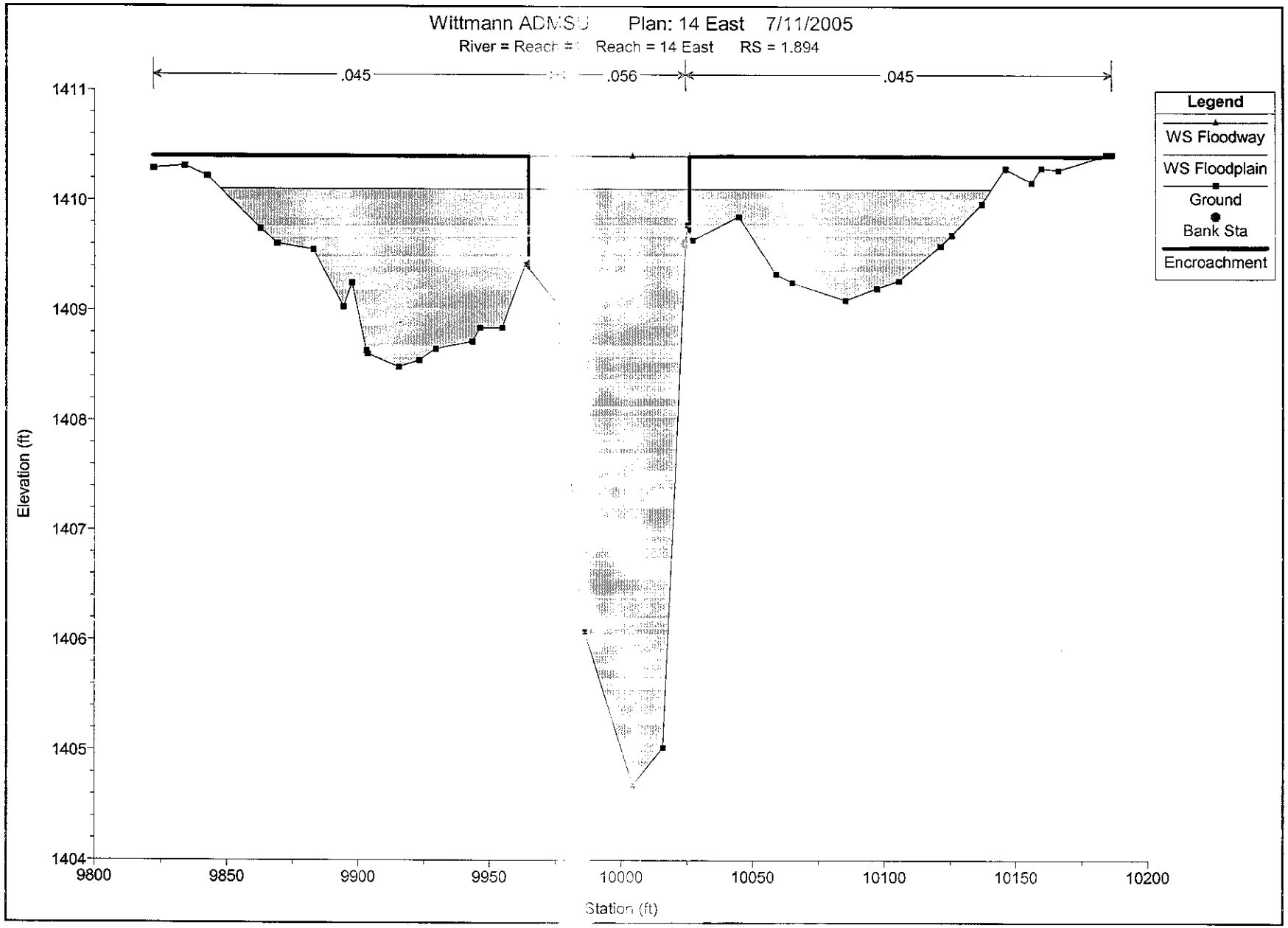

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.135 Zone A
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Elevation (ft)
1424
1422
1420
1418
1416
1414
1412
0
100
200
300
400
500
600
Station (ft)

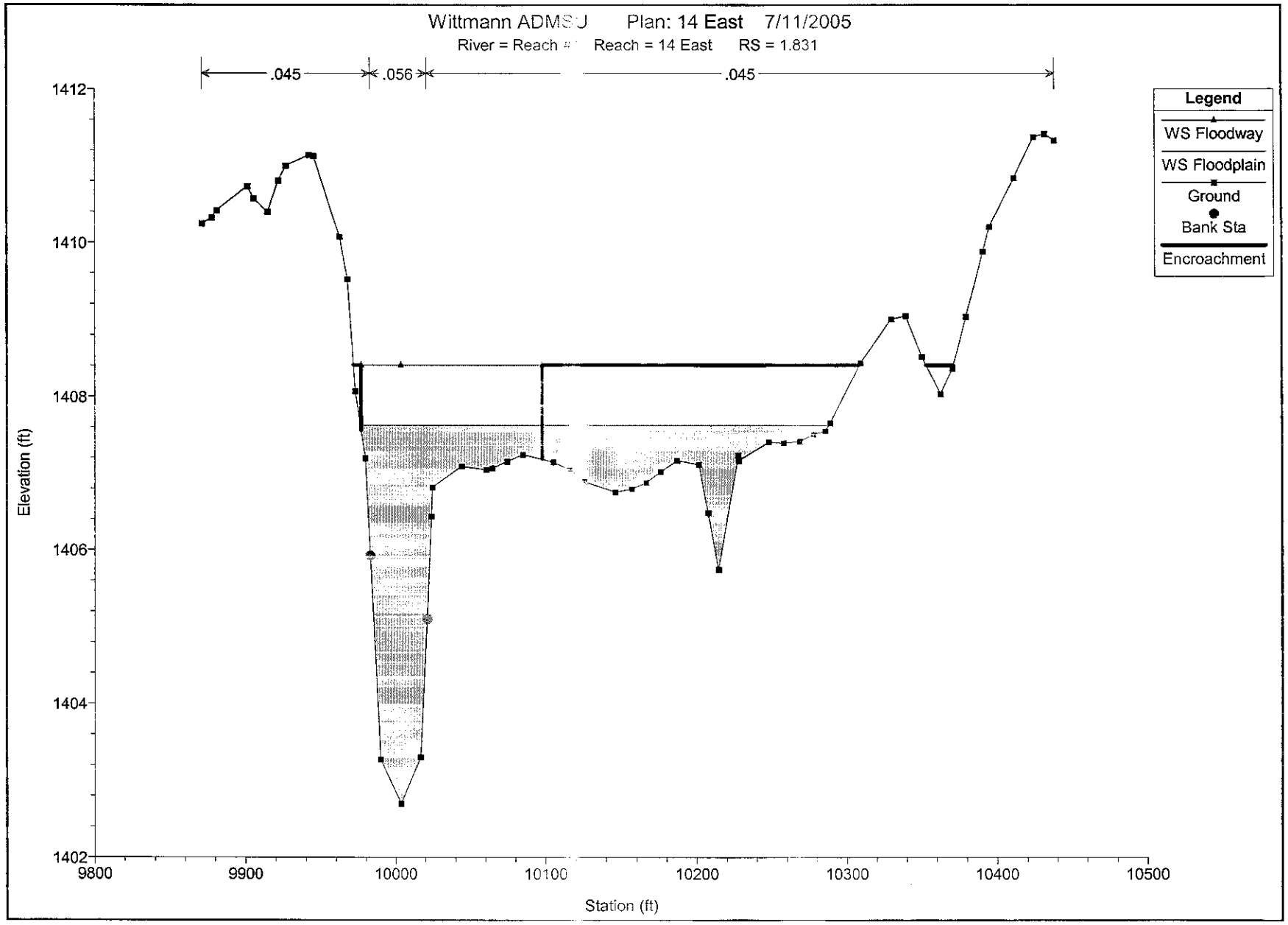

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.112
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1422
1420
1418
1416
1414
1412
9940
9960
9980
10000
10020
10040
10060
10080
10100
10120
Station (ft)

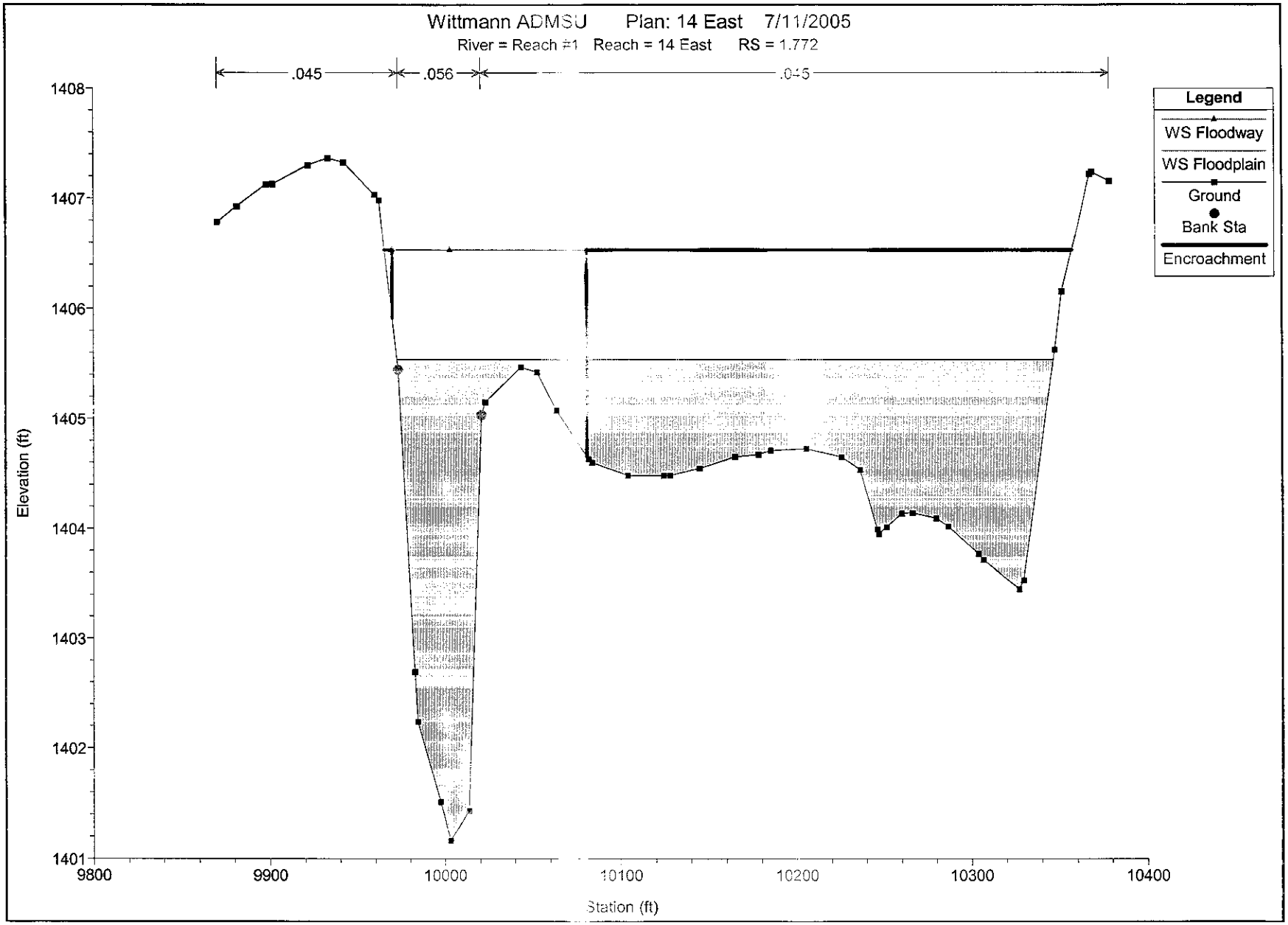

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.089
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1422
1420
1418
1416
1414
1412
9850
9900
9950
10000
10050
10100
10150
Station (ft)

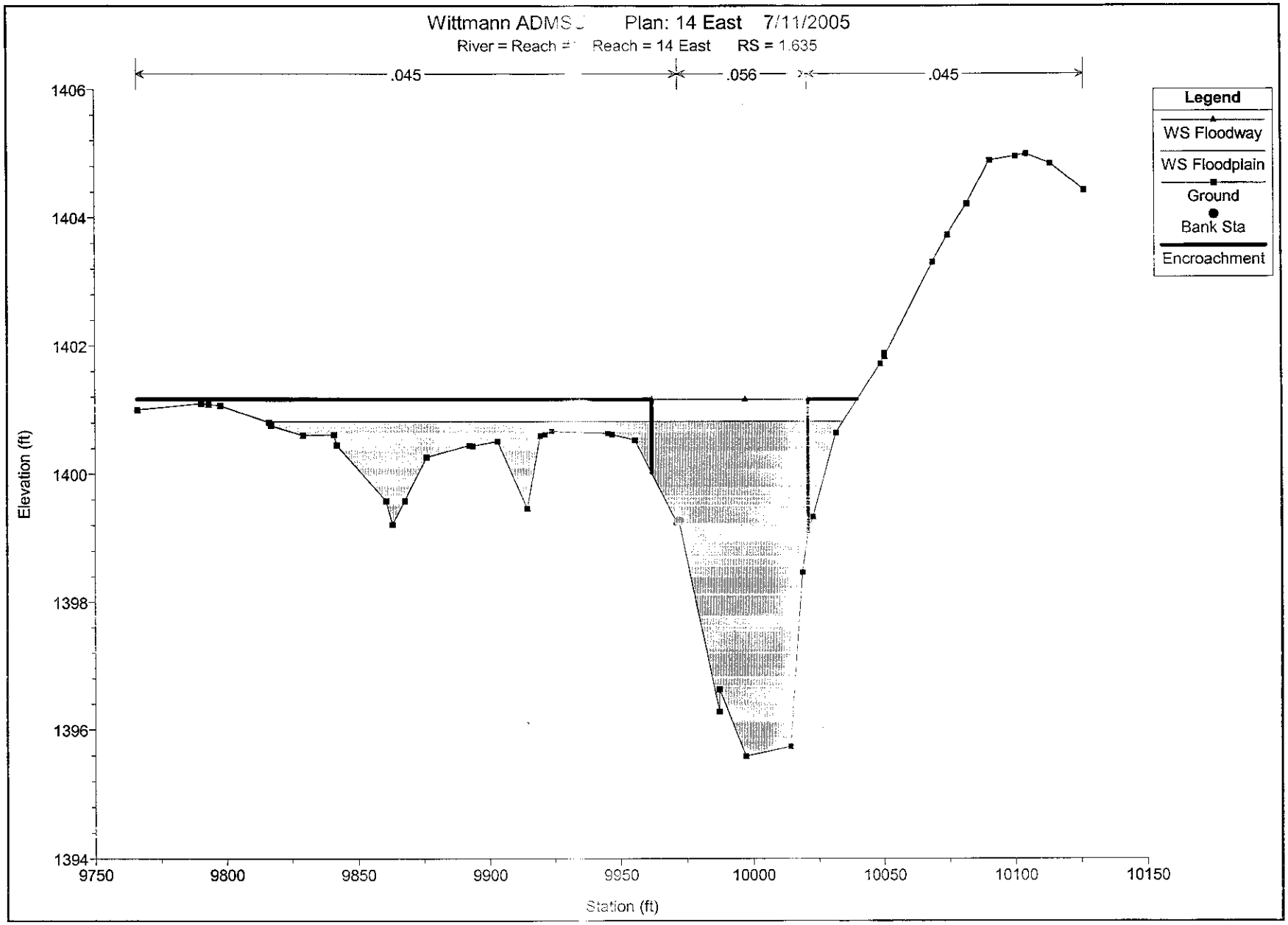

Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 2.026
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1417
1416
1415
1414
1413
1412
1411
1410
1409
9900
9950
10000
10050
10100
10150
10200
Station (ft)


Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 1.941
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1414
1413
1412
1411
1410
1409
1408
1407
1406
9800
9900
10000
10100
10200
10300
Station (ft)


Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 1.894
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1411
1410
1409
1408
1407
1406
1405
1404
9800
9850
9900
9950
10000
10050
10100
10150
10200
Station (ft)


Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach # Reach = 14 East RS = 1.831
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1412
1410
1408
1406
1404
1402
9800
9900
10000
10100
10200
10300
10400
10500
Station (ft)


Wittmann ADMSU Plan: 14 East 7/11/2005
River = Reach #1 Reach = 14 East RS = 1.772
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1408
1407
1406
1405
1404
1403
1402
1401
9800
9900
10000
10100
10200
10300
10400
Station (ft)


Wittmann ADMS
Plan: 14 East 7/11/2005
River = Reach
Reach = 14 East
RS = 1.635
.045
.056
.045
Legend
WS Floodway
WS Floodplain
Ground
Bank Sta
Encroachment
Elevation (ft)
1406
1404
1402
1400
1398
1396
1394
9750
9800
9850
9900
9950
10000
10050
10100
10150
Station (ft)

E.3 Expansion and Contraction Coefficients

The expansion and contraction coefficients used in the HEC-RAS model were determined using the HEC-RAS *User's Manual* (**Reference 6**). More discussion regarding the expansion and contraction coefficients is included in **Section 5.3.2**.

E.4 Analysis of Structures

Several bridges and culverts were modeled as part of this study. These structures were modeled using the HEC-RAS bridge routine. The majority of the structures modeled were located along Grand Avenue and the BNSF Railroad. Approximately 30 bridges and culverts were modeled. The structures were modeled using the data included in *Volume SR Survey Report*. General discussions regarding the analyses of various structures are included throughout **Section 5**. Special modeling considerations made for various structures are discussed in **Section 5.5.8** on a wash-by-wash basis.

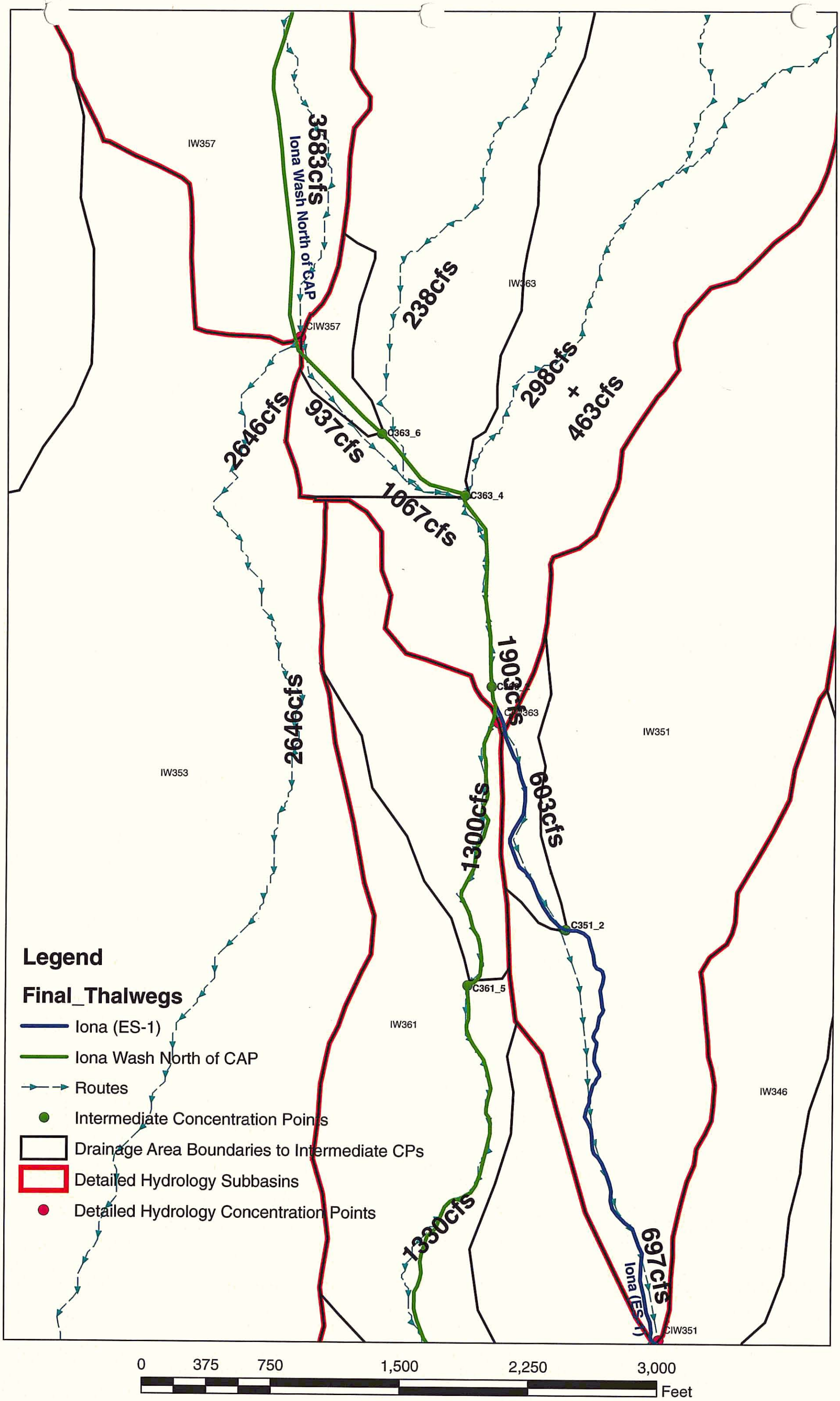
E.5 Hydraulic Calculations

The hydraulic calculations were made using the US Army Corps of Engineer's HEC-RAS V.3.1.1 program (**Reference 7**), in accordance, with BOSS RMS Version 2000 for Windows (**Reference 8**). The details of the hydraulic methodology are discussed in **Section 5**. The HEC-RAS output is included in **Appendix E.6.**

E.6 HEC-RAS Output

List of Washes

1. WASH 3 WEST
2. T4N-R3W-S08E
3. T5N-R3W-S19
4. IONA WASH
5. IONA WASH (ZONE AO)
6. IONA WASH (NORTH)
7. IONA NORTH WEST SPLIT-1
8. IONA TRIBUTARY (ZONE A)
9. IONA EAST SPLIT-1
10. IONA EAST SPLIT-2
11. TRILBY WASH
12. CIRCLE CITY AREA WASH 1
13. WASH 2 WEST (NORTH OF CAP)
14. 2 WEST TRIBUTARY-1
15. 2 WEST TRIBUTARY-2
16. WITTMANN WASH
17. WITTMANN WASH (NORTH SPLIT)
18. WITTMANN WASH (SOUTH SPLIT)
19. WITTMANN TRIBUTARY
20. T5N-R3W-S24E
21. T5N-R2W-S19E
22. T5N-R2W-S19W
23. T5N-R3W-S01S
24. T5N-R2W-S07
25. WASH 2 EAST (NORTH OF CAP)
26. 2 EAST TRIBUTARY
27. T5N-R2W-S14N (ZONE A)
28. T5N-R2W-S14S (ZONE A)
29. T5N-R2W-S14W (ZONE A)
30. T5N-R2W-S11 (ZONE A)
31. WASH 7 EAST
32. 7 EAST TRIBUTARY
33. IONA EAST (SOUTH OF CAP)
34. IONA WEST (SOUTH OF CAP)
35. WASH 2 WEST (SOUTH OF CAP)
36. WASH 1 WEST
37. WASH 1 EAST
38. WASH 2 EAST (SOUTH OF CAP)
39. 2 EAST DIKE FAILURE
40. WASH 3 EAST
41. WASH 4 EAST
42. 4 EAST DIKE FAILURE
43. WASH 5 EAST
44. WASH 5 EAST (ZONE AO)
45. WASH 6 EAST
46. 6 EAST SOUTH
47. 7 EAST-EAST SPLIT
48. 7 EAST-WEST SPLIT
49. WASH 8 EAST
50. WASH 9 EAST
51. 9 EAST SPLIT
52. WASH 10 EAST
53. 10 EAST (EAST SPLIT-1)
54. 10 EAST (EAST SPLIT-2)
55. WASH 11 EAST
56. 11 EAST DIKE FAILURE
57. BONITA DIKE CHANNEL
58. WASH 12 EAST
59. 12 EAST SPLIT
60. WASH 13 EAST
61. WASH 14 EAST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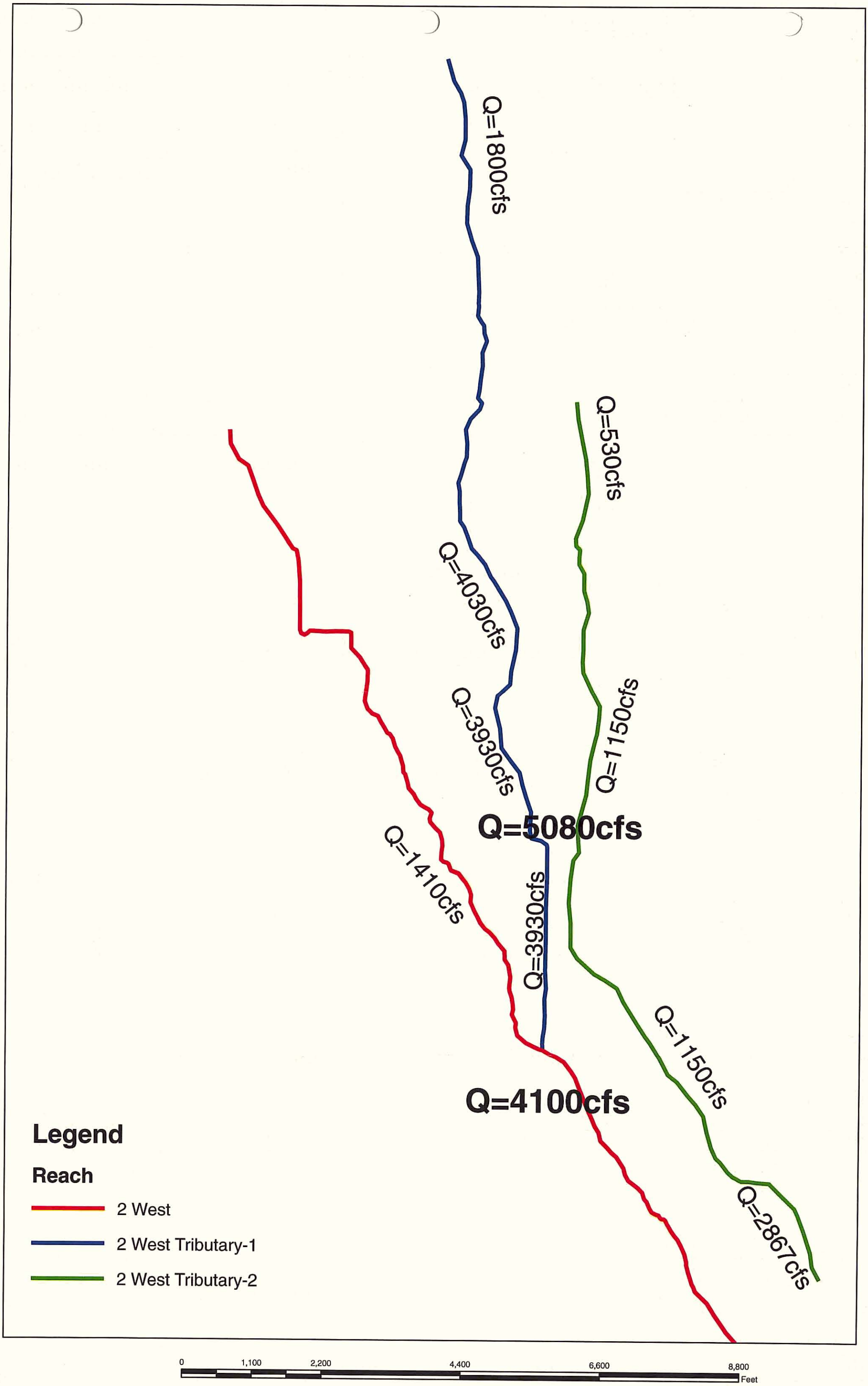
Iona Wash North of CAP
CIW357
238cfs
IW363
298cfs
+
463cfs
2646cfs
937cfs
C363_6
1067cfs
C363_4
1903cfs
2646cfs
IW353
IW351
603cfs
1300cfs
C351_2
C361_5
IW361
IW346
1330cfs
697cfs
Iona (ES-1)
CIW351
Legend
Final_Thalwegs
Iona (ES-1)
Iona Wash North of CAP
Routes
Intermediate Concentration Points
Drainage Area Boundaries to Intermediate CPs
Detailed Hydrology Subbasins
Detailed Hydrology Concentration Points
0
375
750
1,500
2,250
3,000
Feet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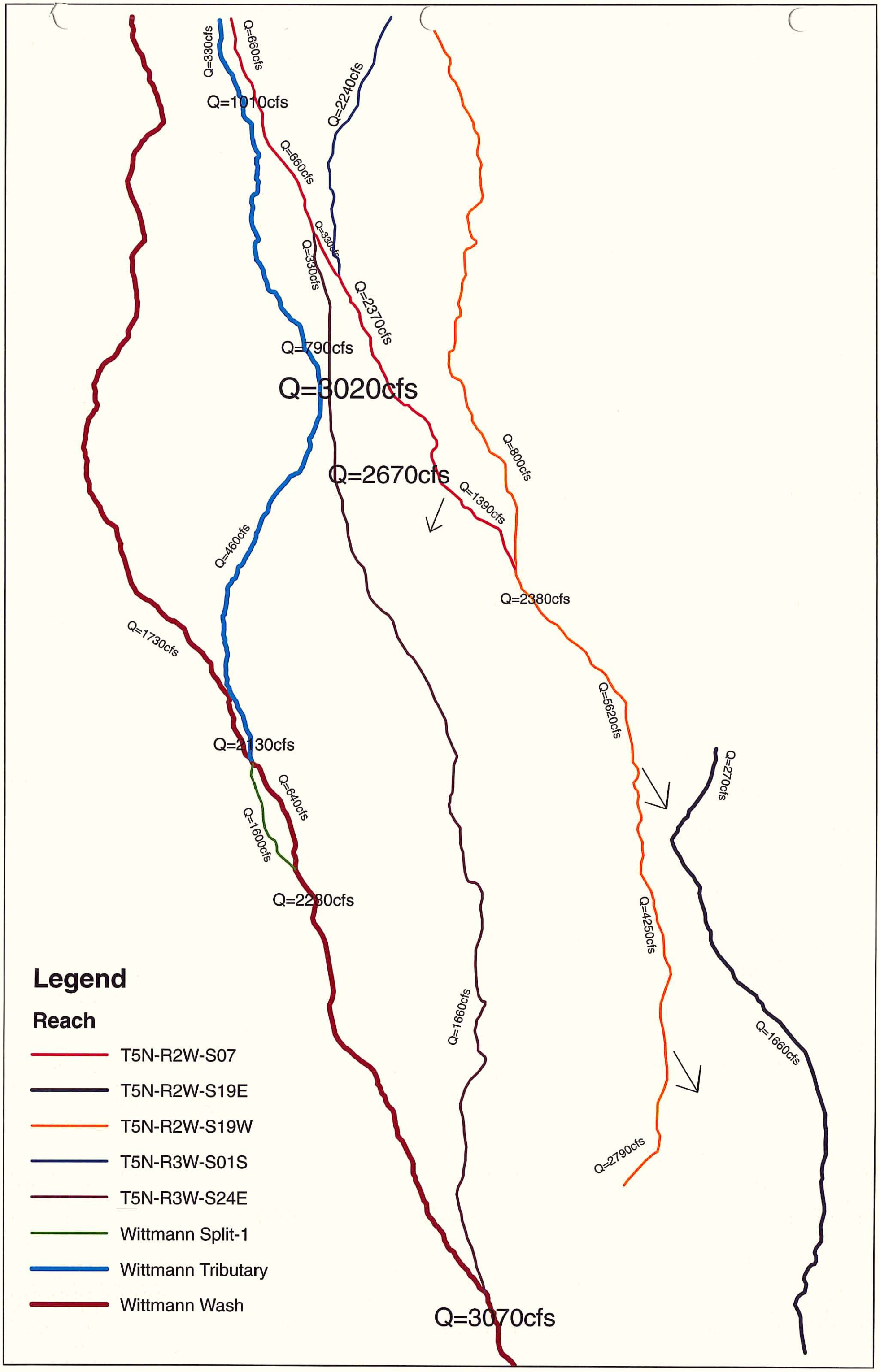
Legend
Reach
2 West
2 West Tributary-1
2 West Tributary-2
0
1,100
2,200
4,400
6,600
8,800
Feet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Legend
Reach
T5N-R2W-S07
T5N-R2W-S19E
T5N-R2W-S19W
T5N-R3W-S01S
T5N-R3W-S24E
Wittmann Split-1
Wittmann Tributary
Wittmann Wash
0
1,000
2,000
4,000
6,000
8,000
Feet

3 WEST

HEC-RAS Plan: River: Reach #1 Reach: Reach #1														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0	Floodplain	4250	1533.74	1545.1	1539.98	1545.71	0.001029	6.42	709.49	0.35	9959.46	10032.01	72.55
Reach #1	0	Floodway	4250	1533.74	1545.1	1540.15	1545.81	0.001439	6.78	627.14	0.37	9966	10027	61
Reach #1	0.047	Floodplain	4250	1537.32	1545.86	1539.34	1545.9	0.000297	1.46	2939.94	0.09	8846.43	10737.3	1890.87
Reach #1	0.047	Floodway	4250	1537.32	1546.01	1539.48	1546.06	0.000406	1.73	2557.1	0.1	9850	10155	305
Reach #1	0.129	Floodplain	4250	1533.69	1545.95	1538.57	1545.96	0.000068	0.78	5449.39	0.04	9080.98	10588.01	1507.03
Reach #1	0.129	Floodway	4250	1533.69	1546.18	1538.73	1546.21	0.000297	1.64	2760.54	0.09	9714	10298	584
Reach #1	0.207	Floodplain	4250	1535.19	1545.98		1545.99	0.000082	0.82	5605.52	0.05	9357.32	10459.72	1102.4
Reach #1	0.207	Floodway	4250	1535.19	1546.28		1546.3	0.000155	1.16	3868.64	0.07	9784	10209	425
Reach #1	0.277	Floodplain	4250	1536.61	1546.01		1546.03	0.000118	0.92	4091.85	0.06	9547.08	10337.85	790.77
Reach #1	0.277	Floodway	4250	1536.61	1546.35		1546.42	0.000645	2.21	2013.3	0.13	9883	10119	236
Reach #1	0.356	Floodplain	4250	1536.98	1546.05		1546.1	0.000206	2.27	2581.1	0.15	9569.14	10194.92	625.78
Reach #1	0.356	Floodway	4250	1536.98	1546.5		1546.69	0.000511	3.72	1220.97	0.24	9880	10045	165
Reach #1	0.403	Floodplain	4250	1538.31	1546.08		1546.21	0.000689	3.21	1480.85	0.22	9701.28	10059.14	357.86
Reach #1	0.403	Floodway	4250	1538.31	1546.61		1546.91	0.001121	4.31	970.24	0.29	9893	10040	147
Reach #1	0.483	Floodplain	4250	1539.29	1546.38		1546.5	0.000802	3.27	1572.82	0.24	9778.28	10269.2	490.92
Reach #1	0.483	Floodway	4250	1539.29	1547.1		1547.48	0.001681	5.11	860.71	0.35	9930	10082	152
Reach #1	0.544	Floodplain	4250	1540.43	1546.64		1546.97	0.00284	5.31	971.68	0.43	9833.83	10216.77	382.94
Reach #1	0.544	Floodway	4250	1540.43	1547.64		1548.13	0.002537	5.7	762.17	0.42	9901	10055	154
Reach #1	0.618	Floodplain	4250	1541.71	1547.94		1548.46	0.005415	6.78	795.5	0.58	9729.62	10123.37	393.75
Reach #1	0.618	Floodway	4250	1541.71	1548.73		1549.69	0.006096	8.06	543.5	0.63	9937	10060	123
Reach #1	0.701	Floodplain	4250	1543.22	1550.05		1550.48	0.004001	6.4	880.44	0.51	9778.31	10186.63	408.32
Reach #1	0.701	Floodway	4250	1543.22	1551.04		1551.77	0.003743	7	625.08	0.51	9946	10072	126
Reach #1	0.781	Floodplain	4250	1545.22	1551.84		1552.31	0.004848	6.29	811.44	0.54	9814.04	10175.36	361.32
Reach #1	0.781	Floodway	4250	1545.22	1552.75		1553.56	0.00483	7.16	590.89	0.56	9944	10069	125
Reach #1	0.860	Floodplain	4250	1547.03	1553.62		1554.09	0.003967	6.04	818.14	0.5	9845.42	10179.06	333.64
Reach #1	0.860	Floodway	4250	1547.03	1554.62		1555.3	0.003678	6.64	648.31	0.5	9910	10049	139
Reach #1	0.948	Floodplain	4250	1548.45	1555.77		1556.56	0.006936	7.86	634.23	0.66	9874.9	10137.08	262.18
Reach #1	0.948	Floodway	4250	1548.45	1556.6		1557.84	0.0076	9	477.13	0.69	9952	10045	93
Reach #1	1.049	Floodplain	4250	1549.6	1558.4		1558.8	0.002766	6.17	914.07	0.43	9812.88	10156.38	343.5
Reach #1	1.049	Floodway	4250	1549.6	1559.3		1559.74	0.001951	5.66	803.22	0.37	9914	10069	155
Reach #1	1.112	Floodplain	4250	1551.44	1559.5		1560.34	0.007597	8.01	622.4	0.68	9806.51	10074.32	267.81
Reach #1	1.112	Floodway	4250	1551.44	1559.86		1561.24	0.00959	9.5	452.46	0.78	9947	10047	100
Reach #1	1.168	Floodplain	4250	1552.48	1561.04	1559.74	1561.62	0.002866	5.67	814.42	0.43	9919.52	10227.06	307.54
Reach #1	1.168	Floodway	4250	1552.48	1561.93	1559.63	1562.34	0.00176	4.93	843.74	0.35	9937	10089	152

Located in Existing Zone AH ponding area

HEC-RAS Plan: River: Reach #1 Reach: Reach #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)	Froude # Chl	Sta W.S. Lft (ft)	Sta W.S. Rgt (ft)	Top Width (ft)
Reach #1	1.196	Floodplain	3750	1553.47	1561.57		1562.23	0.0061	7.53	609.25	0.61	9927.77	10185.17	257.4
Reach #1	1.196	Floodway	3750	1553.47	1561.63	1561.58	1563.2	0.01203	10.68	382.03	0.85	9975	10084	109
Reach #1	1.289	Floodplain	3750	1556.27	1564.07		1564.63	0.004045	7.11	669.98	0.56	9875.73	10127.2	251.47
Reach #1	1.289	Floodway	3750	1556.27	1565.06		1565.57	0.002424	6.2	665.09	0.45	9929	10074	145
Reach #1	1.340	Floodplain	3750	1557.08	1565.09		1566	0.005695	8.43	570.55	0.67	9814.73	10085.34	270.61
Reach #1	1.340	Floodway	3750	1557.08	1565.34		1566.95	0.007799	10.19	369.97	0.79	9944	10015	71
Reach #1	1.480	Floodplain	2000	1561.3	1569.09		1569.54	0.003315	6	400.2	0.49	9903.62	10057.06	153.44
Reach #1	1.480	Floodway	2000	1561.3	1569.75		1570.03	0.001779	4.8	508.6	0.37	9891.13	10065.34	174.21
Reach #1	1.630	Floodplain	2000	1566.11	1573.82	1573.81	1574.82	0.007165	8.41	287.03	0.72	9940.43	10120.72	180.29
Reach #1	1.630	Floodway	2000	1566.11	1573.81	1573.81	1574.82	0.007221	8.43	285.85	0.72	9940.71	10120.58	179.87
Reach #1	1.810	Floodplain	1600	1573.8	1580.47		1581.03	0.005717	6.48	287.49	0.62	9950.94	10103.44	152.5
Reach #1	1.810	Floodway	1600	1573.8	1580.46	1580.07	1581.03	0.005782	6.5	286.24	0.62	9951.06	10103.35	152.29
Reach #1	1.890	Floodplain	1600	1578.8	1583.33		1583.98	0.009692	6.81	257.74	0.77	9921.56	10071.37	149.81
Reach #1	1.890	Floodway	1600	1578.8	1583.34	1583.13	1583.98	0.009564	6.78	258.97	0.77	9921.36	10071.47	150.11
Reach #1	2.050	Floodplain	1600	1586.42	1590.01		1590.35	0.006186	5.29	360.84	0.62	9874.04	10129.28	255.24
Reach #1	2.050	Floodway	1600	1586.42	1590.02	1589.65	1590.35	0.006088	5.26	362.84	0.61	9873.83	10129.46	255.63
Reach #1	2.230	Floodplain	1600	1594.18	1597.18	1597.16	1597.7	0.01467	6.25	287.71	0.89	9905.98	10172.95	266.97
Reach #1	2.230	Floodway	1600	1594.18	1597.31	1597.16	1597.72	0.010504	5.59	322.64	0.77	9902.59	10179.12	276.53
Reach #1	2.350	Floodplain	1600	1597.23	1602.12		1602.29	0.005429	3.44	494.12	0.43	9831.66	10194.14	362.48
Reach #1	2.350	Floodway	1600	1597.23	1602.13		1602.3	0.005282	3.4	499.23	0.43	9830.59	10196.83	366.24
Reach #1	2.510	Floodplain	1600	1605.79	1607.52		1607.68	0.007731	3.28	502.97	0.49	9776.99	10216.28	439.29
Reach #1	2.510	Floodway	1600	1605.79	1607.52	1607.04	1607.68	0.007701	3.27	503.62	0.49	9776.92	10216.41	439.49
Reach #1	2.680	Floodplain	1600	1611.8	1613.6		1613.73	0.006021	2.98	558.26	0.43	9830.06	10321.36	491.3
Reach #1	2.680	Floodway	1600	1611.8	1613.6		1613.73	0.006071	2.99	556.71	0.44	9830.34	10321.05	490.71
Reach #1	2.910	Floodplain	1600	1618.76	1620.91		1621.06	0.005942	3.27	545.43	0.52	9776.06	10423.27	647.21
Reach #1	2.910	Floodway	1600	1618.76	1620.91	1620.59	1621.06	0.005929	3.27	545.83	0.52	9776.01	10423.35	647.34
Reach #1	3.100	Floodplain	1600	1623.24	1626.86		1627.02	0.006197	3.28	511.52	0.53	9675.53	10206.19	530.66
Reach #1	3.100	Floodway	1600	1623.24	1626.86		1627.02	0.006122	3.27	513.66	0.53	9674.65	10206.54	531.89
Reach #1	3.370	Floodplain	1600	1631.82	1635.56		1635.71	0.005973	3.16	539.44	0.44	9548.97	10213.22	664.25
Reach #1	3.370	Floodway	1600	1631.82	1635.57		1635.71	0.005895	3.15	542.23	0.43	9548.64	10213.59	664.95
Reach #1	3.640	Floodplain	1600	1641.97	1644.25		1644.36	0.00637	2.73	610.64	0.43	9688.78	10330.81	642.03
Reach #1	3.640	Floodway	1600	1641.97	1644.26	1643.79	1644.37	0.006213	2.71	615.58	0.43	9688.4	10331.14	642.74
Reach #1	3.870	Floodplain	1500	1649.4	1651.49		1651.66	0.005482	3.78	499.05	0.55	9804.65	10564.24	759.59

Zone AH

HEC-RAS Plan: River: Reach #1 Reach: Reach #1														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	3.870	Floodway	1500	1649.4	1651.46	1651.2	1651.64	0.005979	3.9	480.73	0.57	9805.59	10561.02	755.43
Reach #1	4.210	Floodplain	1500	1658.89	1663.39		1663.51	0.007117	2.86	536.57	0.46	9694.72	10208.5	513.78
Reach #1	4.210	Floodway	1500	1658.89	1663.38	1662.89	1663.51	0.007321	2.88	531.74	0.46	9695.03	10208.01	512.98
Reach #1	4.500	Floodplain	1500	1668.37	1673.49		1673.62	0.00578	3.03	526.07	0.49	9679.64	10219.75	540.11
Reach #1	4.500	Floodway	1500	1668.37	1673.49	1673.08	1673.62	0.00583	3.03	524.62	0.5	9679.76	10219.68	539.92
Reach #1	4.710	Floodplain	1500	1677.99	1680.66		1680.84	0.007311	3.58	445.97	0.56	9655.92	10150.35	494.43
Reach #1	4.710	Floodway	1500	1677.99	1680.65	1680.19	1680.84	0.007444	3.61	443.02	0.57	9656.42	10150.13	493.71
Reach #1	4.880	Floodplain	1500	1683.83	1687.03		1687.14	0.006601	2.8	577.42	0.51	9502.5	10378.1	875.6
Reach #1	4.880	Floodway	1500	1683.83	1687.03	1686.74	1687.14	0.006541	2.79	579.11	0.51	9502.33	10378.25	875.92
Reach #1	5.060	Floodplain	1500	1689.67	1692.55		1692.72	0.005156	3.34	464.62	0.45	9776.85	10147	370.15
Reach #1	5.060	Floodway	1500	1689.67	1692.54	1692.01	1692.71	0.005246	3.36	461.96	0.46	9777.31	10146.89	369.58
Reach #1	5.240	Floodplain	1500	1697.38	1698.92		1699.08	0.008283	3.35	481.4	0.54	9642.73	10417.27	774.54
Reach #1	5.240	Floodway	1500	1697.38	1698.92	1698.64	1699.08	0.008392	3.36	479.01	0.55	9643.28	10417.05	773.77
Reach #1	5.410	Floodplain	1500	1698.74	1703.35		1703.46	0.003181	2.86	589.66	0.36	9860.44	10391.05	530.61
Reach #1	5.410	Floodway	1500	1698.74	1703.35	1702.67	1703.46	0.003149	2.85	591.8	0.36	9859.78	10391.49	531.71
Reach #1	5.730	Floodplain	1500	1709.42	1713.38		1713.7	0.016096	4.65	339.74	0.75	9780.08	10155.07	374.99
Reach #1	5.730	Floodway	1500	1709.42	1713.38	1713.25	1713.7	0.016172	4.65	339.2	0.75	9780.17	10154.94	374.77
Reach #1	6.120	Floodplain	1500	1724.42	1726.67		1726.75	0.003355	2.34	676.98	0.35	9695.4	10418.31	722.91
Reach #1	6.120	Floodway	1500	1724.42	1726.67	1726.17	1726.75	0.00333	2.33	678.66	0.35	9695.25	10418.51	723.26
Reach #1	6.370	Floodplain	1500	1732.71	1734.54		1734.76	0.013318	3.97	402.19	0.68	9640.05	10195.15	555.1
Reach #1	6.370	Floodway	1500	1732.71	1734.53	1734.35	1734.76	0.013771	4.02	397.83	0.69	9640.53	10194.2	553.67

Zone A

T4N-R3W-S08E

HEC-RAS Plan: T4N-R3W-S08E River: Reach #1 Reach: T4N-R3W-S08E

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T4N-R3W-S08	0	Floodplain	2100	1556.27	1563.1	1562.9	1563.69	0.00645	7.43	388.29	0.6	9907.16	10121.28	214.12
T4N-R3W-S08	0	Floodway	2100	1556.27	1563.6	1562.83	1564.46	0.006441	7.94	289.18	0.61	9969	10046	77
T4N-R3W-S08	0.076	Floodplain	2100	1558.42	1564.63		1564.77	0.001366	3.09	718.82	0.28	9881.28	10165.27	283.99
T4N-R3W-S08	0.076	Floodway	2100	1558.42	1565.27		1565.45	0.001157	3.15	618.21	0.26	9960	10097	137
T4N-R3W-S08	0.184	Floodplain	2100	1562.5	1568.14	1568.14	1569.24	0.014093	9.11	261.26	0.86	9975.61	10093.16	117.55
T4N-R3W-S08	0.184	Floodway	2100	1562.5	1568.48	1568.48	1570.37	0.018358	11.06	191.07	0.99	9986	10036	50
T4N-R3W-S08	0.268	Floodplain	2100	1565.98	1572.36		1572.93	0.005397	6.55	356.18	0.56	9944.85	10121.46	176.61
T4N-R3W-S08	0.268	Floodway	2100	1565.98	1573.24		1573.86	0.004151	6.5	334.21	0.5	9966	10037	71
T4N-R3W-S08	0.366	Floodplain	2100	1569.19	1575.99	1575.92	1577.24	0.012937	9.32	244.94	0.85	9921.56	10111.34	189.78
T4N-R3W-S08	0.366	Floodway	2100	1569.19	1576.25		1577.76	0.014465	9.84	213.45	0.86	9982	10035	53
T4N-R3W-S08	0.459	Floodplain	2100	1572.31	1580.19		1580.57	0.003977	5.9	488.57	0.48	9864.52	10146.9	282.38
T4N-R3W-S08	0.459	Floodway	2100	1572.31	1580.89		1581.64	0.004822	7.13	305.21	0.54	9982	10046	64
T4N-R3W-S08	0.552	Floodplain	2100	1576.28	1582.54	1582.5	1583.16	0.006894	7.3	389.99	0.63	9846.06	10096	249.94
T4N-R3W-S08	0.552	Floodway	2100	1576.28	1583.43		1584.27	0.005897	7.46	285.82	0.59	9963	10024	61
T4N-R3W-S08	0.641	Floodplain	2100	1578.77	1585.52		1586.01	0.005292	6.71	391.35	0.55	9865.94	10032.82	166.88
T4N-R3W-S08	0.641	Floodway	2100	1578.77	1586.11		1586.84	0.005039	7.1	307.07	0.55	9945	10015	70
T4N-R3W-S08	0.734	Floodplain	2100	1583.56	1588.5	1587.98	1589.01	0.007291	6.11	380.31	0.62	9916.68	10106.99	190.31
T4N-R3W-S08	0.734	Floodway	2100	1583.56	1589.06		1589.79	0.007422	6.91	307.19	0.64	9978	10066	88
T4N-R3W-S08	0.831	Floodplain	2100	1588.8	1592.8	1592.51	1593.27	0.009746	5.98	396.88	0.69	9879.24	10138.56	259.32
T4N-R3W-S08	0.831	Floodway	2100	1588.8	1593.3	1592.62	1593.94	0.008918	6.42	327.33	0.67	9945	10059	114
T4N-R3W-S08	0.921	Floodplain	2100	1594.05	1596.99	1596.57	1597.29	0.007352	4.86	489.11	0.59	9838.61	10218.79	380.18
T4N-R3W-S08	0.921	Floodway	2100	1594.05	1597.72	1597.14	1598.44	0.009878	6.85	309.46	0.72	9948	10058	110
T4N-R3W-S08	1.005	Floodplain	2100	1596.77	1600.29	1599.94	1600.66	0.007987	5.51	447.89	0.63	9873.13	10183.99	310.86
T4N-R3W-S08	1.005	Floodway	2100	1596.77	1601.18		1601.74	0.005825	5.8	352.86	0.56	9964	10074	110
T4N-R3W-S08	1.090	Floodplain	2100	1598.81	1603.08		1603.34	0.004939	4.42	537.24	0.49	9753.63	10117.57	363.94
T4N-R3W-S08	1.090	Floodway	2100	1598.81	1603.7		1604.09	0.004799	5.04	417.81	0.5	9909	10042	133
T4N-R3W-S08	1.184	Floodplain	2100	1602.59	1606.3	1606.08	1606.69	0.010366	5.36	431.07	0.75	9697.39	10060.85	363.46
T4N-R3W-S08	1.184	Floodway	2100	1602.59	1606.75	1606.34	1607.28	0.008949	5.86	359.55	0.72	9851	10026	175
T4N-R3W-S08	1.274	Floodplain	2100	1605.24	1609.84		1610.02	0.005042	3.93	681.89	0.44	9820.99	10319.89	498.9
T4N-R3W-S08	1.274	Floodway	2100	1605.24	1610.46		1610.83	0.006254	5.02	431.61	0.51	9933	10082	149
T4N-R3W-S08	1.353	Floodplain	2100	1608.28	1612.21	1611.71	1612.39	0.006334	4.06	648.34	0.49	9711.03	10209.8	498.77
T4N-R3W-S08	1.353	Floodway	2100	1608.28	1612.88		1613.12	0.004801	4.23	537.6	0.44	9884	10096	212
T4N-R3W-S08	1.412	Floodplain	2100	1610.45	1614.53	1614.25	1614.78	0.008902	4.58	540.88	0.57	9567.84	10247.21	679.37
T4N-R3W-S08	1.412	Floodway	2100	1610.45	1614.83	1614.46	1615.31	0.010398	5.44	380.87	0.63	9786	10155	369

Cut into Wash 3W to get convergence

HEC-RAS Plan: T4N-R3W-S08E River: Reach #1 Reach: T4N-R3W-S08E

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T4N-R3W-S08	1.489	Floodplain	2100	1615.31	1617.47	1616.87	1617.59	0.00537	3.08	746.11	0.38	9316.44	10456.88	1140.44
T4N-R3W-S08	1.489	Floodway	2100	1615.31	1618.13		1618.44	0.005577	3.74	480.63	0.4	9570	10116	546
T4N-R3W-S08	1.539	Floodplain	2100	1614.83	1618.36		1618.43	0.002076	2.17	1000.11	0.28	9538.48	10340.45	801.97
T4N-R3W-S08	1.539	Floodway	2100	1614.83	1618.98		1619.09	0.001323	2.09	820.55	0.23	9827	10151	324
T4N-R3W-S08	1.607	Floodplain	2100	1616.2	1619.63		1619.95	0.010767	5.51	486.7	0.65	9711.73	10194.59	482.86
T4N-R3W-S08	1.607	Floodway	2100	1616.2	1619.75		1620.22	0.01013	5.53	386.62	0.63	9872	10105	233
T4N-R3W-S08	1.666	Floodplain	2100	1617.6	1621.96	1621.48	1622.12	0.004707	4.06	672.95	0.44	9684.92	10260.98	576.06
T4N-R3W-S08	1.666	Floodway	2100	1617.6	1622.31	1621.7	1622.74	0.006445	5.16	400.9	0.52	9922	10099	177
T4N-R3W-S08	1.737	Floodplain	2100	1619.15	1623.86		1624.03	0.006438	3.81	645.21	0.48	9817.77	10370.34	552.57
T4N-R3W-S08	1.737	Floodway	2100	1619.15	1624.67		1625.09	0.006894	4.96	404.8	0.52	9982	10118	136
T4N-R3W-S08	1.817	Floodplain	2100	1623.06	1626.43	1625.96	1626.58	0.006125	3.92	703.3	0.47	9607.01	10183.17	576.16
T4N-R3W-S08	1.817	Floodway	2100	1623.06	1627.33		1627.62	0.005442	4.64	486.23	0.46	9849	10024	175
T4N-R3W-S08	1.900	Floodplain	2100	1625.07	1628.97	1628.31	1629.13	0.005399	3.82	673.63	0.44	9525.15	10273.07	747.92
T4N-R3W-S08	1.900	Floodway	2100	1625.07	1629.87	1628.74	1630.24	0.006364	5.15	434.21	0.51	9953	10097	144
T4N-R3W-S08	1.986	Floodplain	2100	1628.13	1632.09		1632.27	0.009075	4.17	623.8	0.54	9671.22	10290.43	619.21
T4N-R3W-S08	1.986	Floodway	2100	1628.13	1632.99		1633.32	0.007261	4.88	457	0.52	9886	10068	182
T4N-R3W-S08	2.073	Floodplain	2100	1632.86	1635.27	1634.75	1635.45	0.005434	3.38	624.69	0.43	9658.98	10150	491.02
T4N-R3W-S08	2.073	Floodway	2100	1632.86	1636.12	1635.3	1636.5	0.006527	4.73	428.84	0.5	9897	10071	174
T4N-R3W-S08	2.156	Floodplain	2100	1634.08	1637.99		1638.25	0.007574	4.71	550.72	0.53	9750.67	10183.54	432.87
T4N-R3W-S08	2.156	Floodway	2100	1634.08	1638.93		1639.37	0.006569	5.44	393.42	0.52	9921	10041	120
T4N-R3W-S08	2.259	Floodplain	2100	1636.4	1641.77		1642.01	0.006348	4.65	576.47	0.49	9741.56	10121.84	380.28
T4N-R3W-S08	2.259	Floodway	2100	1636.4	1642.64		1643.12	0.007201	5.77	382.77	0.53	9924	10037	113
T4N-R3W-S08	2.343	Floodplain	2100	1640.34	1644.45	1643.91	1644.65	0.005668	4.48	626.3	0.47	9724.95	10224.3	499.35
T4N-R3W-S08	2.343	Floodway	2100	1640.34	1645.41		1645.78	0.005113	5.16	439.84	0.47	9933	10063	130
T4N-R3W-S08	2.440	Floodplain	2100	1643.32	1647.18		1647.39	0.005049	4.04	583.15	0.44	9785.67	10177.41	391.74
T4N-R3W-S08	2.440	Floodway	2100	1643.32	1648.03		1648.46	0.005301	4.99	406.3	0.47	9931	10051	120
T4N-R3W-S08	2.527	Floodplain	2100	1644.33	1649.75		1650.12	0.006756	5.77	482.57	0.66	9759.48	10158.34	398.86
T4N-R3W-S08	2.527	Floodway	2100	1644.33	1650.62		1651.41	0.007288	7.22	296.03	0.7	9945	10038	93
T4N-R3W-S08	2.625	Floodplain	2100	1648.11	1652.46	1651.5	1652.7	0.003796	4.64	603.2	0.51	9765.36	10225.04	459.68
T4N-R3W-S08	2.625	Floodway	2100	1648.11	1653.39		1653.8	0.003099	5.14	410.23	0.48	9932	10048	116
T4N-R3W-S08	2.699	Floodplain	2100	1649.99	1654.88	1654.88	1655.35	0.012939	6.74	417.89	0.88	9799.23	10238.75	439.52
T4N-R3W-S08	2.699	Floodway	2100	1649.99	1655.58	1655.58	1656.78	0.014847	8.96	242.48	0.99	9958	10058	100
T4N-R3W-S08	2.778	Floodplain	2100	1653.47	1657.82		1657.98	0.003737	4.16	686.21	0.43	9751.15	10297.99	546.84

HEC-RAS Plan: T4N-R3W-S08E River: Reach #1 Reach: T4N-R3W-S08E

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T4N-R3W-S08	2.778	Floodway	2100	1653.47	1658.77		1658.98	0.002563	4.16	570.5	0.37	9914	10090	176
T4N-R3W-S08	2.864	Floodplain	2100	1657.84	1660.4	1660.19	1660.66	0.010433	5.06	538.02	0.67	9762.17	10263.42	501.25
T4N-R3W-S08	2.864	Floodway	2100	1657.84	1660.78	1660.58	1661.54	0.01678	7.29	301.01	0.88	9931	10077	146
T4N-R3W-S08	2.960	Floodplain	2100	1659.62	1663.68		1663.83	0.004194	4.14	706.97	0.45	9693.35	10260.3	566.95
T4N-R3W-S08	2.960	Floodway	2100	1659.62	1664.56		1664.81	0.00332	4.46	537.64	0.42	9877	10068	191
T4N-R3W-S08	3.028	Floodplain	2100	1660.45	1665.47		1665.77	0.006818	5.32	545.88	0.57	9678.3	10175.27	496.97
T4N-R3W-S08	3.028	Floodway	2100	1660.45	1666.01		1666.39	0.005825	5.46	443.15	0.53	9857	10039	182
T4N-R3W-S08	3.115	Floodplain	2100	1664.48	1668.52	1668.1	1668.75	0.006412	4.79	570.29	0.54	9851.29	10300.84	449.55
T4N-R3W-S08	3.115	Floodway	2100	1664.48	1668.91		1669.31	0.007135	5.59	423.03	0.59	9939	10127	188
T4N-R3W-S08	3.213	Floodplain	2100	1666.38	1671.33		1671.66	0.004932	5.75	518.64	0.51	9819.5	10175.9	356.4
T4N-R3W-S08	3.213	Floodway	2100	1666.38	1671.73		1672.12	0.004349	5.77	441.72	0.49	9905	10051	146
T4N-R3W-S08	3.288	Floodplain	2100	1671.47	1674.05	1673.78	1674.41	0.010284	5.5	466.31	0.65	9773.45	10245.65	472.2
T4N-R3W-S08	3.288	Floodway	2100	1671.47	1674.31		1674.88	0.012081	6.33	353.21	0.7	9895	10053	158
T4N-R3W-S08	3.363	Floodplain	2100	1673.56	1677.18		1677.35	0.005531	3.83	654.27	0.47	9700.54	10259.92	559.38
T4N-R3W-S08	3.363	Floodway	2100	1673.56	1677.8		1678.09	0.005677	4.54	482.61	0.49	9861	10052	191
T4N-R3W-S08	3.439	Floodplain	2100	1675.2	1679.32	1678.87	1679.46	0.005808	3.33	699.37	0.45	9450.51	10147.73	697.22
T4N-R3W-S08	3.439	Floodway	2100	1675.2	1679.88	1679.02	1680.06	0.004727	3.62	616.74	0.42	9791	10098	307
T4N-R3W-S08	3.524	Floodplain	2100	1680.26	1682.21	1681.81	1682.37	0.007297	3.51	660.8	0.51	9602.23	10220.37	618.14
T4N-R3W-S08	3.524	Floodway	2100	1680.26	1682.53	1681.96	1682.77	0.007786	4.13	533.47	0.54	9845	10163	318
T4N-R3W-S08	3.604	Floodplain	2100	1681.18	1684.92		1685.07	0.005718	3.41	683.78	0.46	9687.39	10268.32	580.93
T4N-R3W-S08	3.604	Floodway	2100	1681.18	1685.36		1685.62	0.005919	4	513.28	0.48	9823	10054	231
T4N-R3W-S08	3.698	Floodplain	2100	1685.32	1688.07	1687.59	1688.27	0.007303	4.1	601.94	0.53	9676.45	10231.36	554.91
T4N-R3W-S08	3.698	Floodway	2100	1685.32	1688.44	1687.69	1688.71	0.006604	4.33	504.66	0.51	9814	10055	241
T4N-R3W-S08	3.779	Floodplain	2100	1688.18	1691.03		1691.2	0.005791	3.8	642.61	0.47	9726.91	10350.77	623.86
T4N-R3W-S08	3.779	Floodway	2100	1688.18	1691.3		1691.55	0.005908	4.14	524.29	0.48	9829	10073	244
T4N-R3W-S08	3.856	Floodplain	2100	1690.25	1693.48		1693.61	0.006102	3.12	718.55	0.45	9663.4	10368.7	705.3
T4N-R3W-S08	3.856	Floodway	2100	1690.25	1693.94		1694.19	0.007138	4.05	524.87	0.51	9843	10125	282
T4N-R3W-S08	3.937	Floodplain	2100	1691.95	1695.72		1695.85	0.004541	3.57	770.47	0.42	9714.33	10426.48	712.15
T4N-R3W-S08	3.937	Floodway	2100	1691.95	1696.5		1696.83	0.005322	4.73	456.17	0.48	9951	10119	168
T4N-R3W-S08	4.014	Floodplain	2100	1692.96	1697.65		1697.91	0.005359	5.13	575.27	0.5	9842.84	10263.73	420.89
T4N-R3W-S08	4.014	Floodway	2100	1692.96	1698.56		1699.04	0.005294	5.99	390.65	0.51	9974	10084	110
T4N-R3W-S08	4.102	Floodplain	2100	1696.23	1700.27	1699.75	1700.45	0.005463	4.07	636.94	0.47	9827.26	10301.2	473.94
T4N-R3W-S08	4.102	Floodway	2100	1696.23	1701.14		1701.47	0.0051	4.85	454.06	0.48	9986	10138	152

HEC-RAS Plan: T4N-R3W-S08E River: Reach #1 Reach: T4N-R3W-S08E

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T4N-R3W-S08	4.178	Floodplain	2100	1700.3	1702.96	1702.62	1703.17	0.008471	3.83	574.58	0.55	9794.31	10318.6	524.29
T4N-R3W-S08	4.178	Floodway	2100	1700.3	1703.8		1704.23	0.009369	5.4	403.81	0.62	9923	10102	179
T4N-R3W-S08	4.256	Floodplain	2100	1701.31	1705.59		1705.82	0.005082	4.2	563.77	0.46	9782.38	10151.06	368.68
T4N-R3W-S08	4.256	Floodway	2100	1701.31	1706.38		1706.7	0.004174	4.55	463.28	0.44	9904	10047	143
T4N-R3W-S08	4.336	Floodplain	1500	1704.69	1708.34	1708.04	1708.57	0.009732	4.19	409.96	0.59	9755.25	10131.23	375.98
T4N-R3W-S08	4.336	Floodway	1500	1704.69	1708.7		1709	0.008559	4.45	343.44	0.56	9875	10059	184
T4N-R3W-S08	4.417	Floodplain	1500	1710.27	1711.33	1710.85	1711.44	0.004755	2.13	611.23	0.38	9430.42	10231.62	801.2
T4N-R3W-S08	4.417	Floodway	1500	1710.27	1711.45	1710.84	1711.56	0.004277	2.18	577.17	0.37	9639	10058	419
T4N-R3W-S08	4.493	Floodplain	430	1711.71	1713.71	1713.66	1713.93	0.020957	4.1	123.58	0.78	9893.1	10142.96	249.86
T4N-R3W-S08	4.493	Floodway	430	1711.71	1713.71	1713.71	1714.13	0.034034	5.22	82.51	1	9955	10052	97
T4N-R3W-S08	4.585	Floodplain	430	1715.89	1717.56	1717.11	1717.61	0.003865	2.11	246.55	0.35	9751.31	10162.95	411.64
T4N-R3W-S08	4.585	Floodway	430	1715.89	1717.99		1718.09	0.003551	2.51	171.57	0.35	9951	10061	110
T4N-R3W-S08	4.652	Floodplain	430	1716.89	1719.64	1719.45	1719.75	0.010242	3.15	175.45	0.56	9859.19	10171.66	312.47
T4N-R3W-S08	4.652	Floodway	430	1716.89	1719.87	1719.56	1720.03	0.009001	3.39	137.95	0.54	9917	10051	134
T4N-R3W-S08	4.752	Floodplain	1500	1721.53	1723.07	1722.63	1723.15	0.005725	1.63	665.47	0.38	9259.26	10056.18	796.92
T4N-R3W-S08	4.752	Floodway	430	1721.53	1723.72	1723.25	1723.82	0.005831	2.75	167.64	0.44	9879	10031	152
T4N-R3W-S08	4.817	Floodplain	1500	1723.97	1725.09	1724.76	1725.2	0.006277	2.32	578.95	0.43	9264.43	10005.52	741.09
T4N-R3W-S08	4.817	Floodway	430	1723.97	1725.4		1725.49	0.00412	2.28	181.83	0.37	9858	10001	143
T4N-R3W-S08	4.891	Floodplain	710	1725.7	1728.59	1728.59	1728.9	0.015159	4.73	175.12	0.72	9812.2	10108.22	296.02
T4N-R3W-S08	4.891	Floodway	710	1725.7	1728.65	1728.42	1729.06	0.016831	5.14	138.3	0.76	9938	10037	99

↓ Zone A

T5N-R3W-S19

HEC-RAS Plan: T5N-R3W-S19S River: Reach #2 Reach: T5N-R3W-S19

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R3W-S19	0	Floodplain	1500	1707.03	1708.53	1707.99	1708.68	0.0065	3.13	484.07	0.47	9745.88	10138.5	392.62
T5N-R3W-S19	0	Floodway	1500	1707.03	1708.85	1708.16	1709.11	0.006504	3.57	371.65	0.49	9875	10059	184
T5N-R3W-S19	0.078	Floodplain	1500	1709.29	1711.12	1710.79	1711.24	0.006148	3.13	598.78	0.46	9474.89	10204.28	729.39
T5N-R3W-S19	0.078	Floodway	1500	1709.29	1711.35	1710.86	1711.48	0.005271	3.18	535.89	0.44	9639	10058	419
T5N-R3W-S19	0.185	Floodplain	1070	1712.96	1714.85		1715.01	0.007401	3.49	346.95	0.51	9823.83	10169.79	345.96
T5N-R3W-S19	0.185	Floodway	1070	1712.96	1715.22		1715.64	0.01247	5.21	205.48	0.68	9944	10057	113
T5N-R3W-S19	0.263	Floodplain	1070	1714.99	1717.84		1717.97	0.006921	3.26	379.29	0.49	9733.93	10193.26	459.33
T5N-R3W-S19	0.263	Floodway	1070	1714.99	1718.63		1718.86	0.005292	3.86	282.18	0.46	9928	10057	129
T5N-R3W-S19	0.338	Floodplain	1070	1718.4	1720.47	1720.17	1720.56	0.006363	2.81	460.57	0.46	9570.7	10246.25	675.55
T5N-R3W-S19	0.338	Floodway	1070	1718.4	1721.19		1721.49	0.008593	4.45	245.29	0.57	9913	10046	133
T5N-R3W-S19	0.413	Floodplain	1500	1720.74	1723.1	1722.62	1723.18	0.004954	2.43	697.16	0.4	9769.83	10571.76	801.93
T5N-R3W-S19	0.413	Floodway	1070	1720.74	1723.36		1723.42	0.002295	1.89	544.03	0.28	9932	10298	366
T5N-R3W-S19	0.510	Floodplain	1500	1722.39	1725.07		1725.18	0.006534	2.41	563	0.55	9893.28	10631.78	738.5
T5N-R3W-S19	0.510	Floodway	660	1722.39	1725.5	1725.5	1726.01	0.018142	5.77	114.9	1	9942	10054	112
T5N-R3W-S19	0.580	Floodplain	660	1725.61	1728.23	1728.23	1728.47	0.011961	4.82	191.37	0.66	9806.22	10290.22	484
T5N-R3W-S19	0.580	Floodway	660	1725.61	1729.19		1729.4	0.004482	3.37	192.19	0.42	9957	10074	117

To tie into S08E model

IONA WASH

HEC-RAS Plan: Iona Wash River: Reach #1 Reach: Iona Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona Wash	0.034	Floodplain	7100	1545.9	1553.5	1548.61	1553.5	0.000027	0.59	13516.14	0.04	9028.85	12749.79	3720.94
Iona Wash	0.034	Floodway	7100	1545.9	1553.5	1548.61	1553.51	0.00004	0.72	11023.24	0.05	9446	12424	2978
Iona Wash	0.118	Floodplain	7100	1543.95	1553.51		1553.51	0.000007	0.32	20452.95	0.02	8271.06	12636.45	4365.39
Iona Wash	0.118	Floodway	7100	1543.95	1553.51		1553.52	0.00001	0.38	16602.38	0.02	8972	12239	3267
Iona Wash	0.232	Floodplain	3010	1547.1	1553.51	1549.72	1553.52	0.000054	0.72	3632.59	0.05	8707.92	10109.53	1401.61
Iona Wash	0.232	Floodway	3010	1547.1	1553.51	1549.73	1553.53	0.000077	0.86	2759.45	0.06	9411	10040	629
Iona Wash	0.333	Floodplain	3010	1548.86	1553.49		1553.64	0.002248	3.72	1039.67	0.33	9623.75	10310.45	686.7
Iona Wash	0.333	Floodway	3010	1548.86	1553.5		1553.7	0.00255	3.97	883.56	0.35	9767	10236	469
Iona Wash	0.439	Floodplain	3010	1550.13	1555.52	1555.52	1555.94	0.006504	6.06	710.34	0.55	9680.79	10400.92	720.13
Iona Wash	0.439	Floodway	3010	1550.13	1555.57	1555.29	1556.76	0.013701	8.85	349.1	0.81	9937	10051	114
Iona Wash	0.531	Floodplain	3010	1551.33	1557.93		1558.35	0.003949	5.94	692.12	0.46	9753.19	10204.2	451.01
Iona Wash	0.531	Floodway	3010	1551.33	1558.89		1559.38	0.002768	5.57	539.77	0.39	9933	10032	99
Iona Wash	0.623	Floodplain	3010	1553.78	1560.13	1558.81	1561.06	0.007338	8.7	441.99	0.64	9725.53	10045.29	319.76
Iona Wash	0.623	Floodway	3010	1553.78	1560.42	1559.02	1561.55	0.006549	8.49	354.24	0.61	9970	10034	64
Iona Wash	0.726	Floodplain	3010	1555.95	1563.74		1564.65	0.005919	8.2	427.85	0.57	9926.7	10071.41	144.71
Iona Wash	0.726	Floodway	3010	1555.95	1563.89		1564.79	0.00535	7.91	399.26	0.55	9946	10027	81
Iona Wash	0.821	Floodplain	3010	1557.22	1566.22	1564.39	1566.76	0.003034	7.04	627.95	0.43	9796.77	10195.7	398.93
Iona Wash	0.821	Floodway	3010	1557.22	1566.28	1564.09	1567.28	0.004487	8.61	402.25	0.52	9961	10052	91
Iona Wash	0.914	Floodplain	2960	1558.62	1567.58		1568.18	0.002732	6.51	519.26	0.41	9973.37	10138.09	164.72
Iona Wash	0.914	Floodway	2960	1558.62	1568.27		1568.91	0.002481	6.56	468.71	0.39	9983	10040	57
Iona Wash	1.016	Floodplain	2960	1560.22	1569.26	1569.11	1571.38	0.012499	12.05	258.79	0.81	9970.64	10028.11	57.47
Iona Wash	1.016	Floodway	2960	1560.22	1569.67		1572.13	0.014289	12.46	235.01	0.81	9981	10015	34
Iona Wash	1.109	Floodplain	2960	1562.69	1573.53	1570.31	1573.98	0.002666	5.7	569.97	0.38	9893.84	10040.6	146.76
Iona Wash	1.109	Floodway	2960	1562.69	1574.27	1570.31	1574.8	0.002556	5.9	514.49	0.37	9957	10035	78
Iona Wash	1.186	Floodplain	2960	1564.6	1574.49		1574.84	0.00171	4.94	639.66	0.32	9931.08	10054.9	123.82
Iona Wash	1.186	Floodway	2960	1564.6	1575.23		1575.56	0.001403	4.76	641.01	0.29	9965	10055.38	90.38
Iona Wash	1.264	Floodplain	2960	1571.05	1577.92	1577.92	1579.87	0.016562	11.47	265.54	0.88	9982.32	10050.75	68.43
Iona Wash	1.264	Floodway	2960	1571.05	1578.27	1578.27	1580.58	0.01797	12.48	245.03	0.93	9984	10036	52
Iona Wash	1.322	Floodplain	2960	1574.28	1581.81	1579.86	1582.66	0.005404	7.51	410.88	0.53	9925.2	10032.48	107.28
Iona Wash	1.322	Floodway	2960	1574.28	1582.35	1579.83	1583.12	0.004346	7.12	422.4	0.48	9966	10031	65
Iona Wash	1.404	Floodplain	2960	1575.92	1583.78		1584.32	0.002784	5.95	505.57	0.39	9964.41	10062.73	98.32

Located in existing Zone AH ponding area

HEC-RAS Plan: Iona Wash River: Reach #1 Reach: Iona Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona Wash	1.404	Floodway	2960	1575.92	1584.15		1585.03	0.004277	7.62	397.02	0.49	9972	10028	56
Iona Wash	1.496	Floodplain	1780	1579.36	1585.42		1586.41	0.008681	8.47	225.41	0.64	9983.83	10059.34	75.51
Iona Wash	1.496	Floodway	1780	1579.36	1586.38		1587.51	0.006421	8.12	209.8	0.57	9990	10029	39
Iona Wash	1.587	Floodplain	1780	1581.91	1589.3	1587.83	1590.42	0.007864	8.65	212.73	0.62	9980.26	10024.35	44.09
Iona Wash	1.587	Floodway	1780	1581.91	1589.63		1590.74	0.00701	8.46	213.31	0.59	9986	10020	34
Iona Wash	1.671	Floodplain	1780	1583.46	1592.04		1592.57	0.003099	6.07	313.6	0.4	9976.98	10046.84	69.86
Iona Wash	1.671	Floodway	1780	1583.46	1592.18		1592.68	0.002819	5.87	323.7	0.38	9977	10046	69
Iona Wash	1.762	Floodplain	1780	1587.37	1595.61	1595.61	1597.64	0.015118	12.04	157.24	0.84	9982.66	10021.21	38.55
Iona Wash	1.762	Floodway	1780	1587.37	1595.65	1595.65	1597.64	0.014649	11.89	158.56	0.83	9983	10021	38
Iona Wash	1.847	Floodplain	1780	1590.26	1600.76	1598.38	1601.46	0.005244	6.77	268.95	0.48	9976.4	10138.52	162.12
Iona Wash	1.847	Floodway	1780	1590.26	1600.82	1598.36	1601.54	0.005525	6.78	263.29	0.48	9983	10025	42
Iona Wash	1.907	Floodplain	1780	1593.3	1602.51		1602.77	0.003032	4.6	441.7	0.35	9989.6	10194.79	205.19
Iona Wash	1.907	Floodway	1780	1593.3	1602.63		1603.44	0.006239	6.11	253.68	0.45	9995	10049	54
Iona Wash	1.985	Floodplain	1780	1601.3	1605.01	1605.01	1605.45	0.015121	5.13	332.77	0.7	9941.13	10333.94	392.81
Iona Wash	1.985	Floodway	1780	1601.3	1605.54		1605.88	0.005964	3.9	390.35	0.45	9945	10165	220
Iona Wash	2.06	Floodplain	1780	1605.43	1608.37	1607.65	1608.41	0.003433	1.72	1107.55	0.26	9294.25	10505.05	1210.8
Iona Wash	2.06	Floodway	1780	1605.43	1608.37	1607.65	1608.43	0.005236	2.12	860.67	0.32	9770	10430	660
Iona Wash	2.137	Floodplain	1780	1608.06	1609.98		1610.03	0.004737	1.9	1007.8	0.3	9224.49	10538.8	1314.31
Iona Wash	2.137	Floodway	1780	1608.06	1610.11		1610.15	0.003521	1.75	1079.57	0.26	9614	10538	924
Iona Wash	2.237	Floodplain	1780	1611.32	1612.73	1612.22	1612.79	0.006666	2.15	919.6	0.35	9388.34	10521.79	1133.45
Iona Wash	2.237	Floodway	1780	1611.32	1612.73	1612.26	1612.82	0.008936	2.5	763.67	0.4	9598	10336	738
Iona Wash	2.293	Floodplain	7020	1612.47	1614.97	1614.85	1615.21	0.007909	5.33	2161.39	0.81	7784.16	10395.27	2611.11
Iona Wash	2.293	Floodway	7020	1612.47	1615.48	1615.48	1616.17	0.009592	7.28	1180.86	0.95	9459	10265	806
Iona Wash	2.396	Floodplain	7020	1615.83	1617.56	1617.13	1617.73	0.007434	1.92	2191.52	0.54	8264.87	10546.15	2281.28
Iona Wash	2.396	Floodway	7020	1615.83	1618.53	1617.78	1618.71	0.00442	2.92	2053.16	0.49	9128	10274	1146
Iona Wash	2.433	Floodplain	7020	1613.77	1619.12	1618.8	1619.32	0.005462	4.32	2187.95	0.59	8413.81	10834.85	2421.04
Iona Wash	2.433	Floodway	7020	1613.77	1619.6	1619.03	1619.83	0.004314	4.53	1916.69	0.54	9134	10244	1110
Iona Wash	2.507	Floodplain	7020	1614.82	1621.73		1621.97	0.00832	5.63	2073.74	0.62	8273	10479.7	2206.7
Iona Wash	2.507	Floodway	7020	1614.82	1621.99	1621.76	1622.44	0.010575	6.78	1474.26	0.71	9143	10149	1006
Iona Wash	2.644	Floodplain	7020	1622.58	1625.47	1624.89	1625.58	0.004982	2.23	2673.03	0.34	8730.71	11004.69	2273.98
Iona Wash	2.644	Floodway	7020	1622.58	1626.07	1625.09	1626.22	0.004301	2.64	2283.81	0.33	9511	10592	1081

HEC-RAS Plan: Iona Wash River: Reach #1 Reach: Iona Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona Wash	2.759	Floodplain	7020	1625.01	1628.67	1628.17	1628.84	0.005977	3.2	2194.87	0.4	8904.67	10911.86	2007.19
Iona Wash	2.759	Floodway	7020	1625.01	1629.27	1628.55	1629.57	0.007383	4.26	1628.28	0.47	9564	10334	770
Iona Wash	2.882	Floodplain	6610	1627.47	1632.36		1632.56	0.005921	3.49	1838.57	0.39	9922.46	10909.52	987.06
Iona Wash	2.882	Floodway	6610	1627.47	1633.17		1633.45	0.005055	3.91	1583.68	0.38	9933	10479	546
Iona Wash	2.944	Floodplain	6610	1629	1633.43		1633.67	0.007265	3.62	1705.05	0.43	9757.97	10766.1	1008.13
Iona Wash	2.944	Floodway	6610	1629	1634.21		1634.52	0.005693	3.9	1483.24	0.4	9832	10372	540
Iona Wash	2.98	Floodplain	6610	1629.63	1635.1		1635.49	0.009468	5.18	1327.05	0.52	9814.41	10717.74	903.33
Iona Wash	2.98	Floodway	6610	1629.63	1635.65	1635.24	1636.51	0.01497	7.26	902.27	0.67	9825	10372	547
Iona Wash	3.056	Floodplain	6610	1631.61	1637.01		1637.21	0.003401	3.33	1865.02	0.36	9535.58	10393.29	857.71
Iona Wash	3.056	Floodway	6610	1631.61	1637.9		1638.08	0.001935	3.04	2025.44	0.28	9572	10182	610
Iona Wash	3.154	Floodplain	6610	1635.72	1639.99	1639.98	1640.75	0.020166	6.77	959.54	0.83	9679.48	10314.07	634.59
Iona Wash	3.154	Floodway	6610	1635.72	1640.45	1640.45	1641.62	0.022409	8.17	778.35	0.91	9767	10092	325
Iona Wash	3.25	Floodplain	6610	1639.9	1644.45		1644.66	0.004043	3.77	1795.44	0.39	9613.18	10563.28	950.1
Iona Wash	3.25	Floodway	6610	1639.9	1645.28		1645.64	0.003936	4.41	1402.92	0.41	9726	10126	400
Iona Wash	3.335	Floodplain	6610	1643.91	1647.05	1646.73	1647.31	0.009069	4.34	1605.45	0.55	8835.04	11221.63	2386.59
Iona Wash	3.335	Floodway	6610	1643.91	1647.8	1647.08	1648.22	0.008906	5.37	1283.85	0.58	9597	10124	527
Iona Wash	3.415	Floodplain	6610	1647.59	1650.23	1649.65	1650.41	0.006567	3.34	1909.52	0.46	8512.57	10974.23	2461.66
Iona Wash	3.415	Floodway	6610	1647.59	1650.95	1650.05	1651.23	0.006021	4.08	1554.9	0.47	9472	10127	655
Iona Wash	3.528	Floodplain	6610	1652.01	1653.93	1653.57	1654.13	0.005931	2.6	1945.05	0.42	8276.64	10732.69	2456.05
Iona Wash	3.528	Floodway	6610	1652.01	1654.79	1654.17	1655.15	0.007122	4.06	1401.42	0.5	9568	10224	656
Iona Wash	3.648	Floodplain	6610	1655.21	1658.11	1657.63	1658.33	0.007804	3.69	1749.84	0.5	8383.69	10761.07	2377.38
Iona Wash	3.648	Floodway	6610	1655.21	1658.94	1658.06	1659.22	0.00594	4.22	1561.36	0.47	9737	10376	639
Iona Wash	3.736	Floodplain	6610	1657.1	1660.77	1660.33	1661.07	0.005781	3.22	1636.7	0.43	9356.23	10840.05	1483.82
Iona Wash	3.736	Floodway	6610	1657.1	1661.71	1660.93	1662.06	0.006763	4.66	1409.04	0.5	9732	10325	593
Iona Wash	3.818	Floodplain	6610	1658.96	1663.72	1663.29	1664.12	0.008894	5.45	1337.08	0.63	9699.64	11045.89	1346.25
Iona Wash	3.818	Floodway	6610	1658.96	1664.31	1663.41	1664.66	0.00541	4.96	1425.8	0.51	9728	10276	548
Iona Wash	3.889	Floodplain	6610	1661.72	1666.49		1666.79	0.006046	4.52	1521.12	0.48	9706.07	10381.96	675.89
Iona Wash	3.889	Floodway	6610	1661.72	1666.59		1666.96	0.007254	5.06	1355.8	0.53	9729	10288	559
Iona Wash	3.99	Floodplain	6610	1664.75	1669.34		1669.63	0.005271	4.04	1550.63	0.44	9732.36	10421.68	689.32
Iona Wash	3.99	Floodway	6610	1664.75	1669.6		1669.94	0.004957	4.17	1430.26	0.44	9802	10315	513
Iona Wash	4.071	Floodplain	6610	1667.96	1671.92		1672.29	0.006946	4.2	1374.36	0.5	9782.36	10391.31	608.95
Iona Wash	4.071	Floodway	6610	1667.96	1672.13		1672.59	0.007358	4.6	1238.87	0.52	9795	10270	475
Iona Wash	4.161	Floodplain	6610	1669.38	1674.73		1675.03	0.004944	3.22	1587.77	0.41	9611.25	10399.67	788.42
Iona Wash	4.161	Floodway	6610	1669.38	1675.38		1675.84	0.006421	4.46	1301.31	0.49	9718	10205	487

HEC-RAS Plan: Iona Wash River: Reach #1 Reach: Iona Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona Wash	4.243	Floodplain	6610	1673.54	1677.06		1677.49	0.006034	2.62	1357.03	0.42	9373.79	10129.23	755.44
Iona Wash	4.243	Floodway	6610	1673.54	1677.75		1678.17	0.004272	2.98	1399.93	0.38	9537	10106	569
Iona Wash	4.314	Floodplain	6610	1677.33	1679.28	1678.67	1679.61	0.004604	1.78	1484.2	0.34	8942.53	10116.46	1173.93
Iona Wash	4.314	Floodway	6610	1677.33	1679.7	1679.25	1680.22	0.006047	2.67	1220.67	0.42	9532	10111	579
Iona Wash	4.413	Floodplain	5650	1679.45	1682.4	1682.12	1682.81	0.009848	4.21	1133.62	0.57	9369.54	10168.68	799.14
Iona Wash	4.413	Floodway	5650	1679.45	1683.11	1682.64	1683.71	0.008022	4.78	1000.63	0.54	9774	10166	392
Iona Wash	4.479	Floodplain	5650	1680.24	1684.97	1684.18	1685.32	0.005514	4.51	1194.62	0.49	9335.2	10166.58	831.38
Iona Wash	4.479	Floodway	5650	1680.24	1685.81	1684.89	1686.49	0.007847	6.47	853.87	0.62	9835	10081	246
Iona Wash	4.547	Floodplain	5650	1682.34	1687.45	1687.45	1688.99	0.01862	10.07	576.46	0.95	9911.89	10104.62	192.73
Iona Wash	4.547	Floodway	5650	1682.34	1688.43		1689.3	0.007566	7.58	764.47	0.63	9912	10103	191
Iona Wash	4.629	Floodplain	5650	1684.46	1690.43	1688.28	1690.62	0.001375	3.02	1643.89	0.26	9634.39	10478.62	844.23
Iona Wash	4.629	Floodway	5650	1684.46	1690.64	1688.68	1690.97	0.002195	3.95	1249.09	0.34	9845	10134	289
Iona Wash	4.696	Floodplain	5650	1685.83	1691.08		1691.63	0.006747	5.95	946.41	0.57	9792.19	10123.41	331.22
Iona Wash	4.696	Floodway	5650	1685.83	1691.57		1692.04	0.004174	5.13	1039.39	0.46	9827	10110	283
Iona Wash	4.777	Floodplain	5650	1687.65	1693.59	1692.56	1694.11	0.005511	5.82	984.42	0.53	9807.99	10436.03	628.04
Iona Wash	4.777	Floodway	5650	1687.65	1693.75	1693.09	1694.87	0.011241	8.53	665.02	0.76	9896	10066	170
Iona Wash	4.844	Floodplain	5650	1689.87	1695.44		1695.94	0.005121	5.81	1003.02	0.51	9859.66	10158.82	299.16
Iona Wash	4.844	Floodway	5650	1689.87	1696.42		1696.85	0.003211	5.32	1072.1	0.42	9875	10093	218
Iona Wash	4.901	Floodplain	5650	1691.36	1696.69		1696.89	0.001945	3.58	1591.13	0.32	9610.56	10087.08	476.52
Iona Wash	4.901	Floodway	5650	1691.36	1697.44		1697.89	0.00365	5.41	1047.37	0.44	9803	10024	221

IONA WASH (ZONE AO)

HEC-RAS Plan: Iona-Zone AO River: Reach #2 Reach: Iona-Zone AO Profile: Zone AO

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona-Zone AO	10	Zone AO	300	1685.3	1687.25	1687.11	1687.31	0.009182	1.56	158.76	0.45	39.57	830.25	790.68
Iona-Zone AO	20	Zone AO	300	1703.09	1706.37		1706.43	0.00862	1.99	154.3	0.47	191.95	879.85	687.9
Iona-Zone AO	30	Zone AO	300	1726.32	1727.74		1727.81	0.007112	1.31	154.07	0.39	42.15	614.65	572.5
Iona-Zone AO	40	Zone AO	730	1749.45	1751.83		1751.99	0.008801	3.31	236.8	0.53	193.05	1051.02	857.97
Iona-Zone AO	50	Zone AO	730	1775.25	1775.69		1775.88	0.009224	1.07	229.17	0.41	70.55	712.81	642.26
Iona-Zone AO	60	Zone AO	730	1786.64	1787.52		1787.63	0.00736	1.25	283.94	0.39	61.07	832.34	771.27

ZONE AO

IONA WASH (NORTH)

HEC-RAS Plan: 310032 River: Reach #1 Reach: Iona North

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North	0	Floodplain	1330	1773.05	1776.78	1776.71	1777.31	0.00931	5.79	228.18	0.72	9609.61	10017.2	407.59
Iona North	0	Floodway	1330	1773.05	1777.02	1777.02	1777.52	0.008372	5.76	235.54	0.68	9697	10013	316
Iona North	0.104	Floodplain	1330	1779.06	1781.65	1781.48	1781.98	0.008816	4.11	291.11	0.64	9291.64	10080.57	788.93
Iona North	0.104	Floodway	1330	1781.94	1782.55	1782.55	1783.11	0.014424	2.83	223.98	0.71	9792	9989	197
Iona North	0.219	Floodplain	1330	1786.06	1788.22	1788.05	1788.4	0.014414	3.72	405.57	0.63	9236.48	10225.16	988.68
Iona North	0.219	Floodway	1330	1786.06	1789.01	1788.45	1789.35	0.008436	4.03	292.24	0.52	9902	10055	153
Iona North	0.305	Floodplain	1330	1789.8	1792.4	1792.01	1792.52	0.006499	3.07	500.8	0.46	9733.34	10288.38	555.04
Iona North	0.305	Floodway	1330	1789.8	1793.22	1792.64	1793.65	0.010452	5.33	254.85	0.64	9932	10051	119
Iona North	0.396	Floodplain	1330	1794.38	1796.48	1796.28	1796.67	0.010835	3.08	392.52	0.54	9768.82	10238.63	469.81
Iona North	0.396	Floodway	1330	1794.38	1797.46		1797.79	0.006782	3.82	305.47	0.47	9943	10092	149
Iona North	0.492	Floodplain	1330	1798.14	1800.15	1799.81	1800.22	0.006893	2.14	591.69	0.45	9980.49	10752.19	771.7
Iona North	0.492	Floodway	1330	1798.14	1800.98	1800.5	1801.25	0.009087	4.11	318.64	0.58	9978.31	10179	200.69
Iona North	0.569	Floodplain	1330	1800.79	1803.64		1803.74	0.011084	3.24	551.01	0.55	9825.47	10679.84	854.37
Iona North	0.569	Floodway	1330	1800.79	1804.55		1804.78	0.008325	4.21	359.26	0.52	9918	10147	229
Iona North	0.656	Floodplain	1330	1804.3	1807.32	1807.04	1807.42	0.006604	2.7	513.29	0.43	9624.26	10415.41	791.15
Iona North	0.656	Floodway	1330	1804.3	1807.99	1807.6	1808.2	0.007159	3.72	366.72	0.48	9803	10085	282
Iona North	0.682	Floodplain	1330	1805.05	1808.7	1808.58	1808.9	0.01692	4.06	372.69	0.67	9599.59	10269.65	670.06
Iona North	0.682	Floodway	1330	1805.05	1809.42	1809.16	1809.68	0.010565	4.45	324.06	0.58	9780	10047	267
Iona North	0.765	Floodplain	1330	1808.62	1812.11	1811.57	1812.23	0.005359	3.17	494.34	0.41	9864.2	10355.11	490.91
Iona North	0.765	Floodway	1330	1808.62	1812.92		1813.2	0.007336	4.74	327.93	0.51	9953	10135	182
Iona North	0.833	Floodplain	1330	1811.01	1814.53	1814.23	1814.83	0.010406	4.49	318.87	0.58	9814.56	10313.25	498.69
Iona North	0.833	Floodway	1330	1811.01	1815.49		1815.86	0.007468	5.01	286.89	0.52	9914	10063	149
Iona North	0.905	Floodplain	1330	1814.72	1818.21		1818.36	0.008698	3.7	436.79	0.51	9952.13	10407.24	455.11
Iona North	0.905	Floodway	1330	1814.72	1818.34	1817.69	1818.47	0.006409	3.34	467.53	0.44	9979	10341	362
Iona North	0.991	Floodplain	4550	1819.9	1823.74	1823.49	1823.94	0.014233	3.52	1260.11	0.61	9712.07	11245.35	1533.28
Iona North	0.991	Floodway	4550	1819.9	1823.98	1823.64	1824.32	0.017111	4.44	974.6	0.69	9780.33	10621	840.67
Iona North	1.074	Floodplain	4550	1824.9	1827.91	1827.46	1828.11	0.007202	2.29	1293.27	0.37	9951.53	11476.45	1524.92
Iona North	1.074	Floodway	4550	1824.9	1828.9	1828.21	1829.32	0.008514	3.53	895.38	0.44	10025	10821	796
Iona North	1.147	Floodplain	4550	1828.17	1831.32	1831.14	1831.62	0.011761	5.23	1055.58	0.59	9952.74	11506.85	1554.11
Iona North	1.147	Floodway	4550	1828.17	1832.29	1831.85	1832.82	0.009552	5.88	781.53	0.56	9984	10751	767
Iona North	1.219	Floodplain	4550	1831.8	1835.72	1835.63	1836.11	0.012643	6.55	940.48	0.69	9985.17	11543.03	1557.86

Used to gain convergence in model

HEC-RAS Plan: 310032 River: Reach #1 Reach: Iona North

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North	1.219	Floodway	4550	1831.8	1836.11	1835.87	1836.65	0.011417	6.81	792.44	0.67	9989	10803	814
Iona North	1.293	Floodplain	4550	1834.6	1840.69	1840.69	1841.2	0.010388	7.02	911.88	0.66	9805.54	11514.29	1708.75
Iona North	1.293	Floodway	4550	1834.6	1841.55	1841.55	1842.2	0.008933	7.41	907.35	0.62	9945	11127	1182
Iona North	1.400	Floodplain	3710	1838.25	1841.65	1839.85	1841.67	0.000379	1.01	3272.71	0.12	9729.22	11778.45	2049.23
Iona North	1.400	Floodway	3710	1838.25	1842.59	1840.11	1842.62	0.000309	1.15	2870.25	0.11	9963	10855	892
Iona North	1.505	Floodplain	3580	1843.81	1844.46	1844.46	1844.98	0.015746	1.56	615.76	0.48	9943.77	10966.46	1022.69
Iona North	1.505	Floodway	3580	1843.81	1845.41	1845.41	1846.2	0.01213	2.1	510.17	0.51	9939.32	10507	567.68
Iona North	1.578	Floodplain	3580	1848.22	1850.93	1850.59	1851.46	0.015623	5.37	615.55	0.72	9841.36	10169.7	328.34
Iona North	1.578	Floodway	3580	1848.22	1851.09	1850.66	1851.62	0.013946	5.37	613.96	0.69	9881	10165	284
Iona North	1.603	Floodplain	3580	1848.79	1852.64		1852.97	0.007281	4.91	788.27	0.53	9810.27	10158.52	348.25
Iona North	1.603	Floodway	3580	1848.79	1852.7		1853.04	0.007049	4.9	769.96	0.52	9853	10158.57	305.57
Iona North	1.683	Floodplain	3580	1853.11	1856.06	1855.37	1856.31	0.008597	4.09	888.46	0.51	9669.33	10141.88	472.55
Iona North	1.683	Floodway	3580	1853.11	1856.06	1855.37	1856.31	0.008536	4.07	884.91	0.51	9680	10141.88	461.88
Iona North	1.758	Floodplain	3580	1857.26	1859.94	1859.43	1860.22	0.011428	3.35	860.94	0.54	9591.9	10151.07	559.17
Iona North	1.758	Floodway	3580	1857.26	1859.96	1859.45	1860.26	0.011816	3.44	833.29	0.55	9634	10147	513
Iona North	1.830	Floodplain	3580	1861.76	1863.17	1862.85	1863.6	0.007113	2.84	688.74	0.53	9553.03	10105.81	552.78
Iona North	1.830	Floodway	3580	1861.76	1863.83	1863.77	1864.6	0.010565	3.6	526.18	0.65	9730	10029	299
Iona North	1.925	Floodplain	3580	1865.12	1868.34	1868.34	1868.96	0.015003	7.57	575.49	0.89	9724.02	10231.89	507.87
Iona North	1.925	Floodway	3580	1865.12	1869.32	1869.32	1870.24	0.012013	8.61	475.65	0.84	9819	10065	246
Iona North	2.000	Floodplain	3580	1868.61	1872.42	1872.12	1872.88	0.007661	5.93	667.84	0.65	9943.28	10340.33	397.05
Iona North	2.000	Floodway	3580	1868.61	1873.2	1872.71	1873.98	0.00796	7.05	504.58	0.68	9955	10136	181
Iona North	2.080	Floodplain	3580	1871.86	1875.73	1875.63	1876.29	0.010088	7.55	621.8	0.76	9772.37	10212.43	440.06
Iona North	2.080	Floodway	3580	1871.86	1876.66	1876.61	1877.63	0.010575	9.24	465.98	0.81	9873	10079	206
Iona North	2.149	Floodplain	3580	1874.54	1880.45	1880.45	1881.44	0.010849	9.66	475.84	0.81	9859.72	10091.15	231.43
Iona North	2.149	Floodway	3580	1874.54	1880.53	1880.44	1881.98	0.011925	10.24	372.29	0.85	9925	10040	115
Iona North	2.227	Floodplain	3580	1878.48	1884.83	1884.83	1885.87	0.009625	9.3	472.01	0.78	9886.26	10112.47	226.21
Iona North	2.227	Floodway	3580	1878.48	1885.11	1884.94	1886.5	0.010524	10.13	384.35	0.83	9987	10100	113
Iona North	2.324	Floodplain	3580	1885.36	1889.61	1889.21	1890.22	0.007421	6.74	577.21	0.66	9839.18	10129.34	290.16
Iona North	2.324	Floodway	3580	1885.36	1889.95	1889.32	1890.53	0.005907	6.43	591.46	0.6	9876	10129	253
Iona North	2.436	Floodplain	3580	1892.07	1895.6	1895.6	1896.75	0.015472	8.46	417.15	0.92	9852.11	10037.76	185.65
Iona North	2.436	Floodway	3580	1892.07	1895.6	1895.6	1896.78	0.015293	8.41	411.26	0.92	9860	10034	174

HEC-RAS Plan: 310032 River: Reach #1 Reach: Iona North

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North	2.526	Floodplain	3580	1895.63	1900.15	1899.76	1900.51	0.005114	5.65	784.07	0.55	9917.82	10393.52	475.7
Iona North	2.526	Floodway	3580	1895.63	1900.78	1900.24	1901.68	0.007777	7.84	477.77	0.7	9972	10117	145
Iona North	2.599	Floodplain	3580	1899.43	1903.91	1903.91	1904.78	0.012775	8.41	539.1	0.77	9942.57	10244.84	302.27
Iona North	2.599	Floodway	3580	1899.43	1904.43	1904.06	1906.06	0.015978	10.26	349.75	0.87	9976	10058	82
Iona North	2.678	Floodplain	3540	1902.98	1908.26		1908.92	0.007881	7.34	639.69	0.62	9789.4	10155.58	366.18
Iona North	2.678	Floodway	3540	1902.98	1909.16		1909.9	0.00575	7.1	512.13	0.54	9953	10057	104
Iona North	2.791	Floodplain	3540	1909.5	1913.59	1912.91	1914.17	0.010031	6.16	586.78	0.65	9856.06	10084.25	228.19
Iona North	2.791	Floodway	3540	1909.5	1913.67	1912.9	1914.25	0.009583	6.13	577.86	0.64	9857	10056	199
Iona North	2.850	Floodplain	3540	1912.17	1916.55		1917.15	0.009388	6.59	592.1	0.64	9845.84	10118.26	272.42
Iona North	2.850	Floodway	3540	1912.17	1916.77		1917.74	0.012603	7.99	457.35	0.75	9908	10060	152
Iona North	2.919	Floodplain	3540	1916.2	1920.57		1921.44	0.01505	7.86	489.23	0.8	9866.51	10073.77	207.26
Iona North	2.919	Floodway	3540	1916.2	1920.99		1921.62	0.009087	6.67	576.23	0.64	9867	10073	206
Iona North	2.932	Floodplain	3540	1916.7	1921.26	1921.19	1922.92	0.016444	10.36	341.82	0.97	9935.15	10031.73	96.58
Iona North	2.932	Floodway	3540	1916.71	1921.29	1921.22	1922.95	0.016257	10.34	342.4	0.96	9936	10031.74	95.74
Iona North	2.936		Bridge											
Iona North	2.939	Floodplain	3540	1917	1923.64	1921.58	1924.33	0.003933	6.63	533.94	0.5	9941.25	10038.09	96.84
Iona North	2.939	Floodway	3540	1917	1923.64	1921.58	1924.33	0.003937	6.63	533.8	0.5	9941.25	10038	96.75
Iona North	2.945	Floodplain	3540	1918	1923.69	1922.14	1924.54	0.004751	7.53	484.8	0.57	9950.17	10050.07	99.9
Iona North	2.945	Floodway	3540	1918	1923.69	1922.14	1924.54	0.004737	7.52	484.38	0.57	9951	10049	98
Iona North	2.952	Floodplain	3540	1917.4	1923.92	1922.04	1924.73	0.004938	7.21	490.8	0.55	9940.04	10032.17	92.13
Iona North	2.952	Floodway	3540	1917.4	1923.92	1922.05	1924.73	0.004946	7.22	490.49	0.55	9940.05	10032	91.95
Iona North	2.956		Bridge											
Iona North	2.959	Floodplain	3540	1917.8	1924.49	1922.2	1925.21	0.00337	6.83	527.66	0.49	9943.2	10037.81	94.61
Iona North	2.959	Floodway	3540	1917.8	1924.49	1922.2	1925.21	0.003374	6.83	527.39	0.49	9943.21	10037	93.79
Iona North	3.007	Floodplain	3540	1920.67	1925.78		1925.93	0.001477	3.16	1170.48	0.28	9835.77	10172.5	336.73
Iona North	3.007	Floodway	3540	1920.67	1925.81		1926.04	0.002234	3.91	914.51	0.34	9863	10090	227
Iona North	3.040	Floodplain	3540	1921.5	1926.08	1926.08	1927.4	0.019544	9.26	388.37	0.95	9863.66	10018	154.34
Iona North	3.040	Floodway	3540	1921.5	1926.18	1926.09	1927.4	0.01743	8.93	403.19	0.9	9864	10018	154
Iona North	3.042		Bridge											
Iona North	3.043	Floodplain	3540	1921.4	1927.6	1926	1928.09	0.004086	5.69	633.89	0.47	9859.24	10015.45	156.21
Iona North	3.043	Floodway	3540	1921.4	1927.6	1926	1928.09	0.00407	5.68	634.59	0.47	9859.23	10015	155.77
Iona North	3.087	Floodplain	3460	1925.54	1929.36	1929.36	1930.56	0.017276	9.03	394.52	0.92	9973.33	10138.2	164.87
Iona North	3.087	Floodway	3460	1925.54	1929.86	1929.86	1931.62	0.019567	10.66	326.2	1	9976	10069	93

HEC-RAS Plan: 310032 River: Reach #1 Reach: Iona North

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North	3.180	Floodplain	3460	1929.91	1934.88	1934.22	1935.37	0.006191	6.8	646.98	0.61	9880.3	10206.71	326.41
Iona North	3.180	Floodway	3460	1929.91	1935.56	1934.39	1936.19	0.005222	6.96	555.21	0.57	9941	10082	141
Iona North	3.257	Floodplain	3460	1933.22	1938.34	1938.34	1939.66	0.013053	9.91	404.6	0.89	9922.82	10074.78	151.96
Iona North	3.257	Floodway	3460	1933.22	1938.56	1938.56	1940.43	0.016025	11.15	321.46	0.97	9937	10022	85
Iona North	3.349	Floodplain	3460	1937.53	1943.08		1943.6	0.005377	6.73	629.25	0.58	9899.77	10158.8	259.03
Iona North	3.349	Floodway	3460	1937.53	1943.94		1944.72	0.005376	7.61	503.22	0.6	9953	10067	114
Iona North	3.422	Floodplain	3460	1941.96	1946.18	1946.18	1947.15	0.015692	9.21	460.61	0.93	9916.75	10147.91	231.16
Iona North	3.422	Floodway	3460	1941.96	1947.11	1947.11	1948.57	0.014412	10.56	374.54	0.93	9968	10088	120
Iona North	3.523	Floodplain	3460	1945.84	1951.62	1951.3	1952.12	0.00604	6.37	655.16	0.59	9763.02	10113.58	350.56
Iona North	3.523	Floodway	3460	1945.84	1952.55		1953.39	0.006028	7.42	471.24	0.62	9936	10043	107
Iona North	3.602	Floodplain	3460	1951.06	1955.12	1955.08	1955.96	0.014713	8.38	512.68	0.83	9791.05	10107.83	316.78
Iona North	3.602	Floodway	3460	1951.06	1955.77		1956.64	0.010408	7.99	472.69	0.72	9915	10059	144
Iona North	3.689	Floodplain	3460	1955.48	1960.27	1959.81	1960.68	0.007514	6.23	748.09	0.6	9618.99	10042.2	423.21
Iona North	3.689	Floodway	3460	1955.48	1960.4		1960.88	0.008139	6.59	664.76	0.62	9729	10030	301
Iona North	3.796	Floodplain	3460	1963.01	1966.72	1966.72	1967.56	0.019707	8.59	482.65	0.92	9821.48	10130.82	309.34
Iona North	3.796	Floodway	3460	1963.01	1967.21	1967.21	1968.05	0.019118	9.17	500.26	0.92	9827	10094	267
Iona North	3.879	Floodplain	3460	1967.12	1972.16		1972.58	0.007341	6.04	716.19	0.59	9887.93	10244.67	356.74
Iona North	3.879	Floodway	3460	1967.12	1972.88		1973.73	0.009329	7.76	476.92	0.68	9965	10100	135
Iona North	3.946	Floodplain	3460	1971.33	1975.63	1975.63	1976.36	0.013667	7.96	565.23	0.79	9976.32	10472.35	496.03
Iona North	3.946	Floodway	3460	1971.33	1976.34		1977.26	0.010954	8.09	457.25	0.73	9977	10122	145
Iona North	4.038	Floodplain	3460	1976.88	1980.93		1981.33	0.008493	6.29	736.45	0.63	9754.52	10159.29	404.77
Iona North	4.038	Floodway	3460	1976.88	1981.33	1980.87	1981.93	0.009054	7.04	586.11	0.67	9888	10122	234
Iona North	4.092	Floodplain	3460	1979.98	1983.72	1983.27	1984.41	0.013968	8.06	573.06	0.81	9684.32	10029.25	344.93
Iona North	4.092	Floodway	3460	1979.98	1984.21		1985.25	0.014781	8.95	440.56	0.83	9859.19	10020	160.81
Iona North	4.164	Floodplain	3460	1984.61	1987.62		1988.01	0.008164	5.32	700.79	0.6	9923.43	10255.98	332.55
Iona North	4.164	Floodway	3460	1984.61	1988.14		1988.62	0.006788	5.4	626.73	0.55	9958	10163	205
Iona North	4.247	Floodplain	3460	1988.22	1991.86	1991.34	1992.43	0.012212	6.81	627.96	0.74	9864.67	10250.14	385.47
Iona North	4.247	Floodway	3460	1988.22	1991.97	1991.68	1992.61	0.012337	7.03	577.9	0.75	9864	10167	303
Iona North	4.312	Floodplain	3460	1992.37	1995.58		1995.97	0.009924	5.19	701.22	0.64	9694.73	10088.24	393.51
Iona North	4.312	Floodway	3460	1992.37	1995.95	1995.49	1996.52	0.012086	6.29	571.25	0.71	9776	10027	251
Iona North	4.396	Floodplain	3210	1997.67	2000.82	2000.75	2001.45	0.015829	7.52	540.5	0.83	9715.54	10053.55	338.01
Iona North	4.396	Floodway	3210	1997.67	2001.75	2001.61	2003.11	0.0176	9.62	349.51	0.91	9924	10035	111
Iona North	4.486	Floodplain	2170	2003.31	2006.76		2007.31	0.008946	6.84	396.77	0.74	9770.71	10055.69	284.98

HEC-RAS Plan: 310032 River: Reach #1 Reach: Iona North

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North	4.486	Floodway	2170	2003.31	2007.59	2006.8	2008.24	0.006008	6.74	341.38	0.64	9925	10034	109
Iona North	4.584	Floodplain	2170	2008.86	2012.5	2012.5	2013.16	0.012086	7.78	354.86	0.86	9864.97	10129.98	265.01
Iona North	4.584	Floodway	2170	2008.86	2013.06	2013.06	2014.37	0.014102	9.6	239.43	0.96	9944	10034	90
Iona North	4.664	Floodplain	2170	2013.65	2017.39	2017.39	2018	0.011049	7.75	372.09	0.82	9984.2	10295.64	311.44
Iona North	4.664	Floodway	2170	2013.65	2018.36	2018.33	2019.35	0.010277	8.88	284.86	0.8	9985	10109	124
Iona North	4.755	Floodplain	2170	2019.11	2022.28	2022.2	2022.83	0.009889	6.82	386.53	0.77	9885.11	10174.32	289.21
Iona North	4.755	Floodway	2170	2019.11	2023.1	2022.93	2023.96	0.009414	8.08	299.58	0.79	9941	10070	129
Iona North	4.826	Floodplain	2170	2023.28	2026.07	2025.8	2026.46	0.009504	5.56	444.14	0.72	9732.86	10037.46	304.6
Iona North	4.826	Floodway	2170	2023.28	2026.84	2026.56	2027.53	0.009516	7.01	336.83	0.77	9874	10029	155
Iona North	4.925	Floodplain	3100	2029.29	2032.5	2032.5	2033.06	0.011912	7.4	549.44	0.84	9805.18	10279.35	474.17
Iona North	4.925	Floodway	3100	2029.29	2033.47	2033.47	2034.43	0.010655	8.8	413.25	0.85	9948	10142	194
Iona North	5.018	Floodplain	3100	2034.44	2038.86	2038.86	2039.56	0.007384	8.15	542.32	0.72	9966.83	10418.78	451.95
Iona North	5.018	Floodway	3100	2034.44	2039.49	2039.49	2040.26	0.006742	8.2	514.14	0.68	9971	10280	309

IONA NORTH WEST SLPIT-1

HEC-RAS Plan: Iona North W River: Reach #2 Reach: Iona North WS-1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona North WS-	0	Floodplain	3210	1997.67	2000.82	2000.75	2001.45	0.015799	7.51	540.83	0.83	9715.54	10053.57	338.03
Iona North WS-	0	Floodway	3210	1997.67	2001.75	2001.61	2003.11	0.017622	9.63	349.37	0.91	9924	10035	111
Iona North WS-	0.100	Floodplain	1520	2001.55	2006.57	2006.37	2007.24	0.005684	7.37	267.36	0.64	9914.12	10060.75	146.63
Iona North WS-	0.100	Floodway	1520	2001.55	2007.47		2008.1	0.003704	6.77	248.98	0.53	9953	10020	67
Iona North WS-	0.156	Floodplain	1520	2005.11	2008.85	2008.81	2009.79	0.014064	8.41	200.45	0.92	9909.59	10019.16	109.57
Iona North WS-	0.156	Floodway	1520	2005.11	2009.2	2009.2	2010.46	0.014801	9.28	169.59	0.95	9952	10017	65
Iona North WS-	0.224	Floodplain	1520	2010.63	2013.6	2013.46	2014.07	0.010389	6.45	281.74	0.77	9917.49	10133.04	215.55
Iona North WS-	0.224	Floodway	1520	2010.63	2014.06	2013.84	2014.75	0.009878	7.15	229.06	0.78	9919	10033	114
Iona North WS-	0.318	Floodplain	1520	2014.87	2018.7	2018.54	2019.61	0.011422	7.79	203.89	0.84	9964.94	10062.17	97.23
Iona North WS-	0.318	Floodway	1520	2014.87	2018.87	2018.47	2019.77	0.01004	7.61	200.18	0.8	9980	10051	71
Iona North WS-	0.388	Floodplain	1520	2020.83	2023.61	2023.61	2024.2	0.012779	7.36	257.5	0.86	9918.26	10124.27	206.01
Iona North WS-	0.388	Floodway	1520	2020.83	2024.3	2024.3	2025.31	0.013514	8.78	192.26	0.9	9983	10075	92
Iona North WS-	0.450	Floodplain	1520	2023.96	2026.7	2026.32	2026.93	0.005823	4.16	388.92	0.56	9965.95	10309.5	343.55
Iona North WS-	0.450	Floodway	1520	2023.96	2027.55	2027.03	2027.84	0.004779	4.86	359.42	0.53	9967	10180	213
Iona North WS-	0.549	Floodplain	3100	2029.29	2032.5	2032.5	2033.06	0.011912	7.4	549.44	0.84	9805.18	10279.35	474.17
Iona North WS-	0.549	Floodway	3100	2029.29	2033.47	2033.47	2034.43	0.010655	8.8	413.25	0.85	9948	10142	194

IONA TRIBUTARY (ZONE A)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1 Profile: PF 1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0	PF 1	4500	1711.04	1720.37	1719.33	1720.92	0.00521	6.8	802.65	0.48	9808.9	10115.87	306.97
Reach #1	0.27	PF 1	4500	1717.28	1727.47		1727.91	0.00411	5.9	890.69	0.41	9865.64	10171.27	305.63
Reach #1	0.480	PF 1	4500	1724.5	1734.3		1735.23	0.011151	8.12	644.19	0.65	9801.2	10164.02	362.82
Reach #1	0.620	PF 1	4500	1729.94	1737.48		1737.64	0.001336	3.08	1391.71	0.25	9673.37	10114.4	441.03
Reach #1	0.850	PF 1	4500	1736.05	1743.7	1743.7	1745.41	0.014759	11.19	436.85	0.82	9957.19	10079.63	122.44
Reach #1	1.060	PF 1	4500	1744.17	1751.83		1752.33	0.003503	5.62	798.82	0.41	9925.24	10099.43	174.19
Reach #1	1.220	PF 1	4500	1751.07	1757.04		1757.88	0.011742	7.36	611.77	0.69	9917.18	10092.67	175.49
Reach #1	1.450	PF 1	4500	1759.46	1764.62	1764.62	1766.35	0.024605	10.57	426.23	1	9955.09	10079.46	124.37
Reach #1	1.670	PF 1	4500	1766.77	1774.66	1773.53	1775.76	0.010576	8.54	575.69	0.69	9761.24	10270.39	509.15
Reach #1	1.920	PF 1	4500	1776.47	1783.91		1784.16	0.004176	3.99	1132.86	0.4	9684.97	10274.83	589.86
Reach #1	2.050	PF 1	4500	1779.44	1788.25		1788.9	0.010108	7.51	770.85	0.66	9672.32	10201.04	528.72
Reach #1	2.280	PF 1	4500	1786.83	1796.32		1796.56	0.004373	3.89	1217.18	0.4	9532.04	10357.26	825.22
Reach #1	2.420	PF 1	4500	1791.24	1800.59		1801.13	0.008409	6.63	868.39	0.59	9848.12	10516.79	668.67

IONA EAST SPLIT-1

HEC-RAS Plan: Iona ES-1 River: Reach #1 Reach: Iona ES-1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona ES-1	0	Floodplain	2020	1601.34	1605.54	1604.82	1605.94	0.007975	5.14	412.03	0.59	9814.7	10065.31	250.61
Iona ES-1	0	Floodway	2020	1601.34	1605.59	1604.82	1606.01	0.007973	5.21	388.08	0.59	9906	10065.47	159.47
Iona ES-1	0.061	Floodplain	2020	1602.54	1607.51		1607.75	0.004167	4.16	563.18	0.44	9884.33	10349.59	465.26
Iona ES-1	0.061	Floodway	2020	1602.54	1607.64		1607.96	0.004787	4.59	441.13	0.47	9902	10052	150
Iona ES-1	0.151	Floodplain	2020	1605.47	1610.26	1609.99	1610.91	0.010813	6.66	328.87	0.7	9882.9	10696.05	813.15
Iona ES-1	0.151	Floodway	2020	1605.47	1610.49	1609.9	1611.06	0.008853	6.19	338.57	0.64	9896	10262.32	366.32
Iona ES-1	0.179	Floodplain	2020	1605.38	1611.61	1610.32	1611.9	0.004475	4.38	480.76	0.45	9876.4	10801.85	925.45
Iona ES-1	0.179	Floodway	2020	1605.38	1611.66	1610.32	1611.95	0.004241	4.33	479.32	0.44	9877	10421	544
Iona ES-1	0.272	Floodplain	2020	1610.98	1615.72	1615.31	1615.99	0.020495	5.05	497.81	0.61	9960.45	10401.71	441.26
Iona ES-1	0.272	Floodway	2020	1610.98	1616.14	1616.14	1616.88	0.041584	8.11	313.47	0.89	9977	10250	273
Iona ES-1	0.329	Floodplain	2020	1610.98	1617.83		1617.92	0.003278	2.49	842.51	0.26	9826.98	10151.9	324.92
Iona ES-1	0.329	Floodway	2020	1610.98	1618.78		1618.87	0.002564	2.66	819.04	0.24	9871	10105	234
Iona ES-1	0.408	Floodplain	2020	1615.29	1619.31		1619.41	0.003889	2.46	798.81	0.27	9864.48	10206.36	341.88
Iona ES-1	0.408	Floodway	2020	1615.29	1620.11		1620.28	0.00452	3.18	601.03	0.31	9919	10080	161
Iona ES-1	0.492	Floodplain	1730	1615.8	1621.09		1621.23	0.00422	3.44	588.49	0.31	9830.34	10050.68	220.34
Iona ES-1	0.492	Floodway	1730	1615.8	1622.03		1622.22	0.004091	3.9	493.79	0.31	9909	10027	118
Iona ES-1	0.579	Floodplain	1730	1617.69	1623.06		1623.22	0.004973	3.49	544.87	0.32	9904.6	10086.83	182.23
Iona ES-1	0.579	Floodway	1730	1617.69	1623.89		1624.08	0.004469	3.77	493.41	0.31	9927	10047	120
Iona ES-1	0.654	Floodplain	1730	1620.33	1624.83		1624.94	0.004101	2.91	670.93	0.29	9850.19	10123.21	273.02
Iona ES-1	0.654	Floodway	1730	1620.33	1625.68		1625.85	0.004834	3.69	522.33	0.32	9915	10066	151
Iona ES-1	0.737	Floodplain	1730	1622.42	1626.74		1626.99	0.005472	4.3	440.14	0.41	9865.68	10030.47	164.79
Iona ES-1	0.737	Floodway	1730	1622.42	1627.74		1628.09	0.005378	5.07	367.18	0.43	9917	10008	91
Iona ES-1	0.827	Floodplain	1730	1625.2	1630.19		1630.72	0.012401	6.91	302.88	0.63	9944.92	10060.29	115.37
Iona ES-1	0.827	Floodway	1730	1625.2	1631.05		1631.83	0.012365	7.93	247.41	0.65	9970	10030	60
Iona ES-1	0.916	Floodplain	1730	1626.94	1633.65		1633.92	0.004253	4.6	419.54	0.37	9934.18	10063.57	129.39
Iona ES-1	0.916	Floodway	1730	1626.94	1634.54		1634.87	0.003888	4.94	380.2	0.37	9956	10032	76
Iona ES-1	1.002	Floodplain	1730	1629.51	1635.86		1636.16	0.005899	5.12	403.71	0.42	9892.48	10050.76	158.28
Iona ES-1	1.002	Floodway	1730	1629.51	1636.69		1637.13	0.006573	6.03	329.11	0.45	9930	10013	83
Iona ES-1	1.091	Floodplain	1730	1632.12	1638.91		1639.23	0.007302	5.56	395.46	0.48	9918.54	10115.87	197.33
Iona ES-1	1.091	Floodway	1730	1632.12	1639.86		1640.24	0.006619	6.07	379.62	0.47	9970	10086	116
Iona ES-1	1.187	Floodplain	1410	1637.37	1643.37	1643.13	1644.1	0.012953	7.79	223.12	0.66	9943.32	10047.78	104.46

Used to gain convergence w/ Trilby Wash

HEC-RAS Plan: Iona ES-1 River: Reach #1 Reach: Iona ES-1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona ES-1	1.187	Floodway	1410	1637.37	1643.99		1645.22	0.015419	9.29	163.5	0.74	9982	10019	37
Iona ES-1	1.298	Floodplain	1410	1642.56	1649.44	1648.66	1649.76	0.007437	4.7	311.34	0.47	9931.07	10078.38	147.31
Iona ES-1	1.298	Floodway	1410	1642.56	1650.31		1650.69	0.00612	5.02	289.11	0.44	9970	10047	77
Iona ES-1	1.387	Floodplain	1410	1645.73	1653.02		1653.79	0.009301	7.15	203.69	0.56	9974.44	10027.19	52.75
Iona ES-1	1.387	Floodway	1410	1645.73	1653.36		1654.14	0.008325	7.07	200.88	0.54	9981	10019	38
Iona ES-1	1.480	Floodplain	1410	1651.31	1658.45	1658.22	1659.33	0.013813	8.01	197.82	0.74	9967.85	10055.4	87.55
Iona ES-1	1.480	Floodway	1410	1651.31	1658.66		1660	0.01718	9.29	152.71	0.83	9982	10022	40
Iona ES-1	1.547	Floodplain	1410	1657.94	1662.3	1661.9	1662.47	0.00602	4.56	476.96	0.49	9596.37	10118.76	522.39
Iona ES-1	1.547	Floodway	1410	1657.94	1663.21	1662.59	1663.61	0.00656	5.76	287.71	0.53	9899	10020	121
Iona ES-1	1.628	Floodplain	1410	1663.95	1666.34	1666.28	1666.52	0.016331	3.04	428.04	0.64	9546.44	10951.61	1405.17
Iona ES-1	1.628	Floodway	1410	1663.95	1667.29	1667.06	1667.73	0.015048	5.19	264.17	0.71	9840	10019	179
Iona ES-1	1.722	Floodplain	1410	1668.05	1670.25	1669.79	1670.33	0.004675	1.72	651.59	0.35	9528.05	10958.57	1430.52
Iona ES-1	1.722	Floodway	1410	1668.05	1671.24	1670.47	1671.45	0.004676	2.77	381.94	0.39	9814	10011	197
Iona ES-1	1.834	Floodplain	1410	1672.14	1674.45	1674.33	1674.62	0.01332	3.66	438.91	0.63	9671.21	11231.66	1560.45
Iona ES-1	1.834	Floodway	1410	1672.14	1675.42	1675.16	1675.99	0.014307	5.84	233.93	0.72	9907	10035	128
Iona ES-1	1.949	Floodplain	1410	1676.21	1678.77	1678.41	1678.83	0.00431	2.45	711.4	0.37	9301.45	11475.65	2174.2
Iona ES-1	1.949	Floodway	1410	1676.21	1679.76	1679.02	1679.91	0.003596	3.22	441.8	0.37	9986	10233	247
Iona ES-1	2.054	Floodplain	1000	1679.26	1681.66	1681.43	1681.75	0.007578	1.8	427.49	0.43	9257.33	11171.34	1914.01
Iona ES-1	2.054	Floodway	1000	1679.26	1682.39	1682	1682.61	0.009969	3.62	267.73	0.56	9855	10065	210
Iona ES-1	2.266	Floodplain	1000	1686.99	1688.5		1688.55	0.004544	1.85	576.9	0.36	9220.44	10227.64	1007.2
Iona ES-1	2.266	Floodway	1000	1686.99	1688.56	1688.15	1688.6	0.003329	1.66	641.13	0.31	9217.85	10268.98	1051.13
Iona ES-1	2.545	Floodplain	1000	1696.82	1699.92		1700.09	0.016775	3.69	305.73	0.69	9651.16	10223.44	572.28
Iona ES-1	2.545	Floodway	1000	1696.82	1699.82	1699.82	1700.06	0.024287	4.47	254.89	0.83	9661.2	10220.6	559.4
Iona ES-1	2.828	Floodplain	1000	1707.3	1712.72		1712.79	0.003921	2.32	471.48	0.29	9440.44	10494.76	1054.32
Iona ES-1	2.828	Floodway	1000	1707.3	1712.69	1712.23	1712.77	0.004287	2.45	450.7	0.3	9441.81	10488	1046.19
Iona ES-1	3.130	Floodplain	440	1720.92	1724.85		1724.97	0.00646	2.99	163.86	0.4	9951.17	10125.39	174.22
Iona ES-1	3.130	Floodway	440	1720.92	1724.17	1724.17	1724.64	0.035836	5.63	80.74	0.9	9954.68	10097.31	142.63
Iona ES-1	3.419	Floodplain	290	1734.89	1737.81		1737.86	0.003201	1.95	157.1	0.27	9996.58	10209.51	212.93
Iona ES-1	3.419	Floodway	290	1734.89	1737.85		1737.9	0.002753	1.83	165.36	0.25	9996.52	10210.72	214.2
Iona ES-1	3.759	Floodplain	290	1756	1756.73	1756.73	1756.93	0.028788	3.42	82.66	0.84	9916.56	10129.38	212.82
Iona ES-1	3.759	Floodway	290	1756	1756.73	1756.73	1756.93	0.028788	3.42	82.66	0.84	9916.56	10129.38	212.82

Zone A

HEC-RAS Plan: Iona ES-1 River: Reach #1 Reach: Iona ES-1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona ES-1	4.047	Floodplain	290	1767.13	1770.35		1770.44	0.004395	3.16	146.12	0.41	9968.13	10259.47	291.34
Iona ES-1	4.047	Floodway	290	1767.13	1770.36	1770.18	1770.44	0.004256	3.11	147.98	0.4	9967.77	10259.52	291.75
Iona ES-1	4.349	Floodplain	190	1779.78	1783.01	1783.01	1783.4	0.031463	5.11	38.27	0.95	9972.81	10090.58	117.77
Iona ES-1	4.349	Floodway	190	1779.78	1783.01	1783.01	1783.4	0.031499	5.11	38.25	0.95	9972.82	10090.57	117.75
Iona ES-1	4.460	Floodplain	190	1784.63	1788.05		1788.1	0.003718	1.79	112.19	0.33	9926.29	10135.24	208.95
Iona ES-1	4.460	Floodway	190	1784.63	1788.76	1788.03	1788.89	0.004382	2.87	66.57	0.4	9981	10023	42
Iona ES-1	4.539	Floodplain	700	1789.03	1791.23	1790.99	1791.32	0.010252	2.96	298.86	0.52	9977.04	10585.48	608.44
Iona ES-1	4.539	Floodway	700	1789.03	1792.23	1791.88	1792.47	0.010899	4.52	182.36	0.58	9977	10109	132
Iona ES-1	4.638	Floodplain	700	1793.05	1795.43	1795.12	1795.52	0.00538	1.29	303.63	0.33	9852.36	10532.07	679.71
Iona ES-1	4.638	Floodway	700	1793.05	1796.16	1795.66	1796.3	0.004348	2.15	239.09	0.35	9972	10159	187
Iona ES-1	4.732	Floodplain	700	1795.39	1798.8	1798.71	1799.07	0.011723	4.79	172.83	0.65	9659.89	10009.17	349.28
Iona ES-1	4.732	Floodway	700	1795.39	1799.63	1799.6	1800.15	0.019434	6.03	121.15	0.83	9825	10008	183
Iona ES-1	4.808	Floodplain	700	1797.24	1802.82	1802.42	1803.05	0.008773	4.2	185.86	0.57	9955.95	10337.79	381.84
Iona ES-1	4.808	Floodway	700	1797.24	1803.6	1802.77	1803.87	0.005426	4.25	173.51	0.48	9961	10040	79
Iona ES-1	4.895	Floodplain	700	1802.09	1806.16	1805.6	1806.32	0.006029	3.21	221.04	0.47	9974.89	10143.53	168.64
Iona ES-1	4.895	Floodway	700	1802.09	1806.26	1805.61	1806.43	0.005768	3.31	211.77	0.47	9977	10114	137
Iona ES-1	4.977	Floodplain	700	1806.42	1809.66	1809.5	1809.9	0.011927	4.44	192.29	0.64	9845.25	10201.38	356.13
Iona ES-1	4.977	Floodway	700	1806.42	1809.96	1809.69	1810.52	0.017102	6.02	117.46	0.79	9994	10060	66
Iona ES-1	5.056	Floodplain	700	1811.52	1813.12	1812.83	1813.26	0.005819	1.29	246.96	0.34	9763.98	10072.45	308.47
Iona ES-1	5.056	Floodway	700	1811.52	1814	1813.49	1814.17	0.005191	2.52	225.31	0.38	9908	10070	162
Iona ES-1	5.108	Floodplain	700	1814.16	1816.27	1816.27	1816.71	0.029668	5.54	134.38	0.91	9923.08	10082.56	159.48
Iona ES-1	5.108	Floodway	700	1814.16	1816.53		1817	0.022666	5.53	127.02	0.82	9948	10038	90
Iona ES-1	5.172	Floodplain	700	1816.93	1820.25		1820.41	0.005719	3.36	223.49	0.43	9889.89	10070.57	180.68
Iona ES-1	5.172	Floodway	700	1816.93	1820.41	1819.73	1820.64	0.006401	3.76	183.64	0.46	9939	10039	100
Iona ES-1	5.261	Floodplain	4550	1820.89	1823.91	1823.48	1824.05	0.008561	3.08	1498.87	0.57	9895.69	11504.34	1608.65
Iona ES-1	5.261	Floodway	4550	1820.89	1824.28	1823.63	1824.51	0.008975	3.56	1193.07	0.6	9967	10811	844

Zone A

IONA EAST SPLIT-2

HEC-RAS Plan: Iona East Sp River: Reach #2 Reach: Iona East Split- Profile: Floodplain

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona East Split-	0.203	Floodplain	7100	1543.95	1553.51	1547.9	1553.51	0.000007	0.32	20457.22	0.02	8271	12636.46	4365.46
Iona East Split-	0.314	Floodplain	4090	1550.81	1553.72	1553.72	1554.29	0.019035	6.24	683.89	0.84	9592.83	10442	849.17
Iona East Split-	0.379	Floodplain	4090	1552.7	1556.75	1556	1556.88	0.003892	3.31	1423.19	0.39	9272.74	10704.77	1432.03
Iona East Split-	0.427	Floodplain	4090	1556.32	1558.27	1558.07	1558.57	0.010763	4.31	946.15	0.62	9565.48	10583.61	1018.13
Iona East Split-	0.525	Floodplain	4090	1559.06	1561.56		1561.72	0.004056	3.21	1305.11	0.4	9490.77	10656.76	1165.99
Iona East Split-	0.609	Floodplain	4090	1562.25	1564.41	1564.31	1564.74	0.012992	4.08	898.56	0.65	9342.4	10360.13	1017.73
Iona East Split-	0.684	Floodplain	4090	1565.24	1567.17		1567.37	0.004336	3.1	1197.07	0.41	9278.84	10360.95	1082.11
Iona East Split-	0.778	Floodplain	4090	1568.69	1570.05	1569.79	1570.25	0.008355	3.38	1131.62	0.53	9005.82	10502.47	1496.65
Iona East Split-	0.904	Floodplain	4090	1572.37	1574.07		1574.21	0.004252	2.38	1428.34	0.38	8932.55	10494.5	1561.95
Iona East Split-	0.982	Floodplain	4090	1574.88	1576.18	1576.03	1576.42	0.009133	2.74	1101.89	0.52	9006.73	10338.25	1331.52
Iona East Split-	1.044	Floodplain	4090	1575.41	1578.49		1578.67	0.00489	2.65	1236.74	0.41	9169.58	10288.49	1118.91
Iona East Split-	1.143	Floodplain	4090	1577.92	1581.3	1581.04	1581.48	0.006603	3.62	1197.79	0.49	8807.72	10166.3	1358.58
Iona East Split-	1.224	Floodplain	4090	1580.98	1584.07	1583.86	1584.27	0.006625	3.96	1189.79	0.51	8909.49	10301.31	1391.82
Iona East Split-	1.344	Floodplain	4090	1586.48	1588.07	1587.8	1588.22	0.006912	2.58	1317.59	0.45	8677.22	10233.71	1556.49
Iona East Split-	1.407	Floodplain	4090	1589.08	1590.33	1590.06	1590.52	0.006728	2.7	1216.06	0.48	8425.97	10118.11	1692.14
Iona East Split-	1.482	Floodplain	4090	1592.71	1593.88	1593.65	1594.09	0.007733	3.43	1136.05	0.65	8211.93	10617.13	2405.2
Iona East Split-	1.601	Floodplain	4090	1596.64	1597.78	1597.47	1597.95	0.006234	3.85	1268.93	0.69	8480.25	10447.43	1967.18
Iona East Split-	1.674	Floodplain	4090	1598.43	1600.55		1600.72	0.007928	3.32	1257.9	0.5	9296.95	10630.01	1333.06
Iona East Split-	1.729	Floodplain	4090	1600.89	1602.39	1601.93	1602.51	0.0052	3.04	1507.7	0.47	9364.61	10850.01	1485.4
Iona East Split-	1.798	Floodplain	4090	1602.74	1604.21	1603.85	1604.35	0.005694	2.68	1415.18	0.42	9480.05	10936.37	1456.32
Iona East Split-	1.868	Floodplain	4090	1604.76	1606.54		1606.69	0.006919	3.36	1343.7	0.48	9472.6	10914.46	1441.86
Iona East Split-	1.97	Floodplain	4090	1607.84	1609.78		1609.98	0.005679	2.94	1225.01	0.43	9440.25	10600.67	1160.42
Iona East Split-	2.051	Floodplain	4090	1611.16	1612.57		1612.79	0.008003	3.06	1177.19	0.51	9328.77	10595.43	1266.66
Iona East Split-	2.151	Floodplain	7020	1613.92	1615.22	1614.74	1615.32	0.004799	1.38	2804.32	0.28	9158.08	11814.63	2656.55

In Zone AH ponding area

TRILBY WASH

HEC-RAS Plan: Zone A River: Reach #1 Reach: TRILBY

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
TRILBY	18.481	Zone A	2670	1916	1920.6	1920.05	1921.22	0.012888	7.91	612.39	0.73	4756	5104	348
TRILBY	18.481	PF 2	2670	1916	1920.9	1920.66	1922.02	0.016598	9.47	374.04	0.84	4940	5065	125
TRILBY	18.537	Zone A	2670	1922.11	1926.02	1926.02	1926.75	0.010016	7.77	425.61	0.81	9864.09	10144.13	280.04
TRILBY	18.537	PF 2	2670	1922.11	1926.05	1926.05	1927.17	0.012903	8.89	320.75	0.93	9955	10092	137
TRILBY	18.615	Zone A	5900	1927.35	1931.61	1931.61	1932.29	0.01317	7.65	942.59	0.9	9486.47	10304	817.53
TRILBY	18.615	PF 2	5900	1927.35	1932.1	1932.1	1933.18	0.010628	7.82	732.76	0.83	9853	10181	328
TRILBY	18.710	Zone A	5900	1934.11	1938.09	1938.09	1938.82	0.013879	9.11	908.12	0.95	9788.44	10721.31	932.87
TRILBY	18.710	PF 2	5900	1934.11	1938.66	1938.66	1939.55	0.0112	9.24	802.52	0.88	9964	10378	414
TRILBY	18.769	Zone A	5900	1938.26	1943.45	1943.45	1943.98	0.007008	8.65	1204.76	0.73	9640.53	10577.32	936.79
TRILBY	18.769	PF 2	5900	1938.26	1943.99	1943.99	1944.89	0.00787	9.9	851.03	0.79	9892	10284	392
TRILBY	18.854	Zone A	5900	1943.35	1948.69	1948.69	1949.3	0.008412	8.6	1072.77	0.77	9522.89	10303.44	780.55
TRILBY	18.854	PF 2	5900	1943.35	1949.66	1949.66	1950.79	0.008811	10.03	736.73	0.81	9770	10052	282
TRILBY	18.927	Zone A	5900	1948.11	1954.25	1954.25	1954.84	0.006295	8.34	1173.05	0.69	9447.81	10376.02	928.21
TRILBY	18.927	PF 2	5900	1948.11	1954.99	1954.99	1956.36	0.008783	10.88	689.96	0.83	9830	10129	299
TRILBY	19.018	Zone A	5900	1954.12	1959.87	1959.87	1960.62	0.009162	9.28	974.85	0.82	9716.33	10456.97	740.64
TRILBY	19.018	PF 2	5900	1954.12	1960.24	1960.24	1961.69	0.010724	10.66	622.82	0.9	9949	10153	204
TRILBY	19.104	Zone A	5900	1959.91	1966.37	1966.37	1967.12	0.007011	9.69	990.67	0.74	9692.12	10292.36	600.24
TRILBY	19.104	PF 2	5900	1959.91	1967.35	1967.35	1968.65	0.007172	10.97	706.53	0.77	9895	10135	240
TRILBY	19.158	Zone A	5900	1964.15	1970.3	1970.3	1970.95	0.006847	9.33	1141.66	0.73	9599.1	10427.33	828.23
TRILBY	19.158	PF 2	5900	1964.15	1971.23	1971.23	1972.55	0.007389	10.83	697.69	0.78	9879	10118	239
TRILBY	19.240	Zone A	5900	1970.96	1976.53	1976.53	1977.15	0.005628	8.6	1210.48	0.67	9434.76	10414.78	980.02
TRILBY	19.240	PF 2	5900	1970.96	1977.52	1977.52	1978.78	0.006416	10.34	739.37	0.74	9877	10136	259
TRILBY	19.298	Zone A	5900	1975.59	1979.88	1979.88	1980.66	0.008913	8.93	900.46	0.81	9677.92	10327.98	650.06
TRILBY	19.298	PF 2	5900	1975.59	1980.01		1980.99	0.008731	9.05	767.4	0.8	9900	10204	304
TRILBY	19.352	Zone A	5900	1979.4	1983.47	1983.47	1984.34	0.010064	8.95	822.5	0.85	9540.99	10218.58	677.59
TRILBY	19.352	PF 2	5900	1979.4	1984.42	1984.42	1985.59	0.008859	9.88	731.98	0.83	9834	10119	285
TRILBY	19.439	Zone A	5900	1985.02	1989.74	1989.74	1990.56	0.009354	9.64	933.03	0.83	9437.94	10187.09	749.15
TRILBY	19.439	PF 2	5900	1985.02	1990.41	1990.41	1991.63	0.008998	10.45	701.83	0.84	9803	10059	256
TRILBY	19.493	Zone A	5900	1988.84	1993.46	1993.46	1994.33	0.00963	9.42	850	0.84	9451.34	10088.83	637.49
TRILBY	19.493	PF 2	5900	1988.84	1994.43	1994.43	1995.52	0.008281	10.12	762.37	0.81	9738	10040	302
TRILBY	19.556	Zone A	5900	1994.97	1999.37		2000.11	0.008179	8.78	951.89	0.78	99.74	949.39	849.65
TRILBY	19.556	PF 2	5900	1994.97	1999.24	1999.24	2000.11	0.009562	9.28	868.67	0.84	100.64	947.41	846.77
TRILBY	19.686	Zone A	5900	2003.81	2008.53		2009.19	0.009022	9.2	1040.49	0.82	70.92	977.04	906.12
TRILBY	19.686	PF 2	5900	2003.81	2008.53	2008.53	2009.19	0.008967	9.18	1043.43	0.81	70.88	977.12	906.24

From effective model; used to tie into FP/FW

Zone A

HEC-RAS Plan: Zone A River: Reach #1 Reach: TRILBY														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
TRILBY	19.829	Zone A	5900	2014.96	2019.82		2020.53	0.01014	8.49	946.58	0.84	55.33	752.11	696.78
TRILBY	19.829	PF 2	5900	2014.96	2019.78	2019.78	2020.53	0.010824	8.69	917.75	0.86	56.7	750.46	693.76
TRILBY	20.080	Zone A	5900	2030.37	2038.75		2039.72	0.004535	8.95	960.63	0.62	9594.92	10137.15	542.23
TRILBY	20.080	PF 2	5900	2030.37	2038.75	2038.75	2039.72	0.004539	8.95	960.25	0.62	9594.92	10137.12	542.2
TRILBY	20.281	Zone A	5900	2041.62	2053.58	2053.4	2055.94	0.006488	12.83	535.46	0.76	9655.67	10033.84	378.17
TRILBY	20.281	PF 2	5900	2041.62	2053.4	2053.4	2055.94	0.007097	13.24	512.58	0.79	9656.13	10032.97	376.84
TRILBY	20.434	Zone A	5900	2062.44	2068.51		2069.44	0.005823	9.49	903.4	0.7	9790.68	10197.43	406.75
TRILBY	20.434	PF 2	5900	2062.44	2068.5	2068.5	2069.44	0.005865	9.52	901.02	0.7	9790.74	10197.38	406.64

Zone A

CIRCLE CITY AREA WASH 1

HEC-RAS Plan: River: Reach #1 Reach: Reach #1														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.401	Floodplain	660	1770.89	1776.21	1775.3	1776.44	0.007631	3.9	170.66	0.52	9927.83	10030.06	102.23
Reach #1	0.401	Floodway	660	1770.89	1776.21	1775.3	1776.45	0.007761	3.93	168.14	0.52	9934	10030.06	96.06
Reach #1	0.493	Floodplain	660	1774.66	1779.36		1779.54	0.005371	3.39	194.69	0.44	9937.02	10042.13	105.11
Reach #1	0.493	Floodway	660	1774.66	1779.36	1778.48	1779.54	0.005272	3.41	193.83	0.44	9938	10040	102
Reach #1	0.555	Floodplain	660	1778.85	1781.73	1781.34	1782.03	0.011196	4.46	152.02	0.62	9969.11	10079.73	110.62
Reach #1	0.555	Floodway	660	1778.85	1781.74	1781.3	1782.07	0.011931	4.62	142.86	0.64	9969.05	10058	88.95
Reach #1	0.629	Floodplain	660	1783.51	1785.93	1785.64	1786.17	0.00992	3.54	171.21	0.56	9889.63	10059.45	169.82
Reach #1	0.629	Floodway	660	1783.51	1786.62		1787.1	0.013513	5.55	119.12	0.71	9973	10035	62
Reach #1	0.707	Floodplain	660	1786.65	1789.87	1789.31	1790.12	0.009104	4.03	164.33	0.56	9985.54	10092.44	106.9
Reach #1	0.707	Floodway	660	1786.65	1790.17	1789.31	1790.35	0.005134	3.4	194.46	0.43	9986	10088	102
Reach #1	0.829	Floodplain	660	1791.88	1794.37	1793.92	1794.54	0.005642	2.97	198.93	0.42	9992.77	10192.09	199.32
Reach #1	0.829	Floodway	660	1791.88	1795.3	1795.19	1795.88	0.017077	5.34	109.45	0.74	9993	10068	75
Reach #1	0.894	Floodplain	660	1795.41	1798.39	1798.39	1798.92	0.019175	6.08	115.44	0.89	9925.09	10030.2	105.11
Reach #1	0.894	Floodway	660	1795.41	1799.15		1799.52	0.007309	4.92	134.27	0.58	9969	10030	61
Reach #1	0.977	Floodplain	660	1799.25	1803.02	1802.66	1803.28	0.006088	4.47	172.09	0.54	9878.71	10022.14	143.43
Reach #1	0.977	Floodway	660	1799.25	1802.99	1802.58	1803.55	0.011618	6	110.36	0.72	9962	10014	52
Reach #1	1.030	Floodplain	660	1801.93	1805.18	1805.12	1805.76	0.012544	6.6	115.25	0.77	9984.69	10082.1	97.41
Reach #1	1.030	Floodway	660	1801.93	1805.73		1806.31	0.008369	6.23	108.75	0.65	9985	10027	42
Reach #1	1.121	Floodplain	660	1806.6	1810.36	1809.93	1810.79	0.008866	5.54	128.69	0.65	9984.97	10100.34	115.37
Reach #1	1.121	Floodway	660	1806.6	1810.39	1809.98	1811.02	0.011526	6.38	104.36	0.74	9984.88	10032	47.12
Reach #1	1.208	Floodplain	660	1811.69	1814.1	1813.89	1814.43	0.007183	3.14	159.88	0.52	9940.53	10071.38	130.85
Reach #1	1.208	Floodway	660	1811.69	1814.95	1814.37	1815.29	0.007537	4.69	141.13	0.59	9985	10057	72
Reach #1	1.281	Floodplain	520	1815.39	1817.8	1817.7	1818.12	0.014803	4.78	115.68	0.76	9974.49	10101.12	126.63
Reach #1	1.281	Floodway	520	1815.39	1818.09	1817.75	1818.34	0.008337	4.11	129.29	0.59	9977	10075	98
Reach #1	1.373	Floodplain	520	1820.92	1824.22	1824.03	1824.47	0.011487	4.33	129.13	0.68	9947.7	10113.7	166
Reach #1	1.373	Floodway	520	1820.92	1824.24	1824.21	1824.85	0.023508	6.27	83.3	0.97	9968	10033	65
Reach #1	1.454	Floodplain	520	1824.91	1829.16	1828.99	1829.49	0.012214	4.92	113.62	0.7	9922.61	10028.79	106.18
Reach #1	1.454	Floodway	520	1824.91	1829.93		1830.34	0.007953	5.12	101.73	0.59	9972	10016	44
Reach #1	1.539	Floodplain	520	1830.39	1833.96	1833.76	1834.2	0.009268	4.54	136.3	0.62	9890.68	10044.88	154.2
Reach #1	1.539	Floodway	520	1830.39	1834.03	1833.87	1834.32	0.010095	4.85	120.26	0.65	9904	10018	114
Reach #1	1.610	Floodplain	520	1835.51	1838.66	1838.66	1839.15	0.017301	5.49	95.81	0.82	9924.24	10075.97	151.73

Zone A

HEC-RAS Plan: River: Reach #1 Reach: Reach #1														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	1.610	Floodway	520	1835.51	1839.22	1839.22	1839.84	0.019515	5.42	84.5	0.86	9953	10022	69
Reach #1	1.687	Floodplain	520	1841.29	1843.34	1842.97	1843.54	0.007415	3.89	147.23	0.56	9883.62	10033.92	150.3
Reach #1	1.687	Floodway	520	1841.29	1843.65	1843.27	1843.86	0.005983	3.96	143.05	0.52	9909	10021	112
Reach #1	1.738	Floodplain	520	1843.37	1846.31	1846.22	1846.84	0.021733	5.86	88.91	0.92	9976.86	10053.48	76.62
Reach #1	1.738	Floodway	520	1843.37	1846.27	1846.23	1846.84	0.023557	6.03	86.29	0.96	9983	10052.95	69.95

2 WEST (NORTH OF CAP)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.066	Floodplain	4100	1546.93	1551.76	1547.6	1551.77	0.000059	0.46	7710.95	0.04	9529.12	11237.28	1708.16
Reach #1	0.066	Floodway	4100	1546.93	1551.76	1547.92	1551.77	0.000117	0.64	5879.07	0.05	9748	11074	1326
Reach #1	0.161	Floodplain	4100	1548.8	1551.81	1549.87	1551.83	0.000682	1.04	3418.21	0.12	9488.99	10994.72	1505.73
Reach #1	0.161	Floodway	4100	1548.8	1551.86	1550.13	1551.91	0.001859	1.74	2151.54	0.2	9866	10670	804
Reach #1	0.237	Floodplain	4100	1550.25	1552.36		1552.71	0.014936	3.35	892.96	0.58	9685.67	10643.68	958.01
Reach #1	0.237	Floodway	4100	1550.25	1553.15		1553.6	0.010827	4.17	785.49	0.54	9873	10289	416
Reach #1	0.319	Floodplain	4100	1549.65	1554.87	1553.98	1555	0.002699	2.91	1407.95	0.29	9578.63	10676.92	1098.29
Reach #1	0.319	Floodway	4100	1549.65	1555.4	1554.1	1555.68	0.002738	3.26	1005.25	0.3	9891	10225	334
Reach #1	0.426	Floodplain	4100	1551.04	1557.02	1556.74	1557.29	0.007178	4.5	999.19	0.46	9747.58	10629.98	882.4
Reach #1	0.426	Floodway	4100	1551.04	1557.79	1557.6	1558.7	0.013747	7.26	536.16	0.66	9953	10185	232
Reach #1	0.530	Floodplain	4100	1553.69	1560.97	1560.56	1561.42	0.007919	4.66	786.31	0.48	9711.29	10177.31	466.02
Reach #1	0.530	Floodway	4100	1553.69	1561.96	1560.91	1562.34	0.003849	3.95	841.46	0.35	9795	10083	288
Reach #1	0.597	Floodplain	4100	1556.74	1563.45		1563.7	0.004819	3.93	1020.35	0.37	9646.7	10257.79	611.09
Reach #1	0.597	Floodway	4100	1556.74	1563.81		1564.64	0.010028	6.06	567.31	0.54	9873	10086	213
Reach #1	0.673	Floodplain	4100	1560.07	1565.89	1565.66	1566.21	0.008588	5.75	932	0.52	9456.16	10319.17	863.01
Reach #1	0.673	Floodway	4100	1560.07	1566.88	1565.89	1567.41	0.005057	5.16	705.95	0.42	9899	10121	222
Reach #1	0.736	Floodplain	4100	1561.86	1568.61	1568.1	1568.91	0.007429	5.21	965.36	0.49	9674.14	10422.31	748.17
Reach #1	0.736	Floodway	4100	1561.86	1568.89		1569.46	0.007341	5.44	681	0.49	9870	10115	245
Reach #1	0.812	Floodplain	4100	1572.23	1572.87	1572.87	1573.31	0.012151	3.8	809.42	0.88	9021.86	10417.88	1396.02
Reach #1	0.812	Floodway	4100	1572.23	1573.71	1573.71	1574.39	0.011734	6.74	616.14	1	9660	10100	440
Reach #1	0.900	Floodplain	4100	1568.66	1574.89	1573.6	1574.98	0.001591	3.42	1772.27	0.25	9367.23	10438.18	1070.95
Reach #1	0.900	Floodway	4100	1568.66	1575.81	1573.73	1575.95	0.001427	3.57	1447.14	0.24	9800	10174	374
Reach #1	0.961	Floodplain	4100	1570.27	1575.94	1575.94	1576.54	0.012972	8.67	786.32	0.67	9839.53	10359.99	520.46
Reach #1	0.961	Floodway	4100	1570.27	1576.51	1576.16	1577.05	0.009451	7.94	794.3	0.58	9841	10179	338
Reach #1	1.046	Floodplain	4100	1571.54	1578.99	1578.3	1579.15	0.003834	3.55	1297.52	0.34	9711.7	10640.24	928.54
Reach #1	1.046	Floodway	4100	1571.54	1579.27	1578.34	1579.52	0.004072	3.86	1020.29	0.35	9840	10267	427
Reach #1	1.110	Floodplain	4100	1575.8	1580.98	1580.98	1581.91	0.017414	8.47	549.6	0.74	9969.77	10648.69	678.92
Reach #1	1.110	Floodway	4100	1575.8	1581.41	1581.41	1583.33	0.026991	11.26	371.74	0.93	9970	10467	497
Reach #1	1.119		Culvert											
Reach #1	1.127	Floodplain	4100	1577.05	1583.59	1581.69	1583.76	0.001874	3.59	1265.32	0.26	9811.82	10665.05	853.23
Reach #1	1.127	Floodway	4100	1577.05	1584.31	1581.68	1584.5	0.001354	3.3	1186.11	0.23	9982	10479	497

Located in Zone AH ponding area

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	1.196	Floodplain	1410	1580.04	1584.32		1584.34	0.000754	1.36	1143.27	0.14	9614.42	10291.38	676.96
Reach #1	1.196	Floodway	1410	1580.04	1584.99		1585.03	0.001125	1.92	837.8	0.18	9765	10094	329
Reach #1	1.298	Floodplain	1410	1583.16	1585.83	1585.83	1586.27	0.026071	4.09	268.09	0.72	9866.7	10202.74	336.04
Reach #1	1.298	Floodway	1410	1583.16	1586.51	1586.51	1587.23	0.026886	5.72	213.44	0.79	9959	10123	164
Reach #1	1.387	Floodplain	1410	1585.62	1589.84	1588.95	1590.03	0.003838	3.48	401.02	0.38	9916.58	10135.99	219.41
Reach #1	1.387	Floodway	1410	1585.62	1590.77	1589.47	1591.07	0.003879	4.28	324.53	0.4	9970	10079	109
Reach #1	1.472	Floodplain	1410	1588.52	1592.34	1592	1592.65	0.008526	5	327.18	0.56	9950.75	10224.8	274.05
Reach #1	1.472	Floodway	1410	1588.52	1593.17		1593.74	0.008939	6.21	243.28	0.6	9960	10078	118
Reach #1	1.550	Floodplain	1410	1590.44	1594.69		1594.82	0.003814	3.21	485.97	0.37	9746.62	10087.5	340.88
Reach #1	1.550	Floodway	1410	1590.44	1595.58		1595.8	0.003021	3.54	382.56	0.35	9893	10026	133
Reach #1	1.592	Floodplain	1410	1591.88	1595.56		1595.73	0.004328	3.31	435.59	0.39	9779.24	10124.29	345.05
Reach #1	1.592	Floodway	1410	1591.88	1596.37		1596.7	0.005368	4.53	311.21	0.46	9884	10044	160
Reach #1	1.658	Floodplain	1410	1593.64	1597.69	1597.48	1598.06	0.01031	5.73	297.37	0.62	9948.76	10201.66	252.9
Reach #1	1.658	Floodway	1410	1593.64	1598.52		1599.17	0.008872	6.37	218.35	0.6	9969	10042	73
Reach #1	1.714	Floodplain	1410	1595.63	1599.49		1599.62	0.003204	3.25	503.02	0.35	9784.3	10129.26	344.96
Reach #1	1.714	Floodway	1410	1595.63	1600.33		1600.53	0.00271	3.57	393.93	0.33	9895	10019	124
Reach #1	1.750	Floodplain	1410	1596.8	1600.55		1600.88	0.015084	5.11	319.35	0.7	9796.97	10069.22	272.25
Reach #1	1.750	Floodway	1410	1596.8	1601.06		1601.77	0.018458	6.74	210.19	0.81	9939	10036	97
Reach #1	1.808	Floodplain	1410	1598.86	1603.34	1602.83	1603.54	0.005477	4	392.64	0.44	9864.86	10151.56	286.7
Reach #1	1.808	Floodway	1410	1598.86	1604.23	1603.3	1604.63	0.005485	4.89	279.21	0.46	9962	10064	102
Reach #1	1.911	Floodplain	1040	1603.29	1607.09	1607.03	1607.61	0.012991	6.65	185.44	0.74	9914.81	10062.73	147.92
Reach #1	1.911	Floodway	1040	1603.29	1607.86	1607.42	1608.81	0.012911	7.93	133.1	0.77	9969	10013	44
Reach #1	1.947	Floodplain	1040	1604.36	1608.9		1609.04	0.004697	3.39	345.61	0.43	9953.65	10278.92	325.27
Reach #1	1.947	Floodway	1040	1604.36	1609.88		1610.15	0.004025	4.13	253.08	0.42	9978	10080	102
Reach #1	2.023	Floodplain	1040	1606.72	1611.42	1611.33	1612.2	0.013682	7.69	153.86	0.76	9942.52	10034.22	91.7
Reach #1	2.023	Floodway	1040	1606.72	1611.98		1613.28	0.015518	9.14	114.55	0.83	9985	10016	31
Reach #1	2.048	Floodplain	1040	1608.32	1613.34	1613.34	1614.12	0.011862	7.75	165.42	0.74	9898.33	10019.45	121.12
Reach #1	2.048	Floodway	1040	1608.32	1613.96		1615.06	0.011337	8.46	125.01	0.75	9975	10007	32
Reach #1	2.134	Floodplain	1040	1610.76	1616.5		1616.81	0.003515	4.84	254.82	0.42	9964.15	10100.2	136.05
Reach #1	2.134	Floodway	1040	1610.76	1617.22		1617.61	0.003223	5	208.4	0.4	9984	10027	43
Reach #1	2.215	Floodplain	1040	1613.64	1618.53		1619.6	0.01252	8.55	130.24	0.78	9982.69	10034.92	52.23

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	2.215	Floodway	1040	1613.64	1619.07		1620.15	0.011303	8.36	124.55	0.71	9987	10016	29
Reach #1	2.303	Floodplain	1040	1617.05	1623.88	1623.09	1624.64	0.009395	7.41	162.45	0.64	9966.64	10072.8	106.16
Reach #1	2.303	Floodway	1040	1617.05	1624.14	1623.09	1625.15	0.010256	8.06	129.18	0.68	9987	10017	30
Reach #1	2.369	Floodplain	1040	1619.8	1626.96		1627.49	0.007151	6.43	192.44	0.58	9949.29	10057.32	108.03
Reach #1	2.369	Floodway	1040	1619.8	1627.46		1628.3	0.007939	7.36	142.63	0.62	9984	10017	33
Reach #1	2.426	Floodplain	1040	1625.72	1629.69	1629.53	1630.72	0.015706	8.28	129.68	0.85	9979.88	10034.01	54.13
Reach #1	2.426	Floodway	1040	1625.72	1630.17		1631.04	0.010463	7.48	139.73	0.71	9984	10025	41
Reach #1	2.478	Floodplain	1040	1627.12	1632.76		1633.43	0.006574	6.87	162.48	0.58	9975.67	10028.33	52.66
Reach #1	2.478	Floodway	1040	1627.12	1632.76		1633.75	0.008963	8.03	132.03	0.68	9981	10012	31
Reach #1	2.565	Floodplain	1040	1630.89	1635.24		1635.47	0.003093	4.02	274.64	0.39	9908.57	10030.26	121.69
Reach #1	2.565	Floodway	1040	1630.89	1635.96		1636.35	0.003779	5.05	207.97	0.44	9968	10022	54
Reach #1	2.622	Floodplain	1040	1633.82	1637.69	1637.69	1638.8	0.013484	8.66	126.58	0.94	9970.7	10030.07	59.37
Reach #1	2.622	Floodway	1040	1633.82	1637.69	1637.69	1639.03	0.016367	9.3	111.96	1	9979	10021	42
Reach #1	2.667	Floodplain	1040	1635.66	1640.21	1639.61	1641	0.006419	7.37	151.74	0.68	9957.91	10013.44	55.53
Reach #1	2.667	Floodway	1040	1635.66	1640.56	1639.6	1641.43	0.006525	7.5	139.83	0.66	9974	10009	35
Reach #1	2.718	Floodplain	1040	1637.17	1641.83		1642.13	0.002691	4.49	253.15	0.43	9787.55	10045.64	258.09
Reach #1	2.718	Floodway	1040	1637.17	1642.15		1642.44	0.002153	4.27	244.29	0.39	9979	10045.71	66.71
Reach #1	2.794	Floodplain	1040	1640.25	1642.87		1642.96	0.002288	2.33	444.67	0.34	9600.26	10018.83	418.57
Reach #1	2.794	Floodway	1040	1640.25	1643.25		1643.72	0.006821	4.7	191.66	0.62	9911	10016	105
Reach #1	2.884	Floodplain	1040	1642.02	1645.53	1645.53	1645.83	0.009021	5.99	279.35	0.72	9562.45	10010.92	448.47
Reach #1	2.884	Floodway	1040	1642.02	1646.53	1646.53	1647.33	0.009426	7.91	155.7	0.79	9925	10011	86
Reach #1	2.965	Floodplain	1040	1644.15	1649.23	1649.23	1649.64	0.005274	6.38	259.78	0.59	9713.07	10014.45	301.38
Reach #1	2.965	Floodway	1040	1644.15	1650.03	1649.38	1651.11	0.007519	8.56	131.31	0.71	9955	10014	59
Reach #1	3.045	Floodplain	1040	1648.6	1652.41	1652.06	1652.54	0.009462	3.04	371.07	0.45	9849.4	10306.74	457.34
Reach #1	3.045	Floodway	1040	1648.6	1653.41	1652.31	1653.52	0.004251	2.92	382.12	0.33	9920	10097	177
Reach #1	3.136	Floodplain	1040	1653.3	1654.98	1654.31	1655.02	0.00325	1.76	622.82	0.27	9728.99	10304.92	575.93
Reach #1	3.136	Floodway	1040	1653.3	1655.6		1655.72	0.004936	2.79	370.74	0.35	9966	10149	183
Reach #1	3.219	Floodplain	1040	1655.19	1657.6		1657.75	0.015843	3.63	343.18	0.58	9729.52	10152.09	422.57
Reach #1	3.219	Floodway	1040	1655.19	1658.48	1657.76	1658.71	0.009812	4.09	274.3	0.5	9868	10013	145
Reach #1	3.315	Floodplain	1040	1659.01	1661.07		1661.18	0.003714	1.87	432.09	0.28	9790.68	10223.39	432.71
Reach #1	3.315	Floodway	1040	1659.01	1661.38		1661.52	0.003548	2.1	376.42	0.29	9912	10136	224
Reach #1	3.399	Floodplain	1040	1662.26	1664.21	1664.15	1664.61	0.023311	4.32	210.48	0.7	9932.52	10158.92	226.4
Reach #1	3.399	Floodway	1040	1662.26	1664.55	1664.53	1665.28	0.034481	6.15	155.86	0.87	9945	10052	107

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	3.484	Floodplain	1040	1664.42	1668.06		1668.2	0.003961	2.73	358.47	0.32	9894.01	10145.86	251.85
Reach #1	3.484	Floodway	1040	1664.42	1668.9		1669.14	0.00372	3.26	273.73	0.33	9955	10051	96
Reach #1	3.553	Floodplain	1040	1668.08	1670.53	1670.52	1671.02	0.019302	2.99	202.44	0.59	9848.78	10053.25	204.47
Reach #1	3.553	Floodway	1040	1668.08	1671.35	1671.2	1671.96	0.022171	5.13	174.02	0.71	9930	10042	112

2 WEST TRIBUTARY-1

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Wash 2 West Trib

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wash 2 West Trib	0	Floodplain	3930	1569.92	1575.4	1575.03	1575.77	0.005804	5.8	824.05	0.52	9665.81	10327.03	661.22
Wash 2 West Trib	0	Floodway	3930	1569.92	1576.4	1575.52	1577.08	0.005801	6.74	593.76	0.54	9971	10140	169
Wash 2 West Trib	0.109	Floodplain	3930	1571.49	1578.82	1578.59	1579.19	0.006114	5.31	834.87	0.51	9564.9	10226.8	661.9
Wash 2 West Trib	0.109	Floodway	3930	1571.49	1579.73		1580.48	0.005974	6.18	577.99	0.53	9872	10053	181
Wash 2 West Trib	0.282	Floodplain	3930	1580.55	1584.95	1584.79	1585.48	0.008827	5.99	671.13	0.61	9476.35	10039.17	562.82
Wash 2 West Trib	0.282	Floodway	3930	1580.55	1585.84	1585.54	1586.49	0.007939	6.74	616.12	0.6	9716	10039	323
Wash 2 West Trib	0.36	Floodplain	3930	1582	1588.34	1588.34	1588.91	0.005995	7.4	770.88	0.56	9680.72	10284.93	604.21
Wash 2 West Trib	0.36	Floodway	3930	1582	1588.54		1589.16	0.005198	7.05	637.77	0.52	9828	10091	263
Wash 2 West Trib	0.456	Floodplain	5080	1585.73	1591.18	1590.8	1591.44	0.003847	6.2	1497.66	0.56	9273.66	10338.26	1064.6
Wash 2 West Trib	0.456	Floodway	5080	1585.73	1591.44		1591.83	0.0046	7.08	1190.91	0.62	9456	10077	621
Wash 2 West Trib	0.543	Floodplain	5080	1588.43	1593.03		1593.47	0.006149	7.45	1195.64	0.7	9346.39	10258.2	911.81
Wash 2 West Trib	0.543	Floodway	5080	1588.43	1593.54		1594.21	0.006716	8.53	995.41	0.75	9573	10079	506
Wash 2 West Trib	0.629	Floodplain	5080	1591.19	1595.96		1596.42	0.006767	8.48	1195.7	0.75	9396.93	10409.21	1012.28
Wash 2 West Trib	0.629	Floodway	5080	1591.19	1596.33		1596.76	0.004659	7.47	1124.48	0.63	9542	10064	522
Wash 2 West Trib	0.728	Floodplain	5080	1593.6	1599.43		1600.22	0.00737	9.2	1001.17	0.79	9427.25	10349.93	922.68
Wash 2 West Trib	0.728	Floodway	3930	1593.6	1599.64	1599.64	1600.81	0.007512	9.59	509.61	0.8	9855	10052	197
Wash 2 West Trib	0.81	Floodplain	5080	1596.04	1601.8		1602.23	0.003084	5.93	1292.69	0.51	9234.9	10131.45	896.55
Wash 2 West Trib	0.81	Floodway	3930	1596.04	1602.12		1602.56	0.002354	5.44	761.68	0.45	9915	10126	211
Wash 2 West Trib	0.9	Floodplain	3930	1598.98	1604.03	1604.03	1604.79	0.004335	4.26	579.55	0.41	9560.53	10009.13	448.6
Wash 2 West Trib	0.9	Floodway	3930	1598.98	1605.01	1605.01	1605.99	0.010163	6.88	498.36	0.63	9744	10009	265
Wash 2 West Trib	0.974	Floodplain	3930	1602.71	1607.03	1607.03	1607.59	0.010838	6.12	666.31	0.66	9476.56	10107.15	630.59
Wash 2 West Trib	0.974	Floodway	3930	1602.71	1607.83		1608.47	0.004479	4.55	629.79	0.43	9762	10019	257
Wash 2 West Trib	1.031	Floodplain	3930	1605.41	1610.47	1609.83	1610.69	0.007257	5.61	1117.63	0.51	9423.83	10491.86	1068.03
Wash 2 West Trib	1.031	Floodway	3930	1605.41	1610.7	1610.7	1611.63	0.020653	9.85	536.8	0.87	9700	10027	327
Wash 2 West Trib	1.098	Floodplain	3930	1608.4	1613.24	1613	1613.5	0.009244	4.74	1015.13	0.52	9320.5	10406.1	1085.6
Wash 2 West Trib	1.098	Floodway	3930	1608.4	1614.03		1614.16	0.003548	3.51	1374.18	0.34	9438	10192	754
Wash 2 West Trib	1.181	Floodplain	3930	1613.97	1615.8	1615.45	1616.02	0.007456	1.76	1088.15	0.39	9146.33	10428.07	1281.74
Wash 2 West Trib	1.181	Floodway	3930	1613.97	1615.99	1615.97	1616.48	0.023063	3.63	708.58	0.72	9228	10052	824
Wash 2 West Trib	1.25	Floodplain	4030	1616.53	1618.5	1618.24	1618.77	0.011054	2.98	989.56	0.52	9179.51	10307.74	1128.23
Wash 2 West Trib	1.25	Floodway	4030	1616.53	1619.4	1618.73	1619.59	0.006267	3.42	1141.63	0.43	9298	10068	770
Wash 2 West Trib	1.328	Floodplain	4030	1620.56	1622.18		1622.4	0.00827	2.75	1103.97	0.46	9176.24	10249.61	1073.37

To get convergence in model

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Wash 2 West Trib														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wash 2 West Trib	1.328	Floodway	4030	1620.56	1622.72	1622.39	1623.03	0.013755	4.6	902.5	0.63	9338	10048	710
Wash 2 West Trib	1.393	Floodplain	4030	1623.47	1624.45	1623.9	1624.63	0.006627	1.4	1195.89	0.35	9339.6	10540.87	1201.27
Wash 2 West Trib	1.393	Floodway	4030	1623.47	1625.44	1624.59	1625.62	0.005774	1.79	1192.37	0.36	9600	10314	714
Wash 2 West Trib	1.511	Floodplain	4030	1628.33	1629.46	1629.07	1629.87	0.011113	2.67	800.39	0.51	9498.88	10260.01	761.13
Wash 2 West Trib	1.511	Floodway	4030	1628.33	1630.17	1629.89	1630.68	0.012115	3.49	730.5	0.56	9646	10179	533
Wash 2 West Trib	1.572	Floodplain	4030	1630.54	1632.47	1631.95	1632.65	0.006288	2.15	1205.87	0.39	9479.97	10428.55	948.58
Wash 2 West Trib	1.572	Floodway	4030	1630.54	1633.35		1633.63	0.006507	3.38	958.98	0.44	9760	10234	474
Wash 2 West Trib	1.651	Floodplain	4030	1632.81	1635.9	1635.55	1636.2	0.011488	5.54	923.04	0.62	9567.77	10316.73	748.96
Wash 2 West Trib	1.651	Floodway	4030	1632.81	1636.79		1637.34	0.01158	6.82	684.43	0.65	9773	10059	286
Wash 2 West Trib	1.74	Floodplain	4030	1635.62	1640.39		1640.81	0.007888	5.44	773.69	0.54	9806.32	10144.95	338.63
Wash 2 West Trib	1.74	Floodway	4030	1635.62	1641.29		1641.96	0.007871	6.43	623.15	0.56	9899	10070	171
Wash 2 West Trib	1.793	Floodplain	4030	1637.33	1642.79		1643.36	0.010135	7.08	686.89	0.63	9868.01	10174.77	306.76
Wash 2 West Trib	1.793	Floodway	4030	1637.33	1643.55		1644.19	0.007956	7.06	638.4	0.58	9930	10090	160
Wash 2 West Trib	1.864	Floodplain	4030	1640.27	1645.45		1645.66	0.004037	4.84	1145.31	0.41	9630.01	10218.2	588.19
Wash 2 West Trib	1.864	Floodway	4030	1640.27	1646.26		1646.68	0.005624	6.39	815.53	0.49	9880	10142	262
Wash 2 West Trib	1.944	Floodplain	4030	1644.58	1648.21	1648.05	1648.73	0.016741	6.78	718.51	0.75	9604.65	10291.46	686.81
Wash 2 West Trib	1.944	Floodway	4030	1644.58	1649.21	1648.63	1649.68	0.009413	6.35	753.96	0.6	9816	10154	338
Wash 2 West Trib	2.033	Floodplain	1800	1648.51	1653.12	1652.01	1653.42	0.004489	4.84	487.62	0.42	9549.69	10094.03	544.34
Wash 2 West Trib	2.033	Floodway	1800	1648.51	1653.1	1651.92	1653.52	0.005895	5.52	374.18	0.48	9885	10091	206
Wash 2 West Trib	2.091	Floodplain	1800	1652.5	1655	1654.62	1655.6	0.011029	5.44	295.66	0.61	9960.65	10535.75	575.1
Wash 2 West Trib	2.091	Floodway	1800	1652.5	1655.58	1655.43	1656.13	0.012684	6.53	311.76	0.66	9966	10219	253
Wash 2 West Trib	2.098		Culvert											
Wash 2 West Trib	2.105	Floodplain	1800	1652.43	1657.43	1654.77	1657.52	0.001399	2.99	765.69	0.24	9963.13	10561.81	598.68
Wash 2 West Trib	2.105	Floodway	1800	1652.43	1658.18	1655.69	1658.3	0.001355	3.24	682.95	0.24	9968	10227	259
Wash 2 West Trib	2.195	Floodplain	1800	1655.71	1659.16	1659.16	1659.87	0.022334	8.08	284.02	0.88	9840.51	10025.85	185.34
Wash 2 West Trib	2.195	Floodway	1800	1655.71	1659.61	1659.61	1660.74	0.024368	9.39	221.55	0.94	9932	10026	94
Wash 2 West Trib	2.262	Floodplain	1800	1658.78	1662.91		1663.18	0.005366	4.89	446.34	0.45	9842.74	10056.99	214.25
Wash 2 West Trib	2.262	Floodway	1800	1658.78	1663.69		1664.07	0.005095	5.15	366.69	0.43	9905	10015	110
Wash 2 West Trib	2.339	Floodplain	1800	1662.4	1666.19	1666.18	1666.95	0.018726	8.36	275.78	0.86	9899.61	10064.64	165.03
Wash 2 West Trib	2.339	Floodway	1800	1662.4	1666.95	1666.95	1668.12	0.019573	9.95	220.8	0.91	9952	10038	86
Wash 2 West Trib	2.418	Floodplain	1800	1665.53	1671.22	1670.58	1671.81	0.007896	7.03	317.75	0.6	9911.69	10089.85	178.16

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Wash 2 West Trib														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wash 2 West Trib	2.418	Floodway	1800	1665.53	1672.13	1670.78	1672.95	0.007498	7.35	248.26	0.56	9981	10034	53
Wash 2 West Trib	2.51	Floodplain	1800	1669.59	1675.07	1674.63	1675.51	0.007344	6.12	349.59	0.55	9972.37	10144.07	171.7
Wash 2 West Trib	2.51	Floodway	1800	1669.59	1675.89		1676.52	0.007172	6.9	290.78	0.57	9974	10069	95
Wash 2 West Trib	2.571	Floodplain	1800	1672.92	1677.62		1678.22	0.009779	7.26	327.13	0.65	9919.42	10097.5	178.08
Wash 2 West Trib	2.571	Floodway	1800	1672.92	1678.34		1679.33	0.01026	8.35	236.72	0.69	9964	10025	61
Wash 2 West Trib	2.64	Floodplain	1800	1676.47	1681.25		1681.69	0.009105	6.87	373.82	0.62	9894.42	10110.42	216
Wash 2 West Trib	2.64	Floodway	1800	1676.47	1682.1		1682.8	0.008622	7.65	282.1	0.62	9941	10025	84
Wash 2 West Trib	2.73	Floodplain	1800	1680.69	1685.41	1684.95	1685.85	0.008656	6.91	370.79	0.6	9903.64	10154.7	251.06
Wash 2 West Trib	2.73	Floodway	1800	1680.69	1686.23		1687.1	0.009541	8.19	244.53	0.65	9989	10065	76
Wash 2 West Trib	2.788	Floodplain	1800	1684.02	1688.17	1687.91	1688.57	0.008862	6.48	392.56	0.61	9849.15	10116.16	267.01
Wash 2 West Trib	2.788	Floodway	1800	1684.02	1689.13		1689.74	0.007585	7.05	296.35	0.59	9936	10024	88
Wash 2 West Trib	2.885	Floodplain	1800	1689.06	1692.81	1692.52	1693.14	0.009177	5.82	419	0.61	9811.35	10116.86	305.51
Wash 2 West Trib	2.885	Floodway	1800	1689.06	1693.63		1694.27	0.010628	7.17	288.5	0.66	9923	10025	102
Wash 2 West Trib	2.969	Floodplain	1800	1693.02	1696.9		1697.32	0.009679	6.18	373.69	0.63	9898.69	10162.85	264.16
Wash 2 West Trib	2.969	Floodway	1800	1693.02	1697.81		1698.44	0.008481	6.89	286.53	0.61	9982	10087	105
Wash 2 West Trib	3.062	Floodplain	1800	1697.34	1701.73		1702.19	0.010424	6.59	360	0.65	9893.88	10147.51	253.63
Wash 2 West Trib	3.062	Floodway	1800	1697.34	1702.5		1703.3	0.011736	8.03	257.77	0.71	9941	10025	84
Wash 2 West Trib	3.161	Floodplain	1800	1703.51	1706.94	1706.63	1707.2	0.008897	5.33	481.22	0.58	9660	10346.07	686.07
Wash 2 West Trib	3.161	Floodway	1800	1703.51	1707.9	1707.1	1708.39	0.008156	6.29	334.6	0.59	9907	10108	201
Wash 2 West Trib	3.237	Floodplain	1800	1707.46	1711.1	1711.02	1711.46	0.012049	6.08	418.67	0.67	9820.97	10513.74	692.77
Wash 2 West Trib	3.237	Floodway	1800	1707.46	1711.85	1711.63	1712.47	0.013076	7.53	319.37	0.73	9975	10215	240
Wash 2 West Trib	3.335	Floodplain	1800	1712.51	1717.02	1716.99	1717.41	0.010977	6.47	444.94	0.66	9735.57	10276.59	541.02
Wash 2 West Trib	3.335	Floodway	1800	1712.51	1717.86	1717.36	1718.63	0.01086	7.6	269.24	0.69	9952	10043	91
Wash 2 West Trib	3.413	Floodplain	1800	1715.45	1719.66	1719.1	1719.83	0.004611	3.62	553.55	0.42	9665.25	10039.96	374.71
Wash 2 West Trib	3.413	Floodway	1800	1715.45	1720.63		1720.86	0.003623	3.93	467.58	0.39	9864	10045	181

2 WEST TRIBUTARY-2

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West Trib-2

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West Trib-2	0.084	Floodplain	2870	1545.67	1551.8	1547.69	1551.8	0.000047	0.43	5992.15	0.04	8551.29	10642.38	2091.09
2 West Trib-2	0.084	Floodway	2870	1545.67	1551.8	1547.9	1551.81	0.000093	0.6	4279.91	0.05	9203	10141	938
2 West Trib-2	0.154	Floodplain	2870	1548.35	1551.82	1550.19	1551.85	0.000382	1.1	2288.69	0.13	8756.8	10797.94	2041.14
2 West Trib-2	0.154	Floodway	2870	1548.35	1551.85	1550.42	1551.9	0.000937	1.73	1558.78	0.2	9437	10132	695
2 West Trib-2	0.225	Floodplain	1410	1550.52	1552.26	1552.26	1552.53	0.037729	4.28	341.05	0.92	9468.57	10181.07	712.5
2 West Trib-2	0.225	Floodway	1410	1550.52	1552.53	1552.53	1552.9	0.030634	4.83	290.16	0.87	9696	10097	401
2 West Trib-2	0.313	Floodplain	1410	1554.44	1555.89		1555.93	0.0025	1.67	860.7	0.26	9197.6	10229.71	1032.11
2 West Trib-2	0.313	Floodway	1410	1554.44	1556.44		1556.53	0.002945	2.31	585.36	0.3	9640	10049	409
2 West Trib-2	0.405	Floodplain	1410	1559.14	1559.73	1559.73	1559.96	0.026044	3.68	384.37	0.9	9364.16	10202.07	837.91
2 West Trib-2	0.405	Floodway	1410	1559.14	1560.18	1560.18	1560.67	0.02652	5.56	257.9	1	9797	10063	266
2 West Trib-2	0.508	Floodplain	1410	1560.86	1564.14	1563.76	1564.26	0.003898	2.23	549.61	0.34	9429.03	10151.11	722.08
2 West Trib-2	0.508	Floodway	1410	1560.86	1565.14	1564.56	1565.28	0.004182	3.35	470.84	0.39	9663	10028	365
2 West Trib-2	0.638	Floodplain	1410	1563.38	1567.36	1567.03	1567.5	0.00694	3.32	477.96	0.46	9340.31	10083.85	743.54
2 West Trib-2	0.638	Floodway	1410	1563.38	1568.08	1567.29	1568.29	0.005411	3.71	388.3	0.44	9873	10073	200
2 West Trib-2	0.726	Floodplain	1410	1565.83	1569.37	1568.92	1569.42	0.003107	1.7	747.92	0.29	9967.19	10909.46	942.27
2 West Trib-2	0.726	Floodway	1410	1565.83	1570.35		1570.53	0.004656	3.23	411.54	0.4	9978	10210	232
2 West Trib-2	0.790	Floodplain	1410	1568.1	1571.57	1571.45	1571.76	0.013236	4.23	416.73	0.62	9896.44	10595.28	698.84
2 West Trib-2	0.790	Floodway	1410	1568.1	1572.49		1572.8	0.006953	4.13	320.71	0.47	9986	10184	198
2 West Trib-2	0.850	Floodplain	1410	1570.75	1574.17		1574.28	0.004851	2.77	575.28	0.39	9777.12	10560.7	783.58
2 West Trib-2	0.850	Floodway	1410	1570.75	1574.96		1575.25	0.007346	4.4	321.23	0.51	9971	10144	173
2 West Trib-2	0.937	Floodplain	1410	1574.01	1577.65		1577.81	0.012073	3.51	458.11	0.58	9669.97	10864.12	1194.15
2 West Trib-2	0.937	Floodway	1410	1574.01	1578.5		1578.77	0.007631	4.05	339.33	0.51	9951	10135	184
2 West Trib-2	1.040	Floodplain	1410	1580.34	1581.97	1581.57	1582.04	0.005372	2.28	696.98	0.37	9504.47	10765.3	1260.83
2 West Trib-2	1.040	Floodway	1410	1580.34	1582.62	1582.04	1582.81	0.007254	3.56	411.62	0.46	9911	10172	261
2 West Trib-2	1.128	Floodplain	1410	1582.05	1584.26	1583.9	1584.35	0.004782	1.65	617.39	0.33	9753.25	10664.04	910.79
2 West Trib-2	1.128	Floodway	1410	1582.05	1585.22	1584.61	1585.35	0.004421	2.69	492.2	0.36	9951	10305	354
2 West Trib-2	1.199	Floodplain	1150	1582.98	1586.52	1586.32	1586.63	0.008445	2.82	442.26	0.46	9945.98	10636.57	690.59
2 West Trib-2	1.199	Floodway	1150	1582.98	1587.09		1587.24	0.005975	3.08	369.99	0.41	9945	10228	283
2 West Trib-2	1.272	Floodplain	1150	1585.89	1588.75		1588.85	0.004698	2.21	484.17	0.35	9762.53	10413.64	651.11
2 West Trib-2	1.272	Floodway	1150	1585.89	1589.2	1588.76	1589.38	0.005818	3.02	341.46	0.41	9899	10174	275
2 West Trib-2	1.315	Floodplain	5080	1587.16	1590.78	1590.56	1591.12	0.010687	4.52	1088.72	0.63	9776.48	10825.53	1049.05

In Zone AH ponding Area

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West Trib-2

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West Trib-2	1.315	Floodway	5080	1587.16	1591.14	1590.75	1591.54	0.009352	4.8	1000.61	0.6	9947	10568	621
2 West Trib-2	1.386	Floodplain	5080	1591.47	1593.33		1593.53	0.004557	2.7	1475.3	0.37	9660.36	10581.35	920.99
2 West Trib-2	1.386	Floodway	5080	1591.47	1593.96		1594.34	0.005306	3.61	1057.75	0.42	9952	10397	445
2 West Trib-2	1.469	Floodplain	5080	1593.49	1595.95	1595.63	1596.25	0.008046	3.78	1199.69	0.5	9699.48	10711.06	1011.58
2 West Trib-2	1.469	Floodway	5080	1593.49	1596.44		1596.91	0.005978	3.83	928.05	0.45	9986	10368	382
2 West Trib-2	1.571	Floodplain	5080	1596.79	1599.73	1599.2	1600	0.006198	3.48	1238.52	0.44	9808.02	10766.88	958.86
2 West Trib-2	1.571	Floodway	1150	1596.79	1599.97		1600.17	0.006256	3.74	322.92	0.45	9935	10095	160
2 West Trib-2	1.660	Floodplain	5080	1599.7	1601.74		1602.06	0.003523	1.75	1236.83	0.32	9721.03	10612.71	891.68
2 West Trib-2	1.660	Floodway	1150	1599.7	1602.63		1602.84	0.005331	3.37	333.23	0.45	9891	10100	209
2 West Trib-2	1.679	Floodplain	1150	1600.08	1602.55		1602.63	0.00493	2.41	496.88	0.39	9705.48	10278.52	573.04
2 West Trib-2	1.679	Floodway	1150	1600.08	1603.4		1603.7	0.008497	4.55	264.81	0.56	9935	10094	159
2 West Trib-2	1.765	Floodplain	1150	1603.64	1605.54		1605.74	0.009995	3.19	323.34	0.55	9798.3	10101.27	302.97
2 West Trib-2	1.765	Floodway	1150	1603.64	1606.4		1606.62	0.004984	3.34	309.82	0.43	9891	10045	154
2 West Trib-2	1.846	Floodplain	1150	1606.61	1608.69	1608.32	1608.79	0.005051	2.58	471.95	0.39	9677.59	10220.31	542.72
2 West Trib-2	1.846	Floodway	1150	1606.61	1609.24	1608.75	1609.51	0.009038	4.06	280.97	0.54	9914	10114	200
2 West Trib-2	1.932	Floodplain	1150	1609.39	1611.75	1611.51	1611.88	0.009285	3.08	413.45	0.53	9755.32	10409.17	653.85
2 West Trib-2	1.932	Floodway	1150	1609.39	1612.69	1612.11	1612.89	0.006096	3.8	320.61	0.47	9942	10141	199
2 West Trib-2	2.007	Floodplain	1150	1611.97	1614.78	1614.36	1614.9	0.006368	3.19	428.76	0.46	9895.55	10570.69	675.14
2 West Trib-2	2.007	Floodway	1150	1611.97	1615.47	1615.07	1615.73	0.008459	4.66	283.41	0.56	9985	10174	189
2 West Trib-2	2.078	Floodplain	1150	1614.19	1617.62	1617.38	1617.82	0.009735	4.7	351.43	0.6	9762.87	10268.08	505.21
2 West Trib-2	2.078	Floodway	1150	1614.19	1618.17	1617.64	1618.44	0.006314	4.47	288.45	0.5	9918	10085	167
2 West Trib-2	2.138	Floodplain	1150	1616.06	1620.3	1619.93	1620.5	0.00789	4.43	326.64	0.54	9651.57	10095.85	444.28
2 West Trib-2	2.138	Floodway	1150	1616.06	1620.38	1619.84	1620.7	0.008415	4.69	254.15	0.56	9898	10037	139
2 West Trib-2	2.195	Floodplain	1150	1618.54	1622.54	1622.1	1622.68	0.00616	3.55	398.34	0.46	9777.8	10309.01	531.21
2 West Trib-2	2.195	Floodway	1150	1618.54	1623.04	1622.48	1623.36	0.008695	4.94	254.22	0.57	9950	10085	135
2 West Trib-2	2.276	Floodplain	1150	1622.64	1625.6	1625.33	1625.83	0.008813	4.22	305.48	0.56	9882.86	10177.34	294.48
2 West Trib-2	2.276	Floodway	1150	1622.64	1626.31		1626.65	0.006809	4.65	244.86	0.52	9922	10028	106
2 West Trib-2	2.346	Floodplain	1150	1625.93	1629.22	1628.92	1629.6	0.011489	5.08	233.25	0.65	9925.56	10238.91	313.35
2 West Trib-2	2.346	Floodway	1150	1625.93	1629.48	1629	1629.98	0.011941	5.65	204.18	0.68	9960	10056	96
2 West Trib-2	2.401	Floodplain	1150	1628.5	1632.42	1632.08	1633.03	0.011473	5.06	190.93	0.65	9825.66	10035.46	209.8
2 West Trib-2	2.401	Floodway	1150	1628.5	1633.04	1632.66	1633.82	0.014028	6.88	162.36	0.74	9968	10032	64

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West Trib-2

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West Trib-2	2.479	Floodplain	1150	1630.97	1636.48	1636.16	1637.01	0.008179	6.49	201.95	0.6	9866.56	10022.25	155.69
2 West Trib-2	2.479	Floodway	1150	1630.97	1637.15	1636.03	1637.88	0.007234	6.83	167.51	0.58	9976	10018	42
2 West Trib-2	2.549	Floodplain	1150	1633.89	1639.41	1638.54	1639.75	0.006514	4.8	254.13	0.51	9930.85	10150.3	219.45
2 West Trib-2	2.549	Floodway	1150	1633.89	1640.02	1638.97	1640.46	0.006525	5.51	220.58	0.53	9967	10057	90
2 West Trib-2	2.633	Floodplain	530	1638.27	1643.17	1643.17	1643.81	0.020129	6.54	86.27	0.84	9941.31	10012.19	70.88
2 West Trib-2	2.633	Floodway	530	1638.27	1643.5		1644.02	0.013004	5.83	90.98	0.69	9971	10012	41
2 West Trib-2	2.722	Floodplain	530	1642.83	1647.49		1647.7	0.004439	3.82	158.76	0.42	9976.02	10140.6	164.58
2 West Trib-2	2.722	Floodway	530	1642.83	1647.46		1647.72	0.005208	4.1	129.45	0.45	9979	10031	52
2 West Trib-2	2.817	Floodplain	530	1648.83	1651.26	1650.95	1651.57	0.016167	4.52	117.19	0.72	9968.21	10063.25	95.04
2 West Trib-2	2.817	Floodway	530	1648.83	1651.35	1650.94	1651.62	0.012752	4.21	125.77	0.64	9969	10063	94
2 West Trib-2	2.893	Floodplain	530	1652.14	1655.41	1655.15	1655.57	0.006713	3.5	170.75	0.48	9862.89	10068.64	205.75
2 West Trib-2	2.893	Floodway	530	1652.14	1655.84	1655.5	1656.2	0.010246	4.98	112.04	0.61	9957	10027	70
2 West Trib-2	2.953	Floodplain	530	1655.15	1658.15	1657.99	1658.46	0.013235	4.46	120.68	0.65	9941.44	10067.18	125.74
2 West Trib-2	2.953	Floodway	530	1655.15	1659.02		1659.45	0.010316	5.23	101.28	0.61	9975	10025	50
2 West Trib-2	3.014	Floodplain	530	1658.01	1661.84	1661.67	1662.1	0.009623	4.49	139.57	0.58	9966.75	10119.39	152.64
2 West Trib-2	3.014	Floodway	530	1658.01	1662.24		1662.62	0.009272	4.96	107.04	0.58	9978	10026	48

WITTMANN WASH

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	0.019	Floodplain	2800	1551.57	1553.36	1552.37	1553.38	0.001022	0.78	2349.94	0.15	8298.79	11130.06	2831.27
Wittmann Wash	0.019	Floodway	2800	1551.57	1553.36	1553.03	1553.51	0.008405	2.23	940.8	0.43	9472	10369	897
Wittmann Wash	0.040	Floodplain	2800	1552.21	1553.58	1553.43	1553.72	0.013651	2.56	947.15	0.63	8353.25	11115.75	2762.5
Wittmann Wash	0.040	Floodway	2800	1552.21	1554.32	1553.88	1554.5	0.007666	3.34	815.37	0.54	9702	10325	623
Wittmann Wash	0.082	Floodplain	2800	1552.36	1555.23	1554.75	1555.31	0.00402	1.99	1188.05	0.32	8525.27	10770.4	2245.13
Wittmann Wash	0.082	Floodway	2800	1552.36	1555.9	1555.32	1556.16	0.006731	3.45	709.8	0.44	9791	10190	399
Wittmann Wash	0.170	Floodplain	2800	1555.85	1558.56	1558.43	1558.81	0.020219	3.6	710.88	0.67	9297.06	10599.44	1302.38
Wittmann Wash	0.170	Floodway	2800	1555.85	1559.52	1558.91	1559.78	0.009522	4.01	688.23	0.52	9803	10186	383
Wittmann Wash	0.246	Floodplain	2800	1558.67	1561.83	1561.21	1561.95	0.004165	2.61	1003	0.34	9741.23	10609.29	868.06
Wittmann Wash	0.246	Floodway	2800	1558.67	1562.53	1561.73	1562.85	0.0063	4	625.27	0.45	9927	10197	270
Wittmann Wash	0.339	Floodplain	2800	1561.08	1565	1564.73	1565.27	0.014341	4.25	666.72	0.62	9763.51	10617.39	853.88
Wittmann Wash	0.339	Floodway	2800	1561.08	1565.85	1564.94	1566.12	0.007486	4.15	675.14	0.48	9917	10207	290
Wittmann Wash	0.438	Floodplain	2800	1564.39	1568.56	1567.91	1568.74	0.003896	2.55	879.79	0.33	9560.24	10581.7	1021.46
Wittmann Wash	0.438	Floodway	2800	1564.39	1568.88	1568.1	1569.18	0.004597	3.08	705.61	0.37	9751	10057	306
Wittmann Wash	0.529	Floodplain	2800	1568.52	1571.26	1570.95	1571.49	0.008031	2.49	759.74	0.4	9356.49	10069.89	713.4
Wittmann Wash	0.529	Floodway	2800	1568.52	1572.09	1571.71	1572.57	0.010355	3.99	530.14	0.49	9743	10031	288
Wittmann Wash	0.634	Floodplain	2800	1572.41	1576.1	1575.87	1576.31	0.011102	3.51	769.12	0.49	9216.23	10139.15	922.92
Wittmann Wash	0.634	Floodway	2800	1572.41	1577.04	1576.5	1577.47	0.008592	4.19	545	0.46	9782	10047	265
Wittmann Wash	0.712	Floodplain	2800	1574.31	1579.28	1578.95	1579.42	0.005661	3.45	971.13	0.38	8960	10131.9	1171.9
Wittmann Wash	0.712	Floodway	2800	1574.31	1580.27	1579.75	1580.57	0.006776	4.67	635.05	0.43	9710	10047	337
Wittmann Wash	0.808	Floodplain	2800	1578.61	1583.36	1583.32	1583.8	0.016528	5.35	527.16	0.6	8839.4	10243.99	1404.59
Wittmann Wash	0.808	Floodway	2800	1578.61	1584.02	1583.69	1584.47	0.009581	4.78	521.2	0.48	9834	10147	313
Wittmann Wash	0.855	Floodplain	3070	1579.07	1585.68	1585.25	1585.81	0.004884	2.91	1127.13	0.34	9805.37	11028.19	1222.82
Wittmann Wash	0.855	Floodway	2800	1579.07	1586.23	1585.63	1586.68	0.008169	4.38	532.91	0.46	9909	10152	243
Wittmann Wash	0.916	Floodplain	3070	1581.61	1588.01	1587.87	1588.26	0.012019	5.56	834.38	0.54	9813.82	10765.82	952
Wittmann Wash	0.916	Floodway	3070	1581.61	1588.55	1587.96	1588.69	0.004641	3.82	1026.61	0.34	9975	10624	649
Wittmann Wash	0.996	Floodplain	3070	1585.06	1591.31		1591.48	0.005206	3.42	1017.48	0.36	9782.12	10421.66	639.54
Wittmann Wash	0.996	Floodway	3070	1585.06	1591.43		1591.74	0.01142	5.2	712.92	0.54	9920	10302	382
Wittmann Wash	1.078	Floodplain	3070	1591.03	1594.15	1593.72	1594.39	0.009454	2.34	894.08	0.36	9719.68	10361.81	642.13
Wittmann Wash	1.078	Floodway	3070	1591.03	1595.13	1594.16	1595.35	0.006529	2.8	913.62	0.32	9870	10250	380
Wittmann Wash	1.177	Floodplain	3070	1594.44	1597.9	1597.4	1598.04	0.005934	2.29	1054.45	0.35	9458.47	10507.99	1049.52

CAP Ponding area

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	1.177	Floodway	3070	1594.44	1598.68	1597.94	1598.97	0.007567	3.51	732.87	0.42	9892	10235	343
Wittmann Wash	1.248	Floodplain	3070	1596.55	1600.62	1600.18	1600.76	0.00909	3.01	1034.09	0.44	9438.11	10464.8	1026.69
Wittmann Wash	1.248	Floodway	3070	1596.55	1601.56		1601.79	0.00744	3.78	801.67	0.43	9843	10190	347
Wittmann Wash	1.312	Floodplain	3070	1600.37	1603.1	1602.64	1603.26	0.006296	2.04	1068.92	0.35	9495.76	10465.11	969.35
Wittmann Wash	1.312	Floodway	3070	1600.37	1603.84	1603.27	1604.22	0.007071	3.08	699.61	0.4	9891	10210	319
Wittmann Wash	1.394	Floodplain	3070	1602.89	1606.04	1605.61	1606.23	0.008409	2.8	917.03	0.42	9664.64	10542.57	877.93
Wittmann Wash	1.394	Floodway	3070	1602.89	1607.04	1606.22	1607.34	0.007875	3.89	716.49	0.44	9860	10172	312
Wittmann Wash	1.466	Floodplain	3070	1605.57	1609.12		1609.31	0.007627	3.49	880.01	0.43	9809.42	10343.05	533.63
Wittmann Wash	1.466	Floodway	3070	1605.57	1609.83		1610.06	0.00651	3.89	788.83	0.41	9881	10167	286
Wittmann Wash	1.512	Floodplain	3070	1607.01	1610.9		1611.08	0.007224	3.14	910.02	0.41	9805.71	10459.02	653.31
Wittmann Wash	1.512	Floodway	3070	1607.01	1611.53		1611.9	0.008592	4.13	656.52	0.46	9847	10119	272
Wittmann Wash	1.569	Floodplain	3070	1609.29	1612.64		1612.91	0.005578	5.11	774.7	0.55	9692.9	10282.55	589.65
Wittmann Wash	1.569	Floodway	3070	1609.29	1613.63		1614.28	0.007283	7.19	490.22	0.66	9874	10061	187
Wittmann Wash	1.674	Floodplain	3070	1610.74	1616.51	1616.51	1616.98	0.007213	6.68	681.39	0.65	9516.11	10323.25	807.14
Wittmann Wash	1.674	Floodway	3070	1610.74	1617.23	1616.64	1617.83	0.005907	6.83	527.82	0.6	9861	10049	188
Wittmann Wash	1.747	Floodplain	3070	1613.39	1619.84	1619.76	1620.15	0.009034	5.61	727.45	0.65	9657.05	10560.78	903.73
Wittmann Wash	1.747	Floodway	3070	1613.39	1620.39	1620.39	1621.22	0.013071	7.77	436.56	0.81	9891	10124	233
Wittmann Wash	1.833	Floodplain	3070	1621.59	1623.65	1623.36	1623.86	0.007402	3.4	833.79	0.56	9562.28	10621.92	1059.64
Wittmann Wash	1.833	Floodway	3070	1621.59	1624.63	1624.08	1625.06	0.005928	4.61	601.84	0.56	9850	10140	290
Wittmann Wash	1.933	Floodplain	3070	1624.11	1627.76	1627.52	1627.94	0.008608	4	926.38	0.61	9236.28	10525.52	1289.24
Wittmann Wash	1.933	Floodway	3070	1624.11	1628.3	1627.84	1628.66	0.008373	4.95	643.92	0.64	9656	10024	368
Wittmann Wash	1.989	Floodplain	2280	1625.23	1630.08	1629.72	1630.23	0.006803	2.24	766.94	0.42	9335.77	10271.82	936.05
Wittmann Wash	1.989	Floodway	2280	1625.23	1630.89	1630.51	1631.22	0.008979	3.94	503.78	0.53	9715	10051	336
Wittmann Wash	2.081	Floodplain	2280	1631.55	1634.49	1634.24	1634.74	0.013327	3.78	585.31	0.6	9748.97	10397.07	648.1
Wittmann Wash	2.081	Floodway	2280	1631.55	1635.33	1634.63	1635.63	0.009156	4.39	519.4	0.54	9901	10151	250
Wittmann Wash	2.161	Floodplain	2280	1634.62	1638.41		1638.56	0.006533	2.84	738.73	0.42	9798.52	10568.65	770.13
Wittmann Wash	2.161	Floodway	2280	1634.62	1638.92		1639.33	0.008219	3.92	461.22	0.5	9926	10163	237
Wittmann Wash	2.246	Floodplain	2280	1638.37	1641.99	1641.8	1642.2	0.011206	2.57	627.65	0.5	9728.47	10592.14	863.67
Wittmann Wash	2.246	Floodway	2280	1638.37	1642.93		1643.36	0.010635	4.18	439.17	0.56	9961	10228	267
Wittmann Wash	2.338	Floodplain	2280	1643.09	1646.75	1646.56	1646.89	0.008974	2.71	759.96	0.46	9629.16	10830.69	1201.53
Wittmann Wash	2.338	Floodway	2280	1643.09	1647.59	1647.21	1647.91	0.008456	3.86	501.05	0.49	9972	10301	329

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	2.419	Floodplain	2280	1647.3	1651.25	1651.08	1651.41	0.011766	2.91	726.45	0.53	9431.83	10803.29	1371.46
Wittmann Wash	2.419	Floodway	2280	1647.3	1651.93	1651.5	1652.22	0.011706	4.12	531.51	0.58	9906	10258	352
Wittmann Wash	2.507	Floodplain	2280	1654.73	1656.29	1656.15	1656.55	0.010039	2	598.86	0.46	9375.38	10634.16	1258.78
Wittmann Wash	2.507	Floodway	2280	1654.73	1657.22	1657.13	1657.59	0.01115	3.28	586.33	0.54	9876	10361	485
Wittmann Wash	2.580	Floodplain	2280	1658.06	1660.28	1660.11	1660.42	0.009736	1.52	797.49	0.43	8915.1	10804.5	1889.4
Wittmann Wash	2.580	Floodway	2280	1658.06	1661.19	1661.08	1661.61	0.009667	2.98	525.54	0.5	9840	10245	405
Wittmann Wash	2.632	Floodplain	2280	1661.4	1662.46	1662.25	1662.6	0.006825	1.75	790.08	0.39	9270.54	10645.19	1374.65
Wittmann Wash	2.632	Floodway	2280	1661.4	1663.46	1663.06	1663.82	0.007108	2.88	501.29	0.44	9855	10175	320
Wittmann Wash	2.694	Floodplain	2280	1662.81	1665.91	1665.91	1666.24	0.013517	5.62	532.67	0.67	9225.37	10652.51	1427.14
Wittmann Wash	2.694	Floodway	2280	1662.81	1666.48	1666.38	1667.1	0.01479	6.84	368.61	0.72	9910	10131	221
Wittmann Wash	2.753	Floodplain	2280	1664.97	1669.42	1669.27	1669.94	0.009903	6.35	409.07	0.6	9441.71	10960.31	1518.6
Wittmann Wash	2.753	Floodway	2280	1664.97	1670.16	1669.93	1670.95	0.010114	7.3	333.57	0.63	9927	10077	150
Wittmann Wash	2.837	Floodplain	2280	1663.13	1671.14		1671.83	0.002388	6.85	357.12	0.47	9964.32	10025.45	61.13
Wittmann Wash	2.837	Floodway	2280	1663.13	1671.9		1672.56	0.001867	6.52	357.49	0.42	9973	10022	49
Wittmann Wash	2.860	Floodplain	2280	1668.7	1673.07	1673.07	1674.85	0.010432	11.12	226.69	0.97	9965.3	10030.55	65.25
Wittmann Wash	2.860	Floodway	2280	1668.7	1673.2	1673.2	1675.33	0.011149	11.74	199.07	1	9975	10022	47
Wittmann Wash	2.885	Floodplain	2280	1669.61	1674.92		1675.74	0.003995	7.62	334.33	0.61	9960.85	10041.31	80.46
Wittmann Wash	2.885	Floodway	2280	1669.61	1675.38		1676.18	0.003334	7.39	331.35	0.57	9970	10033	63
Wittmann Wash	2.916	Floodplain	2280	1671.09	1675.65	1675.65	1677.51	0.011692	12	224.91	1.03	9965.13	10027.81	62.68
Wittmann Wash	2.916	Floodway	2280	1671.09	1675.68	1675.68	1677.87	0.012941	12.69	203.42	1.08	9973	10021	48
Wittmann Wash	2.934	Floodplain	2280	1672	1678.1	1674.88	1678.31	0.00145	3.57	627.87	0.26	9938.97	10061.11	122.14
Wittmann Wash	2.934	Floodway	2280	1672	1678.54	1674.88	1678.73	0.001187	3.39	652.57	0.24	9947	10055	108
Wittmann Wash	2.942		Bridge											
Wittmann Wash	2.949	Floodplain	2280	1672.6	1678.39	1675.54	1678.63	0.002424	3.99	571.47	0.32	9892.45	10195.09	302.64
Wittmann Wash	2.949	Floodway	2280	1672.6	1678.77	1675.54	1678.99	0.001895	3.69	617.3	0.29	9938.47	10057	118.53
Wittmann Wash	2.952	Floodplain	2280	1671.94	1678.53	1675.27	1678.68	0.000892	2.77	741.8	0.2	9909.41	10111.24	201.83
Wittmann Wash	2.952	Floodway	2280	1671.94	1678.8	1675.35	1679.01	0.001285	3.43	621.23	0.24	9957	10062	105
Wittmann Wash	2.957	Floodplain	2280	1672.3	1678.51	1675.85	1678.77	0.002155	3.9	566.2	0.31	9949.99	10060.16	110.17
Wittmann Wash	2.957	Floodway	2280	1672.3	1678.79	1676.08	1679.11	0.002994	4.57	500.6	0.35	9950	10044	94
Wittmann Wash	2.965		Bridge											
Wittmann Wash	2.972	Floodplain	2280	1673	1678.75	1676.19	1679.05	0.002532	4.34	520.39	0.33	9915.69	10057.34	141.65
Wittmann Wash	2.972	Floodway	2280	1673	1679.64	1676.22	1679.9	0.001854	4.12	558.6	0.29	9934	10025.79	91.79
Wittmann Wash	2.987	Floodplain	2280	1673.25	1678.99	1677.05	1679.36	0.004895	4.85	470.11	0.44	9946.48	10187.34	240.86

HEC-RAS Plan: 310032	River: Reach #1	Reach: Wittmann Wash												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	2.987	Floodway	2280	1673.25	1679.83	1677.05	1680.08	0.002625	3.96	575.17	0.33	9948	10075.22	127.22
Wittmann Wash	3.000	Floodplain	2280	1672.5	1679.37	1676.9	1679.61	0.002401	4.02	574.6	0.32	9942.67	10071.43	128.76
Wittmann Wash	3.000	Floodway	2280	1672.5	1679.99	1676.92	1680.23	0.001939	3.92	583.92	0.29	9953	10059	106
Wittmann Wash	3.004		Bridge											
Wittmann Wash	3.008	Floodplain	2280	1673.5	1679.58	1676.8	1679.79	0.001955	3.75	618.51	0.29	9912.22	10045.4	133.18
Wittmann Wash	3.008	Floodway	2280	1673.5	1680.21	1676.79	1680.4	0.001461	3.5	654.34	0.26	9924	10038	114
Wittmann Wash	3.034	Floodplain	2280	1674.85	1680.59	1680.59	1681.59	0.020374	8.69	307.11	0.78	9869.72	10030.52	160.8
Wittmann Wash	3.034	Floodway	2280	1674.85	1680.77	1680.77	1682.15	0.025253	9.7	252.7	0.85	9920	10021	101
Wittmann Wash	3.085	Floodplain	2280	1677.02	1683.47		1683.72	0.003948	4.47	672.99	0.36	9649.31	10085.06	435.75
Wittmann Wash	3.085	Floodway	2280	1677.02	1684.06		1684.37	0.003738	4.69	517.33	0.36	9959	10070	111
Wittmann Wash	3.141	Floodplain	640	1679.25	1684.68		1684.8	0.002773	2.76	234.24	0.28	9946.45	10036.03	89.58
Wittmann Wash	3.141	Floodway	640	1679.25	1685.2		1685.28	0.001594	2.33	280.7	0.22	9947	10036	89
Wittmann Wash	3.198	Floodplain	640	1680.73	1685.63		1685.77	0.003677	3.04	224.31	0.32	9961.22	10077.97	116.75
Wittmann Wash	3.198	Floodway	640	1680.73	1685.83		1685.96	0.003135	2.94	219.39	0.3	9959.88	10037	77.12
Wittmann Wash	3.274	Floodplain	640	1682.91	1687.73		1688.17	0.010348	5.29	120.95	0.53	9981.16	10021.27	40.11
Wittmann Wash	3.274	Floodway	640	1682.91	1687.71		1688.15	0.010557	5.33	120.2	0.54	9981.25	10021	39.75
Wittmann Wash	3.305	Floodplain	640	1683.83	1689.32	1688	1689.85	0.009723	5.84	109.51	0.57	9983.69	10692.78	709.09
Wittmann Wash	3.305	Floodway	640	1683.83	1689.32	1688	1689.85	0.009722	5.84	109.51	0.57	9983.69	10017.17	33.48
Wittmann Wash	3.321	Floodplain	2130	1687.71	1690.6		1690.83	0.01003	4.47	552.93	0.51	9976.04	10670.88	694.84
Wittmann Wash	3.321	Floodway	2130	1687.71	1690.71		1691.01	0.013052	5.25	495.79	0.58	9977	10630	653
Wittmann Wash	3.327		Culvert											
Wittmann Wash	3.333	Floodplain	2130	1687.94	1692.83	1690.48	1692.86	0.000722	1.91	1642.66	0.15	9804.63	10696.07	891.44
Wittmann Wash	3.333	Floodway	2130	1687.94	1692.82	1690.55	1692.88	0.001211	2.47	1215.13	0.2	9909	10571	662
Wittmann Wash	3.377	Floodplain	2130	1689.55	1693.76	1693.76	1694.93	0.03415	9.25	252.18	0.97	9963.44	10180.11	216.67
Wittmann Wash	3.377	Floodway	2130	1689.55	1693.74	1693.74	1695.13	0.038064	9.7	225.4	1.02	9978	10165	187
Wittmann Wash	3.428	Floodplain	2130	1692.02	1697.05		1697.3	0.003993	4.33	624.15	0.36	9914.72	10260.39	345.67
Wittmann Wash	3.428	Floodway	2130	1692.02	1697.48		1697.83	0.004588	4.77	447.45	0.38	9959	10050	91
Wittmann Wash	3.516	Floodplain	2130	1697.4	1701.62	1701.62	1702.09	0.021821	6.47	416.02	0.75	9733.75	10265.77	532.02
Wittmann Wash	3.516	Floodway	2130	1697.4	1701.73	1701.73	1702.53	0.028719	7.67	298.89	0.86	9839	10018	179
Wittmann Wash	3.597	Floodplain	2130	1700.28	1706	1705.09	1706.14	0.005191	3.49	750.55	0.37	9697.46	10226.98	529.52
Wittmann Wash	3.597	Floodway	2130	1700.28	1706.5		1706.75	0.004837	3.77	554.51	0.37	9845	10066	221
Wittmann Wash	3.690	Floodplain	2130	1704.81	1710.3	1710.18	1710.79	0.023602	6.09	399	0.75	9855.96	10193.64	337.68
Wittmann Wash	3.690	Floodway	2130	1704.81	1710.45	1710.23	1710.97	0.02059	5.96	369.08	0.71	9860	10078	218

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	3.773	Floodplain	2130	1709.13	1714.68		1714.85	0.004816	3.47	655.08	0.35	9755.24	10172.41	417.17
Wittmann Wash	3.773	Floodway	2130	1709.13	1714.79		1715.14	0.005281	3.72	456.56	0.37	9883	10029	146
Wittmann Wash	3.868	Floodplain	2130	1713.6	1719.86	1719.86	1720.46	0.011032	7.11	370.65	0.68	9946.89	10229.04	282.15
Wittmann Wash	3.868	Floodway	2130	1713.6	1720.17	1720.17	1720.95	0.011336	7.64	314.11	0.7	9947	10106	159
Wittmann Wash	3.956	Floodplain	2130	1719.22	1723.76	1723.28	1724.01	0.005825	3.19	541.49	0.43	9490.5	10056.58	566.08
Wittmann Wash	3.956	Floodway	2130	1719.22	1724.68	1724.17	1725.21	0.007887	4.95	369.55	0.54	9866	10031	165
Wittmann Wash	4.048	Floodplain	1730	1725.12	1727.4	1727.4	1727.87	0.018299	5.37	314.65	0.76	9609.65	10009.06	399.41
Wittmann Wash	4.048	Floodway	1730	1725.12	1728.39	1728.07	1728.76	0.008651	4.94	354.74	0.55	9774	10009	235
Wittmann Wash	4.102	Floodplain	1730	1727.73	1730.54	1730.14	1730.7	0.005269	3.17	551	0.42	9361.3	10116.82	755.52
Wittmann Wash	4.102	Floodway	1730	1727.73	1731.01	1730.6	1731.39	0.008423	4.7	350.31	0.56	9867	10071	204
Wittmann Wash	4.190	Floodplain	1730	1731.67	1734.62	1734.62	1735	0.019858	4.89	350.12	0.77	9736.41	10201.88	465.47
Wittmann Wash	4.190	Floodway	1730	1731.67	1735.48	1735.46	1736.41	0.014257	5.88	235.77	0.71	9971	10091	120
Wittmann Wash	4.271	Floodplain	1730	1734.9	1739	1738.62	1739.15	0.00627	3.76	590.47	0.45	9583.48	10180.06	596.58
Wittmann Wash	4.271	Floodway	1730	1734.9	1739.77		1740.08	0.005952	4.49	386.51	0.47	9900	10057	157
Wittmann Wash	4.370	Floodplain	1730	1739.59	1744.13	1744.13	1744.41	0.016202	5.87	446.25	0.72	9435.69	10096.51	660.82
Wittmann Wash	4.370	Floodway	1730	1739.59	1744.62	1744.62	1745.41	0.020849	7.68	246.01	0.84	9882	10029	147
Wittmann Wash	4.455	Floodplain	1000	1743.57	1748.44		1748.55	0.004992	3.12	407.88	0.39	9483.09	10083.33	600.24
Wittmann Wash	4.455	Floodway	1000	1743.57	1749.26		1749.42	0.003705	3.29	311.74	0.35	9848	10014	166
Wittmann Wash	4.573	Floodplain	1000	1751.61	1754.31	1754.31	1754.67	0.024837	5.39	213.9	0.81	9733.38	10143.81	410.43
Wittmann Wash	4.573	Floodway	1000	1751.61	1754.79	1754.79	1755.38	0.024515	6.53	163.29	0.85	9925	10060	135
Wittmann Wash	4.676	Floodplain	1000	1759.01	1760.73	1760.42	1760.83	0.006777	2.18	404.21	0.41	9869.6	10397.2	527.6
Wittmann Wash	4.676	Floodway	1000	1759.01	1761.6	1761.15	1761.83	0.007266	3.58	259.41	0.48	9941	10117	176
Wittmann Wash	4.738	Floodplain	1000	1763.31	1764.67	1764.67	1764.95	0.027292	4.12	236.68	0.81	9587.79	10037.1	449.31
Wittmann Wash	4.738	Floodway	1000	1763.31	1765.52	1765.52	1766.21	0.026635	6.58	149.98	0.91	9925	10036	111
Wittmann Wash	4.847	Floodplain	690	1769.88	1772.12		1772.21	0.005862	1.91	307.38	0.36	9637.19	10079.38	442.19
Wittmann Wash	4.847	Floodway	690	1769.88	1772.9		1773.03	0.005369	2.77	241.17	0.38	9876	10032	156
Wittmann Wash	4.955	Floodplain	690	1776.22	1778.49	1778.49	1778.81	0.02723	3.49	158.26	0.74	9807.05	10067.24	260.19
Wittmann Wash	4.955	Floodway	690	1776.22	1778.99	1778.94	1779.46	0.034949	5.52	125.23	0.9	9913	10028	115
Wittmann Wash	5.006	Floodplain	690	1778.95	1781.97	1781.57	1782.14	0.006687	2.87	209.72	0.41	9788.71	10046.06	257.35
Wittmann Wash	5.006	Floodway	690	1778.95	1782.16		1782.32	0.004852	2.64	214.29	0.36	9878	10031	153
Wittmann Wash	5.056	Floodplain	690	1781.28	1784.38	1784.38	1784.69	0.021138	4.62	162.72	0.71	9821.09	10095.15	274.06
Wittmann Wash	5.056	Floodway	690	1781.28	1784.53	1784.53	1784.86	0.01932	4.74	157.34	0.69	9821	10036	215
Wittmann Wash	5.150	Floodplain	690	1787.46	1789.92	1789.62	1790.13	0.007178	2.47	203.69	0.41	9927.94	10114.63	186.69

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	5.150	Floodway	690	1787.46	1790.53	1790.14	1790.87	0.008723	3.63	163.13	0.49	9946	10038	92
Wittmann Wash	5.254	Floodplain	690	1791.99	1795.63	1795.43	1795.92	0.016714	4	160.18	0.63	9879.67	10040.69	161.02
Wittmann Wash	5.254	Floodway	690	1791.99	1796.19	1795.72	1796.51	0.01224	4.38	152.86	0.57	9950	10040	90
Wittmann Wash	5.345	Floodplain	640	1797.28	1800.54	1800	1800.7	0.006626	3.02	211.12	0.42	9838.79	10075.03	236.24
Wittmann Wash	5.345	Floodway	640	1797.28	1800.95	1800.13	1801.17	0.00786	3.79	169	0.47	9946	10029	83
Wittmann Wash	5.476	Floodplain	640	1806.64	1808.59	1808.58	1808.9	0.027826	4.05	146.29	0.77	9913.83	10146.58	232.75
Wittmann Wash	5.476	Floodway	640	1806.64	1809.08	1808.86	1809.44	0.020307	4.68	133.68	0.71	9957	10063	106
Wittmann Wash	5.587	Floodplain	640	1812.82	1815.26	1814.85	1815.38	0.005775	2.41	240.29	0.37	9752.09	10040.55	288.46
Wittmann Wash	5.587	Floodway	640	1812.82	1816.06		1816.37	0.007626	3.82	148.3	0.47	9947	10024	77
Wittmann Wash	5.671	Floodplain	640	1817.44	1820.17	1820.16	1820.46	0.030094	4.53	150.86	0.81	9695.63	10039.48	343.85
Wittmann Wash	5.671	Floodway	640	1817.44	1820.91	1820.57	1821.31	0.017196	5	126.07	0.68	9960	10038	78
Wittmann Wash	5.727	Floodplain	640	1820.9	1824.03	1823.51	1824.23	0.006868	3.21	208.9	0.43	9782.58	10066.53	283.95
Wittmann Wash	5.727	Floodway	640	1820.9	1824.16		1824.44	0.007067	3.41	162.16	0.44	9961	10056	95
Wittmann Wash	5.774	Floodplain	640	1824.83	1826.54	1826.51	1826.84	0.019015	3.26	150.78	0.63	9825.54	10126.43	300.89
Wittmann Wash	5.774	Floodway	640	1824.83	1827.39	1827.39	1827.93	0.017361	4.98	116.57	0.68	9932	10031	99

WITTMANN WASH (NORTH SPLIT)

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Wash

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Wash	3.085	Floodplain	2280	1677.02	1683.47	1681.85	1683.72	0.003943	4.46	673.41	0.36	9649.2	10085.06	435.86
Wittmann Wash	3.085	Floodway	2280	1677.02	1684.06	1681.87	1684.37	0.003733	4.69	517.55	0.36	9959	10070	111
Wittmann Wash	3.154	Floodplain	1600	1678.69	1685.22		1685.79	0.009724	6.96	302.99	0.55	9954.98	10098.73	143.75
Wittmann Wash	3.154	Floodway	1600	1678.69	1685.59		1686.76	0.014521	8.92	198.94	0.68	9981	10045	64
Wittmann Wash	3.226	Floodplain	1600	1682.4	1687.77		1687.93	0.003658	4.1	582.55	0.34	9834.94	10205.81	370.87
Wittmann Wash	3.226	Floodway	1600	1682.4	1688.73		1688.95	0.002949	4.18	455.73	0.31	9966	10090	124
Wittmann Wash	3.305	Floodplain	1600	1684.25	1689.2	1688.42	1689.45	0.006471	5.25	434.34	0.44	9983.96	10692.47	708.51
Wittmann Wash	3.305	Floodway	1600	1684.25	1690.06	1689.04	1690.46	0.007984	6.57	385.59	0.51	10325	10636	311
Wittmann Wash	3.321	Floodplain	2130	1687.41	1690.08		1690.54	0.01881	6.65	404.63	0.72	9977	10668.08	691.08
Wittmann Wash	3.321	Floodway	2130	1687.41	1690.99		1691.23	0.008258	5.35	597.19	0.5	9977	10630	653
Wittmann Wash	3.327		Culvert											
Wittmann Wash	3.333	Floodplain	2130	1687.64	1692.82	1690.45	1692.85	0.000749	1.96	1632.87	0.16	9804.95	10696.03	891.08
Wittmann Wash	3.333	Floodway	2130	1687.64	1692.82	1690.52	1692.88	0.001245	2.53	1214.48	0.2	9909	10571	662
Wittmann Wash	3.377	Floodplain	2130	1689.48	1693.76	1693.76	1694.95	0.035997	10.11	252.36	1	9963.42	10180.12	216.7
Wittmann Wash	3.377	Floodway	2130	1689.48	1693.75	1693.75	1695.14	0.038722	10.17	226.43	0.99	9978	10165	187
Wittmann Wash	3.428	Floodplain	2130	1692.02	1697.07		1697.31	0.00392	4.3	630.22	0.36	9914.18	10264.2	350.02
Wittmann Wash	3.428	Floodway	2130	1692.02	1697.48		1697.83	0.004588	4.77	447.45	0.38	9959	10050	91

WITTMANN WASH (SOUTH SPLIT)

HEC-RAS Plan: Wittmann Sou River: Reach #3 Reach: Wittmann South S														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Soutl	0.016	Floodplain	420	1549.15	1550.68	1550.1	1550.74	0.003603	1.96	215.92	0.34	9825.22	10057.29	232.07
Wittmann Soutl	0.016	Floodway	420	1549.15	1550.69	1550.1	1550.75	0.003604	1.96	214.32	0.34	9853	10057.34	204.34
Wittmann Soutl	0.090	Floodplain	420	1555.35	1555.94	1555.94	1556.1	0.028327	3.13	132.5	0.82	9910.1	10331.33	421.23
Wittmann Soutl	0.090	Floodway	420	1555.35	1556.26	1556.26	1556.64	0.035096	4.96	84.72	1	9933	10044	111
Wittmann Soutl	0.169	Floodplain	420	1557.77	1559.54	1559.25	1559.61	0.003969	2.34	213.83	0.37	9882.09	10221.83	339.74
Wittmann Soutl	0.169	Floodway	420	1557.77	1560.19		1560.33	0.003912	3.02	138.89	0.38	9963	10035	72
Wittmann Soutl	0.278	Floodplain	420	1562.92	1564.18	1564.16	1564.32	0.02511	3.33	142.03	0.8	9728.87	10316.8	587.93
Wittmann Soutl	0.278	Floodway	420	1562.92	1564.48	1564.35	1564.74	0.020914	4.09	102.91	0.78	9903	10025	122
Wittmann Soutl	0.328	Floodplain	420	1565.12	1566.06	1565.67	1566.11	0.003282	1.27	244.6	0.25	9734.75	10076.79	342.04
Wittmann Soutl	0.328	Floodway	420	1565.12	1566.71		1566.77	0.003922	2.06	204.53	0.3	9902	10043	141
Wittmann Soutl	0.415	Floodplain	420	1569.38	1569.99	1569.99	1570.18	0.052062	3.28	122.39	0.89	9732.8	10077.79	344.99
Wittmann Soutl	0.415	Floodway	420	1569.38	1570.23	1570.05	1570.36	0.021639	2.85	147.5	0.62	9840	10064	224
Wittmann Soutl	0.458	Floodplain	420	1570.65	1572.09		1572.13	0.003356	1.52	284.31	0.26	9661.79	10059.45	397.66
Wittmann Soutl	0.458	Floodway	420	1570.65	1572.18		1572.23	0.004376	1.83	229.37	0.3	9855	10059	204
Wittmann Soutl	0.509	Floodplain	420	1573.27	1574	1573.96	1574.11	0.027969	2.72	156.25	0.67	9721.86	10168.17	446.31
Wittmann Soutl	0.509	Floodway	420	1573.27	1574.2	1573.97	1574.31	0.017121	2.67	157.21	0.56	9927	10148	221
Wittmann Soutl	0.593	Floodplain	420	1576.86	1577.83		1577.88	0.004199	1.38	244.11	0.28	9614.33	10052.07	437.74
Wittmann Soutl	0.593	Floodway	420	1576.86	1578.47	1577.79	1578.57	0.006124	2.49	168.89	0.37	9928	10049	121
Wittmann Soutl	0.684	Floodplain	420	1581.01	1581.74	1581.74	1581.94	0.02247	1.64	129.54	0.55	9460.65	10037.19	576.54
Wittmann Soutl	0.684	Floodway	420	1581.01	1582.61	1582.22	1582.77	0.013502	3.21	130.68	0.53	9920	10036	116
Wittmann Soutl	0.746	Floodplain	3070	1584.33	1585.45	1585.15	1585.61	0.008285	1.68	1000.71	0.31	9811.34	11009.74	1198.4
Wittmann Soutl	0.746	Floodway	420	1584.33	1585.74	1585.08	1585.79	0.006382	1.78	246.2	0.29	10550	10812	262
Wittmann Soutl	0.807	Floodplain	3070	1586.78	1588.21	1587.78	1588.36	0.007317	1.88	1005.04	0.31	9780.41	10776.64	996.23
Wittmann Soutl	0.807	Floodway	3070	1586.78	1588.93	1588.41	1589.22	0.009977	3.03	747.02	0.39	10187	10627	440

WITTMANN TRIBUTARY

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Tributa

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Tribu	0	Floodplain	460	1696.75	1700.03	1699.41	1700.28	0.009776	4.15	116.32	0.55	9906.64	10147.57	240.93
Wittmann Tribu	0	Floodway	460	1696.75	1700.23	1699.48	1700.49	0.009779	4.31	111.3	0.55	9985.57	10145	159.43
Wittmann Tribu	0.066	Floodplain	460	1700.07	1703.34		1703.57	0.009283	3.29	119.97	0.5	9890.12	10234.24	344.12
Wittmann Tribu	0.066	Floodway	460	1700.07	1703.5	1702.66	1703.78	0.009233	3.36	109.9	0.52	9976.98	10129.65	152.67
Wittmann Tribu	0.153	Floodplain	460	1705.97	1707.78		1708.09	0.010011	2.62	105.13	0.49	9995.18	10165.6	170.42
Wittmann Tribu	0.153	Floodway	460	1705.97	1707.83		1708.12	0.00935	2.58	108.39	0.47	9995.06	10165.83	170.77
Wittmann Tribu	0.235	Floodplain	460	1711.87	1714.19	1714.17	1714.38	0.018273	4.18	134.55	0.69	9861.98	10276.54	414.56
Wittmann Tribu	0.235	Floodway	460	1711.87	1714.52	1714.52	1714.96	0.018278	4.19	91.98	0.7	9931	10038	107
Wittmann Tribu	0.306	Floodplain	460	1715.8	1717.97	1717.74	1718.06	0.006147	2.15	207.2	0.39	9695.94	10320.94	625
Wittmann Tribu	0.306	Floodway	460	1715.8	1718.82	1718.48	1718.95	0.007227	2.93	159.16	0.45	9934	10094	160
Wittmann Tribu	0.396	Floodplain	460	1720.87	1722.73	1722.72	1723.11	0.022624	4.18	96.33	0.76	9926.43	10163.93	237.5
Wittmann Tribu	0.396	Floodway	460	1720.87	1723.63	1723.48	1723.95	0.016815	4.51	101.58	0.69	9942	10041	99
Wittmann Tribu	0.468	Floodplain	460	1724.7	1727.14	1726.8	1727.22	0.006685	2.71	195.91	0.43	9759.91	10203.65	443.74
Wittmann Tribu	0.468	Floodway	460	1724.7	1727.9		1728.1	0.008019	3.86	131.5	0.5	9926	10045	119
Wittmann Tribu	0.554	Floodplain	460	1729.2	1731.77	1731.73	1731.95	0.018658	4.15	141.77	0.7	9823.47	10150.39	326.92
Wittmann Tribu	0.554	Floodway	460	1729.2	1732.33	1732.08	1732.63	0.012871	4.55	103.77	0.63	9955	10037	82
Wittmann Tribu	0.622	Floodplain	460	1733.83	1736.15	1735.87	1736.27	0.008326	3.66	181.76	0.5	9846.83	10136.84	290.01
Wittmann Tribu	0.622	Floodway	460	1733.83	1736.7		1737	0.011445	5.19	111.44	0.61	9978	10053	75
Wittmann Tribu	0.697	Floodplain	460	1737.57	1740.24	1740.14	1740.57	0.014379	4.77	102.62	0.65	9958.39	10082.91	124.52
Wittmann Tribu	0.697	Floodway	460	1737.57	1741.15	1740.71	1741.66	0.011845	5.55	80.14	0.61	9988	10027	39
Wittmann Tribu	0.789	Floodplain	460	1743.15	1746.38	1746.12	1746.54	0.010533	3.32	144.59	0.53	9947.46	10176.72	229.26
Wittmann Tribu	0.789	Floodway	460	1743.15	1747.07		1747.43	0.011844	4.74	95.16	0.6	9990	10043	53
Wittmann Tribu	0.864	Floodplain	460	1748.61	1750.27	1750.07	1750.38	0.010104	2.6	176.5	0.5	9815.4	10238.64	423.24
Wittmann Tribu	0.864	Floodway	460	1748.61	1750.85	1750.51	1751.07	0.007977	3.05	127.09	0.47	9982	10095	113
Wittmann Tribu	0.952	Floodplain	3020	1753.07	1754.3	1754.02	1754.45	0.008349	2.22	1001.1	0.45	8196.22	10181.54	1985.32
Wittmann Tribu	0.952	Floodway	460	1753.07	1755.22	1755.02	1755.48	0.013454	3.88	114.65	0.61	9986	10101	115
Wittmann Tribu	1.047	Floodplain	3020	1757.99	1759.45	1759.36	1759.66	0.013289	2.65	840.04	0.56	8682.08	10928.3	2246.22
Wittmann Tribu	1.047	Floodway	790	1757.99	1760.42		1760.6	0.008895	3.86	241.66	0.53	9838	10052	214
Wittmann Tribu	1.130	Floodplain	3020	1761.4	1763.86	1763.58	1764.01	0.00811	2.62	960.07	0.46	8728.15	10945.51	2217.36
Wittmann Tribu	1.130	Floodway	790	1761.4	1763.97	1763.54	1764.12	0.007418	2.69	259.02	0.44	9745.7	10026	280.3
Wittmann Tribu	1.237	Floodplain	3020	1766.73	1769.4	1769.29	1769.71	0.013528	4.85	694.46	0.66	9039.39	10421.56	1382.17

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wittmann Tributa

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wittmann Tribu	1.237	Floodway	460	1766.73	1769.39		1769.95	0.021273	6.06	77.55	0.83	9986	10034	48
Wittmann Tribu	1.330	Floodplain	3020	1771.49	1774.28	1773.96	1774.42	0.007542	3.17	993.22	0.47	8701.01	10317.97	1616.96
Wittmann Tribu	1.330	Floodway	460	1771.49	1774.88		1775.03	0.006218	3.47	152.71	0.45	9959	10066	107
Wittmann Tribu	1.396	Floodplain	460	1775.14	1777.5	1777.5	1777.84	0.024875	4.88	102.64	0.82	9912.9	10073.79	160.89
Wittmann Tribu	1.396	Floodway	460	1775.14	1777.84	1777.46	1778.13	0.014016	4.33	106.18	0.64	9986	10060	74
Wittmann Tribu	1.473	Floodplain	350	1778.93	1781.86	1781.43	1781.97	0.004659	3.11	135.1	0.39	9956.14	10104.68	148.54
Wittmann Tribu	1.473	Floodway	350	1778.93	1782.38	1781.67	1782.76	0.008855	5.01	71.59	0.55	9985	10016	31
Wittmann Tribu	1.578	Floodplain	350	1784.89	1788.05	1788.05	1788.29	0.009214	4.55	108.25	0.54	9939.18	10307.2	368.02
Wittmann Tribu	1.578	Floodway	350	1784.89	1788.32	1787.72	1788.87	0.013858	5.97	58.64	0.67	9991	10015	24
Wittmann Tribu	1.631	Floodplain	350	1787.93	1791.11	1790.84	1791.38	0.013271	4.38	88.42	0.63	9847.02	10025.14	178.12
Wittmann Tribu	1.631	Floodway	350	1787.93	1791.56	1790.78	1791.8	0.00795	3.95	88.73	0.49	9978	10023	45
Wittmann Tribu	1.693	Floodplain	350	1791.93	1793.86	1793.53	1793.95	0.00559	2.58	145.74	0.4	9966.1	10213.19	247.09
Wittmann Tribu	1.693	Floodway	350	1791.93	1794.21	1793.83	1794.42	0.008669	3.77	96.28	0.51	9992	10079	87
Wittmann Tribu	1.770	Floodplain	1010	1797.73	1798.99	1798.89	1799.18	0.014729	2.87	304.88	0.6	9639.02	10352.81	713.79
Wittmann Tribu	1.770	Floodway	350	1797.73	1799.38	1799.2	1799.57	0.013316	3.23	101.39	0.59	9993.94	10131	137.06
Wittmann Tribu	1.851	Floodplain	1010	1800.26	1802.67		1802.77	0.008754	3.62	394.66	0.55	9657.15	10402.33	745.18
Wittmann Tribu	1.851	Floodway	1010	1800.26	1803.25	1802.91	1803.5	0.011602	4.42	253.46	0.64	9818	10023	205
Wittmann Tribu	1.919	Floodplain	1010	1804.97	1807.55	1807.45	1807.74	0.015368	3.92	292.19	0.7	9465.66	10196.28	730.62
Wittmann Tribu	1.919	Floodway	1010	1804.97	1808.23	1808.06	1808.46	0.011014	4.7	278.15	0.64	9751	10032	281
Wittmann Tribu	1.983	Floodplain	1010	1807.88	1811.45	1811.38	1811.7	0.008192	6.18	313.52	0.69	9818.83	10245.42	426.59
Wittmann Tribu	1.983	Floodway	350	1807.88	1811.66	1811.25	1812.17	0.00687	5.97	65.13	0.64	9992	10025	33
Wittmann Tribu	2.064	Floodplain	1010	1815.04	1816.93	1816.78	1817.11	0.014568	4.07	309.05	0.78	9660.4	10247.95	587.55
Wittmann Tribu	2.064	Floodway	350	1815.04	1817.13	1817.13	1817.48	0.016997	5.07	78.98	0.88	9943	10050	107
Wittmann Tribu	2.156	Floodplain	1010	1821.14	1823.47	1823.33	1823.66	0.015004	3.52	287.36	0.68	9746.3	10153.93	407.63
Wittmann Tribu	2.156	Floodway	1010	1821.14	1823.93	1823.69	1824.24	0.014847	4.69	228.13	0.72	9836	10026	190

T5N-R3W-S24E

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R3W-S24E

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R3W-S24	0	Floodplain	1660	1614.21	1620.04	1619.79	1620.21	0.009539	3.9	529.58	0.57	9613.31	10426.41	813.1
T5N-R3W-S24	0	Floodway	1660	1614.21	1621.04	1620.75	1621.44	0.009543	5.52	330.33	0.62	9858	10065	207
T5N-R3W-S24	0.076	Floodplain	1660	1618.38	1623.69	1623.46	1623.86	0.008629	3.54	535.21	0.55	9697.6	10429.57	731.97
T5N-R3W-S24	0.076	Floodway	1660	1618.38	1624.69	1624.22	1625.09	0.008584	5.16	329.94	0.6	9905	10077	172
T5N-R3W-S24	0.158	Floodplain	1660	1621.84	1627.47	1627.28	1627.62	0.008793	4.38	563.88	0.57	9587.01	10383.14	796.13
T5N-R3W-S24	0.158	Floodway	1660	1621.84	1628.37		1628.81	0.008737	5.69	313.01	0.61	9900	10052	152
T5N-R3W-S24	0.258	Floodplain	1660	1628.11	1631.93	1631.6	1632.11	0.008383	3.19	507.08	0.54	9630.99	10161.32	530.33
T5N-R3W-S24	0.258	Floodway	1660	1628.11	1632.92	1632.32	1633.28	0.00838	4.89	346.86	0.6	9861	10031	170
T5N-R3W-S24	0.319	Floodplain	1660	1631.16	1634.77	1634.51	1635.08	0.011384	4.5	382.13	0.66	9729.03	10143.85	414.82
T5N-R3W-S24	0.319	Floodway	1660	1631.16	1635.7		1636.22	0.010344	5.88	289.18	0.67	9891	10046	155
T5N-R3W-S24	0.393	Floodplain	1660	1633.8	1638.1	1637.66	1638.26	0.005897	3.5	534	0.48	9640.74	10163.67	522.93
T5N-R3W-S24	0.393	Floodway	1660	1633.8	1638.99		1639.39	0.006326	4.72	329.96	0.52	9874	10019	145
T5N-R3W-S24	0.472	Floodplain	1660	1637.45	1641.22	1641	1641.5	0.010268	4.8	400.65	0.64	9692.56	10212.99	520.43
T5N-R3W-S24	0.472	Floodway	1660	1637.45	1642.13	1641.57	1642.73	0.009925	6.24	266.72	0.67	9930	10036	106
T5N-R3W-S24	0.548	Floodplain	1660	1639.94	1644.17	1643.7	1644.37	0.005339	3.97	473.99	0.48	9727.24	10188.83	461.59
T5N-R3W-S24	0.548	Floodway	1660	1639.94	1645.08	1644.19	1645.42	0.004676	4.69	354.53	0.47	9922	10060	138
T5N-R3W-S24	0.612	Floodplain	1660	1643.6	1648.05	1648.05	1650.26	0.017651	11.86	139.25	0.99	9575.56	10343.94	768.38
T5N-R3W-S24	0.612	Floodway	1660	1643.6	1648.05	1648.05	1650.26	0.017623	11.86	139.31	0.99	9941	10011	70
T5N-R3W-S24	0.635		Culvert											
T5N-R3W-S24	0.658	Floodplain	1660	1644.6	1650.58	1649.05	1651.8	0.004727	8.86	187.32	0.64	9893.31	10516.49	623.18
T5N-R3W-S24	0.658	Floodway	1660	1644.6	1650.64	1649.05	1651.84	0.004588	8.78	189.01	0.63	9986	10018	32
T5N-R3W-S24	0.678	Floodplain	1660	1644.5	1651.83	1649.17	1652.35	0.002355	5.94	289.69	0.43	9953.28	10008.47	55.19
T5N-R3W-S24	0.678	Floodway	1660	1644.5	1651.86	1649.17	1652.37	0.002319	5.92	291.09	0.43	9953.27	10008.49	55.22
T5N-R3W-S24	0.680		Bridge											
T5N-R3W-S24	0.681	Floodplain	1660	1644.3	1652.12	1649.34	1652.65	0.001895	6.09	294.9	0.41	9775.29	10023.41	248.12
T5N-R3W-S24	0.681	Floodway	1660	1644.3	1652.14	1649.34	1652.67	0.001871	6.06	295.04	0.41	9971	10022	51
T5N-R3W-S24	0.725	Floodplain	1660	1646.58	1652.88	1650.41	1652.92	0.000265	1.72	1060.74	0.14	9618.19	10062.91	444.72
T5N-R3W-S24	0.725	Floodway	1660	1646.58	1652.89	1651.05	1653.14	0.001592	4.23	419.63	0.35	9951	10062.93	111.93
T5N-R3W-S24	0.806	Floodplain	1660	1650.44	1655.37	1655.37	1656.11	0.012184	7.77	258.35	0.87	9846.15	10087.42	241.27
T5N-R3W-S24	0.806	Floodway	1660	1650.44	1655.61	1655.61	1656.69	0.013325	8.63	204.11	0.93	9943.91	10039	95.09
T5N-R3W-S24	0.890	Floodplain	1660	1655.42	1659.51	1659.2	1659.82	0.006707	5.19	377.28	0.63	9785.1	10078.73	293.63
T5N-R3W-S24	0.890	Floodway	1660	1655.42	1660.32	1659.92	1660.96	0.007725	6.69	259.1	0.69	9911	10023	112
T5N-R3W-S24	0.972	Floodplain	1660	1659.33	1663.63	1663.63	1664.25	0.015854	7.41	264.17	0.93	9916.23	10136.39	220.16

Used to gain consistence with Wittman Width

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R3W-S24E														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R3W-S24	0.972	Floodway	1660	1659.33	1664.51	1664.51	1665.68	0.013983	8.91	192.3	0.93	9987	10069	82
T5N-R3W-S24	1.037	Floodplain	1660	1662.14	1667.3	1667.04	1667.6	0.006188	5.79	401.98	0.62	9888.85	10222.07	333.22
T5N-R3W-S24	1.037	Floodway	1660	1662.14	1668.13		1668.66	0.005149	6.33	286.88	0.6	9981	10087	106
T5N-R3W-S24	1.104	Floodplain	1660	1666.04	1670.08	1669.99	1670.43	0.010844	5.44	370.92	0.76	9735.03	10217.94	482.91
T5N-R3W-S24	1.104	Floodway	1660	1666.04	1671.01	1671.01	1671.99	0.014244	8.34	213.89	0.92	9945	10051	106
T5N-R3W-S24	1.213	Floodplain	1660	1672.08	1676.11	1675.95	1676.45	0.010586	4.69	362.8	0.73	9793.01	10153.47	360.46
T5N-R3W-S24	1.213	Floodway	1660	1672.08	1677.11		1677.75	0.007519	5.79	263.16	0.67	9948	10056	108
T5N-R3W-S24	1.304	Floodplain	1660	1676.15	1681.06	1680.88	1681.7	0.011713	7.33	280.41	0.84	9575.43	10020.28	444.85
T5N-R3W-S24	1.304	Floodway	1660	1676.15	1681.59	1681.59	1683.02	0.015223	9.59	174.24	1	9950	10011	61
T5N-R3W-S24	1.390	Floodplain	1660	1680.72	1686.26	1686.26	1686.7	0.009005	7.49	358.22	0.74	9903.58	10540.74	637.16
T5N-R3W-S24	1.390	Floodway	1660	1680.72	1687.15	1686.86	1687.98	0.008047	8.34	232.29	0.73	9989	10079	90
T5N-R3W-S24	1.462	Floodplain	1660	1684.59	1690.17		1690.54	0.011284	6.73	416.16	0.68	9829.94	10266.99	437.05
T5N-R3W-S24	1.462	Floodway	1660	1684.59	1690.99		1691.84	0.012845	8.4	238.46	0.75	9975	10062	87
T5N-R3W-S24	1.538	Floodplain	1660	1688.9	1694.29	1694.1	1694.65	0.009834	6.05	389.04	0.63	9893.45	10255.08	361.63
T5N-R3W-S24	1.538	Floodway	1660	1688.9	1695.29		1695.99	0.008716	6.95	250.45	0.62	9986	10064	78
T5N-R3W-S24	1.623	Floodplain	1660	1696.1	1698.7	1698.51	1698.97	0.009747	4.89	424.87	0.61	9799.3	10260.17	460.87
T5N-R3W-S24	1.623	Floodway	1660	1696.1	1699.5	1698.72	1700.04	0.009421	5.93	281.65	0.62	9965	10065	100
T5N-R3W-S24	1.638	Floodplain	1660	1696.39	1699.63	1699.51	1699.97	0.014815	5.46	373.46	0.72	9847.59	10237.87	390.28
T5N-R3W-S24	1.638	Floodway	1660	1696.39	1700.32		1701.06	0.015053	6.87	241.34	0.77	9953	10054	101
T5N-R3W-S24	1.697	Floodplain	1660	1699.39	1703.04	1702.74	1703.25	0.008184	4.4	487.58	0.55	9793.65	10344.58	550.93
T5N-R3W-S24	1.697	Floodway	1660	1699.39	1703.97		1704.51	0.008791	5.89	283.03	0.6	9960	10058	98
T5N-R3W-S24	1.801	Floodplain	1660	1706.09	1708.6	1708.43	1708.81	0.013004	4.38	465.61	0.65	9623.89	10256.27	632.38
T5N-R3W-S24	1.801	Floodway	1660	1706.09	1709.59	1709.19	1710.13	0.012085	6.04	283.65	0.69	9932	10068	136
T5N-R3W-S24	1.906	Floodplain	1660	1713.96	1715.39	1715.16	1715.6	0.011847	4.15	494.79	0.63	9844.98	10415.08	570.1
T5N-R3W-S24	1.906	Floodway	1660	1713.96	1716.06	1715.53	1716.47	0.010929	5.2	325.07	0.64	9911	10072	161
T5N-R3W-S24	1.976	Floodplain	1660	1717.07	1718.64	1718.16	1718.78	0.006175	2.46	567.26	0.43	9632.48	10122.84	490.36
T5N-R3W-S24	1.976	Floodway	1660	1717.07	1719.63	1718.91	1719.92	0.0076	4.27	385.19	0.53	9918	10105	187
T5N-R3W-S24	2.071	Floodplain	510	1723.99	1724.87	1724.87	1725.09	0.027488	4.15	143.65	0.86	9831.19	10261.97	430.78
T5N-R3W-S24	2.071	Floodway	510	1723.99	1724.95	1724.95	1725.33	0.034957	5.03	103.17	0.98	9901	10037	136
T5N-R3W-S24	2.164	Floodplain	510	1729.13	1730.61	1730.31	1730.7	0.006323	2.79	234.87	0.47	9707.22	10131.3	424.08
T5N-R3W-S24	2.164	Floodway	510	1729.13	1731.21	1730.65	1731.41	0.006272	3.66	146.65	0.49	9958	10054	96
T5N-R3W-S24	2.243	Floodplain	510	1733.7	1734.14	1734.02	1734.22	0.013784	1.57	220.48	0.52	9594.93	10241.25	646.32
T5N-R3W-S24	2.243	Floodway	510	1733.7	1734.96	1734.71	1735.2	0.014993	4.02	130.13	0.67	9922	10044	122

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R3W-S24E														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R3W-S24	2.320	Floodplain	510	1737.41	1738.47	1738.3	1738.53	0.008238	2.39	260.58	0.48	9587.82	10088.43	500.61
T5N-R3W-S24	2.320	Floodway	510	1737.41	1739		1739.15	0.006815	3.07	166.76	0.47	9946	10073	127
T5N-R3W-S24	2.404	Floodplain	510	1741.73	1742.9	1742.75	1742.96	0.01187	1.79	250.63	0.51	9564.38	10189.06	624.68
T5N-R3W-S24	2.404	Floodway	510	1741.73	1743.32		1743.55	0.015132	3.29	134.07	0.65	9911	10046	135
T5N-R3W-S24	2.454	Floodplain	510	1744.29	1745.77	1745.64	1745.85	0.010876	1.66	235.08	0.48	9542.5	10106.8	564.3
T5N-R3W-S24	2.454	Floodway	510	1744.29	1746.54	1746.19	1746.7	0.010013	3.36	159.46	0.56	9951	10102	151
T5N-R3W-S24	2.525	Floodplain	510	1748.16	1749.85	1749.7	1749.94	0.010929	1.92	219.64	0.5	9583.53	10048.21	464.68
T5N-R3W-S24	2.525	Floodway	510	1748.16	1750.44	1750.17	1750.66	0.011149	3.33	137.36	0.57	9919	10048	129
T5N-R3W-S24	2.617	Floodplain	3020	1754.14	1754.26	1754.05	1754.42	0.009665	0.59	940.32	0.4	8398.55	10379.09	1980.54
T5N-R3W-S24	2.617	Floodway	510	1754.14	1755.2	1755	1755.46	0.009671	2.91	136.93	0.6	9880	10073	193
T5N-R3W-S24	2.710	Floodplain	3020	1758.93	1759.5	1759.34	1759.67	0.010876	1.67	903.43	0.47	8814.63	11064.31	2249.68
T5N-R3W-S24	2.710	Floodway	790	1758.93	1760.37	1760.06	1760.56	0.01054	2.59	234.23	0.52	9972	10188	216

T5N-R2W-S19E

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.013	Floodplain	2380	1593.06	1601.68	1600.45	1602.89	0.010516	8.93	276.2	0.67	9856.38	10024.92	168.54
Reach #1	0.013	Floodway	2380	1593.06	1602.3	1600.31	1603.31	0.010501	8.13	297.35	0.66	9955	10025.91	70.91
Reach #1	0.075	Floodplain	2380	1594.97	1603.97		1604.27	0.002064	4.58	546.25	0.31	9906.58	10019.85	113.27
Reach #1	0.075	Floodway	2380	1594.97	1604.35		1604.7	0.002116	4.76	500.81	0.32	9946	10018	72
Reach #1	0.150	Floodplain	2380	1597.43	1604.79		1604.94	0.001364	3.31	776.95	0.25	9797.31	10045.48	248.17
Reach #1	0.150	Floodway	2380	1597.43	1605.28		1605.63	0.002558	4.73	506.89	0.34	9956	10043	87
Reach #1	0.210	Floodplain	2380	1603.27	1608.7	1608.7	1610.21	0.019159	10.2	242.94	0.88	9995.98	10075.92	79.94
Reach #1	0.210	Floodway	2380	1603.27	1609.02	1609.02	1611.24	0.024584	12	200.46	0.99	9997	10043	46
Reach #1	0.240	Floodplain	2380	1605.18	1610.94		1611.24	0.002705	4.44	543.31	0.35	9949.45	10080.97	131.52
Reach #1	0.240	Floodway	2380	1605.18	1611.89		1612.14	0.001817	4.01	596.75	0.29	9949.21	10052	102.79
Reach #1	0.302	Floodplain	1660	1608.32	1613.76	1613.76	1615.42	0.018051	10.66	162.04	0.88	9966.18	10017.71	51.53
Reach #1	0.302	Floodway	1660	1608.32	1613.72	1613.72	1615.42	0.018652	10.78	160.11	0.9	9968	10017.66	49.66
Reach #1	0.394	Floodplain	1660	1612.45	1618.74	1617.01	1619	0.003604	4.36	467.58	0.39	9250.17	10139.62	889.45
Reach #1	0.394	Floodway	1660	1612.45	1619.06	1616.95	1619.44	0.004263	4.99	336.06	0.43	9937	10028	91
Reach #1	0.503	Floodplain	1660	1617.24	1622.56	1622.56	1622.83	0.010233	5.62	467.2	0.61	9473.44	10334.83	861.39
Reach #1	0.503	Floodway	1660	1617.24	1623.47	1623.47	1624.2	0.01405	7.6	252.86	0.74	9879	10035	156
Reach #1	0.586	Floodplain	1660	1621.18	1626.7	1626.41	1626.85	0.008281	3.38	547.55	0.49	9495.86	10310.61	814.75
Reach #1	0.586	Floodway	1660	1621.18	1627.69		1627.94	0.005657	3.93	413.04	0.44	9845	10064	219
Reach #1	0.695	Floodplain	1660	1628.06	1631.01	1630.75	1631.15	0.006836	2.23	578.57	0.41	9465.99	10212.75	746.76
Reach #1	0.695	Floodway	1660	1628.06	1631.74	1631.39	1632.09	0.009398	3.88	362.74	0.53	9838	10080	242
Reach #1	0.778	Floodplain	1660	1631.62	1634.61		1634.81	0.011261	2.76	473.82	0.53	9496.78	10375.93	879.15
Reach #1	0.778	Floodway	1660	1631.62	1635.62		1635.91	0.008511	3.99	384.42	0.52	9820	10080	260
Reach #1	0.855	Floodplain	1660	1634.74	1638.29		1638.4	0.007183	2.28	628.53	0.43	9497.83	10463.84	966.01
Reach #1	0.855	Floodway	1660	1634.74	1639.27		1639.64	0.009884	4.41	347.33	0.57	9915	10105	190
Reach #1	0.954	Floodplain	1660	1639.66	1642.49	1642.27	1642.64	0.009486	3.31	528.16	0.53	9780.34	10661.04	880.7
Reach #1	0.954	Floodway	1660	1639.66	1643.49	1642.69	1643.77	0.006494	4.08	396.77	0.48	9944	10128	184
Reach #1	1.042	Floodplain	1660	1643.65	1646.6	1646.46	1646.74	0.008423	3.58	613.68	0.51	9718.45	10903.57	1185.12
Reach #1	1.042	Floodway	1660	1643.65	1647.27		1647.7	0.011465	5.33	313	0.64	9900	10060	160
Reach #1	1.147	Floodplain	1660	1648.39	1651.38	1651.25	1651.53	0.009209	2.66	562.55	0.49	9675.66	10869	1193.34
Reach #1	1.147	Floodway	1660	1648.39	1652.37		1652.69	0.007345	3.88	381.22	0.5	9885	10128	243
Reach #1	1.244	Floodplain	1660	1653.86	1655.61	1655.47	1655.78	0.008402	2.58	532.92	0.55	9212.48	10892.53	1680.05

HEC-RAS Plan: River: Reach #1 Reach: Reach #1														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	1.244	Floodway	1660	1653.86	1656.56	1656.36	1656.92	0.010143	3.91	351.96	0.66	9737	10021	284
Reach #1	1.330	Floodplain	1660	1657.02	1659.22	1658.87	1659.51	0.008235	3.48	385.05	0.58	9394	10314.06	920.06
Reach #1	1.330	Floodway	1660	1657.02	1660.21	1659.79	1660.37	0.006	3.15	507.32	0.51	9519	10012	493
Reach #1	1.421	Floodplain	1490	1662.93	1664.86	1664.86	1665.2	0.01729	5.68	333.59	0.89	9608.2	10099.33	491.13
Reach #1	1.421	Floodway	1490	1662.93	1665.78	1665.78	1666.68	0.016982	7.97	196.33	0.95	9907	10017	110
Reach #1	1.497	Floodplain	1490	1665.3	1668.8	1668.5	1669.2	0.006398	5.55	365.47	0.61	9680.13	10153.78	473.65
Reach #1	1.497	Floodway	1490	1665.3	1669.46		1669.91	0.004564	5.4	276.19	0.53	9949	10035	86
Reach #1	1.560	Floodplain	1490	1667.35	1672.19	1672.19	1672.54	0.008974	5.86	406.28	0.7	9623.69	10264.05	640.36
Reach #1	1.560	Floodway	1490	1667.35	1672.5	1672.5	1673.75	0.017615	8.95	166.69	1	9960	10027	67
Reach #1	1.653	Floodplain	1490	1671.8	1676.5	1676.45	1676.84	0.008673	5.81	386.67	0.69	9701.8	10197.13	495.33
Reach #1	1.653	Floodway	1490	1671.8	1677.41		1677.79	0.004627	5.35	315.69	0.53	9908	10051	143
Reach #1	1.741	Floodplain	1490	1674.33	1679.7	1679.01	1680.22	0.006142	6.02	287.25	0.61	9825.61	10025.36	199.75
Reach #1	1.741	Floodway	1490	1674.33	1679.77		1680.41	0.006739	6.42	232.92	0.64	9950	10025	75
Reach #1	1.859	Floodplain	270	1680.61	1683.66	1683.08	1683.81	0.004415	3.6	105.81	0.46	9631.39	10011.82	380.43
Reach #1	1.859	Floodway	270	1680.61	1684.09	1683.16	1684.36	0.004555	4.17	65.22	0.49	9983	10013	30
Reach #1	1.981	Floodplain	270	1687.42	1689.66	1689.66	1690.33	0.023254	6.54	41.29	1.01	9990.11	10060.31	70.2
Reach #1	1.981	Floodway	270	1687.42	1689.66	1689.66	1690.33	0.02317	6.53	41.34	1.01	9990.11	10060.32	70.21
Reach #1	2.054	Floodplain	270	1691.98	1694.42		1694.68	0.006624	4.11	65.75	0.57	9978.03	10019.15	41.12
Reach #1	2.054	Floodway	270	1691.98	1694.42		1694.68	0.006639	4.11	65.69	0.57	9978.04	10019.15	41.11

T5N-R2W-S19W

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R2W-S19W

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R2W-S19	0	Floodplain	2790	1613.84	1623.8	1623.23	1625.87	0.013721	11.7	247.94	0.79	9960.38	10018.04	57.66
T5N-R2W-S19	0	Floodway	2790	1613.84	1623.8	1623.23	1625.88	0.013718	11.7	247.2	0.79	9960.38	10016	55.62
T5N-R2W-S19	0.086	Floodplain	2790	1618.09	1628.38		1629.26	0.00442	7.51	373.1	0.51	9954.08	10024.95	70.87
T5N-R2W-S19	0.086	Floodway	2790	1618.09	1628.41		1629.28	0.004453	7.49	374.1	0.51	9954	10024	70
T5N-R2W-S19	0.164	Floodplain	2790	1623.64	1630.32		1631.9	0.008197	5.34	290.76	0.51	9972.04	10228.44	256.4
T5N-R2W-S19	0.164	Floodway	2790	1623.64	1630.32		1631.97	0.008286	5.37	283.31	0.52	9993.36	10224	230.64
T5N-R2W-S19	0.244	Floodplain	2790	1629.94	1636.34	1636.34	1637.56	0.018379	6.96	319.21	0.65	9903.8	10802.5	898.7
T5N-R2W-S19	0.244	Floodway	2790	1629.94	1637.34	1637.34	1638.71	0.018023	7.79	301.96	0.67	9916	10183	267
T5N-R2W-S19	0.332	Floodplain	2790	1635.73	1642.95	1642.91	1643.17	0.007524	5.7	856.57	0.57	9571.49	11541.28	1969.79
T5N-R2W-S19	0.332	Floodway	2790	1635.73	1643.71	1643.5	1644.12	0.007121	6.4	578.01	0.57	9949	10315	366
T5N-R2W-S19	0.408	Floodplain	2790	1644.19	1646.11	1645.9	1646.35	0.011379	1.98	740.6	0.54	9811.64	11341.22	1529.58
T5N-R2W-S19	0.408	Floodway	2790	1644.19	1647.11	1646.92	1647.58	0.014232	4.94	511.68	0.74	9952	10310	358
T5N-R2W-S19	0.497	Floodplain	4250	1648.26	1650.77	1650.62	1651.03	0.008864	4.62	1102.48	0.61	9421.88	11577.33	2155.45
T5N-R2W-S19	0.497	Floodway	4250	1648.26	1651.76	1651.54	1652.24	0.007936	5.9	804.84	0.63	9881	10361	480
T5N-R2W-S19	0.589	Floodplain	4250	1651.87	1654.9	1654.65	1655.1	0.008362	4.44	1211.02	0.57	9463.13	11189.16	1726.03
T5N-R2W-S19	0.589	Floodway	4250	1651.87	1655.67	1655.22	1656.07	0.008418	5.57	843.6	0.6	9825	10265	440
T5N-R2W-S19	0.662	Floodplain	4250	1654	1658.2	1657.93	1658.41	0.008805	4.72	1158.75	0.58	9554.84	11284.12	1729.28
T5N-R2W-S19	0.662	Floodway	4250	1654	1658.89	1658.44	1659.29	0.008332	5.59	843.87	0.6	9816	10253	437
T5N-R2W-S19	0.764	Floodplain	4250	1658.7	1662.52	1662.17	1662.7	0.00675	3.33	1287.09	0.49	9902.79	11267.2	1364.41
T5N-R2W-S19	0.764	Floodway	4250	1658.7	1663.52		1663.88	0.008261	5.22	891.03	0.59	9907	10385	478
T5N-R2W-S19	0.846	Floodplain	4250	1661.45	1666.81	1666.81	1667.12	0.01584	5.87	977.72	0.8	9506.69	11137.2	1630.51
T5N-R2W-S19	0.846	Floodway	4250	1661.45	1667.66	1667.59	1668.43	0.014251	7.33	606.08	0.82	9934	10268	334
T5N-R2W-S19	0.923	Floodplain	4250	1668.73	1671.02	1670.62	1671.21	0.00735	3.4	1227.62	0.51	9767.8	10952.01	1184.21
T5N-R2W-S19	0.923	Floodway	4250	1668.73	1671.99	1671.15	1672.36	0.007224	4.72	874.79	0.54	9973	10328	355
T5N-R2W-S19	1.004	Floodplain	4250	1670.48	1674.48	1674.23	1674.71	0.009966	4.24	1098.9	0.6	9749.32	10940.12	1190.8
T5N-R2W-S19	1.004	Floodway	4250	1670.48	1675.34	1674.9	1675.83	0.009637	5.58	756.74	0.63	9969	10340	371
T5N-R2W-S19	1.079	Floodplain	4250	1677.16	1678.01	1678	1678.4	0.008527	1.92	991.71	0.46	9565.81	10762.65	1196.84
T5N-R2W-S19	1.079	Floodway	4250	1677.16	1678.99		1679.49	0.009116	3.98	795.17	0.57	9744	10200	456
T5N-R2W-S19	1.135	Floodplain	4250	1678.56	1680.71	1680.65	1681.05	0.016384	4	919.8	0.74	9520.75	10686.59	1165.84
T5N-R2W-S19	1.135	Floodway	4250	1678.56	1681.69	1681.69	1682.47	0.015574	6.34	606.8	0.81	9813	10195	382
T5N-R2W-S19	1.225	Floodplain	5620	1680.81	1684.78	1684.49	1684.95	0.00655	3.33	1741.23	0.49	9268.61	11187.96	1919.35

used to gain convergence in model

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R2W-S19W														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R2W-S19	1.225	Floodway	5620	1680.81	1685.79	1685.24	1686.22	0.006089	4.59	1072.11	0.52	9767	10275	508
T5N-R2W-S19	1.315	Floodplain	5620	1683.21	1688.28	1688.15	1688.57	0.00973	5.67	1396.9	0.63	9404.89	11118.05	1713.16
T5N-R2W-S19	1.315	Floodway	5620	1683.21	1689.27	1689.11	1689.93	0.011283	7.61	883.87	0.71	9775	10225	450
T5N-R2W-S19	1.398	Floodplain	5620	1684.78	1692.25	1692.19	1692.6	0.009929	7.31	1334.48	0.67	9565.91	11009.96	1444.05
T5N-R2W-S19	1.398	Floodway	5620	1684.78	1693.19	1692.84	1693.87	0.00804	7.65	860.6	0.63	9892	10247	355
T5N-R2W-S19	1.474	Floodplain	5620	1687.66	1693.37		1693.58	0.001079	4.89	1655.66	0.38	9645.65	10248.25	602.6
T5N-R2W-S19	1.474	Floodway	5620	1687.66	1694.33		1694.54	0.000637	4.2	1546.71	0.3	9832	10143	311
T5N-R2W-S19	1.538	Floodplain	5620	1694.89	1697.62	1697.62	1698.34	0.008567	7.92	877.52	0.93	9248.17	10177.42	929.25
T5N-R2W-S19	1.538	Floodway	5620	1694.89	1698.27	1698.27	1699.59	0.009214	9.61	613.01	0.99	9870	10097	227
T5N-R2W-S19	1.607	Floodplain	2740	1697.16	1701.36	1701.12	1701.7	0.010814	5.83	604.85	0.74	9914.11	10817.5	903.39
T5N-R2W-S19	1.607	Floodway	2740	1697.16	1702.12	1701.42	1702.54	0.006259	5.54	525.07	0.6	9943	10160	217
T5N-R2W-S19	1.632	Floodplain	2740	1698.18	1702.48	1702.11	1702.74	0.006865	5.75	702.29	0.61	9870.56	10823.13	952.57
T5N-R2W-S19	1.632	Floodway	2740	1698.18	1703.11	1703.11	1704.27	0.016577	10.02	323.67	0.96	9986	10120	134
T5N-R2W-S19	1.704	Floodplain	2740	1701.63	1706.76	1706.76	1707.27	0.005216	7.01	641.22	0.69	9893.2	10655.56	762.36
T5N-R2W-S19	1.704	Floodway	2740	1701.63	1707.26	1707.06	1708.35	0.007053	8.78	355.04	0.8	9943	10091.21	148.21
T5N-R2W-S19	1.787	Floodplain	2740	1706.13	1709.65	1709.53	1710.04	0.008783	5.29	567.91	0.66	9856.39	10398.52	542.13
T5N-R2W-S19	1.787	Floodway	2740	1706.13	1710.43		1710.96	0.005409	4.85	473.01	0.52	9987	10175	188
T5N-R2W-S19	1.866	Floodplain	2740	1709.53	1712.91	1712.5	1713.09	0.005177	4.01	809.82	0.49	9942.31	10830.62	888.31
T5N-R2W-S19	1.866	Floodway	2740	1709.53	1713.63	1713.2	1714.17	0.00941	6.22	465.16	0.67	9984	10200	216
T5N-R2W-S19	1.902	Floodplain	2740	1711.35	1714.44	1714.44	1714.98	0.015315	6.61	468.62	0.88	9874.56	10692.31	817.75
T5N-R2W-S19	1.902	Floodway	2740	1711.35	1715.4	1714.75	1715.94	0.007359	6.01	464.93	0.64	9977	10156	179
T5N-R2W-S19	1.990	Floodplain	2740	1714.15	1718.86	1718.54	1719.08	0.00597	4.35	765.1	0.55	9537.06	10368.53	831.47
T5N-R2W-S19	1.990	Floodway	2740	1714.15	1719.54	1719.4	1720.36	0.012884	7.81	389.02	0.85	9904	10086	182
T5N-R2W-S19	2.124	Floodplain	2380	1719.94	1724.32	1724.12	1724.68	0.012228	6.35	527.23	0.78	9774.42	10264.92	490.5
T5N-R2W-S19	2.124	Floodway	2380	1719.94	1725.21	1724.26	1725.46	0.004327	4.79	604.47	0.49	9918	10170	252
T5N-R2W-S19	2.187	Floodplain	2380	1723.45	1727.48	1727.02	1727.72	0.008811	6.02	657.21	0.68	9989.2	10644.85	655.65
T5N-R2W-S19	2.187	Floodway	800	1723.45	1727.74	1727.74	1728.2	0.009222	6.19	166.61	0.69	9989	10155	166
T5N-R2W-S19	2.265	Floodplain	2380	1727.7	1731.16	1730.68	1731.32	0.007377	4.31	750.35	0.59	9972.15	10779.98	807.83
T5N-R2W-S19	2.265	Floodway	800	1727.7	1731.77		1732.21	0.009744	5.91	163.12	0.7	9972	10194	222
T5N-R2W-S19	2.299	Floodplain	800	1731.28	1733.53	1733.53	1733.79	0.020795	5.24	206.67	0.89	9806.73	10216.56	409.83
T5N-R2W-S19	2.299	Floodway	800	1731.28	1734.12	1734.07	1734.64	0.01617	6.12	143.35	0.84	9940	10057	117

HEC-RAS Plan: 310032	River: Reach #1	Reach: T5N-R2W-S19W												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R2W-S19	2.343	Floodplain	800	1733.13	1736.36	1736.15	1736.5	0.007715	3.55	288.25	0.55	9700.91	10236.73	535.82
T5N-R2W-S19	2.343	Floodway	800	1733.13	1737.14	1736.8	1737.6	0.010351	5.64	147.6	0.69	9990	10071	81
T5N-R2W-S19	2.398	Floodplain	800	1737.5	1740.13	1740.13	1740.67	0.022549	6.52	138.62	0.96	9903.73	10226.16	322.43
T5N-R2W-S19	2.398	Floodway	800	1737.5	1740.85	1740.77	1741.82	0.01988	7.93	101.35	0.95	9978	10025	47
T5N-R2W-S19	2.493	Floodplain	800	1742.47	1745.92	1745.47	1746.23	0.006598	5.08	185.84	0.56	9974.77	10102.32	127.55
T5N-R2W-S19	2.493	Floodway	800	1742.47	1746.76	1745.94	1747.35	0.006953	6.3	130.2	0.6	9982	10024	42
T5N-R2W-S19	2.575	Floodplain	800	1746.57	1749.98	1749.96	1750.58	0.01623	6.55	135.29	0.84	9934.33	10042.64	108.31
T5N-R2W-S19	2.575	Floodway	800	1746.57	1750.47	1749.95	1751.05	0.010745	6.12	131.26	0.7	9967	10022	55
T5N-R2W-S19	2.640	Floodplain	800	1749.77	1753.76		1754.1	0.007047	5.09	179.29	0.57	9976.68	10095.83	119.15
T5N-R2W-S19	2.640	Floodway	800	1749.77	1753.81		1754.28	0.008326	5.61	147.77	0.62	9983	10051	68
T5N-R2W-S19	2.725	Floodplain	800	1753.99	1758.14	1757.91	1758.86	0.016724	6.81	118.1	0.85	9965.67	10030.78	65.11
T5N-R2W-S19	2.725	Floodway	800	1753.99	1758.29	1757.9	1758.91	0.012891	6.32	127.87	0.76	9965	10030	65
T5N-R2W-S19	2.789	Floodplain	800	1758.17	1762.3		1762.67	0.007946	5.09	167.65	0.6	9937.03	10038.43	101.4
T5N-R2W-S19	2.789	Floodway	800	1758.17	1762.31		1762.83	0.010376	5.83	139.16	0.69	9970	10038.53	68.53
T5N-R2W-S19	2.859	Floodplain	800	1762.8	1765.78	1765.58	1766.22	0.011739	5.66	156.75	0.72	9953.62	10072.84	119.22
T5N-R2W-S19	2.859	Floodway	800	1762.8	1766.21	1765.76	1766.82	0.011078	6.28	127.96	0.72	9964	10019	55
T5N-R2W-S19	2.953	Floodplain	800	1767.63	1771.12	1770.74	1771.55	0.009903	5.38	156.33	0.66	9972.11	10070.79	98.68
T5N-R2W-S19	2.953	Floodway	800	1767.63	1771.37		1771.83	0.009191	5.48	145.95	0.64	9984	10048	64
T5N-R2W-S19	3.037	Floodplain	800	1771.99	1775.79	1775.56	1776.31	0.011586	6.11	142.87	0.73	9950.17	10045.03	94.86
T5N-R2W-S19	3.037	Floodway	800	1771.99	1776.13		1776.88	0.013821	6.99	114.53	0.77	9974	10019	45
T5N-R2W-S19	3.130	Floodplain	800	1777.43	1781.5	1781.32	1781.96	0.011567	5.91	153.48	0.7	9935.48	10050.29	114.81
T5N-R2W-S19	3.130	Floodway	800	1777.43	1782.2		1782.84	0.010681	6.45	124.07	0.66	9973	10015	42
T5N-R2W-S19	3.221	Floodplain	800	1783.02	1786.21	1785.81	1786.5	0.007983	4.66	186.34	0.57	9911.95	10044.85	132.9
T5N-R2W-S19	3.221	Floodway	800	1783.02	1786.75	1785.95	1787.19	0.007698	5.29	151.49	0.58	9960	10018	58
T5N-R2W-S19	3.265	Floodplain	800	1785.43	1789.2	1789.2	1790.07	0.019658	7.7	109.13	0.91	9970.46	10035.02	64.56
T5N-R2W-S19	3.265	Floodway	800	1785.43	1789.28	1789.28	1790.43	0.024036	8.61	93.01	1	9986	10026	40
T5N-R2W-S19	3.318	Floodplain	800	1787.88	1792.84		1793.17	0.006827	4.87	176.4	0.54	9970.45	10069.48	99.03
T5N-R2W-S19	3.318	Floodway	800	1787.88	1793.27		1793.68	0.006502	5.17	155.44	0.53	9982	10035	53
T5N-R2W-S19	3.369	Floodplain	800	1791.36	1795.82	1795.82	1796.58	0.017655	7.38	118.74	0.86	9971.2	10048.98	77.78
T5N-R2W-S19	3.369	Floodway	800	1791.36	1795.93	1795.93	1797.12	0.024924	8.76	91.32	1	9971	10009	38
T5N-R2W-S19	3.397	Floodplain	800	1793.12	1797.66		1798.06	0.006242	5.6	164.6	0.54	9974.01	10062.9	88.89
T5N-R2W-S19	3.397	Floodway	800	1793.12	1798.31		1799.08	0.007809	7.05	114.59	0.62	9988	10017	29
T5N-R2W-S19	3.483	Floodplain	800	1798.64	1801.71	1801.63	1802.16	0.014308	5.81	153.3	0.75	9942.15	10086.55	144.4
T5N-R2W-S19	3.483	Floodway	800	1798.64	1802.42	1801.69	1802.91	0.009066	5.6	142.98	0.62	9985	10041	56

HEC-RAS Plan: 310032 River: Reach #1 Reach: T5N-R2W-S19W														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R2W-S19	3.576	Floodplain	800	1802.16	1808.65	1808.65	1809.5	0.011406	7.86	119.77	0.69	9959.06	10031.51	72.45
T5N-R2W-S19	3.576	Floodway	800	1802.16	1808.62	1808.62	1809.5	0.011849	7.97	117.73	0.71	9959.52	10031.14	71.62
T5N-R2W-S19	3.678	Floodplain	800	1811.78	1816.53	1816.5	1816.99	0.017416	6	152.27	0.81	9940.29	10094.49	154.2
T5N-R2W-S19	3.678	Floodway	800	1811.78	1817	1816.86	1817.92	0.021514	7.7	103.96	0.91	9968	10015	47
T5N-R2W-S19	3.763	Floodplain	800	1819.82	1822.99	1822.61	1823.29	0.011398	4.37	184.42	0.64	9888.37	10027.92	139.55
T5N-R2W-S19	3.763	Floodway	800	1819.82	1823.18	1822.61	1823.42	0.007708	3.9	205.32	0.54	9897	10024	127

T5N-R3W-S01S

HEC-RAS Plan: 310.032 River: Reach #1 Reach: T5N-R3W-S01S

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
T5N-R3W-S01S	0.194	Floodplain	2240	1775.1	1778.61	1778.51	1778.92	0.010908	6.28	534.28	0.73	9742.2	10895.77	1153.57
T5N-R3W-S01S	0.194	Floodway	2240	1775.1	1779.43	1779.21	1779.72	0.010902	4.92	532.83	0.69	9925	10394	469
T5N-R3W-S01S	0.268	Floodplain	2240	1778.5	1783.21	1783.17	1783.41	0.012191	5.63	678.19	0.73	9576.1	10752.44	1176.34
T5N-R3W-S01S	0.268	Floodway	2240	1778.5	1783.76	1783.61	1784.14	0.011484	6.46	478.63	0.74	9984	10381	397
T5N-R3W-S01S	0.344	Floodplain	2240	1781.26	1787.57	1787.57	1787.86	0.009343	5.75	550.32	0.67	9704.12	10507.21	803.09
T5N-R3W-S01S	0.344	Floodway	2240	1781.26	1787.85	1787.67	1788.37	0.009708	5.92	397.66	0.68	9877	10151	274
T5N-R3W-S01S	0.371	Floodplain	2240	1782.6	1789.23	1789.23	1789.6	0.006091	6.69	647.9	0.58	9661.98	10609.61	947.63
T5N-R3W-S01S	0.371	Floodway	2240	1782.6	1789.57	1789.57	1790.23	0.007636	7.89	398.47	0.66	9891	10136	245
T5N-R3W-S01S	0.437	Floodplain	2240	1785.56	1792.81	1792.81	1793.26	0.00999	7.87	473.39	0.69	9594.65	10185.53	590.88
T5N-R3W-S01S	0.437	Floodway	2240	1785.56	1793.04	1793.04	1793.81	0.012835	9.25	347.49	0.79	9856.44	10085	228.56
T5N-R3W-S01S	0.530	Floodplain	2240	1788.88	1796.33	1796.33	1796.79	0.011472	6.64	452.05	0.69	9545.7	10194.85	649.15
T5N-R3W-S01S	0.530	Floodway	2240	1788.88	1797.08	1796.9	1798.15	0.014949	8.87	275.11	0.82	9951	10051	100
T5N-R3W-S01S	0.540	Floodplain	2240	1791.56	1799.81	1799.81	1800.3	0.007322	7	481.97	0.62	9475.16	10244.67	769.51
T5N-R3W-S01S	0.540	Floodway	2240	1791.56	1800.19	1799.81	1800.96	0.008284	7.66	326.68	0.65	9910	10028	118
T5N-R3W-S01S	0.610	Floodplain	2240	1799.87	1802.94	1802.87	1803.42	0.01048	3.55	438.68	0.63	9789.21	10359.71	570.5
T5N-R3W-S01S	0.610	Floodway	2240	1799.87	1803.83	1803.7	1804.61	0.012325	5.91	323.74	0.76	9979	10145	166
T5N-R3W-S01S	0.620	Floodplain	2240	1803.66	1805.92	1805.92	1806.49	0.017556	6.97	377.69	0.88	9779.07	10105.18	326.11
T5N-R3W-S01S	0.620	Floodway	2240	1803.66	1806.54	1806.33	1807.4	0.014166	7.53	301.45	0.83	9932	10066	134
T5N-R3W-S01S	0.721	Floodplain	2240	1807.2	1809.78	1809.42	1810.02	0.006905	4.56	591.84	0.57	9669.77	10145.05	475.28
T5N-R3W-S01S	0.721	Floodway	2240	1807.2	1810.53		1811.21	0.009404	6.6	341.44	0.7	9928	10053	125
T5N-R3W-S01S	0.817	Floodplain	2240	1812.4	1815.09	1815.09	1815.63	0.018308	6.89	394.25	0.89	9731.82	10085.8	353.98
T5N-R3W-S01S	0.817	Floodway	2240	1812.4	1815.88	1815.48	1816.56	0.012099	7.09	342.2	0.77	9888	10032	144
T5N-R3W-S01S	0.881	Floodplain	2240	1816.6	1818.98	1818.66	1819.17	0.006401	3.89	639.22	0.52	9564.53	10131.06	566.53
T5N-R3W-S01S	0.881	Floodway	2240	1816.6	1819.57	1819.03	1820.05	0.008515	5.46	402.8	0.63	9905	10090	185
T5N-R3W-S01S	0.934	Floodplain	2240	1819.55	1821.48	1821.47	1821.83	0.016801	5.46	481.24	0.82	9586.68	10338.05	751.37
T5N-R3W-S01S	0.934	Floodway	2240	1819.55	1822.47	1822.45	1823.18	0.015502	7.51	342.17	0.86	9937	10160	223

In combined area

T5N-R2W-S07

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wash T5N-R2W-S07

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wash T5N-R2V	0.048	Floodplain	1390	1721.78	1723.97	1723.7	1724.2	0.011	3.84	367.2	0.6	9735.19	10146.92	411.73
Wash T5N-R2V	0.048	Floodway	1390	1721.78	1724.61	1724.12	1725.02	0.011001	5.03	272.48	0.64	9932	10071	139
Wash T5N-R2V	0.094	Floodplain	1390	1724.33	1726.79	1726.49	1727.04	0.010513	3.26	357.51	0.56	9663.51	10295.46	631.95
Wash T5N-R2V	0.094	Floodway	1390	1724.33	1727.5	1727.02	1727.87	0.011495	4.77	287.54	0.63	9909	10067	158
Wash T5N-R2V	0.166	Floodplain	1390	1728.7	1730.61	1730.32	1730.78	0.009489	2.09	431.4	0.48	9351.14	10042.81	691.67
Wash T5N-R2V	0.166	Floodway	1390	1728.7	1731.45	1730.94	1731.69	0.009017	3.68	359.08	0.55	9798	10033	235
Wash T5N-R2V	0.235	Floodplain	2700	1732.27	1734.44	1734.26	1734.68	0.011945	2.9	734.61	0.57	9585.5	10639.28	1053.78
Wash T5N-R2V	0.235	Floodway	2700	1732.27	1735.43	1735.17	1735.78	0.01295	5.17	580.3	0.68	9800	10216	416
Wash T5N-R2V	0.305	Floodplain	2700	1735.74	1738.87	1738.55	1739.1	0.01237	4.8	739.08	0.66	9707.69	10465.16	757.47
Wash T5N-R2V	0.305	Floodway	2700	1735.74	1739.48		1739.83	0.009561	5.2	575.69	0.61	9876	10173	297
Wash T5N-R2V	0.390	Floodplain	2700	1739.65	1743.65	1743.35	1743.87	0.009109	4.7	732.89	0.58	9740.57	10411.35	670.78
Wash T5N-R2V	0.390	Floodway	2700	1739.65	1743.92	1743.57	1744.28	0.010146	5.4	568.86	0.63	9822	10177	355
Wash T5N-R2V	0.474	Floodplain	2700	1743.52	1747.87	1747.87	1748.23	0.01116	6.36	681.41	0.67	9806.79	10641.23	834.44
Wash T5N-R2V	0.474	Floodway	2700	1743.52	1748.19		1748.74	0.011485	6.93	487.9	0.69	9906	10168	262
Wash T5N-R2V	0.588	Floodplain	3020	1749.62	1754.25	1754.14	1754.48	0.009703	5.56	931.48	0.61	9617.14	11597.02	1979.88
Wash T5N-R2V	0.588	Floodway	2700	1749.62	1755.1	1755	1755.66	0.011468	7.08	506.51	0.69	9858	10187	329
Wash T5N-R2V	0.682	Floodplain	3020	1755.03	1759.46	1759.31	1759.66	0.010601	5.23	889.02	0.65	9687.19	11933.77	2246.58
Wash T5N-R2V	0.682	Floodway	2700	1755.03	1760.28	1760.12	1760.67	0.009018	6.02	578.2	0.64	9709	10156	447
Wash T5N-R2V	0.779	Floodplain	3020	1760.57	1763.9	1763.6	1764.04	0.006737	4.26	1016.04	0.52	9602.77	11825.52	2222.75
Wash T5N-R2V	0.779	Floodway	3020	1760.57	1764.81	1764.51	1764.98	0.007794	4.42	930	0.56	9751	10904	1153
Wash T5N-R2V	0.875	Floodplain	3020	1766.25	1769.41	1769.29	1769.71	0.017469	5.75	702.01	0.81	9903.32	11286.12	1382.8
Wash T5N-R2V	0.875	Floodway	2670	1766.25	1769.88	1769.67	1770.17	0.012309	5.11	617.38	0.69	9907	10617	710
Wash T5N-R2V	0.961	Floodplain	3020	1770.51	1774.37		1774.48	0.006822	2.56	1115.32	0.46	9582.16	11213.65	1631.49
Wash T5N-R2V	0.961	Floodway	2670	1770.51	1774.86	1774.49	1775.06	0.00928	3.32	741.61	0.55	9822	10500	678
Wash T5N-R2V	1.045	Floodplain	2670	1777.74	1778.69	1778.68	1779.04	0.017914	2	570.42	0.63	9575.38	10735.81	1160.43
Wash T5N-R2V	1.045	Floodway	2670	1777.74	1779.6		1779.9	0.012317	3.67	628.02	0.63	9757	10289	532
Wash T5N-R2V	1.124	Floodplain	2670	1782.14	1783.48	1783.2	1783.6	0.007479	1.85	964.99	0.44	9318.3	10517.32	1199.02
Wash T5N-R2V	1.124	Floodway	2670	1782.14	1784.09		1784.39	0.009783	3.42	618.55	0.57	9740	10143	403
Wash T5N-R2V	1.205	Floodplain	2670	1785.96	1787.61	1787.59	1787.96	0.015352	3.74	586.84	0.69	9348.34	10157.59	809.25
Wash T5N-R2V	1.205	Floodway	660	1785.96	1788.14	1787.68	1788.36	0.008631	3.8	176.62	0.56	9915.3	10050	134.7
Wash T5N-R2V	1.235	Floodplain	2670	1787.18	1789.41		1789.58	0.008218	2.87	819.16	0.51	9240.53	10232.65	992.12
Wash T5N-R2V	1.235	Floodway	660	1787.18	1789.73		1790.05	0.014407	4.59	145.61	0.71	9914	10027	113
Wash T5N-R2V	1.310	Floodplain	660	1790.69	1793.08	1792.83	1793.26	0.009125	3.81	225.21	0.57	9896.86	10271.87	375.01
Wash T5N-R2V	1.310	Floodway	660	1790.69	1793.58	1792.88	1793.81	0.006215	3.83	172.43	0.49	9933	10025	92

HEC-RAS Plan: 310032 River: Reach #1 Reach: Wash T5N-R2W-S07

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Wash T5N-R2V	1.403	Floodplain	660	1795.51	1797.93		1798.06	0.010682	3.06	238.73	0.57	9777.5	10164.42	386.92
Wash T5N-R2V	1.403	Floodway	660	1795.51	1798.16	1797.9	1798.43	0.015635	4.17	158.35	0.71	9872	10022	150
Wash T5N-R2V	1.430	Floodplain	1010	1797.2	1799.16	1798.88	1799.26	0.006885	2.29	415.56	0.45	9828.62	10558.2	729.58
Wash T5N-R2V	1.430	Floodway	660	1797.2	1799.79		1799.94	0.007431	3.5	224.67	0.52	9944	10147	203
Wash T5N-R2V	1.486	Floodplain	1010	1800.1	1802.46	1802.38	1802.66	0.019283	3.75	286.48	0.75	9831.14	10551.5	720.36
Wash T5N-R2V	1.486	Floodway	1010	1800.1	1803.14	1802.87	1803.45	0.01519	5.05	231.21	0.74	9968	10173	205
Wash T5N-R2V	1.570	Floodplain	1010	1805.57	1807.75	1807.45	1807.85	0.008142	2.39	417.7	0.49	9625.93	10416.32	790.39
Wash T5N-R2V	1.570	Floodway	1010	1805.57	1808.32		1808.49	0.008953	3.6	306.62	0.56	9921	10203	282
Wash T5N-R2V	1.647	Floodplain	1010	1810.18	1811.41	1811.2	1811.59	0.011843	2.92	298.06	0.59	9989.98	10413.61	423.63
Wash T5N-R2V	1.647	Floodway	660	1810.18	1812.06	1811.85	1812.35	0.012264	4.28	153.74	0.65	9990	10136	146
Wash T5N-R2V	1.736	Floodplain	1010	1815.15	1817.01	1816.79	1817.15	0.01116	2.9	346.51	0.57	9853.04	10442.62	589.58
Wash T5N-R2V	1.736	Floodway	660	1815.15	1817.63	1817.32	1817.9	0.011162	4.24	161.67	0.63	9930	10055	125
Wash T5N-R2V	1.820	Floodplain	1010	1821.95	1823.39	1823.3	1823.63	0.02095	3.31	256.88	0.76	9856.04	10259.19	403.15
Wash T5N-R2V	1.820	Floodway	1010	1821.95	1823.87	1823.68	1824.2	0.017095	4.42	220.06	0.75	9940	10134	194

2 EAST (NORTH OF CAP)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	1.338	Floodplain	1450	1605.61	1607.55	1607.31	1607.84	0.010122	3.13	345.49	0.56	9617.44	10090.5	473.06
Reach #1	1.338	Floodway	1450	1605.61	1608.55	1608.43	1609.16	0.010143	4.59	243.38	0.62	9854.27	10033.67	179.4
Reach #1	1.417	Floodplain	1450	1608.94	1612.55	1612.55	1613.09	0.012704	6.5	275.02	0.74	9781.76	10197.99	416.23
Reach #1	1.417	Floodway	1450	1608.94	1613.05		1613.82	0.011563	7.03	207.2	0.73	9977.83	10051	73.17
Reach #1	1.478	Floodplain	1450	1612.99	1616.29	1616.08	1616.81	0.010797	6.31	266	0.69	9824.52	10080.45	255.93
Reach #1	1.478	Floodway	1450	1612.99	1616.62		1617.25	0.009881	6.54	230.29	0.68	9942	10034	92
Reach #1	1.559	Floodplain	1450	1618.03	1620.16	1619.79	1620.37	0.006941	3.32	392.48	0.5	9968.7	10289.9	321.2
Reach #1	1.559	Floodway	1450	1618.03	1620.84	1620.39	1621.32	0.009498	5.01	264.32	0.62	9967	10099	132
Reach #1	1.651	Floodplain	1450	1622.18	1625.14	1625.14	1625.66	0.019094	6.44	256.45	0.85	9951.62	10187.73	236.11
Reach #1	1.651	Floodway	1450	1622.18	1626.07	1625.7	1626.85	0.01355	7.15	204.82	0.77	9952	10032	80
Reach #1	1.742	Floodplain	1450	1628.62	1630.87	1630.49	1631.14	0.007471	3.84	360.48	0.53	9824.86	10115.65	290.79
Reach #1	1.742	Floodway	1450	1628.62	1631.22	1630.72	1631.61	0.007344	4.3	294.32	0.54	9879	10032	153
Reach #1	1.831	Floodplain	1450	1633.56	1636.02	1636.01	1636.5	0.019043	6.58	264.29	0.89	9859.21	10129.17	269.96
Reach #1	1.831	Floodway	1450	1633.56	1636.48	1636.48	1637.19	0.017481	7.41	219.19	0.89	9893	10043	150
Reach #1	1.907	Floodplain	1450	1637.33	1640.26	1639.92	1640.49	0.006278	4.44	393.35	0.53	9839.65	10245.46	405.81
Reach #1	1.907	Floodway	1450	1637.33	1640.9		1641.31	0.006879	5.4	281.26	0.57	9977	10110	133
Reach #1	1.991	Floodplain	1450	1641.47	1644.89	1644.89	1645.3	0.011667	6.52	316.7	0.74	9791.48	10124.8	333.32
Reach #1	1.991	Floodway	1450	1641.47	1645.52	1645.52	1646.35	0.012959	8.03	210.09	0.81	9916	10028	112
Reach #1	2.077	Floodplain	1450	1645.73	1649.75	1649.63	1650.35	0.010807	6.6	256.4	0.72	9698.2	10186.39	488.19
Reach #1	2.077	Floodway	1450	1645.73	1650.18	1649.73	1650.69	0.0074	5.95	268.22	0.61	9925.35	10075	149.65
Reach #1	2.120	Floodplain	1450	1649.07	1652.16		1652.39	0.006678	4.24	385.62	0.53	9784.1	10169.78	385.68
Reach #1	2.120	Floodway	1450	1649.07	1652.48	1652.42	1653.04	0.014007	6.79	246.25	0.79	9894	10068	174
Reach #1	2.196	Floodplain	890	1652.74	1655.67	1655.67	1655.95	0.011788	5.74	239.66	0.71	9618.78	10016.63	397.85
Reach #1	2.196	Floodway	890	1652.74	1656.63		1656.85	0.005921	4.18	238.99	0.51	9845	10018	173
Reach #1	2.276	Floodplain	890	1657.23	1660.49	1660.46	1660.73	0.011011	4.85	271.46	0.67	9520.84	10084.76	563.92
Reach #1	2.276	Floodway	890	1657.23	1660.73	1660.73	1661.56	0.022164	7.45	125.46	0.96	9935	10031	96
Reach #1	2.347	Floodplain	890	1662.01	1664.79	1664.7	1665.04	0.012994	5.03	237.6	0.72	9612.22	10096.24	484.02
Reach #1	2.347	Floodway	890	1662.01	1665.73		1666.17	0.007883	5.38	165.96	0.6	9937	10013	76
Reach #1	2.412	Floodplain	890	1666.11	1668.39	1668.27	1668.57	0.009373	3.94	278.41	0.6	9781.74	10237.22	455.48
Reach #1	2.412	Floodway	890	1666.11	1668.93	1668.73	1669.39	0.012059	5.6	168.25	0.72	9929	10045	116
Reach #1	2.501	Floodplain	890	1670.62	1673.68	1673.64	1674.02	0.014109	5.57	202.84	0.76	9938.41	10189.27	250.86

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	2.501	Floodway	890	1670.62	1674.09	1673.72	1674.54	0.009799	5.26	166.15	0.64	9989	10082	93
Reach #1	2.542	Floodplain	890	1673.63	1676.13	1675.99	1676.35	0.007892	4.54	266.44	0.59	9726.07	10215.41	489.34
Reach #1	2.542	Floodway	890	1673.63	1676.32	1676.13	1676.62	0.008674	5.07	218.29	0.62	9958	10165	207
Reach #1	2.571	Floodplain	890	1675.71	1677.56		1677.83	0.01291	4.83	214.16	0.71	9826.75	10124.93	298.18
Reach #1	2.571	Floodway	890	1675.71	1677.73		1677.99	0.010186	4.53	220.34	0.64	9869	10118	249
Reach #1	2.598	Floodplain	890	1677.33	1678.87		1679.03	0.006122	2.99	285.85	0.48	9779.83	10150.9	371.07
Reach #1	2.598	Floodway	890	1677.33	1678.97		1679.16	0.007158	3.37	259.47	0.52	9810	10131	321

2 EAST TRIBUTARY

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.392	Floodplain	2150	1602.8	1606.24	1606.24	1606.78	0.009299	5.88	395.13	0.65	9893.01	10190.98	297.97
Reach #1	0.392	Floodway	2150	1602.8	1607.24	1607.02	1607.95	0.009302	7.33	329.1	0.69	9970	10117	147
Reach #1	0.450	Floodplain	2150	1605.44	1609.1	1608.79	1609.54	0.009163	5.66	410.45	0.64	9793.38	10085.23	291.85
Reach #1	0.450	Floodway	2150	1605.44	1609.97	1609.1	1610.62	0.008163	6.46	333.62	0.63	9947	10049	102
Reach #1	0.537	Floodplain	2150	1609.76	1612.97	1612.58	1613.35	0.007523	4.93	443.66	0.58	9865.93	10131.63	265.7
Reach #1	0.537	Floodway	2150	1609.76	1613.46		1613.92	0.006293	5.14	400.09	0.54	9875	10036	161
Reach #1	0.599	Floodplain	2150	1611.86	1616.29	1616.29	1616.88	0.010562	7.04	396.52	0.71	9916.33	10327.46	411.13
Reach #1	0.599	Floodway	2150	1611.86	1616.33	1616.33	1617.82	0.020461	9.88	220.43	0.99	9974	10049	75
Reach #1	0.681	Floodplain	2150	1615.57	1620.41	1620.24	1620.83	0.008673	6.01	442.4	0.63	9787.09	10107.74	320.65
Reach #1	0.681	Floodway	2150	1615.57	1621.38		1621.82	0.005164	5.64	407.08	0.51	9908	10051	143
Reach #1	0.762	Floodplain	2150	1620.31	1624.54	1624.45	1625.16	0.01167	7.39	353.68	0.75	9825.82	10047.76	221.94
Reach #1	0.762	Floodway	2150	1620.31	1624.69	1624.69	1625.8	0.016118	8.96	255.4	0.88	9936	10047	111
Reach #1	0.844	Floodplain	2150	1623.36	1628.6	1628.33	1628.98	0.006879	6.07	464.76	0.58	9889.29	10199.64	310.35
Reach #1	0.844	Floodway	2150	1623.36	1629.52	1628.89	1630.21	0.006933	7.15	328.48	0.61	9940	10048	108
Reach #1	0.920	Floodplain	2150	1627.21	1632.47	1632.47	1633.44	0.011673	9.15	289.8	0.77	9981.23	10127.3	146.07
Reach #1	0.920	Floodway	2150	1627.21	1633.06	1633.06	1634.67	0.013734	10.81	215.51	0.86	9982	10045	63
Reach #1	1.000	Floodplain	2150	1632.04	1636.37	1636.02	1636.79	0.005802	5.98	426.96	0.54	9907.55	10256.88	349.33
Reach #1	1.000	Floodway	2150	1632.04	1637.27	1636.18	1637.86	0.004607	6.15	348.47	0.5	9943	10040	97
Reach #1	1.078	Floodplain	2150	1635.27	1640.83	1640.83	1642.04	0.012574	9.73	252.94	0.82	9963.66	10064.04	100.38
Reach #1	1.078	Floodway	2150	1635.27	1641.3	1641.3	1643.16	0.016298	11.28	198.54	0.9	9988	10039	51
Reach #1	1.147	Floodplain	2150	1638.39	1644.07		1644.39	0.003704	4.75	495.04	0.43	9858.27	10062.19	203.92
Reach #1	1.147	Floodway	2150	1638.39	1644.96		1645.29	0.002675	4.65	466.29	0.38	9937	10041	104
Reach #1	1.233	Floodplain	2150	1642.97	1647.97	1647.97	1649.07	0.013241	9.29	263.01	0.82	9914.68	10030.06	115.38
Reach #1	1.233	Floodway	2150	1642.97	1648.43	1648.43	1650.09	0.016683	10.79	209.52	0.9	9959	10020	61
Reach #1	1.317	Floodplain	2150	1647.72	1652.51		1653.07	0.006285	6.07	365.86	0.57	9945.16	10067.43	122.27
Reach #1	1.317	Floodway	2150	1647.72	1653.15		1653.62	0.004372	5.52	389.74	0.48	9966	10059	93
Reach #1	1.416	Floodplain	2150	1652.58	1657.7	1657.7	1659.03	0.015295	9.52	241.04	0.88	9961.82	10055.99	94.17
Reach #1	1.416	Floodway	2150	1652.58	1657.69	1657.69	1659.1	0.015897	9.69	231.27	0.89	9964	10043	79
Reach #1	1.496	Floodplain	2150	1656.83	1662.09		1662.56	0.005073	5.85	417.99	0.51	9886.48	10075.24	188.76
Reach #1	1.496	Floodway	2150	1656.83	1662.38		1663.05	0.005972	6.57	327.39	0.55	9986	10061	75
Reach #1	1.578	Floodplain	2150	1662.71	1665.62	1665.62	1666.41	0.01583	6.08	307.85	0.79	9926.99	10122.66	195.67

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	1.578	Floodway	2150	1662.71	1666.25	1666.25	1667.4	0.015121	7.22	258.85	0.81	9928	10038	110
Reach #1	1.646	Floodplain	2150	1666.27	1670.35	1670.23	1671.2	0.011304	8.01	304.37	0.76	9933.51	10086.1	152.59
Reach #1	1.646	Floodway	2150	1666.27	1670.65		1671.39	0.008283	7.24	313.71	0.66	9939	10052	113
Reach #1	1.698	Floodplain	2150	1669.13	1673.15	1672.81	1673.75	0.008049	6.58	357.76	0.63	9861.7	10065.27	203.57
Reach #1	1.698	Floodway	2150	1669.13	1673.24	1673.19	1674.19	0.012935	8.49	282.46	0.8	9897	10041	144
Reach #1	1.753	Floodplain	2150	1672.08	1674.98		1675.18	0.003763	3.68	604.51	0.41	9799.55	10128.15	328.6
Reach #1	1.753	Floodway	2150	1672.08	1675.84		1676.18	0.004316	4.67	460.35	0.45	9958	10098	140

T5N-R2W-S14N (ZONE A)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1 Profile: Zone A

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0	Zone A	3000	1613.31	1617.62	1617.62	1618.29	0.011111	7.59	513.07	0.77	9789.56	10337.98	548.42
Reach #1	0.12	Zone A	2930	1620.05	1624.2		1624.65	0.009357	5.38	547.53	0.66	9730.15	10062.19	332.04
Reach #1	0.380	Zone A	2930	1636.77	1639.7		1640.2	0.01403	6.89	534.41	0.82	9430.06	10032.05	601.99
Reach #1	0.580	Zone A	2930	1650.29	1651.5		1651.77	0.008026	2.48	725.36	0.52	9304.09	10077.69	773.6
Reach #1	0.780	Zone A	3590	1661.35	1664.1		1664.66	0.012081	4.66	603.71	0.7	9470.35	10010.51	540.16
Reach #1	1.010	Zone A	3590	1673.94	1678.6		1679.34	0.009763	6.59	524.23	0.71	9865.45	10080.69	215.24
Reach #1	1.140	Zone A	3590	1681.01	1685.9		1686.73	0.011216	7.43	514.84	0.77	9823.86	10088.59	264.73
Reach #1	1.440	Zone A	3590	1703.22	1707.6		1708.37	0.011689	8.66	553	0.81	9710.91	10038.67	327.76
Reach #1	1.700	Zone A	3590	1718.39	1724		1724.53	0.011364	5.85	616.02	0.72	9690.66	10118.24	427.58
Reach #1	1.760	Zone A	3590	1723.89	1731.2		1731.48	0.059048	1.69	1777.62	0.13	9715.69	10127.06	411.37
Reach #1	1.920	Zone A	3590	1736.34	1740.2		1740.42	0.004072	3.69	965.59	0.38	9956.22	10392.97	436.75
Reach #1	2.010	Zone A	3590	1740.49	1743.8		1744.49	0.020746	6.16	552.41	0.79	9876.64	10215.22	338.58
Reach #1	2.280	Zone A	610	1756.71	1760.9		1760.98	0.001637	2.35	268.47	0.24	9952.85	10058.16	105.31
Reach #1	2.510	Zone A	610	1769.41	1771.9		1772.43	0.026035	6.15	105.68	0.86	9938.71	10028.45	89.74
Reach #1	2.640	Zone A	610	1778.69	1781.9		1782.12	0.007658	3.75	164.55	0.48	152.14	246.18	94.04

Zone A

T5N-R2W-S14S (ZONE A)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1 Profile: PF 1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.1	PF 1	1300	1600.65	1604.42	1604.28	1604.73	0.011018	4.94	303.53	0.71	9880.19	10205.53	325.34
Reach #1	0.278	PF 1	1300	1610.34	1614.31		1614.79	0.010346	6.04	239.68	0.73	9950.13	10108.74	158.61
Reach #1	0.491	PF 1	1300	1620.96	1624.81		1625.15	0.008399	4.43	278.03	0.62	9956	10179.48	223.48
Reach #1	0.663	PF 1	1300	1630	1634.08		1634.85	0.013742	7.48	189.81	0.86	9930.93	10106.99	176.06

Bra A

T5N-R2W-S14W (ZONE A)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1 Profile: Zone A

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.1	Zone A	3040	1583.67	1588.36	1588.36	1588.84	0.006581	6.74	663.02	0.62	9851.78	10468.74	616.96
Reach #1	0.29	Zone A	3040	1593.91	1596.78		1597.19	0.010629	5.12	601.36	0.7	9885.99	10409.36	523.37
Reach #1	0.480	Zone A	3040	1602.54	1607.49		1608.25	0.008473	8.15	494.96	0.72	9929.95	10231.81	301.86
Reach #1	0.640	Zone A	3040	1611.41	1615.72		1616.56	0.012394	6.92	424.18	0.8	9865.27	10059.78	194.51
Reach #1	0.920	Zone A	2680	1625.78	1631.57		1632.69	0.009554	9.26	323.32	0.78	9941.06	10051.82	110.76
Reach #1	1.070	Zone A	2680	1634.42	1639.87	1639.74	1641.37	0.012079	10.04	281.31	0.86	9966.66	10055.13	88.47

Zone A

T5N-R2W-S11 (ZONE A)

HEC-RAS Plan: River: Reach #1 Reach: Reach #1 Profile: Floodplain

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.066	Floodplain	2700	1659.59	1663.44	1663.27	1663.79	0.008603	5.29	591.41	0.67	70.18	575.43	505.25
Reach #1	0.253	Floodplain	2700	1672.16	1674.51	1674.47	1675.01	0.016429	5.07	477.32	0.85	106.21	607.95	501.74
Reach #1	0.475	Floodplain	2700	1683.53	1688.09		1688.79	0.011173	8.24	431.96	0.82	87.37	401.67	314.3
Reach #1	0.735	Floodplain	2700	1699.09	1703.58	1703.58	1704.54	0.014656	8.18	354.66	0.92	76.23	320.2	243.97
Reach #1	0.955	Floodplain	2700	1713.42	1717.26	1717.24	1718.05	0.014414	6.8	379.86	0.87	83.55	321.29	237.74
Reach #1	1.205	Floodplain	2700	1728.53	1732.31	1732.31	1733.46	0.013843	8.94	321.82	0.92	68.58	209.02	140.44

Zone A

7 EAST

HEC-RAS Plan: River: Reach #1 Reach: Reach #1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Reach #1	0.127	Floodplain	3930	1552.62	1555.23	1552.41	1555.24	0.000155	0.62	4160.2	0.07	9463.26	11020.61	1557.35
Reach #1	0.127	Floodway	3930	1552.62	1555.23	1552.68	1555.26	0.000331	0.9	3075	0.11	9742	10719	977
Reach #1	0.200	Floodplain	3930	1554.46	1556.27	1556.27	1556.71	0.027713	5	742.08	0.86	9841.15	10852.65	1011.5
Reach #1	0.200	Floodway	3930	1554.46	1557.02	1557.02	1557.8	0.021693	5.69	574.21	0.81	9862	10227	365
Reach #1	0.287	Floodplain	3930	1557.61	1560.79	1559.99	1560.95	0.004178	3.05	1280.42	0.37	9687.87	10621	933.13
Reach #1	0.287	Floodway	3930	1557.61	1561.79	1560.97	1562.13	0.004826	4.26	857.47	0.43	9882	10223	341
Reach #1	0.385	Floodplain	3930	1561.95	1565.15	1565.15	1565.69	0.017721	6.69	692.44	0.78	9904.48	10776.82	872.34
Reach #1	0.385	Floodway	3930	1561.95	1565.65	1565.65	1566.4	0.017054	7.5	592.05	0.79	9927	10279	352
Reach #1	0.467	Floodplain	3930	1565.54	1569.36	1568.71	1569.53	0.004802	3.76	1190.18	0.41	9688.12	10610.4	922.28
Reach #1	0.467	Floodway	3930	1565.54	1569.78	1569.05	1570.05	0.004699	4.12	946.78	0.42	9699	10132	433
Reach #1	0.561	Floodplain	3930	1570.34	1573.39	1573.39	1573.89	0.018922	5.63	714.52	0.77	9752.82	10561.3	808.48
Reach #1	0.561	Floodway	3930	1570.34	1573.73	1573.7	1574.39	0.019446	6.46	604.47	0.8	9820	10238	418
Reach #1	0.637	Floodplain	3930	1573.29	1577.56	1577.21	1577.92	0.006853	5.74	884.82	0.52	9636.78	10503.69	866.91
Reach #1	0.637	Floodway	3930	1573.29	1577.93	1577.23	1578.45	0.006822	6.02	676.74	0.52	9785	10030	245
Reach #1	0.724	Floodplain	3930	1577.56	1581.57	1581.33	1582.14	0.013112	7.76	715.99	0.72	9530.98	10142.02	611.04
Reach #1	0.724	Floodway	3930	1577.56	1581.97	1581.86	1583.27	0.017055	9.3	430.17	0.82	9889	10033	144
Reach #1	0.811	Floodplain	3930	1582.82	1586	1585.62	1586.31	0.006729	5.23	941.8	0.56	9731.2	10389.03	657.83
Reach #1	0.811	Floodway	3930	1582.82	1586.84		1587.31	0.00525	5.55	717.15	0.52	9920	10140	220
Reach #1	0.897	Floodplain	3930	1584.88	1589.55		1590.15	0.009473	7.11	701.45	0.69	9804.22	10367.83	563.61
Reach #1	0.897	Floodway	3930	1584.88	1589.68	1589.32	1590.19	0.007771	6.61	767.03	0.63	9746.63	10368.91	622.28
Reach #1	1.122	Floodplain	1290	1595.83	1599.64		1599.86	0.009171	4.09	345.14	0.59	9916.36	10245.04	328.68
Reach #1	1.122	Floodway	1290	1595.83	1599.62	1599.36	1599.85	0.009653	4.16	339.53	0.61	9916.62	10244.6	327.98
Reach #1	1.399	Floodplain	1290	1610.59	1613.85		1614.51	0.011122	6.95	203.16	0.75	9973.52	10079.27	105.75
Reach #1	1.399	Floodway	1290	1610.59	1613.89	1613.53	1614.52	0.010422	6.8	207.64	0.73	9973.14	10079.54	106.4
Reach #1	1.625	Floodplain	1290	1622.82	1625.54		1625.85	0.008209	5.22	302.48	0.63	9955.66	10223.05	267.39
Reach #1	1.625	Floodway	1290	1622.82	1625.52	1625.19	1625.83	0.008593	5.31	296.49	0.64	9956.28	10222.97	266.69
Reach #1	1.854	Floodplain	1290	1631.53	1635.86		1636.58	0.008905	7.13	210.74	0.69	9880.29	10015.72	135.43
Reach #1	1.854	Floodway	1290	1631.53	1635.84	1635.39	1636.58	0.009225	7.22	207.4	0.71	9881.51	10015.68	134.17

In Zone AH
ponding area

Zone A

7 EAST TRIBUTARY

HEC-RAS Plan: 310.032 River: Reach #1 Reach: All elevations a

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
All elevations a	0.043	Floodplain	510	1546.42	1548.71	1548.39	1548.83	0.005677	2.79	185.22	0.5	9758.6	10094.98	336.38
All elevations a	0.043	Floodway	510	1546.42	1549.05	1548.57	1549.22	0.005681	3.38	151.4	0.53	9975.19	10095	119.81
All elevations a	0.099	Floodplain	510	1549.09	1550.91	1550.76	1551.3	0.012755	5.03	104.37	0.79	9973.43	10072.32	98.89
All elevations a	0.099	Floodway	510	1549.09	1551.06	1550.74	1551.39	0.009372	4.62	110.42	0.68	9976	10054	78
All elevations a	0.145	Floodplain	510	1550.29	1553.4	1553.09	1553.73	0.008132	4.68	112.66	0.65	9874.22	10052.51	178.29
All elevations a	0.145	Floodway	510	1550.29	1553.36	1553.08	1553.76	0.01004	5.1	101.45	0.72	9969.02	10041	71.98
All elevations a	0.198	Floodplain	510	1551.98	1555.54		1555.9	0.007343	4.99	110.92	0.58	9941.71	10034.34	92.63
All elevations a	0.198	Floodway	510	1551.98	1555.67		1556.06	0.006856	5.01	102.41	0.57	9977	10020	43
All elevations a	0.291	Floodplain	510	1556.93	1559.81	1559.56	1560.28	0.011016	5.9	98	0.71	9966.13	10037.56	71.43
All elevations a	0.291	Floodway	510	1556.93	1559.95	1559.58	1560.64	0.01288	6.67	77.56	0.77	9987	10021	34
All elevations a	0.347	Floodplain	510	1559.82	1563.14	1563.03	1563.45	0.010526	5.19	126.64	0.67	9982.23	10116.83	134.6
All elevations a	0.347	Floodway	510	1559.82	1563.72	1563.31	1564.4	0.012726	6.65	77.15	0.75	9988	10020	32
All elevations a	0.418	Floodplain	510	1563.32	1566.84	1566.47	1567.16	0.009177	4.81	114.47	0.63	9972.82	10052.51	79.69
All elevations a	0.418	Floodway	510	1563.32	1567.45	1566.64	1567.82	0.006668	4.87	105.04	0.55	9979	10022	43
All elevations a	0.488	Floodplain	510	1566.54	1570.13	1569.86	1570.38	0.008256	4.41	134.73	0.59	9912.15	10052.14	139.99
All elevations a	0.488	Floodway	510	1566.54	1570.52		1571.05	0.011448	5.84	87.49	0.7	9976	10017	41
All elevations a	0.567	Floodplain	510	1571.02	1574.2	1574.07	1574.52	0.012082	5.04	119.21	0.7	9921.74	10048.42	126.68
All elevations a	0.567	Floodway	510	1571.02	1575.01		1575.54	0.010249	5.88	86.83	0.67	9980	10016	36
All elevations a	0.666	Floodplain	510	1575.55	1578.78	1578.53	1578.91	0.00622	3.27	180.82	0.49	9811.95	10034.42	222.47
All elevations a	0.666	Floodway	510	1575.55	1579.6	1578.9	1579.94	0.006946	4.66	109.71	0.55	9980	10030	50
All elevations a	0.722	Floodplain	510	1577.93	1581.74	1581.74	1582.01	0.011038	4.96	148.71	0.67	9781.01	10076.76	295.75
All elevations a	0.722	Floodway	510	1577.93	1582.14		1582.72	0.012895	6.12	83.56	0.75	9975	10015	40
All elevations a	0.778	Floodplain	510	1581.57	1584.11	1583.67	1584.31	0.005793	4.12	165.07	0.51	9840.76	10109.48	268.72
All elevations a	0.778	Floodway	510	1581.57	1584.79		1585.14	0.005566	4.72	108.23	0.51	9982	10022	40
All elevations a	0.857	Floodplain	510	1584.32	1587.55		1588.01	0.014368	5.48	93.85	0.77	9977.76	10044.81	67.05
All elevations a	0.857	Floodway	510	1584.32	1587.77		1588.13	0.00944	4.82	105.81	0.63	9980	10038	58
All elevations a	0.940	Floodplain	510	1587.95	1591.47		1591.75	0.005625	4.55	130.38	0.5	9959.34	10062.4	103.06
All elevations a	0.940	Floodway	510	1587.95	1591.54		1592	0.008204	5.45	93.58	0.6	9987	10023	36
All elevations a	1.031	Floodplain	510	1593.71	1596.14	1596.14	1596.75	0.020596	6.42	85.04	0.9	9960.11	10035.09	74.98
All elevations a	1.031	Floodway	510	1593.71	1596.47	1596.12	1596.98	0.013311	5.76	89.04	0.73	9971	10018	47
All elevations a	1.105	Floodplain	510	1597.73	1600.68	1600.24	1600.87	0.006249	3.36	150.1	0.49	9985.65	10107.88	122.23

Located in existing 2nd AH

HEC-RAS Plan: 310.032 River: Reach #1 Reach: All elevations a

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
All elevations a	1.105	Floodway	510	1597.73	1601.08	1600.6	1601.46	0.009791	4.92	104.03	0.63	9988	10044	56
All elevations a	1.187	Floodplain	510	1601.96	1605.03	1605.03	1605.52	0.01408	6.1	98.77	0.77	9981.84	10078.55	96.71
All elevations a	1.187	Floodway	510	1601.96	1605.47	1604.99	1606.07	0.01118	6.23	82.94	0.71	9989	10024	35
All elevations a	1.271	Floodplain	510	1605.87	1609.41		1609.79	0.007037	5.17	112.05	0.57	9962.96	10042.55	79.59
All elevations a	1.271	Floodway	510	1605.87	1609.49	1608.81	1609.89	0.006825	5.2	102.09	0.56	9980	10024	44
All elevations a	1.323	Floodplain	140	1609.19	1611.47		1611.61	0.004955	3.01	48.33	0.43	9978.25	10023.07	44.82
All elevations a	1.323	Floodway	140	1609.19	1611.51		1611.65	0.004635	2.96	47.57	0.42	9983	10015	32
All elevations a	1.383	Floodplain	140	1612.4	1614	1613.91	1614.33	0.017559	4.76	31.38	0.78	9987.9	10025.47	37.57
All elevations a	1.383	Floodway	140	1612.4	1613.98	1613.91	1614.33	0.018907	4.88	30.57	0.81	9988.09	10025.12	37.03
All elevations a	1.451	Floodplain	140	1615.19	1617.44		1617.59	0.005427	3.04	46.62	0.45	9983.61	10020.99	37.38
All elevations a	1.451	Floodway	140	1615.19	1617.46		1617.6	0.005249	3.01	46.62	0.44	9983.51	10017	33.49
All elevations a	1.518	Floodplain	140	1618.91	1620.51	1620.31	1620.86	0.017991	4.78	29.28	0.79	9984.62	10010.35	25.73
All elevations a	1.518	Floodway	140	1618.91	1620.49	1620.31	1620.86	0.018797	4.85	28.84	0.81	9984.69	10010.29	25.6
All elevations a	1.596	Floodplain	140	1623	1625.24	1624.72	1625.44	0.007456	3.66	39.01	0.53	9989.04	10019.74	30.7
All elevations a	1.596	Floodway	140	1623	1625.25	1624.72	1625.46	0.00731	3.65	38.44	0.53	9992	10018	26
All elevations a	1.686	Floodplain	140	1627.22	1629.3	1629.01	1629.46	0.009709	3.31	43.41	0.57	9957.56	10011.23	53.67
All elevations a	1.686	Floodway	140	1627.22	1629.38	1629.09	1629.56	0.010283	3.57	40.94	0.6	9966	10011	45
All elevations a	1.776	Floodplain	140	1631.74	1634.05		1634.29	0.010699	3.94	35.49	0.62	9988.35	10016.54	28.19
All elevations a	1.776	Floodway	140	1631.74	1634.09		1634.31	0.009831	3.82	36.63	0.6	9988.11	10016.73	28.62
All elevations a	1.848	Floodplain	140	1636.58	1638.04	1637.74	1638.2	0.009883	3.31	43.79	0.58	9974.07	10024.69	50.62
All elevations a	1.848	Floodway	140	1636.58	1638.02	1637.74	1638.19	0.010552	3.39	42.79	0.6	9974.25	10024.38	50.13
All elevations a	1.903	Floodplain	140	1639.13	1641.3		1641.6	0.01444	4.4	31.78	0.71	9987.85	10014.66	26.81
All elevations a	1.903	Floodway	140	1639.13	1641.34	1641.01	1641.62	0.013186	4.26	32.83	0.68	9987.68	10014.84	27.16
All elevations a	2.039	Floodplain	140	1647.99	1650.02		1650.21	0.01021	3.48	40.2	0.59	9983.98	10021.45	37.47
All elevations a	2.039	Floodway	140	1647.99	1650	1649.62	1650.19	0.010803	3.56	39.37	0.61	9984.19	10021.3	37.11

Zone A

IONA EAST (SOUTH OF CAP CANAL)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona East (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona East (Sout	0.741	Floodplain	5540	1457.51	1461.83	1461.35	1462.04	0.005501	4.03	1593.55	0.55	9539.58	10709.06	1169.48
Iona East (Sout	0.741	Floodway	5540	1457.51	1462.2	1461.55	1462.53	0.005501	4.62	1216.03	0.57	9819	10429	610
Iona East (Sout	0.808	Floodplain	5540	1461.58	1464.02	1463.56	1464.23	0.007457	3.65	1503.12	0.5	9415.82	10538.24	1122.42
Iona East (Sout	0.808	Floodway	5540	1461.58	1464.51		1464.81	0.007632	4.4	1264.49	0.53	9898	10498	600
Iona East (Sout	0.855	Floodplain	5540	1462.75	1465.77		1466	0.006599	4.1	1458.81	0.49	9448.62	10500.85	1052.23
Iona East (Sout	0.855	Floodway	5540	1462.75	1466.18		1466.48	0.006064	4.4	1254.1	0.48	9869	10358	489
Iona East (Sout	0.983	Floodplain	5540	1465.09	1469.61	1468.89	1469.78	0.004721	3.53	1711.64	0.43	9610.29	10946.62	1336.33
Iona East (Sout	0.983	Floodway	5540	1465.09	1470.08	1469.08	1470.38	0.005493	4.35	1271.21	0.48	9875	10366	491
Iona East (Sout	1.062	Floodplain	5540	1466.59	1471.46		1471.69	0.004383	4.14	1526.24	0.5	9635.78	10814.1	1178.32
Iona East (Sout	1.062	Floodway	5540	1466.59	1471.92		1472.21	0.003633	4.31	1288.68	0.47	9906	10407	501
Iona East (Sout	1.146	Floodplain	5540	1470.06	1473.64	1473.22	1473.9	0.005208	4.49	1373.52	0.54	9707.21	10684.67	977.46
Iona East (Sout	1.146	Floodway	5540	1470.06	1474.14	1473.86	1474.86	0.009462	6.98	811.02	0.76	9877	10246	369
Iona East (Sout	1.215	Floodplain	5540	1472.05	1475.67		1475.99	0.005703	4.29	1232.42	0.56	9871.66	10623.02	751.36
Iona East (Sout	1.215	Floodway	5540	1472.05	1476.66		1477.02	0.003725	4.63	1156.73	0.49	9920	10349	429
Iona East (Sout	1.294	Floodplain	5540	1474.05	1477.81		1478.08	0.004553	4.26	1347.2	0.52	9702.67	10437.3	734.63
Iona East (Sout	1.294	Floodway	5540	1474.05	1478.19		1478.42	0.003084	3.89	1421.61	0.43	9775	10345	570
Iona East (Sout	1.371	Floodplain	5540	1476.52	1479.7		1479.91	0.004437	3.93	1507.56	0.5	9685.49	10624.46	938.97
Iona East (Sout	1.371	Floodway	5540	1476.52	1479.86		1480.28	0.00694	5.2	1067.85	0.63	9802	10309	507
Iona East (Sout	1.438	Floodplain	5540	1478.63	1481.45		1481.73	0.00585	4.41	1315.47	0.57	9678.06	10520.43	842.37
Iona East (Sout	1.438	Floodway	5540	1478.63	1482		1482.36	0.005036	4.86	1151.82	0.55	9802	10282	480
Iona East (Sout	1.497	Floodplain	5540	1479.91	1483.44	1483.14	1483.82	0.007413	5.22	1164.47	0.65	9574.92	10676.88	1101.96
Iona East (Sout	1.497	Floodway	5540	1479.91	1483.74	1483.11	1484.19	0.006628	5.4	1027.42	0.63	9778	10224	446
Iona East (Sout	1.567	Floodplain	5540	1481.67	1485.7		1485.97	0.004588	4.37	1378.53	0.48	9546.16	10248.84	702.68
Iona East (Sout	1.567	Floodway	5540	1481.67	1485.9		1486.22	0.004507	4.54	1224.81	0.48	9758	10199	441
Iona East (Sout	1.664	Floodplain	5540	1484.39	1488.14		1488.37	0.004633	3.88	1463.87	0.46	9548.7	10301.24	752.54
Iona East (Sout	1.664	Floodway	5540	1484.39	1488.64		1489.09	0.006969	5.45	1023.23	0.58	9810	10187	377
Iona East (Sout	1.730	Floodplain	5540	1486.07	1490.01		1490.35	0.006759	4.82	1197.03	0.56	9706.54	10323.21	616.67
Iona East (Sout	1.730	Floodway	5540	1486.07	1490.58		1490.84	0.003733	4.15	1339.99	0.43	9777	10249	472
Iona East (Sout	1.775	Floodplain	5540	1487.62	1491.4	1490.55	1491.59	0.003849	3.87	1616.56	0.45	9663.26	10668.62	1005.36
Iona East (Sout	1.775	Floodway	5540	1487.62	1491.55	1490.65	1491.86	0.004666	4.45	1230.84	0.5	9727	10229	502
Iona East (Sout	1.845	Floodplain	5460	1489.09	1492.91		1493.12	0.004492	4.19	1520.6	0.46	9783.09	10608.13	825.04

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona East (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona East (Sout	1.845	Floodway	5460	1489.09	1493.33		1493.63	0.004941	4.84	1271.27	0.49	9843	10328	485
Iona East (Sout	1.899	Floodplain	5460	1490.62	1494.26		1494.48	0.005691	3.89	1478.11	0.47	9665.5	10612.16	946.66
Iona East (Sout	1.899	Floodway	5460	1490.62	1494.81		1495.26	0.006933	5.02	1031.25	0.54	9835	10234	399
Iona East (Sout	1.986	Floodplain	5460	1493.37	1497.15		1497.41	0.007507	4.25	1360.47	0.57	9617.16	10731.88	1114.72
Iona East (Sout	1.986	Floodway	5460	1493.37	1497.93		1498.34	0.006789	5.19	1059.7	0.58	9748	10202	454
Iona East (Sout	2.050	Floodplain	5460	1494.87	1499.11	1498.47	1499.33	0.005174	3.73	1505.16	0.48	9348.08	10554.91	1206.83
Iona East (Sout	2.050	Floodway	5460	1494.87	1499.77	1498.92	1500.17	0.004954	4.54	1088.4	0.5	9695	10115	420
Iona East (Sout	2.106	Floodplain	5460	1496.18	1500.13		1500.26	0.002293	2.76	1880.24	0.33	9078.3	10116.01	1037.71
Iona East (Sout	2.106	Floodway	5460	1496.18	1500.87		1501.08	0.002165	3.2	1505.18	0.33	9500	10038	538
Iona East (Sout	2.189	Floodplain	5460	1498.74	1501.95	1501.88	1502.45	0.015566	6.49	980.3	0.83	9232.94	10105.29	872.35
Iona East (Sout	2.189	Floodway	5460	1498.74	1502.51	1502.49	1503.24	0.01579	7.75	808.18	0.87	9548	10063	515
Iona East (Sout	2.244	Floodplain	5460	1500.34	1504.38	1503.68	1504.51	0.003302	3.5	1878.36	0.4	9075.64	10385.29	1309.65
Iona East (Sout	2.244	Floodway	5460	1500.34	1505.33	1504.53	1505.63	0.004156	4.9	1252.55	0.47	9583	10131	548
Iona East (Sout	2.317	Floodplain	5460	1502.5	1505.99	1505.86	1506.42	0.013111	6.17	1076.51	0.74	9030.11	10278.32	1248.21
Iona East (Sout	2.317	Floodway	5460	1502.5	1506.97	1506.54	1507.42	0.007568	6.04	1026.01	0.6	9583	10103	520
Iona East (Sout	2.385	Floodplain	5460	1504.5	1508.98	1508.25	1509.24	0.004682	4.47	1347.7	0.48	9561.21	10264.42	703.21
Iona East (Sout	2.385	Floodway	5460	1504.5	1509.52		1509.93	0.005832	5.64	1073.65	0.56	9773	10205	432
Iona East (Sout	2.471	Floodplain	5460	1506.63	1510.84		1511.08	0.003554	3.76	1429.62	0.4	9666.24	10433.24	767
Iona East (Sout	2.471	Floodway	5460	1506.63	1511.47		1511.82	0.003118	4.04	1166.93	0.39	9945	10333	388
Iona East (Sout	2.566	Floodplain	5380	1508.9	1512.91		1513.15	0.004829	4.23	1395.8	0.46	9830.49	10795.87	965.38
Iona East (Sout	2.566	Floodway	5380	1508.9	1513.45		1513.82	0.004955	4.84	1104.89	0.48	9979	10493	514
Iona East (Sout	2.625	Floodplain	5380	1510.3	1514.08		1514.37	0.005326	4.72	1240.7	0.49	9854.06	10870.48	1016.42
Iona East (Sout	2.625	Floodway	5380	1510.3	1514.85		1515.26	0.006968	6.32	1069.79	0.58	9888	10566	678
Iona East (Sout	2.699	Floodplain	5380	1511.89	1515.91		1516.14	0.005002	4.35	1508.5	0.47	9531.38	10848.16	1316.78
Iona East (Sout	2.699	Floodway	5380	1511.89	1516.9		1517.11	0.004057	4.82	1484.96	0.44	9693	10524	831
Iona East (Sout	2.761	Floodplain	5380	1513.52	1518.17	1518.17	1518.64	0.010401	6.94	1143.5	0.69	9334.11	10549.82	1215.71
Iona East (Sout	2.761	Floodway	5380	1513.52	1518.77		1519.29	0.011289	8.12	1031.17	0.74	9595	10288	693
Iona East (Sout	2.814	Floodplain	5380	1515.08	1520.13		1520.36	0.003921	5.42	1535.47	0.45	9199.48	10221.78	1022.3
Iona East (Sout	2.814	Floodway	5380	1515.08	1520.75		1521.1	0.004181	6.11	1209.9	0.48	9616	10149	533
Iona East (Sout	2.860	Floodplain	5380	1517.45	1521.25		1521.6	0.007974	6.42	1257.96	0.62	9051.78	10095.08	1043.3
Iona East (Sout	2.860	Floodway	5380	1517.45	1521.9		1522.53	0.009251	7.79	915.2	0.69	9565	10068	503

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona East (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona East (Sout	2.932	Floodplain	7170	1518.42	1523	1522.3	1523.14	0.003064	2.74	2362.91	0.35	9024.82	10978.21	1953.39
Iona East (Sout	2.932	Floodway	7170	1518.42	1523.85	1522.83	1524.03	0.00233	3.04	2270.25	0.32	9498	10787	1289
Iona East (Sout	3.001	Floodplain	7170	1520.97	1524.61	1524.39	1524.93	0.009496	5.84	1620.4	0.64	9247.46	11113.43	1865.97
Iona East (Sout	3.001	Floodway	7170	1520.97	1525.18	1525	1525.59	0.010608	6.44	1445.05	0.69	9520	10832	1312
Iona East (Sout	3.049	Floodplain	7170	1521.69	1525.96		1526.14	0.003053	2.74	2202.95	0.35	9348.01	11279.8	1931.79
Iona East (Sout	3.049	Floodway	7170	1521.69	1526.91	1526.22	1527.12	0.004156	4.09	1958.38	0.43	9575	10850	1275
Iona East (Sout	3.108	Floodplain	7170	1524.59	1527.59	1527.59	1528.08	0.009896	5.42	1358.68	0.67	9365.3	11488.9	2123.6
Iona East (Sout	3.108	Floodway	7170	1524.59	1528.55	1528.41	1529.06	0.009347	6.81	1299.73	0.69	9614	10609	995
Iona East (Sout	3.169	Floodplain	7170	1525.23	1529.94	1529.54	1530.21	0.004438	5.12	1818.31	0.49	9508.2	11734.85	2226.65
Iona East (Sout	3.169	Floodway	7170	1525.23	1530.7	1530.08	1531.11	0.004401	5.82	1431.03	0.5	9832	10439	607
Iona East (Sout	3.242	Floodplain	7170	1526.15	1532.31	1532.31	1532.81	0.00815	8.1	1428.39	0.67	9643.74	11094.74	1451
Iona East (Sout	3.242	Floodway	7170	1526.15	1532.81	1532.71	1533.66	0.008923	9.09	1011.71	0.72	9855	10313	458
Iona East (Sout	3.320	Floodplain	7170	1527.72	1534.92	1534.6	1535.28	0.004571	6.67	1591.34	0.51	9674.66	11086.76	1412.1
Iona East (Sout	3.320	Floodway	7170	1527.72	1535.61	1534.92	1536.26	0.004716	7.36	1124.93	0.53	9856	10209	353
Iona East (Sout	3.389	Floodplain	7170	1528.6	1536.65	1536.46	1537.25	0.005572	8.26	1279.39	0.58	9785.76	10838.57	1052.81
Iona East (Sout	3.389	Floodway	7170	1528.6	1537.37	1536.84	1538.4	0.006067	9.26	905.15	0.61	9935	10174	239
Iona East (Sout	3.476	Floodplain	7170	1530.73	1538.96		1539.87	0.005084	8.65	1041.94	0.58	9869.86	10221	351.14
Iona East (Sout	3.476	Floodway	7170	1530.73	1539.86		1541.01	0.004827	9.14	870.78	0.57	9937	10104	167
Iona East (Sout	3.554	Floodplain	7170	1531.94	1541.09		1541.56	0.003248	6.85	1387.32	0.46	9827.52	10312.01	484.49
Iona East (Sout	3.554	Floodway	7170	1531.94	1541.92		1542.43	0.002407	6.36	1260.95	0.4	9925	10195	270
Iona East (Sout	3.615	Floodplain	7170	1533.38	1542.1	1540.78	1542.41	0.002017	5.17	1681.33	0.35	9576.76	10218.66	641.9
Iona East (Sout	3.615	Floodway	7170	1533.38	1542.71	1540.66	1543.3	0.002851	6.51	1193.21	0.43	9869	10125	256
Iona East (Sout	3.654	Floodplain	7170	1534.45	1542.47	1541.62	1543.25	0.004291	8.08	1061.83	0.54	9356.27	10138.55	782.28
Iona East (Sout	3.654	Floodway	7170	1534.45	1543.33	1541.56	1543.86	0.002314	6.41	1241.02	0.4	9844	10095	251
Iona East (Sout	3.683	Floodplain	7170	1535.18	1544.64	1544.64	1548.91	0.006547	16.59	432.21	1	9976.41	10026.64	50.23
Iona East (Sout	3.683	Floodway	7170	1535.18	1544.64	1544.64	1548.91	0.006547	16.59	432.21	1	9976.41	10026.64	50.23

IONA WEST (SOUTH OF CAP CANAL)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona West (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona West (Sou	0.139	Floodplain	2100	1442.93	1446.51	1445.96	1446.56	0.003923	2.45	1268.49	0.33	9666.75	11080.23	1413.48
Iona West (Sou	0.139	Floodway	2100	1442.93	1447.4	1446.13	1447.54	0.003923	3.17	683.92	0.34	9987	10262	275
Iona West (Sou	0.289	Floodplain	2100	1447.51	1449.9	1449.43	1449.97	0.004818	2.48	1106	0.36	9588.53	11056.74	1468.21
Iona West (Sou	0.289	Floodway	2100	1447.51	1450.82	1449.92	1450.99	0.00498	3.44	650.38	0.39	9934	10260	326
Iona West (Sou	0.378	Floodplain	2100	1448.26	1452.06		1452.14	0.004389	2.8	1009.29	0.36	9663.61	11126.75	1463.14
Iona West (Sou	0.378	Floodway	2100	1448.26	1452.79		1452.93	0.003451	3.09	704.97	0.34	9899	10188	289
Iona West (Sou	0.447	Floodplain	2100	1449.48	1453.52		1453.59	0.003897	3.05	1103.29	0.35	9614.09	11086.46	1472.37
Iona West (Sou	0.447	Floodway	2100	1449.48	1454.03		1454.16	0.003428	3.25	747.14	0.34	9800	10153	353
Iona West (Sou	0.521	Floodplain	2100	1452.25	1455.66		1455.8	0.008101	4.22	792.34	0.5	9558.51	11091.83	1533.32
Iona West (Sou	0.521	Floodway	2100	1452.25	1456.05		1456.34	0.009918	5.21	523.16	0.57	9807	10136	329
Iona West (Sou	0.572	Floodplain	2100	1451.25	1457.31		1457.38	0.004077	2.72	1053.27	0.33	9590.53	11053.53	1463
Iona West (Sou	0.572	Floodway	2100	1451.25	1457.87		1458.02	0.004114	3.2	699.09	0.35	9825	10158	333
Iona West (Sou	0.651	Floodplain	2100	1453.92	1459.15		1459.24	0.004475	2.73	884.7	0.38	9803.38	10930.42	1127.04
Iona West (Sou	0.651	Floodway	2100	1453.92	1459.64		1459.78	0.004271	3.18	692.42	0.38	9864	10214	350
Iona West (Sou	0.722	Floodplain	2100	1457.92	1460.99		1461.04	0.005633	2	1182.25	0.29	9457.5	10743.16	1285.66
Iona West (Sou	0.722	Floodway	2100	1457.92	1461.61		1461.71	0.006978	2.79	808.22	0.34	9767	10194	427
Iona West (Sou	0.815	Floodplain	2100	1459.25	1462.64	1462	1462.7	0.00255	1.34	1220.05	0.19	9058.92	10572.32	1513.4
Iona West (Sou	0.815	Floodway	2100	1459.25	1463.62	1462.35	1463.68	0.00283	1.97	1059.73	0.22	9738	10244	506
Iona West (Sou	0.879	Floodplain	2100	1461.25	1464.1		1464.17	0.006544	2.4	988.98	0.32	9558.28	10560.26	1001.98
Iona West (Sou	0.879	Floodway	2100	1461.25	1464.78		1464.85	0.003608	2.22	1024.19	0.25	9766	10240	474
Iona West (Sou	0.936	Floodplain	2100	1462.6	1465.66		1465.71	0.004239	1.95	1229.07	0.25	9461.64	10665.13	1203.49
Iona West (Sou	0.936	Floodway	2100	1462.6	1466.2		1466.31	0.007058	2.98	776.86	0.34	9854	10244	390
Iona West (Sou	0.980	Floodplain	2100	1463.4	1466.49		1466.53	0.003036	1.67	1316.49	0.22	9529.11	10723.32	1194.21
Iona West (Sou	0.980	Floodway	2100	1463.4	1467.32		1467.4	0.003311	2.24	934.25	0.24	9850	10205	355
Iona West (Sou	1.022	Floodplain	2100	1465.26	1467.26		1467.35	0.00504	1.99	969.1	0.28	9494.87	10473.6	978.73
Iona West (Sou	1.022	Floodway	2100	1465.26	1468.15		1468.25	0.004981	2.63	805.63	0.29	9794	10119	325
Iona West (Sou	1.097	Floodplain	2100	1467.19	1469.36		1469.48	0.006456	1.9	858.08	0.3	9475.11	10378.51	903.4
Iona West (Sou	1.097	Floodway	2100	1467.19	1470.21		1470.47	0.006885	2.74	559.33	0.33	9796	10057	261
Iona West (Sou	1.156	Floodplain	2100	1467.43	1470.77		1470.87	0.003568	1.56	856.22	0.22	9644.35	10420.51	776.16
Iona West (Sou	1.156	Floodway	2100	1467.43	1471.67		1471.88	0.00347	2.09	593.82	0.24	9871	10156	285
Iona West (Sou	1.237	Floodplain	2100	1468.65	1472.15		1472.28	0.002982	3.58	737.93	0.4	9753.9	10409.95	656.05

Cut into existing Zone AE. See existing Iona West model

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona West (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona West (Sou	1.237	Floodway	2100	1468.65	1473.04		1473.35	0.00326	4.58	465.25	0.44	9979	10153	174
Iona West (Sou	1.291	Floodplain	2100	1469.7	1473.29		1473.62	0.008024	5.99	507.39	0.65	9758.98	10298.93	539.95
Iona West (Sou	1.291	Floodway	2100	1469.7	1474.05		1474.89	0.008358	7.24	286.76	0.69	9939	10036	97
Iona West (Sou	1.348	Floodplain	2100	1470.9	1475.16		1475.35	0.004339	4.07	644.96	0.47	9772.87	10373.68	600.81
Iona West (Sou	1.348	Floodway	2100	1470.9	1476.09		1476.5	0.003615	4.66	418.54	0.45	9930	10066	136
Iona West (Sou	1.440	Floodplain	2100	1472.5	1477.55	1477.35	1477.88	0.006185	5.84	503.78	0.58	9834.77	10268.09	433.32
Iona West (Sou	1.440	Floodway	2100	1472.5	1478.24		1479.01	0.007236	7.22	300.21	0.65	9967	10062	95
Iona West (Sou	1.504	Floodplain	2100	1473.58	1479.27		1479.5	0.003726	5.23	614.26	0.46	9850.21	10324.06	473.85
Iona West (Sou	1.504	Floodway	2100	1473.58	1480.2		1480.67	0.003389	5.74	385.78	0.46	9984	10091	107
Iona West (Sou	1.549	Floodplain	2100	1475.54	1480.12	1479.34	1480.41	0.003714	4.69	496.01	0.46	9763.71	10435.92	672.21
Iona West (Sou	1.549	Floodway	2100	1475.54	1481.08	1479.6	1481.38	0.002457	4.53	480.35	0.39	9945	10221.11	276.11
Iona West (Sou	1.582	Floodplain	2100	1482.75	1483.83	1483.83	1484.36	0.015073		377.15		9571.7	10627.03	1055.33
Iona West (Sou	1.582	Floodway	2100	1482.75	1484.12	1484.12	1485.17	0.014977		256.23		9651	10309.98	658.98
Iona West (Sou	1.615	Floodplain	2100	1481.62	1485.12		1485.16	0.001946	1.61	1411.68	0.18	9554.65	10346.73	792.08
Iona West (Sou	1.615	Floodway	2100	1481.62	1485.76		1485.79	0.001234	1.5	1445.13	0.15	9749	10247	498
Iona West (Sou	1.652	Floodplain	2100	1482.99	1485.72		1485.79	0.00656	2.35	960.71	0.32	9588.47	10374.01	785.54
Iona West (Sou	1.652	Floodway	2100	1482.99	1486.17		1486.29	0.007316	2.9	735	0.35	9832	10179	347
Iona West (Sou	1.692	Floodplain	2100	1484.1	1486.73		1486.79	0.003648	1.97	1121.16	0.24	9546.62	10342.32	795.7
Iona West (Sou	1.692	Floodway	2100	1484.1	1487.38		1487.47	0.004494	2.63	852.12	0.28	9750	10096	346
Iona West (Sou	1.747	Floodplain	2100	1485.42	1487.77		1487.82	0.003622	1.67	1097.47	0.23	9728.21	10457.14	728.93
Iona West (Sou	1.747	Floodway	2100	1485.42	1488.62		1488.72	0.004293	2.42	833.3	0.27	9824	10139	315
Iona West (Sou	1.786	Floodplain	2100	1486.38	1488.81		1488.95	0.007193	2.37	720.84	0.33	9673.29	10157.99	484.7
Iona West (Sou	1.786	Floodway	2100	1486.38	1489.78		1490	0.007766	3.32	565.32	0.36	9816	10024	208
Iona West (Sou	1.858	Floodplain	2100	1487.97	1490.64		1490.78	0.003589	3.16	695.65	0.42	9769.43	10350.58	581.15
Iona West (Sou	1.858	Floodway	2100	1487.97	1491.62		1491.95	0.003608	4.24	456.32	0.45	9964	10134	170
Iona West (Sou	1.925	Floodplain	2100	1489.81	1492.29		1492.5	0.006686	3.89	575.97	0.56	9840.9	10415.95	575.05
Iona West (Sou	1.925	Floodway	2100	1489.81	1493.2		1493.71	0.006735	5.34	366.29	0.6	9992	10157	165
Iona West (Sou	1.990	Floodplain	2100	1492.14	1494.21		1494.35	0.004473	3.07	704.17	0.45	9811.69	10472.5	660.81
Iona West (Sou	1.990	Floodway	2100	1492.14	1495.13		1495.4	0.003684	3.88	502	0.45	9960	10183	223
Iona West (Sou	2.034	Floodplain	2100	1493.42	1495.57	1495.42	1495.84	0.009294	4.71	513.21	0.66	9821.09	10456.84	635.75
Iona West (Sou	2.034	Floodway	2100	1493.42	1496.16		1496.59	0.006759	4.97	406.86	0.59	9920	10143	223

HEC-RAS Plan: 310.032 River: Reach #1 Reach: Iona West (South

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Iona West (Sou	2.126	Floodplain	2100	1496.39	1498.86	1498.42	1499.03	0.004893	3.97	660.28	0.5	9758.85	10511.61	752.76
Iona West (Sou	2.126	Floodway	2100	1496.39	1499.52	1499.24	1499.94	0.006982	5.66	425.01	0.62	9937	10188	251
Iona West (Sou	2.203	Floodplain	1830	1497.75	1501.33		1501.72	0.00863	6.11	380.27	0.68	9828.67	10127.61	298.94
Iona West (Sou	2.203	Floodway	1830	1497.75	1502.32		1503.25	0.008487	7.55	237.18	0.71	9953	10027	74
Iona West (Sou	2.279	Floodplain	1830	1499.78	1504.06		1504.45	0.005632	6.72	416.25	0.6	9876.56	10178.86	302.3
Iona West (Sou	2.279	Floodway	1830	1499.78	1504.79		1505.18	0.003002	5.5	371.04	0.45	9956	10071	115
Iona West (Sou	2.363	Floodplain	1830	1501.99	1506.81	1506.75	1507.14	0.006629	6.51	480.46	0.61	9750.87	10277.63	526.76
Iona West (Sou	2.363	Floodway	1830	1501.99	1507.37	1507.37	1508.4	0.011017	9.25	235.39	0.8	9935	10036	101
Iona West (Sou	2.451	Floodplain	1830	1503.62	1509.75		1510	0.00582	5.26	535.55	0.48	9764.47	10269.09	504.62
Iona West (Sou	2.451	Floodway	1830	1503.62	1510.73		1511.04	0.003352	4.68	411.07	0.38	9951	10072	121
Iona West (Sou	2.529	Floodplain	1830	1506.91	1512.08	1511.61	1512.26	0.005332	3.75	549.61	0.44	9718.42	10160.15	441.73
Iona West (Sou	2.529	Floodway	1830	1506.91	1512.6		1513.09	0.007871	5.22	326.71	0.55	9914	10043	129
Iona West (Sou	2.573	Floodplain	1830	1510.61	1513.88	1513.78	1514.12	0.012397	5.45	491.94	0.66	9662.15	10315.96	653.81
Iona West (Sou	2.573	Floodway	1830	1510.61	1514.69		1515.42	0.011954	6.66	266.18	0.69	9940	10050	110
Iona West (Sou	2.659	Floodplain	1830	1514.02	1517.24		1517.36	0.004462	3.42	679.61	0.41	9843.52	10517.63	674.11
Iona West (Sou	2.659	Floodway	1830	1514.02	1518.21		1518.45	0.00405	4.15	463.1	0.41	9979	10178	199
Iona West (Sou	2.728	Floodplain	1790	1515.06	1519.98	1519.98	1520.53	0.010352	7.51	354	0.67	9984.71	10255.73	271.02
Iona West (Sou	2.728	Floodway	1790	1515.06	1520.28		1521.28	0.012849	8.8	229.69	0.76	9990	10073	83
Iona West (Sou	2.803	Floodplain	1790	1516.97	1521.08		1521.12	0.000515	1.6	1161.06	0.15	9968.25	10361.62	393.37
Iona West (Sou	2.803	Floodway	1790	1516.97	1521.93		1521.99	0.000566	1.93	935.42	0.16	9976	10187	211
Iona West (Sou	2.914	Floodplain	1790	1520.05	1521.57		1521.63	0.002022	1.47	953.44	0.24	9942.68	10592.74	650.06
Iona West (Sou	2.914	Floodway	1790	1520.05	1522.47		1522.56	0.00232	2.29	730.08	0.29	9986	10320	334
Iona West (Sou	2.991	Floodplain	7170	1518.42	1522.94	1522.29	1523.09	0.003972	2.32	2290.57	0.35	8947.01	10890.92	1943.91
Iona West (Sou	2.991	Floodway	7170	1518.42	1523.73	1522.8	1523.93	0.003561	2.98	2127.54	0.36	9411	10706	1295

2 WEST (SOUTH OF CAP)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West (South c	0.232	Floodplain	3130	1340.69	1341.98	1341.46	1342.05	0.005293	1.98	1463.14	0.34	9551.61	11034.65	1483.04
2 West (South c	0.232	Floodway	3130	1340.69	1342.96	1342.01	1343.1	0.005292	3.07	1032.6	0.38	9919	10440	521
2 West (South c	0.303	Floodplain	3130	1342.12	1344.03	1343.56	1344.11	0.006145	2.24	1386.19	0.37	9596.58	11031.3	1434.72
2 West (South c	0.303	Floodway	3130	1342.12	1344.96		1345.12	0.00579	3.25	963.88	0.4	9893	10362	469
2 West (South c	0.376	Floodplain	3130	1344.49	1346.19		1346.26	0.005182	2.21	1422.08	0.36	9831.52	11191.15	1359.63
2 West (South c	0.376	Floodway	3130	1344.49	1347.15		1347.33	0.005717	3.51	910.57	0.43	9941	10361	420
2 West (South c	0.451	Floodplain	3130	1345.98	1348.63		1348.72	0.006087	2.98	1262.28	0.4	9875.6	10998.37	1122.77
2 West (South c	0.451	Floodway	3130	1345.98	1349.62		1349.83	0.005828	3.94	863.88	0.42	9965	10325	360
2 West (South c	0.521	Floodplain	3130	1348.6	1350.92		1351.01	0.005854	2.68	1324.09	0.38	9399.27	11006.54	1607.27
2 West (South c	0.521	Floodway	3130	1348.6	1351.89		1352.08	0.006031	3.78	904.03	0.42	9912	10323	411
2 West (South c	0.579	Floodplain	3130	1350.55	1352.74	1352.17	1352.83	0.006004	2.37	1308.75	0.37	9602.32	10967.38	1365.06
2 West (South c	0.579	Floodway	3130	1350.55	1353.73	1352.72	1353.92	0.005836	3.45	907.5	0.41	9916	10320	404
2 West (South c	0.637	Floodplain	3130	1352.19	1354.64		1354.73	0.005959	2.34	1366.86	0.37	9861.6	11077.64	1216.04
2 West (South c	0.637	Floodway	3130	1352.19	1355.64		1355.83	0.006258	3.56	882.71	0.42	9953	10350	397
2 West (South c	0.708	Floodplain	3130	1354.41	1356.79	1356.36	1356.9	0.005784	2.7	1250.43	0.38	9418.06	10956.72	1538.66
2 West (South c	0.708	Floodway	3130	1354.41	1357.79	1356.81	1357.97	0.005456	3.65	921.18	0.4	9865	10277	412
2 West (South c	0.787	Floodplain	3130	1354.83	1358.8		1358.92	0.004356	2.9	1225.45	0.35	9649.13	10862.13	1213
2 West (South c	0.787	Floodway	3130	1354.83	1359.8		1360	0.004822	3.94	902.18	0.39	9916	10270	354
2 West (South c	0.877	Floodplain	3130	1357.72	1361.15		1361.33	0.005385	3.74	1010.87	0.43	9674.9	10633.14	958.24
2 West (South c	0.877	Floodway	3130	1357.72	1361.93		1362.16	0.003905	3.87	815.56	0.39	9777	10040	263
2 West (South c	0.967	Floodplain	3130	1362	1363.43		1363.54	0.003845	1.99	1272.91	0.38	9330.43	10353.79	1023.36
2 West (South c	0.967	Floodway	3130	1362	1364.39	1363.89	1364.75	0.007595	4.64	659.21	0.61	9700	10055	355
2 West (South c	1.041	Floodplain	3130	1364.07	1365.5	1364.96	1365.61	0.005047	1.97	1183.8	0.42	9139.69	10176.72	1037.03
2 West (South c	1.041	Floodway	3130	1364.07	1366.4		1366.53	0.00253	2.46	1124.27	0.35	9487	10099	612
2 West (South c	1.107	Floodplain	3130	1366.15	1367.46		1367.55	0.004876	1.55	1309.07	0.35	8872.46	10125.14	1252.68
2 West (South c	1.107	Floodway	3130	1366.15	1368.2	1367.97	1368.56	0.017216	4.83	651.95	0.73	9536	10049	513
2 West (South c	1.204	Floodplain	3130	1369.48	1370.85	1370.62	1371.05	0.00816	2.37	908.49	0.45	8323.06	10164.71	1841.65
2 West (South c	1.204	Floodway	3130	1369.48	1371.85	1370.98	1371.99	0.003286	2.52	1073.33	0.33	9494	10079	585
2 West (South c	1.285	Floodplain	3130	1370	1372.91	1371.97	1373.22	0.00274	4.63	819.06	0.49	9346.37	10187.62	841.25
2 West (South c	1.285	Floodway	3130	1370	1373.1	1371.95	1373.42	0.002478	4.59	745.62	0.47	9829	10188	359
2 West (South c	1.336	Floodplain	3130	1370	1373.82		1374	0.003053	3.64	1009.68	0.33	9642.66	10310.99	668.33

Located in Existing Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West (South c	1.336	Floodway	3130	1370	1373.96		1374.17	0.003087	3.75	896.53	0.34	9801	10160	359
2 West (South c	1.412	Floodplain	3130	1370	1374.93		1375.17	0.002768	4.01	824.5	0.32	9833.39	10099.82	266.43
2 West (South c	1.412	Floodway	3130	1370	1375.06		1375.29	0.002565	3.92	826.88	0.31	9880	10099.95	219.95
2 West (South c	1.486	Floodplain	3130	1370	1375.91		1376.19	0.002433	4.24	742.5	0.32	9910.94	10060.32	149.38
2 West (South c	1.486	Floodway	3130	1370	1376.06		1376.4	0.003034	4.71	665.98	0.35	9939	10056	117
2 West (South c	1.554	Floodplain	3130	1370.33	1376.91	1376.78	1378.43	0.01831	10.39	344.53	0.83	9930.15	10088.44	158.29
2 West (South c	1.554	Floodway	3130	1370.33	1377.43		1378.55	0.011765	8.9	380.75	0.67	9953	10057	104
2 West (South c	1.586	Floodplain	3130	1364.84	1378.65		1378.78	0.000403	2.94	1128.89	0.15	9926.78	10048.61	121.83
2 West (South c	1.586	Floodway	3130	1364.84	1378.71		1378.88	0.000512	3.33	954.43	0.17	9958	10034	76
2 West (South c	1.635	Floodplain	2970	1372.51	1378.64	1378.64	1380.46	0.029426	10.82	274.96	1	9955.08	10031.96	76.88
2 West (South c	1.635	Floodway	2970	1372.51	1378.65	1378.65	1380.46	0.029372	10.82	274.86	1	9956	10031.96	75.96
2 West (South c	1.692	Floodplain	2970	1375.69	1382.75		1383.21	0.004125	5.7	570.28	0.41	9948.8	10096.82	148.02
2 West (South c	1.692	Floodway	2970	1375.69	1383.13		1383.75	0.005378	6.32	470.06	0.44	9957	10030	73
2 West (South c	1.779	Floodplain	2970	1379.7	1385.27	1384.72	1385.56	0.006265	4.74	701.95	0.45	9761.93	10263.85	501.92
2 West (South c	1.779	Floodway	2970	1379.7	1386.01	1385.12	1386.47	0.006414	5.46	547.86	0.47	9908	10096	188
2 West (South c	1.863	Floodplain	2970	1382.18	1387.22	1386.29	1387.36	0.002761	3.39	1001.21	0.3	9661.01	10325.32	664.31
2 West (South c	1.863	Floodway	2970	1382.18	1388.18	1386.81	1388.48	0.003285	4.29	676.76	0.34	9876	10082	206
2 West (South c	1.949	Floodplain	2970	1383.45	1388.52		1388.67	0.002972	3.37	1008.2	0.32	9692.98	10256.75	563.77
2 West (South c	1.949	Floodway	2970	1383.45	1389.47		1389.65	0.002036	3.27	867.48	0.27	9858	10102	244
2 West (South c	2.020	Floodplain	2970	1385.38	1389.87		1390.04	0.004635	3.55	895.52	0.38	9563.14	10121.61	558.47
2 West (South c	2.020	Floodway	2970	1385.38	1390.57		1390.91	0.005851	4.65	639.18	0.44	9810	10045	235
2 West (South c	2.096	Floodplain	2970	1387.25	1391.95	1391.39	1392.25	0.006571	4.76	711.52	0.47	9560.27	10291.36	731.09
2 West (South c	2.096	Floodway	2970	1387.25	1392.73	1391.19	1393.09	0.005161	4.87	626.88	0.43	9967	10149	182
2 West (South c	2.151	Floodplain	2970	1388.19	1393.75	1393.75	1394.76	0.00733	8.85	407.32	0.75	9560.64	10445.43	884.79
2 West (South c	2.151	Floodway	2970	1388.19	1394.09	1393.78	1395.14	0.006553	8.79	381.12	0.72	9953	10075	122
2 West (South c	2.163	Floodplain	2970	1388.5	1394.87	1392.86	1395.22	0.001777	4.86	626.38	0.38	9893.69	10039.43	145.74
2 West (South c	2.163	Floodway	2970	1388.5	1395.27	1392.86	1395.57	0.001333	4.43	679.03	0.33	9895	10035	140
2 West (South c	2.168		Bridge											
2 West (South c	2.173	Floodplain	2970	1389.1	1395.07	1392.93	1395.41	0.003218	4.68	637.09	0.37	9939.22	10085.7	146.48
2 West (South c	2.173	Floodway	2970	1389.1	1395.48	1392.93	1395.77	0.002401	4.27	692.31	0.33	9941	10082	141
2 West (South c	2.180	Floodplain	2970	1389	1395.4	1392.33	1395.58	0.001289	3.21	885.67	0.24	9560.64	10987.34	1426.7

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West (South c	2.180	Floodway	2970	1389	1395.72	1392.35	1395.92	0.001417	3.5	825.7	0.25	9935	10079	144
2 West (South c	2.198	Floodplain	2970	1389.48	1395.61	1394.17	1395.76	0.002225	3.17	950.58	0.29	9554.06	10337.69	783.63
2 West (South c	2.198	Floodway	2970	1389.48	1395.97	1394.17	1396.09	0.001496	2.77	1072.11	0.24	9550.61	10348.41	797.8
2 West (South c	2.361	Floodplain	2970	1393.82	1398.36		1398.68	0.005642	4.3	667.37	0.45	9892.25	10311.21	418.96
2 West (South c	2.361	Floodway	2970	1393.82	1398.19		1398.58	0.00718	4.67	610.45	0.5	9893.84	10281.52	387.68
2 West (South c	2.543	Floodplain	2970	1394.95	1402.46		1402.59	0.003499	2.67	1029.35	0.33	9583.1	10954.7	1371.6
2 West (South c	2.543	Floodway	2970	1394.95	1402.54	1401.26	1402.65	0.003152	2.54	1102.08	0.31	9582.21	10955.77	1373.56
2 West (South c	2.616	Floodplain	2970	1401.79	1406.79	1406.79	1407.97	0.01546	9.2	368.48	0.78	9468.84	10040.16	571.32
2 West (South c	2.616	Floodway	2970	1401.79	1406.79	1406.79	1407.97	0.01546	9.2	368.48	0.78	9468.84	10040.16	571.32
2 West (South c	2.879	Floodplain	2970	1408.67	1412.58	1411.81	1412.62	0.001499	2.02	1987.16	0.23	8462.58	10506.87	2044.29
2 West (South c	2.879	Floodway	2970	1408.67	1412.58	1411.81	1412.62	0.001497	2.02	1987.9	0.23	8462.55	10506.88	2044.33
2 West (South c	3.075	Floodplain	2970	1414.84	1417.68	1417.68	1418.03	0.016373	4.33	707.13	0.66	8913.39	10244.4	1331.01
2 West (South c	3.075	Floodway	2970	1414.84	1417.68	1417.68	1418.03	0.016373	4.33	707.13	0.66	8913.39	10244.4	1331.01
2 West (South c	3.270	Floodplain	2970	1421.89	1424.06	1423.45	1424.14	0.003088	1.94	1314.38	0.29	9327.65	10577.28	1249.63
2 West (South c	3.270	Floodway	2970	1421.89	1424.06	1423.45	1424.14	0.003088	1.94	1314.38	0.29	9327.65	10577.28	1249.63
2 West (South c	3.478	Floodplain	2970	1426.65	1429.58	1429.25	1429.77	0.00965	3.66	870.34	0.52	9360.37	10568.84	1208.47
2 West (South c	3.478	Floodway	2970	1426.65	1429.58	1429.25	1429.77	0.00965	3.66	870.34	0.52	9360.37	10568.84	1208.47
2 West (South c	3.702	Floodplain	2970	1432.92	1435.98	1435.24	1436.09	0.003293	2.4	1134.94	0.33	8589.86	10619.94	2030.08
2 West (South c	3.702	Floodway	2970	1432.92	1435.98	1435.24	1436.09	0.003293	2.4	1134.94	0.33	8589.86	10619.94	2030.08
2 West (South c	3.924	Floodplain	2970	1438.43	1442.02	1441.91	1442.33	0.011066	5.53	726.86	0.63	9317.71	10267.54	949.83
2 West (South c	3.924	Floodway	2970	1438.43	1442.02	1441.91	1442.33	0.011066	5.53	726.86	0.63	9317.71	10267.54	949.83
2 West (South c	4.103	Floodplain	2970	1443.43	1447.29		1447.5	0.003261	3.63	894.29	0.36	9749.04	10371.72	622.68
2 West (South c	4.103	Floodway	2970	1443.43	1447.29		1447.5	0.003261	3.63	894.29	0.36	9749.04	10371.72	622.68
2 West (South c	4.243	Floodplain	2970	1447.98	1450.6	1450.26	1450.84	0.007261	4.36	784.49	0.51	9248.63	10071.3	822.67
2 West (South c	4.243	Floodway	2970	1447.98	1450.6	1450.26	1450.84	0.007261	4.36	784.49	0.51	9248.63	10071.3	822.67
2 West (South c	4.423	Floodplain	2880	1450.97	1456.81	1456.54	1457.17	0.005817	5.57	707.38	0.5	9422.58	10028.02	605.44
2 West (South c	4.423	Floodway	2880	1450.97	1456.81	1456.54	1457.17	0.005817	5.57	707.38	0.5	9422.58	10028.02	605.44
2 West (South c	4.650	Floodplain	2880	1456.23	1462.98	1461.07	1463.54	0.004969	6.4	511.35	0.48	9761.83	10036.32	274.49
2 West (South c	4.650	Floodway	2880	1456.23	1462.98	1461.07	1463.54	0.004969	6.4	511.35	0.48	9761.83	10036.32	274.49
2 West (South c	4.862	Floodplain	2880	1461.49	1470.06	1469.83	1470.68	0.008451	6.95	512.63	0.59	9805.47	10324.71	519.24
2 West (South c	4.862	Floodway	2880	1461.49	1470.06	1469.83	1470.68	0.008451	6.95	512.63	0.59	9805.47	10324.71	519.24
2 West (South c	5.065	Floodplain	2880	1468.7	1474.94	1474.23	1475.09	0.002485	3.02	1080.06	0.31	9080.57	10145.74	1065.17
2 West (South c	5.065	Floodway	2880	1468.7	1474.94	1474.23	1475.09	0.002485	3.02	1080.06	0.31	9080.57	10145.74	1065.17

Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West (South (	5.291	Floodplain	2880	1478	1481.59	1481.59	1482.09	0.017853	7.04	512.68	0.78	8196.44	10551.35	2354.91
2 West (South (	5.291	Floodway	2880	1478	1481.59	1481.59	1482.09	0.017853	7.04	512.68	0.78	8196.44	10551.35	2354.91
2 West (South (	5.727	Floodplain	2880	1492.88	1494.73	1493.96	1494.82	0.002909	1.19	1221.36	0.24	8667.73	11364.88	2697.15
2 West (South (	5.727	Floodway	2880	1492.88	1494.73	1493.96	1494.82	0.002909	1.19	1221.36	0.24	8667.73	11364.88	2697.15
2 West (South (	5.925	Floodplain	2880	1502.97	1503.04	1503.04	1503.3	0.012648	0.37	754.77	0.31	8937.79	11281.87	2344.08
2 West (South (	5.925	Floodway	2880	1502.97	1503.75	1503.75	1504.07	0.018018	2.18	685.94	0.55	9567	10675	1108
2 West (South (	6.155	Floodplain	2880	1507.31	1510.03	1509.29	1510.14	0.003057	1.87	1135.91	0.3	9434.85	10939.74	1504.89
2 West (South (	6.155	Floodway	2880	1507.31	1510.81	1510.09	1510.92	0.002626	2.31	1110.83	0.3	9778.14	10592	813.86
2 West (South (	6.355	Floodplain	2880	1511.82	1514.92	1514.7	1515.15	0.009004	3.86	757.84	0.53	9599.85	10502.95	903.1
2 West (South (	6.355	Floodway	2880	1511.82	1515.68	1515.68	1516.34	0.012223	5.79	474.58	0.66	9889	10212	323
2 West (South (	6.414	Floodplain	2880	1511.17	1517.26	1516.79	1517.41	0.005949	4.6	1018.68	0.48	9545.49	10378.25	832.76
2 West (South (	6.414	Floodway	2880	1511.17	1518.2	1517.31	1518.4	0.004	4.57	826.27	0.42	9815	10172	357
2 West (South (	6.511	Floodplain	2880	1513.92	1519.81	1519.42	1519.97	0.004772	4.41	994.43	0.43	9406.53	10477.77	1071.24
2 West (South (	6.511	Floodway	2880	1513.92	1520.31		1520.65	0.00535	5.13	655.75	0.47	9858	10228	370
2 West (South (	6.589	Floodplain	2880	1517.15	1522.17	1521.92	1522.32	0.008442	3.79	953.44	0.5	9116.4	10442.13	1325.73
2 West (South (	6.589	Floodway	2880	1517.15	1522.81	1522.38	1523.16	0.008669	4.71	607.02	0.53	9703	10061	358
2 West (South (	6.642	Floodplain	2880	1520.55	1524.18	1523.72	1524.26	0.004577	1.55	1314.24	0.31	8904.39	10475.51	1571.12
2 West (South (	6.642	Floodway	2880	1520.55	1524.91	1524.23	1525.1	0.004383	2.34	857.48	0.33	9565	10063	498
2 West (South (	6.720	Floodplain	2880	1525.5	1526.38	1525.92	1526.48	0.006776	1.11	1163.68	0.32	8959	10784.22	1825.22
2 West (South (	6.720	Floodway	2880	1525.5	1527.29	1526.83	1527.46	0.008285	2.74	890.06	0.43	9510	10188	678
2 West (South (	6.794	Floodplain	2880	1527.12	1528.92	1528.61	1529.03	0.004513	1.63	1139.95	0.36	8970.16	11124.39	2154.23
2 West (South (	6.794	Floodway	2880	1527.12	1529.73	1529.15	1529.9	0.003614	2.51	903.27	0.37	9597	10198	601
2 West (South (	6.844	Floodplain	2880	1528.38	1530.23	1530.04	1530.4	0.006422	1.79	899.74	0.42	8905.67	11117.81	2212.14
2 West (South (	6.844	Floodway	2880	1528.38	1531.07	1530.82	1531.39	0.009684	4.03	646.29	0.6	9558	10086	528
2 West (South (	6.899	Floodplain	2880	1529.71	1532.11	1531.93	1532.27	0.007679	2.26	905.48	0.48	8806.27	11061.13	2254.86
2 West (South (	6.899	Floodway	2880	1529.71	1533.08	1532.63	1533.34	0.005582	3.42	715.29	0.47	9580	10057	477
2 West (South (	6.936	Floodplain	2880	1530.48	1533.41	1533.14	1533.55	0.006409	2.77	970.67	0.47	8858.39	11333.14	2474.75
2 West (South (	6.936	Floodway	2880	1530.48	1534.27	1534.01	1534.59	0.007936	4.54	637.52	0.57	9663	10150	487
2 West (South (	6.970	Floodplain	2880	1532.22	1534.56	1534.26	1534.66	0.004264	1.75	1184.25	0.36	9058.33	11047.21	1988.88
2 West (South (	6.970	Floodway	2880	1532.22	1535.56	1534.96	1535.71	0.00321	2.68	911.98	0.36	9712	10331	619
2 West (South (	7.027	Floodplain	2880	1533.18	1536.23	1536.05	1536.38	0.007808	1.81	953.62	0.45	9284.92	11173.91	1888.99
2 West (South (	7.027	Floodway	2880	1533.18	1536.97	1536.76	1537.35	0.009009	3.56	590.31	0.56	9900	10360	460
2 West (South (	7.102	Floodplain	2880	1534.33	1538.64		1538.79	0.005065	2.97	948.34	0.43	9545.89	10551.58	1005.69
2 West (South (	7.102	Floodway	2880	1534.33	1539.41		1539.67	0.004046	3.5	714.35	0.41	9842	10242	400

Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 West (South c	7.167	Floodplain	2880	1535.79	1540.77		1541.04	0.008752	5.35	717.94	0.62	9630.62	10408.4	777.78
2 West (South c	7.167	Floodway	2880	1535.79	1541.26	1541.18	1542.19	0.013737	7.61	373.4	0.8	9892	10070	178
2 West (South c	7.227	Floodplain	2880	1538.48	1542.81	1542.32	1543.23	0.005645	4.72	556.51	0.51	9342.03	10315.98	973.95
2 West (South c	7.227	Floodway	2880	1538.48	1543.78	1542.76	1544.2	0.003594	4.31	560.41	0.4	9816	10007	191
2 West (South c	7.277	Floodplain	2880	1542.04	1546.49	1546.49	1548.13	0.021962	10.27	280.63	1.01	9952.96	10043.78	90.82
2 West (South c	7.277	Floodway	2880	1542.04	1546.49	1546.49	1548.13	0.021939	10.26	280.64	1.01	9952.96	10040.21	87.25

1 WEST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	0.154	Floodplain	6160	1333.8	1342.23	1340.83	1342.29	0.001892	2.39	3187.6	0.21	9139.27	10663.63	1524.36
1 West (South c	0.154	Floodway	6160	1333.8	1343.2	1340.9	1343.29	0.001894	2.74	2563.19	0.21	9564	10239	675
1 West (South c	0.220	Floodplain	6160	1333.26	1343.27	1342.43	1343.46	0.007368	4.46	1814.97	0.39	9395.71	10505.82	1110.11
1 West (South c	0.220	Floodway	6160	1333.26	1344.14		1344.48	0.007032	4.97	1354.07	0.4	9811	10200	389
1 West (South c	0.287	Floodplain	6160	1336.55	1345.05		1345.22	0.003731	4.32	2005.81	0.3	9325.43	10286.65	961.22
1 West (South c	0.287	Floodway	6160	1336.55	1346.03		1346.34	0.00423	5.07	1453.05	0.33	9765	10082	317
1 West (South c	0.345	Floodplain	6160	1335.59	1346.14		1346.34	0.003813	4.68	1895.72	0.31	9452.55	10385.2	932.65
1 West (South c	0.345	Floodway	6160	1335.59	1347.14		1347.39	0.002987	4.53	1555.32	0.28	9800	10174	374
1 West (South c	0.419	Floodplain	6160	1338.04	1347.9		1348.08	0.005177	4.61	2081.39	0.4	9270.31	10643.6	1373.29
1 West (South c	0.419	Floodway	6160	1338.04	1348.69		1349.06	0.006091	5.62	1317.06	0.45	9818	10195	377
1 West (South c	0.490	Floodplain	6160	1346.37	1349.92	1349.21	1350.05	0.005523	3.48	2143.82	0.42	9106.1	10615.16	1509.06
1 West (South c	0.490	Floodway	6160	1346.37	1350.9	1349.62	1351.21	0.005505	4.48	1397.58	0.45	9765	10219	454
1 West (South c	0.558	Floodplain	6160	1347.46	1351.77	1350.88	1351.87	0.00504	2.96	2432.38	0.37	9132.05	10781.85	1649.8
1 West (South c	0.558	Floodway	6160	1347.46	1352.75	1351.16	1352.95	0.004598	3.7	1715.08	0.38	9700	10241	541
1 West (South c	0.634	Floodplain	6160	1350.11	1353.83	1352.97	1353.96	0.005206	3.22	2276	0.39	9409.09	11011.8	1602.71
1 West (South c	0.634	Floodway	6160	1350.11	1354.58	1353.21	1354.78	0.004491	3.65	1780.04	0.38	9654	10273	619
1 West (South c	0.701	Floodplain	6160	1351.93	1355.63	1354.73	1355.75	0.005321	3.07	2254.17	0.35	9334.53	11065.15	1730.62
1 West (South c	0.701	Floodway	6160	1351.93	1356.19	1354.92	1356.32	0.004553	3.26	2154.98	0.33	9470	10338	868
1 West (South c	0.778	Floodplain	6160	1354	1357.91	1357.15	1358.03	0.006149	2.63	2265.28	0.33	9041.89	10579.11	1537.22
1 West (South c	0.778	Floodway	6160	1354	1358.3	1357.23	1358.45	0.006343	3.01	1995.71	0.35	9402	10300	898
1 West (South c	0.862	Floodplain	6160	1356.48	1360.35		1360.47	0.004641	2.83	2405.2	0.35	9055.22	10601.11	1545.89
1 West (South c	0.862	Floodway	6160	1356.48	1360.69		1360.83	0.004295	3	2079.78	0.34	9441	10371	930
1 West (South c	0.932	Floodplain	6160	1357.45	1361.96		1362.14	0.005044	3.02	2037.31	0.41	9211.15	10620.46	1409.31
1 West (South c	0.932	Floodway	6160	1357.45	1362.12		1362.28	0.004164	2.88	2094.65	0.37	9231	10502	1271
1 West (South c	0.998	Floodplain	6160	1359.5	1362.94		1363	0.002222	1.05	3309.37	0.19	7579.05	10404.24	2825.19
1 West (South c	0.998	Floodway	6160	1359.5	1363.17		1363.32	0.003855	1.51	2081.8	0.25	9065	10384	1319
1 West (South c	1.058	Floodplain	6160	1363.4	1363.28	1363.28	1363.88	0.024172		988.03		7833.46	9839.06	2005.6
1 West (South c	1.058	Floodway	6160	1363.4	1363.77	1363.77	1364.65	0.021298	1.28	821.75	0.52	8951	10123	1172
1 West (South c	1.074		Bridge											
1 West (South c	1.089	Floodplain	6160	1362.5	1368.75	1362.02	1368.76	0.000038	0.46	8477.07	0.04	7424.47	10632.4	3207.93
1 West (South c	1.089	Floodway	6160	1362.5	1369.67	1363.28	1369.71	0.000166	1.08	4134.8	0.08	8826	10095.81	1269.81

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	1.116	Floodplain	6160	1362.68	1368.77	1364.45	1368.77	0.00006	0.53	8927.07	0.05	7557.64	10523.02	2965.38
1 West (South c	1.116	Floodway	6160	1362.68	1369.73	1364.53	1369.74	0.000064	0.63	7652.81	0.05	8812	10120	1308
1 West (South c	1.176	Floodplain	6160	1364.68	1368.8	1366.48	1368.82	0.00029	0.93	5718.7	0.1	7802.29	10474.21	2671.92
1 West (South c	1.176	Floodway	6160	1364.68	1369.76	1366.71	1369.79	0.000266	1.08	5003.75	0.1	9048	10328	1280
1 West (South c	1.242	Floodplain	6160	1365.75	1369.01	1368.51	1369.12	0.005705	3.38	2377.06	0.41	8015.45	10526.4	2510.95
1 West (South c	1.242	Floodway	6160	1365.75	1369.93	1368.73	1370.01	0.002211	2.67	2656.56	0.27	9259	10481	1222
1 West (South c	1.302	Floodplain	6160	1366.65	1370.54	1369.98	1370.63	0.004849	3.41	2602.13	0.38	8320.09	10733.87	2413.78
1 West (South c	1.302	Floodway	6160	1366.65	1370.98	1370.53	1371.2	0.008294	4.97	1747.54	0.51	9445	10545	1100
1 West (South c	1.395	Floodplain	6160	1369.94	1373.08	1372.62	1373.19	0.005963	3.56	2569.43	0.42	8448.19	10857.57	2409.38
1 West (South c	1.395	Floodway	6160	1369.94	1373.89	1372.99	1374.04	0.004586	3.83	2112.85	0.39	9507	10519	1012
1 West (South c	1.498	Floodplain	6160	1371.8	1376.57	1376.15	1376.72	0.006101	4.28	2142.22	0.47	8673.22	11410.68	2737.46
1 West (South c	1.498	Floodway	6160	1371.8	1377.28	1376.87	1377.75	0.009095	6.16	1159.67	0.6	9760	10317	557
1 West (South c	1.560	Floodplain	5980	1372.93	1378.65	1378.48	1378.9	0.006159	5.09	1702.99	0.5	8839.78	11249.17	2409.39
1 West (South c	1.560	Floodway	5980	1372.93	1379.64	1378.81	1380.04	0.005067	5.51	1199.19	0.47	9812	10242	430
1 West (South c	1.625	Floodplain	5980	1375.03	1380.94	1380.86	1381.26	0.007105	5.62	1567.4	0.54	9131.81	10740.11	1608.3
1 West (South c	1.625	Floodway	5980	1375.03	1381.59	1380.87	1382.17	0.007338	6.42	985.74	0.56	9925	10253	328
1 West (South c	1.722	Floodplain	5980	1378.39	1384.26		1384.62	0.0063	5.74	1392.84	0.52	9624.99	10708.4	1083.41
1 West (South c	1.722	Floodway	5980	1378.39	1385.02		1385.62	0.006458	6.56	979.32	0.54	9942	10245	303
1 West (South c	1.803	Floodplain	5980	1381.24	1387.13		1387.56	0.007009	6.47	1388.39	0.55	9557.98	10783.66	1225.68
1 West (South c	1.803	Floodway	5980	1381.24	1387.98		1388.79	0.00787	7.68	848.26	0.6	9941	10185	244
1 West (South c	1.859	Floodplain	5980	1382.87	1388.9		1389.22	0.004221	5.72	1545.95	0.44	9654.83	10732.78	1077.95
1 West (South c	1.859	Floodway	5980	1382.87	1389.88		1390.54	0.004292	6.48	919.98	0.46	9955	10132	177
1 West (South c	1.932	Floodplain	5980	1384.28	1390.76	1389.58	1391.54	0.008195	7.91	1007.01	0.62	9780.4	10612.28	831.88
1 West (South c	1.932	Floodway	5980	1384.28	1391.68		1392.49	0.005885	7.49	852.19	0.54	9924	10117	193
1 West (South c	2.022	Floodplain	7490	1386.21	1394.1	1393.92	1394.52	0.005008	6.75	1714.38	0.49	9356.21	10728.21	1372
1 West (South c	2.022	Floodway	7490	1386.21	1394.67	1393.86	1395.64	0.007021	8.51	972.66	0.59	9881	10114	233
1 West (South c	2.081	Floodplain	7490	1387.32	1395.53		1396.23	0.005444	7.94	1459.22	0.53	9511.58	10426.8	915.22
1 West (South c	2.081	Floodway	7490	1387.32	1396.51		1397.46	0.004909	8.22	974.17	0.51	9890	10050	160
1 West (South c	2.135	Floodplain	7490	1389.39	1397.23		1397.64	0.004199	6.35	1597.7	0.45	9503.06	10148.57	645.51
1 West (South c	2.135	Floodway	7490	1389.39	1398.14		1398.79	0.004121	6.72	1157.01	0.45	9810	10028	218
1 West (South c	2.211	Floodplain	7490	1391.1	1399.6	1399.6	1400.45	0.008083	8.88	1220.86	0.62	9517.51	10170.79	653.28

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	2.211	Floodway	7490	1391.1	1400.05		1401.16	0.008081	9.29	927.24	0.63	9860	10097	237
1 West (South c	2.277	Floodplain	7490	1393.33	1402.26	1400.24	1402.52	0.00429	4.66	1949.03	0.34	9256.73	10295.29	1038.56
1 West (South c	2.277	Floodway	7490	1393.33	1402.98	1400.07	1403.41	0.005001	5.44	1437.74	0.37	9868	10156	288
1 West (South c	2.340	Floodplain	7490	1395.25	1403.77		1404.19	0.005706	5.6	1597.47	0.4	9511.05	10293.19	782.14
1 West (South c	2.340	Floodway	7490	1395.25	1404.59		1405.06	0.004841	5.6	1367.47	0.37	9894	10137	243
1 West (South c	2.388	Floodplain	7490	1396.74	1405.6	1404.25	1406.24	0.011197	7.36	1450.5	0.54	9412.47	10507.54	1095.07
1 West (South c	2.388	Floodway	7490	1396.74	1406.12	1404.25	1407	0.011497	7.9	1038.68	0.56	9899	10122	223
1 West (South c	2.453	Floodplain	7490	1398.73	1408.5		1408.8	0.005398	5.66	1976.02	0.38	9211.7	10234.29	1022.59
1 West (South c	2.453	Floodway	7490	1398.73	1409.28		1409.78	0.006046	6.44	1372.49	0.41	9726	10050	324
1 West (South c	2.513	Floodplain	7490	1399.84	1410.16		1410.37	0.004703	4.36	2136.62	0.34	9362.21	10319.29	957.08
1 West (South c	2.513	Floodway	7490	1399.84	1411.07		1411.44	0.004625	4.83	1553.5	0.35	9738	10097	359
1 West (South c	2.593	Floodplain	7490	1403.31	1411.97		1412.22	0.00461	4.89	2149.92	0.35	9230.12	10233.4	1003.28
1 West (South c	2.593	Floodway	7490	1403.31	1412.91		1413.26	0.004429	5.21	1646.86	0.35	9694	10052	358
1 West (South c	2.669	Floodplain	7490	1405.88	1413.6		1413.85	0.003811	4.62	2208.84	0.33	9187.07	10226.01	1038.94
1 West (South c	2.669	Floodway	7490	1405.88	1414.5		1414.85	0.003774	5.03	1669.38	0.33	9741	10105	364
1 West (South c	2.725	Floodplain	7490	1406.39	1415.18	1415.13	1415.93	0.013646	7.79	1350.57	0.6	9342.51	10434.02	1091.51
1 West (South c	2.725	Floodway	7490	1406.39	1415.92		1416.48	0.007994	6.51	1318.72	0.47	9750	10124	374
1 West (South c	2.811	Floodplain	7490	1408.34	1418.31		1418.43	0.003158	3.89	2980.2	0.28	9497.18	10819.94	1322.76
1 West (South c	2.811	Floodway	7490	1408.34	1418.75		1419.03	0.00465	4.95	1811.87	0.35	9869	10281	412
1 West (South c	2.897	Floodplain	7490	1411.76	1420.34	1419.8	1420.55	0.007839	4.46	2208.72	0.42	9426.75	10879.33	1452.58
1 West (South c	2.897	Floodway	7490	1411.76	1421.28	1419.77	1421.61	0.007288	5.04	1650.72	0.42	9736	10184	448
1 West (South c	2.978	Floodplain	7490	1419.85	1423.01	1422.03	1423.19	0.004944	2.87	2336.83	0.32	9269.45	10609.31	1339.86
1 West (South c	2.978	Floodway	7490	1419.85	1423.96	1422.48	1424.26	0.005227	3.63	1773.79	0.34	9563	10093	530
1 West (South c	3.057	Floodplain	7490	1421.51	1425.07	1424.23	1425.29	0.005453	2.53	2021.48	0.32	9266.46	10764.61	1498.15
1 West (South c	3.057	Floodway	7490	1421.51	1426.05	1424.72	1426.37	0.005393	3.31	1698.78	0.34	9533	10062	529
1 West (South c	3.100	Floodplain	7490	1422.24	1426.3		1426.52	0.005026	2.22	2032.54	0.32	9168.55	10194.47	1025.92
1 West (South c	3.100	Floodway	7490	1422.24	1427.3		1427.63	0.005319	3.1	1658.38	0.36	9559	10122	563
1 West (South c	3.149	Floodplain	7490	1423.08	1427.75		1427.91	0.004054	2.68	2342.14	0.29	8987.82	10324.67	1336.85
1 West (South c	3.149	Floodway	7490	1423.08	1428.72		1428.97	0.003792	3.19	1902.21	0.29	9582	10203	621
1 West (South c	3.219	Floodplain	7490	1424.39	1429.17		1429.37	0.00743	3.12	2139.4	0.37	8622.83	10301.46	1678.63
1 West (South c	3.219	Floodway	7490	1424.39	1429.94		1430.21	0.005211	3.11	1830.86	0.32	9453	10113	660
1 West (South c	3.313	Floodplain	7490	1426.47	1432.22		1432.35	0.005234	3.56	2677.72	0.34	8010.19	10249.78	2239.59
1 West (South c	3.313	Floodway	7490	1426.47	1432.93		1433.2	0.007542	4.85	1822.54	0.42	9115	10045	930

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	3.427	Floodplain	7360	1429.09	1435.25		1435.38	0.005351	3.6	2574.41	0.35	8085.7	10140.67	2054.97
1 West (South c	3.427	Floodway	7360	1429.09	1436.22		1436.4	0.004256	3.8	2186.49	0.32	9315	10108	793
1 West (South c	3.511	Floodplain	7360	1431.7	1437.58	1436.86	1437.76	0.004753	4.34	2295.34	0.4	8603.36	10543.7	1940.34
1 West (South c	3.511	Floodway	7360	1431.7	1438.37	1436.99	1438.77	0.005867	5.5	1455.8	0.46	9740	10147	407
1 West (South c	3.660	Floodplain	7360	1435.81	1442.22		1442.48	0.003886	3.76	1885.05	0.36	9683.7	10481.95	798.25
1 West (South c	3.660	Floodway	7360	1435.81	1442.29		1442.54	0.003552	3.64	1943.12	0.34	9680.85	10484.61	803.76
1 West (South c	3.881	Floodplain	7360	1440.17	1448.83		1449.12	0.00453	4.4	1774.64	0.39	9585.15	10400.56	815.41
1 West (South c	3.881	Floodway	7360	1440.17	1448.35	1447.86	1448.8	0.008919	5.66	1406.8	0.54	9598.16	10347.55	749.39
1 West (South c	4.073	Floodplain	7360	1441.88	1454.02		1454.32	0.003151	5.12	1728.66	0.34	9834.63	10366.92	532.29
1 West (South c	4.073	Floodway	7360	1441.88	1453.88		1454.21	0.003578	5.38	1652.04	0.36	9835.97	10358.54	522.57
1 West (South c	4.234	Floodplain	7360	1444.67	1457.93		1458.84	0.007037	8.98	1139.15	0.61	9788.4	10250.27	461.87
1 West (South c	4.234	Floodway	7360	1444.67	1457.78	1457.67	1458.82	0.008173	9.53	1069.72	0.66	9790.12	10241.13	451.01
1 West (South c	4.356	Floodplain	7360	1450.33	1461.47		1462.1	0.003723	7.63	1470.41	0.48	9829.64	10532.4	702.76
1 West (South c	4.356	Floodway	7360	1450.33	1461.54		1462.14	0.00348	7.42	1513.27	0.46	9828.88	10534.42	705.54
1 West (South c	4.512	Floodplain	7360	1450.53	1463.27		1463.68	0.001079	5.28	1485.51	0.28	9925.17	10113.94	188.77
1 West (South c	4.512	Floodway	7360	1450.53	1463.2		1463.62	0.001104	5.32	1472.86	0.28	9925.31	10113.53	188.22
1 West (South c	4.672	Floodplain	7360	1454.66	1463.72	1463.72	1467.13	0.01444	15.21	518.31	0.95	9953.26	10037.54	84.28
1 West (South c	4.672	Floodway	7360	1454.66	1463.75	1463.75	1467.6	0.015721	15.91	477.87	1	9969	10032	63
1 West (South c	4.741	Floodplain	7360	1464.88	1472.28	1472.28	1473.74	0.013863	11.93	826.54	0.85	9883.1	10165.87	282.77
1 West (South c	4.741	Floodway	7360	1464.88	1473.27	1473.27	1475.34	0.013816	13.18	671.71	0.87	9971	10119	148
1 West (South c	4.783	Floodplain	7360	1467.1	1475.21	1475.16	1476.88	0.012896	12.65	763.75	0.85	9939.11	10161.48	222.37
1 West (South c	4.783	Floodway	7360	1467.1	1476.13		1477.97	0.009592	11.86	708.94	0.74	9940	10077	137
1 West (South c	4.872	Floodplain	7360	1469.78	1481.28	1481.27	1482.06	0.008953	10.26	1268.18	0.63	9505.5	10301.63	796.13
1 West (South c	4.872	Floodway	7360	1469.78	1481.74	1481.74	1482.95	0.01043	11.49	936.93	0.69	9767	10075	308
1 West (South c	4.929	Floodplain	7360	1470.95	1483.4		1483.92	0.004844	7.29	1492.7	0.49	9478.08	10083.24	605.16
1 West (South c	4.929	Floodway	7360	1470.95	1484.24		1485.02	0.005048	8.04	1108.15	0.52	9811	10064	253
1 West (South c	4.971	Floodplain	7360	1472.24	1484.45	1484.37	1485.07	0.005771	8.72	1516.45	0.54	9245.28	10231.87	986.59
1 West (South c	4.971	Floodway	7360	1472.24	1485.32	1484.55	1486.23	0.006028	9.16	1022.98	0.54	9791	10027	236
1 West (South c	5.006	Floodplain	7360	1473.06	1485.62	1485.62	1486.32	0.006964	9.15	1434.74	0.57	9433.31	10482.76	1049.45
1 West (South c	5.006	Floodway	7360	1473.06	1486.53	1486.53	1487.6	0.007441	10.15	1029.35	0.6	9807	10130	323
1 West (South c	5.069	Floodplain	7360	1476.72	1488.02		1488.74	0.007852	8.85	1314.1	0.62	9431.38	10090.73	659.35
1 West (South c	5.069	Floodway	7360	1476.72	1488.97		1489.62	0.005006	7.76	1231.95	0.5	9690	10030	340
1 West (South c	5.135	Floodplain	7360	1477.27	1490.27		1491.05	0.005777	8.94	1247.39	0.56	9671.79	10158.07	486.28
1 West (South c	5.135	Floodway	7360	1477.27	1490.6		1491.57	0.005855	9.25	1002.34	0.56	9886	10114	228

Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	5.188	Floodplain	7360	1480.82	1492.07		1492.69	0.005662	8.39	1334.67	0.55	9655.31	10166.66	511.35
1 West (South c	5.188	Floodway	7360	1480.82	1492.42		1493.45	0.007484	9.95	965.11	0.63	9857	10100	243
1 West (South c	5.251	Floodplain	7360	1482.96	1493.94		1494.58	0.006644	8.83	1337.26	0.57	9545.31	10136.02	590.71
1 West (South c	5.251	Floodway	7360	1482.96	1494.8		1495.67	0.006799	9.61	1094.61	0.59	9715	10046	331
1 West (South c	5.310	Floodplain	7360	1486.17	1495.91		1496.64	0.006365	7.59	1210.72	0.57	9675.67	10147.86	472.19
1 West (South c	5.310	Floodway	7360	1486.17	1496.76		1497.92	0.007014	8.77	884.02	0.61	9901	10077	176
1 West (South c	5.397	Floodplain	7170	1488.63	1499.51	1499.51	1500.58	0.010673	10.72	1001.13	0.7	9676.02	10084.62	408.6
1 West (South c	5.397	Floodway	7170	1488.63	1500.37		1501.96	0.010443	11.43	736.89	0.7	9860	10010	150
1 West (South c	5.463	Floodplain	7170	1495.07	1503.47	1502.8	1503.88	0.00891	4.65	1421.85	0.44	9284.21	10091.74	807.53
1 West (South c	5.463	Floodway	7170	1495.07	1504.33	1503.08	1504.82	0.006823	4.73	1281.38	0.4	9669	10024	355
1 West (South c	5.542	Floodplain	7170	1503.68	1507.36	1506.54	1507.65	0.010241	3.34	1719.01	0.43	9422.53	10270.32	847.79
1 West (South c	5.542	Floodway	7170	1503.68	1508.03		1508.45	0.013068	4.65	1377.65	0.52	9542	10013	471
1 West (South c	5.606	Floodplain	7170	1505.7	1509.6		1509.72	0.004144	2.57	2575.91	0.29	9054.6	10241.88	1187.28
1 West (South c	5.606	Floodway	7170	1505.7	1510.53		1510.68	0.003994	3.15	2268.38	0.3	9360	10040	680
1 West (South c	5.672	Floodplain	7170	1508.02	1511.63	1511.11	1511.87	0.012782	3.84	1842.77	0.5	9105.29	10328.64	1223.35
1 West (South c	5.672	Floodway	7170	1508.02	1512.44		1512.73	0.012171	4.76	1648.66	0.51	9410	10119	709
1 West (South c	5.733	Floodplain	7170	1510.31	1513.93		1514.08	0.005488	2.85	2282.18	0.34	9328.62	10454.51	1125.89
1 West (South c	5.733	Floodway	7170	1510.31	1514.74		1514.94	0.005569	3.53	2037.03	0.36	9553	10268	715
1 West (South c	5.787	Floodplain	7170	1513.05	1515.63		1515.85	0.008813	2.93	1903.2	0.4	9432.83	10535.25	1102.42
1 West (South c	5.787	Floodway	7170	1513.05	1516.43		1516.72	0.008519	3.76	1689.89	0.42	9677	10307	630
1 West (South c	5.836	Floodplain	7170	1515.2	1517.66		1517.84	0.007206	2.56	2101.5	0.36	9457.85	10605.46	1147.61
1 West (South c	5.836	Floodway	7170	1515.2	1518.49		1518.76	0.007816	3.54	1737.39	0.4	9723	10344	621
1 West (South c	5.888	Floodplain	7170	1517.6	1519.73		1519.97	0.008008	3.17	1851.1	0.46	9552.45	10620.94	1068.49
1 West (South c	5.888	Floodway	7170	1517.6	1520.62		1520.95	0.007837	4.27	1569.13	0.49	9698	10310	612
1 West (South c	5.945	Floodplain	7170	1518.74	1522.48	1522.07	1522.88	0.011145	4.09	1423.67	0.55	9268.68	10415.15	1146.47
1 West (South c	5.945	Floodway	7170	1518.74	1523.22	1522.72	1523.72	0.010576	5.05	1281.99	0.57	9610	10168	558
1 West (South c	5.994	Floodplain	7170	1520.11	1524.71	1524.01	1524.99	0.006078	4.17	1716.11	0.43	9477.02	10500.57	1023.55
1 West (South c	5.994	Floodway	7170	1520.11	1525.52	1524.61	1525.92	0.006927	5.25	1409.03	0.48	9709	10222	513
1 West (South c	6.083	Floodplain	7170	1525.97	1529.34	1529.06	1529.91	0.021196	7.28	1191.95	0.8	9857.09	10516.38	659.29
1 West (South c	6.083	Floodway	7170	1525.97	1530.19	1529.72	1530.92	0.017067	7.92	1056.65	0.76	9906	10296	390
1 West (South c	6.173	Floodplain	7170	1529.51	1534.31		1534.58	0.005444	3.61	1734.34	0.38	9904.18	10653.78	749.6
1 West (South c	6.173	Floodway	7170	1529.51	1535.23		1535.75	0.00653	4.61	1247.27	0.42	9969	10307	338
1 West (South c	6.230	Floodplain	7170	1531.91	1536.72	1536.48	1537.25	0.015644	6.2	1234.57	0.65	9762.64	10523.91	761.27

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 West (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 West (South c	6.230	Floodway	7170	1531.91	1537.61		1538.39	0.011477	6.36	1016.01	0.58	9935	10268	333
1 West (South c	6.320	Floodplain	7170	1536.58	1540.31		1540.64	0.005077	2.92	1663.88	0.35	9461.84	10293.28	831.44
1 West (South c	6.320	Floodway	7170	1536.58	1541.07		1541.55	0.005378	3.63	1333.3	0.37	9620	10036	416
1 West (South c	6.390	Floodplain	7170	1540.14	1543.15	1543.15	1543.97	0.02121	5.68	1017.97	0.71	9375.89	10148.73	772.84
1 West (South c	6.390	Floodway	7170	1540.14	1543.77	1543.72	1544.77	0.019029	6.28	900.29	0.68	9610	10026	416
1 West (South c	6.453	Floodplain	7170	1543.75	1548.17	1547.51	1548.92	0.011478	6.24	1041.11	0.58	9401.51	10373.13	971.62
1 West (South c	6.453	Floodway	7170	1543.75	1548.72	1547.94	1549.66	0.012133	7.05	938.61	0.61	9846	10100	254
1 West (South c	6.497	Floodplain	7170	1544.91	1551.75	1551.75	1554.48	0.020963	11.22	566.81	0.84	9708.52	10561.57	853.05
1 West (South c	6.497	Floodway	7170	1544.91	1551.84	1551.84	1554.56	0.026509	12.77	544.41	0.95	9930	10028	98

1 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 East (South o		Floodplain	450	1481.7	1487.08	1486.09	1487.58	0.012001	5.73	79.38	0.59	9982.63	10011.27	28.64
1 East (South o		Floodway	450	1481.7	1487.19	1486.09	1487.67	0.012002	5.6	80.33	0.57	9982.31	10009	26.69
1 East (South o	0.050	Floodplain	450	1483.2	1489.53		1489.85	0.006318	4.58	98.9	0.43	9985.95	10015.97	30.02
1 East (South o	0.050	Floodway	450	1483.2	1489.63		1489.94	0.006319	4.5	100.02	0.42	9985.73	10014	28.27
1 East (South o	0.100	Floodplain	450	1486.08	1490.91	1489.02	1491.07	0.00328	3.24	141.21	0.32	9987.18	10039.23	52.05
1 East (South o	0.100	Floodway	450	1486.08	1490.99	1489.03	1491.15	0.003215	3.19	140.89	0.31	9987.04	10030	42.96
1 East (South o	0.180	Floodplain	450	1492	1495.26	1495.26	1496.09	0.04053	7.28	61.79	1	9979.75	10017.75	38
1 East (South o	0.180	Floodway	450	1492	1495.26	1495.26	1496.09	0.040682	7.29	61.71	1	9980	10017.74	37.74
1 East (South o	0.270	Floodplain	450	1495.56	1500.62		1500.88	0.004466	4.16	113.1	0.38	9980.05	10021.15	41.1
1 East (South o	0.270	Floodway	450	1495.56	1500.69		1500.98	0.004577	4.26	106.2	0.38	9988	10016	28
1 East (South o	0.330	Floodplain	450	1498.41	1502.2		1502.42	0.004739	3.81	127.78	0.38	9945.59	10017.64	72.05
1 East (South o	0.330	Floodway	450	1498.41	1502.29		1502.52	0.004655	3.85	117.44	0.38	9981	10017.75	36.75
1 East (South o	0.400	Floodplain	450	1500.57	1504.81	1504.3	1505.57	0.019936	7.03	64.72	0.75	9986.99	10058.8	71.81
1 East (South o	0.400	Floodway	450	1500.57	1504.85	1504.3	1505.6	0.019162	6.96	64.72	0.73	9990	10013.32	23.32
1 East (South o	0.460	Floodplain	450	1504.08	1507.61		1507.71	0.003083	2.71	180.7	0.29	9896.01	10019.89	123.88
1 East (South o	0.460	Floodway	450	1504.08	1507.78		1507.91	0.003527	3.02	154.76	0.31	9929	10019	90
1 East (South o	0.510	Floodplain	450	1505.91	1508.67		1509.2	0.016477	6.23	80.55	0.69	9965.81	10015.47	49.66
1 East (South o	0.510	Floodway	450	1505.91	1508.91		1509.45	0.013681	6.04	77.25	0.64	9984	10015	31
1 East (South o	0.580	Floodplain	450	1509.17	1513.76	1512.76	1514.09	0.008636	4.67	105.47	0.5	9979.96	10125.21	145.25
1 East (South o	0.580	Floodway	450	1509.17	1513.79	1512.77	1514.14	0.009268	4.78	94.62	0.51	9984	10020	36
1 East (South o	0.640	Floodplain	450	1512.26	1516.44		1516.7	0.007634	4.06	111.7	0.46	9954.27	10017.04	62.77
1 East (South o	0.640	Floodway	450	1512.26	1516.5		1516.74	0.007139	3.95	115.37	0.45	9955	10017.14	62.14
1 East (South o	0.740	Floodplain	450	1516.2	1520.1		1520.42	0.006892	4.82	102.75	0.47	9985.11	10031.83	46.72
1 East (South o	0.740	Floodway	450	1516.2	1520.07		1520.4	0.007078	4.86	101.59	0.47	9985.14	10031	45.86
1 East (South o	0.790	Floodplain	450	1519.87	1522.83	1522.23	1523.12	0.014359	4.32	105.65	0.6	9958.65	10032.67	74.02
1 East (South o	0.790	Floodway	450	1519.87	1522.85	1522.23	1523.14	0.014096	4.32	104.4	0.6	9966	10031	65
1 East (South o	0.810	Floodplain	450	1520.59	1523.67	1522.35	1523.93	0.005213	4.05	110.33	0.41	9925.45	10057.22	131.77
1 East (South o	0.810	Floodway	450	1520.59	1523.76	1522.39	1524.05	0.006534	4.35	104.45	0.43	9984	10017	33
1 East (South o	0.830		Culvert											
1 East (South o	0.850	Floodplain	450	1522.48	1525.46	1524.21	1525.73	0.005993	4.19	107.23	0.43	9973.09	10022.84	49.75
1 East (South o	0.850	Floodway	450	1522.48	1525.43	1524.25	1525.73	0.007217	4.37	102.86	0.45	9981	10017	36

Confluence w/ I West. I West was the entering wash so these elevations were not added to the workmap

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 1 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
1 East (South o	0.860	Floodplain	450	1522.03	1525.61	1525.06	1526.07	0.012988	5.54	83.55	0.62	9987.16	10273.04	285.88
1 East (South o	0.860	Floodway	450	1522.03	1525.63	1525.07	1526.09	0.01271	5.52	84.49	0.61	9987.04	10027	39.96
1 East (South o	0.870	Floodplain	450	1522.22	1526.34	1525.87	1527	0.016754	6.72	70.39	0.68	9983.91	10013.23	29.32
1 East (South o	0.870	Floodway	450	1522.22	1526.35	1525.87	1527.01	0.016527	6.69	70.71	0.68	9983.89	10013.25	29.36
1 East (South o	0.873		Bridge											
1 East (South o	0.875	Floodplain	450	1522.22	1526.93	1525.89	1527.36	0.008655	5.43	87.5	0.5	9983	10014.2	31.2
1 East (South o	0.875	Floodway	450	1522.22	1526.93	1525.88	1527.36	0.008674	5.44	87.09	0.51	9983	10013	30
1 East (South o	0.880	Floodplain	470	1522.1	1527.39	1525.92	1527.46	0.001209	2.62	238.5	0.24	9680.01	10276.28	596.27
1 East (South o	0.880	Floodway	470	1522.1	1527.34	1525.9	1527.49	0.002024	3.36	157.53	0.31	9985	10055	70
1 East (South o	0.910	Floodplain	470	1523.85	1527.77	1527.58	1527.89	0.00574	3.16	182.73	0.45	9742.68	10150.39	407.71
1 East (South o	0.910	Floodway	470	1523.85	1528.02	1528.02	1528.36	0.013877	5.12	109.8	0.71	9930	10081	151
1 East (South o	0.960	Floodplain	470	1524.74	1529.62	1529.27	1530.06	0.012485	5.51	109.55	0.69	9880.37	10217.11	336.74
1 East (South o	0.960	Floodway	470	1524.74	1530.07	1529.31	1530.29	0.005062	4.02	134.42	0.46	9951	10056	105
1 East (South o	1.010	Floodplain	470	1527.35	1532.44	1532.44	1532.65	0.006312	4.52	176.17	0.5	9789.46	10173.01	383.55
1 East (South o	1.010	Floodway	470	1527.35	1532.47	1532.47	1532.74	0.007062	4.82	141.8	0.53	9870	10085	215
1 East (South o	1.090	Floodplain	470	1529.23	1534.78		1535.22	0.005551	5.36	88.03	0.48	9984.14	10009.04	24.9
1 East (South o	1.090	Floodway	470	1529.23	1534.9		1535.32	0.005111	5.2	90.65	0.45	9986	10009	23
1 East (South o	1.180	Floodplain	470	1531.83	1538.42	1537.73	1539.4	0.015489	7.95	59.17	0.75	9991.74	10009.32	17.58
1 East (South o	1.180	Floodway	470	1531.83	1538.38	1537.73	1539.38	0.016343	8.05	58.36	0.77	9992	10009	17
1 East (South o	1.260	Floodplain	470	1535.52	1541.91		1542.16	0.003562	4.03	116.76	0.4	9979.79	10016.31	36.52
1 East (South o	1.260	Floodway	470	1535.52	1541.92		1542.17	0.003517	4.01	117.07	0.39	9980	10016.34	36.34
1 East (South o	1.310	Floodplain	470	1537.8	1542.54		1542.64	0.00113	2.49	188.66	0.23	9966.49	10018.8	52.31
1 East (South o	1.310	Floodway	470	1537.8	1542.54		1542.64	0.001117	2.49	188.61	0.23	9966.48	10018	51.52

2 EAST (SOUTH OF CAP)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	0	Floodplain	930	1382.42	1383.77	1383.49	1383.93	0.006703	2.56	297.64	0.45	9621.36	10016.61	395.25
2 East	0	Floodway	930	1382.42	1384.77	1383.9	1384.91	0.002934	2.68	318.14	0.34	9841	10016	175
2 East	0.116	Floodplain	930	1387.16	1388.63	1388.42	1388.76	0.008833	3.33	338.4	0.54	9597.1	10117.55	520.45
2 East	0.116	Floodway	930	1387.16	1388.77	1388.77	1389.44	0.030263	6.57	141.52	1.01	9961	10068	107
2 East	0.195	Floodplain	930	1388.55	1390.95	1390.51	1391.03	0.003913	2.33	422.67	0.36	9886.06	10381.02	494.96
2 East	0.195	Floodway	930	1388.55	1391.91		1392.03	0.002546	2.72	334.08	0.32	9967	10122	155
2 East	0.267	Floodplain	930	1392.72	1393.66	1393.52	1393.81	0.016312	3.93	317.28	0.82	9958.99	10563.08	604.09
2 East	0.267	Floodway	930	1392.72	1394.24	1394.24	1394.89	0.020342	6.45	144.1	1	9986	10098	112
2 East	0.329	Floodplain	930	1393.98	1395.95	1395.68	1396.01	0.003993	2.6	531.82	0.47	9911.51	10724.68	813.17
2 East	0.329	Floodway	930	1393.98	1396.91	1396.27	1397.11	0.00337	3.79	263.02	0.48	9959	10112	153
2 East	0.390	Floodplain	930	1397.23	1398.11	1397.9	1398.19	0.012527	2.79	398.43	0.59	9886.6	10609.88	723.28
2 East	0.390	Floodway	930	1397.23	1398.85	1398.62	1399.29	0.017334	5.32	176.15	0.78	9935	10057	122
2 East	0.470	Floodplain	930	1400.6	1401.36	1401.13	1401.45	0.005702	1.99	407.7	0.44	9558.68	10654.42	1095.74
2 East	0.470	Floodway	930	1400.6	1402.18	1401.6	1402.35	0.004243	2.98	289.85	0.44	9857	10051	194
2 East	0.572	Floodplain	660	1403.16	1404.76	1404.16	1404.86	0.006645	2.82	280.95	0.44	9710.64	10655.81	945.17
2 East	0.572	Floodway	660	1403.16	1405.28	1404.75	1405.58	0.01021	4.39	151.22	0.58	9961	10047	86
2 East	0.612	Floodplain	660	1403.45	1405.92	1405.46	1405.99	0.004611	2.51	320.49	0.38	9723.88	10500.78	776.9
2 East	0.612	Floodway	660	1403.45	1406.57	1405.49	1406.68	0.003039	2.64	251.45	0.33	9967	10090	123
2 East	0.655	Floodplain	660	1406.29	1407.09	1406.86	1407.13	0.00555	1.58	401.16	0.36	9542.13	10496.54	954.41
2 East	0.655	Floodway	660	1406.29	1407.69	1407.3	1407.87	0.010468	3.45	191.74	0.55	9932	10091	159
2 East	0.703	Floodplain	660	1407.71	1408.62	1408.3	1408.67	0.006542	2.06	364.06	0.41	9611.75	10294.92	683.17
2 East	0.703	Floodway	660	1407.71	1409.46		1409.58	0.004599	2.79	237.67	0.39	9922	10072	150
2 East	0.747	Floodplain	660	1409.17	1409.89		1409.94	0.004498	1.38	389.84	0.32	9670.35	10227.22	556.87
2 East	0.747	Floodway	660	1409.17	1410.65		1410.77	0.005734	2.71	243.62	0.41	9921	10103	182
2 East	0.812	Floodplain	660	1411.31	1411.84	1411.64	1411.89	0.007631	1.35	380.6	0.39	9326.01	10140.45	814.44
2 East	0.812	Floodway	660	1411.31	1412.84		1413	0.007455	3.17	208.7	0.48	9914	10066	152
2 East	0.864	Floodplain	660	1412.41	1413.38		1413.42	0.003983	1.51	468.56	0.31	9450.12	10264.71	814.59
2 East	0.864	Floodway	660	1412.41	1414.35		1414.46	0.004041	2.67	248	0.36	9928	10074	146
2 East	0.911	Floodplain	660	1413.26	1414.58		1414.65	0.006937	2.37	338.05	0.43	9665.45	10390.34	724.89
2 East	0.911	Floodway	660	1413.26	1415.41		1415.54	0.004763	2.99	221.52	0.4	9889	10015	126
2 East	0.977	Floodplain	660	1415.03	1416.71	1416.44	1416.79	0.005962	2.65	339.62	0.42	9654.92	10258.11	603.19

Cut into wash 3 feet and used to get convergence in model

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	0.977	Floodway	660	1415.03	1417.24		1417.42	0.006167	3.41	194.01	0.45	9957	10067	110
2 East	1.048	Floodplain	660	1417.85	1418.9	1418.53	1418.96	0.005587	2.2	349.62	0.39	9633	10270.33	637.33
2 East	1.048	Floodway	660	1417.85	1419.44	1418.74	1419.56	0.005274	2.86	231.64	0.41	9876	10028	152
2 East	1.130	Floodplain	660	1420.71	1421.66	1421.36	1421.72	0.007292	2.24	350.16	0.43	9517.03	10187.9	670.87
2 East	1.130	Floodway	660	1420.71	1422.28		1422.48	0.008833	3.58	185.41	0.52	9925	10053	128
2 East	1.167	Floodplain	660	1421.83	1422.9		1422.97	0.006159	2.2	340.09	0.4	9640.18	10336.61	696.43
2 East	1.167	Floodway	660	1421.83	1423.76		1423.97	0.00696	3.57	180.83	0.48	9961	10066	105
2 East	1.213	Floodplain	450	1423.4	1424.21	1424.01	1424.25	0.003934	1.6	287.33	0.35	9889.91	10550.01	660.1
2 East	1.213	Floodway	450	1423.4	1425		1425.08	0.002715	2.28	198	0.34	9948	10087	139
2 East	1.285	Floodplain	450	1426.72	1426.82	1426.79	1426.92	0.015619	0.64	174.56	0.47	9673.25	10719.4	1046.15
2 East	1.285	Floodway	450	1426.72	1427.64	1427.64	1428.02	0.029555	4.91	91.77	1	9936	10058	122
2 East	1.392	Floodplain	450	1427.62	1429.77	1429.34	1429.83	0.002982	2.33	265.11	0.35	9918.16	10570.81	652.65
2 East	1.392	Floodway	450	1427.62	1430.53		1430.61	0.00177	2.28	197.64	0.29	9938	10041	103
2 East	1.461	Floodplain	250	1428.09	1431.03	1430.66	1431.44	0.009927	5.17	50.25	0.67	9985.98	10128.51	142.53
2 East	1.461	Floodway	250	1428.09	1431.3	1430.63	1431.64	0.007529	4.67	53.5	0.56	9990	10015	25
2 East	1.523	Floodplain	250	1431.11	1433.34	1432.75	1433.45	0.004182	2.81	102.55	0.42	9864.23	12234.55	2370.32
2 East	1.523	Floodway	250	1431.11	1433.37	1432.75	1433.5	0.004408	2.94	89.2	0.43	9933	10019.97	86.97
2 East	1.593	Floodplain	250	1432.04	1434.85	1434.4	1434.88	0.003534	1.34	187.02	0.33	9733.2	11611.74	1878.54
2 East	1.593	Floodway	250	1432.04	1434.89	1434.4	1434.92	0.003285	1.35	184.76	0.32	9856	10211	355
2 East	1.685	Floodplain	250	1436.32	1437.06	1436.95	1437.11	0.00601	1.42	157.38	0.4	9768.99	11631.38	1862.39
2 East	1.685	Floodway	250	1436.32	1437.54	1437.3	1437.64	0.011382	2.41	101.37	0.58	9925	10157	232
2 East	1.708	Floodplain	1020	1437.56	1438.11	1438.06	1438.26	0.010347	1.75	353.33	0.52	9647.76	10647.8	1000.04
2 East	1.708	Floodway	1020	1437.56	1438.98	1438.85	1439.29	0.013747	4.58	228.2	0.73	9929	10161	232
2 East	1.781	Floodplain	1020	1438.96	1440.2	1439.86	1440.26	0.002893	1.8	535.45	0.32	9687.99	10442.82	754.83
2 East	1.781	Floodway	1020	1438.96	1441.13		1441.26	0.002542	2.65	356.07	0.34	9913	10115	202
2 East	1.838	Floodplain	610	1439.38	1441.56	1441.42	1441.65	0.015212	2.52	251.35	0.49	9480.91	10167.14	686.23
2 East	1.838	Floodway	610	1439.38	1442.2		1442.36	0.0084	2.64	192.19	0.39	9884	10041	157
2 East	1.895	Floodplain	610	1440.85	1443.35		1443.38	0.003076	1.33	446.03	0.23	9519.4	10115.79	596.39
2 East	1.895	Floodway	610	1440.85	1444		1444.07	0.00414	2.14	285.43	0.29	9924	10094	170
2 East	2.052	Floodplain	610	1447.28	1447.83	1447.68	1447.9	0.012238	1.11	299.54	0.37	9321.38	10145.01	823.63
2 East	2.052	Floodway	610	1447.28	1447.95	1447.66	1448	0.00552	0.9	397.43	0.26	9311.4	10167.7	856.3

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	2.225	Floodplain	610	1452.88	1453.98	1453.53	1454	0.004359	1.07	472.45	0.25	9448.78	10185.71	736.93
2 East	2.225	Floodway	610	1452.88	1453.85	1453.53	1453.89	0.008045	1.34	385.2	0.33	9455.93	10176.01	720.08
2 East	2.419	Floodplain	610	1461.57	1462.31	1462.09	1462.4	0.021029	1.67	257.1	0.5	9582.37	10276.74	694.37
2 East	2.419	Floodway	610	1461.57	1462.49		1462.54	0.008944	1.43	348.52	0.35	9573.88	10287.48	713.6
2 East	2.526	Floodplain	610	1466.77	1468	1467.66	1468.04	0.005432	1.56	376.53	0.3	9602.25	10342.4	740.15
2 East	2.526	Floodway	610	1466.77	1468.46		1468.61	0.012306	3.14	194.46	0.48	9940	10088	148
2 East	2.583	Floodplain	610	1468.9	1470.18	1469.97	1470.27	0.013633	1.8	262.56	0.44	9662.53	10313.95	651.42
2 East	2.583	Floodway	610	1468.9	1471.12		1471.22	0.006823	2.43	248.59	0.36	9955	10129	174
2 East	2.625	Floodplain	610	1471.08	1471.96	1471.62	1472.01	0.005218	1.42	361.03	0.29	9719.93	10256.74	536.81
2 East	2.625	Floodway	610	1471.08	1472.72		1472.87	0.007895	2.76	201.29	0.4	9938	10073	135
2 East	2.634	Floodplain	610	1470.61	1472.45	1472.45	1472.65	0.011213	4.48	199.71	0.62	9051.21	10041.48	990.27
2 East	2.634	Floodway	610	1470.61	1473.19	1472.59	1473.57	0.008487	5.03	127.95	0.58	9968.46	10064	95.54
2 East	2.642		Culvert											
2 East	2.650	Floodplain	610	1470.75	1473.83	1472.82	1473.87	0.00086	1.86	421.25	0.19	9017.7	10248.41	1230.71
2 East	2.650	Floodway	610	1470.75	1474.49	1472.82	1474.69	0.002634	3.73	169.77	0.35	9923	10065	142
2 East	2.667	Floodplain	470	1471.57	1473.95	1473.09	1473.96	0.0006	0.96	568.2	0.14	9069.8	10281.72	1211.92
2 East	2.667	Floodway	470	1471.57	1474.82	1473.76	1474.86	0.001283	1.93	276.97	0.22	9923	10079	156
2 East	2.750	Floodplain	470	1473.07	1476.16	1476.16	1477.19	0.028082	8.14	57.74	1.01	9985.95	10014.44	28.49
2 East	2.750	Floodway	470	1473.07	1476.16	1476.16	1477.19	0.028184	8.15	57.68	1.01	9985.95	10014.44	28.49
2 East	2.824	Floodplain	470	1475.29	1480.54	1478.66	1480.84	0.004516	4.42	106.37	0.43	9983.82	10015.58	31.76
2 East	2.824	Floodway	470	1475.29	1480.54	1478.66	1480.85	0.004492	4.41	106.54	0.42	9983.81	10015.59	31.78
2 East	2.900	Floodplain	470	1477.47	1481.85		1481.97	0.001842	2.75	171.05	0.28	9969.3	10025.12	55.82
2 East	2.900	Floodway	470	1477.47	1481.85		1481.97	0.00184	2.75	171.13	0.28	9969.29	10025.12	55.83
2 East	2.931	Floodplain	470	1480.37	1482.46	1482.46	1483.18	0.030822	6.81	69.04	1.01	9971.43	10020.28	48.85
2 East	2.931	Floodway	470	1480.37	1482.46	1482.46	1483.18	0.030822	6.81	69.04	1.01	9971.43	10020.28	48.85
2 East	2.972	Floodplain	470	1480.54	1484.64		1484.82	0.003238	3.39	138.7	0.36	9985.56	10035.98	50.42
2 East	2.972	Floodway	470	1480.54	1484.64		1484.82	0.003238	3.39	138.7	0.36	9985.56	10035.98	50.42
2 East	2.997	Floodplain	470	1481.65	1485.1		1485.56	0.009001	5.45	86.18	0.59	9983.8	10016.18	32.38
2 East	2.997	Floodway	470	1481.65	1485.1		1485.56	0.009001	5.45	86.18	0.59	9983.8	10016.18	32.38
2 East	3.036	Floodplain	470	1482.93	1486.71		1486.95	0.005119	3.92	120	0.45	9981.89	10031.89	50
2 East	3.036	Floodway	470	1482.93	1486.71		1486.95	0.005119	3.92	120	0.45	9981.89	10031.89	50
2 East	3.059	Floodplain	470	1484.3	1487.3		1487.47	0.003483	3.37	139.59	0.37	9982.67	10037.05	54.38
2 East	3.059	Floodway	470	1484.3	1487.3		1487.47	0.003483	3.37	139.59	0.37	9982.67	10037.05	54.38

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	3.078	Floodplain	470	1485.07	1487.72		1488.01	0.007488	4.35	108.54	0.53	9973.81	10028.09	54.28
2 East	3.078	Floodway	470	1485.07	1487.72		1488.02	0.007515	4.36	108.02	0.53	9976	10028.09	52.09
2 East	3.085	Floodplain	470	1486.84	1489.01	1489.01	1489.95	0.027347	7.8	61.06	1	9971.17	10006.83	35.66
2 East	3.085	Floodway	470	1486.84	1489.01	1489.01	1489.95	0.027347	7.8	61.06	1	9971.17	10006.83	35.66
2 East	3.091		Culvert											
2 East	3.097	Floodplain	470	1487.62	1491.4	1489.64	1491.65	0.003097	4.02	117.38	0.37	9973.63	10011.89	38.26
2 East	3.097	Floodway	470	1487.62	1491.39	1489.66	1491.65	0.00361	4.1	114.87	0.38	9978	10011.88	33.88
2 East	3.134	Floodplain	470	1487.78	1491.62		1491.77	0.002192	3.11	154.5	0.31	9976.85	10033.06	56.21
2 East	3.134	Floodway	470	1487.78	1491.63		1491.79	0.002439	3.17	148.1	0.31	9979	10025	46
2 East	3.141	Floodplain	470	1488.06	1491.67		1491.95	0.00505	4.19	112.26	0.45	9979.48	10021.71	42.23
2 East	3.141	Floodway	470	1488.06	1491.69		1491.96	0.00496	4.16	113.01	0.44	9979.43	10021	41.57
2 East	3.159	Floodplain	470	1488	1491.72	1490.85	1492.15	0.007988	5.2	89.59	0.53	9984.9	10019.17	34.27
2 East	3.159	Floodway	470	1488	1491.74	1490.85	1492.17	0.00782	5.17	90.21	0.52	9984.88	10019.19	34.31
2 East	3.161		Bridge											
2 East	3.163	Floodplain	470	1488.2	1492.22	1490.83	1492.52	0.004965	4.45	109.33	0.42	9981.27	10017.48	36.21
2 East	3.163	Floodway	470	1488.2	1492.23	1490.83	1492.52	0.00493	4.44	109.58	0.42	9981.26	10017.49	36.23
2 East	3.166	Floodplain	470	1488.99	1492.79		1493.02	0.005132	3.85	123.43	0.41	9979.26	10027.92	48.66
2 East	3.166	Floodway	470	1488.99	1492.79		1493.03	0.005236	3.89	121.27	0.42	9983	10027.93	44.93
2 East	3.196	Floodplain	470	1490.02	1493.73		1494.08	0.008692	4.77	99.03	0.53	9984.05	10024.75	40.7
2 East	3.196	Floodway	470	1490.02	1493.74		1494.09	0.008577	4.75	99.16	0.52	9984.01	10023	38.99
2 East	3.277	Floodplain	470	1492.6	1496.67		1496.91	0.005134	4.11	120.77	0.42	9967.26	10022.89	55.63
2 East	3.277	Floodway	470	1492.6	1496.96		1497.32	0.006599	4.8	98.09	0.47	9989	10019	30
2 East	3.370	Floodplain	470	1495.89	1498.88		1499.02	0.003604	2.97	158.15	0.34	9981.4	10047.94	66.54
2 East	3.370	Floodway	470	1495.89	1499.16		1499.27	0.00257	2.66	176.7	0.29	9980.52	10048.56	68.04
2 East	3.468	Floodplain	470	1500.63	1502.89	1502.89	1503.64	0.036753	6.95	67.62	1	9989.85	10035.34	45.49
2 East	3.468	Floodway	470	1500.63	1502.9	1502.9	1503.64	0.036616	6.94	67.72	1	9989.84	10035.37	45.53
2 East	3.547	Floodplain	470	1502.43	1506.67		1506.82	0.003098	3.11	151.48	0.32	9984.64	10039.61	54.97
2 East	3.547	Floodway	470	1502.43	1506.67		1506.82	0.003096	3.11	151.13	0.32	9984.64	10037	52.36
2 East	3.613	Floodplain	470	1505.23	1508.27	1507.48	1508.48	0.007947	3.69	129.48	0.48	9925.1	10062.79	137.69
2 East	3.613	Floodway	470	1505.23	1508.27	1507.5	1508.48	0.008037	3.71	126.67	0.49	9965	10035	70
2 East	3.710	Floodplain	470	1507.98	1511.35		1511.56	0.004743	3.73	127.72	0.4	9979.15	10031.2	52.05
2 East	3.710	Floodway	470	1507.98	1511.37		1511.59	0.004754	3.76	125.05	0.4	9980	10025	45
2 East	3.772	Floodplain	470	1510.04	1513.26		1513.54	0.007871	4.29	109.45	0.5	9977.23	10024.69	47.46

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	3.772	Floodway	470	1510.04	1513.27		1513.55	0.007721	4.27	110.14	0.49	9977.17	10024.7	47.53
2 East	3.849	Floodplain	470	1512.44	1516.19		1516.46	0.006563	4.17	112.72	0.45	9978.56	10021.92	43.36
2 East	3.849	Floodway	470	1512.44	1516.18		1516.45	0.006626	4.18	112.38	0.46	9978.58	10021.87	43.29
2 East	3.938	Floodplain	470	1516.04	1519.78		1520.21	0.009581	5.21	90.18	0.55	9987.7	10020.63	32.93
2 East	3.938	Floodway	470	1516.04	1519.79		1520.21	0.009495	5.19	90.48	0.55	9987.68	10020.65	32.97
2 East	4.017	Floodplain	470	1518.16	1522.62		1522.84	0.004407	3.75	125.73	0.38	9981.46	10028.73	47.27
2 East	4.017	Floodway	470	1518.16	1522.62		1522.84	0.004418	3.75	125.21	0.38	9981.46	10024	42.54
2 East	4.085	Floodplain	470	1520.63	1524.7		1525.12	0.00946	5.33	92.38	0.56	9963.74	10006.96	43.22
2 East	4.085	Floodway	470	1520.63	1524.8		1525.28	0.010969	5.56	84.5	0.57	9975	10004	29
2 East	4.145	Floodplain	470	1522.35	1527.63		1528.15	0.009442	5.8	81.07	0.54	9988.02	10010.83	22.81
2 East	4.145	Floodway	470	1522.35	1527.81		1528.28	0.008234	5.51	85.27	0.51	9987.73	10011.05	23.32
2 East	4.192	Floodplain	470	1523.68	1529.78		1530.12	0.006594	4.65	101.01	0.46	9977.35	10008.83	31.48
2 East	4.192	Floodway	470	1523.68	1529.79		1530.12	0.006571	4.65	101.14	0.46	9977.33	10008.83	31.5
2 East	4.247	Floodplain	470	1525.08	1531.17		1531.35	0.002921	3.45	136.17	0.32	9979.46	10016.43	36.97
2 East	4.247	Floodway	470	1525.08	1531.17		1531.35	0.002919	3.45	136.19	0.32	9979.45	10016.43	36.98
2 East	4.338	Floodplain	470	1527.49	1533.29		1534.14	0.013401	7.56	65.18	0.66	9986.94	10007.91	20.97
2 East	4.338	Floodway	470	1527.49	1533.29		1534.29	0.015087	8.02	59.41	0.7	9990	10005	15
2 East	4.380	Floodplain	470	1531.73	1536.39	1535.78	1536.91	0.011331	5.96	84.04	0.61	9977.48	10019.13	41.65
2 East	4.380	Floodway	470	1531.73	1536.65		1537.2	0.011109	5.96	79.15	0.59	9986	10011	25

2 EAST-DIKE FAILURE

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 2 East Profile: Floodplain

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
2 East	0.39	Floodplain	930	1397.23	1398.11	1397.89	1398.2	0.012303	2.77	400.82	0.58	9885.97	10610.09	724.12
2 East	0.47	Floodplain	930	1400.6	1401.33	1401.12	1401.41	0.005466	1.89	466.55	0.43	9560.2	10653.71	1093.51
2 East	0.560	Floodplain	660	1403.16	1404.36	1404.09	1404.42	0.005678	2.01	359.8	0.38	9833.14	10493.69	660.55
2 East	0.610	Floodplain	660	1403.45	1405.6		1405.66	0.00671	2.55	355.85	0.43	9782.51	10476.88	694.37
2 East	0.660	Floodplain	660	1406.29	1407.03	1406.82	1407.08	0.005659	1.5	418.87	0.36	9544.68	10489.8	945.12
2 East	0.703	Floodplain	660	1407.71	1408.59	1408.3	1408.65	0.007442	2.14	346.75	0.43	9615.25	10292.37	677.12

3 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 3 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	0.214	Floodplain	3000	1336.31	1348.5	1339.52	1348.55	0.000455	1.73	1745.17	0.09	9585.98	11828.55	2242.57
3 East (South o	0.214	Floodway	3000	1336.31	1348.5	1339.52	1348.55	0.000539	1.88	1729.92	0.1	9920	10073	153
3 East (South o	0.285	Floodplain	3000	1337.16	1348.56		1348.56	0.000003	0.2	16203.35	0.01	9614.06	11643.03	2028.97
3 East (South o	0.285	Floodway	3000	1337.16	1348.57		1348.57	0.000005	0.24	13782.47	0.01	9682	11192	1510
3 East (South o	0.321	Floodplain	3000	1335.79	1348.56		1348.56	0.000006	0.3	12959.98	0.02	9640.03	11745	2104.97
3 East (South o	0.321	Floodway	3000	1335.79	1348.57		1348.57	0.000009	0.37	10547.09	0.02	9722	11187	1465
3 East (South o	0.461	Floodplain	3000	1339.2	1348.56	1344.4	1348.58	0.000135	1.05	3108.91	0.08	9675.16	11707.34	2032.18
3 East (South o	0.461	Floodway	3000	1339.2	1348.57	1344.41	1348.59	0.000164	1.16	2607.86	0.09	9688	10206	518
3 East (South o	0.522	Floodplain	2520	1343.06	1348.62		1348.65	0.000378	1.36	2035.83	0.13	9655.66	10420.05	764.39
3 East (South o	0.522	Floodway	2520	1343.06	1348.64		1348.68	0.000483	1.54	1639.76	0.15	9660	10142	482
3 East (South o	0.587	Floodplain	2520	1345.08	1348.79		1349.09	0.009276	4.49	574.02	0.69	9644.03	10206.15	562.12
3 East (South o	0.587	Floodway	2520	1345.08	1348.9		1349.18	0.007744	4.23	596.06	0.64	9650	10172	522
3 East (South o	0.699	Floodplain	2520	1349.37	1352.33	1351.19	1352.37	0.003616	1.95	1589.39	0.24	9539.04	11463.37	1924.33
3 East (South o	0.699	Floodway	2520	1349.37	1352.75	1351.35	1352.85	0.00505	2.61	1007.86	0.29	9752	10202	450
3 East (South o	0.831	Floodplain	2520	1351.48	1353.86	1352.28	1353.87	0.001423	1.02	2504.78	0.12	9436.44	11397.39	1960.95
3 East (South o	0.831	Floodway	2520	1351.48	1354.71	1352.48	1354.74	0.001677	1.38	1837.18	0.14	9683	10283	600
3 East (South o	0.942	Floodplain	2460	1351.41	1354.2	1352.34	1354.22	0.00031	1.1	2262.92	0.12	9451.79	11179.33	1727.54
3 East (South o	0.942	Floodway	2460	1351.41	1355.01	1352.48	1355.02	0.000218	1.11	2263.45	0.11	9677	10373	696
3 East (South o	1.039	Floodplain	2460	1352.32	1354.55	1353.07	1354.59	0.003028	1.48	1537.7	0.18	9497.12	10824.7	1327.58
3 East (South o	1.039	Floodway	2460	1352.32	1355.26	1353.24	1355.3	0.002508	1.62	1527.44	0.17	9705	10234	529
3 East (South o	1.122	Floodplain	2460	1351.37	1356.14	1354.13	1356.22	0.004391	2.63	1034.45	0.23	9522.22	10528.4	1006.18
3 East (South o	1.122	Floodway	2460	1351.37	1356.8	1354.45	1356.95	0.005716	3.33	800.16	0.27	9858	10052	194
3 East (South o	1.132	Floodplain	2460	1351.08	1356.5	1356.5	1358.05	0.088273	10	246.07	1	9954.13	10033.67	79.54
3 East (South o	1.132	Floodway	2460	1351.08	1357.11		1358.19	0.049034	8.35	294.74	0.76	9954	10033	79
3 East (South o	1.156	Floodplain	2460	1349.68	1360.44	1357.8	1360.7	0.00862	4.31	606.71	0.33	9951.04	10093.71	142.67
3 East (South o	1.156	Floodway	2460	1349.68	1360.73		1361.17	0.013447	5.57	469.5	0.42	9957	10052	95
3 East (South o	1.233	Floodplain	2460	1358.16	1362.57		1362.63	0.00311	2.11	1273.39	0.19	9860.13	10375.03	514.9
3 East (South o	1.233	Floodway	2460	1358.16	1363.26		1363.33	0.002842	2.23	1219.24	0.19	9966	10299	333
3 East (South o	1.284	Floodplain	2460	1359.74	1363.25	1361.58	1363.28	0.001972	1.21	1986.68	0.14	9630.37	10676.87	1046.5
3 East (South o	1.284	Floodway	2460	1359.74	1363.77	1361.61	1363.78	0.00117	1.07	2264.9	0.11	9779	10580	801
3 East (South o	1.351	Floodplain	2460	1360.79	1363.77		1363.83	0.006475	1.72	1303.6	0.24	9632.35	10720.89	1088.54

Located in Existing 3 ea A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 3 East (South of														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	1.351	Floodway	2460	1360.79	1364.1		1364.16	0.005415	1.77	1318.71	0.23	9716	10597	881
3 East (South o	1.366		Culvert											
3 East (South o	1.381	Floodplain	2460	1361.21	1365.89	1363.81	1365.9	0.001107	1.06	2687.12	0.11	9480.32	10855.82	1375.5
3 East (South o	1.381	Floodway	2460	1361.21	1366.12	1363.83	1366.14	0.001142	1.14	2380.49	0.11	9695	10592	897
3 East (South o	1.398	Floodplain	2460	1362.51	1366.2	1364.07	1366.21	0.000719	0.89	2653.78	0.09	9203.94	10492.42	1288.48
3 East (South o	1.398	Floodway	2460	1362.51	1366.54	1364.15	1366.57	0.001333	1.31	1794.05	0.13	9789	10340	551
3 East (South o	1.462	Floodplain	1950	1363.43	1366.54		1366.62	0.00215	1.41	934.78	0.19	9852.24	10521.63	669.39
3 East (South o	1.462	Floodway	1950	1363.43	1367.17		1367.3	0.003629	2.27	733.01	0.27	9901	10230	329
3 East (South o	1.555	Floodplain	1950	1367.14	1368.8	1368.66	1369.05	0.021775	3.15	527.2	0.57	9666.35	10386.51	720.16
3 East (South o	1.555	Floodway	1950	1367.14	1369.79		1369.95	0.009031	3.24	604.9	0.41	9735	10046	311
3 East (South o	1.636	Floodplain	1950	1369.29	1372.01		1372.07	0.003457	2.18	956.03	0.26	9887.98	10419.76	531.78
3 East (South o	1.636	Floodway	1950	1369.29	1372.23		1372.32	0.003702	2.39	815.62	0.27	9963	10297	334
3 East (South o	1.706	Floodplain	1950	1372.25	1374.15		1374.31	0.012763	3.26	604.31	0.47	9821.92	10259.3	437.38
3 East (South o	1.706	Floodway	1950	1372.25	1374.46		1374.68	0.012954	3.72	524.16	0.48	9956	10242	286
3 East (South o	1.776	Floodplain	1950	1374.41	1376.59		1376.67	0.003937	2.36	844.57	0.31	9670.07	10279.14	609.07
3 East (South o	1.776	Floodway	1950	1374.41	1377.12		1377.25	0.004358	2.93	665.4	0.35	9877	10174	297
3 East (South o	1.837	Floodplain	1950	1375.63	1378.37		1378.51	0.008865	3.3	633.76	0.41	9689.66	10197.05	507.39
3 East (South o	1.837	Floodway	1950	1375.63	1378.88		1379.06	0.007232	3.46	586.29	0.38	9887	10146	259
3 East (South o	1.901	Floodplain	1950	1373.27	1380.31	1379.28	1380.41	0.004017	2.22	794.1	0.27	9521.62	10183.43	661.81
3 East (South o	1.901	Floodway	1950	1373.27	1380.93	1379.52	1381.07	0.005108	2.94	652.33	0.31	9837	10082	245
3 East (South o	1.985	Floodplain	1950	1375.71	1382.26		1382.46	0.005135	2.37	586.72	0.29	9770.48	10145.15	374.67
3 East (South o	1.985	Floodway	1950	1375.71	1383.06		1383.42	0.005151	2.96	462.43	0.31	9900	10061	161
3 East (South o	2.056	Floodplain	1950	1378.57	1384.29	1383.23	1384.4	0.005149	2.8	720.27	0.31	9593.42	10198.01	604.59
3 East (South o	2.056	Floodway	1950	1378.57	1384.92	1383.25	1385.03	0.003503	2.68	753.23	0.27	9897	10158	261
3 East (South o	2.154	Floodplain	1950	1383.17	1387.04	1386.75	1387.21	0.00572	4.42	712.95	0.51	9777.79	10462.75	684.96
3 East (South o	2.154	Floodway	1950	1383.17	1387.29	1387.04	1387.52	0.006613	5.09	622.86	0.55	9954	10448	494
3 East (South o	2.229	Floodplain	1650	1388.89	1390.35	1390.04	1390.43	0.012437	2.67	758.26	0.48	9571.1	10787.77	1216.67
3 East (South o	2.229	Floodway	1650	1388.89	1390.87	1390.42	1391.02	0.011713	3.48	544.55	0.5	9943	10376	433
3 East (South o	2.290	Floodplain	1650	1390.42	1392.67	1392.08	1392.74	0.004621	2.11	866.32	0.3	9599.71	10701.89	1102.18
3 East (South o	2.290	Floodway	1650	1390.42	1393.4	1392.38	1393.51	0.005372	2.9	610.71	0.34	10050	10353	303
3 East (South o	2.351	Floodplain	1650	1392.14	1394.51		1394.59	0.007462	2.92	722.07	0.39	9939.99	10664.82	724.83

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 3 East (South of													
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	2.351	Floodway	1650	1392.14	1395.02		1395.14	0.004827	2.73	596.54	0.32	9962	10224	262
3 East (South o	2.394	Floodplain	1650	1394.88	1396.42	1395.99	1396.52	0.007809	2.38	670.81	0.38	9894.82	10642.49	747.67
3 East (South o	2.394	Floodway	1650	1394.88	1396.66		1396.9	0.010514	3.1	430.79	0.45	9951	10250	299
3 East (South o	2.437	Floodplain	1650	1396.27	1398.28	1397.63	1398.35	0.006448	2.33	745.42	0.35	9893.28	10819.84	926.56
3 East (South o	2.437	Floodway	1650	1396.27	1398.6	1397.72	1398.68	0.004921	2.33	729.31	0.31	9928	10373	445
3 East (South o	2.485	Floodplain	1650	1396.94	1399.69		1399.76	0.004805	2.08	803.98	0.3	9827.89	10411.63	583.74
3 East (South o	2.485	Floodway	1650	1396.94	1399.78		1399.85	0.004391	2.07	798.22	0.29	9880	10392	512
3 East (South o	2.548	Floodplain	1650	1400.72	1401.86	1401.3	1401.99	0.010179	1.9	580.73	0.41	9955.34	10464.98	509.64
3 East (South o	2.548	Floodway	1650	1400.72	1401.93	1401.38	1402.08	0.011621	2.17	542.63	0.44	9962	10400	438
3 East (South o	2.588	Floodplain	1650	1401.23	1403.15	1402.32	1403.21	0.004004	1.95	826.36	0.28	9658.9	10482.62	823.72
3 East (South o	2.588	Floodway	1650	1401.23	1403.43	1402.45	1403.52	0.004879	2.51	676.93	0.31	9973	10342	369
3 East (South o	2.664	Floodplain	1650	1404.53	1405.44	1405.04	1405.56	0.010951	1.66	618.78	0.39	9630.78	10450.57	819.79
3 East (South o	2.664	Floodway	1650	1404.53	1405.92		1406.09	0.010406	2.43	509.73	0.42	9937	10274	337
3 East (South o	2.748	Floodplain	1650	1405.23	1408.58		1408.68	0.004957	2.16	676.83	0.31	9579.88	10355.11	775.23
3 East (South o	2.748	Floodway	1650	1405.23	1409.02		1409.24	0.005221	2.62	464.31	0.33	9937	10173	236
3 East (South o	2.817	Floodplain	1650	1409.83	1410.82	1410.39	1410.96	0.008292	2.32	574.9	0.46	9701.47	10357.06	655.59
3 East (South o	2.817	Floodway	1650	1409.83	1411.59	1411.1	1411.88	0.010718	3.8	385.46	0.56	9947	10187	240
3 East (South o	2.877	Floodplain	1650	1412.58	1413.98	1413.67	1414.11	0.012218	2.15	562.9	0.44	9722.27	10409.27	687
3 East (South o	2.877	Floodway	1650	1412.58	1414.97		1415.19	0.010223	3.38	445.71	0.46	9906	10182	276
3 East (South o	2.958	Floodplain	1650	1413.63	1417.38	1416.92	1417.49	0.005613	2.23	632.06	0.32	9764.25	10378.71	614.46
3 East (South o	2.958	Floodway	1650	1413.63	1418.31	1417.46	1418.47	0.006022	2.59	512.92	0.35	9887	10170	283
3 East (South o	3.048	Floodplain	1650	1414.77	1420.29	1420.29	1421.07	0.005162	7.68	292.37	0.69	9933.49	10157.91	224.42
3 East (South o	3.048	Floodway	1650	1414.77	1420.5	1420.35	1421.22	0.004435	7.34	299.07	0.65	9934	10135	201
3 East (South o	3.109	Floodplain	1650	1418.1	1421.74	1420.78	1422.42	0.003285	6.72	255.7	0.62	9972.39	10049.04	76.65
3 East (South o	3.109	Floodway	1650	1418.1	1421.82	1420.77	1422.47	0.003317	6.59	260.08	0.6	9974	10049.26	75.26
3 East (South o	3.130		Culvert											
3 East (South o	3.151	Floodplain	1650	1418.9	1422.64	1422.06	1423.74	0.005292	8.68	205.4	0.79	9817.09	10021.05	203.96
3 East (South o	3.151	Floodway	1650	1418.9	1423.39	1422.07	1424.13	0.002813	7.15	251.1	0.59	9962	10027	65
3 East (South o	3.157	Floodplain	1650	1418.81	1423.86	1423.86	1424.93	0.006294	10.23	239.49	0.88	9894.42	10289.63	395.21
3 East (South o	3.157	Floodway	1650	1418.81	1423.82	1423.82	1424.92	0.006472	10.31	234.73	0.89	9946	10041	95
3 East (South o	3.170	Floodplain	1650	1417.7	1424.25		1425.44	0.006241	8.74	189.17	0.82	9986.99	10043.95	56.96
3 East (South o	3.170	Floodway	1650	1417.7	1424.24		1425.44	0.006566	8.83	186.97	0.83	9991	10043.84	52.84
3 East (South o	3.172		Bridge											

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 3 East (South of													
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	3.173	Floodplain	1650	1416.8	1426.02	1423.54	1426.06	0.000158	2.2	1487.3	0.15	9141.96	10271.21	1129.25
3 East (South o	3.173	Floodway	1650	1416.8	1425.98	1423.05	1426.28	0.000776	4.85	438.81	0.32	9951	10051	100
3 East (South o	3.235	Floodplain	1650	1420.91	1426.24	1426.24	1426.85	0.008338	7.07	327.04	0.88	9576.54	10083.96	507.42
3 East (South o	3.235	Floodway	1650	1420.91	1426.46	1426.36	1426.93	0.005653	6.24	358.06	0.74	9800	10072	272
3 East (South o	3.267	Floodplain	1650	1423.18	1427.79		1428.04	0.005636	5.48	506.92	0.7	9565.1	10113.22	548.12
3 East (South o	3.267	Floodway	1650	1423.18	1428.14	1428.14	1428.73	0.008841	7.67	316.54	0.9	9796	10030	234
3 East (South o	3.328	Floodplain	1650	1427.32	1429.72	1429.5	1429.92	0.006537	4.29	521.24	0.71	9510.29	10152.45	642.16
3 East (South o	3.328	Floodway	1650	1427.32	1430.5	1430.2	1430.79	0.005096	5.37	422.39	0.69	9776	10075	299
3 East (South o	3.407	Floodplain	1650	1430.82	1432.39		1432.52	0.006063	3.13	614.26	0.64	9480.42	10353.22	872.8
3 East (South o	3.407	Floodway	1650	1430.82	1433.2	1433.01	1433.74	0.010202	6.66	285.84	0.94	9919	10102	183
3 East (South o	3.475	Floodplain	1650	1433.48	1435.1	1434.94	1435.31	0.01041	2.72	489.22	0.76	9485.12	10493.69	1008.57
3 East (South o	3.475	Floodway	1650	1433.48	1436.01		1436.35	0.005503	4.38	359.58	0.67	9945	10141	196
3 East (South o	3.560	Floodplain	1650	1435.08	1438.45	1438.16	1438.55	0.005237	3.64	725	0.63	9518.98	10784.27	1265.29
3 East (South o	3.560	Floodway	1650	1435.08	1439.12	1438.96	1439.64	0.00981	6.86	296.09	0.93	9966	10160	194
3 East (South o	3.615	Floodplain	1650	1437.47	1440.01	1439.81	1440.11	0.006921	3.69	659.95	0.69	9808.39	10999.54	1191.15
3 East (South o	3.615	Floodway	1650	1437.47	1440.98		1441.11	0.003339	3.48	587.71	0.52	9836	10341	505
3 East (South o	3.679	Floodplain	1650	1440.82	1442.32	1442.08	1442.42	0.007346	2.77	637.31	0.64	9820.85	11094.88	1274.03
3 East (South o	3.679	Floodway	1650	1440.82	1442.98	1442.96	1443.36	0.019405	5.27	336.46	1.11	9864.8	10415	550.2
3 East (South o	3.761	Floodplain	1650	1444.56	1445.28	1444.98	1445.37	0.005572	1.65	693.02	0.53	9813.29	11432.84	1619.55
3 East (South o	3.761	Floodway	1650	1444.56	1446.26	1445.7	1446.35	0.003179	1.99	702.54	0.45	9831	10797	966
3 East (South o	3.829	Floodplain	1650	1446.76	1447.79		1447.92	0.010242	2.34	568.3	0.72	9712.5	11539.18	1826.68
3 East (South o	3.829	Floodway	1650	1446.76	1448.3	1448.25	1448.55	0.017171	3.56	417.03	0.97	9794.02	10975	1180.98
3 East (South o	3.925	Floodplain	1650	1450.92	1450.8	1450.3	1450.87	0.005381		738.3		9522.8	11421.49	1898.69
3 East (South o	3.925	Floodway	1650	1450.92	1451.66		1451.74	0.004342	1	768.66	0.26	9987.07	11002	1014.93
3 East (South o	3.977	Floodplain	1650	1452.85	1453.56	1453.4	1453.68	0.013755	1.74	625.51	0.46	9445.92	11397.82	1951.9
3 East (South o	3.977	Floodway	1650	1452.85	1454.08	1453.91	1454.22	0.014296	2.68	552.25	0.52	9907	10930	1023
3 East (South o	4.126	Floodplain	780	1457.2	1458.3	1457.9	1458.33	0.002991	0.98	618.24	0.22	9608.11	11445.79	1837.68
3 East (South o	4.126	Floodway	780	1457.2	1459.09	1458.54	1459.12	0.003145	0.94	514.63	0.22	9867	10692	825
3 East (South o	4.210	Floodplain	780	1460	1461.72	1461.72	1461.85	0.029114	4.5	284.32	0.76	9921.55	11484.41	1562.86
3 East (South o	4.210	Floodway	780	1460	1462.17	1462.1	1462.36	0.027429	3.14	225.28	0.68	9947	10402	455
3 East (South o	4.283	Floodplain	780	1462.22	1465.43	1465.15	1465.46	0.004026	1.66	587.57	0.28	9846.19	11089.78	1243.59
3 East (South o	4.283	Floodway	780	1462.22	1466.25	1465.57	1466.36	0.004807	2.65	292.39	0.34	9971	10166	195
3 East (South o	4.349	Floodplain	780	1464.98	1467.7	1467.56	1467.79	0.014449	3.05	324.89	0.52	9831.8	10842.1	1010.3

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 3 East (South of														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	4.349	Floodway	780	1464.98	1468.67	1468.37	1468.85	0.012456	2.85	237.88	0.49	9926	10164	238
3 East (South o	4.454	Floodplain	780	1469.29	1472.69	1472.42	1472.75	0.005839	2.68	421.12	0.35	9878.45	10637.69	759.24
3 East (South o	4.454	Floodway	780	1469.29	1473.36	1472.7	1473.52	0.005935	3.35	247.84	0.38	9927	10077	150
3 East (South o	4.521	Floodplain	780	1472.06	1475.66	1475.49	1475.76	0.012541	3.27	325.49	0.51	9724.27	10385.1	660.83
3 East (South o	4.521	Floodway	780	1472.06	1476.13		1476.37	0.010915	3.75	198.56	0.5	9960	10094	134
3 East (South o	4.595	Floodplain	780	1474.39	1478.86		1478.94	0.005555	2.63	358.26	0.35	9748.96	10187.54	438.58
3 East (South o	4.595	Floodway	780	1474.39	1479.46		1479.64	0.006435	3.46	231.57	0.4	9915	10032	117
3 East (South o	4.675	Floodplain	780	1477.88	1481.97	1481.57	1482.15	0.010949	4	267.52	0.5	9819.76	10269.14	449.38
3 East (South o	4.675	Floodway	780	1477.88	1482.5		1482.76	0.008436	4.11	189.91	0.46	9981	10064	83
3 East (South o	4.744	Floodplain	780	1480.57	1484.9		1484.97	0.005775	2.77	366.11	0.36	9725.33	10188.56	463.23
3 East (South o	4.744	Floodway	780	1480.57	1485.19		1485.35	0.006052	3.13	240.92	0.38	9930	10078	148
3 East (South o	4.811	Floodplain	780	1483.12	1487.42	1487.08	1487.56	0.00927	3.31	271.18	0.48	9822.92	10127.89	304.97
3 East (South o	4.811	Floodway	780	1483.12	1487.83		1488.11	0.009985	4	184.53	0.52	9921	10028	107
3 East (South o	4.865	Floodplain	780	1486.09	1489.84	1489.47	1489.95	0.007382	3.11	308.78	0.44	9737.44	10110.62	373.18
3 East (South o	4.865	Floodway	780	1486.09	1490.59		1490.92	0.009252	4.2	173.82	0.51	9943	10021	78
3 East (South o	4.919	Floodplain	780	1488.41	1492.27		1492.4	0.010082	3.6	288.37	0.51	9643.56	10108.28	464.72
3 East (South o	4.919	Floodway	780	1488.41	1492.71		1492.87	0.005267	3.07	243.4	0.38	9910	10046	136
3 East (South o	4.997	Floodplain	780	1490.88	1495.8		1495.96	0.007627	4.03	282.14	0.47	9735.18	10096.95	361.77
3 East (South o	4.997	Floodway	780	1490.88	1495.8		1496.16	0.013267	5.23	164.04	0.61	9914	10017	103
3 East (South o	5.071	Floodplain	780	1493.73	1499.16		1499.34	0.009705	3.88	248.2	0.49	9771.49	10043.09	271.6
3 East (South o	5.071	Floodway	780	1493.73	1499.43		1499.62	0.006185	3.39	229.12	0.4	9896	10025	129
3 East (South o	5.140	Floodplain	780	1498.72	1501.85	1501.33	1501.95	0.005714	3.58	324.66	0.42	9777.7	10208.48	430.78
3 East (South o	5.140	Floodway	780	1498.72	1502.21	1501.79	1502.6	0.011099	5.5	156.69	0.6	9929	10012	83
3 East (South o	5.203	Floodplain	780	1501.01	1504.05	1503.74	1504.1	0.006635	2.1	436.72	0.38	9702.93	10923.61	1220.68
3 East (South o	5.203	Floodway	780	1501.01	1505.04		1505.13	0.005197	2.58	317.7	0.37	9844	10108	264
3 East (South o	5.291	Floodplain	440	1505.41	1507.89	1507.78	1508.03	0.016289	3.43	149.34	0.61	9915.17	10372.17	457
3 East (South o	5.291	Floodway	440	1505.41	1508.43	1508.33	1508.86	0.023982	5.58	84.66	0.8	9975	10045	70
3 East (South o	5.361	Floodplain	440	1507.63	1510.94	1510.49	1510.98	0.004339	1.79	262.67	0.31	9873.66	10292.41	418.75
3 East (South o	5.361	Floodway	440	1507.63	1511.52		1511.6	0.003322	2.11	198.73	0.3	9977	10113	136
3 East (South o	5.435	Floodplain	440	1510.55	1513.88		1514.08	0.017712	4.41	141.07	0.67	9964.02	10237.3	273.28
3 East (South o	5.435	Floodway	440	1510.55	1514.06	1514.04	1514.54	0.026357	5.85	82.41	0.83	9980	10054	74
3 East (South o	5.519	Floodplain	440	1514.09	1518.2	1517.64	1518.32	0.00577	3.28	164.91	0.41	9957.64	10113.58	155.94
3 East (South o	5.519	Floodway	440	1514.09	1519.01	1517.71	1519.24	0.005615	3.87	113.64	0.4	9968	10008	40

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 3 East (South of														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
3 East (South o	5.584	Floodplain	440	1517.02	1520.16	1519.76	1520.26	0.00563	2.84	195.04	0.39	9871.79	10123.44	251.65
3 East (South o	5.584	Floodway	440	1517.02	1521.06		1521.31	0.006455	4.07	110.48	0.45	9980	10026	46
3 East (South o	5.662	Floodplain	440	1519.27	1523.44	1523.27	1523.62	0.013314	4.33	138.95	0.58	9970.09	10165.92	195.83
3 East (South o	5.662	Floodway	440	1519.27	1524.38	1523.93	1524.77	0.011392	5.37	89.69	0.58	9984	10030	46
3 East (South o	5.737	Floodplain	440	1522.58	1526.77		1526.97	0.005776	4.07	141.69	0.43	9964.7	10150.36	185.66
3 East (South o	5.737	Floodway	440	1522.58	1527.58		1527.9	0.005756	4.56	97.03	0.42	9984	10011	27
3 East (South o	5.806	Floodplain	440	1524.23	1528.84	1528.04	1528.95	0.005135	3.07	194.21	0.38	9768.27	10086.71	318.44
3 East (South o	5.806	Floodway	440	1524.23	1529.63	1528.27	1529.84	0.004893	3.68	119.72	0.39	9984	10027	43
3 East (South o	5.874	Floodplain	440	1526.71	1531.25		1531.54	0.010286	4.45	116.9	0.55	9822.54	10031.09	208.55
3 East (South o	5.874	Floodway	440	1526.71	1531.67		1531.92	0.006963	4	110.36	0.46	9967	10014	47
3 East (South o	5.941	Floodplain	440	1528.78	1534.52	1533.6	1534.69	0.007738	3.73	148.95	0.46	9858.93	10055.07	196.14
3 East (South o	5.941	Floodway	440	1528.78	1534.66		1535	0.011037	4.62	95.17	0.55	9976	10020	44
3 East (South o	5.983	Floodplain	440	1530.53	1536.14		1536.35	0.007251	3.97	136.53	0.45	9896.22	10057.24	161.02
3 East (South o	5.983	Floodway	440	1530.53	1536.57		1536.83	0.006375	4.06	108.39	0.42	9968	10006	38
3 East (South o	6.024	Floodplain	440	1531.82	1536.85		1536.93	0.00129	2.16	215.31	0.21	9959.23	10054.02	94.79
3 East (South o	6.024	Floodway	440	1531.82	1537.22		1537.29	0.00098	2.01	218.55	0.18	9981	10040	59
3 East (South o	6.062	Floodplain	440	1535.49	1537.77	1537.77	1538.46	0.032421	6.98	67.43	0.95	9983.4	10034.16	50.76
3 East (South o	6.062	Floodway	440	1535.49	1537.95	1537.95	1538.88	0.036033	7.75	57.23	1.01	9982.64	10014	31.36
3 East (South o	6.085	Floodplain	440	1536.92	1542.14	1542.14	1544.22	0.057777	11.57	38.03	1	9995.5	10004.67	9.17
3 East (South o	6.085	Floodway	440	1536.92	1542.34	1542.13	1544.23	0.051226	11.05	39.82	0.94	9995.41	10004.72	9.31

4 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 4 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
4 East (South o	0.241	Floodplain	670	1449.79	1451.81	1451.54	1451.87	0.008435	2.23	375.92	0.39	9882.15	10761.28	879.13
4 East (South o	0.241	Floodway	670	1449.79	1452.82	1452.15	1453	0.00843	3.43	196.46	0.43	9974	10089	115
4 East (South o	0.315	Floodplain	670	1452.2	1454.93	1454.62	1454.99	0.007686	2.49	371.8	0.38	9818.07	10544.42	726.35
4 East (South o	0.315	Floodway	670	1452.2	1455.87		1456.06	0.007362	3.44	195.58	0.4	9953	10045	92
4 East (South o	0.355	Floodplain	670	1453.85	1456.47	1456.19	1456.54	0.007505	2.34	325.96	0.38	9596.4	10273.01	676.61
4 East (South o	0.355	Floodway	670	1453.85	1457.35	1456.5	1457.5	0.006449	3.13	214.81	0.39	9940	10053	113
4 East (South o	0.416	Floodplain	670	1455.95	1458.7	1458.35	1458.75	0.005961	2.03	401.59	0.34	9235.43	10390.61	1155.18
4 East (South o	0.416	Floodway	670	1455.95	1459.61	1458.85	1459.78	0.007474	3.38	201.48	0.42	9950	10060	110
4 East (South o	0.462	Floodplain	670	1457.32	1460.26	1459.92	1460.33	0.007273	2.43	356.87	0.38	9303.71	10448.29	1144.58
4 East (South o	0.462	Floodway	670	1457.32	1461.15	1460.14	1461.28	0.005309	2.97	227.9	0.36	9963	10075	112
4 East (South o	0.535	Floodplain	670	1461.58	1462.96	1462.58	1463.01	0.006442	1.87	350.8	0.34	9311.98	10266.11	954.13
4 East (South o	0.535	Floodway	670	1461.58	1463.75	1463.1	1463.93	0.009125	3.38	198.58	0.46	9925	10046	121
4 East (South o	0.624	Floodplain	670	1465.45	1466.26	1465.94	1466.32	0.007687	1.79	343.6	0.36	9351.27	10337.77	986.5
4 East (South o	0.624	Floodway	670	1465.45	1467	1466.23	1467.08	0.005105	2.3	292.02	0.33	9961	10157	196
4 East (South o	0.719	Floodplain	670	1469.68	1470.33	1470.07	1470.39	0.008188	1.52	351.04	0.36	9293.06	10449.25	1156.19
4 East (South o	0.719	Floodway	670	1469.68	1471.05	1470.64	1471.25	0.015334	3.6	186.63	0.56	9933	10079	146
4 East (South o	0.830	Floodplain	670	1472.45	1474.61	1474.39	1474.67	0.007343	2.15	364.86	0.37	9311.23	10640.31	1329.08
4 East (South o	0.830	Floodway	670	1472.45	1475.54	1474.79	1475.65	0.004566	2.6	260.32	0.33	9972	10137	165
4 East (South o	0.928	Floodplain	670	1474.36	1477.75	1477.41	1477.82	0.004989	2.64	329.2	0.34	9876.59	10389.35	512.76
4 East (South o	0.928	Floodway	670	1474.36	1478.54	1477.69	1478.81	0.008115	4.25	163.7	0.46	9977.18	10050	72.82
4 East (South o	1.027	Floodplain	670	1477.63	1481.48	1481.4	1481.8	0.012498	5.07	188.54	0.56	9971.61	10400.03	428.42
4 East (South o	1.027	Floodway	670	1477.63	1482.49	1481.01	1482.83	0.00727	4.69	144.45	0.44	9970	10013	43
4 East (South o	1.113	Floodplain	670	1480.96	1485.31		1485.54	0.005716	3.82	175.2	0.39	9975.63	10033.58	57.95
4 East (South o	1.113	Floodway	670	1480.96	1485.41		1485.62	0.005172	3.71	180.72	0.37	9975.52	10033.78	58.26
4 East (South o	1.176	Floodplain	670	1483.13	1487.42		1487.65	0.006957	3.83	174.91	0.42	9956.33	10023.32	66.99
4 East (South o	1.176	Floodway	670	1483.13	1487.41		1487.64	0.007063	3.85	174.1	0.42	9956.35	10023.3	66.95
4 East (South o	1.227	Floodplain	670	1485.62	1489.3		1489.53	0.007144	4.06	176.74	0.43	9919.34	10012.68	93.34
4 East (South o	1.227	Floodway	670	1485.62	1489.31		1489.54	0.007197	4.01	176.7	0.42	9920	10011	91
4 East (South o	1.269	Floodplain	670	1488.05	1491.18		1491.45	0.010658	4.18	160.38	0.49	9966.18	10038.64	72.46
4 East (South o	1.269	Floodway	670	1488.05	1491.19		1491.46	0.010447	4.17	160.85	0.49	9966.16	10038	71.84
4 East (South o	1.336	Floodplain	670	1491.15	1494.65		1494.84	0.008742	3.52	195.39	0.45	9980.63	10103.35	122.72

Used to gain convergence in model!

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 4 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
4 East (South o	1.336	Floodway	670	1491.15	1494.64		1494.84	0.008866	3.53	192.19	0.45	9980.64	10090	109.36
4 East (South o	1.382	Floodplain	670	1492.48	1496.92		1497.19	0.01098	4.9	175.7	0.51	9974.95	10116.02	141.07
4 East (South o	1.382	Floodway	670	1492.48	1497.31		1498.06	0.019459	7.09	97.01	0.69	9990	10022	32
4 East (South o	1.430	Floodplain	670	1494.87	1499.37		1499.76	0.00884	5.01	135.76	0.48	9956.58	10020.52	63.94
4 East (South o	1.430	Floodway	670	1494.87	1500.06		1500.33	0.004923	4.2	159.95	0.36	9980	10020	40
4 East (South o	1.481	Floodplain	670	1496.09	1501.45		1501.75	0.006166	4.4	154.86	0.41	9957.83	10024.4	66.57
4 East (South o	1.481	Floodway	670	1496.09	1501.5		1501.8	0.005884	4.35	153.89	0.4	9983	10024.45	41.45
4 East (South o	1.556	Floodplain	670	1498.48	1504.15		1504.54	0.007891	5	139.12	0.45	9966.13	10031.68	65.55
4 East (South o	1.556	Floodway	670	1498.48	1504.16		1504.57	0.008176	5.1	131.53	0.45	9974	10008	34
4 East (South o	1.625	Floodplain	670	1501.69	1506.8		1507.05	0.006071	3.85	165.76	0.37	9893.99	10011.93	117.94
4 East (South o	1.625	Floodway	670	1501.69	1507		1507.28	0.006773	4.15	157.16	0.39	9906	10011.98	105.98
4 East (South o	1.709	Floodplain	670	1506.42	1510.47	1509.76	1510.96	0.013723	5.73	122.29	0.59	9958.64	10013.92	55.28
4 East (South o	1.709	Floodway	670	1506.42	1510.72		1511.2	0.01181	5.59	119.92	0.55	9975	10013	38
4 East (South o	1.772	Floodplain	530	1508.75	1514.17		1514.56	0.008356	5.04	105.26	0.45	9985.79	10012.43	26.64
4 East (South o	1.772	Floodway	530	1508.75	1514.16		1514.55	0.008423	5.05	104.97	0.45	9985.8	10012.42	26.62
4 East (South o	1.796	Floodplain	530	1509.87	1514.91		1514.99	0.001607	2.45	245.14	0.22	9952.56	10064.34	111.78
4 East (South o	1.796	Floodway	530	1509.87	1514.9		1514.99	0.001618	2.46	244.43	0.22	9952.57	10064.31	111.74
4 East (South o	1.822	Floodplain	530	1510.68	1515.16		1515.36	0.004378	3.64	149.61	0.35	9972.41	10022.16	49.75
4 East (South o	1.822	Floodway	530	1510.68	1515.16		1515.37	0.004612	3.73	143.38	0.36	9972.43	10015	42.57
4 East (South o	1.903	Floodplain	530	1512.85	1518.38	1517.52	1519.21	0.02362	7.29	72.66	0.7	9990.67	10011.98	21.31
4 East (South o	1.903	Floodway	530	1512.85	1518.46	1517.52	1519.25	0.021876	7.13	74.36	0.67	9990.54	10012.04	21.5
4 East (South o	1.932	Floodplain	530	1520.1	1523.12	1523.12	1523.4	0.022225	4.99	141.17	0.7	9788.38	10026.43	238.05
4 East (South o	1.932	Floodway	530	1520.1	1523.38	1523.38	1524.09	0.03437	6.87	80.38	0.89	9969	10024	55
4 East (South o	1.938	Floodplain	530	1516.28	1523.41	1519.75	1523.47	0.000619	2.53	354.83	0.17	9791.68	10093.32	301.64
4 East (South o	1.938	Floodway	530	1516.28	1524.09	1519.75	1524.22	0.000826	3.12	186.3	0.2	9985	10014	29
4 East (South o	1.992	Floodplain	530	1517.43	1523.45		1524.12	0.01124	6.58	80.59	0.6	9990.81	10012.23	21.42
4 East (South o	1.992	Floodway	530	1517.43	1524.37		1524.8	0.005404	5.27	101.26	0.43	9990.04	10013.71	23.67
4 East (South o	2.051	Floodplain	530	1519.79	1525.64		1525.79	0.002828	3.11	172.41	0.32	9986.84	10050.12	63.28
4 East (South o	2.051	Floodway	530	1519.79	1525.83		1525.96	0.002493	2.97	178.6	0.29	9988	10044	56
4 East (South o	2.078	Floodplain	530	1522.08	1526.27		1526.52	0.009698	3.96	134.38	0.54	9958.45	10058.1	99.65
4 East (South o	2.078	Floodway	530	1522.08	1526.37		1526.59	0.008007	3.74	141.74	0.5	9978	10058	80

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 4 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
4 East (South o	2.108	Floodplain	530	1523.41	1527.59		1527.96	0.008169	4.96	110.44	0.53	9978.61	10029.18	50.57
4 East (South o	2.108	Floodway	530	1523.41	1527.59		1527.99	0.009037	5.11	103.63	0.55	9980	10018	38
4 East (South o	2.170	Floodplain	530	1526.13	1530.62		1531.15	0.011148	5.89	90	0.62	9983.47	10015.54	32.07
4 East (South o	2.170	Floodway	530	1526.13	1530.7		1531.21	0.010293	5.72	92.73	0.6	9983.22	10015.76	32.54
4 East (South o	2.230	Floodplain	530	1527.09	1533.11		1533.64	0.005877	6.02	95.37	0.47	9980.74	10009.24	28.5
4 East (South o	2.230	Floodway	530	1527.09	1533.1		1533.65	0.006019	6.09	91.23	0.48	9988	10009.23	21.23
4 East (South o	2.305	Floodplain	530	1529.4	1536.07		1536.85	0.01129	7.12	75.76	0.6	9993.97	10014	20.03
4 East (South o	2.305	Floodway	530	1529.4	1536.18		1536.94	0.011695	7.03	75.46	0.59	9995	10012	17
4 East (South o	2.336	Floodplain	530	1531.18	1537.78		1538.14	0.005536	4.83	109.82	0.44	9989.49	10019.26	29.77
4 East (South o	2.336	Floodway	530	1531.18	1537.86		1538.21	0.005219	4.72	112.27	0.43	9989.37	10019.46	30.09
4 East (South o	2.377	Floodplain	530	1533.61	1539.25		1539.75	0.009743	5.71	92.8	0.56	9984.74	10013.69	28.95
4 East (South o	2.377	Floodway	530	1533.61	1539.26		1539.76	0.009632	5.69	93.23	0.56	9984.67	10013.69	29.02
4 East (South o	2.418	Floodplain	530	1538.35	1545.17	1545.17	1547.58	0.035369	12.75	44.44	0.93	9996.58	10006.4	9.82
4 East (South o	2.418	Floodway	530	1538.35	1545.17	1545.17	1547.58	0.035369	12.75	44.44	0.93	9996.58	10006.4	9.82

4 EAST_DIKE FAILURE

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 4 East (South of Profile: Floodplain

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
4 East (South o	0.241	Floodplain	670	1449.79	1451.81	1451.54	1451.87	0.008435	2.23	375.92	0.39	9882.15	10761.28	879.13
4 East (South o	0.315	Floodplain	670	1452.2	1454.93	1454.62	1454.99	0.007686	2.49	371.8	0.38	9818.07	10544.42	726.35
4 East (South o	0.355	Floodplain	670	1453.85	1456.47		1456.53	0.007468	2.33	331.48	0.38	9596.58	10272.54	675.96
4 East (South o	0.416	Floodplain	670	1455.95	1458.43	1458.07	1458.47	0.004878	1.76	434.48	0.3	9282.63	10388.02	1105.39
4 East (South o	0.462	Floodplain	670	1457.32	1460.06		1460.13	0.009853	2.51	334.44	0.43	9325.56	10349.6	1024.04
4 East (South o	0.535	Floodplain	670	1461.58	1462.83		1462.88	0.005224	1.53	405.34	0.3	9318.71	10249.21	930.5
4 East (South o	0.624	Floodplain	670	1465.45	1466.13	1465.92	1466.18	0.009947	1.79	355.84	0.4	9377.67	10328.07	950.4
4 East (South o	0.719	Floodplain	670	1469.68	1470.25	1470.01	1470.29	0.006715	1.24	429.2	0.32	9313.21	10436.27	1123.06
4 East (South o	0.830	Floodplain	670	1472.45	1474.38	1474.19	1474.44	0.008196	2.54	369.34	0.41	9361.87	10631.61	1269.74
4 East (South o	0.928	Floodplain	670	1474.36	1477.73	1477.41	1477.79	0.005128	2.66	337.09	0.34	9879.39	10385.31	505.92
4 East (South o	1.027	Floodplain	670	1477.63	1481.49	1481.4	1481.8	0.012177	5.02	191.04	0.55	9971.58	10400.66	429.08

Used to give convergence in model

5 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 5 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
5 East	1.115	Floodplain	910	1380.04	1381.23	1381.01	1381.35	0.009002	2.7	330.59	0.49	9804.79	10297.92	493.13
5 East	1.115	Floodway	910	1380.04	1381.77	1381.27	1381.97	0.009001	3.65	248	0.53	10101	10272	171
5 East	1.220	Floodplain	910	1384.77	1385.87	1385.65	1385.98	0.007678	2.32	343.32	0.45	9698.01	10369.08	671.07
5 East	1.220	Floodway	910	1384.77	1386.62	1386.05	1386.83	0.008467	3.73	244.9	0.52	9914	10068	154
5 East	1.264	Floodplain	910	1386.37	1387.66	1387.39	1387.81	0.007764	2.8	294.19	0.47	9786.04	10216.26	430.22
5 East	1.264	Floodway	910	1386.37	1388.46	1387.78	1388.71	0.007806	4.03	226.35	0.52	9919	10038	119
5 East	1.298	Floodplain	910	1388.71	1390.25	1390.25	1390.78	0.016354	3.8	170.5	0.67	9221.68	10119.53	897.85
5 East	1.298	Floodway	910	1388.71	1390.35	1390.31	1390.87	0.016249	4.02	170.24	0.68	9959.3	10110	150.7
5 East	1.329	Floodplain	910	1387.07	1391.13	1390.22	1391.16	0.000635	1.04	716.38	0.14	9405.43	10296.07	890.64
5 East	1.329	Floodway	910	1387.07	1391.34	1390.43	1391.4	0.00109	1.47	481.73	0.19	9878	10158	280
5 East	1.414	Floodplain	910	1390.38	1392.44	1392.44	1392.78	0.015638	4.2	198.34	0.67	9428.66	10166.82	738.16
5 East	1.414	Floodway	910	1390.38	1392.8	1392.8	1393.31	0.02106	5.61	159.84	0.81	9827	10021.43	194.43
5 East	1.499	Floodplain	910	1392.81	1396.82	1396.56	1396.9	0.005574	2.33	390.92	0.39	9344.61	10113.88	769.27
5 East	1.499	Floodway	910	1392.81	1397.48	1397	1397.65	0.004986	2.92	282.27	0.39	9817	10032	215
5 East	1.590	Floodplain	910	1395.38	1400.16	1400.04	1400.29	0.010077	3.16	318.83	0.51	9249.21	10038.39	789.18
5 East	1.590	Floodway	910	1395.38	1401.14	1401.04	1401.54	0.015881	5.31	181.33	0.69	9876	10039	163
5 East	1.683	Floodplain	910	1399.1	1403.64	1403.25	1403.76	0.005353	3.15	317.62	0.39	9456.4	10033.73	577.33
5 East	1.683	Floodway	910	1399.1	1404.63	1404.19	1404.74	0.003528	2.88	340.44	0.33	9712	10020	308
5 East	1.751	Floodplain	910	1401.51	1406.26	1406.25	1406.52	0.011597	4.62	242.15	0.61	9479.07	10255.74	776.67
5 East	1.751	Floodway	910	1401.51	1407.05	1407.05	1407.54	0.013441	6.2	170.88	0.69	9934	10080	146
5 East	1.824	Floodplain	910	1403.93	1409.12		1409.26	0.004749	3.86	334.28	0.41	9814.13	10296.36	482.23
5 East	1.824	Floodway	910	1403.93	1409.96		1410.22	0.004168	4.31	222.53	0.4	9976	10082	106
5 East	1.898	Floodplain	830	1406.83	1411.69	1411.69	1412.09	0.011814	6.07	183.64	0.65	9938.75	10195.18	256.43
5 East	1.898	Floodway	830	1406.83	1412.24		1412.98	0.013146	7.23	121.51	0.71	9988	10044	56
5 East	1.976	Floodplain	830	1409.09	1415.34	1415.03	1415.5	0.006109	3.76	283.12	0.44	9943.63	10329.74	386.11
5 East	1.976	Floodway	830	1409.09	1416.14	1415.1	1416.46	0.00581	4.5	185.21	0.46	9965	10035	70
5 East	2.052	Floodplain	830	1411.51	1418.71		1419.01	0.013073	4.67	194.15	0.63	9877.51	10068.44	190.93
5 East	2.052	Floodway	830	1411.51	1419.14		1419.5	0.010322	4.82	172.22	0.58	9977	10058	81
5 East	2.131	Floodplain	830	1416.44	1421.97	1421.5	1422.12	0.004692	3.22	264.27	0.39	9972.32	10506.39	534.07
5 East	2.131	Floodway	830	1416.44	1422.72	1421.67	1423.05	0.007036	4.63	181.94	0.5	9968	10045	77
5 East	2.208	Floodplain	830	1419.35	1424.17	1423.89	1424.34	0.00653	3.53	256.35	0.46	9946.34	10301.51	355.17

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 5 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
5 East	2.208	Floodway	830	1419.35	1425.1		1425.33	0.00462	3.77	216.39	0.4	9977	10094	117
5 East	2.257	Floodplain	830	1422.72	1426.33	1426.3	1426.54	0.01145	4.58	240.64	0.61	9849.38	10266.89	417.51
5 East	2.257	Floodway	830	1422.72	1426.88	1426.82	1427.67	0.020345	7.11	116.26	0.82	9984	10049	65
5 East	2.302	Floodplain	830	1424.93	1428.53	1428.38	1428.67	0.006945	3.56	289.16	0.47	9656.3	10176.61	520.31
5 East	2.302	Floodway	830	1424.93	1429.5	1428.66	1429.74	0.004529	3.73	212.08	0.4	9912	10010	98
5 East	2.381	Floodplain	830	1428.34	1431.77	1431.55	1431.95	0.008758	3.72	246.08	0.52	9865.72	10273.54	407.82
5 East	2.381	Floodway	830	1428.34	1432.45	1432.17	1433.03	0.014894	6.18	135.76	0.73	9965	10035	70
5 East	2.422	Floodplain	830	1429.45	1433.82	1433.7	1434.08	0.010739	3.96	213.81	0.56	9858.04	10177.96	319.92
5 East	2.422	Floodway	830	1429.45	1434.76	1434.21	1435.16	0.006762	4.32	168.62	0.48	9980	10065	85
5 East	2.489	Floodplain	830	1432.97	1436.6	1436.32	1436.74	0.005229	3.37	286.53	0.42	9875.08	10279.38	404.3
5 East	2.489	Floodway	830	1432.97	1437.16	1436.64	1437.45	0.005837	4.08	194.84	0.45	9981	10093	112
5 East	2.555	Floodplain	830	1436.69	1439.71	1439.71	1440.05	0.018375	2.89	182.62	0.64	9950.42	10234.01	283.59
5 East	2.555	Floodway	830	1436.69	1440.55	1440.55	1441.25	0.016599	4.82	130.66	0.7	9985	10078	93
5 East	2.610	Floodplain	800	1440.72	1442.52	1442.27	1442.66	0.005568	1.2	282.14	0.33	9896.91	10329.94	433.03
5 East	2.610	Floodway	800	1440.72	1443.36	1442.96	1443.63	0.004956	2.39	209.01	0.38	9973	10117	144
5 East	2.693	Floodplain	800	1445.43	1446.38	1446.36	1446.65	0.016781	2.9	205.84	0.63	9820.79	10259.37	438.58
5 East	2.693	Floodway	800	1445.43	1447.18	1447.06	1447.73	0.021756	5.58	136.62	0.81	9970	10070	100
5 East	2.765	Floodplain	800	1449.22	1450.17	1449.94	1450.31	0.00574	1.24	280.57	0.34	9932.18	10399.25	467.07
5 East	2.765	Floodway	800	1449.22	1451.03		1451.25	0.004851	2.42	230.49	0.38	9950	10119	169
5 East	2.864	Floodplain	1500	1452.05	1453.34	1453.08	1453.42	0.006136	1.5	692.39	0.37	9025.83	10489.17	1463.34
5 East	2.864	Floodway	800	1452.05	1454.34	1454.14	1454.65	0.0113	3.83	187.4	0.58	9938	10107	169
5 East	2.955	Floodplain	1500	1454.86	1457.59	1457.48	1457.7	0.013987	3.03	571.2	0.59	9138.59	10484.81	1346.22
5 East	2.955	Floodway	800	1454.86	1458.51	1457.99	1458.75	0.006748	3.49	209.87	0.47	9958	10091	133
5 East	3.060	Floodplain	1500	1459.2	1462.26	1462.02	1462.33	0.005947	2.65	704.87	0.46	9033.81	10423.15	1389.34
5 East	3.060	Floodway	800	1459.2	1462.85	1462.66	1463.19	0.009849	4.7	176.08	0.65	9961	10110	149
5 East	3.147	Floodplain	1500	1462	1465.9	1465.83	1466.1	0.012066	3.94	435.78	0.59	9063.46	10470.69	1407.23
5 East	3.147	Floodway	800	1462	1466.9		1467.18	0.007592	4.46	196.48	0.51	9961	10101	140
5 East	3.248	Floodplain	1500	1466.98	1470.46	1470.29	1470.59	0.006332	3.88	589.43	0.47	9263.98	10463.65	1199.67
5 East	3.248	Floodway	800	1466.98	1470.93	1469.96	1471.26	0.007235	4.74	180.96	0.52	9985	10078	93
5 East	3.341	Floodplain	1500	1471.4	1474.12	1474	1474.22	0.010019	3.08	629	0.52	8438.07	10630.55	2192.48
5 East	3.341	Floodway	800	1471.4	1475	1474.69	1475.28	0.009538	4.43	197.04	0.56	9980	10131	151

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 5 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
5 East	3.386	Floodplain	1500	1472.61	1476.16	1475.94	1476.23	0.007027	3.05	705.66	0.46	8373.1	10592.66	2219.56
5 East	3.386	Floodway	800	1472.61	1477.16		1477.41	0.008215	4.63	211.81	0.54	9909	10056	147
5 East	3.424	Floodplain	1500	1474.6	1477.76	1477.72	1477.92	0.010765	4.48	553.07	0.59	8487.03	10542.65	2055.62
5 East	3.424	Floodway	800	1474.6	1478.65		1478.89	0.006936	4.22	219.9	0.5	9937	10092	155
5 East	3.541	Floodplain	1500	1479.91	1482.91	1482.76	1483.01	0.007502	3.23	608.2	0.47	8429.52	10308.68	1879.16
5 East	3.541	Floodway	800	1479.91	1483.79	1483.54	1484.13	0.011378	5	178.01	0.62	9953	10088	135
5 East	3.622	Floodplain	1500	1482.88	1486.84	1486.75	1487.03	0.0118	4.42	452.11	0.6	8998.92	10222.3	1223.38
5 East	3.622	Floodway	800	1482.88	1487.6		1487.85	0.006982	4.22	212.88	0.49	9972	10124	152
5 East	3.711	Floodplain	1500	1486.88	1490.69	1490.49	1490.83	0.006124	4	595.65	0.47	8941.85	10134.33	1192.48
5 East	3.711	Floodway	800	1486.88	1491.15		1491.57	0.008702	5.23	152.95	0.56	9982.94	10039	56.06
5 East	3.721	Floodplain	800	1487.97	1491.09		1491.34	0.011747	4.21	200.71	0.5	9974.77	10131.45	156.68
5 East	3.721	Floodway	800	1487.97	1491.72		1492.1	0.011948	4.95	162.3	0.52	9976	10033	57
5 East	3.734	Floodplain	800	1487.89	1491.5		1491.56	0.001342	1.76	437.7	0.18	9870.07	10112	241.93
5 East	3.734	Floodway	800	1487.89	1492.28		1492.4	0.002047	2.52	294.5	0.23	9966	10047	81
5 East	3.785	Floodplain	800	1489.5	1493.03	1493.03	1494.14	0.039111	8.55	94.81	0.93	9977.2	10019.83	42.63
5 East	3.785	Floodway	800	1489.5	1493.09	1493.09	1494.43	0.052134	9.28	86.21	1	9983	10015	32
5 East	3.853	Floodplain	750	1491.37	1495.98		1496.04	0.001771	2.25	399.98	0.21	9708.92	10012.09	303.17
5 East	3.853	Floodway	750	1491.37	1496.44		1496.59	0.001922	2.54	255.47	0.22	9940	10011	71
5 East	3.938	Floodplain	750	1493.18	1496.21		1496.22	0.000158	0.5	924.09	0.06	9815.84	10245.22	429.38
5 East	3.938	Floodway	750	1493.18	1496.97		1497.01	0.000531	1.11	477.68	0.11	9929	10096	167
5 East	4.010	Floodplain	750	1493.68	1496.3		1496.34	0.000732	0.85	543.48	0.12	9833.69	10257.7	424.01
5 East	4.010	Floodway	750	1493.68	1497.25		1497.33	0.001306	1.54	368.34	0.17	9932	10095	163
5 East	4.052	Floodplain	750	1493.86	1496.56		1496.66	0.002271	1.08	321.15	0.19	9826.08	10169.5	343.42
5 East	4.052	Floodway	750	1493.86	1497.56		1497.65	0.00132	1.3	332.45	0.16	9949	10090	141
5 East	4.111	Floodplain	750	1494.71	1497.21	1496.08	1497.24	0.000991	0.53	546.46	0.12	9799.05	11367.51	1568.46
5 East	4.111	Floodway	750	1494.71	1498.1	1496.8	1498.15	0.001205	1.05	476.74	0.15	9940	10224	284
5 East	4.185	Floodplain	750	1498.36	1499	1499	1499.18	0.014752	1.09	231.75	0.39	9960.27	10846.67	886.4
5 East	4.185	Floodway	750	1498.36	1499.52	1499.52	1499.92	0.028735	3.25	164.96	0.65	9962	10171	209
5 East	4.260	Floodplain	580	1499.24	1501.93	1501.21	1501.98	0.004018	2.37	343.62	0.29	9854.42	10749.77	895.35
5 East	4.260	Floodway	580	1499.24	1502.86	1501.42	1502.95	0.003012	2.62	250.9	0.26	9945	10155	210
5 East	4.318	Floodplain	580	1501.13	1503.86	1503.49	1504.05	0.012776	3.57	172.91	0.49	9889.88	10335.78	445.9
5 East	4.318	Floodway	580	1501.13	1504.14		1504.3	0.007509	3.03	179.89	0.39	9888.88	10019	130.12
5 East	4.381	Floodplain	580	1503.01	1506.06	1505.66	1506.12	0.003717	1.75	312.81	0.26	9534.96	10187.29	652.33
5 East	4.381	Floodway	580	1503.01	1506.62	1505.95	1506.84	0.007824	3.17	161.36	0.4	9927	10021	94

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 5 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
5 East	4.444	Floodplain	580	1504.55	1508.34	1508.31	1508.66	0.020945	4.98	133.13	0.76	9871.1	10070.24	199.14
5 East	4.444	Floodway	580	1504.55	1509.13		1509.38	0.007369	4.01	146.14	0.48	9969	10054	85
5 East	4.487	Floodplain	580	1506.27	1510.45		1510.56	0.004368	2.26	225.95	0.34	9925.11	10132.43	207.32
5 East	4.487	Floodway	580	1506.27	1510.99		1511.24	0.009004	4.01	145.63	0.51	9967	10056	89
5 East	4.534	Floodplain	580	1506.96	1511.98		1512.27	0.011142	4.43	135.5	0.56	9943.18	10196.31	253.13
5 East	4.534	Floodway	580	1506.96	1512.87		1513.09	0.006185	3.71	156.52	0.43	9945	10014	69
5 East	4.580	Floodplain	580	1508.5	1514.48	1514.33	1514.6	0.008351	3.43	216.23	0.47	9754.67	10317.95	563.28
5 East	4.580	Floodway	580	1508.5	1514.88	1514.48	1515.34	0.014382	5.21	107.62	0.64	9964	10022	58
5 East	4.630	Floodplain	580	1509.75	1516.17		1516.33	0.005157	3.3	184.31	0.38	9941.72	10100.84	159.12
5 East	4.630	Floodway	580	1509.75	1517.11		1517.34	0.004636	3.81	151.38	0.37	9992	10049	57
5 East	4.696	Floodplain	580	1511.56	1518.53		1519.13	0.01248	6.5	98.85	0.62	9963.05	10038.83	75.78
5 East	4.696	Floodway	580	1511.56	1519.31		1519.86	0.011498	5.96	97.32	0.58	9982	10012	30
5 East	4.759	Floodplain	580	1515.37	1522.27	1522.09	1522.38	0.007515	3.5	245.09	0.44	9759.81	10328.55	568.74
5 East	4.759	Floodway	580	1515.37	1523.12		1523.43	0.009696	4.62	136.68	0.53	9974	10065	91
5 East	4.806	Floodplain	580	1517.51	1524.25	1523.37	1524.65	0.01029	5.38	141.02	0.55	9789.84	10036.33	246.49
5 East	4.806	Floodway	580	1517.51	1525.02		1525.4	0.006588	4.92	117.91	0.45	9992	10024	32
5 East	4.847	Floodplain	580	1519.19	1526.13		1526.24	0.00541	2.78	216.67	0.37	9886.03	10112.65	226.62
5 East	4.847	Floodway	580	1519.19	1526.79		1527.12	0.009928	4.6	125.75	0.52	9974	10030	56
5 East	4.881	Floodplain	580	1521.56	1527.27		1527.65	0.010782	3.51	126.62	0.52	9930.05	10065.72	135.67
5 East	4.881	Floodway	580	1521.56	1528.19		1528.45	0.005672	3.57	146.44	0.41	9982	10046	64
5 East	4.953	Floodplain	580	1525.95	1530.2	1529.15	1530.45	0.005529	4.11	143.32	0.42	9988.44	10253.92	265.48
5 East	4.953	Floodway	580	1525.95	1530.92	1529.75	1531.34	0.010616	5.52	126.6	0.58	9980.84	10114	133.16
5 East	5.016	Floodplain	580	1531.22	1534.05	1534.05	1534.31	0.016728	5.55	156.07	0.67	9992.13	10320.59	328.46
5 East	5.016	Floodway	580	1531.22	1534.93	1534.75	1535.23	0.012762	4.82	133.73	0.59	9992	10115	123
5 East	5.064	Floodplain	580	1533.22	1537.12	1536.75	1537.28	0.008566	2.66	181.31	0.45	9965.7	10386.24	420.54
5 East	5.064	Floodway	580	1533.22	1537.87	1537.53	1538.1	0.00997	4.05	150.56	0.53	9979	10112	133
5 East	5.120	Floodplain	580	1537.3	1540.66	1540.55	1540.93	0.01738	4.44	141.17	0.69	9915.37	10220.91	305.54
5 East	5.120	Floodway	580	1537.3	1541.21	1540.71	1541.57	0.013094	4.81	120.77	0.62	9986	10051	65
5 East	5.146	Floodplain	420	1538.38	1543.18	1542.83	1544.72	0.037685	9.98	42.1	0.89	9991.88	10002.57	10.69
5 East	5.146	Floodway	420	1538.38	1543.2	1542.82	1544.73	0.037001	9.91	42.38	0.88	9991.88	10002.59	10.71

5 EAST (ZONE AO)

HEC-RAS Plan: 310.032 Witt River: Reach #2 Reach: 5E_ZONE AO Profile: PF 1

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
5E_ZONE AO	0	PF 1	780	1443.45	1444.35	1444.15	1444.41	0.006602	1.98	447.66	0.48	8979.59	10513.57	1533.98
5E_ZONE AO	0.271	PF 1	780	1453.01	1454.88	1454.71	1454.94	0.008258	1.53	420.67	0.49	252.65	2098.19	1845.54
5E_ZONE AO	0.426	PF 1	680	1459.31	1461.59	1461.26	1461.73	0.008314	3.03	233.77	0.58	9547.04	10266.59	719.55
5E_ZONE AO	0.650	PF 1	680	1464.99	1470.99	1470.71	1471.05	0.007481	1.72	356.69	0.48	9303.17	10687.8	1384.63
5E_ZONE AO	0.753	PF 1	680	1474.91	1475.56	1475.4	1475.63	0.009475	2.14	332.23	0.56	9157.48	9962.92	805.44
5E_ZONE AO	0.976	PF 1	680	1483.84	1484.66	1484.46	1484.68	0.006346	1.19	528.08	0.42	8640.05	10910.85	2270.8
5E_ZONE AO	1.021	PF 1	680	1488.4	1488.87	1488.87	1489.03	0.034411	3.34	210.47	1.01		1896.83	1896.83
5E_ZONE AO	1.027	PF 1	680	1486.99	1489.07	1487.82	1489.09	0.0004	1.09	631.47	0.14	8708.41	10949.8	2241.39

Zone A

6 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 6 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
6 East	1.929	Floodplain	700	1408.06	1412.44	1410.92	1412.72	0.006307	4.3	171.22	0.45	9948.13	10135.69	187.56
6 East	1.929	Floodway	700	1408.06	1412.46	1410.92	1412.75	0.006302	4.32	162.11	0.45	9960	10018	58
6 East	1.995	Floodplain	700	1410.25	1414.23		1414.32	0.003395	2.5	293.58	0.31	9791.51	10002.86	211.35
6 East	1.995	Floodway	700	1410.25	1414.73		1414.94	0.006241	3.9	191.87	0.43	9900	10003	103
6 East	2.054	Floodplain	700	1413.59	1415.91	1415.46	1416.27	0.01295	5.5	149.08	0.77	9550.25	10027.82	477.57
6 East	2.054	Floodway	700	1413.59	1416.9	1416.45	1417.61	0.011038	6.81	104.6	0.74	9977	10018	41
6 East	2.080	Floodplain	700	1413.72	1418.13	1418.12	1418.48	0.02008	4.48	152.48	0.72	9864.65	10153.88	289.23
6 East	2.080	Floodway	700	1413.72	1418.85	1418.62	1419.5	0.017095	5.57	113.07	0.71	9962	10018	56
6 East	2.116	Floodplain	700	1419.22	1420.04	1419.76	1420.25	0.006423	1.4	212.56	0.36	9931.09	10492.78	561.69
6 East	2.116	Floodway	700	1419.22	1420.98	1420.57	1421.19	0.005851	2.66	211.39	0.41	9959	10104	145
6 East	2.146	Floodplain	700	1417.44	1421.1		1421.14	0.001654	1.59	441.96	0.22	9927.01	10366.47	439.46
6 East	2.146	Floodway	700	1417.44	1422		1422.12	0.002683	2.74	253.98	0.31	9972	10105	133
6 East	2.197	Floodplain	700	1419.25	1422.33	1422.33	1422.58	0.03232	4.24	175.44	0.86	9738.95	10236.79	497.84
6 East	2.197	Floodway	700	1419.25	1423.22	1423.22	1424.04	0.032488	7.18	96.67	0.99	9958	10016	58
6 East	2.250	Floodplain	700	1421.32	1425.12	1424.72	1425.18	0.004111	2.06	359.55	0.32	9675.97	10201.77	525.8
6 East	2.250	Floodway	700	1421.32	1426.12		1426.29	0.00332	2.73	215.82	0.32	9898	10006	108
6 East	2.316	Floodplain	700	1424.47	1427.41	1427.33	1427.55	0.014001	3.83	243.35	0.62	9654.77	10268.68	613.91
6 East	2.316	Floodway	700	1424.47	1428.09	1427.99	1428.67	0.019615	6.12	114.46	0.78	9938	10017	79
6 East	2.377	Floodplain	700	1427.71	1430.18	1429.9	1430.24	0.006	2.31	337.9	0.39	9678.73	10266.06	587.33
6 East	2.377	Floodway	700	1427.71	1431.17		1431.34	0.004627	3.15	209.65	0.39	9984	10099	115
6 East	2.438	Floodplain	700	1429.51	1432.63	1432.44	1432.8	0.01106	3.25	214.01	0.54	9905.33	10215.47	310.14
6 East	2.438	Floodway	700	1429.51	1433.03	1432.62	1433.3	0.008309	3.44	172.68	0.49	9994	10113	119
6 East	2.525	Floodplain	700	1434.64	1436.59	1436.38	1436.66	0.006073	1.7	346.73	0.37	9580.65	10249.13	668.48
6 East	2.525	Floodway	700	1434.64	1437.27	1436.93	1437.54	0.009531	3.42	174.09	0.52	9888	10022	134
6 East	2.582	Floodplain	700	1437.97	1438.98	1438.82	1439.07	0.010722	2.4	286.05	0.5	9754.64	10344.57	589.93
6 East	2.582	Floodway	700	1437.97	1439.91	1439.27	1440.1	0.007523	3.5	200.52	0.48	9951	10074	123
6 East	2.663	Floodplain	700	1440.61	1441.79	1441.53	1441.83	0.004308	1.85	413.62	0.33	9827.9	10591.62	763.72
6 East	2.663	Floodway	700	1440.61	1442.59	1441.93	1442.74	0.005199	3.02	226.42	0.4	9942	10087	145
6 East	2.764	Floodplain	700	1442.72	1445.44	1445.36	1445.57	0.013296	3.01	251.23	0.57	9775.48	10514.51	739.03
6 East	2.764	Floodway	700	1442.72	1446.44	1446.15	1446.78	0.011682	4.68	149.92	0.6	9983	10091	108
6 East	2.859	Floodplain	700	1447.53	1449.54	1449.21	1449.59	0.00473	2	383.23	0.35	9728.02	10425	696.98

Used to gain convergence in model

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 6 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
6 East	2.859	Floodway	700	1447.53	1450.27	1449.45	1450.39	0.004587	2.84	247.11	0.38	9956	10099	143
6 East	2.941	Floodplain	1500	1451.32	1453.21	1453.11	1453.34	0.012804	3.57	531.91	0.67	9655.59	11106.71	1451.12
6 East	2.941	Floodway	700	1451.32	1453.63	1453.51	1454.13	0.020203	5.71	122.73	0.89	9950	10045	95
6 East	3.032	Floodplain	1500	1455.79	1457.71	1457.45	1457.77	0.007091	2.05	713.48	0.41	9704.49	11055.2	1350.71
6 East	3.032	Floodway	700	1455.79	1458.7		1458.84	0.005702	3.18	227.52	0.42	9951	10086	135
6 East	3.131	Floodplain	1500	1460.18	1462.15	1461.98	1462.26	0.010382	1.83	572.46	0.46	9626.13	11007.17	1381.04
6 East	3.131	Floodway	700	1460.18	1462.86	1462.47	1463.06	0.011966	3.57	194.59	0.58	9966	10126	160
6 East	3.213	Floodplain	1500	1464.18	1466.05	1465.84	1466.17	0.007406	2.01	566.43	0.42	9648.95	11071.77	1422.82
6 East	3.213	Floodway	700	1464.18	1466.99		1467.19	0.007597	3.58	191.39	0.49	9956	10075	119
6 East	3.305	Floodplain	1500	1467.98	1470.34	1470.22	1470.5	0.010349	2.86	482.83	0.51	9736.56	10920.88	1184.32
6 East	3.305	Floodway	700	1467.98	1471.24	1470.78	1471.53	0.010408	4.46	166.32	0.58	9953	10056	103
6 East	3.397	Floodplain	1500	1471.77	1474.2	1473.97	1474.27	0.005856	1.92	767.5	0.38	8791.49	10995.65	2204.16
6 East	3.397	Floodway	700	1471.77	1475.17	1474.58	1475.33	0.005897	3.26	226.02	0.43	9921	10073	152
6 East	3.442	Floodplain	1500	1473.01	1476.1		1476.19	0.010389	2.26	618.06	0.49	8818.9	11030.23	2211.33
6 East	3.442	Floodway	700	1473.01	1476.83		1476.98	0.007876	3.22	227.24	0.48	9918	10095	177
6 East	3.485	Floodplain	1500	1477.35	1477.9	1477.64	1477.97	0.005411	0.76	747.71	0.29	9055.88	11132.58	2076.7
6 East	3.485	Floodway	700	1477.35	1478.73	1478.31	1478.87	0.00767	2.53	250.85	0.45	9891	10137	246
6 East	3.590	Floodplain	1500	1481.72	1482.74	1482.74	1482.94	0.021047	2.49	421.5	0.64	8966.68	10827.08	1860.4
6 East	3.590	Floodway	700	1481.72	1483.74	1483.55	1483.98	0.013892	2.81	186.15	0.57	9826	10079	253
6 East	3.684	Floodplain	1500	1485.29	1487.05	1486.69	1487.13	0.005346	2.34	657.9	0.38	9379.64	10656.89	1277.25
6 East	3.684	Floodway	700	1485.29	1488.04	1487.6	1488.15	0.006238	2.54	262.48	0.41	9829	10077	248
6 East	3.768	Floodplain	1500	1488.58	1490.66	1490.42	1490.78	0.007248	2.03	563.11	0.41	9487.52	10678.74	1191.22
6 East	3.768	Floodway	700	1488.58	1491.52	1490.98	1491.72	0.008626	3.7	197.85	0.51	9922	10053	131
6 East	3.842	Floodplain	700	1490.97	1493.8	1493.76	1493.96	0.011225	4.5	243.59	0.58	9687.5	10409.25	721.75
6 East	3.842	Floodway	700	1490.97	1494.72	1494.31	1495.07	0.008411	5.1	147.46	0.54	9949	10033	84
6 East	3.902	Floodplain	700	1493.66	1496.33	1496.13	1496.42	0.006068	3.2	296.4	0.43	9771.19	10226.79	455.6
6 East	3.902	Floodway	700	1493.66	1497.27		1497.61	0.00798	4.8	148.29	0.52	9947	10016	69
6 East	3.949	Floodplain	700	1495.77	1498.23		1498.53	0.011184	4.84	180.16	0.61	9732.13	10032.15	300.02
6 East	3.949	Floodway	700	1495.77	1499.04		1499.34	0.006009	4.46	158.27	0.47	9961	10018	57
6 East	4.034	Floodplain	440	1499.14	1502.29	1501.82	1502.44	0.006461	3.58	159.77	0.46	9813.79	10063.74	249.95
6 East	4.034	Floodway	440	1499.14	1502.52		1503.06	0.01503	5.89	74.94	0.72	9979	10015	36

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 6 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
6 East	4.105	Floodplain	440	1502.54	1505.47	1505.47	1505.64	0.012003	4.25	159.49	0.6	9635.85	10031.73	395.88
6 East	4.105	Floodway	440	1502.54	1506.37		1506.66	0.00667	4.31	102.7	0.49	9967	10015	48
6 East	4.157	Floodplain	440	1504.72	1507.86		1508.04	0.006693	3.4	136.57	0.46	9904.67	10037.34	132.67
6 East	4.157	Floodway	440	1504.72	1508.36		1508.65	0.007922	4.32	102.13	0.52	9967	10014	47
6 East	4.214	Floodplain	440	1507.07	1510.22	1509.98	1510.52	0.009827	4.69	113.67	0.58	9956.12	10131.56	175.44
6 East	4.214	Floodway	440	1507.07	1510.74		1511.09	0.008098	4.72	93.17	0.52	9986	10022	36
6 East	4.293	Floodplain	440	1509.7	1513.7		1513.95	0.006995	4.33	119.41	0.5	9915.34	10025.89	110.55
6 East	4.293	Floodway	440	1509.7	1514		1514.34	0.007514	4.67	94.15	0.5	9982	10017	35
6 East	4.344	Floodplain	440	1512.25	1515.69	1515.47	1515.92	0.007614	4.18	129.25	0.51	9969.64	10123.15	153.51
6 East	4.344	Floodway	440	1512.25	1516.06		1516.37	0.007483	4.49	98.09	0.5	9981	10021	40
6 East	4.374	Floodplain	440	1513.39	1516.83	1516.4	1517.02	0.006419	3.84	129.08	0.47	9858.39	10034.32	175.93
6 East	4.374	Floodway	440	1513.39	1517.25	1516.35	1517.59	0.008029	4.69	93.88	0.52	9984	10021	37
6 East	4.408	Floodplain	440	1514.93	1518.29		1518.71	0.013583	5.41	89.42	0.67	9953.45	10030.83	77.38
6 East	4.408	Floodway	440	1514.93	1518.76		1519.14	0.009408	4.96	88.7	0.55	9978	10013	35
6 East	4.476	Floodplain	440	1517.21	1521.33		1521.52	0.005066	3.75	138.88	0.42	9932.25	10059.88	127.63
6 East	4.476	Floodway	440	1517.21	1521.61		1521.91	0.006492	4.41	99.87	0.47	9977	10013	36
6 East	4.551	Floodplain	440	1520.02	1524.12	1523.55	1524.57	0.012228	5.48	86.03	0.65	9981.56	10044.24	62.68
6 East	4.551	Floodway	440	1520.02	1524.48		1524.86	0.008487	4.97	88.55	0.54	9982	10016	34
6 East	4.630	Floodplain	440	1523.69	1528.28		1528.55	0.007552	4.39	110.27	0.5	9943.7	10024.38	80.68
6 East	4.630	Floodway	440	1523.69	1528.37		1528.79	0.010349	5.21	84.45	0.58	9983	10017	34
6 East	4.728	Floodplain	440	1529.39	1532.56	1532.3	1532.78	0.008927	3.99	124.33	0.54	9973.03	10098.64	125.61
6 East	4.728	Floodway	440	1529.39	1532.94	1532.15	1533.2	0.007075	4.06	108.67	0.49	9979	10031	52
6 East	4.772	Floodplain	440	1532.62	1535.02	1534.7	1535.39	0.014056	5	93.5	0.68	9962.34	10044.79	82.45
6 East	4.772	Floodway	440	1532.62	1535.09	1534.68	1535.5	0.014046	5.14	86.02	0.68	9972	10021	49
6 East	4.832	Floodplain	440	1534.47	1538.22		1538.49	0.007161	4.19	107.17	0.5	9979.31	10050.01	70.7
6 East	4.832	Floodway	440	1534.47	1538.26		1538.53	0.006813	4.14	106.45	0.49	9980	10028	48
6 East	4.896	Floodplain	440	1537.62	1540.62		1540.94	0.007209	4.69	97.29	0.51	9974.94	10021.06	46.12
6 East	4.896	Floodway	440	1537.62	1540.7		1541.1	0.008201	5.11	86.97	0.55	9985	10018	33
6 East	4.966	Floodplain	440	1539.85	1543.58		1544.08	0.009715	5.7	80.18	0.6	9981.51	10019.45	37.94
6 East	4.966	Floodway	440	1539.85	1543.74		1544.22	0.00855	5.54	80.17	0.57	9987	10015	28

6 EAST SOUTH

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 6 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
6 East	0.843	Floodplain	1200	1368.58	1372.68	1371.32	1372.9	0.00571	3.8	333.61	0.42	9890.46	10075.73	185.27
6 East	0.843	Floodway	1200	1368.58	1372.73	1371.32	1372.96	0.005709	3.85	312.14	0.42	9954	10075	121
6 East	0.909	Floodplain	1200	1368.11	1374.34	1372.76	1374.47	0.003571	2.96	416.59	0.33	9647.07	10048.46	401.39
6 East	0.909	Floodway	1200	1368.11	1374.39		1374.53	0.003593	3.01	398.99	0.33	9892	10048	156
6 East	0.984	Floodplain	420	1372.68	1375.97	1375.58	1376.55	0.018425	6.12	70.08	0.73	9979.33	10204.3	224.97
6 East	0.984	Floodway	420	1372.68	1376.03	1375.56	1376.59	0.017285	6	70.19	0.7	9982	10013	31
6 East	1.020	Floodplain	420	1374.35	1378.06	1377.1	1378.28	0.005276	4.08	142.98	0.46	9862.13	10246.45	384.32
6 East	1.020	Floodway	420	1374.35	1378.16	1377.1	1378.48	0.006335	4.57	97.46	0.51	9946	10007	61
6 East	1.115	Floodplain	420	1377.98	1380.85	1380.68	1380.91	0.004972	2.4	222.6	0.39	9964.25	10466.74	502.49
6 East	1.115	Floodway	420	1377.98	1381.75	1381.1	1382.04	0.007878	4.34	98.84	0.54	9964	10019	55
6 East	1.194	Floodplain	420	1379.4	1381.97	1381.84	1382.35	0.011399	5.36	89.96	0.66	9982.31	10270.03	287.72
6 East	1.194	Floodway	420	1379.4	1382.97	1381.88	1383.35	0.005899	5.01	86.18	0.5	9983	10015	32
6 East	1.199	Floodplain	420	1380.9	1384.37	1383.75	1384.93	0.009681	6.19	72.4	0.63	9989.07	10027.1	38.03
6 East	1.199	Floodway	420	1380.9	1384.59		1385.16	0.009303	6.09	69.32	0.6	9993	10015	22
6 East	1.257	Floodplain	420	1383.22	1386.65		1386.92	0.004544	4.18	104.41	0.44	9963.47	10020.2	56.73
6 East	1.257	Floodway	420	1383.22	1386.78		1387.04	0.004213	4.07	103.81	0.42	9980	10016	36
6 East	1.343	Floodplain	420	1386.65	1389.1	1388.51	1389.33	0.006197	4.01	109.19	0.49	9963.57	10030.38	66.81
6 East	1.343	Floodway	420	1386.65	1389.25		1389.57	0.0076	4.54	92.69	0.54	9985	10027	42
6 East	1.425	Floodplain	420	1389.4	1392.63	1392.61	1392.96	0.011586	4.89	105.21	0.65	9914.42	10149.56	235.14
6 East	1.425	Floodway	420	1389.4	1392.9	1392.24	1393.26	0.009539	4.86	86.63	0.6	9973	10016	43
6 East	1.513	Floodplain	420	1393.18	1395.87	1395.12	1396	0.004215	2.65	148.43	0.38	9761.71	10015.55	253.84
6 East	1.513	Floodway	420	1393.18	1396.71		1396.88	0.006455	3.55	124.98	0.47	9911	10015	104
6 East	1.607	Floodplain	420	1396.31	1399.6	1399.6	1400.01	0.013351	5.47	92.18	0.71	9783.27	10020.91	237.64
6 East	1.607	Floodway	420	1396.31	1400.19	1399.37	1400.49	0.008125	4.35	96.53	0.56	9966.67	10021	54.33
6 East	1.619	Floodplain	420	1396.69	1400.27	1399.26	1400.55	0.005946	4.46	113.33	0.49	9581.71	10018.69	436.98
6 East	1.619	Floodway	420	1396.69	1400.59	1399.26	1400.88	0.005081	4.37	98	0.46	9960	10019.27	59.27
6 East	1.633	Floodplain	420	1398.22	1401.26	1401.26	1401.68	0.014643	5.56	87.82	0.74	9530.95	10013.77	482.82
6 East	1.633	Floodway	420	1398.22	1401.22	1401.22	1401.8	0.019347	6.32	71.24	0.84	9930	10013.54	83.54
6 East	1.674	Floodplain	420	1398.27	1402.97		1403.22	0.004042	4.05	106.68	0.41	9984.09	10032.08	47.99
6 East	1.674	Floodway	420	1398.27	1403.12		1403.36	0.003525	3.9	108.76	0.39	9984	10022	38
6 East	1.755	Floodplain	420	1401.3	1405.46		1405.92	0.010627	5.51	77.89	0.63	9968.7	10013.63	44.93

used to gain [illegible]

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 6 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
6 East	1.755	Floodway	420	1401.3	1405.41		1405.91	0.011342	5.66	74.25	0.65	9982.26	10013.54	31.28
6 East	1.816	Floodplain	420	1403.53	1407.88	1406.63	1408.17	0.004946	4.48	100.43	0.45	9918.48	10010.57	92.09
6 East	1.816	Floodway	420	1403.53	1408.01	1406.54	1408.37	0.005508	4.83	86.93	0.47	9984	10010.75	26.75
6 East	1.859	Floodplain	420	1406.24	1410.44	1409.67	1410.95	0.01215	5.85	82.78	0.66	9885.4	10009.83	124.43
6 East	1.859	Floodway	420	1406.24	1410.63		1411.13	0.010419	5.67	74.31	0.62	9980	10010	30
6 East	1.929	Floodplain	1360	1408.06	1412.84	1412.58	1413.27	0.009519	5.75	295.79	0.57	9938.6	10160.2	221.6
6 East	1.929	Floodway	1360	1408.06	1413.12		1413.84	0.012036	6.81	200.2	0.64	9960	10018	58
6 East	1.995	Floodplain	1360	1410.25	1414.97		1415.11	0.003276	3.02	455.66	0.32	9774.73	10010.46	235.73
6 East	1.995	Floodway	1360	1410.25	1415.97		1416.24	0.004321	4.25	327.67	0.39	9900	10011	111
6 East	2.054	Floodplain	1360	1413.59	1416.54		1416.88	0.010767	6.22	333.66	0.74	9544.48	10037.07	492.59
6 East	2.054	Floodway	1360	1413.59	1417.51		1417.87	0.006177	6	348.97	0.59	9776	10016	240

7 EAST – EAST SPLIT

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 7 East-East Spli

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
7 East-East Spli	0.21	Floodplain	410	1470.18	1472.83	1472.44	1473.18	0.009013	3.39	89.45	0.52	9917.44	10012.91	95.47
7 East-East Spli	0.21	Floodway	410	1470.18	1473.69	1473.04	1474.06	0.008988	4.31	85.44	0.54	9943	10012	69
7 East-East Spli	0.276	Floodplain	410	1473.43	1475.98	1475.65	1476.22	0.008858	3.28	104.97	0.51	9902.7	10011.38	108.68
7 East-East Spli	0.276	Floodway	410	1473.43	1476.94		1477.24	0.009624	4.5	92.14	0.56	9949	10011	62
7 East-East Spli	0.322	Floodplain	410	1475.28	1478.64	1478.4	1479	0.013984	5	86.03	0.68	9957.6	10033.29	75.69
7 East-East Spli	0.322	Floodway	410	1475.28	1479.33		1479.78	0.010673	5.39	76.08	0.62	9991	10023	32
7 East-East Spli	0.397	Floodplain	410	1479.32	1482.75	1482.51	1482.92	0.007222	3.95	131.71	0.49	9974.04	10134.92	160.88
7 East-East Spli	0.397	Floodway	410	1479.32	1483.23		1483.59	0.008633	4.92	84.83	0.55	9986	10025	39
7 East-East Spli	0.473	Floodplain	410	1483.11	1485.97	1485.4	1486.23	0.009359	4.12	103.16	0.56	9992.8	10083.91	91.11
7 East-East Spli	0.473	Floodway	410	1483.11	1486.24		1486.44	0.005894	3.61	113.86	0.45	9992	10051	59
7 East-East Spli	0.541	Floodplain	410	1485.97	1488.69		1488.88	0.005905	3.55	117.05	0.45	9979.4	10058.71	79.31
7 East-East Spli	0.541	Floodway	410	1485.97	1488.77		1489.1	0.009294	4.59	89.92	0.57	9980	10030	50
7 East-East Spli	0.607	Floodplain	410	1489.04	1491.43	1491.09	1491.65	0.011186	3.99	112.69	0.6	9889.68	10029.76	140.08
7 East-East Spli	0.607	Floodway	410	1489.04	1491.84		1492.07	0.007839	3.86	108.41	0.51	9940	10020	80
7 East-East Spli	0.670	Floodplain	410	1491.63	1494.16		1494.38	0.006229	3.69	111.02	0.46	9988.49	10045.01	56.52
7 East-East Spli	0.670	Floodway	410	1491.63	1494.17		1494.38	0.006147	3.68	111.46	0.46	9988.48	10045.03	56.55
7 East-East Spli	0.722	Floodplain	410	1493.17	1496.1		1496.56	0.009863	5.99	77.94	0.63	9966.56	10013.97	47.41
7 East-East Spli	0.722	Floodway	410	1493.17	1496.26		1497.28	0.017618	8.32	51.63	0.85	9987	10005	18
7 East-East Spli	0.759	Floodplain	410	1495.24	1497.81		1498.03	0.005946	3.72	114.55	0.46	9953.47	10035.67	82.2
7 East-East Spli	0.759	Floodway	410	1495.24	1498.46		1498.65	0.003526	3.43	117.17	0.37	9960	10006	46
7 East-East Spli	0.812	Floodplain	410	1498.12	1500.61	1500.57	1501.38	0.029236	7.02	58.38	0.97	9977.68	10013.78	36.1
7 East-East Spli	0.812	Floodway	410	1498.12	1500.57	1500.57	1501.38	0.031766	7.22	56.8	1.01	9977.78	10013.67	35.89
7 East-East Spli	0.884	Floodplain	410	1502.3	1505.21		1505.37	0.00528	2.94	131.67	0.41	9996.86	10088.12	91.26
7 East-East Spli	0.884	Floodway	410	1502.3	1505.38		1505.56	0.00545	3.19	123.89	0.42	9997	10071	74
7 East-East Spli	0.947	Floodplain	410	1505.51	1508.13	1507.98	1508.68	0.022974	6.02	70.03	0.86	9937.61	10010.86	73.25
7 East-East Spli	0.947	Floodway	410	1505.51	1508.24	1507.98	1508.74	0.019435	5.72	71.62	0.8	9966.72	10011.31	44.59
7 East-East Spli	1.001	Floodplain	410	1508.76	1512.27	1511.54	1512.77	0.009714	5.84	77.32	0.61	9944.87	10017.8	72.93
7 East-East Spli	1.001	Floodway	410	1508.76	1512.23	1511.53	1512.78	0.01062	6.06	71.19	0.63	9980	10017.62	37.62
7 East-East Spli	1.064	Floodplain	410	1511.77	1515.21	1514.39	1515.56	0.00726	4.97	95.45	0.53	9978.34	10061.73	83.39
7 East-East Spli	1.064	Floodway	410	1511.77	1515.4		1515.8	0.007776	5.12	80.13	0.52	9983	10010	27
7 East-East Spli	1.128	Floodplain	410	1515.02	1517.58	1516.97	1517.72	0.005687	3.13	140.71	0.43	9936.11	10085.93	149.82

Used to [illegible] in model

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 7 East-East Spli

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
7 East-East Spli	1.128	Floodway	410	1515.02	1518.04		1518.3	0.006944	4.06	101.05	0.49	9973	10021	48
7 East-East Spli	1.187	Floodplain	410	1517.28	1520.11		1520.38	0.013581	4.37	99.26	0.65	9922.87	10021.86	98.99
7 East-East Spli	1.187	Floodway	410	1517.28	1520.65		1521.02	0.010911	4.88	84.39	0.62	9978	10022	44
7 East-East Spli	1.242	Floodplain	410	1520.65	1522.82	1522.27	1522.95	0.00617	3.1	142.88	0.45	9888.35	10040.94	152.59
7 East-East Spli	1.242	Floodway	410	1520.65	1523.18	1522.33	1523.4	0.006269	3.77	108.88	0.47	9987	10041	54
7 East-East Spli	1.306	Floodplain	410	1523.54	1525.5		1525.79	0.011644	4.42	96.64	0.62	9917.24	10025.84	108.6
7 East-East Spli	1.306	Floodway	410	1523.54	1525.76		1526.05	0.010125	4.45	94.49	0.58	9962	10021	59
7 East-East Spli	1.395	Floodplain	410	1527.75	1529.75		1529.89	0.00672	2.71	136.96	0.44	9927.58	10074.77	147.19
7 East-East Spli	1.395	Floodway	410	1527.75	1529.92		1530.15	0.007545	3.15	111.43	0.48	9970	10058	88
7 East-East Spli	1.458	Floodplain	410	1530.24	1532.53		1532.8	0.011637	4.26	106.71	0.61	9859.13	10098.43	239.3
7 East-East Spli	1.458	Floodway	410	1530.24	1532.69		1532.94	0.009372	4.09	103.03	0.56	9959	10041	82

7 EAST – WEST SPLIT

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 7 East-West Spli

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
7 East-West Sp	0.046	Floodplain	280	1497.89	1500.58	1500.48	1500.67	0.009311	3.12	127.06	0.52	9633.92	10024.59	390.67
7 East-West Sp	0.046	Floodway	280	1497.89	1501.56	1500.91	1501.89	0.009301	4.59	61.34	0.56	9980	10010	30
7 East-West Sp	0.126	Floodplain	280	1501.86	1504.32	1503.72	1504.55	0.008963	3.99	74.69	0.55	9971.79	10113.7	141.91
7 East-West Sp	0.126	Floodway	280	1501.86	1504.68	1503.71	1504.88	0.005535	3.58	78.41	0.44	9972	10011	39
7 East-West Sp	0.205	Floodplain	280	1506.56	1508.28	1508.11	1508.35	0.009027	2.21	129.74	0.47	9870.63	10193.31	322.68
7 East-West Sp	0.205	Floodway	280	1506.56	1508.71	1508.61	1509.09	0.022724	4.73	56.9	0.8	9971	10027	56
7 East-West Sp	0.255	Floodplain	280	1509.57	1510.67	1510.48	1510.74	0.007983	2.2	132.96	0.45	9853.76	10226.95	373.19
7 East-West Sp	0.255	Floodway	280	1509.57	1511.49		1511.65	0.005125	2.64	89.73	0.4	9979	10045	66
7 East-West Sp	0.319	Floodplain	280	1512.02	1513.76	1513.6	1513.85	0.010646	2.66	112.33	0.52	9866.05	10256.12	390.07
7 East-West Sp	0.319	Floodway	280	1512.02	1514.19	1514.04	1514.6	0.016862	4.46	55.79	0.71	9967	10014	47
7 East-West Sp	0.380	Floodplain	280	1515.46	1516.89	1516.74	1516.97	0.008641	2.55	122.37	0.48	9935.61	10362.59	426.98
7 East-West Sp	0.380	Floodway	280	1515.46	1517.71		1517.88	0.006767	3.06	84.25	0.45	9985	10052	67
7 East-West Sp	0.447	Floodplain	280	1518.94	1520.39		1520.5	0.011394	3.09	105.77	0.56	9977.04	10310.93	333.89
7 East-West Sp	0.447	Floodway	280	1518.94	1521.12	1520.84	1521.56	0.017062	5.31	53.69	0.75	9977	10022	45
7 East-West Sp	0.517	Floodplain	280	1522.01	1523.63	1523.52	1523.72	0.007229	3.01	133.99	0.47	9982.94	10406.61	423.67
7 East-West Sp	0.517	Floodway	280	1522.01	1524.53		1524.72	0.005083	3.48	80.45	0.43	9983	10022	39
7 East-West Sp	0.582	Floodplain	280	1524.84	1526.42	1526.33	1526.54	0.009217	3.27	112.25	0.53	9967.69	10293.6	325.91
7 East-West Sp	0.582	Floodway	280	1524.84	1526.88	1526.31	1527.12	0.010234	3.92	71.45	0.57	9973	10026.92	53.92
7 East-West Sp	0.696	Floodplain	280	1528.66	1530.76	1529.95	1530.92	0.00587	3.2	88.39	0.44	9968.39	10033.53	65.14
7 East-West Sp	0.696	Floodway	280	1528.66	1530.91		1531.04	0.004467	2.95	95.12	0.39	9968	10023	55
7 East-West Sp	0.750	Floodplain	410	1530.21	1532.67		1532.86	0.007544	3.67	133.97	0.5	9840.69	10101.89	261.2
7 East-West Sp	0.750	Floodway	410	1530.21	1532.69		1532.94	0.009014	4.04	104.21	0.55	9947	10028	81
7 East-West Sp	0.815	Floodplain	410	1532.24	1535.28		1535.54	0.008012	4.17	100.9	0.53	9961.4	10026.85	65.45
7 East-West Sp	0.815	Floodway	410	1532.24	1535.4		1535.64	0.007027	4	102.44	0.49	9970	10020	50
7 East-West Sp	0.900	Floodplain	410	1534.6	1538.49		1538.72	0.006242	3.89	105.36	0.47	9986.81	10036.39	49.58
7 East-West Sp	0.900	Floodway	410	1534.6	1538.46		1538.7	0.006532	3.94	103.93	0.48	9986.89	10036.32	49.43
7 East-West Sp	0.951	Floodplain	410	1538.41	1542.8	1542.8	1544.43	0.03869	10.27	39.92	1	9993.7	10005.92	12.22
7 East-West Sp	0.951	Floodway	410	1538.41	1542.78	1542.78	1544.43	0.039252	10.32	39.73	1.01	9993.71	10005.92	12.21

Used to gain convergence in model

8 EAST

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 8 East (South of													
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
8 East (South o	0.1	Floodplain	1080	1408.06	1412.77	1411.8	1413.35	0.01042	6.21	182.7	0.59	9954.25	10169.09	214.84
8 East (South o	0.1	Floodway	1080	1408.06	1412.79	1411.8	1413.38	0.010402	6.24	178.18	0.59	9970	10030	60
8 East (South o	0.168	Floodplain	1080	1410.3	1414.86		1414.95	0.002371	2.49	431.97	0.27	9798.7	10026.71	228.01
8 East (South o	0.168	Floodway	1080	1410.3	1414.86		1414.96	0.002317	2.46	425.31	0.27	9813	10026	213
8 East (South o	0.230	Floodplain	1080	1413.25	1416.42	1416.42	1416.95	0.030398	6.06	184.78	0.9	9779.5	10265.94	486.44
8 East (South o	0.230	Floodway	1080	1413.25	1416.49	1416.49	1417.23	0.030523	6.14	161.91	0.91	9897	10043.47	146.47
8 East (South o	0.283	Floodplain	1080	1415.05	1419.36	1418.77	1419.47	0.004098	3.26	447.9	0.36	9691.23	10133.78	442.55
8 East (South o	0.283	Floodway	1080	1415.05	1419.86	1418.33	1420.09	0.004887	4.01	282.56	0.41	9907	10028	121
8 East (South o	0.329	Floodplain	1080	1416.89	1420.71		1420.98	0.009226	4.75	269.62	0.54	9716	10039.74	323.74
8 East (South o	0.329	Floodway	1080	1416.89	1421.25		1421.55	0.007174	4.64	251.27	0.49	9913	10039	126
8 East (South o	0.426	Floodplain	1080	1420.69	1425.01	1423.76	1425.58	0.008054	6.06	178.02	0.55	9715.18	10021.42	306.24
8 East (South o	0.426	Floodway	1080	1420.69	1425.02	1423.76	1425.59	0.008004	6.05	178.36	0.55	9926.47	10021	94.53
8 East (South o	0.441		Culvert											
8 East (South o	0.455	Floodplain	1080	1421.6	1426.24	1424.63	1426.43	0.003587	3.97	396.34	0.36	9595.77	10061.6	465.83
8 East (South o	0.455	Floodway	1080	1421.6	1427.01	1424.62	1427.25	0.002855	3.98	287.61	0.33	9940	10022	82
8 East (South o	0.520	Floodplain	1080	1423.82	1428.01		1428.57	0.011445	6.14	191.91	0.63	9834.88	10061.02	226.14
8 East (South o	0.520	Floodway	1080	1423.82	1428.39		1428.89	0.008351	5.68	193.75	0.55	9971	10034	63
8 East (South o	0.568	Floodplain	1080	1425.3	1430.43		1430.8	0.006883	5.09	260.84	0.49	9962.59	10231.79	269.2
8 East (South o	0.568	Floodway	1080	1425.3	1430.49		1430.98	0.008179	5.61	192.63	0.54	9965	10023	58
8 East (South o	0.623	Floodplain	1080	1428.35	1432.72	1432.09	1432.93	0.008179	4.08	313.24	0.49	9979.25	10329.76	350.51
8 East (South o	0.623	Floodway	1080	1428.35	1432.9	1432.07	1433.19	0.007316	4.06	251.66	0.47	9980	10092	112
8 East (South o	0.701	Floodplain	1080	1431.05	1435.42		1435.74	0.005681	4.67	260.55	0.45	9809.4	10051.77	242.37
8 East (South o	0.701	Floodway	1080	1431.05	1435.49		1435.83	0.005638	4.72	229.19	0.45	9976	10044	68
8 East (South o	0.771	Floodplain	1080	1434.06	1438.09		1438.65	0.011221	6.1	181.4	0.62	9983.46	10053.31	69.85
8 East (South o	0.771	Floodway	1080	1434.06	1438.13		1438.68	0.010708	6.02	184.18	0.61	9983.37	10053.47	70.1
8 East (South o	0.852	Floodplain	1080	1437.17	1441.95		1442.32	0.006674	5.09	228.58	0.49	9920.72	10012.46	91.74
8 East (South o	0.852	Floodway	1080	1437.17	1442.28		1442.82	0.008741	5.85	184.68	0.54	9957	10007	50
8 East (South o	0.915	Floodplain	1080	1440.62	1444.64	1444.08	1444.95	0.009769	4.65	247.21	0.55	9902.34	10062.25	159.91
8 East (South o	0.915	Floodway	1080	1440.62	1445.14		1445.47	0.007359	4.63	233.59	0.5	9935	10022	87
8 East (South o	0.954	Floodplain	1080	1442.35	1446.29		1446.53	0.006062	4.12	280.53	0.45	9873.33	10013.48	140.15
8 East (South o	0.954	Floodway	1080	1442.35	1446.59		1446.92	0.006693	4.61	234.47	0.47	9933	10013	80

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 8 East (South of

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
8 East (South o	1.019	Floodplain	710	1444.84	1448.69		1449.12	0.010598	5.27	135.69	0.58	9978.68	10035.39	56.71
8 East (South o	1.019	Floodway	710	1444.84	1448.98		1449.33	0.00745	4.71	151.86	0.5	9978	10034	56
8 East (South o	1.063	Floodplain	710	1446.34	1450.15		1450.35	0.003062	3.32	200.16	0.32	9988.53	10061.4	72.87
8 East (South o	1.063	Floodway	710	1446.34	1450.47		1450.83	0.005613	4.79	149.3	0.44	9993	10040	47
8 East (South o	1.130	Floodplain	710	1448.51	1452.53	1452.53	1453.9	0.031389	9.4	75.51	0.99	9984.78	10247.89	263.11
8 East (South o	1.130	Floodway	710	1448.51	1453.22	1452.53	1454.09	0.016235	7.46	95.16	0.73	9984	10013.13	29.13
8 East (South o	1.162	Floodplain	710	1449.65	1455.25	1454.22	1455.42	0.003743	4.01	257.22	0.36	9982.97	10404.77	421.8
8 East (South o	1.162	Floodway	710	1449.65	1455.41	1453.83	1455.94	0.007684	5.91	125.71	0.52	9989	10031	42
8 East (South o	1.205	Floodplain	710	1451.75	1456.53	1455.84	1456.87	0.011783	4.98	170.13	0.59	9981.5	10374.99	393.49
8 East (South o	1.205	Floodway	710	1451.75	1457.24	1455.85	1457.49	0.005865	4.12	182.1	0.43	9982	10065	83
8 East (South o	1.267	Floodplain	710	1454.68	1458.25		1458.37	0.002409	2.82	251.97	0.29	9936.19	10028.48	92.29
8 East (South o	1.267	Floodway	710	1454.68	1458.46		1458.58	0.002099	2.76	258.79	0.27	9943	10027	84
8 East (South o	1.332	Floodplain	710	1457.54	1460.74	1460.74	1461.26	0.023227	5.29	127.29	0.78	9923.96	10175.97	252.01
8 East (South o	1.332	Floodway	710	1457.54	1461.51	1461.51	1462.17	0.023896	7.03	111.79	0.85	9974	10054	80
8 East (South o	1.421	Floodplain	710	1461.73	1465.33	1465.02	1465.42	0.004714	3.3	329.64	0.39	9851.68	10299.54	447.86
8 East (South o	1.421	Floodway	710	1461.73	1466.16		1466.37	0.004672	4.05	201.04	0.4	9981	10083	102
8 East (South o	1.480	Floodplain	710	1464.14	1467.43	1466.7	1467.85	0.013292	5.24	140.61	0.64	9964.63	10068.34	103.71
8 East (South o	1.480	Floodway	710	1464.14	1467.88	1466.7	1468.18	0.007081	4.35	163.31	0.48	9965	10029	64
8 East (South o	1.560	Floodplain	710	1467.01	1471.35	1470.74	1471.55	0.006382	4.25	220.81	0.45	9815.72	10043.94	228.22
8 East (South o	1.560	Floodway	710	1467.01	1471.76	1471.4	1472.34	0.014371	6.97	121.49	0.68	9923	10012	89
8 East (South o	1.617	Floodplain	490	1470.13	1473.42		1473.64	0.007193	3.63	130.95	0.47	9960.18	10071.32	111.14
8 East (South o	1.617	Floodway	490	1470.13	1474.41		1474.57	0.003527	3.3	159.97	0.35	9967	10051	84
8 East (South o	1.681	Floodplain	490	1472.1	1476.25	1475.79	1476.47	0.009745	3.69	131.54	0.52	9937.55	10098.06	160.51
8 East (South o	1.681	Floodway	490	1472.1	1476.4		1476.75	0.014462	4.78	103.66	0.65	9984	10049	65
8 East (South o	1.759	Floodplain	490	1475.62	1479.79		1479.95	0.007595	3.92	166	0.48	9989.84	10177.11	187.27
8 East (South o	1.759	Floodway	490	1475.62	1480.56		1480.86	0.007333	4.59	112.28	0.48	9992	10043	51
8 East (South o	1.826	Floodplain	490	1478.58	1482.33	1482.09	1482.45	0.006952	3.54	194.45	0.45	9943.24	10223.1	279.86
8 East (South o	1.826	Floodway	490	1478.58	1483.13	1482.64	1483.4	0.007227	4.56	120.82	0.49	9982	10051	69
8 East (South o	1.870	Floodplain	490	1481.69	1483.82		1483.97	0.006112	3.43	160.27	0.44	9942.25	10081.88	139.63
8 East (South o	1.870	Floodway	490	1481.69	1484.57		1484.79	0.005039	3.78	130	0.41	9991	10040	49
8 East (South o	1.925	Floodplain	490	1483.25	1486.65	1486.54	1487.22	0.024211	6.09	83.9	0.83	9943.75	10013.46	69.71

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 8 East (South of														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
8 East (South o	1.925	Floodway	490	1483.25	1486.85	1486.48	1487.33	0.017692	5.59	87.72	0.72	9963	10010	47
8 East (South o	1.969	Floodplain	490	1485.75	1489.43		1489.57	0.005253	2.63	163.71	0.38	9883.98	10006.39	122.41
8 East (South o	1.969	Floodway	490	1485.75	1489.88	1489.31	1490.2	0.008825	4.06	110.33	0.51	9947	10006	59
8 East (South o	2.024	Floodplain	490	1488.72	1491.78	1491.64	1492.11	0.016863	4.84	110.18	0.7	9944.49	10058.25	113.76
8 East (South o	2.024	Floodway	490	1488.72	1492.65		1493.06	0.011002	5.17	95.18	0.59	9981	10021	40
8 East (South o	2.101	Floodplain	490	1492.3	1496.41	1495.88	1496.64	0.007966	4.14	134.82	0.5	9945.48	10049.3	103.82
8 East (South o	2.101	Floodway	490	1492.3	1496.76		1497.11	0.009024	4.76	103.12	0.54	9976	10018	42
8 East (South o	2.177	Floodplain	490	1496.31	1499.51	1498.99	1499.72	0.007081	3.16	134.96	0.45	9988.53	10106	117.47
8 East (South o	2.177	Floodway	490	1496.31	1500.4	1499.72	1500.74	0.008939	4.68	104.63	0.53	9992	10040	48
8 East (South o	2.249	Floodplain	490	1499.21	1503.46	1503.16	1503.94	0.018439	5.58	89.47	0.74	9958.98	10018.91	59.93
8 East (South o	2.249	Floodway	490	1499.21	1503.92		1504.23	0.009322	4.51	108.64	0.53	9965	10014	49
8 East (South o	2.313	Floodplain	490	1502.2	1506.52		1506.68	0.004479	3.36	156.87	0.39	9981.61	10097.87	116.26
8 East (South o	2.313	Floodway	490	1502.2	1506.56		1506.8	0.006336	3.94	124.71	0.45	9986	10038	52
8 East (South o	2.403	Floodplain	490	1506.37	1509.99	1509.69	1510.53	0.017841	5.98	85.78	0.75	9969.9	10024.74	54.84
8 East (South o	2.403	Floodway	490	1506.37	1510.38		1510.81	0.011595	5.3	92.46	0.61	9986	10025	39
8 East (South o	2.477	Floodplain	490	1510.32	1513.64		1513.77	0.004676	2.97	171.84	0.38	9933.56	10048.62	115.06
8 East (South o	2.477	Floodway	490	1510.32	1513.86		1514.06	0.006086	3.59	136.93	0.44	9968	10033	65
8 East (South o	2.530	Floodplain	490	1512.91	1515.9	1515.77	1516.31	0.021982	5.26	96.84	0.78	9985.65	10071.18	85.53
8 East (South o	2.530	Floodway	490	1512.91	1516.26		1516.62	0.014339	4.89	101.42	0.65	9991	10052	61
8 East (South o	2.583	Floodplain	490	1514.97	1519.03		1519.24	0.006033	3.64	136.45	0.44	9971.32	10042.62	71.3
8 East (South o	2.583	Floodway	490	1514.97	1519		1519.21	0.006374	3.7	134.04	0.45	9971.77	10042.4	70.63
8 East (South o	2.633	Floodplain	490	1517.21	1521.47		1522.04	0.020399	6.06	81.12	0.79	9970.91	10018.09	47.18
8 East (South o	2.633	Floodway	490	1517.21	1521.5		1522.05	0.019336	5.97	82.53	0.77	9970.17	10018.27	48.1
8 East (South o	2.681	Floodplain	490	1519.32	1524.08		1524.26	0.004719	3.63	155.96	0.4	9960.43	10075.17	114.74
8 East (South o	2.681	Floodway	490	1519.32	1524.19		1524.42	0.005332	3.95	131.7	0.43	9977	10044	67
8 East (South o	2.711	Floodplain	490	1522	1524.89		1525.02	0.004781	3.05	168.34	0.39	9902.43	10010.68	108.25
8 East (South o	2.711	Floodway	490	1522	1525.07		1525.23	0.004894	3.22	152.19	0.39	9936	10008	72
8 East (South o	2.799	Floodplain	490	1524.74	1528.68	1528.55	1529.54	0.024865	7.47	67.05	0.88	9993.71	10028.72	35.01
8 East (South o	2.799	Floodway	490	1524.74	1528.79	1528.56	1529.56	0.021083	7.1	70.85	0.82	9993.53	10029.54	36.01
8 East (South o	2.898	Floodplain	490	1529.7	1534.47		1534.72	0.005195	4.1	121.94	0.42	9983.06	10034.85	51.79
8 East (South o	2.898	Floodway	490	1529.7	1534.5		1534.81	0.005743	4.32	110.52	0.44	9984	10023	39
8 East (South o	2.953	Floodplain	490	1533.26	1536.37		1536.66	0.009147	4.42	114.2	0.54	9963.7	10029.65	65.95
8 East (South o	2.953	Floodway	490	1533.26	1536.51		1536.82	0.008687	4.49	109.98	0.53	9974	10024	50
8 East (South o	3.029	Floodplain	490	1535.03	1542.04	1542.01	1543.83	0.040505	10.72	45.88	0.98	9992.88	10005.94	13.06
8 East (South o	3.029	Floodway	490	1535.03	1542.01	1542.01	1543.83	0.041781	10.82	45.43	0.99	9992.91	10005.92	13.01

9 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 9 East

In existing Zone A.

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9 East	0.912	Floodplain	570	1368.58	1371.74	1370.51	1371.87	0.005003	2.91	195.88	0.37	9960.67	10064.8	104.13
9 East	0.912	Floodway	570	1368.58	1371.73	1370.51	1371.86	0.005	2.92	195.29	0.37	9961	10064	103
9 East	0.979	Floodplain	570	1368.09	1373.28	1371.69	1373.37	0.003676	2.42	238.49	0.32	9640.69	10031.02	390.33
9 East	0.979	Floodway	570	1368.09	1373.28		1373.37	0.003731	2.43	234.17	0.32	9889.52	10031.02	141.5
9 East	1.05	Floodplain	570	1374.28	1375.9	1375.68	1376.12	0.01925	3.65	149.39	0.66	9789.22	10145.13	355.91
9 East	1.05	Floodway	570	1374.28	1376.1	1375.9	1376.4	0.022931	4.23	130.84	0.73	9980.06	10139	158.94
9 East	1.144	Floodplain	590	1376.82	1380.62	1380.24	1380.69	0.005159	2.88	323.61	0.37	9919.69	10451.59	531.9
9 East	1.144	Floodway	590	1376.82	1381.12	1380.62	1381.26	0.005306	3.39	212.1	0.39	9927	10096	169
9 East	1.244	Floodplain	590	1380.75	1383.44	1383.05	1383.52	0.005588	2.89	260.55	0.38	9985.97	10366.63	380.66
9 East	1.244	Floodway	590	1380.75	1384.36	1383.79	1384.56	0.007416	4.31	189.4	0.47	9985	10164	179
9 East	1.308	Floodplain	590	1383.21	1386.18	1386.16	1386.45	0.013883	5.09	172.58	0.62	9986.65	10355.6	368.95
9 East	1.308	Floodway	590	1383.21	1386.96	1386.43	1387.22	0.008077	4.5	152.86	0.49	9986	10083	97
9 East	1.4	Floodplain	590	1386.23	1390.03	1389.6	1390.12	0.004677	3.17	274.47	0.37	9891.55	10213.39	321.84
9 East	1.4	Floodway	590	1386.23	1390.55		1390.8	0.006807	4.39	155	0.46	9980	10066	86
9 East	1.473	Floodplain	590	1388.07	1391.93	1391.59	1392.02	0.005544	3.03	258.65	0.38	9901.98	10210.79	308.81
9 East	1.473	Floodway	590	1388.07	1392.83		1393	0.004956	3.69	186.95	0.39	9964	10070	106
9 East	1.538	Floodplain	590	1390.46	1394.45	1394.4	1394.69	0.011285	4.63	187.85	0.56	9839.12	10176.74	337.62
9 East	1.538	Floodway	590	1390.46	1395.12		1395.54	0.011242	5.21	114.93	0.58	9983	10031	48
9 East	1.57	Floodplain	590	1391.8	1395.86		1396.02	0.00568	3.82	232.11	0.41	9818.23	10166.71	348.48
9 East	1.57	Floodway	590	1391.8	1396.65		1396.98	0.006638	4.56	130.45	0.46	9975	10020	45
9 East	1.601	Floodplain	590	1392.68	1397.08	1397.05	1397.6	0.015514	6.32	125.25	0.67	9822.33	10079.48	257.15
9 East	1.601	Floodway	590	1392.68	1397.97		1398.43	0.011415	5.47	108.88	0.58	9985	10027	42
9 East	1.655	Floodplain	590	1395.12	1399.89	1398.86	1400.13	0.005647	4.34	179.04	0.42	9866.83	10078.49	211.66
9 East	1.655	Floodway	590	1395.12	1400.34	1398.72	1400.69	0.005785	4.79	126.83	0.44	9979	10018	39
9 East	1.711	Floodplain	590	1397.04	1401.58	1400.08	1401.81	0.005698	4.28	168.61	0.42	9718.64	10076.41	357.77
9 East	1.711	Floodway	590	1397.04	1402.1	1400.42	1402.49	0.006406	5.02	118.69	0.46	9980	10013	33
9 East	1.751	Floodplain	590	1399.18	1403.22	1402.73	1403.88	0.017543	6.7	104.05	0.72	9863.85	10190.26	326.41
9 East	1.751	Floodway	590	1399.18	1403.73	1402.73	1404.28	0.011245	5.94	100.28	0.59	9979	10013	34
9 East	1.791	Floodplain	590	1400.72	1405.38		1405.46	0.003953	2.64	273.68	0.33	9883.65	10137.78	254.13
9 East	1.791	Floodway	590	1400.72	1406.03		1406.37	0.008656	4.72	127.09	0.51	9967	10016	49
9 East	1.839	Floodplain	590	1402.71	1406.56		1406.76	0.006554	3.85	184.45	0.44	9904.46	10085.04	180.58

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 9 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9 East	1.839	Floodway	590	1402.71	1407.5		1407.66	0.00331	3.24	181.98	0.32	9980	10037	57
9 East	1.876	Floodplain	590	1404.56	1407.93	1407.2	1408.07	0.007066	3.26	205	0.43	9841.31	10106.71	265.4
9 East	1.876	Floodway	590	1404.56	1408.39	1407.52	1408.64	0.008004	4.05	149.15	0.48	9940	10014	74
9 East	1.899	Floodplain	590	1405.05	1408.93		1409.18	0.011516	4.46	157	0.56	9881.14	10023.96	142.82
9 East	1.899	Floodway	590	1405.05	1409.43		1409.84	0.011108	5.11	116.37	0.57	9969	10018	49
9 East	1.962	Floodplain	590	1407.78	1411.52	1410.74	1411.63	0.005166	3.24	235.62	0.38	9879.91	10092.6	212.69
9 East	1.962	Floodway	590	1407.78	1412.12		1412.32	0.005355	3.86	167.55	0.41	9958	10041	83
9 East	2.036	Floodplain	590	1410.53	1414.16	1413.54	1414.37	0.009972	4.75	196.07	0.53	9976.44	10326.28	349.84
9 East	2.036	Floodway	590	1410.53	1414.68	1414.34	1415	0.008877	5.09	141.95	0.52	9978	10069	91
9 East	2.155	Floodplain	590	1412.3	1416.27	1415.18	1416.34	0.004584	2.41	280.8	0.34	9920.84	10476.34	555.5
9 East	2.155	Floodway	590	1412.3	1417.07	1416.3	1417.23	0.005304	3.29	185.72	0.39	9957	10055	98
9 East	2.202	Floodplain	590	1417.42	1419.75	1419.47	1419.99	0.019335	5.09	166.76	0.7	9930.94	10537.69	606.75
9 East	2.202	Floodway	590	1417.42	1420.74	1420.42	1420.98	0.011208	4.23	155.52	0.55	9931	10058	127
9 East	2.256	Floodplain	590	1420.14	1422.75	1422.44	1422.84	0.006468	2.81	259.95	0.41	9900.64	10440.07	539.43
9 East	2.256	Floodway	590	1420.14	1423.49	1423.13	1423.69	0.008399	4.07	174.21	0.49	9954	10091	137
9 East	2.321	Floodplain	590	1421.4	1425.17	1424.84	1425.33	0.008076	3.87	200.37	0.47	9908.34	10162.85	254.51
9 East	2.321	Floodway	590	1421.4	1425.94		1426.12	0.006016	3.65	181.07	0.42	9930	10041	111
9 East	2.382	Floodplain	500	1423.68	1427.66		1427.86	0.007483	3.87	160.83	0.47	9895.12	10098.24	203.12
9 East	2.382	Floodway	500	1423.68	1427.95		1428.21	0.007109	4.09	122.5	0.47	9971	10023	52
9 East	2.452	Floodplain	340	1427.04	1430.85	1430.56	1430.99	0.01002	3.23	124.19	0.5	9976.01	10144.73	168.72
9 East	2.452	Floodway	340	1427.04	1431.06		1431.26	0.010399	3.63	94.87	0.52	9977	10043	66
9 East	2.511	Floodplain	340	1428.99	1433.05		1433.18	0.005185	3.22	125.58	0.39	9940.92	10045.2	104.28
9 East	2.511	Floodway	340	1428.99	1433.65		1433.94	0.007079	4.43	81.27	0.47	9979	10014	35
9 East	2.577	Floodplain	340	1431.64	1435.52		1435.68	0.010427	3.69	111.58	0.52	9981.96	10132.72	150.76
9 East	2.577	Floodway	340	1431.64	1436.26		1436.51	0.007697	4.08	84.79	0.48	9986	10025	39
9 East	2.647	Floodplain	340	1435.68	1438.58	1438.08	1438.67	0.006658	2.74	141.7	0.41	9896.44	10056.03	159.59
9 East	2.647	Floodway	340	1435.68	1439	1438.25	1439.16	0.006746	3.3	103.95	0.44	9954	10013	59
9 East	2.688	Floodplain	340	1437.64	1440.56		1440.76	0.013807	4.17	100.11	0.6	9901.02	10034.36	133.34
9 East	2.688	Floodway	340	1437.64	1441.01		1441.38	0.015801	5.29	71.78	0.67	9968	10020	52
9 East	2.74	Floodplain	340	1440.95	1443.64	1443.36	1443.72	0.008272	2.28	159.63	0.43	9865.27	10127.7	262.43
9 East	2.74	Floodway	340	1440.95	1444.29		1444.44	0.008048	3.25	111.2	0.46	9944	10035	91

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 9 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9 East	2.815	Floodplain	500	1445.17	1447.29	1446.96	1447.41	0.009885	3.1	181.87	0.5	9944.07	10167.89	223.82
9 East	2.815	Floodway	500	1445.17	1447.38	1446.97	1447.49	0.007168	2.77	194.84	0.43	9953	10154	201
9 East	2.892	Floodplain	500	1448.56	1450.56	1450.17	1450.65	0.006465	2.28	215.13	0.39	9768.7	10195.91	427.21
9 East	2.892	Floodway	500	1448.56	1450.96	1450.57	1451.18	0.011566	3.79	135.1	0.55	9942	10046	104
9 East	2.966	Floodplain	500	1451.97	1453.97		1454.2	0.013344	4.24	136.82	0.6	9895.9	10038.41	142.51
9 East	2.966	Floodway	500	1451.97	1454.57		1454.8	0.007619	3.98	132.48	0.48	9964	10038	74
9 East	3.021	Floodplain	500	1453.54	1456.41		1456.5	0.005428	2.59	205.32	0.38	9839.98	10028.94	188.96
9 East	3.021	Floodway	500	1453.54	1456.95		1457.21	0.009017	4.12	122.85	0.51	9962	10025	63
9 East	3.091	Floodplain	500	1456.37	1459.6		1459.85	0.017423	4.15	125.55	0.66	9895.74	10022.66	126.92
9 East	3.091	Floodway	500	1456.37	1460.31		1460.55	0.009004	3.99	125.43	0.51	9958	10023	65
9 East	3.208	Floodplain	440	1462.15	1464.98	1464.53	1465.05	0.004839	2.78	214.38	0.37	9971.6	10236.74	265.14
9 East	3.208	Floodway	440	1462.15	1465.53	1465.11	1465.74	0.00775	4.2	122.99	0.48	9988	10073	85
9 East	3.267	Floodplain	440	1465.98	1467.53	1467.37	1467.7	0.020036	3.14	135.1	0.62	9994.68	10238.78	244.1
9 East	3.267	Floodway	440	1465.98	1468.48	1468.11	1468.68	0.012542	4.01	122.13	0.54	9994	10091	97
9 East	3.346	Floodplain	440	1469.88	1472.27	1471.84	1472.36	0.00734	3	196.68	0.42	9886.89	10230.73	343.84
9 East	3.346	Floodway	440	1469.88	1472.79	1472.25	1473	0.008856	3.98	122.67	0.48	9970	10045	75
9 East	3.394	Floodplain	440	1472.71	1474.64	1474.43	1474.83	0.01243	3.21	131.24	0.52	9951.44	10224.31	272.87
9 East	3.394	Floodway	440	1472.71	1475.47		1475.82	0.013693	4.81	99.22	0.6	9969	10043	74
9 East	3.464	Floodplain	440	1476.42	1479.19	1479.07	1479.31	0.013431	3.63	176.96	0.55	9979.52	10360.77	381.25
9 East	3.464	Floodway	440	1476.42	1479.7		1479.86	0.009281	3.75	148.21	0.49	9980	10120	140
9 East	3.545	Floodplain	440	1480.9	1482.89	1482.34	1482.96	0.006575	2.28	215.97	0.38	9864.6	10217.62	353.02
9 East	3.545	Floodway	440	1480.9	1482.98	1482.43	1483.07	0.006874	2.4	183.18	0.39	9979.24	10169	189.76
9 East	3.617	Floodplain	440	1483.95	1486.31	1485.8	1486.63	0.014579	4.59	99.98	0.61	9986.58	10235.46	248.88
9 East	3.617	Floodway	440	1483.95	1486.37	1485.8	1486.66	0.013128	4.42	103.9	0.58	9986.38	10090.38	104
9 East	3.681	Floodplain	440	1486.75	1490.09	1489.58	1490.17	0.007592	2.58	198.02	0.41	9937.14	10447.96	510.82
9 East	3.681	Floodway	440	1486.75	1490.36	1489.92	1490.52	0.009794	3.36	148.52	0.48	9942	10093	151
9 East	3.76	Floodplain	440	1490.34	1493.57	1492.63	1493.86	0.010225	4.41	106.9	0.52	9979.82	10048.14	68.32
9 East	3.76	Floodway	440	1490.34	1493.85		1494.11	0.007535	4.11	107.18	0.45	9979.05	10022	42.95
9 East	3.837	Floodplain	440	1494.28	1497.26		1497.55	0.008067	4.45	104.98	0.48	9977.02	10024.76	47.74
9 East	3.837	Floodway	440	1494.28	1497.32		1497.7	0.010187	4.93	89.46	0.53	9984	10017	33

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 9 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9 East	3.927	Floodplain	390	1498.05	1501.21		1501.43	0.008183	3.74	111.44	0.46	9892.83	10045.07	152.24
9 East	3.927	Floodway	390	1498.05	1501.41		1501.61	0.006551	3.51	111.09	0.41	9993.49	10043	49.51
9 East	3.998	Floodplain	390	1501.56	1504.7		1505.04	0.011207	4.81	87.26	0.55	9962.45	10011.92	49.47
9 East	3.998	Floodway	390	1501.56	1504.66		1505.08	0.013367	5.24	75.2	0.6	9979	10011	32
9 East	4.052	Floodplain	390	1504.48	1507.79	1506.87	1508.12	0.010366	4.69	90.23	0.53	9990.53	10113.45	122.92
9 East	4.052	Floodway	390	1504.48	1507.88	1506.87	1508.18	0.008913	4.45	96.07	0.49	9991	10074	83
9 East	4.092	Floodplain	390	1506.99	1509.97		1510.24	0.009537	4.13	94.33	0.5	9993.05	10037.8	44.75
9 East	4.092	Floodway	390	1506.99	1509.93		1510.2	0.010198	4.23	92.17	0.52	9993.16	10037.55	44.39
9 East	4.152	Floodplain	390	1509.96	1513.08		1513.36	0.010121	4.64	99.7	0.51	9920.94	10015.17	94.23
9 East	4.152	Floodway	390	1509.96	1513.1		1513.37	0.009716	4.56	101.12	0.5	9921	10014	93
9 East	4.206	Floodplain	390	1513.32	1516.82	1516.51	1517.32	0.01947	5.84	73.13	0.7	9986.46	10038.93	52.47
9 East	4.206	Floodway	390	1513.32	1516.8	1516.51	1517.31	0.020258	5.92	71.93	0.72	9986.52	10038.33	51.81
9 East	4.27	Floodplain	390	1516.67	1520.21	1519.1	1520.34	0.005025	2.9	137.02	0.36	9839.43	10015.5	176.07
9 East	4.27	Floodway	390	1516.67	1520.22	1519.1	1520.35	0.004961	2.89	137.74	0.36	9840	10015.51	175.51
9 East	4.338	Floodplain	390	1521.04	1523.75	1523.75	1524.1	0.018947	5.37	102.53	0.69	9985.99	10275.12	289.13
9 East	4.338	Floodway	390	1521.04	1523.71	1523.71	1524.38	0.030831	6.81	63.55	0.87	9986.13	10174	187.87
9 East	4.386	Floodplain	390	1523.98	1527.18		1527.34	0.009082	3.41	139.66	0.47	9976.12	10247.99	271.87
9 East	4.386	Floodway	390	1523.98	1527.4		1527.55	0.006505	3.14	135.23	0.4	9977	10084	107
9 East	4.442	Floodplain	390	1526.37	1530.18	1529.32	1530.37	0.011662	3.64	121.96	0.52	9933.49	10097.82	164.33
9 East	4.442	Floodway	390	1526.37	1530.14		1530.41	0.015403	4.15	93.95	0.6	9973	10036.3	63.3
9 East	4.471	Floodplain	390	1528.3	1531.31		1531.4	0.004359	2.51	164.18	0.33	9936.72	10055.94	119.22
9 East	4.471	Floodway	390	1528.3	1531.41		1531.5	0.003979	2.48	157.35	0.32	9957	10042	85
9 East	4.524	Floodplain	390	1530.01	1533.26		1533.82	0.019958	5.98	65.29	0.71	9990.66	10021.8	31.14
9 East	4.524	Floodway	390	1530.01	1533.24		1533.81	0.020702	6.05	64.5	0.73	9990.73	10021.43	30.7
9 East	4.536	Floodplain	390	1530.15	1534.35		1534.68	0.008971	4.68	86.28	0.5	9981.92	10021.81	39.89
9 East	4.536	Floodway	390	1530.15	1534.36		1534.71	0.009533	4.76	82.01	0.5	9992	10022.12	30.12
9 East	4.558	Floodplain	390	1530.44	1535.29		1535.54	0.005986	4.08	97.17	0.41	9970.94	10010.66	39.72
9 East	4.558	Floodway	390	1530.44	1535.33		1535.58	0.005764	4.03	96.95	0.4	9979	10010.73	31.73
9 East	4.596	Floodplain	390	1532.05	1536.78		1537.21	0.011698	5.27	76.4	0.57	9984.38	10020.85	36.47
9 East	4.596	Floodway	390	1532.05	1536.84		1537.26	0.012632	5.26	74.93	0.56	9989	10021.64	32.64
9 East	4.618	Floodplain	390	1532.91	1538.31		1538.65	0.012499	4.62	84.39	0.56	9979.98	10020.38	40.4

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 9 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9 East	4.618	Floodway	390	1532.91	1538.38		1538.69	0.011327	4.47	87.3	0.54	9980	10021.28	41.28
9 East	4.652	Floodplain	390	1534.83	1539.96		1540.17	0.006137	3.68	106.97	0.41	9973.51	10027.44	53.93
9 East	4.652	Floodway	390	1534.83	1539.95		1540.17	0.006195	3.7	105.44	0.41	9979	10027.33	48.33
9 East	4.666	Floodplain	390	1537.12	1540.49		1540.77	0.010114	4.28	96.56	0.52	9958.34	10017.51	59.17
9 East	4.666	Floodway	390	1537.12	1540.5		1540.82	0.011689	4.51	86.45	0.55	9971	10012	41

9 EAST SPLIT

wsel for FP/FW were set equal to 9East for this section

HEC-RAS Plan: 9E-Split River: Reach #2 Reach: 9E-Split														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
9E-Split		Floodplain_Split	500	1423.68	1427.66	1426.84	1427.86	0.007504	3.88	160.92	0.47	9895.2	10164.15	268.95
9E-Split		Floodway_Split	500	1423.68	1427.95	1426.84	1428.21	0.007133	4.09	122.38	0.47	9971	10023	52
9E-Split	0.054	Floodplain_Split	160	1428.73	1430.14	1429.96	1430.23	0.013112	2.54	70.66	0.52	9959.53	10228.57	269.04
9E-Split	0.054	Floodway_Split	160	1428.73	1430.53	1430.51	1430.88	0.028425	4.96	35.63	0.83	9981	10035.65	54.65
9E-Split	0.124	Floodplain_Split	160	1432.23	1433.59	1433.32	1433.63	0.007068	1.59	106.97	0.37	9935.53	10223.73	288.2
9E-Split	0.124	Floodway_Split	160	1432.23	1434.22		1434.29	0.004457	2.06	81.23	0.33	9943	10023	80
9E-Split	0.169	Floodplain_Split	160	1434.55	1435.91		1436	0.016781	2.1	66.55	0.55	9850.09	10025.93	175.84
9E-Split	0.169	Floodway_Split	160	1434.55	1436.22	1436.14	1436.41	0.025877	3.63	46.11	0.74	9943	10018	75
9E-Split	0.268	Floodplain_Split	160	1439.13	1440.36	1440.03	1440.4	0.005847	1.73	99.15	0.35	9802.57	10017.21	214.64
9E-Split	0.268	Floodway_Split	160	1439.13	1441.2		1441.27	0.004993	2.2	74.65	0.35	9949	10017	68
9E-Split	0.346	Floodplain_Split	160	1442.17	1443.7	1443.52	1443.78	0.011959	2.64	76.01	0.51	9824.77	10017.84	193.07
9E-Split	0.346	Floodway_Split	160	1442.17	1444.29	1444.04	1444.51	0.013357	3.89	44.65	0.57	9974	10017	43
9E-Split	0.421	Floodplain_Split	500	1445.17	1447.34	1446.96	1447.45	0.008298	2.92	192.52	0.46	9943.29	10169.21	225.92
9E-Split	0.421	Floodway_Split	500	1445.17	1447.42		1447.52	0.006239	2.64	203.28	0.4	9953	10154	201

10 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East (South	0.462	Floodplain	440	1355.78	1356.18	1355.88	1356.24	0.003301	0.69	248.47	0.25	9628.34	10362.25	733.91
10 East (South	0.462	Floodway	440	1355.78	1357.15	1356.59	1357.23	0.0033	1.92	206.87	0.32	9906	10098	192
10 East (South	0.541	Floodplain	440	1356.04	1357.28	1356.77	1357.32	0.002054	1.32	272.53	0.25	9720.41	10038.93	318.52
10 East (South	0.541	Floodway	440	1356.04	1358.09	1357.06	1358.15	0.001569	1.78	237.01	0.24	9900	10038	138
10 East (South	0.596	Floodplain	440	1356.94	1358.5	1358.38	1358.76	0.018299	4.15	109.82	0.75	9795.65	10061.11	265.46
10 East (South	0.596	Floodway	440	1356.94	1358.89	1358.41	1359.07	0.007858	3.36	130.9	0.51	9952	10049	97
10 East (South	0.656	Floodplain	440	1358.08	1360.85	1360.13	1360.96	0.003602	2.94	193.29	0.37	9777.92	10103.47	325.55
10 East (South	0.656	Floodway	440	1358.08	1361.02	1360.17	1361.26	0.006054	3.95	111.51	0.48	9965	10018	53
10 East (South	0.733	Floodplain	440	1360.09	1363.84	1363.84	1364.05	0.015532	4.23	138.28	0.7	9822.01	10254.09	432.08
10 East (South	0.733	Floodway	440	1360.09	1364.28	1363.85	1364.59	0.011464	4.52	97.64	0.63	9968	10030	62
10 East (South	0.793	Floodplain	440	1361.67	1365.98	1365.7	1366.05	0.003299	2.51	221.39	0.34	9844.05	10264.34	420.29
10 East (South	0.793	Floodway	440	1361.67	1366.81	1366.12	1367.06	0.005552	4.13	109.78	0.45	9991	10046	55
10 East (South	0.877	Floodplain	440	1366.31	1368.34	1368.25	1368.53	0.010594	2.51	137.25	0.54	9863.14	10089.91	226.77
10 East (South	0.877	Floodway	440	1366.31	1369.25	1368.57	1369.4	0.004953	3.02	142.78	0.42	9938	10028	90
10 East (South	0.927	Floodplain	440	1368.89	1370.29		1370.43	0.005152	1.45	165.61	0.36	9808.23	10048.72	240.49
10 East (South	0.927	Floodway	440	1368.89	1371.07	1370.71	1371.29	0.010766	3.82	115.39	0.6	9931	10023	92
10 East (South	1.008	Floodplain	440	1371.43	1374.01	1373.93	1374.2	0.017406	3.49	128.9	0.7	9749.27	10116.5	367.23
10 East (South	1.008	Floodway	440	1371.43	1374.8	1374.4	1375	0.007101	3.49	124.3	0.49	9979	10078	99
10 East (South	1.062	Floodplain	440	1374.27	1376.52	1376.28	1376.58	0.004665	1.65	227.38	0.35	9600.59	10055.93	455.34
10 East (South	1.062	Floodway	440	1374.27	1377.24	1376.93	1377.51	0.01116	4.13	105.63	0.61	9974	10056	82
10 East (South	1.131	Floodplain	440	1376.09	1378.76	1378.58	1378.89	0.008641	2.52	158.22	0.49	9645.88	10053.53	407.65
10 East (South	1.131	Floodway	440	1376.09	1379.75	1379.34	1379.91	0.004374	3.01	146.47	0.4	9925	10053	128
10 East (South	1.199	Floodplain	440	1379.61	1381.37	1381.12	1381.47	0.006584	2.23	171.96	0.44	9770.02	10027.26	257.24
10 East (South	1.199	Floodway	440	1379.61	1381.95	1381.61	1382.22	0.010166	3.9	106.06	0.59	9949	10030	81
10 East (South	1.245	Floodplain	440	1380.32	1383	1382.7	1383.1	0.007296	2.19	168.75	0.43	9801.16	10018.98	217.82
10 East (South	1.245	Floodway	440	1380.32	1383.97		1384.19	0.006803	3.57	117.94	0.47	9950	10019	69
10 East (South	1.323	Floodplain	440	1381.52	1385.45	1385.16	1385.53	0.004913	2.52	209.54	0.38	9842.58	10146.52	303.94
10 East (South	1.323	Floodway	440	1381.52	1386.33	1385.45	1386.51	0.004732	3.44	130.25	0.4	9959	10023	64
10 East (South	1.412	Floodplain	440	1386.12	1388.15	1387.84	1388.28	0.007193	3.04	157.49	0.47	9857.7	10061.35	203.65
10 East (South	1.412	Floodway	440	1386.12	1388.73	1387.92	1388.91	0.00558	3.41	129.35	0.44	9974	10042	68
10 East (South	1.465	Floodplain	290	1388.11	1390.56	1390.46	1390.71	0.01237	3.52	103.03	0.59	9973.23	10161.31	188.08

Xsect was cut DS to gain convergence

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East (South	1.465	Floodway	290	1388.11	1390.81		1391.1	0.014617	4.33	67.2	0.66	9980	10031	51
10 East (South	1.538	Floodplain	290	1391.44	1393.55	1393.25	1393.64	0.005128	2.68	125.44	0.4	9866.61	10025.15	158.54
10 East (South	1.538	Floodway	290	1391.44	1394.4		1394.64	0.006328	4.05	72.96	0.47	9985	10018	33
10 East (South	1.630	Floodplain	290	1397.06	1397.57	1397.51	1397.73	0.017041	1.87	96.32	0.57	9851.55	10052.01	200.46
10 East (South	1.630	Floodway	290	1397.06	1398.33	1397.95	1398.48	0.01019	3.16	91.98	0.54	9969	10054	85
10 East (South	1.734	Floodplain	290	1403.58	1404.11	1403.92	1404.23	0.009221	1.48	111.08	0.43	9836.9	10021.88	184.98
10 East (South	1.734	Floodway	290	1403.58	1404.99		1405.26	0.015173	4.18	69.52	0.67	9970	10027	57
10 East (South	1.827	Floodplain	290	1406.12	1407.78	1407.47	1407.86	0.006019	2.52	131.11	0.41	9932.8	10150.56	217.76
10 East (South	1.827	Floodway	290	1406.12	1408.33	1407.41	1408.42	0.003476	2.44	118.96	0.33	9972	10041	69
10 East (South	1.878	Floodplain	290	1407.01	1409.15	1408.46	1409.24	0.004424	2.43	124.25	0.36	9831.44	10042.81	211.37
10 East (South	1.878	Floodway	290	1407.01	1409.28	1408.46	1409.37	0.003621	2.31	125.4	0.33	9955	10036	81
10 East (South	1.929	Floodplain	290	1407.01	1410.4		1410.55	0.005337	3.12	95.92	0.41	9984.18	10048.51	64.33
10 East (South	1.929	Floodway	290	1407.01	1410.42		1410.58	0.005636	3.23	90.11	0.42	9986	10036	50
10 East (South	1.979	Floodplain	290	1409.35	1411.77		1411.9	0.005008	2.96	99.82	0.4	9961.37	10025.57	64.2
10 East (South	1.979	Floodway	290	1409.35	1411.84		1411.98	0.005104	3.03	95.85	0.4	9963	10016	53
10 East (South	2.037	Floodplain	290	1411.22	1414.82	1414.82	1415.54	0.038668	6.79	42.7	1.01	9921.57	10025.36	103.79
10 East (South	2.037	Floodway	290	1411.22	1414.84	1414.84	1415.54	0.037142	6.7	43.3	1	9994.68	10025.45	30.77
10 East (South	2.053	Floodplain	290	1415.23	1418.03	1418.01	1418.45	0.031014	5.25	55.76	0.9	9885.27	10030.61	145.34
10 East (South	2.053	Floodway	290	1415.23	1418.12	1418.11	1418.69	0.03721	6.04	48.13	0.99	9989	10031.07	42.07
10 East (South	2.110	Floodplain	290	1417.55	1420.54	1419.79	1420.6	0.002989	2.01	145.99	0.3	9953.04	10066.32	113.28
10 East (South	2.110	Floodway	290	1417.55	1420.67	1419.8	1420.73	0.00263	2	145.67	0.28	9960	10055	95
10 East (South	2.169	Floodplain	290	1418.91	1421.82		1421.98	0.006957	3.28	88.47	0.46	9973.3	10029.36	56.06
10 East (South	2.169	Floodway	290	1418.91	1421.84		1422	0.006744	3.24	89.44	0.45	9973.17	10029.44	56.27
10 East (South	2.216	Floodplain	290	1421.39	1424.23		1424.44	0.014884	3.77	78.98	0.63	9985.16	10067.81	82.65
10 East (South	2.216	Floodway	290	1421.39	1424.23		1424.45	0.015482	3.84	76.18	0.64	9987	10058	71
10 East (South	2.264	Floodplain	290	1422.97	1426.19		1426.34	0.004458	3.08	95.82	0.38	9976.67	10029.32	52.65
10 East (South	2.264	Floodway	290	1422.97	1426.24		1426.39	0.004516	3.06	94.81	0.38	9980	10026	46
10 East (South	2.345	Floodplain	290	1426.43	1429.6	1429.4	1430.09	0.022123	5.61	52.38	0.81	9988.2	10028.21	40.01
10 East (South	2.345	Floodway	290	1426.43	1429.64		1430.11	0.021137	5.5	52.71	0.78	9990	10024	34
10 East (South	2.422	Floodplain	230	1430.09	1433.82		1434.01	0.004649	3.52	67.47	0.4	9990.35	10026.36	36.01
10 East (South	2.422	Floodway	230	1430.09	1433.81		1434	0.004718	3.53	67.09	0.4	9990.41	10026	35.59

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			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East (South	2.496	Floodplain	230	1434.39	1437.04	1436.77	1437.37	0.019813	4.66	49.55	0.74	9978.43	10020.8	42.37
10 East (South	2.496	Floodway	230	1434.39	1437.04	1436.77	1437.38	0.019407	4.63	49.83	0.74	9979	10020.9	41.9
10 East (South	2.578	Floodplain	230	1438.6	1441.75		1441.92	0.006431	3.31	69.59	0.44	9977.61	10018.63	41.02
10 East (South	2.578	Floodway	230	1438.6	1441.75		1441.92	0.006507	3.32	69.33	0.44	9977.67	10018.62	40.95
10 East (South	2.654	Floodplain	230	1440.78	1444.76		1445.13	0.009638	4.9	47.63	0.56	9983.83	10006.48	22.65
10 East (South	2.654	Floodway	230	1440.78	1444.77		1445.14	0.009638	4.91	46.93	0.56	9987	10006.51	19.51
10 East (South	2.718	Floodplain	230	1449.71	1451.73	1451.73	1451.96	0.033742	4.05	61.31	0.9	9975.44	10107.87	132.43
10 East (South	2.718	Floodway	230	1449.71	1451.76	1451.76	1452.09	0.040759	4.62	49.89	1	9977	10053	76
10 East (South	2.795	Floodplain	370	1453.12	1455.38	1455.08	1455.45	0.0054	2.44	173.25	0.4	9909.36	10151.93	242.57
10 East (South	2.795	Floodway	370	1453.12	1455.83	1455.11	1455.97	0.005397	2.99	123.95	0.41	9945	10022	77
10 East (South	2.847	Floodplain	370	1455.69	1457.78	1457.66	1458.07	0.019666	4.34	91.7	0.75	9975.83	10130.22	154.39
10 East (South	2.847	Floodway	370	1455.69	1457.95	1457.6	1458.19	0.013021	3.9	94.95	0.62	9976	10054	78
10 East (South	2.896	Floodplain	370	1457.81	1460.36		1460.48	0.005461	2.96	139.28	0.42	9928.3	10086.53	158.23
10 East (South	2.896	Floodway	370	1457.81	1460.38		1460.55	0.006877	3.35	110.32	0.47	9968	10039	71
10 East (South	2.970	Floodplain	370	1459.71	1462.88	1462.21	1463.23	0.009072	4.75	81.56	0.57	9976.27	10039.8	63.53
10 East (South	2.970	Floodway	370	1459.71	1463.07		1463.39	0.007512	4.53	81.81	0.52	9980	10015	35
10 East (South	3.057	Floodplain	370	1462.94	1466.56		1466.79	0.006646	4.05	105.85	0.46	9946.7	10051.33	104.63
10 East (South	3.057	Floodway	370	1462.94	1466.64		1466.95	0.007956	4.45	83.19	0.5	9980	10014	34
10 East (South	3.089	Floodplain	300	1463.96	1467.61		1467.8	0.00511	3.45	87.02	0.4	9972.48	10013.72	41.24
10 East (South	3.089	Floodway	300	1463.96	1467.78		1467.94	0.004035	3.22	93.44	0.36	9974	10013	39
10 East (South	3.151	Floodplain	300	1465.75	1469.3		1469.49	0.005209	3.49	87.55	0.41	9967.14	10011.16	44.02
10 East (South	3.151	Floodway	300	1465.75	1469.31		1469.51	0.005727	3.56	84.28	0.42	9971	10008	37
10 East (South	3.200	Floodplain	300	1467.48	1471.18		1471.68	0.014231	5.69	52.72	0.66	9990.58	10013.09	22.51
10 East (South	3.200	Floodway	300	1467.48	1471.25		1471.72	0.012841	5.53	54.25	0.62	9991	10013	22
10 East (South	3.235	Floodplain	300	1468.91	1472.99		1473.11	0.004612	2.83	106.96	0.37	9988.78	10049.96	61.18
10 East (South	3.235	Floodway	300	1468.91	1473		1473.13	0.004717	2.85	105.14	0.37	9988.77	10045	56.23
10 East (South	3.294	Floodplain	300	1472.14	1475.28	1474.88	1475.7	0.017307	5.18	57.95	0.71	9979.96	10015.1	35.14
10 East (South	3.294	Floodway	300	1472.14	1475.3	1474.87	1475.71	0.016815	5.13	58.52	0.7	9979.86	10015	35.14
10 East (South	3.349	Floodplain	300	1477.72	1480.07	1479.86	1480.32	0.01466	4.24	76.31	0.64	9936.2	10015.54	79.34
10 East (South	3.349	Floodway	300	1477.72	1480.21	1479.87	1480.56	0.016579	4.79	63.16	0.69	9973	10016	43
10 East (South	3.400	Floodplain	300	1478.8	1482.16	1481.16	1482.3	0.004439	3.2	106.04	0.38	9977.3	10089.98	112.68
10 East (South	3.400	Floodway	300	1478.8	1482.37	1481.26	1482.52	0.004032	3.22	103.5	0.36	9981	10045	64
10 East (South	3.436	Floodplain	300	1480.72	1483.48		1483.86	0.016317	4.96	60.52	0.69	9991.97	10029.73	37.76
10 East (South	3.436	Floodway	300	1480.72	1483.55		1483.9	0.014143	4.75	63.26	0.64	9992	10030.36	38.36

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			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East (South	3.473	Floodplain	300	1481.62	1485.54		1485.77	0.006441	3.94	82.98	0.45	9966.67	10028.38	61.71
10 East (South	3.473	Floodway	300	1481.62	1485.56		1485.83	0.007302	4.22	71.49	0.48	9977	10008	31
10 East (South	3.488	Floodplain	300	1482.47	1486.02		1486.19	0.004685	3.33	90.18	0.39	9980.5	10020.38	39.88
10 East (South	3.488	Floodway	300	1482.47	1486.11		1486.27	0.004227	3.21	93.45	0.37	9980.02	10020	39.98
10 East (South	3.538	Floodplain	300	1483.65	1487.41		1487.64	0.006424	3.84	78.57	0.45	9990.35	10028.26	37.91
10 East (South	3.538	Floodway	300	1483.65	1487.41		1487.64	0.006455	3.85	78.14	0.45	9990.35	10026	35.65
10 East (South	3.573	Floodplain	250	1485.78	1488.99		1489.64	0.021681	6.49	38.51	0.79	9993.56	10011.95	18.39
10 East (South	3.573	Floodway	250	1485.78	1488.99		1489.64	0.021595	6.48	38.57	0.79	9993.56	10011.96	18.4
10 East (South	3.630	Floodplain	250	1489.29	1492.36		1492.48	0.005099	3.05	98.8	0.39	9908.63	10027.43	118.8
10 East (South	3.630	Floodway	250	1489.29	1492.54		1492.73	0.00583	3.42	73.47	0.42	9974	10010	36
10 East (South	3.667	Floodplain	250	1490.92	1494.66	1494.66	1495.27	0.040381	6.27	39.85	1	9987.04	10020.57	33.53
10 East (South	3.667	Floodway	250	1490.92	1494.66	1494.65	1495.27	0.040736	6.29	39.74	1.01	9987.05	10020	32.95
10 East (South	3.724	Floodplain	250	1493.6	1498.12	1497.29	1498.19	0.004141	2.38	114.95	0.33	9871.17	10046.12	174.95
10 East (South	3.724	Floodway	250	1493.6	1498.4	1497.25	1498.52	0.004785	2.84	88.38	0.36	9977	10024	47
10 East (South	3.783	Floodplain	250	1496.47	1499.34		1499.46	0.004022	2.94	89.05	0.36	9963.68	10023.43	59.75
10 East (South	3.783	Floodway	250	1496.47	1499.74		1499.9	0.004016	3.29	76.45	0.37	9989	10020	31
10 East (South	3.818	Floodplain	140	1499.64	1501.46	1501.46	1501.73	0.038735	4.53	33.86	0.91	9990.23	10079.59	89.36
10 East (South	3.818	Floodway	140	1499.64	1501.94	1501.94	1502.54	0.039691	6.22	22.61	1	9992	10011	19
10 East (South	3.852	Floodplain	140	1502.38	1504.8	1504.63	1504.87	0.009639	2.24	67.37	0.46	9991.96	10120.01	128.05
10 East (South	3.852	Floodway	140	1502.38	1505.32	1504.83	1505.46	0.008677	3.02	46.47	0.47	9992	10029	37
10 East (South	3.905	Floodplain	140	1505.87	1507.28	1507.03	1507.34	0.008357	1.9	71.78	0.42	9959.6	10111.48	151.88
10 East (South	3.905	Floodway	140	1505.87	1507.86	1507.39	1508	0.009532	3.06	45.68	0.49	9972	10010	38
10 East (South	3.984	Floodplain	140	1509.92	1511.75	1511.35	1511.95	0.014454	3.59	40.88	0.61	9934.4	10029.58	95.18
10 East (South	3.984	Floodway	140	1509.92	1511.95		1512.1	0.010027	3.1	45.33	0.51	9976	10016	40
10 East (South	4.052	Floodplain	140	1513.66	1515.98	1515.61	1516.17	0.009591	3.81	45.62	0.52	9990.03	10054.69	64.66
10 East (South	4.052	Floodway	140	1513.66	1516		1516.32	0.013471	4.56	31.05	0.62	9991	10010	19
10 East (South	4.094	Floodplain	140	1516.62	1518.54	1518.25	1518.76	0.014516	3.81	39.43	0.62	9972.06	10021.65	49.59
10 East (South	4.094	Floodway	140	1516.62	1518.72		1518.91	0.010101	3.5	40.32	0.53	9976	10006	30
10 East (South	4.172	Floodplain	140	1521.61	1523.6		1523.77	0.010277	3.55	44.76	0.53	9983.22	10038.61	55.39
10 East (South	4.172	Floodway	140	1521.61	1523.58	1523.21	1523.84	0.014115	4.12	34.18	0.62	9985	10011	26
10 East (South	4.223	Floodplain	140	1524.05	1526.15	1525.5	1526.32	0.008748	3.35	42.82	0.49	9982.01	10022.31	40.3
10 East (South	4.223	Floodway	140	1524.05	1526.26		1526.41	0.006893	3.12	44.89	0.44	9984	10013	29
10 East (South	4.253	Floodplain	220	1525.9	1527.87	1527.62	1527.99	0.010663	2.82	78.61	0.51	9910.43	10019.45	109.02

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East (South	4.253	Floodway	220	1525.9	1528.07		1528.34	0.018701	4.22	52.18	0.7	9973	10019	46
10 East (South	4.314	Floodplain	220	1528.86	1531.21		1531.38	0.010225	3.51	69.47	0.53	9986.04	10080.96	94.92
10 East (South	4.314	Floodway	220	1528.86	1531.64		1531.82	0.006892	3.4	64.77	0.45	9985	10022	37
10 East (South	4.378	Floodplain	220	1531.66	1534.2	1533.59	1534.35	0.007642	3.22	71.09	0.46	9952.18	10012.86	60.68
10 East (South	4.378	Floodway	220	1531.66	1534.27	1533.55	1534.47	0.008901	3.59	61.31	0.5	9971	10010	39
10 East (South	4.423	Floodplain	220	1533.82	1536.91	1536.79	1537.41	0.023121	5.78	40.38	0.81	9984.57	10048.63	64.06
10 East (South	4.423	Floodway	220	1533.82	1537.14	1536.73	1537.59	0.01978	5.37	40.96	0.75	9983.17	10008.77	25.6
10 East (South	4.466	Floodplain	220	1536.43	1539.76		1539.94	0.006133	3.46	67.12	0.44	9980.4	10026.08	45.68
10 East (South	4.466	Floodway	220	1536.43	1539.81		1540	0.006217	3.53	62.75	0.44	9983	10015	32

10 EAST (EAST SPLIT-1)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East-East Spl

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East-East Sp	0.1	Floodplain	100	1482.47	1484.36	1484.04	1484.62	0.012104	4.14	24.16	0.68	9988.25	10009.48	21.23
10 East-East Sp	0.1	Floodway	100	1482.47	1484.36	1484.04	1484.62	0.012104	4.14	24.16	0.68	9988.25	10009.48	21.23
10 East-East Sp	0.130	Floodplain	100	1482.99	1485.5		1485.67	0.00504	3.33	30	0.46	9997.69	10016.14	18.45
10 East-East Sp	0.130	Floodway	100	1482.99	1485.5		1485.67	0.005072	3.34	29.93	0.46	9997.7	10016.14	18.44
10 East-East Sp	0.160	Floodplain	100	1487.41	1488.84	1488.84	1489.31	0.025417	5.5	18.35	0.98	9990.7	10016.4	25.7
10 East-East Sp	0.160	Floodway	100	1487.41	1488.84	1488.84	1489.31	0.025417	5.5	18.35	0.98	9990.7	10016.4	25.7
10 East-East Sp	0.220	Floodplain	100	1492.19	1493.46	1493.21	1493.58	0.007645	2.97	39.79	0.54	9959.24	10032.22	72.98
10 East-East Sp	0.220	Floodway	100	1492.19	1493.58		1493.75	0.008192	3.32	30.4	0.57	9989	10018	29
10 East-East Sp	0.290	Floodplain	100	1494.39	1496.43	1495.98	1496.68	0.008359	4.02	25.1	0.59	9990.61	10009.8	19.19
10 East-East Sp	0.290	Floodway	100	1494.39	1496.49	1495.98	1496.73	0.007338	3.87	25.87	0.55	9992	10009	17
10 East-East Sp	0.340	Floodplain	100	1498.66	1499.52	1499.42	1499.72	0.015106	3.7	29.09	0.74	9967.41	10016.36	48.95
10 East-East Sp	0.340	Floodway	100	1498.66	1499.52	1499.41	1499.77	0.018347	4.04	24.92	0.8	9976	10008	32
10 East-East Sp	0.400	Floodplain	100	1500.67	1502.84		1503.06	0.008743	3.83	26.13	0.59	9989.46	10009.81	20.35
10 East-East Sp	0.400	Floodway	100	1500.67	1502.89		1503.11	0.007605	3.7	27.04	0.55	9989.18	10009	19.82
10 East-East Sp	0.450	Floodplain	100	1503.15	1504.86	1504.39	1505.07	0.007325	3.66	27.63	0.55	9989.26	10011.5	22.24
10 East-East Sp	0.450	Floodway	100	1503.15	1504.83	1504.39	1505.05	0.007943	3.76	26.62	0.57	9991	10011	20
10 East-East Sp	0.510	Floodplain	100	1507.5	1508.74	1508.72	1509.15	0.025232	5.16	19.39	0.96	9987.89	10009.98	22.09
10 East-East Sp	0.510	Floodway	100	1507.5	1508.77	1508.72	1509.16	0.022428	4.98	20.09	0.91	9988	10010	22
10 East-East Sp	0.570	Floodplain	100	1509.75	1511.67	1511.1	1511.76	0.004299	2.47	41.82	0.41	9990.5	10035.14	44.64
10 East-East Sp	0.570	Floodway	100	1509.75	1511.67	1511.1	1511.77	0.004529	2.55	39.36	0.42	9991	10026	35
10 East-East Sp	0.640	Floodplain	100	1514.61	1516.37	1516.37	1516.76	0.025368	5.2	20.4	0.96	9976.02	10008.34	32.32
10 East-East Sp	0.640	Floodway	100	1514.61	1516.56	1516.56	1517.08	0.027576	5.79	17.27	1.02	9992.34	10009.46	17.12
10 East-East Sp	0.720	Floodplain	100	1519.85	1521.73		1521.77	0.006504	1.51	58.69	0.42	9973.37	10147.09	173.72
10 East-East Sp	0.720	Floodway	100	1519.85	1522.38	1522.05	1522.5	0.0069	2.86	36.7	0.5	9973	10017	44
10 East-East Sp	0.760	Floodplain	100	1522.61	1523.19	1523.05	1523.25	0.007649	1.19	49.85	0.43	9980.47	10150.88	170.41
10 East-East Sp	0.760	Floodway	100	1522.61	1524.11	1523.88	1524.29	0.010779	3.34	29.35	0.63	9986	10019	33
10 East-East Sp	0.830	Floodplain	100	1526.22	1526.4	1526.24	1526.58	0.011881	0.78	29.97	0.46	9908.67	10035.18	126.51
10 East-East Sp	0.830	Floodway	100	1526.22	1527.38	1527.09	1527.49	0.007819	2.72	36.8	0.53	9992	10037	45
10 East-East Sp	0.850	Floodplain	220	1525.9	1527.74	1527.64	1527.93	0.014996	3.78	64.68	0.73	9911.62	10017.81	106.19
10 East-East Sp	0.850	Floodway	220	1525.9	1528.18		1528.41	0.008676	3.82	58	0.6	9972	10019	47

These x-sections were cut along 10 East to gain convergence

10 EAST (EAST SPLIT-2)

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East-East Spl

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East-East Sp	0.3	Floodplain	200	1350.55	1352.04	1351.73	1352.12	0.005729	2.3	87.43	0.5	9896.95	10147.64	250.69
10 East-East Sp	0.3	Floodway	200	1350.55	1352.04	1351.73	1352.12	0.005726	2.3	87.41	0.5	9897	10146	249
10 East-East Sp	0.365	Floodplain	200	1354.06	1354.52		1354.58	0.006848	1.15	111.74	0.37	9677.98	10015.55	337.57
10 East-East Sp	0.365	Floodway	200	1354.06	1354.49	1354.38	1354.55	0.008766	1.22	101.72	0.41	9679	10014	335
10 East-East Sp	0.468	Floodplain	200	1354.91	1356.84	1356.23	1356.89	0.002904	1.85	118.53	0.32	9965.49	10117.94	152.45
10 East-East Sp	0.468	Floodway	200	1354.91	1356.93	1356.23	1356.98	0.002687	1.86	107.56	0.31	9965	10060	95
10 East-East Sp	0.531	Floodplain	200	1357.91	1358.65	1358.63	1358.81	0.015143	3.5	65.73	0.8	9899.59	10315.91	416.32
10 East-East Sp	0.531	Floodway	200	1357.91	1358.71	1358.71	1359.04	0.022728	4.58	43.88	0.99	9980	10047	67
10 East-East Sp	0.591	Floodplain	200	1360.1	1361.07	1360.86	1361.11	0.004123	1.71	126.1	0.41	9865.84	10224	358.16
10 East-East Sp	0.591	Floodway	200	1360.1	1361.62	1361.2	1361.74	0.0044	2.8	71.82	0.47	9988	10054	66
10 East-East Sp	0.650	Floodplain	200	1362.31	1363.07	1363.01	1363.2	0.012498	3.38	82.51	0.74	9930.96	10223.08	292.12
10 East-East Sp	0.650	Floodway	200	1362.31	1363.38	1363.11	1363.56	0.007907	3.49	57.79	0.63	9948	10008	60
10 East-East Sp	0.737	Floodplain	200	1366	1367.21	1367.03	1367.31	0.006873	2.18	80.28	0.53	9836.74	10020.55	183.81
10 East-East Sp	0.737	Floodway	200	1366	1367.58	1367.4	1367.82	0.011001	3.93	51.08	0.73	9964	10021	57
10 East-East Sp	0.850	Floodplain	200	1369.75	1370.9	1370.59	1371	0.005714	2.43	77.09	0.51	9981	10189.32	208.32
10 East-East Sp	0.850	Floodway	200	1369.75	1371.48	1370.98	1371.62	0.004155	2.99	67.1	0.47	9980	10034	54
10 East-East Sp	0.934	Floodplain	200	1372.46	1373.45	1373.23	1373.54	0.005651	2.6	85	0.51	9934.75	10111.66	176.91
10 East-East Sp	0.934	Floodway	200	1372.46	1373.58	1373.24	1373.7	0.005355	2.78	72.05	0.51	9963	10040	77
10 East-East Sp	1.012	Floodplain	200	1375.35	1376.56	1376.41	1376.72	0.01085	3.29	63.08	0.69	9960.35	10061.94	101.59
10 East-East Sp	1.012	Floodway	200	1375.35	1376.6	1376.44	1376.79	0.010994	3.44	58.19	0.7	9980	10058	78
10 East-East Sp	1.094	Floodplain	200	1379.1	1379.95	1379.78	1380.01	0.00564	2.12	108.25	0.49	9782.86	10041.73	258.87
10 East-East Sp	1.094	Floodway	200	1379.1	1380.05	1379.79	1380.14	0.005729	2.38	82.91	0.5	9916	10036	120
10 East-East Sp	1.150	Floodplain	200	1382.49	1383.32	1383.32	1383.44	0.018064	3.29	78.38	0.84	9733.43	10025.48	292.05
10 East-East Sp	1.150	Floodway	200	1382.49	1383.5	1383.5	1383.84	0.023766	4.66	43	1.01	9960	10026	66
10 East-East Sp	1.237	Floodplain	200	1386.57	1387.87	1387.67	1387.94	0.006189	2.34	97.76	0.52	9719.91	10055.3	335.39
10 East-East Sp	1.237	Floodway	200	1386.57	1388.23	1387.87	1388.36	0.005327	2.88	69.48	0.51	9968	10039	71
10 East-East Sp	1.306	Floodplain	200	1389.57	1390.72	1390.6	1390.89	0.011024	3.62	61.56	0.72	9961.14	10062.29	101.15
10 East-East Sp	1.306	Floodway	200	1389.57	1390.98	1390.84	1391.33	0.013268	4.74	42.29	0.81	9979	10019	40
10 East-East Sp	1.399	Floodplain	200	1391.96	1394.58	1394.24	1394.73	0.005793	3.59	68.98	0.55	9976.01	10073.94	97.93
10 East-East Sp	1.399	Floodway	200	1391.96	1395.28		1395.58	0.0061	4.44	45.31	0.59	9987	10013	26
10 East-East Sp	1.475	Floodplain	200	1395.82	1397.6	1397.44	1398.01	0.011935	5.21	40.35	0.8	9982.18	10041.55	59.37

Located in existing Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East-East Spl

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East-East Sp	1.475	Floodway	200	1395.82	1397.87	1397.41	1398.17	0.006901	4.41	45.4	0.62	9984	10013	29
10 East-East Sp	1.535	Floodplain	200	1399.77	1401.64	1401.53	1401.73	0.011313	2.68	79.98	0.67	9791.24	10040.26	249.02
10 East-East Sp	1.535	Floodway	200	1399.77	1401.7	1401.7	1401.99	0.026147	4.4	46.26	1.04	9952	10041.35	89.35
10 East-East Sp	1.612	Floodplain	200	1405.18	1405.87	1405.82	1405.96	0.009533	2.69	98.09	0.63	9882.61	10339.21	456.6
10 East-East Sp	1.612	Floodway	200	1405.18	1406.2	1405.88	1406.32	0.005668	2.79	71.73	0.52	9930	10010	80
10 East-East Sp	1.686	Floodplain	200	1407.33	1408.86	1408.72	1408.94	0.006268	2.7	92.38	0.54	9853.93	10063.64	209.71
10 East-East Sp	1.686	Floodway	200	1407.33	1408.97	1408.75	1409.17	0.009346	3.57	55.96	0.66	9967	10029	62
10 East-East Sp	1.783	Floodplain	200	1413.22	1414.05	1414.02	1414.15	0.019328	1.61	83.15	0.71	9808.5	10231.64	423.14
10 East-East Sp	1.783	Floodway	200	1413.22	1414.96	1414.86	1415.27	0.015588	4.47	44.84	0.85	9970	10022	52
10 East-East Sp	1.853	Floodplain	200	1417.22	1418.07		1418.12	0.006979	2.07	107.35	0.52	9836.47	10139.2	302.73
10 East-East Sp	1.853	Floodway	200	1417.22	1418.59	1418.25	1418.74	0.006276	3.17	63.29	0.56	9968	10031	63
10 East-East Sp	1.934	Floodplain	200	1420.3	1422.03	1421.98	1422.16	0.012972	3.44	74.08	0.75	9759.23	10046.8	287.57
10 East-East Sp	1.934	Floodway	200	1420.3	1422.24	1422.12	1422.47	0.012591	4.07	51.9	0.77	9957	10026	69
10 East-East Sp	2.034	Floodplain	200	1424.06	1426.43	1426.01	1426.67	0.006085	4.01	55.09	0.58	9935.31	10040.01	104.7
10 East-East Sp	2.034	Floodway	200	1424.06	1426.52	1426	1426.76	0.00569	3.97	50.33	0.56	9982	10014	32
10 East-East Sp	2.100	Floodplain	200	1427.19	1429.27	1429.11	1429.78	0.013402	5.75	35.1	0.85	9935.04	10021	85.96
10 East-East Sp	2.100	Floodway	200	1427.19	1429.26	1429.11	1429.78	0.013623	5.78	34.89	0.86	9935.71	10020.95	85.24
10 East-East Sp	2.176	Floodplain	200	1430.52	1432.87		1433.05	0.005353	3.56	62.77	0.54	9963.22	10035.82	72.6
10 East-East Sp	2.176	Floodway	200	1430.52	1432.95		1433.17	0.005626	3.77	53.08	0.56	9980	10017	37
10 East-East Sp	2.264	Floodplain	200	1433.64	1435.79	1435.39	1436.07	0.007918	4.24	47.13	0.65	9984.91	10021	36.09
10 East-East Sp	2.264	Floodway	200	1433.64	1435.84	1435.39	1436.1	0.007098	4.08	49.03	0.62	9984.58	10021.28	36.7
10 East-East Sp	2.357	Floodplain	200	1437.28	1439.74	1439.42	1440.13	0.008486	5.07	41.19	0.7	9981.49	10012.39	30.9
10 East-East Sp	2.357	Floodway	200	1437.28	1439.73		1440.16	0.009512	5.28	38	0.72	9985	10008	23
10 East-East Sp	2.437	Floodplain	200	1441.68	1443.84	1443.59	1444.23	0.011257	5.02	39.82	0.78	9983.03	10013.62	30.59
10 East-East Sp	2.437	Floodway	200	1441.68	1443.89	1443.59	1444.25	0.009878	4.82	41.51	0.73	9983	10013.79	30.79
10 East-East Sp	2.495	Floodplain	200	1444.53	1446.86		1447.15	0.008163	4.38	46.28	0.66	9985.56	10021.53	35.97
10 East-East Sp	2.495	Floodway	200	1444.53	1446.84		1447.15	0.009108	4.51	44.45	0.69	9985.57	10019	33.43
10 East-East Sp	2.540	Floodplain	200	1446.81	1448.74	1448.38	1448.96	0.006989	3.74	54.03	0.6	9972.12	10022.4	50.28
10 East-East Sp	2.540	Floodway	200	1446.81	1448.78		1448.98	0.006486	3.66	54.63	0.58	9978	10024.96	46.96
10 East-East Sp	2.582	Floodplain	200	1448.28	1450.65	1450.47	1451.15	0.013585	5.67	35.26	0.84	9983.56	10008.59	25.03
10 East-East Sp	2.582	Floodway	200	1448.28	1450.63	1450.47	1451.15	0.014325	5.77	34.63	0.86	9983.6	10008.5	24.9

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 10 East-East Spl

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
10 East-East Sp	2.634	Floodplain	370	1453.12	1455.09	1455.09	1455.32	0.013435	4.23	106.87	0.8	9912.6	10149.7	237.1
10 East-East Sp	2.634	Floodway	370	1453.12	1455.16	1455.11	1455.55	0.017042	5.03	74	0.91	9946	10025	79

11 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 11 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	0	Floodplain	3000	1340.72	1346	1345.45	1347.36	0.020637	9.4	324.84	0.78	9673.08	10284.7	611.62
11 East (South	0	Floodway	3000	1340.72	1346	1345.43	1347.38	0.020876	9.45	320.78	0.79	9970	10046	76
11 East (South	0.064	Floodplain	3000	1341.94	1347.81	1345.19	1347.84	0.000317	1.08	2329.81	0.1	7528.57	11337.68	3809.11
11 East (South	0.064	Floodway	3000	1341.94	1347.98	1345.41	1348.02	0.000475	1.36	1899.58	0.12	9866	10398	532
11 East (South	0.140	Floodplain	3000	1344.28	1348.05	1347.03	1348.12	0.002244	1.93	1397.77	0.23	7817.14	11487.84	3670.7
11 East (South	0.140	Floodway	3000	1344.28	1348.35	1347.45	1348.46	0.003278	2.54	1135.19	0.28	9727	10355	628
11 East (South	0.189	Floodplain	3000	1346.14	1349.09	1348.83	1349.34	0.013141	4.43	768.79	0.55	8157.45	10417.27	2259.82
11 East (South	0.189	Floodway	3000	1346.14	1349.75	1349.48	1350.1	0.013781	5.47	645	0.59	9705	10161	456
11 East (South	0.217	Floodplain	3000	1346.82	1350.41	1349.73	1350.54	0.005168	2.99	1048.36	0.35	8151.77	10509.82	2358.05
11 East (South	0.217	Floodway	3000	1346.82	1351.24	1350.54	1351.43	0.005902	3.86	853.51	0.39	9659	10132	473
11 East (South	0.270	Floodplain	3000	1349.24	1351.74	1351.02	1351.87	0.004536	2.35	1089.2	0.32	8405.42	10546.03	2140.61
11 East (South	0.270	Floodway	3000	1349.24	1352.67	1351.66	1352.81	0.004229	2.65	1020.8	0.32	9611	10190	579
11 East (South	0.337	Floodplain	3000	1350.7	1354.12	1353.45	1354.2	0.004342	2.68	1345.97	0.32	8866.3	10543.54	1677.24
11 East (South	0.337	Floodway	3000	1350.7	1355.01	1354.36	1355.15	0.004771	3.32	1002.93	0.35	9409	10026	617
11 East (South	0.403	Floodplain	3000	1353.5	1356.1	1355.67	1356.23	0.008068	3.22	1028.48	0.42	8866.53	10074.08	1207.55
11 East (South	0.403	Floodway	3000	1353.5	1357.03	1356.57	1357.22	0.007412	4.04	865.46	0.43	9449	10035	586
11 East (South	0.469	Floodplain	3000	1354.27	1358.07	1357.52	1358.19	0.005677	3.52	1098.4	0.38	8948.08	10209.14	1261.06
11 East (South	0.469	Floodway	3000	1354.27	1358.98	1358.11	1359.18	0.005905	4.37	849.9	0.41	9549	10030	481
11 East (South	0.536	Floodplain	2950	1355.53	1360.57	1360.24	1360.73	0.008244	4.11	940.56	0.45	9184.22	10301.38	1117.16
11 East (South	0.536	Floodway	2950	1355.53	1361.55	1360.79	1361.88	0.008038	4.85	637.6	0.46	9771	10038	267
11 East (South	0.613	Floodplain	2950	1358.43	1363.36		1363.5	0.005256	4.01	1072.9	0.38	9393.84	10268.46	874.62
11 East (South	0.613	Floodway	2950	1358.43	1364.32		1364.6	0.004917	4.56	689.97	0.38	9799	10030	231
11 East (South	0.677	Floodplain	2950	1360.58	1365.4	1365.05	1365.59	0.00766	4.81	910.96	0.45	9141.59	10048.79	907.2
11 East (South	0.677	Floodway	2950	1360.58	1366.27	1365.48	1366.68	0.007948	5.53	578.08	0.47	9808	10023	215
11 East (South	0.765	Floodplain	2950	1363.75	1368.68	1368.48	1368.9	0.008556	5.2	881.57	0.48	8931.68	10023.9	1092.22
11 East (South	0.765	Floodway	2950	1363.75	1369.6	1368.99	1369.97	0.007881	5.61	616.4	0.47	9758	10020	262
11 East (South	0.848	Floodplain	2950	1367.36	1371.73	1371.17	1371.87	0.005782	4.3	1045.93	0.42	8709.59	10106.44	1396.85
11 East (South	0.848	Floodway	2950	1367.36	1372.2	1371.35	1372.38	0.004173	4	875.53	0.37	9585	10025	440
11 East (South	0.920	Floodplain	1310	1369.76	1374.35		1374.85	0.015648	6.88	301.25	0.69	9858.5	10240.54	382.04
11 East (South	0.920	Floodway	1310	1369.76	1374.71	1374.71	1375.46	0.016462	7.59	208.42	0.72	9899	10022	123
11 East (South	0.999	Floodplain	1310	1373.36	1377.88		1378.04	0.004555	3.8	454.66	0.38	9905.94	10225.95	320.01

Located in existing Zone A

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 11 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	0.999	Floodway	1310	1373.36	1378.73		1379.04	0.005202	4.76	297.95	0.42	9940	10039	99
11 East (South	1.099	Floodplain	1310	1376.99	1381.25	1380.99	1381.59	0.010065	5.39	315.84	0.55	9866.31	10175.86	309.55
11 East (South	1.099	Floodway	1310	1376.99	1382.02		1382.45	0.007849	5.45	258.12	0.49	9968	10057	89
11 East (South	1.137	Floodplain	1310	1378.18	1383.07	1382.66	1383.29	0.007131	4.44	386.03	0.46	9853.71	10240.04	386.33
11 East (South	1.137	Floodway	1310	1378.18	1383.7	1382.74	1384.28	0.010257	6.07	220.81	0.57	9959	10046	87
11 East (South	1.189	Floodplain	1310	1380.98	1385.22	1384.61	1385.52	0.009503	4.73	328.77	0.53	9900.55	10172.29	271.74
11 East (South	1.189	Floodway	1310	1380.98	1386.01		1386.29	0.005477	4.21	310.9	0.41	9929	10023	94
11 East (South	1.255	Floodplain	1310	1384.67	1388.1	1387.52	1388.33	0.006901	4.12	359.92	0.45	9890.44	10137.24	246.8
11 East (South	1.255	Floodway	1310	1384.67	1388.53		1389.08	0.011951	6.01	222.11	0.61	9951	10032	81
11 East (South	1.294	Floodplain	1310	1386.3	1389.65		1389.91	0.008489	4.54	346.51	0.5	9889.35	10214.16	324.81
11 East (South	1.294	Floodway	1310	1386.3	1390.44		1390.74	0.005709	4.42	296.84	0.43	9943	10032	89
11 East (South	1.350	Floodplain	1310	1386.95	1391.87	1390.71	1392.23	0.00705	5.13	323.42	0.48	9883.44	10159.86	276.42
11 East (South	1.350	Floodway	1310	1386.95	1392.23	1390.67	1392.69	0.007209	5.49	238.58	0.49	9968	10029	61
11 East (South	1.397	Floodplain	1310	1388.32	1393.61	1393.15	1393.88	0.006017	4.79	374.01	0.44	9764.04	10159.59	395.55
11 East (South	1.397	Floodway	1310	1388.32	1394.1	1392.64	1394.66	0.008372	6.02	219.99	0.52	9970	10026	56
11 East (South	1.482	Floodplain	1310	1393.73	1396.6	1395.78	1396.83	0.006928	4.1	342.63	0.45	9843.32	10043.95	200.63
11 East (South	1.482	Floodway	1310	1393.73	1397.45		1397.76	0.005647	4.46	295.99	0.43	9929	10016	87
11 East (South	1.546	Floodplain	1310	1393.58	1398.98		1399.3	0.007605	4.77	315.09	0.48	9877.94	10078.25	200.31
11 East (South	1.546	Floodway	1310	1393.58	1399.44		1399.79	0.0063	4.71	278.09	0.45	9945	10025	80
11 East (South	1.557	Floodplain	1310	1394.13	1398.95		1399.49	0.000686	5.89	229.3	0.56	9969.94	10055.53	85.59
11 East (South	1.557	Floodway	1310	1394.13	1399.46		1399.88	0.000455	5.19	252.5	0.46	9969	10033	64
11 East (South	1.567	Floodplain	1310	1394.46	1399.16		1399.55	0.000476	4.99	262.52	0.47	9966.02	10055.11	89.09
11 East (South	1.567	Floodway	1310	1394.46	1399.63		1399.93	0.000325	4.4	297.56	0.39	9966	10042	76
11 East (South	1.578	Floodplain	1310	1395.06	1399.04		1399.69	0.000999	6.49	202	0.66	9962.29	10028.98	66.69
11 East (South	1.578	Floodway	1310	1395.06	1399.55		1400.02	0.000596	5.55	236.38	0.52	9962	10030	68
11 East (South	1.591	Floodplain	1310	1397.4	1400.24	1400.24	1401.38	0.002569	8.57	152.93	1.01	9968.18	10036.24	68.06
11 East (South	1.591	Floodway	1310	1397.4	1400.24	1400.24	1401.38	0.00258	8.58	152.74	1.01	9968.19	10036.22	68.03
11 East (South	1.598	Floodplain	1310	1398.7	1401.48	1401.48	1402.58	0.002585	8.42	155.72	1.01	9964.58	10037.42	72.84
11 East (South	1.598	Floodway	1310	1398.7	1401.49	1401.49	1402.58	0.002533	8.36	156.72	1	9965	10037	72
11 East (South	1.613	Floodplain	1310	1400.63	1402.85	1402.85	1403.52	0.003352	7.61	275.36	1.08	9249.06	10018.42	769.36
11 East (South	1.613	Floodway	1310	1400.63	1403.44	1403.44	1404.2	0.002	7.22	203.6	0.88	9885	10020	135

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 11 East (South o												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	1.634	Floodplain	1300	1400.99	1403.98	1403.61	1404.11	0.00718	2.51	455.39	0.4	9211.17	10125.15	913.98
11 East (South	1.634	Floodway	1300	1400.99	1404.37	1404.15	1404.74	0.018237	4.85	268.31	0.68	9831	10040	209
11 East (South	1.693	Floodplain	1300	1403	1406.34	1405.87	1406.5	0.008461	3.35	401.32	0.46	9905.51	10257.78	352.27
11 East (South	1.693	Floodway	1300	1403	1407.24	1406.33	1407.41	0.004858	3.41	393.83	0.38	9899.75	10100	200.25
11 East (South	1.764	Floodplain	1300	1404.98	1408.34	1407.67	1408.42	0.00359	2.45	599.26	0.31	9773.43	10312.91	539.48
11 East (South	1.764	Floodway	1300	1404.98	1409.06		1409.23	0.00491	3.53	394.38	0.38	9885	10093	208
11 East (South	1.836	Floodplain	1300	1407.45	1410.22	1410.01	1410.39	0.007883	4.16	434.21	0.48	9804.8	10270.91	466.11
11 East (South	1.836	Floodway	1300	1407.45	1411.09	1410.21	1411.38	0.006181	4.54	302.69	0.45	9916	10037	121
11 East (South	1.884	Floodplain	1300	1407.95	1412.15	1411.78	1412.35	0.007679	4.49	413.75	0.48	9668.59	10174.01	505.42
11 East (South	1.884	Floodway	1300	1407.95	1412.79		1413.2	0.008531	5.28	252.76	0.51	9921	10020	99
11 East (South	1.947	Floodplain	1300	1410.56	1414.37	1413.55	1414.54	0.004893	3.98	404.93	0.39	9746.32	10042.51	296.19
11 East (South	1.947	Floodway	1300	1410.56	1414.99	1413.48	1415.21	0.003886	3.88	346.24	0.35	9901	10023	122
11 East (South	2.011	Floodplain	1300	1411.9	1416.43	1415.91	1416.6	0.008253	3.62	404.56	0.46	9635.71	10131.56	495.85
11 East (South	2.011	Floodway	1300	1411.9	1416.82	1415.97	1417.08	0.008712	4.12	316.48	0.49	9887	10038	151
11 East (South	2.076	Floodplain	1270	1415.45	1418.57		1418.71	0.004647	3.14	431.06	0.36	9774.62	10044.48	269.86
11 East (South	2.076	Floodway	1270	1415.45	1418.92		1419.08	0.004077	3.22	400.81	0.35	9856	10047.93	191.93
11 East (South	2.163	Floodplain	1270	1418.08	1421.64		1421.9	0.010859	4.92	320.06	0.55	9721.17	10015.25	294.08
11 East (South	2.163	Floodway	1270	1418.08	1422		1422.49	0.015586	6.3	231.91	0.67	9853	10015	162
11 East (South	2.210	Floodplain	1270	1419.03	1423.05		1423.15	0.002944	2.76	501.08	0.29	9729.67	10018.64	288.97
11 East (South	2.210	Floodway	1270	1419.03	1423.78		1423.91	0.002939	3.17	426.74	0.3	9837	10020.83	183.83
11 East (South	2.285	Floodplain	1270	1422.23	1425.31	1425.24	1425.97	0.02685	6.92	198.21	0.86	9792.19	10119.7	327.51
11 East (South	2.285	Floodway	1270	1422.23	1425.82		1426.63	0.021979	7.28	177.71	0.81	9973.1	10051	77.9
11 East (South	2.350	Floodplain	1270	1425.53	1429.06	1428.2	1429.24	0.004707	3.95	410.74	0.39	9818.41	10093.94	275.53
11 East (South	2.350	Floodway	1270	1425.53	1429.81	1428.26	1430.18	0.005833	4.88	262.53	0.43	9958	10028	70
11 East (South	2.385	Floodplain	1270	1426.12	1430.19		1430.79	0.014526	6.48	219.48	0.67	9863.49	10027.43	163.94
11 East (South	2.385	Floodway	1270	1426.12	1431.02		1431.52	0.008582	5.68	223.69	0.51	9966	10025	59
11 East (South	2.438	Floodplain	1270	1428.33	1432.52		1432.69	0.003743	3.55	399.06	0.35	9972.22	10151.62	179.4
11 East (South	2.438	Floodway	1270	1428.33	1433.14		1433.54	0.006086	5.08	251.17	0.45	9978	10043	65
11 East (South	2.475	Floodplain	1270	1429.52	1433.5		1433.88	0.010251	5.35	266.52	0.56	9978.95	10119.56	140.61
11 East (South	2.475	Floodway	1270	1429.52	1434.39		1434.8	0.006773	5.17	248.52	0.47	9980	10047	67
11 East (South	2.523	Floodplain	1270	1430.85	1435.6		1435.93	0.006504	4.8	306.26	0.45	9857.82	10050.95	193.13
11 East (South	2.523	Floodway	1270	1430.85	1436		1436.34	0.00544	4.71	273.97	0.42	9946	10023	77
11 East (South	2.561	Floodplain	1270	1432.14	1437.08	1436.53	1437.87	0.013091	7.61	202.63	0.66	9870.01	10064.05	194.04
11 East (South	2.561	Floodway	1270	1432.14	1437.2		1438.3	0.015782	8.5	153.61	0.72	9974	10017	43

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 11 East (South o												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	2.618	Floodplain	1270	1434.36	1439.47		1439.7	0.003222	4.16	333.94	0.39	9861.79	10014.09	152.3
11 East (South	2.618	Floodway	1270	1434.36	1440.12		1440.48	0.003766	5.04	265.16	0.44	9927	10017	90
11 East (South	2.675	Floodplain	1030	1436.33	1441.89	1441.89	1442.36	0.009021	6.29	228.22	0.65	9684.07	10018.54	334.47
11 East (South	2.675	Floodway	1030	1436.33	1442.19	1442.19	1442.9	0.010294	7.14	173.03	0.7	9871	10018	147
11 East (South	2.737	Floodplain	1030	1439.76	1444.07	1443.56	1444.23	0.003947	3.69	361.92	0.42	9528.33	10167.46	639.13
11 East (South	2.737	Floodway	1030	1439.76	1444.84	1444.46	1445.1	0.00456	4.78	283.87	0.48	9861	10076	215
11 East (South	2.786	Floodplain	1030	1441.2	1446.07	1446.07	1446.34	0.010437	5.35	296.88	0.65	9579.42	10205.81	626.39
11 East (South	2.786	Floodway	1030	1441.2	1446.41		1446.89	0.011357	6.17	198.18	0.69	9903	10054	151
11 East (South	2.846	Floodplain	1030	1445.54	1448.14	1447.6	1448.25	0.003923	3.51	400.63	0.42	9789.73	10354.73	565
11 East (South	2.846	Floodway	1030	1445.54	1448.63	1448.01	1448.81	0.003677	3.89	309.43	0.42	9970	10165	195
11 East (South	2.906	Floodplain	1030	1447.52	1450	1449.84	1450.51	0.014064	5.12	192.66	0.75	9858.49	10201.07	342.58
11 East (South	2.906	Floodway	1030	1447.52	1450.23		1450.65	0.009481	4.51	203.93	0.63	9950.5	10197	246.5
11 East (South	2.985	Floodplain	1030	1452.14	1454.41	1454.14	1454.56	0.006898	3.29	345.7	0.51	9768.56	10265.38	496.82
11 East (South	2.985	Floodway	1030	1452.14	1454.42	1454.09	1454.75	0.009929	3.96	225.08	0.62	9958	10134	176
11 East (South	3.054	Floodplain	1030	1454.8	1457.64	1457.58	1457.84	0.012477	3.85	300.05	0.66	9735.9	10574.08	838.18
11 East (South	3.054	Floodway	1030	1454.8	1458.02	1457.77	1458.41	0.010399	4.33	209.92	0.64	9967	10116	149
11 East (South	3.120	Floodplain	1030	1458.05	1460.21	1459.85	1460.34	0.005199	3.09	356.18	0.45	9955.31	10768.48	813.17
11 East (South	3.120	Floodway	1030	1458.05	1461.07	1460.72	1461.35	0.007693	4.59	248.18	0.58	9963	10154	191
11 East (South	3.201	Floodplain	1030	1461.08	1464.76	1464.76	1465.08	0.017086	5.35	238.22	0.81	9938.63	10779.45	840.82
11 East (South	3.201	Floodway	1030	1461.08	1464.98	1464.81	1465.26	0.010784	4.71	248.46	0.66	9979	10226	247
11 East (South	3.278	Floodplain	1030	1464.95	1468.76	1468.6	1469.02	0.00616	5.36	278.83	0.53	9941.75	10697.33	755.58
11 East (South	3.278	Floodway	1030	1464.95	1468.88	1468.74	1469.39	0.009225	6.71	189.52	0.65	9955	10076	121
11 East (South	3.332	Floodplain	1030	1468.15	1470.74	1470.41	1471.15	0.009153	5.5	209.96	0.64	9858.67	10056.08	197.41
11 East (South	3.332	Floodway	1030	1468.15	1471.26		1471.75	0.007518	5.71	190	0.6	9972	10061	89
11 East (South	3.373	Floodplain	560	1469.62	1472.76		1472.87	0.00583	2.82	211.06	0.41	9912.16	10174.7	262.54
11 East (South	3.373	Floodway	560	1469.62	1473.22		1473.46	0.008183	4	141.27	0.51	9938	10013	75
11 East (South	3.430	Floodplain	560	1472.15	1474.91		1475.09	0.009304	2.94	169.46	0.49	9911.23	10141.54	230.31
11 East (South	3.430	Floodway	560	1472.15	1475.72		1475.96	0.008388	3.91	143.58	0.51	9956	10034	78
11 East (South	3.479	Floodplain	560	1474.51	1477.46		1477.61	0.009453	2.99	190.98	0.49	9858.14	10162.49	304.35
11 East (South	3.479	Floodway	560	1474.51	1478.17		1478.47	0.010993	4.39	128.04	0.56	9965	10036	71
11 East (South	3.534	Floodplain	560	1477.37	1480.27		1480.4	0.009817	2.79	192.52	0.49	9859.67	10104.33	244.66
11 East (South	3.534	Floodway	560	1477.37	1481.09		1481.36	0.008929	3.98	136.07	0.52	9958	10034	76
11 East (South	3.592	Floodplain	560	1479.75	1483.08		1483.44	0.009623	4.93	125.71	0.57	9935.39	10050.26	114.87

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 11 East (South o												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	3.592	Floodway	560	1479.75	1483.36		1483.62	0.006176	4.26	141.25	0.46	9955	10030	75
11 East (South	3.629	Floodplain	560	1481.75	1484.7		1484.84	0.005401	3.32	193.43	0.41	9883.67	10046.59	162.92
11 East (South	3.629	Floodway	560	1481.75	1484.77		1485.05	0.008477	4.26	133.35	0.52	9976	10047.43	71.43
11 East (South	3.675	Floodplain	560	1483.81	1486.82	1486.73	1487.08	0.019536	4.45	144.39	0.72	9855.05	10121.63	266.58
11 East (South	3.675	Floodway	560	1483.81	1487.36	1486.94	1487.74	0.01487	4.96	113.17	0.67	9963	10029	66
11 East (South	3.729	Floodplain	560	1486.59	1489.9	1489.57	1490.04	0.006328	3.38	212.96	0.44	9821.51	10172.05	350.54
11 East (South	3.729	Floodway	560	1486.59	1490.41	1489.47	1490.7	0.007666	4.34	129.11	0.5	9963	10018	55
11 East (South	3.780	Floodplain	560	1490.21	1492.05	1491.55	1492.28	0.011272	3.84	147.78	0.57	9911.27	10029.86	118.59
11 East (South	3.780	Floodway	560	1490.21	1492.37		1492.52	0.005956	3.18	176.03	0.42	9926	10026	100
11 East (South	3.834	Floodplain	560	1492.1	1495.89	1495.76	1496.3	0.017227	5.69	116.92	0.72	9975.24	10093.53	118.29
11 East (South	3.834	Floodway	560	1492.1	1496.08	1496.08	1496.79	0.022898	6.99	86.28	0.84	9978	10036	58
11 East (South	3.885	Floodplain	560	1494.04	1498.47		1498.63	0.005013	3.26	175.31	0.39	9962.31	10054.55	92.24
11 East (South	3.885	Floodway	560	1494.04	1498.73		1498.87	0.003663	3.02	186.31	0.34	9963	10041	78
11 East (South	3.931	Floodplain	560	1497.27	1500.34	1500.29	1500.71	0.016381	5.47	125.02	0.71	9939.15	10094.1	154.95
11 East (South	3.931	Floodway	560	1497.27	1500.37	1500.37	1501	0.024139	6.71	90.93	0.86	9974.45	10045	70.55
11 East (South	3.991	Floodplain	560	1500.24	1503.89	1503.66	1504.08	0.007346	4.05	178.1	0.48	9824.62	10015.72	191.1
11 East (South	3.991	Floodway	560	1500.24	1504.52	1503.31	1504.87	0.007197	4.75	120.72	0.5	9968	10016	48
11 East (South	4.043	Floodplain	560	1502.89	1505.98	1505.5	1506.17	0.008313	4.14	161.53	0.5	9867.32	10062.67	195.35
11 East (South	4.043	Floodway	560	1502.89	1506.71	1506.07	1507.08	0.009312	4.64	115.3	0.54	9965	10020	55
11 East (South	4.077	Floodplain	560	1504.49	1507.69		1508.01	0.012715	4.86	129.35	0.62	9931.67	10073.08	141.41
11 East (South	4.077	Floodway	560	1504.49	1508.48		1508.85	0.010669	4.89	114.7	0.58	9969	10021	52
11 East (South	4.114	Floodplain	560	1505.97	1509.78		1510.02	0.008571	4.11	150.74	0.52	9953.63	10092.7	139.07
11 East (South	4.114	Floodway	560	1505.97	1510.2		1510.46	0.006573	4.09	137.31	0.47	9967	10026.21	59.21
11 East (South	4.158	Floodplain	560	1506.79	1511.56		1511.82	0.007147	4.17	143.78	0.48	9948.21	10045.08	96.87
11 East (South	4.158	Floodway	560	1506.79	1511.7		1511.96	0.00649	4.13	136.36	0.46	9981	10037	56
11 East (South	4.208	Floodplain	560	1509.81	1514.05		1514.56	0.015094	5.75	100.4	0.67	9918.04	10044.9	126.86
11 East (South	4.208	Floodway	560	1509.81	1514.06		1514.57	0.015277	5.78	98.71	0.68	9987.49	10044.92	57.43
11 East (South	4.254	Floodplain	560	1511.58	1516.79		1517.18	0.007906	5.36	129.24	0.51	9906.71	10073.45	166.74
11 East (South	4.254	Floodway	560	1511.58	1517.35		1517.76	0.011255	5.14	110.55	0.59	9981.71	10031	49.29
11 East (South	4.284	Floodplain	560	1511.9	1518.1		1518.31	0.006926	3.08	155.09	0.43	9922.13	10021.37	99.24
11 East (South	4.284	Floodway	560	1511.9	1519.05		1519.42	0.009982	4.96	116.37	0.54	9973	10021	48
11 East (South	4.323	Floodplain	560	1517.14	1519.94		1520.28	0.014124	3.87	125.02	0.61	9869.77	10045.02	175.25
11 East (South	4.323	Floodway	560	1517.14	1520.9		1521.13	0.007102	4.02	148.99	0.48	9951	10045	94

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 11 East (South o												
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	4.341	Floodplain	560	1518.4	1521.47	1521.28	1521.64	0.012748	3.65	172.88	0.58	9783.56	10036.12	252.56
11 East (South	4.341	Floodway	560	1518.4	1522.08	1522.08	1522.72	0.024871	6.65	88.53	0.86	9970	10035	65
11 East (South	4.354	Floodplain	560	1519.37	1522.16		1522.32	0.008561	3.69	194.58	0.5	9765.65	10044.57	278.92
11 East (South	4.354	Floodway	560	1519.37	1523.16		1523.35	0.004217	3.54	161.95	0.38	9965	10030	65
11 East (South	4.394	Floodplain	560	1522.07	1524.42	1524.14	1524.72	0.013996	4.55	135.54	0.64	9789.23	10035.81	246.58
11 East (South	4.394	Floodway	560	1522.07	1524.53	1524.1	1524.9	0.014405	4.83	115.96	0.65	9968	10036.36	68.36
11 East (South	4.461	Floodplain	970	1525.22	1528.69	1528.54	1529.13	0.011785	5.95	201.34	0.64	9890.62	10052.66	162.04
11 East (South	4.461	Floodway	970	1525.22	1528.94	1528.52	1529.52	0.012307	6.45	164.98	0.66	9970	10055	85
11 East (South	4.522	Floodplain	970	1525.58	1532.03	1531.75	1532.42	0.008867	5.71	212.92	0.54	9949.34	10105.73	156.39
11 East (South	4.522	Floodway	970	1525.58	1532.51		1533.15	0.010128	6.66	156.9	0.59	9978	10034	56
11 East (South	4.552	Floodplain	970	1527.47	1533.28	1532.84	1533.63	0.006994	5.32	221.57	0.5	9979.28	10110.02	130.74
11 East (South	4.552	Floodway	970	1527.47	1533.95	1532.95	1534.49	0.007286	6.1	169.25	0.53	9983	10036	53
11 East (South	4.606	Floodplain	970	1530.11	1534.96	1533.54	1535.33	0.005174	4.88	198.79	0.45	9953.55	10031.46	77.91
11 East (South	4.606	Floodway	970	1530.11	1535.68	1533.57	1535.99	0.003719	4.49	216.17	0.38	9972	10021	49
11 East (South	4.615	Floodplain	910	1528.94	1535.04		1535.75	0.005969	6.88	139.04	0.52	9986.11	10013.5	27.39
11 East (South	4.615	Floodway	910	1528.94	1535.73		1536.37	0.006119	6.43	142.96	0.45	9989	10012	23

11 EAST DIKE FAILURE

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 11 East (South o Profile: Floodplain

Located in Zone AH

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
11 East (South	0	Floodplain	3000	1340.72	1346	1345.45	1347.36	0.020637	9.4	324.84	0.78	9673.08	10284.7	611.62
11 East (South	0.064	Floodplain	3000	1341.94	1347.51	1344.2	1347.52	0.000021	0.26	9375.4	0.02	7537.18	11335.28	3798.1
11 East (South	0.140	Floodplain	3000	1344.28	1347.53	1345.88	1347.54	0.00026	0.6	4096.91	0.08	7862.74	11438.45	3575.71
11 East (South	0.189	Floodplain	3000	1346.14	1347.64	1346.82	1347.69	0.002127	1.12	1755.52	0.2	8170.19	10244.88	2074.69
11 East (South	0.217	Floodplain	3000	1346.82	1348.23	1347.97	1348.36	0.010599	2.22	1031.27	0.43	8331.07	10020.87	1689.8
11 East (South	0.270	Floodplain	3000	1349.24	1349.92	1349.25	1349.99	0.003357	0.87	1448.53	0.22	8423.21	10012.5	1589.29
11 East (South	0.337	Floodplain	3000	1350.7	1353.59	1353.45	1353.88	0.020721	5.46	714.05	0.68	8869.37	10413.94	1544.57

BONITA DIKE CHANNEL

HEC-RAS Plan: Bonita Dike River: Reach #1 Reach: Bonita Dike Chan Profile: Floodplain														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
Bonita Dike Chan		Floodplain	140	1404.62	1407.13	1406.43	1407.23	0.009111	2.56	54.79	0.44	10003.96	10057.09	53.13
Bonita Dike Chan	0.018	Floodplain	140	1407.23	1408.85	1408.85	1409.28	0.047862	5.3	26.53	1	9984.14	10014.79	30.65
Bonita Dike Chan	0.059	Floodplain	140	1408.71	1411.7		1411.84	0.005172	3.14	47.99	0.37	9988.91	10019.49	30.58
Bonita Dike Chan	0.116	Floodplain	140	1409.67	1413.13		1413.25	0.004205	2.79	51.75	0.34	9985.65	10013.53	27.88
Bonita Dike Chan	0.148	Floodplain	140	1412.71	1414.55	1414.48	1414.95	0.039939	5.09	27.53	0.92	9981.45	10010.47	29.02
Bonita Dike Chan	0.186	Floodplain	140	1413.78	1416.2		1416.24	0.002377	1.46	100.07	0.23	9938.14	10040.44	102.3
Bonita Dike Chan	0.241	Floodplain	140	1415.17	1417.19		1417.26	0.005755	2.12	67.23	0.36	9959.12	10029.16	70.04
Bonita Dike Chan	0.283	Floodplain	140	1415.91	1418.04		1418.07	0.002491	1.54	93.71	0.24	9952.87	10039.58	86.71

used to gain convergence in model

12 EAST

HEC-RAS Plan: 310.032	River: Reach #1	Reach: 12 East (South o													
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
12 East (South	2.62	Floodplain	360	1436.34	1437.95	1437.13	1438.08	0.009714	2.32	124.16	0.44	9982.55	10114.56	132.01
12 East (South	2.62	Floodway	360	1436.34	1437.95	1437.13	1438.08	0.009709	2.32	124.18	0.44	9982.55	10114.56	132.01
12 East (South	2.637	Floodplain	360	1437.81	1439.62	1439.47	1439.85	0.025114	4	93.48	0.73	9975.18	10089.33	114.15
12 East (South	2.637	Floodway	360	1437.81	1439.81	1439.81	1440.38	0.046228	6.1	59.6	1.01	9975.12	10029	53.88
12 East (South	2.712	Floodplain	360	1441.08	1444.26	1443.98	1444.33	0.00626	2.79	183.48	0.39	9836.91	10150.2	313.29
12 East (South	2.712	Floodway	360	1441.08	1445.22	1444.04	1445.42	0.005774	3.59	100.39	0.39	9982	10021	39
12 East (South	2.770	Floodplain	360	1443.28	1446.37	1446.03	1446.49	0.007828	3.09	142.17	0.44	9840.73	10167.43	326.7
12 East (South	2.770	Floodway	360	1443.28	1446.98	1446.06	1447.1	0.005048	2.82	137.67	0.36	9955	10053	98
12 East (South	2.814	Floodplain	360	1445.11	1448.63	1448.51	1448.87	0.014207	4.34	101.88	0.59	9880.88	10018.86	137.98
12 East (South	2.814	Floodway	360	1445.11	1448.72		1449.04	0.015057	4.73	84.84	0.62	9938	10017	79
12 East (South	2.862	Floodplain	360	1446.71	1450.52		1450.66	0.004195	3.08	120.85	0.34	9965.78	10024.46	58.68
12 East (South	2.862	Floodway	360	1446.71	1450.62		1450.77	0.003816	3.03	119.33	0.33	9966	10012	46
12 East (South	2.896	Floodplain	360	1449.12	1451.86	1451.86	1452.62	0.033952	7.1	53.1	0.93	9995.23	10034.25	39.02
12 East (South	2.896	Floodway	360	1449.12	1451.88	1451.88	1452.62	0.032647	7.02	53.97	0.91	9995.16	10036.25	41.09
12 East (South	2.973	Floodplain	360	1452.39	1456.13		1456.27	0.003945	3.03	124.51	0.34	9949.01	10024.89	75.88
12 East (South	2.973	Floodway	360	1452.39	1456.14		1456.28	0.004027	3.05	119.49	0.34	9963	10015	52
12 East (South	2.991	Floodplain	360	1453.79	1456.76	1456.76	1457.55	0.030713	7.34	52.04	0.89	9948.58	10006.49	57.91
12 East (South	2.991	Floodway	360	1453.79	1456.75	1456.75	1457.55	0.030718	7.34	51.79	0.89	9950	10006.48	56.48
12 East (South	3.046	Floodplain	360	1456.31	1460.09		1460.22	0.004158	3.06	138.97	0.35	9954.22	10075.77	121.55
12 East (South	3.046	Floodway	360	1456.31	1460.2		1460.36	0.004478	3.21	115.12	0.35	9974	10027	53
12 East (South	3.090	Floodplain	360	1458.41	1461.54		1461.79	0.012268	4.02	90.53	0.53	9959.92	10016.44	56.52
12 East (South	3.090	Floodway	360	1458.41	1461.65		1461.87	0.01024	3.81	94.48	0.48	9967	10016	49
12 East (South	3.129	Floodplain	360	1459.69	1463.26		1463.44	0.005495	3.4	110.96	0.37	9959.88	10015.49	55.61
12 East (South	3.129	Floodway	360	1459.69	1463.27		1463.46	0.005882	3.52	103.28	0.38	9975	10015	40
12 East (South	3.170	Floodplain	360	1461.91	1465.24		1465.67	0.023932	5.3	70.1	0.72	9978.85	10054.4	75.55
12 East (South	3.170	Floodway	360	1461.91	1465.3		1465.73	0.022247	5.21	69.1	0.7	9980	10020	40
12 East (South	3.216	Floodplain	360	1463.93	1467.83		1467.99	0.005086	3.37	120.78	0.36	9941.09	10078.71	137.62
12 East (South	3.216	Floodway	360	1463.93	1467.83		1468	0.005122	3.38	112.83	0.36	9959	10014	55
12 East (South	3.262	Floodplain	360	1464.67	1469.07		1469.24	0.005181	3.34	107.72	0.36	9981.87	10022.5	40.63
12 East (South	3.262	Floodway	360	1464.67	1469.08		1469.25	0.005137	3.33	108.05	0.36	9981.83	10022.57	40.74
12 East (South	3.283	Floodplain	360	1466.11	1469.91		1470.25	0.01671	4.62	78.43	0.6	9969.64	10016.65	47.01

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 12 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
12 East (South	3.283	Floodway	360	1466.11	1469.92		1470.25	0.016783	4.63	77.81	0.6	9975	10016.65	41.65
12 East (South	3.303	Floodplain	360	1467.33	1471.17		1471.38	0.007118	3.71	97.14	0.42	9990.39	10029.96	39.57
12 East (South	3.303	Floodway	360	1467.33	1471.17		1471.38	0.007083	3.7	97.29	0.42	9990.34	10029.97	39.63
12 East (South	3.342	Floodplain	360	1469.19	1472.57		1472.69	0.005633	2.86	125.98	0.36	9973.48	10037.01	63.53
12 East (South	3.342	Floodway	360	1469.19	1472.57		1472.69	0.005633	2.86	125.98	0.36	9973.48	10037.01	63.53
12 East (South	3.410	Floodplain	360	1473.29	1475.61	1475.04	1475.83	0.014784	3.81	94.44	0.56	9955.78	10023.03	67.25
12 East (South	3.410	Floodway	360	1473.29	1475.61	1475.04	1475.83	0.014785	3.81	94.4	0.56	9955.78	10022	66.22
12 East (South	3.460	Floodplain	360	1475.01	1478.48		1478.71	0.008562	4.02	98.69	0.46	9979.86	10048.79	68.93
12 East (South	3.460	Floodway	360	1475.01	1478.48		1478.71	0.00856	4.02	98.69	0.46	9979.86	10048.79	68.93
12 East (South	3.506	Floodplain	360	1477.4	1480.74		1480.99	0.010149	4.03	89.23	0.49	9970.7	10013.34	42.64
12 East (South	3.506	Floodway	360	1477.4	1480.74		1480.99	0.010149	4.03	89.23	0.49	9970.7	10013.34	42.64
12 East (South	3.582	Floodplain	360	1480.57	1484.28		1484.58	0.007899	4.35	83.8	0.45	9981.65	10013.09	31.44
12 East (South	3.582	Floodway	360	1480.57	1484.28		1484.57	0.007912	4.35	83.67	0.45	9982	10013	31
12 East (South	3.649	Floodplain	360	1484.66	1487.27	1486.62	1487.44	0.008159	3.47	107.97	0.44	9942.2	10015.5	73.3
12 East (South	3.649	Floodway	360	1484.66	1487.5		1487.79	0.010389	4.21	84.76	0.5	9975	10015.82	40.82
12 East (South	3.716	Floodplain	360	1487.58	1490.95	1490.16	1491.37	0.015166	5.19	69.32	0.6	9984.05	10014.12	30.07
12 East (South	3.716	Floodway	360	1487.58	1491.21		1491.55	0.010746	4.67	77.06	0.51	9984	10014	30
12 East (South	3.804	Floodplain	290	1493.41	1496.32	1495.39	1496.49	0.007744	3.47	94.77	0.43	9972.7	10112.82	140.12
12 East (South	3.804	Floodway	290	1493.41	1496.28	1495.38	1496.53	0.010605	4.04	71.84	0.5	9973	10008.23	35.23
12 East (South	3.867	Floodplain	290	1496.2	1499.67	1499.28	1499.9	0.014277	4.3	79.97	0.53	9893.28	10008.4	115.12
12 East (South	3.867	Floodway	290	1496.2	1500.41		1500.83	0.015917	5.41	60.45	0.57	9951	10008	57
12 East (South	3.902	Floodplain	290	1499.97	1501.48	1501.03	1501.55	0.006787	2.12	131.79	0.36	9852.27	10012.68	160.41
12 East (South	3.902	Floodway	290	1499.97	1502.03		1502.1	0.003861	2.09	133.36	0.29	9911	10011	100
12 East (South	3.951	Floodplain	290	1501.72	1504.05		1504.24	0.017626	3.9	83.74	0.59	9837.6	10004.64	167.04
12 East (South	3.951	Floodway	290	1501.72	1504.46	1504.46	1504.91	0.030469	5.83	59.53	0.79	9909	10004	95
12 East (South	4.021	Floodplain	290	1505.89	1508.51	1507.99	1508.61	0.00827	3.05	121.55	0.42	9804.79	10032.67	227.88
12 East (South	4.021	Floodway	290	1505.89	1509.2	1508.36	1509.36	0.006319	3.37	92.07	0.39	9975	10026	51
12 East (South	4.088	Floodplain	290	1508.56	1511.76	1510.99	1512.01	0.010675	4.19	78.07	0.5	9950.58	10027.91	77.33
12 East (South	4.088	Floodway	290	1508.56	1511.88		1512.14	0.009613	4.13	74.34	0.48	9977	10027	50
12 East (South	4.127	Floodplain	360	1512.45	1514.26	1514.04	1514.41	0.012854	3.44	124.52	0.52	9842.96	10033.42	190.46
12 East (South	4.127	Floodway	360	1512.45	1514.33	1514.01	1514.51	0.013774	3.67	108.83	0.54	9912	10033	121

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 12 East (South o														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
12 East (South	4.166	Floodplain	360	1513.51	1516.36	1516.13	1516.48	0.008264	3.32	143.25	0.43	9825.05	10015.35	190.3
12 East (South	4.166	Floodway	360	1513.51	1516.83		1517.15	0.011652	4.56	79.08	0.52	9982	10015.81	33.81
12 East (South	4.239	Floodplain	360	1516.22	1519.29	1518.31	1519.49	0.007628	3.77	107.1	0.43	9948.41	10109.84	161.43
12 East (South	4.239	Floodway	360	1516.22	1519.75	1518.29	1519.93	0.004885	3.37	106.95	0.35	9980	10018	38
12 East (South	4.299	Floodplain	360	1518.86	1522.53		1522.72	0.014258	3.72	105.72	0.54	9920.71	10063.76	143.05
12 East (South	4.299	Floodway	360	1518.86	1522.6		1523.01	0.026052	5.15	69.92	0.74	9979	10025.88	46.88
12 East (South	4.332	Floodplain	360	1520.71	1524.43	1523.3	1524.71	0.009344	4.38	88.83	0.48	9913.6	10030.19	116.59
12 East (South	4.332	Floodway	360	1520.71	1524.85	1523.3	1525.09	0.00681	3.98	90.45	0.4	9978	10008	30
12 East (South	4.365	Floodplain	360	1521.79	1525.98		1526.22	0.007808	3.95	95.58	0.43	9975.55	10032.38	56.83
12 East (South	4.365	Floodway	360	1521.79	1526.11		1526.34	0.007333	3.9	92.32	0.42	9987	10021	34
12 East (South	4.423	Floodplain	360	1523.19	1528.33		1528.6	0.007685	4.17	86.38	0.43	9976.85	10006.46	29.61
12 East (South	4.423	Floodway	360	1523.19	1528.35		1528.61	0.007507	4.14	87	0.43	9976.78	10006.48	29.7
12 East (South	4.494	Floodplain	360	1527.29	1531.57		1531.91	0.01014	4.71	77.8	0.5	9983.42	10016.45	33.03
12 East (South	4.494	Floodway	360	1527.29	1531.57		1531.92	0.010342	4.75	75.86	0.51	9988	10016	28
12 East (South	4.554	Floodplain	360	1527.62	1535.45		1536.01	0.015888	6.04	59.63	0.42	9994.03	10003.48	9.45
12 East (South	4.554	Floodway	360	1527.62	1535.47		1536.04	0.015667	6.01	59.88	0.42	9994.03	10003.49	9.46

12 EAST SPLIT

used to gain convergence in model

HEC-RAS Plan: 12E_Split River: Reach #2 Reach: 12E_Split Profile: Floodplain														
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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
12E_Split	3.716	Floodplain	360	1487.58	1490.96	1490.15	1491.37	0.014959	5.16	69.71	0.6	9983.97	10014.16	30.19
12E_Split	3.795	Floodplain	70	1493.56	1495.64	1494.59	1495.69	0.002834	1.63	42.82	0.24	9982.11	10012.54	30.43
12E_Split	3.854	Floodplain	70	1497.02	1498.01	1498.01	1498.34	0.059761	4.59	15.36	0.99	9987.98	10012.27	24.29
12E_Split	3.933	Floodplain	70	1501.08	1503.01	1502.09	1503.08	0.004667	2.13	32.8	0.31	9989.44	10011.9	22.46
12E_Split	3.997	Floodplain	70	1506.18	1506.95	1506.95	1507.26	0.062769	4.45	15.73	1	9987.94	10013.68	25.74
12E_Split	4.070	Floodplain	70	1510.28	1512.13	1511.51	1512.18	0.005307	1.77	39.56	0.31	9977.78	10017.88	40.1
12E_Split	4.109	Floodplain	360	1512.45	1514.26	1514.04	1514.41	0.012681	3.41	125.22	0.52	9842.58	10033	190.42

13 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 13 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
13 East (South	0.848	Floodplain	1830	1368.78	1371.52	1371.15	1371.71	0.009408	4.11	602.43	0.51	8873.76	10248.75	1374.99
13 East (South	0.848	Floodway	1830	1368.78	1371.87	1371.55	1372.14	0.009404	4.57	468.4	0.52	9734	10072	338
13 East (South	0.917	Floodplain	1830	1371.21	1374.52	1373.99	1374.73	0.007423	4.26	594.19	0.47	9251.55	10103.46	851.91
13 East (South	0.917	Floodway	1830	1371.21	1374.92	1373.92	1375.24	0.007792	4.81	438.48	0.49	9782	10042	260
13 East (South	0.995	Floodplain	1830	1373.8	1377.56	1377.31	1377.73	0.008113	4.8	656.89	0.5	9552.49	10408.67	856.18
13 East (South	0.995	Floodway	1830	1373.8	1378.21		1378.55	0.009094	5.67	421.56	0.53	9766	10027	261
13 East (South	1.090	Floodplain	1830	1376.66	1380.99	1380.4	1381.13	0.006032	3.78	641.29	0.42	9565.52	10134.18	568.66
13 East (South	1.090	Floodway	1830	1376.66	1381.55	1380.68	1381.73	0.004907	3.9	552	0.39	9750	10056	306
13 East (South	1.189	Floodplain	1830	1380.76	1384.72	1384.46	1384.9	0.009188	4.74	585.41	0.52	9629.13	10322.75	693.62
13 East (South	1.189	Floodway	1830	1380.76	1385.43	1385.39	1385.93	0.015487	6.85	357.23	0.69	9813	10083	270
13 East (South	1.284	Floodplain	1830	1384.15	1388.26		1388.4	0.005654	4.1	681.72	0.42	9781.81	10496.55	714.74
13 East (South	1.284	Floodway	1830	1384.15	1389.26		1389.46	0.00406	4.21	543.54	0.37	9875	10155	280
13 East (South	1.368	Floodplain	1830	1386.61	1390.79	1390.52	1390.99	0.007586	4.67	590.16	0.48	9777.27	10501.01	723.74
13 East (South	1.368	Floodway	1830	1386.61	1391.51	1391.41	1392.06	0.011432	6.66	352.95	0.61	9946	10170	224
13 East (South	1.446	Floodplain	1830	1389.5	1394.34	1394.18	1394.71	0.00882	5.62	451.82	0.54	9883.04	10531.62	648.58
13 East (South	1.446	Floodway	1830	1389.5	1395.15	1394.17	1395.49	0.005517	5.12	416.71	0.44	9939	10107	168
13 East (South	1.529	Floodplain	1830	1392.4	1397.41		1397.65	0.005387	4.41	506.15	0.42	9935.34	10218.32	282.98
13 East (South	1.529	Floodway	1830	1392.4	1397.77		1398.2	0.006983	5.38	356.46	0.49	9966	10078	112
13 East (South	1.581	Floodplain	1810	1393.78	1398.85		1399.23	0.005952	5.34	412.84	0.46	9901.95	10116.93	214.98
13 East (South	1.581	Floodway	1810	1393.78	1399.5		1400.02	0.006047	5.78	314.25	0.46	9958	10022	64
13 East (South	1.635	Floodplain	1810	1395.54	1400.91	1400.53	1401.63	0.01158	7.34	319.24	0.63	9800.98	10030.37	229.39
13 East (South	1.635	Floodway	1810	1395.54	1401.57		1402.47	0.011655	7.65	236.71	0.61	9967	10015	48
13 East (South	1.737	Floodplain	460	1397.83	1404.15		1404.19	0.000778	1.95	349.13	0.16	9748.6	10063.68	315.08
13 East (South	1.737	Floodway	460	1397.83	1405.07		1405.14	0.000831	2.27	237.99	0.17	9938	10017	79
13 East (South	1.794	Floodplain	460	1399.36	1404.51		1404.77	0.006742	4.11	117.79	0.43	9922.58	10012.6	90.02
13 East (South	1.794	Floodway	460	1399.36	1405.44		1405.59	0.002959	3.18	144.84	0.3	9972	10013	41
13 East (South	1.842	Floodplain	460	1401.15	1406.18		1406.52	0.006753	4.75	104.15	0.44	9965.59	10020.11	54.52
13 East (South	1.842	Floodway	460	1401.15	1406.37		1406.7	0.006181	4.66	98.93	0.43	9990	10017	27
13 East (South	1.896	Floodplain	460	1403.26	1408.13		1408.36	0.006091	3.9	117.98	0.42	9971.87	10015.92	44.05
13 East (South	1.896	Floodway	460	1403.26	1408.19		1408.41	0.005706	3.81	120.63	0.41	9971.71	10016.03	44.32
13 East (South	1.918	Floodplain	460	1404.61	1408.82		1408.93	0.003827	2.74	167.7	0.32	9975.97	10051.37	75.4

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 13 East (South o

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
13 East (South	1.918	Floodway	460	1404.61	1408.84		1408.96	0.003694	2.71	169.57	0.32	9975.92	10051.39	75.47
13 East (South	1.934	Floodplain	460	1407.35	1409.38	1409.38	1409.92	0.032624	4.67	84.92	0.83	9987.73	10088.44	100.71
13 East (South	1.934	Floodway	460	1407.35	1409.66	1409.66	1410.2	0.046535	5.99	77.68	1.01	9988	10063.03	75.03
13 East (South	2.001	Floodplain	460	1410.61	1413.67	1413.08	1413.79	0.005367	2.76	165.02	0.37	9895.44	10018.11	122.67
13 East (South	2.001	Floodway	460	1410.61	1414.08	1413.24	1414.25	0.005021	3.08	141.04	0.37	9943	10017	74
13 East (South	2.006	Floodplain	460	1410.96	1415.08	1415.08	1416.46	0.045027	9.45	48.74	1.01	9991.34	10009.49	18.15
13 East (South	2.006	Floodway	460	1410.96	1415.08	1415.08	1416.46	0.044981	9.45	48.76	1.01	9991.34	10009.49	18.15
13 East (South	2.027	Floodplain	460	1414.54	1416.86		1416.89	0.000804	1.28	326.05	0.15	9916.4	10071.96	155.56
13 East (South	2.027	Floodway	460	1414.54	1416.92		1416.97	0.001088	1.52	257.51	0.18	9958	10058	100
13 East (South	2.043	Floodplain	460	1412.41	1416.93		1417.04	0.003513	2.75	176.36	0.32	9940.85	10034.15	93.3
13 East (South	2.043	Floodway	460	1412.41	1417.03		1417.16	0.003752	2.91	158.36	0.33	9957	10022	65
13 East (South	2.076	Floodplain	460	1413.74	1417.7		1417.91	0.006854	3.77	125.15	0.44	9957.97	10021.24	63.27
13 East (South	2.076	Floodway	460	1413.74	1417.81		1418.02	0.006245	3.71	124.27	0.42	9967	10020	53
13 East (South	2.137	Floodplain	460	1415.45	1419.4		1419.55	0.003899	3.18	151.43	0.34	9958.98	10029.41	70.43
13 East (South	2.137	Floodway	460	1415.45	1419.49		1419.67	0.004265	3.4	135.43	0.36	9972	10021	49
13 East (South	2.191	Floodplain	460	1417.93	1421.22		1421.53	0.014491	4.87	105.26	0.6	9935.59	10015.66	80.07
13 East (South	2.191	Floodway	460	1417.93	1421.53		1422.26	0.024236	6.9	67.16	0.8	9986	10015	29
13 East (South	2.239	Floodplain	460	1419.63	1422.97		1423.11	0.003581	3.15	161.15	0.33	9945.75	10027.93	82.18
13 East (South	2.239	Floodway	460	1419.63	1423.71		1423.87	0.002716	3.2	144.69	0.3	9979	10020	41
13 East (South	2.294	Floodplain	460	1427.5	1428.63	1428.63	1429.02	0.043149	5.11	93.53	0.95	134.54	260.8	126.26
13 East (South	2.294	Floodway	460	1427.5	1428.63	1428.63	1429.02	0.043149	5.11	93.53	0.95	134.54	260.8	126.26

Zone A

14 EAST

HEC-RAS Plan: 310.032 River: Reach #1 Reach: 14 East

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	Froude # Chl	Sta W.S. Lft	Sta W.S. Rgt	Top Width
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)		(ft)	(ft)	(ft)
14 East	1.635	Floodplain	1380	1395.59	1400.83	1399.8	1401.3	0.007709	5.88	297.98	0.51	9815.06	10034.53	219.47
14 East	1.635	Floodway	1380	1395.59	1401.17	1399.64	1401.72	0.007706	6.04	234.77	0.5	9962	10021	59
14 East	1.772	Floodplain	1380	1401.16	1405.54	1405.05	1405.69	0.004854	3.94	486.02	0.39	9972.65	10346.53	373.88
14 East	1.772	Floodway	1380	1401.16	1406.53	1405.71	1406.95	0.006732	5.56	283.84	0.48	9970	10081	111
14 East	1.831	Floodplain	1380	1402.7	1407.63	1407.63	1408.12	0.008835	6.41	322.51	0.55	9976.48	10288.28	311.8
14 East	1.831	Floodway	1380	1402.7	1408.41		1408.8	0.005232	5.52	304.4	0.44	9977	10098	121
14 East	1.894	Floodplain	1380	1404.68	1410.1		1410.38	0.005311	4.82	396.28	0.42	9847.52	10140.68	293.16
14 East	1.894	Floodway	1380	1404.68	1410.4		1411.01	0.008243	6.3	226.19	0.53	9965	10026	61
14 East	1.941	Floodplain	1380	1406.92	1411.59		1411.87	0.006632	4.99	371.39	0.46	9856.95	10120.29	263.34
14 East	1.941	Floodway	1380	1406.92	1412.41		1412.99	0.007591	6.13	227.46	0.51	9978	10031	53
14 East	2.026	Floodplain	1380	1409.62	1414.35		1414.67	0.00595	5.28	346.41	0.45	9917.43	10113.3	195.87
14 East	2.026	Floodway	1380	1409.62	1415.31		1415.76	0.005129	5.62	263.73	0.44	9977	10041	64
14 East	2.089	Floodplain	1380	1412.13	1416.53		1416.95	0.007827	5.38	280.75	0.51	9964.27	10087.43	123.16
14 East	2.089	Floodway	1380	1412.13	1417.15		1417.54	0.005531	4.99	276.59	0.43	9965	10032	67
14 East	2.112	Floodplain	1380	1412.82	1417.39		1418.39	0.015477	8.14	175.15	0.71	9968.19	10018.82	50.63
14 East	2.112	Floodway	1380	1412.82	1417.73		1418.69	0.013517	7.85	176.41	0.66	9978	10018	40
14 East	2.135	Floodplain	1380	1413.57	1418.98		1419.08	0.00237	2.51	550.52	0.27	96.89	300.2	203.31
14 East	2.135	Floodway	1380	1413.57	1419.19		1419.27	0.001945	2.33	592.85	0.24	94.34	305.32	210.98
14 East	2.168	Floodplain	1380	1415.13	1419.56		1419.86	0.009368	4.36	316.5	0.52	280.57	423.31	142.74
14 East	2.168	Floodway	1380	1415.13	1419.66		1419.93	0.008329	4.17	330.77	0.49	279.66	425.58	145.92
14 East	2.244	Floodplain	1380	1420.2	1423.14	1422.33	1423.4	0.008013	4.14	352.39	0.48	114.37	313.51	199.14
14 East	2.244	Floodway	1380	1420.2	1423.1	1422.33	1423.37	0.008544	4.23	344.69	0.5	115.02	312.74	197.72

Used to gain convergence in model

Zone A

E.7 CHECK-RAS Output

List of Washes

1. WASH 3 WEST
2. T4N-R3W-S08E
3. T5N-R3W-S19
4. IONA WASH
5. IONA WASH (NORTH)
6. IONA NORTH WEST SPLIT-1
7. IONA EAST SPLIT-1
8. IONA EAST SPLIT-2
9. TRILBY WASH
10. CIRCLE CITY AREA WASH 1
11. WASH 2 WEST (NORTH OF CAP)
12. 2 WEST TRIBUTARY-1
13. 2 WEST TRIBUTARY-2
14. WITTMANN WASH
15. WITTMANN WASH (NORTH SPLIT)
16. WITTMANN WASH (SOUTH SPLIT)
17. WITTMANN TRIBUTARY
18. T5N-R3W-S24E
19. T5N-R2W-S19E
20. T5N-R2W-S19W
21. T5N-R3W-S01S
22. T5N-R2W-S07
23. WASH 2 EAST (NORTH OF CAP)
24. 2 EAST TRIBUTARY
25. WASH 7 EAST
26. 7 EAST TRIBUTARY
27. IONA EAST (SOUTH OF CAP)
28. IONA WEST (SOUTH OF CAP)
29. WASH 2 WEST (SOUTH OF CAP)
30. WASH 1 WEST
31. WASH 1 EAST
32. WASH 2 EAST (SOUTH OF CAP)
33. 2 EAST DIKE FAILURE
34. WASH 3 EAST
35. WASH 4 EAST
36. 4 EAST DIKE FAILURE
37. WASH 5 EAST
38. WASH 6 EAST
39. 6 EAST SOUTH
40. 7 EAST-EAST SPLIT
41. 7 EAST-WEST SPLIT
42. WASH 8 EAST
43. WASH 9 EAST
44. 9 EAST SPLIT
45. WASH 10 EAST
46. 10 EAST (EAST SPLIT-1)
47. 10 EAST (EAST SPLIT-2)
48. WASH 11 EAST
49. 11 EAST DIKE FAILURE
50. BONITA DIKE CHANNEL
51. WASH 12 EAST
52. 12 EAST SPLIT
53. WASH 13 EAST
54. WASH 14 EAST

3 WEST

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.nt
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 10:55:22 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
6.37		0.033	0.045	0.033	0.1	0.3
6.12		0.033	0.045	0.033	0.1	0.3
5.73		0.033	0.045	0.033	0.1	0.3
5.41		0.033	0.045	0.033	0.1	0.3
5.24		0.033	0.045	0.033	0.1	0.3
5.06		0.033	0.045	0.033	0.1	0.3
4.88		0.037	0.041	0.037	0.1	0.3
4.71		0.037	0.041	0.037	0.1	0.3
4.5		0.037	0.041	0.037	0.1	0.3
4.21		0.033	0.05	0.033	0.1	0.3
3.87		0.037	0.038	0.037	0.1	0.3
3.64		0.033	0.05	0.033	0.1	0.3
3.37		0.033	0.05	0.033	0.1	0.3
3.1		0.033	0.04	0.033	0.1	0.3
2.91		0.033	0.04	0.033	0.1	0.3
2.68		0.033	0.05	0.033	0.1	0.3
2.51		0.033	0.05	0.033	0.1	0.3
2.35		0.033	0.05	0.033	0.1	0.3
2.23		0.033	0.038	0.033	0.1	0.3
2.05		0.033	0.038	0.033	0.1	0.3
1.89		0.033	0.038	0.033	0.1	0.3
1.81		0.033	0.038	0.033	0.1	0.3
1.63		0.033	0.038	0.033	0.1	0.3
1.48		0.033	0.038	0.033	0.1	0.3
1.34		0.033	0.038	0.033	0.1	0.3
1.289		0.033	0.038	0.033	0.1	0.3
1.196		0.033	0.042	0.033	0.1	0.3
1.168		0.033	0.042	0.033	0.1	0.3
1.112		0.033	0.042	0.033	0.1	0.3
1.049		0.033	0.042	0.033	0.1	0.3
.948		0.033	0.042	0.033	0.1	0.3
.86		0.033	0.042	0.033	0.1	0.3
.781		0.033	0.042	0.033	0.1	0.3
.701		0.033	0.042	0.033	0.1	0.3
.618		0.033	0.042	0.033	0.1	0.3
.544		0.033	0.042	0.033	0.1	0.3
.483		0.033	0.042	0.033	0.1	0.3
.403		0.033	0.042	0.033	0.1	0.3
.356		0.035	0.035	0.035	0.1	0.3
.277		0.035	-----	-----	0.1	0.3
		0.072	-----	-----		
.207		0.035	-----	-----	0.1	0.3
		0.072	-----	-----		
.129		0.035	-----	-----	0.1	0.3
		0.072	-----	-----		
.047		0.035	-----	-----	0.1	0.3
		0.072	-----	-----		
0		0.035	0.035	0.035	0.3	0.5

- ok, in zone AH ponding area

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.072
Right Overbank n Value:	0.033	0.037
Channel n Value:	0.035	0.05
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:       6.37
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.37
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.37
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.12
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.12
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.12
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       5.73
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.73
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.73
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       5.41
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.41
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.41
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       5.24
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.24
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
```

RS: 5.24
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

RS: 5.06
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 5.06
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 5.06
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

RS: 4.88
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 4.71
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 4.5
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 4.21
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.21
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.21
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.87
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 3.64
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.64
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.64
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.37
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.

```
         The n value should be reevaluated.

RS:      3.37
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.37
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      3.1
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.1
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.1
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.04
         The overbank n values should be reevaluated.

RS:      2.91
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.91
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.91
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.04
         The overbank n values should be reevaluated.

RS:      2.68
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.68
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.68
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      2.51
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.51
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.51
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      2.35
NT RC 01 Left overbank n value is less than 0.035
```

The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.35
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.35
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 2.23
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.23
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.23
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 2.05
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.05
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.05
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 1.89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.89
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 1.81
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.81
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.81
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 1.63

```
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.63
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.63
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      1.48
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.48
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.48
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      1.34
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.34
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.34
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      1.289
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.289
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.289
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      1.196
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.196
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.196
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.
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RS:       1.168
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.168
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.168
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       1.112
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.112
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.112
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       1.049
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.049
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.049
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.948
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.948
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.948
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.86
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.86
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.86
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.
```

```
RS:       0.781
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.781
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.781
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.701
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.701
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.701
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.618
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.618
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.618
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.544
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.544
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.544
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:       0.483
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.483
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.483
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
```

```
         The overbank n values should be reevaluated.

RS:      0.403
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.403
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.403
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      0.356
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.035
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:      0
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.xs
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 10:55:23 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
6.37	1331.8	1331.8	1331.8	533.85	1500	D
6.12	2067.28	2067.28	2067.28	722.91	1500	
5.73	1677.43	1677.43	1677.43	374.99	1500	
5.41	903.545	903.545	903.545	530.61	1500	
5.24	972.351	972.351	972.351	676.7	1500	D
5.06	950.649	950.649	950.649	370.15	1500	
4.88	902.039	902.039	902.039	811.77	1500	D
4.71	1099.06	1099.06	1099.06	494.43	1500	
4.5	1551.85	1551.85	1551.85	540.11	1500	
4.21	1797.7	1797.7	1797.7	513.77	1500	
3.87	1191.12	1191.12	1191.12	656.97	1500	D
3.64	1428.98	1428.98	1428.98	642.03	1600	
3.37	1446.02	1446.02	1446.02	544.14	1600	D
3.1	988.954	988.954	988.954	530.66	1600	
2.91	1218.9	1218.9	1218.9	647.21	1600	
2.68	887.633	887.633	887.633	491.3	1600	
2.51	852.642	852.642	852.642	439.29	1600	
2.35	630.39	630.39	630.39	362.48	1600	
2.23	935.96	935.96	935.96	266.97	1600	
2.05	840.478	840.478	840.478	255.25	1600	
1.89	399.982	399.982	399.982	149.81	1600	
1.81	945.479	945.479	945.479	150.55	1600	D
1.63	765.944	765.944	765.944	176.37	2000	D
1.48	719.988	719.988	719.988	153.44	2000	
1.34	276.406	259.745	275.517	270.61	3750	
1.289	491.506	492.301	475.917	251.47	3750	
1.196	150.213	146.404	151.914	257.41	3750	
1.168	266.86	296.403	270	288.2	4250	
1.112	331.609	335.12	291.129	267.81	4250	
1.049	531.466	532.281	515.565	343.49	4250	
.948	462.142	464.365	450.244	262.18	4250	
.86	419.393	418.74	364.022	333.64	4250	
.781	426.411	420.403	395.114	361.32	4250	
.701	424.627	439.349	428.831	408.32	4250	
.618	310.115	391.99	413.854	393.75	4250	
.544	230.902	320.516	325.895	382.94	4250	
.483	334.018	421.216	448.599	490.92	4250	
.403	271.255	246.43	233.107	357.86	4250	
.356	439.033	416.326	370.915	625.77	4250	
.277	416.958	368.34	341.759	790.77	4250	
.207	455.73	413.811	355.159	1102.4	4250	
.129	455.653	435.323	524.317	925.01	4250	D/E
.047	255.445	249.085	259.833	358.84	4250	E
0	0	0	0	72.54	4250	

Zone A

In Zone AH Ponding Area

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Reach #1
Known WS = 1545.1 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Reach #1
Known WS = 1545.1 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\3W.fw
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 10:55:24 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
6.37					9640.05	10195.15	
6.37	0	-0.01	0	0	9640.53	10194.2	
6.12					9695.4	10418.31	
6.12	0	0	0	0	9695.25	10418.51	
5.73					9780.08	10155.07	
5.73	0	0	0	0	9780.17	10154.94	
5.41					9860.44	10391.05	
5.41	0	0	0	0	9859.78	10391.49	
5.24					9642.73	10417.27	
5.24	0	0	0	0	9643.28	10417.05	
5.06					9776.85	10147	
5.06	0	-0.01	0	0	9777.31	10146.89	
4.88					9502.5	10378.1	
4.88	0	0	0	0	9502.33	10378.25	
4.71					9655.92	10150.35	
4.71	0	-0.01	0	0	9656.42	10150.13	
4.5					9679.64	10219.75	
4.5	0	0	0	0	9679.76	10219.68	
4.21					9694.72	10208.5	
4.21	0	-0.01	0	0	9695.03	10208.01	Zone A
3.87					9804.65	10564.24	
3.87	0	-0.03	0	0	9805.59	10561.02	
3.64					9688.78	10330.81	
3.64	0	0.01	0	0	9688.4	10331.14	
3.37					9548.97	10213.22	
3.37	0	0.01	0	0	9548.64	10213.59	
3.1					9675.53	10206.19	
3.1	0	0	0	0	9674.65	10206.54	
2.91					9776.06	10423.27	
2.91	0	0	0	0	9776.01	10423.35	
2.68					9830.06	10321.36	
2.68	0	0	0	0	9830.34	10321.05	
2.51					9776.99	10216.28	
2.51	0	0	0	0	9776.92	10216.41	
2.35					9831.66	10194.14	
2.35	0	0.01	0	0	9830.59	10196.83	
2.23					9905.98	10172.95	
2.23	0	0.13	0	0	9902.59	10179.12	
2.05					9874.04	10129.28	
2.05	0	0.01	0	0	9873.83	10129.46	
1.89					9921.56	10071.37	
1.89	0	0.01	0	0	9921.36	10071.47	
1.81					9950.94	10103.44	
1.81	0	-0.01	0	0	9951.06	10103.35	
1.63					9940.43	10120.72	
1.63	0	-0.01	0	0	9940.71	10120.58	
1.48					9903.62	10057.06	
1.48	0	0.66	0	0	9891.13	10065.34	
1.34					9814.73	10085.34	
1.34	1	0.25	9944	10015	9944	10015	
1.289					9875.73	10127.2	
1.289	1	0.99	9929	10074	9929	10074	
1.196					9927.77	10185.17	
1.196	1	0.07	9975	10084	9975	10084	
1.168					9938.86	10227.06	
1.168	1	0.89	9937	10089	9937	10089	
1.112					9806.51	10074.32	
1.112	1	0.36	9947	10047	9947	10047	

					3W	
1.049					9812.88	10156.38
1.049	1	0.9	9914	10069	9914	10069
0.948					9874.9	10137.08
0.948	1	0.83	9952	10045	9952	10045
0.86					9845.42	10179.06
0.86	1	1	9910	10049	9910	10049
0.781					9814.04	10175.36
0.781	1	0.9	9944	10069	9944	10069
0.701					9778.31	10186.63
0.701	1	0.99	9946	10072	9946	10072
0.618					9729.62	10123.37
0.618	1	0.79	9937	10060	9937	10060
0.544					9833.83	10216.77
0.544	1	1	9901	10055	9901	10055
0.483					9778.28	10269.2
0.483	1	0.72	9930	10082	9930	10082
0.403					9701.28	10059.14
0.403	1	0.53	9893	10040	9893	10040
0.356					9569.14	10194.92
0.356	1	0.45	9880	10045	9880	10045
0.277					9547.08	10337.85
0.277	1	0.34	9883	10119	9883	10119
0.207					9357.32	10459.72
0.207	1	0.3	9784	10209	9784	10209
0.129					9080.98	10570
0.129	1	0.23	9714	10298	9714	10298
0.047					9826.16	10185
0.047	1	0.15	9850	10155	9850	10155
0					9959.46	10032.01
0	1	0	9966	10027	9966	10027

ENCROACHMENT METHOD CHECK

RS: 6.37
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 6.12
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.73
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.41
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.24
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.06
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.88
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.71
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.5
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.21
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.87
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.64
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.37
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.1
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.91
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.68
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.51
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.35
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.23
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.05
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.89
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.81
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.63
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.48
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 6.37
FW FW 03 The right channel bank station may not be at the proper location.

RS: 6.12
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.73
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.24
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.06
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.71
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.5
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.87
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.64
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.37
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.37
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.1
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.1
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.91
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.35
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.23
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.05
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.89
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.89
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.63
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.48
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.34
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.289
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.289
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.168
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.168
FW FW 04 The left station effective of 9938.86 for 1% annual chance floodplain is less than the left channel bank station 9958.99
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9937) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.112
FW FW 03 The Left channel bank station may not be at the proper

location.

RS: 1.112
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.948
FW FW 01 Right encroachment station 10045 is less than right channel bank station 10045.26 and greater than the left channel bank station 9961.34
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.948
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.86
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.86
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.781
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.618
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.544
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.483
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.403
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.356
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.277
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.047
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.047
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0
FW FW 01 Right encroachment station 10027 is less than right channel bank station 10027.22 and greater than the left channel bank station 9966.09
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

```
FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 132500.7
          Total conveyance for the floodway profile is 112033.7
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
```

T4N-R3W-S08E

T4N-R3W-S08E
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.nt
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 2:19:00 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,T4N-R3W-S08E						
4.891		0.035	0.047	0.035	0.1	0.3
4.817		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.752		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.652		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.585		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.493		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.417		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.336		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.256		0.035	0.047	0.035	0.1	0.3
4.178		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.102		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
4.014		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.937		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.856		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.779		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.698		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.604		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.524		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.439		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.363		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.288		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
3.213		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
3.115		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
3.028		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
2.96		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
2.864		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
2.778		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
2.699		0.035	-----	-----	0.1	0.3
		0.037	-----	-----		
2.625		0.035	-----	-----	0.1	0.3
		0.037	-----	-----		
2.527		0.035	0.037	0.035	0.1	0.3
2.44		0.035	0.05	0.035	0.1	0.3

2.343	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
2.259	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
2.156	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
2.073	0.035	0.05	0.035	0.1	0.3
1.986	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
1.9	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
1.817	0.035	-----	-----	0.1	0.3
	0.05	-----	-----		
1.737	0.035	0.048	0.048	0.1	0.3
	-----	-----	0.037		
1.666	0.035	0.048	0.037	0.1	0.3
1.607	0.035	0.048	0.037	0.1	0.3
1.539	0.035	0.048	0.037	0.1	0.3
1.489	0.035	-----	-----	0.1	0.3
	0.055	-----	-----		
1.412	0.035	0.048	0.037	0.1	0.3
1.353	0.035	-----	-----	0.1	0.3
	0.048	-----	-----		
1.274	0.035	-----	-----	0.1	0.3
	0.048	-----	-----		
1.184	0.035	0.035	0.048	0.1	0.3
	-----	0.048	0.037		
1.09	0.035	0.043	0.035	0.1	0.3
1.005	0.035	0.043	0.035	0.1	0.3
.921	0.035	0.043	0.035	0.1	0.3
.831	0.035	0.043	0.035	0.1	0.3
.734	0.035	0.043	0.035	0.1	0.3
.641	0.035	0.043	0.035	0.1	0.3
.552	0.035	0.043	0.035	0.1	0.3
.459	0.035	0.043	0.035	0.1	0.3
.366	0.035	0.043	0.035	0.1	0.3
.268	0.035	0.043	0.035	0.1	0.3
.184	0.035	0.043	0.035	0.1	0.3
.076	0.035	0.043	0.035	0.1	0.3
0	0.035	0.043	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.055
Right Overbank n Value:	0.035	0.048
Channel n Value:	0.035	0.05
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 4.891
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.047
The overbank n values should be reevaluated.

RS: 4.256
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.047
The overbank n values should be reevaluated.

RS: 2.527
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.037
The overbank n values should be reevaluated.

RS: 2.44
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 2.073
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.666
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 1.607
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 1.539
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 1.412
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 1.09
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 1.005
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

S: 0.921
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.831
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.734
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.641
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.552
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.459
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 0.366
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

: 0.268
T RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.043

T4N-R3W-S08E
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.xs
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 2:19:01 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,T4N-R3W-S08E						
4.891	419.134	391.595	387.537	296.02	710	C (S/C)
4.817	341.088	342.24	340.735	741.09	1500	
4.752	528.992	528.047	537.633	796.92	1500	
4.652	361.006	356.158	361.478	312.48	430	
4.585	482.406	483.533	493.594	411.64	430	
4.493	403.82	401.292	410.622	241.27	430	D
4.417	439.98	426.721	439.236	593.62	1500	
4.336	436.47	421.575	413.198	375.98	1500	
4.256	424.361	414.292	398.563	368.68	2100	
4.178	391.842	399.09	412.425	524.29	2100	
4.102	464.832	463.875	471.97	473.94	2100	
4.014	422.642	408.588	409.06	420.89	2100	
3.937	427.197	428.889	425.248	712.16	2100	
3.856	420.127	406.772	382.108	705.31	2100	
3.779	477.559	428.236	400.763	607.84	2100	D
3.698	494.218	494.653	495.146	554.91	2100	
3.604	416.69	420.61	426.865	580.93	2100	
3.524	430.206	451.034	476.165	618.15	2100	
3.439	355.642	399.871	368.319	582.41	2100	
3.363	406.821	396.403	381.499	559.38	2100	
3.288	402.509	396.515	394.836	422.65	2100	D
3.213	517.117	516.152	509.329	330.61	2100	D
3.115	440.928	458.586	445.736	449.55	2100	
3.028	355.767	360.379	365.635	496.97	2100	
2.96	503.666	508.466	500.292	566.96	2100	
2.864	442.803	452.017	461.337	501.25	2100	
2.778	401.241	415.255	413.055	546.84	2100	
2.699	360.278	392.605	430.861	439.52	2100	C (S/C)
2.625	515.273	518.291	519.162	459.68	2100	
2.527	467.887	459.668	457.957	398.86	2100	
2.44	510.134	510.372	513.934	391.74	2100	
2.343	441.574	441.088	438.448	499.35	2100	
2.259	538.57	546.214	543.979	380.27	2100	
2.156	429.52	440.106	446.472	432.86	2100	
2.073	463.157	457.325	457.369	491.02	2100	
1.986	459.926	452.662	450.347	619.21	2100	
1.9	459.17	436.914	436.189	488.74	2100	
1.817	401.502	421.749	402.523	576.15	2100	
1.737	337.794	375.979	342.488	552.57	2100	
1.666	321.808	312.997	312.401	576.06	2100	
1.607	372.381	357.713	348.17	482.86	2100	
1.539	275.674	264.147	250.021	801.97	2100	
1.489	381.741	408.014	439.693	733.84	2100	D B – blc of stock pond d/s
1.412	338.91	309.995	291.644	512.53	2100	D of x-section
1.353	422.299	418.016	420.298	498.77	2100	
1.274	459.331	476.715	477.405	498.9	2100	
1.184	437.023	494.536	496.308	363.46	2100	
1.09	403.233	450.499	407.563	338.01	2100	D
1.005	441.682	442.353	426.42	310.86	2100	
.921	470.801	476.672	468.067	361	2100	D
.831	496.138	511.031	504.387	259.33	2100	
.734	480.379	489.378	483.201	190.31	2100	
.641	472.882	469.595	472.728	166.89	2100	
.552	489.517	489.359	488.028	249.94	2100	
.459	496.784	491.254	491.7	282.38	2100	
.366	513.608	515.193	518.766	127.49	2100	D
.268	443.569	441.717	436.983	131.37	2100	D

combined flow w/ T4N-R3W-S9

```
                                                    T4N-R3W-S08E
.184        541.679    570.711    586.261    117.55          2100
.076        404.615    402.417    410.314    283.98          2100
0           0          0          0          214.12          2100
-----------------------------------------------------------------------------
B=blocked obstruction       XS SC 05
C=critial depth             XS SC 03
D=divided flow              XS SC 01
E=cross section extended    XS SC 02
K=known water-surface       XS SC 04


DISTANCE CHECK
----------------


SPACING CHECK
--------------


INEFFECTIVE FLOW CHECK
-----------------------


DISCHARGE CHECK
----------------

RS:       4.652
XS DC 01 Discharge decreases in the downstream direction.


LOCATION CHECK
---------------

RS:       0.268
XS LC 01 Lenchl Up/TopwdthAct Dn = 3.76
         MaxChlDpth Up/MaxChlDpth Dn = 1.13
         TopwdthAct Up/TopwdthAct Dn = 1.12
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Reach #1,T4N-R3W-S08E
         Normal S = 0.00644 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,T4N-R3W-S08E
         Normal S = 0.00644 is specified as the downstream boundary
         for profile Floodway


LATERAL WEIRS CHECK
-----------------------

---END---
```

© (5/6)

T4N-R3W-S08E
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T4N-R3W-S08E.fw
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 2:19:02 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,T4N-R3W-S08E							
4.891					9812.2	10108.22	
4.891	1	0.06	9938	10037	9938	10037	
4.817					9264.43	10005.52	
4.817	1	0.31	9858	10001	9858	10001	
4.752					9259.26	10056.18	
4.752	1	0.65	9879	10031	9879	10031	
4.652					9859.19	10171.66	
4.652	1	0.23	9917	10051	9917	10051	
4.585					9751.31	10162.95	
4.585	1	0.44	9951	10061	9951	10061	
4.493					9893.1	10142.96	
4.493	1	0	9955	10052	9955	10052	
4.417					9638	10231.62	
4.417	1	0.12	9639	10058	9639	10058	
4.336					9755.25	10131.23	
4.336	1	0.36	9875	10059	9875	10059	
4.256					9782.38	10151.06	
4.256	1	0.79	9904	10047	9904	10047	
4.178					9794.31	10318.6	
4.178	1	0.84	9923	10102	9923	10102	
4.102					9827.26	10301.2	
4.102	1	0.87	9986	10138	9986	10138	
4.014					9842.84	10263.73	
4.014	1	0.91	9974	10084	9974	10084	
3.937					9714.33	10426.48	
3.937	1	0.78	9951	10119	9951	10119	
3.856					9663.4	10368.7	
3.856	1	0.46	9843	10125	9843	10125	
3.779					9726.91	10350.77	
3.779	1	0.27	9829	10073	9829	10073	
3.698					9676.45	10231.36	
3.698	1	0.38	9814	10055	9814	10055	
3.604					9687.39	10268.32	
3.604	1	0.44	9823	10054	9823	10054	
3.524					9602.23	10220.37	
3.524	1	0.32	9845	10163	9845	10163	
3.439					9565.32	10147.73	
3.439	1	0.56	9791	10098	9791	10098	
3.363					9700.54	10259.92	
3.363	1	0.62	9861	10052	9861	10052	
3.288					9773.45	10245.65	
3.288	1	0.26	9895	10053	9895	10053	
3.213					9819.5	10175.9	
3.213	1	0.4	9905	10051	9905	10051	
3.115					9851.29	10300.84	
3.115	1	0.39	9939	10127	9939	10127	
3.028					9678.3	10175.27	
3.028	1	0.54	9857	10039	9857	10039	
2.96					9693.35	10260.3	
2.96	1	0.89	9877	10068	9877	10068	
2.864					9762.17	10263.42	
2.864	1	0.38	9931	10077	9931	10077	
2.778					9751.15	10297.99	
2.778	1	0.94	9914	10090	9914	10090	
2.699					9799.23	10238.75	
2.699	1	0.7	9958	10058	9958	10058	
2.625					9765.36	10225.04	
2.625	1	0.92	9932	10048	9932	10048	

2.527					9759.48	10158.34
2.527	1	0.87	9945	10038	9945	10038
2.44					9785.67	10177.41
2.44	1	0.85	9931	10051	9931	10051
2.343					9724.95	10224.3
2.343	1	0.97	9933	10063	9933	10063
2.259					9741.56	10121.84
2.259	1	0.87	9924	10037	9924	10037
2.156					9750.67	10183.54
2.156	1	0.94	9921	10041	9921	10041
2.073					9658.98	10150
2.073	1	0.85	9897	10071	9897	10071
1.986					9671.22	10290.43
1.986	1	0.9	9886	10068	9886	10068
1.9					9784.34	10273.07
1.9	1	0.9	9953	10097	9953	10097
1.817					9607.01	10183.17
1.817	1	0.9	9849	10024	9849	10024
1.737					9817.77	10370.34
1.737	1	0.81	9982	10118	9982	10118
1.666					9684.92	10260.98
1.666	1	0.35	9922	10099	9922	10099
1.607					9711.73	10194.59
1.607	1	0.12	9872	10105	9872	10105
1.539					9538.48	10340.45
1.539	1	0.62	9827	10151	9827	10151
1.489					9316.44	10456.88
1.489	1	0.66	9570	10116	9570	10116
1.412					9567.84	10247.21
1.412	1	0.3	9786	10155	9786	10155
1.353					9711.03	10209.8
1.353	1	0.67	9884	10096	9884	10096
1.274					9820.99	10319.89
1.274	1	0.62	9933	10082	9933	10082
1.184					9697.39	10060.85
1.184	1	0.45	9851	10026	9851	10026
1.09					9753.63	10117.57
1.09	1	0.61	9909	10042	9909	10042
1.005					9873.13	10183.99
1.005	1	0.89	9964	10074	9964	10074
0.921					9838.61	10218.79
0.921	1	0.73	9948	10058	9948	10058
0.831					9879.24	10138.56
0.831	1	0.51	9945	10059	9945	10059
0.734					9916.68	10106.99
0.734	1	0.56	9978	10066	9978	10066
0.641					9865.94	10032.82
0.641	1	0.59	9945	10015	9945	10015
0.552					9846.06	10096
0.552	1	0.89	9963	10024	9963	10024
0.459					9864.52	10146.9
0.459	1	0.7	9982	10046	9982	10046
0.366					9921.56	10111.34
0.366	1	0.26	9982	10035	9982	10035
0.268					9944.85	10121.46
0.268	1	0.88	9966	10037	9966	10037
0.184					9975.61	10093.16
0.184	1	0.34	9986	10036	9986	10036
0.076					9881.28	10165.27
0.076	1	0.64	9960	10097	9960	10097
0					9907.16	10121.28
0	1	0.51	9969	10046	9969	10046

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 4.817
FW FW 01 Right encroachment station 10001 is less than right channel bank

station 10001.1 and greater than the left channel bank station 9900.137
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.752
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.752
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.585
FW FW 01 Right encroachment station 10061 is less than right channel bank station 10089.56 and greater than the left channel bank station 9951.317
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.585
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.493
FW FW 01 Right encroachment station 10052 is less than right channel bank station 10052.62 and greater than the left channel bank station 9955.89
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.417
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.336
FW FW 01 Left encroachment station 9875 is more than left channel bank station 9872.021 and less than the right channel bank station 10038.29
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.102
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.014
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.937
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.779
FW FW 01 Right encroachment station 10073 is less than right channel bank station 10073.33 and greater than the left channel bank station 9942.697
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.779
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.698
FW FW 01 Right encroachment station 10055 is less than right channel bank station 10055.9 and greater than the left channel bank station 9975.89
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.698
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.604
FW FW 01 Right encroachment station 10054 is less than right channel bank station 10054.2 and greater than the left channel bank station 9923.429
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 3.439
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.439
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.363
FW FW 01 Right encroachment station 10052 is less than right channel bank station 10052.85 and greater than the left channel bank station 9944.145
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.363
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.288
FW FW 01 Right encroachment station 10053 is less than right channel bank station 10053.49 and greater than the left channel bank station 9949.973
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.288
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.115
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.115
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.028
FW FW 01 Right encroachment station 10039 is less than right channel bank station 10039.34 and greater than the left channel bank station 9963.108
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.864
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.778
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.699
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.527
FW FW 01 Right encroachment station 10038 is less than right channel bank station 10038.48 and greater than the left channel bank station 9955.498
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.527
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.44
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.259
FW FW 01 Right encroachment station 10037 is less than right channel bank station 10037.23 and greater than the left channel bank station 9965.114
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 2.156
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.073
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.986
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.9
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.737
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.666
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.607
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.607
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.539
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.412
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.412
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.353
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.274
FW FW 01 Left encroachment station 9933 is more than left channel bank station 9932.495 and less than the right channel bank station 10053.79
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.274
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.005
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.005
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.831
FW FW 01 Right encroachment station 10059 is less than right channel bank station 10059.06 and greater than the left channel bank station 9945.093
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

```
RS:        0.831
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.831
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.552
FW FW 01   Right encroachment station 10024 is less than right channel bank
           station 10024.03 and greater than the left channel bank station 9976.674
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.552
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.552
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.366
FW FW 01   Left encroachment station 9982 is more than left channel bank
           station 9981.986 and less than the right channel bank station 10035.07
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.366
FW FW 01   Right encroachment station 10035 is less than right channel bank
           station 10035.07 and greater than the left channel bank station 9981.986
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.076
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.076
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0
FW FW 03   The Left channel bank station may not be at the proper
           location.


SURCHARGE CHECK
---------------


DISCHARGE CHECK
---------------

RS:        4.817
FW FD 01   The floodway discharge of 430 is not equal to the natural 1% chance
           discharge of 1500
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        4.752
FW FD 01   The floodway discharge of 430 is not equal to the natural 1% chance
           discharge of 1500
           Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
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---END---
```

T5N-R3W-S19

T5N-R3W-S19
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.nt
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 3:06:16 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #2,T5N-R3W-S19						
.58		0.035	0.047	0.035	0.1	0.3
.51		0.035	-----	-----	0.1	0.3
.413		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
.338		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
.263		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
.185		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
.078		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
0		0.035	-----	0	0.1	0.3
		0.047	-----	0.035		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.047
Right Overbank n Value:	0	0.035
Channel n Value:	0.047	0.047
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 0.58
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.047
The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

T5N-R3W-S19
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.xs
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 3:06:17 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #2,T5N-R3W-S19						
.58	408.976	420.658	415.745	361.24	660	D (5k)
.51	344.116	362.202	352.142	738.51	1500	
.413	476.223	477.125	479.794	801.93	1500	
.338	373.515	396.213	405.749	654.94	1070	D
.263	428.113	409.933	399.194	459.34	1070	
.185	576.444	563.859	563.722	345.97	1070	
.078	376.973	409.299	439.475	729.39	1500	
0	421.575	421.575	421.575	392.62	1500	

combined flow area w/ T4N-R3W-S08E.

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.338
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #2,T5N-R3W-S19
Normal S = 0.0065 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #2,T5N-R3W-S19
Normal S = 0.0065 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

T5N-R3W-S19
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S19.fw
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 3:06:19 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #2,T5N-R3W-S19							
0.58					9806.22	10290.22	
0.58	1	0.96	9957	10074	9957	10074	
0.51					9893.28	10631.78	
0.51	1	0.43	9942	10054	9942	10054	
0.413					9769.83	10571.76	
0.413	1	0.26	9932	10298	9932	10298	
0.338					9570.7	10246.25	
0.338	1	0.72	9913	10046	9913	10046	
0.263					9733.93	10193.26	
0.263	1	0.8	9928	10057	9928	10057	
0.185					9823.83	10169.79	
0.185	1	0.37	9944	10057	9944	10057	
0.078					9474.89	10204.28	
0.078	1	0.23	9639	10058	9639	10058	
0					9745.88	10138.5	
0	1	0.32	9875	10059	9875	10059	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 0.58
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.51
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.413
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.338
FW FW 01 Right encroachment station 10046 is less than right channel bank station 10046.22 and greater than the left channel bank station 9928.488
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.338
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.338
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.263
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.185
FW FW 01 Right encroachment station 10057 is less than right channel bank

```
          station 10057.05 and greater than the left channel bank station 9944.197
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.185
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.185
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.078
FW FW 01  Left encroachment station 9639 is more than left channel bank
          station 9638.819 and less than the right channel bank station 9834.361
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.078
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0
FW FW 01  Right encroachment station 10059 is less than right channel bank
          station 10059.67 and greater than the left channel bank station 9961.883
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
----------------


DISCHARGE CHECK
----------------

RS:       0.51
FW FD 01  The floodway discharge of 660 is not equal to the natural 1% chance
          discharge of 1500
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.413
FW FD 01  The floodway discharge of 1070 is not equal to the natural 1% chance
          discharge of 1500
          Please justify the use of different discharges for the natural and floodway profiles.

STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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IONA WASH

IONA WASH
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.nt
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 9:26:59 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Iona Wash						
4.901		0.039	0.046	0.033	0.1	0.3
4.844		0.039	0.046	0.033	0.1	0.3
4.777		0.039	0.046	0.033	0.1	0.3
4.696		0.039	0.046	0.033	0.1	0.3
4.629		0.039	0.046	0.033	0.1	0.3
4.547		0.039	0.046	0.033	0.1	0.3
4.479		0.039	0.046	0.033	0.1	0.3
4.413		0.035	0.05	0.034	0.1	0.3
4.314		0.035	0.05	0.034	0.1	0.3
4.243		0.035	0.05	0.034	0.1	0.3
4.161		0.035	0.05	0.034	0.1	0.3
4.071		0.035	0.05	0.042	0.1	0.3
3.99		0.035	0.05	0.042	0.1	0.3
3.889		0.035	0.05	0.042	0.1	0.3
3.818		0.033	0.05	0.05	0.1	0.3
		0.05	0.035	0.03		
		-----	-----	0.045		
		-----	-----	0.035		
3.736		0.035	-----	-----	0.1	0.3
		0.05	-----	-----		
3.648		0.03	-----	-----	0.1	0.3
		0.035	-----	-----		
		0.045	-----	-----		
		0.05	-----	-----		
3.528		0.035	-----	-----	0.1	0.3
		0.05	-----	-----		
		0.035	-----	-----		
		0.05	-----	-----		
3.415		0.035	-----	-----	0.1	0.3
		0.045	-----	-----		
		0.05	-----	-----		
3.335		0.035	-----	-----	0.1	0.3
		0.045	-----	-----		
		0.03	-----	-----		
		0.05	-----	-----		
3.25		0.035	0.05	0.034	0.1	0.3
3.154		0.035	0.05	0.034	0.1	0.3
3.056		0.035	0.05	0.034	0.1	0.3
2.98		0.036	0.059	0.044	0.1	0.3
2.944		0.036	0.059	0.044	0.1	0.3
2.882		0.036	0.059	0.044	0.1	0.3
2.759		0.036	0.059	0.031	0.1	0.3
		0.059	0.031	0.047		
		0.036	-----	0.036		
		0.059	-----	-----		
2.644		0.036	0.047	0.059	0.1	0.3
		0.049	0.059	0.049		
		0.03	-----	0.059		
		0.059	-----	0.036		
		0.047	-----	-----		
2.507		0.036	0.03	0.049	0.1	0.3
		0.049	0.049	0.034		
		0.03	-----	-----		
		0.059	-----	-----		
		0.03	-----	-----		
2.433		0.047	-----	-----	0.1	0.3
		0.036	-----	-----		
		0.059	-----	-----		

IONA WASH

	0.036	-----	-----		
2.396	0.047	-----	-----	0.1	0.3
	0.036	-----	-----		
	0.059	-----	-----		
	0.036	-----	-----		
2.293	0.059	-----	-----	0.1	0.3
	0.049	-----	-----		
	0.031	-----	-----		
	0.063	-----	-----		
	0.049	-----	-----		
	0.063	-----	-----		
	0.03	-----	-----		
2.237	0.03	-----	-----	0.1	0.3
	0.063	-----	-----		
2.137	0.033	-----	-----	0.1	0.3
	0.063	-----	-----		
2.06	0.033	-----	-----	0.1	0.3
	0.063	-----	-----		
1.985	0.031	0.049	0.03	0.1	0.3
1.907	0.031	0.049	0.03	0.1	0.3
1.847	0.031	0.049	0.03	0.1	0.3
1.762	0.031	0.049	0.03	0.1	0.3
1.671	0.031	0.049	0.03	0.1	0.3
1.587	0.031	0.049	0.03	0.1	0.3
1.496	0.031	0.049	0.03	0.1	0.3
1.404	0.031	0.049	0.03	0.1	0.3
1.322	0.031	0.049	0.03	0.1	0.3
1.264	0.031	0.049	0.03	0.1	0.3
1.186	0.03	0.047	0.034	0.1	0.3
1.109	0.03	0.047	0.034	0.1	0.3
1.016	0.03	0.047	0.034	0.1	0.3
.914	0.03	0.047	0.034	0.1	0.3
.821	0.03	0.047	0.034	0.1	0.3
.726	0.03	0.047	0.034	0.1	0.3
.623	0.03	0.047	0.034	0.1	0.3
.531	0.03	0.047	0.034	0.1	0.3
.439	0.03	0.047	0.034	0.1	0.3
.333	0.03	0.047	0.034	0.1	0.3
.232	0.03	0.047	0.034	0.1	0.3
.118	0.03	0.047	0.034	0.3	0.5
.034	0.03	0.047	0.034	0.3	0.5

ok - in zone AH ponding

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.03	0.063
Right Overbank n Value:	0.03	0.059
Channel n Value:	0.03	0.059
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:      4.901
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.901
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.844
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.844
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
```

```
         The overbank n values should be reevaluated.

RS:      4.777
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.777
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.696
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.696
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.629
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.629
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.547
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.547
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.479
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.479
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      4.413
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.413
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      4.314
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.314
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      4.243
NT RC 01 Right overbank n value is less than 0.035
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The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.243
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.161
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.161
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.071
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.99
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.889
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.25
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.25
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.154
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.154
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.056
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.056
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 2.98
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.044 are less than or equal to the channel n value of 0.059
The overbank n values should be reevaluated.

RS: 2.944
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.044 are less than or equal to the channel n value of 0.059
The overbank n values should be reevaluated.

RS: 2.882

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NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.044 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      1.985
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.985
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.985
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.907
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.907
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.907
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.847
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.847
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.847
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.762
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.762
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.762
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.671
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.671
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       1.671
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.587
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.587
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.587
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.496
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.496
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.496
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.404
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.404
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.404
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.322
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.322
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.322
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.264
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.264
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       1.264
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:       1.186
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.186
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.186
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       1.109
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.109
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.109
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       1.016
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.016
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.016
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       0.914
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.914
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.914
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       0.821
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.821
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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         The n value should be reevaluated.

RS:      0.821
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.726
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.726
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.726
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.623
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.623
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.623
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.531
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.531
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.531
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.439
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.439
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.439
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.333
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.333
NT RC 01 Right overbank n value is less than 0.035
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         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.333
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.232
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.232
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.232
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.118
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.118
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.118
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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RS:      0.118
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:      0.034
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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IONA WASH
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.xs
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 9:27:00 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Iona Wash						
4.901	354.88	299.867	260.043	474.32	5650	D
4.844	319.888	353.017	332.062	299.16	5650	
4.777	355.944	426.696	479.378	307.11	5650	
4.696	342.067	351.21	357.22	331.23	5650	
4.629	453.753	434.675	429.024	427.23	5650	
4.547	345.294	357.598	377.269	192.73	5650	C (S/C)
4.479	345.281	348.356	353.918	513.25	5650	
4.413	499.491	520.619	512.819	707.97	5650	
4.314	405.308	375.704	357.824	812.26	6610	
4.243	461.808	435.465	390.161	755.44	6610	
4.161	479.784	473.785	465.685	788.41	6610	
4.071	416.95	426.453	444.807	608.95	6610	
3.99	584.031	532.082	460.834	689.32	6610	
3.889	377.59	375.846	346.487	675.89	6610	
3.818	417.332	431.852	431.976	712.06	6610	
3.736	369.825	464.809	450.393	999.81	6610	
3.648	609.664	634.47	630.726	1189.9	6610	
3.528	616.324	598.487	550.346	1581.7	6610	
3.415	387.529	422.727	396.443	1254	6610	
3.335	427.608	449.7	466.882	1201.21	6610	
3.25	484.265	508.709	492.941	950.1	6610	
3.154	474.421	517.807	464.254	634.59	6610	
3.056	413.306	399.032	241.639	857.71	6610	
2.98	213.955	191.283	225.039	677.56	6610	D
2.944	258.749	326.932	98.061	1008.13	6610	
2.882	693.876	650.519	584.461	987.06	6610	
2.759	486.335	609.042	701.07	1725.16	7020	
2.644	483.544	722.524	602.821	2034.26	7020	D
2.507	404.647	390.359	386.421	2040.19	7020	D
2.433	310.753	197.059	90.786	2142.3	7020	
2.396	257.253	542.529	497.624	2186.33	7020	D
2.293	324.746	298.015	296.396	2567.9	7020	D
2.237	325.842	526.022	676.786	1046.02	1780	D
2.137	363.995	406.653	477.759	1168.58	1780	D
2.06	507.483	395.312	571.744	1210.8	1780	
1.985	419.203	412.091	374.067	379.38	1780	D, C (S/C)
1.907	312.244	315.69	331.303	205.19	1780	
1.847	449.708	448.57	406.889	57.01	1780	
1.762	484.563	480.639	472.354	38.55	1780	C (S/C)
1.671	446.95	445.331	440.333	69.87	1780	
1.587	477.148	482.392	474.39	44.09	1780	
1.496	470.363	484.669	510.789	75.51	1780	
1.404	442.658	433.752	425.712	98.32	2960	
1.322	338.172	305.127	304.978	87.43	2960	
1.264	423.77	414.406	403.412	68.44	2960	C (S/C)
1.186	375.755	406.742	423.221	123.82	2960	
1.109	479.037	488.698	492.585	146.77	2960	
1.016	540.541	540.431	535.318	57.47	2960	
.914	488.292	489.547	489.6	157.63	2960	D
.821	502.931	502.739	498.489	297	3010	
.726	553.992	544.153	540.579	144.71	3010	
.623	474.451	487.185	499.459	226.29	3010	
.531	484.893	483.858	482.276	451.01	3010	
.439	519.203	561.423	578.073	720.13	3010	C (S/C)
.333	492.831	533.737	492.082	686.7	3010	
.232	493.868	601.89	617.021	976.53	3010	
.118	455.888	443.165	452.63	4365.39	7100	

IONA WASH

.034 0 0 0 3720.94 7100 (E) - ok, in Zone AH ponding area

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 2.06
XS DT 01 Both right and left overbank distances are longer than the channel distance.

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 2.237
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 4.629
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.26
MaxChlDpth Up/MaxChlDpth Dn = 1.17
TopwdthAct Up/TopwdthAct Dn = 2.22
This cross section is located too far upstream from the critical depth cross section.

RS: 1.847
XS LC 01 Lenchl Up/TopwdthAct Dn = 11.64
MaxChlDpth Up/MaxChlDpth Dn = 1.27
TopwdthAct Up/TopwdthAct Dn = 1.48
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Iona Wash
Known WS = 1553.5 is specified as the downstream boundary for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Iona Wash
Known WS = 1553.5 is specified as the downstream boundary for profile Floodway

LATERAL WEIRS CHECK

---END---

IONA WASH
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA WASH.fw
Selected profiles: Floodplain;Floodway
Date: 7/20/2005
Time: 9:27:02 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Iona Wash							
4.901					9610.56	10087.08	
4.901	1	0.75	9803	10024	9803	10024	
4.844					9859.66	10158.82	
4.844	1	0.98	9875	10093	9875	10093	
4.777					9807.99	10115.1	
4.777	1	0.16	9896	10066	9896	10066	
4.696					9792.19	10123.41	
4.696	1	0.5	9827	10110	9827	10110	
4.629					9745.87	10173.1	
4.629	1	0.21	9845	10134	9845	10134	
4.547					9911.89	10104.62	
4.547	1	0.98	9912	10103	9912	10103	
4.479					9653.33	10166.58	
4.479	1	0.83	9835	10081	9835	10081	
4.413					9460.71	10168.68	
4.413	1	0.7	9774	10166	9774	10166	
4.314					9304.2	10116.46	
4.314	1	0.42	9532	10111	9532	10111	
4.243					9373.79	10129.23	
4.243	1	0.69	9537	10106	9537	10106	
4.161					9611.25	10399.67	
4.161	1	0.65	9718	10205	9718	10205	
4.071					9782.36	10391.31	
4.071	1	0.22	9795	10270	9795	10270	
3.99					9732.36	10421.68	
3.99	1	0.26	9802	10315	9802	10315	
3.889					9706.07	10381.96	
3.889	1	0.1	9729	10288	9729	10288	
3.818					9699.64	10411.7	
3.818	1	0.59	9728	10276	9728	10276	
3.736					9356.23	10356.04	
3.736	1	0.94	9732	10325	9732	10325	
3.648					9150.5	10340.4	
3.648	1	0.83	9737	10376	9737	10376	
3.528					8847.6	10429.3	
3.528	1	0.85	9568	10224	9568	10224	
3.415					9080	10334	
3.415	1	0.72	9472	10127	9472	10127	
3.335					9437.29	10638.5	
3.335	1	0.75	9597	10124	9597	10124	
3.25					9613.18	10563.28	
3.25	1	0.83	9726	10126	9726	10126	
3.154					9679.48	10314.07	
3.154	1	0.46	9767	10092	9767	10092	
3.056					9535.58	10393.29	
3.056	1	0.89	9572	10182	9572	10182	
2.98					9814.41	10717.74	
2.98	1	0.55	9825	10372	9825	10372	
2.944					9757.97	10766.1	
2.944	1	0.77	9832	10372	9832	10372	
2.882					9922.46	10909.52	
2.882	1	0.81	9933	10479	9933	10479	
2.759					9186.7	10911.86	
2.759	1	0.6	9564	10334	9564	10334	
2.644					8730.71	10819.5	
2.644	1	0.59	9511	10592	9511	10592	
2.507					8273	10479.7	
2.507	1	0.26	9143	10149	9143	10149	

2.433					8413.81	10556.1
2.433	1	0.47	9134	10244	9134	10244
2.396					8264.87	10546.15
2.396	1	0.97	9128	10274	9128	10274
2.293					7784.16	10395.27
2.293	1	0.51	9459	10265	9459	10265
2.237					9388.34	10521.79
2.237	1	0.01	9598	10336	9598	10336
2.137					9224.49	10538.8
2.137	1	0.13	9614	10538	9614	10538
2.06					9294.25	10505.05
2.06	1	-0.01	9770	10430	9770	10430
1.985					9941.13	10333.94
1.985	1	0.53	9945	10165	9945	10165
1.907					9989.6	10194.79
1.907	1	0.12	9995	10049	9995	10049
1.847					9976.4	10033.42
1.847	1	0.06	9983	10025	9983	10025
1.762					9982.66	10021.21
1.762	1	0.04	9983	10021	9983	10021
1.671					9976.98	10046.84
1.671	1	0.15	9977	10046	9977	10046
1.587					9980.26	10024.35
1.587	1	0.34	9986	10020	9986	10020
1.496					9983.83	10059.34
1.496	1	0.96	9990	10029	9990	10029
1.404					9964.41	10062.73
1.404	1	0.36	9972	10028	9972	10028
1.322					9945.05	10032.48
1.322	1	0.54	9966	10031	9966	10031
1.264					9982.32	10050.75
1.264	1	0.36	9984	10036	9984	10036
1.186					9931.08	10054.9
1.186	1	0.74	9965	10056	9965	10055.38
1.109					9893.84	10040.6
1.109	1	0.75	9957	10035	9957	10035
1.016					9970.64	10028.11
1.016	1	0.41	9981	10015	9981	10015
0.914					9973.37	10138.09
0.914	1	0.69	9983	10040	9983	10040
0.821					9876	10173
0.821	1	0.07	9961	10052	9961	10052
0.726					9926.7	10071.41
0.726	1	0.15	9946	10027	9946	10027
0.623					9819	10045.29
0.623	1	0.29	9970	10034	9970	10034
0.531					9753.19	10204.2
0.531	1	0.96	9933	10032	9933	10032
0.439					9680.79	10400.92
0.439	1	0.04	9937	10051	9937	10051
0.333					9623.75	10310.45
0.333	1	0.01	9767	10236	9767	10236
0.232					9133	10109.53
0.232	1	0	9411	10040	9411	10040
0.118					8271.06	12636.45
0.118	1	0	8972	12239	8972	12239
0.034					9028.85	12749.79
0.034	1	0	9446	12424	9446	12424

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 4.901
FW FW 01 Right encroachment station 10024 is less than right channel bank station 10024.42 and greater than the left channel bank station 9812.072
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.901
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.844
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.777
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.777
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.629
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.479
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.314
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.314
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.243
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.071
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.071
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.99
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.889
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.818
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.818
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.648
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.648
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.648
FW FW 04 The right station effective of 10340.4 for 1% annual chance floodplain is greater than the right channel bank station (10109.34).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10376) is outside of 1% annual chance floodplain.

The right encroachment station should be adjusted.

RS: 3.528
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.335
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.25
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.154
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.154
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.056
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.056
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.944
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.882
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.882
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.759
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.644
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.507
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.507
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.433
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.293
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.293
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.237
FW FW 01 Right encroachment station 10336 is less than right channel bank station 10336.58 and greater than the left channel bank station 9855.192 Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 2.237
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.06
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.985
FW FW 01 Left encroachment station 9945 is more than left channel bank station 9940.304 and less than the right channel bank station 10016.59
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.985
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.907
FW FW 01 Left encroachment station 9995 is more than left channel bank station 9993.731 and less than the right channel bank station 10020.19
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.907
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.847
FW FW 01 Left encroachment station 9983 is more than left channel bank station 9982.938 and less than the right channel bank station 10024.63
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.847
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.847
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.762
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.762
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.671
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.587
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.404
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.404
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.322
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.322
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 1.264
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.186
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.186
FW FW 04 The right station effective of 10054.9 for 1% annual chance floodplain is greater than the right channel bank station (10041.42).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10056) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.109
FW FW 01 Right encroachment station 10035 is less than right channel bank station 10035.24 and greater than the left channel bank station 9975.454
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.016
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.3 and greater than the left channel bank station 9988.644
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.016
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.914
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.821
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.821
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.726
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.623
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.623
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.531
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.439
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.232
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.118
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.118
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

FW SW 04 The name of the stream is Reach #1
Encroachment method 1 is used.
Total conveyance for the natural profile is 1368094
Total conveyance for the floodway profile is 1116497
The difference in conveyance between the floodway profile and the natural profile is more than 1%.
Normal Depth option with the same energy slope as the natural profile must be used for the floodway profile and rerun the plan.
This message is not applicable for the revisions.

FW SW 05 The name of stream is Reach #1
Encroachment method 1 is used.
The floodway starting water-surface elevation of 1553.50 is equal to the natural starting water-surface elevation of 1553.50
Normal depth option with the same energy slope as the natural profile must be used for the floodway profile and rerun the plan.
This message is not applicable for the revisions.

---END---

IONA WASH (NORTH)

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.nt
Selected profiles: Floodplain;Floodway
Date: 9/6/2005
Time: 2:29:23 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Iona North						
5.018		0.033	0.039	0.033	0.1	0.3
4.925		0.033	0.039	0.033	0.1	0.3
4.826		0.033	-----	-----	0.1	0.3
		0.039	-----	-----		
4.755		0.033	0.039	0.033	0.1	0.3
4.664		0.033	-----	-----	0.1	0.3
		0.039	-----	-----		
4.584		0.033	0.039	0.033	0.1	0.3
4.486		0.033	-----	-----	0.1	0.3
		0.039	-----	-----		
4.396		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
4.312		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
4.247		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
4.164		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
992		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
38		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
3.946		0.041	0.046	0.041	0.1	0.3
3.879		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
3.796		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
3.689		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
3.602		0.041	-----	-----	0.1	0.3
		0.046	-----	-----		
3.523		0.033	0.042	0.033	0.1	0.3
3.422		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
3.349		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
3.257		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
3.18		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
3.087		0.033	0.045	0.033	0.3	0.5
3.043		0.033	0.045	0.033	0.3	0.5
3.0415	Bridge-Up	0.033	0.045	0.033	0.3	0.5
3.0415	Bridge-Dn	0.033	0.045	0.033	0.3	0.5
3.04		0.033	0.045	0.033	0.3	0.5
3.007		0.045	-----	-----	0.3	0.5
2.959		0.033	0.042	0.033	0.3	0.5
2.9555	Bridge-Up	0.033	0.042	0.033	0.3	0.5
2.9555	Bridge-Dn	0.033	0.042	0.033	0.3	0.5
2.952		0.033	0.042	0.033	0.3	0.5
2.945		0.033	0.042	0.033	0.3	0.5
2.939		0.033	0.042	0.033	0.3	0.5
2.9355	Bridge-Up	0.033	0.042	0.033	0.3	0.5
2.9355	Bridge-Dn	0.041	-----	-----	0.3	0.5
932		0.041	-----	-----	0.3	0.5
19		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
2.85		0.041	0.048	0.041	0.1	0.3
2.791		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
2.678		0.041	0.048	0.041	0.1	0.3

b/c of structure

2.599	0.041	0.048	0.041	0.1	0.3
2.526	0.033	0.041	0.033	0.1	0.3
2.436	0.033	0.041	0.033	0.1	0.3
324	0.033	0.041	0.033	0.1	0.3
227	0.033	0.041	0.033	0.1	0.3
.49	0.033	0.041	0.033	0.1	0.3
.08	0.033	0.041	0.033	0.1	0.3
2	0.033	0.041	0.033	0.1	0.3
1.925	0.033	0.041	0.033	0.1	0.3
1.83	0.033	0.041	0.033	0.1	0.3
1.758	0.043	-----	-----	0.1	0.3
	0.053	-----	-----		
1.683	0.041	-----	-----	0.1	0.3
	0.053	-----	-----		
1.603	0.041	-----	-----	0.1	0.3
	0.05	-----	-----		
1.578	0.041	-----	-----	0.1	0.3
	0.05	-----	-----		
1.505	0.041	-----	-----	0.1	0.3
	0.05	-----	-----		
1.4	0.05	-----	-----	0.1	0.3
1.293	0.041	-----	-----	0.1	0.3
	0.05	-----	-----		
1.219	0.05	-----	-----	0.1	0.3
1.147	0.042	-----	-----	0.1	0.3
	0.056	-----	-----		
1.074	0.038	-----	-----	0.1	0.3
	0.061	-----	-----		
.991	0.033	-----	-----	0.1	0.3
	0.041	-----	-----		
	0.051	-----	-----		
.905	0.039	0.051	0.051	0.1	0.3
	-----	-----	0.039		
	-----	-----	0.065		
	-----	-----	0.036		
.833	0.039	-----	-----	0.1	0.3
	0.051	-----	-----		
.765	0.039	-----	-----	0.1	0.3
	0.051	-----	-----		
2	0.039	0.051	0.039	0.1	0.3
6	0.035	-----	-----	0.1	0.3
	0.039	-----	-----		
	0.035	-----	-----		
	0.051	-----	-----		
.569	0.039	-----	-----	0.1	0.3
	0.051	-----	-----		
.492	0.046	-----	-----	0.1	0.3
.396	0.039	0.051	0.039	0.1	0.3
.305	0.039	0.039	0.051	0.1	0.3
	-----	0.051	0.039		
.219	0.039	0.051	0.051	0.1	0.3
	-----	-----	0.039		
.104	0.033	0.039	0.033	0.1	0.3
0	0.033	0.039	0.033	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.061
Right Overbank n Value:	0.033	0.065
Channel n Value:	0.039	0.051
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:       5.018
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.018
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.018
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
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          The overbank n values should be reevaluated.

RS:       4.925
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.925
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.925
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.039
          The overbank n values should be reevaluated.

RS:       4.755
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.755
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.755
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.039
          The overbank n values should be reevaluated.

RS:       4.584
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.584
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       4.584
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.039
          The overbank n values should be reevaluated.

RS:       3.946
NT RC 05  The left overbank n value of 0.041 and the right overbank n value
          of 0.041 are less than or equal to the channel n value of 0.046
          The overbank n values should be reevaluated.

RS:       3.523
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.523
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.523
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.042
          The overbank n values should be reevaluated.

RS:       3.087
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.087
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

          3.087
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.
```

```
RS:       3.043
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

         3.043
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.043
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       3.0415
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.0415
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.0415
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       3.0415
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.0415
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

         3.0415
 C 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       3.04
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.04
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.04
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       2.959
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.959
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.959
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

         2.9555
 C 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.9555
NT RC 01 Right overbank n value is less than 0.035
```

```
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

         2.9555
[illegible]RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      2.9555
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9555
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9555
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      2.952
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.952
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.952
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      2.945
[illegible]RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.945
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.945
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      2.939
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.939
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.939
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      2.9355
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9355
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9355
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.
```

RS: 2.85
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 2.678
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 2.599
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 2.526
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.526
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.526
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 2.436
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.436
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

2.436
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 2.324
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.324
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.324
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

RS: 2.227
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.227
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.227
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.041
The overbank n values should be reevaluated.

2.149
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.149

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

         2.149
   C 05  The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2.08
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.08
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.08
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

         1.925
   C 01  Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.925
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.925
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.83
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.83
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.83
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      0.682
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:      0.396
   RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:      0.104
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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```
          The n value should be reevaluated.

RS:       0.104
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.104
NT RC 05  The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.039
          The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

RS:       3.0415
NT RS 02  The channel n value of 0.045 for the upstream internal bridge opening
          section is equal or larger than the channel n value of 0.045 at Section 3.
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 3.
          The selection of the n value(s) should be reevaluated.

RS:       3.0415
NT RS 02  The channel n value of 0.045 for the downstream internal bridge opening
          section is equal or larger than the channel n value of 0.045 at Section 2
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 2.
          The selection of the n value(s) should be reevaluated.

RS:       2.9555
NT RS 02  The channel n value of 0.042 for the upstream internal bridge opening
          section is equal or larger than the channel n value of 0.042 at Section 3.
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 3.
          The selection of the n value(s) should be reevaluated.

          2.9555
          S 02 The channel n value of 0.042 for the downstream internal bridge opening
          section is equal or larger than the channel n value of 0.042 at Section 2
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 2.
          The selection of the n value(s) should be reevaluated.

RS:       2.9355
NT RS 02  The channel n value of 0.042 for the upstream internal bridge opening
          section is equal or larger than the channel n value of 0.042 at Section 3.
          Usually, the channel n value of the bridge opening section is
          less than the channel n value of Section 3.
          The selection of the n value(s) should be reevaluated.

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

ect File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
aulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.xs
Selected profiles: Floodplain;Floodway
Date: 9/6/2005
Time: 2:29:24 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Iona North						
5.018	497.688	490.124	421.691	374.46	3100	D,C
4.925	501.143	522.346	521.82	465.97	3100	D,C
4.826	371.797	376.102	368.538	304.6	2170	
4.755	466.903	478.179	442.371	289.21	2170	
4.664	400.137	420.617	400.149	285.03	2170	D,C
4.584	423.403	519.49	517.819	265.01	2170	C
4.486	474.485	475.237	473.915	284.98	2170	
4.396	438.784	445.862	444.211	338.01	3210	
4.312	302.829	344.824	355.336	393.5	3460	
4.247	406.916	435.79	461.835	385.47	3460	
4.164	350.94	378.973	300.232	332.55	3460	
4.092	274.558	285.811	266.011	328.71	3460	D
4.038	491.485	484.444	416.396	404.77	3460	
3.946	347.902	355.876	317.914	396.26	3460	D,C
3.879	439.697	439.746	439.694	356.74	3460	
3.796	534.972	566.219	571.517	267.11	3460	D,C
3.689	454.197	459.599	456.64	397.26	3460	D
[illegible]2	411.325	418.846	412.504	289.97	3460	D
[illegible]3	531.519	535.081	540.583	350.56	3460	
[illegible]2	391.02	385.675	372.887	231.17	3460	C
3.349	462.505	486.621	495.187	259.03	3460	C
3.257	400.893	406.425	408.176	151.96	3460	C
3.18	496.152	491.947	476.025	326.4	3460	C
3.087	261.189	230.388	226.414	164.88	3460	C
3.043	18.201	18.39	17.888	156.21	3540	
3.0415	Bridge #1-Up					
3.0415	Bridge #1-Dn					
3.04	183.305	176.271	170.67	153.63	3540	D,C
3.007	253.82	254.26	270.084	336.74	3540	
2.959	40.199	39.162	41.043	94.61	3540	
2.9555	Bridge #1-Up					
2.9555	Bridge #1-Dn					
2.952	35.622	36.895	34.427	92.13	3540	
2.945	19.731	29.935	31.37	99.9	3540	
2.939	36.601	37.191	37.869	96.85	3540	
2.9355	Bridge #1-Up					
2.9355	Bridge #1-Dn					
2.932	70.664	68.615	69.48	96.58	3540	
2.919	336.454	363.831	377.569	207.26	3540	
2.85	294.932	313.162	320.448	272.42	3540	
2.791	579.964	599.197	595.667	228.19	3540	
2.678	408.278	418.915	412.726	366.18	3540	
2.599	382.513	385.656	384.234	302.27	3580	C
2.526	431.124	476.093	396.022	475.69	3580	
2.436	478.557	590.137	633.719	185.65	3580	C
2.324	498.803	512.012	519.948	262.93	3580	D
2.227	391.272	411.407	396.985	226.21	3580	C
2.149	389.36	365.749	354.721	231.43	3580	C
2.08	415.026	420.763	349.969	440.06	3580	
2	408.774	396.576	341.333	397.05	3580	
1.925	458.353	498.974	561.124	477.13	3580	D,C
1.83	375.707	380.384	369.508	446.47	3580	D
1.758	393.187	398.363	395.557	557.79	3580	D
[illegible]3	419.697	422.373	417.867	472.55	3580	
[illegible]3	128.26	132.216	194.633	348.25	3580	
[illegible]8	338.343	386.507	435.475	328.34	3580	
1.505	509.953	555.309	610.488	601.52	3580	D,C
1.4	650.898	563.367	181.63	1490.06	3710	D
1.293	344.535	390.068	341.949	744.25	4550	D,C
1.219	374.065	382.049	363.152	820.38	4550	D

C = supercritical (S/C)

1.147	381.969	385.963	384.107	975.88	4550	D
1.074	438.398	437.956	423.345	1043.91	4550	D
.991	432.681	455.836	441.185	1363.03	4550	D
[illegible]05	360.455	378.49	373.093	409.9	1330	D
[illegible]3	334.402	358.494	359.991	314.41	1330	D
[illegible]	376.081	438.767	345.144	490.91	1330	
[illegible]2	205.534	139.398	112.514	655.91	1330	D
.656	430.77	457.22	433.313	721.53	1330	D
.569	389.188	405.761	408.961	854.37	1330	
.492	483.316	509.271	385.074	771.7	1330	
.396	439.978	482.937	542.494	469.8	1330	
.305	466.206	454.785	406.883	555.04	1330	
.219	561.483	607.042	618.272	564.16	1330	
.104	505.35	549.57	542.292	307.46	1330	D
0	0	0	0	199.95	1330	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

RS: 1.505
XS SP 01 Diff. HV = 0.51 ; Kratio = 6.68 ; Depth Ratio = 1.87
TopWdthAct ratio = 2.48 ; Length Chl Up / 500 = 1.11
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 4.826
XS DC 01 Discharge decreases in the downstream direction.

RS: 0.905
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 3.523
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.31
MaxChlDpth Up/MaxChlDpth Dn = 1.37
TopwdthAct Up/TopwdthAct Dn = 1.52
This cross section is located too far upstream from the
critical depth cross section.

RS: 3.349
XS LC 01 Lenchl Up/TopwdthAct Dn = 3.20
MaxChlDpth Up/MaxChlDpth Dn = 1.14
TopwdthAct Up/TopwdthAct Dn = 1.70
This cross section is located too far upstream from the
critical depth cross section.

RS: 3.18
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.98
MaxChlDpth Up/MaxChlDpth Dn = 1.43
TopwdthAct Up/TopwdthAct Dn = 1.98
This cross section is located too far upstream from the
critical depth cross section.

RS: 2.678

```
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.39
         MaxChlDpth Up/MaxChlDpth Dn = 1.18
         TopwdthAct Up/TopwdthAct Dn = 1.21
         This cross section is located too far upstream from the
         critical depth cross section.

BOUNDARY CONDITION CHECK
------------------------

XS BC 02 The name of the stream is Reach #1,Iona North
         Normal S = 0.0093 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Iona North
         Normal S = 0.0093 is specified as the downstream boundary
         for profile Floodway

LATERAL WEIRS CHECK
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---END---
```

IONA_NORTH.fw

CHECK-RAS Program: Floodway Check

Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.G01
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Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.fw
Selected profiles: Floodplain;Floodway
Date: 9/6/2005
Time: 2:29:26 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Iona North							
5.018					9966.83	10418.78	
5.018	1	0.63	9971	10280	9971	10280	
4.925					9805.18	10279.35	
4.925	1	0.98	9948	10142	9948	10142	
4.826					9732.86	10037.46	
4.826	1	0.76	9874	10029	9874	10029	
4.755					9885.11	10174.32	
4.755	1	0.82	9941	10070	9941	10070	
4.664					9984.2	10295.64	
4.664	1	0.97	9985	10109	9985	10109	
4.584					9864.97	10129.98	
4.584	1	0.57	9944	10034	9944	10034	
4.486					9770.71	10055.69	
4.486	1	0.83	9925	10034	9925	10034	
4.396					9715.54	10053.55	
4.396	1	0.93	9924	10035	9924	10035	
4.312					9694.73	10088.24	
4.312	1	0.36	9776	10027	9776	10027	
4.247					9864.67	10250.14	
4.247	1	0.11	9864	10167	9864	10167	
4.164					9923.43	10255.98	
4.164	1	0.52	9958	10163	9958	10163	
4.092					9684.32	10029.25	
4.092	1	0.49	9848	10020	9859.19	10020	
4.038					9754.52	10159.29	
4.038	1	0.4	9888	10122	9888	10122	
3.946					9976.32	10472.35	
3.946	1	0.71	9977	10122	9977	10122	
3.879					9887.93	10244.67	
3.879	1	0.72	9965	10100	9965	10100	
3.796					9821.48	10130.82	
3.796	1	0.48	9827	10094	9827	10094	
3.689					9618.99	10042.2	
3.689	1	0.12	9729	10030	9729	10030	
3.602					9791.05	10107.83	
3.602	1	0.65	9915	10059	9915	10059	
3.523					9763.02	10113.58	
3.523	1	0.93	9936	10043	9936	10043	
3.422					9916.75	10147.91	
3.422	1	0.93	9968	10088	9968	10088	
3.349					9899.77	10158.8	
3.349	1	0.86	9953	10067	9953	10067	
3.257					9922.82	10074.78	
3.257	1	0.22	9937	10022	9937	10022	
3.18					9880.3	10206.71	
3.18	1	0.68	9941	10082	9941	10082	
3.087					9973.33	10138.2	
3.087	1	0.51	9976	10069	9976	10069	
3.043					9859.24	10015.45	
3.043	1	0.01	9859	10015	9859.23	10015	
3.0415					9859.87	10014	Bridge #1-Up
3.0415					9859.71	10018.45	Bridge #1-Dn
3.0415	0	-0.01	9864.1	10018.1	9866	10014	Bridge #1-Up
3.0415	0	-0.03	9864	10018	9866	10018	Bridge #1-Dn
3.004					9863.66	10018	
3.004	1	0.1	9864	10018	9864	10018	
3.007					9835.77	10172.5	
3.007	1	0.03	9863	10090	9863	10090	
2.959					9943.2	10037.81	
2.959	1	0	9943	10037	9943.21	10037	
2.9555					9943.93	10036.93	Bridge #1-Up

2.9555					9940.16	10032.16	Bridge #1-Dn
2.9555	0	0	9944.4	10036.4	9944.4	10036.4	Bridge #1-Up
2.9555	0	0	9935.7	10040.6	9940.17	10032.16	Bridge #1-Dn
[illegible]952					9940.04	10032.17	
[illegible]952	1	0	9940	10032	9940.05	10032	
[illegible]45					9950.17	10050.07	
[illegible].945	1	0	9951	10049	9951	10049	
2.939					9941.25	10038.09	
2.939	1	0	9935	10038	9941.25	10038	
2.9355					9941.83	10038.03	Bridge #1-Up
2.9355					9935.15	10031.74	Bridge #1-Dn
2.9355	0	0	9941	10038.1	9941.83	10038.03	Bridge #1-Up
2.9355	0	0	9935	10031.9	9935.15	10031.74	Bridge #1-Dn
2.932					9935.15	10031.73	
2.932	1	0.04	9936	10032	9936	10031.74	
2.919					9866.51	10073.77	
2.919	1	0.42	9867	10073	9867	10073	
2.85					9845.84	10118.26	
2.85	1	0.23	9908	10060	9908	10060	
2.791					9856.06	10084.25	
2.791	1	0.07	9857	10056	9857	10056	
2.678					9789.4	10155.58	
2.678	1	0.9	9953	10057	9953	10057	
2.599					9942.57	10244.84	
2.599	1	0.52	9976	10058	9976	10058	
2.526					9917.82	10393.52	
2.526	1	0.64	9972	10117	9972	10117	
2.436					9852.11	10037.76	
2.436	1	0	9860	10034	9860	10034	
2.324					9839.18	10129.34	
2.324	1	0.34	9876	10129	9876	10129	
2.227					9886.26	10112.47	
2.227	1	0.28	9987	10100	9987	10100	
2.149					9859.72	10091.15	
2.149	1	0.07	9925	10040	9925	10040	
2.08					9772.37	10212.43	
2.08	1	0.94	9873	10079	9873	10079	
2					9943.28	10340.33	
2	1	0.78	9955	10136	9955	10136	
[illegible]925					9724.02	10231.89	
[illegible]925	1	0.98	9819	10065	9819	10065	
[illegible]3					9553.03	10105.81	
1.83	1	0.67	9730	10029	9730	10029	
1.758					9591.9	10151.07	
1.758	1	0.03	9634	10147	9634	10147	
1.683					9669.33	10141.88	
1.683	1	0	9680	10625	9680	10141.88	
1.603					9810.27	10158.52	
1.603	1	0.05	9853	10656	9853	10158.57	
1.578					9841.36	10169.7	
1.578	1	0.16	9881	10165	9881	10165	
1.505					9943.77	10966.46	
1.505	1	0.95	9922	10507	9939.32	10507	
1.4					9729.22	11227	
1.4	1	0.94	9963	10855	9963	10855	
1.293					9805.54	11514.29	
1.293	1	0.86	9945	11127	9945	11127	
1.219					9985.17	11543.03	
1.219	1	0.4	9989	10803	9989	10803	
1.147					9952.74	11340.9	
1.147	1	0.97	9984	10751	9984	10751	
1.074					9951.53	11476.45	
1.074	1	0.98	10025	10821	10025	10821	
0.991					9712.07	11245.35	
0.991	1	0.24	9779	10621	9780.33	10621	
0.905					9952.13	10407.24	
0.905	1	0.13	9979	10341	9979	10341	
0.833					9814.56	10313.25	
0.833	1	0.96	9914	10063	9914	10063	
0.765					9864.2	10355.11	
0.765	1	0.81	9953	10135	9953	10135	
0.682					9599.59	10269.65	
0.682	1	0.72	9780	10047	9780	10047	
0.656					9624.26	10415.41	
0.656	1	0.68	9803	10085	9803	10085	
[illegible]569					9825.47	10679.84	
[illegible]69	1	0.91	9918	10147	9918	10147	
[illegible].92					9980.49	10752.19	
0.492	1	0.83	9977	10179	9978.31	10179	
0.396					9768.82	10238.63	
0.396	1	0.98	9943	10092	9943	10092	
0.305					9733.34	10288.38	

0.305	1	0.81	9932	10051	9932	10051
0.219					9661	10225.16
0.219	1	0.78	9902	10055	9902	10055
[illegible]104					9455.11	10080.57
[illegible]04	1	0.9	9792	9989	9792	9989
					9609.61	10017.2
[illegible]	1	0.24	9697	10013	9697	10013

ENCROACHMENT METHOD CHECK

RS: 3.0415
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.9555
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.9355
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 5.018
FW FW 01 Left encroachment station 9971 is more than left channel bank station 9970.835 and less than the right channel bank station 10025.86
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 5.018
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.826
FW FW 03 The Left channel bank station may not be at the proper location.

[illegible] 4.664
[illegible]W 01 Left encroachment station 9985 is more than left channel bank station 9984.661 and less than the right channel bank station 10026.07
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.664
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.584
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.486
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.486
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.396
FW FW 01 Right encroachment station 10035 is less than right channel bank station 10035.42 and greater than the left channel bank station 9948.376
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.396
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.312
FW FW 01 Right encroachment station 10027 is less than right channel bank station 10027.4 and greater than the left channel bank station 9965.343
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.247
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.247
FW FW 03 The right channel bank station may not be at the proper location.

4.247
W 04 The left station effective of 9864.67 for 1% annual chance floodplain is less than the left channel bank station 9962.503
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9864) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 4.164
FW FW 01 Left encroachment station 9958 is more than left channel bank station 9957.826 and less than the right channel bank station 10007.68
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.092
FW FW 01 Right encroachment station 10020 is less than right channel bank station 10020.15 and greater than the left channel bank station 9947.751
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.092
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.092
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.946
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9976.642 and less than the right channel bank station 10062.95
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.946
FW 03 The Left channel bank station may not be at the proper location.

RS: 3.689
FW FW 01 Right encroachment station 10030 is less than right channel bank station 10030.24 and greater than the left channel bank station 9950.236
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.349
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.257
FW FW 01 Right encroachment station 10022 is less than right channel bank station 10022.44 and greater than the left channel bank station 9950.469
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.087
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.043
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.959
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.959
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.945
FW 03 The Left channel bank station may not be at the proper location.

RS: 2.945
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.919
FW FW 03 The Left channel bank station may not be at the proper location.

2.85
'W 03 The Left channel bank station may not be at the proper location.

RS: 2.791
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.599
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.436
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.324
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.227
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2
FW FW 01 Left encroachment station 9955 is more than left channel bank station 9954.533 and less than the right channel bank station 10026.35
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.758
FW 01 Right encroachment station 10147 is less than right channel bank station 10147.35 and greater than the left channel bank station 9961.731
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.758
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.683
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.683
FW FW 04 The right station effective of 10141.88 for 1% annual chance floodplain is greater than the right channel bank station (10138.62).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10625) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.603
FW FW 04 The right station effective of 10158.52 for 1% annual chance floodplain is greater than the right channel bank station (10126.96).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10656) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.578
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.505
FW FW 06 The left station effective of 9939.32 for the floodway profile is more than the left channel bank station of 9922.03
The left side of the floodway boundary is within the channel.
The left encroachment station of 9922 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.4

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FW FW 03  The Left channel bank station may not be at the proper
          location.

          1.4
FW 03     The right channel bank station may not be at the proper
          location.

RS:       1.293
FW FW 01  Left encroachment station 9945 is more than left channel bank
          station 9944.688 and less than the right channel bank station 10045.2
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       1.219
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       1.147
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       1.147
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       1.074
FW FW 01  Left encroachment station 10025 is more than left channel bank
          station 10024.9 and less than the right channel bank station 10096.92
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.991
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.991
FW FW 03  The right channel bank station may not be at the proper
          location.

          0.833
W 03      The right channel bank station may not be at the proper
          location.

RS:       0.682
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.492
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.492
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.492
FW FW 04  The left station effective of 9980.49 for 1% annual chance floodplain
          is less than the left channel bank station 9982.722
          The 1% annual chance floodplain is outside the channel.
          However, the left encroachment station (9977) is outside of 1% annual
          chance floodplain.
          The left encroachment station should be adjusted.

RS:       0.396
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.305
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.219
FW FW 01  Right encroachment station 10055 is less than right channel bank
          station 10055.44 and greater than the left channel bank station 9960.763
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

          0.219
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.104
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FW FW 01  Right encroachment station 9989 is less than right channel bank
          station 10032.4 and greater than the left channel bank station 9971.932
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

          0
FW FW 01  Right encroachment station 10013 is less than right channel bank
          station 10013.27 and greater than the left channel bank station 9975.391
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
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DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 13784.2
          Total conveyance for the floodway profile is 14536
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
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CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA NORTH\IONA_NORTH.br
Selected profiles: Floodplain;Floodway
Date: 9/6/2005
Time: 2:29:27 PM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure	
Reach #1,Iona North							
5.018			2039.56	2038.86	2034.44		
4.925			2033.06	2032.5	2029.29		
4.826			2026.46	2026.07	2023.28		
4.755			2022.83	2022.28	2019.11		
4.664			2018	2017.39	2013.65		
4.584			2013.16	2012.5	2008.86		
4.486			2007.31	2006.76	2003.31		
4.396			2001.45	2000.82	1997.67		
4.312			1995.97	1995.58	1992.37		
4.247			1992.43	1991.86	1988.22		
4.164			1988.01	1987.62	1984.61		
4.092			1984.41	1983.72	1979.98		
4.038			1981.33	1980.93	1976.88		
3.946			1976.36	1975.63	1971.33		
3.879			1972.58	1972.16	1967.12		
3.796			1967.56	1966.72	1963.01		
3.689			1960.68	1960.27	1955.48		
3.602			1955.96	1955.12	1951.06		
3.523			1952.12	1951.62	1945.84		
422			1947.15	1946.18	1941.96		
49			1943.6	1943.08	1937.53		
57			1939.66	1938.34	1933.22		
3.18			1935.37	1934.88	1929.91		
3.087			1930.56	1929.36	1925.54		
3.043			1928.09	1927.6	1921.4		
3.0415	1930.6	1933.5	1927.98	1927.19	1921.4	Bridge #1-Up	BNSF
3.0415	1930.6	1933.5	1927.76	1926.39	1921.5	Bridge #1-Dn	RR
3.04			1927.4	1926.08	1921.5		
3.007			1925.93	1925.78	1920.67		
2.959			1925.21	1924.49	1917.8		
2.9555	1927	1930.8	1925.15	1924.26	1917.81	Bridge #1-Up	
2.9555	1928.45	1931.4	1924.82	1923.88	1917.41	Bridge #1-Dn	US60
2.952			1924.73	1923.92	1917.4		
2.945			1924.54	1923.69	1918		
2.939			1924.33	1923.64	1917		
2.9355	1922.1	1927.7	1924.1	1922.66	1917	Bridge #1-Up	
2.9355	1924.54	1927.7	1923.08	1921.3	1916.7	Bridge #1-Dn	US60
2.932			1922.92	1921.26	1916.7		
2.919			1921.44	1920.57	1916.2		
2.85			1917.15	1916.55	1912.17		
2.791			1914.17	1913.59	1909.5		
2.678			1908.92	1908.26	1902.98		
2.599			1904.78	1903.91	1899.43		
2.526			1900.51	1900.15	1895.63		
2.436			1896.75	1895.6	1892.07		
2.324			1890.22	1889.61	1885.36		
2.227			1885.87	1884.83	1878.48		
2.149			1881.44	1880.45	1874.54		
2.08			1876.29	1875.73	1871.86		
2			1872.88	1872.42	1868.61		
1.925			1868.96	1868.34	1865.12		
1.83			1863.6	1863.17	1861.76		
1.758			1860.22	1859.94	1857.26		
1.683			1856.31	1856.06	1853.11		
1.603			1852.97	1852.64	1848.79		
578			1851.46	1850.93	1848.22		
05			1844.98	1844.46	1843.81		
			1841.67	1841.65	1838.25		
1.293			1841.2	1840.69	1834.6		
1.219			1836.11	1835.72	1831.8		
1.147			1831.62	1831.32	1828.17		
1.074			1828.11	1827.91	1824.9		

0.991	1823.94	1823.74	1819.9
0.905	1818.36	1818.21	1814.72
0.833	1814.83	1814.53	1811.01
[illegible]765	1812.23	1812.11	1808.62
[illegible]82	1808.9	1808.7	1805.05
[illegible]56	1807.42	1807.32	1804.3
[illegible].569	1803.74	1803.64	1800.79
0.492	1800.22	1800.15	1798.14
0.396	1796.67	1796.48	1794.38
0.305	1792.52	1792.4	1789.8
0.219	1788.4	1788.22	1786.06
0.104	1781.98	1781.65	1779.06
0	1777.31	1776.78	1773.05

RIVER/REACH: Reach #1, Iona North
RIVER STATION: 3.0415
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	15
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1933.5
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.087	230.39	1929.36	0	1930.56	164.88	
4	3.087	230.39	1929.86	0.51	1931.62	93	
3	3.043	18.39	1927.6	0	1928.09	156.21	
3	3.043	18.39	1927.6	0.01	1928.09	155.77	
	3.0415	15.00	1927.19	0	1927.98	134.13	Bridge #1-Up
	3.0415	3.38	1926.39	0	1927.76	136.74	Bridge #1-Dn
	3.0415	15.00	1927.18	-0.01	1927.99	130	Bridge #1-Up
	3.0415	3.38	1926.36	-0.03	1927.77	132	Bridge #1-Dn
2	3.04	176.27	1926.08	0	1927.4	153.63	
2	3.04	176.27	1926.18	0.1	1927.4	154	
1	3.007	254.26	1925.78	0	1925.93	336.74	
1	3.007	254.26	1925.81	0.03	1926.04	227	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9709.18	9846.91	1933.48	9691.88	9831.38	1933.5
2	10019.1	10805.55	1933.5	10022.8	10477.95	1933.5

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0.8 Submerged Cd: 0.8

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

MaxLowChord:	1930.6	MinTopRd:	1933.51	MinElPrs:	1930.6
	1930.6		1933.51		1930.6

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9846.91	10019.1U

```
                                                        9831.38   10022.8D
                                        9864      10018                    U
                                        9864      10018                    D
```

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
Bridge #1	9854.29	10016.56	1933.50	1933.50	1933.50	1930.60	U
	9852.95	10021.18	1933.50	1933.50	1933.50	1930.60	D
	9864.10	10016.56	1933.50	1933.50	1933.50	1930.60	U
	9864.10	10018.10	1933.50	1933.50	1933.50	1930.60	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	3540	3540	0	Momentum	Low Flow
	3540	3540	0	Momentum	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

```
RS:        3.0415 This is Bridge #1
BR LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1928.09 is equal to or less than MinTopRd of 1933.5.
           2. EGEL 3 of 1928.09 is less than MxLoCdU of 1930.6.

RS:        3.0415 This is Bridge #1
BR LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1928.09 is equal to or less than MinTopRd of 1933.5.
           2. EGEL 3 of 1928.09 is less than MxLoCdU of 1930.6.
```

DISTANCE CHECK

```
           3.0415 This is Bridge #1
           T 01  'Distance from Upstream XS' of 0.01 is less than the height of the
           bridge opening of  9.20
           Section 3 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4 & 3, and 'Distance from Upstream XS' should
           be adjusted.


RS:        3.0415 This is Bridge #1
ST DT 02   The channel distance of 3.379999 at Downstream Internal Section is less than
           the height of the bridge opening of 9.10
           Section 2 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4, 3 & 2 should be adjusted.
```

INEFFECTIVE FLOW CHECK

```
RS:        3.04 This is Section 2.
ST IF 06   Low flow occurs at Bridge
           The velocity head at Section 2 is more than 0.5
           The computed right ineffective flow station of 10030.28 is greater than
           the selected right ineffective flow station of 10022.8
           The right ineffective flow station should be adjusted.
```

FLOODWAY CHECK

```
RS:        3.0415 This is Bridge
ST FW 01   Encroachment Method was not specified at this river station.
           For flood insurance studies Encroachment Methods 4 and 1
           should be used.

RS:        3.04 This is Section 2
   FW 10   Left encroachment station 9864 is more than the left ineffective flow
           station 9831.38 and less than the right ineffective flow station 10022.8
           Left encroachment station is within the effective flow area.
           Left encroachment station should at least be equal to the left
           ineffective flow station.

RS:        3.04 This is Section 2
```

```
ST FW 10  Right encroachment station 10018 is less than the right ineffective flow
          station 10022.8 and greater than the left ineffective flow station 9831.38
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       3.043This is Section 3
ST FW 08  The left station effective of 9859.24 for the natural profile.
          is less than the left channel bank station of 9878.3
          The left encroachment station is outside the channel.
          The left encroachment station of 9859 is less than the left
          station effective of 9859.24 for the natural profile.
          The left encroachment station should be adjusted.

RS:       3.043 This is Section 3
ST FW 10  Left encroachment station 9859 is more than the left ineffective flow
          station 9846.91 and less than the right ineffective flow station 10019.1
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       3.043 This is Section 3
ST FW 10  Right encroachment station 10015 is less than the right ineffective flow
          station 10019.1 and greater than the left ineffective flow station 9846.91
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.
```

RIVER/REACH: Reach #1, Iona North
RIVER STATION: 2.9555
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	35
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1931.4
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.007	254.26	1925.78	0	1925.93	336.74	
4	3.007	254.26	1925.81	0.03	1926.04	227	
3	2.959	39.16	1924.49	0	1925.21	94.61	
3	2.959	39.16	1924.49	0	1925.21	93.79	
	2.9555	35.00	1924.26	0	1925.15	87	Bridge #1-Up
	2.9555	4.15	1923.88	0	1924.82	86	Bridge #1-Dn
	2.9555	35.00	1924.26	0	1925.15	86	Bridge #1-Up
	2.9555	4.15	1923.88	0	1924.82	85.99	Bridge #1-Dn
2	2.952	36.90	1923.92	0	1924.73	92.13	
2	2.952	36.90	1923.92	0	1924.73	91.95	
1	2.945	29.94	1923.69	0	1924.54	99.9	
1	2.945	29.94	1923.69	0	1924.54	98	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9682.67	9926.3	1930.79	9865.74	9929.62	1931.39
2	10052	10674.14	1930.79	10044.2	10544.42	1931.39

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0.8 Submerged Cd: 0.8

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

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owChord:	1927	MinTopRd:	1931.41	MinElPrs:	1927
	1927		1931.47		1927

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9926.3	10052 U
					9929.62	10044.2D
			9935.7	10040.6		U
			9935.7	10040.6		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9926.50	10048.69	1930.80	1930.80	1930.80	1927.00 U
	9929.81	10044.20	1931.40	1931.45	1931.40	1928.45 D
	9944.40	10036.40	1930.80	1930.80	1930.80	1927.00 U
	9944.40	10036.40	1931.46	1931.46	1931.46	1928.39 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	3540	3540	0	Energy only	Low Flow
	3540	3540	0	Energy only	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

2.9555 This is Bridge #1
F 01 Type of flow is low flow because,
1. EGEL 3 of 1925.21 is equal to or less than MinTopRd of 1931.4.
2. EGEL 3 of 1925.21 is less than MxLoCdU of 1927.0.

RS: 2.9555 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1925.21 is equal to or less than MinTopRd of 1931.5.
2. EGEL 3 of 1925.21 is less than MxLoCdU of 1927.0.

DISTANCE CHECK

RS: 2.9555 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.01 is less than the height of the bridge opening of 10.64
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

RS: 2.9555 This is Bridge #1
ST DT 02 The channel distance of 4.151999 at Downstream Internal Section is less than the height of the bridge opening of 11.04
Section 2 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4, 3 & 2 should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 2.959 This is Section 3
ST IF 06 Low flow occurs at Bridge
The velocity head at Section 3 is more than 0.5
The computed left ineffective flow station of 9917.30 is less than the selected left ineffective flow station of 9926.3
The left ineffective flow station should be adjusted.

RS: 2.959 This is Section 3.
ST IF 06 Low flow occurs at Bridge
The velocity head at Section 3 is more than 0.5

```
          The computed right ineffective flow station of 10057.89 is greater than
          the selected right ineffective flow station of 10052
          The right ineffective flow station should be adjusted.

          2.952 This is Section 2
   F 06   Low flow occurs at Bridge
          The velocity head at Section 2 is more than 0.5
          The computed left ineffective flow station of 9918.76 is less than
          the selected left ineffective flow station of 9929.62
          The left ineffective flow station should be adjusted.

RS:       2.952 This is Section 2.
ST IF 06  Low flow occurs at Bridge
          The velocity head at Section 2 is more than 0.5
          The computed right ineffective flow station of 10055.25 is greater than
          the selected right ineffective flow station of 10044.2
          The right ineffective flow station should be adjusted.

RS:       2.945 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.

FLOODWAY CHECK
---------------

RS:       2.9555 This is Bridge
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       2.952 This is Section 2
ST FW 04  The left encroachment station of 9940 is greater than the
          left bank station of 9935.7
          The left encroachment station is within the channel.
          The encroachment station and/or channel bank station should be reevaluated.

          2.952 This is Section 2
ST FW 04  The right encroachment station of 10032 is less than the
          right bank station of 10040.6
          The encroachment station and/or channel bank station should be reevaluated.

RS:       2.952 This is Section 2
ST FW 10  Left encroachment station 9940 is more than the left ineffective flow
          station 9929.62 and less than the right ineffective flow station 10044.2
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       2.952 This is Section 2
ST FW 10  Right encroachment station 10032 is less than the right ineffective flow
          station 10044.2 and greater than the left ineffective flow station 9929.62
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       2.959This is Section 3
ST FW 08  The left station effective of 9943.2 for the natural profile.
          is less than the left channel bank station of 9950.4
          The left encroachment station is outside the channel.
          The left encroachment station of 9943 is less than the left
          station effective of 9943.2 for the natural profile.
          The left encroachment station should be adjusted.

RS:       2.959 This is Section 3
ST FW 10  Left encroachment station 9943 is more than the left ineffective flow
          station 9926.3 and less than the right ineffective flow station 10052
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

          2.959 This is Section 3
   W 10   Right encroachment station 10037 is less than the right ineffective flow
          station 10052 and greater than the left ineffective flow station 9926.3
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.
```

RIVER/REACH: Reach #1, Iona North
RIVER STATION: 2.9355
TYPE OF STRUCTURE: Bridge

Description:
Distance from Upstream XS: 0.01
Deck/Roadway Width: 35
Weir Coefficient: 2.5
Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 1927.7
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.945	29.94	1923.69	0	1924.54	99.9	
4	2.945	29.94	1923.69	0	1924.54	98	
3	2.939	37.19	1923.64	0	1924.33	96.85	
3	2.939	37.19	1923.64	0	1924.33	96.75	
	2.9355	35.00	1922.66	0	1924.1	0	Bridge #1-Up
	2.9355	2.18	1921.3	0	1923.08	92.59	Bridge #1-Dn
	2.9355	35.00	1922.66	0	1924.1	0	Bridge #1-Up
	2.9355	2.18	1921.3	0	1923.08	92.59	Bridge #1-Dn
2	2.932	68.62	1921.26	0	1922.92	96.58	
2	2.932	68.62	1921.29	0.04	1922.95	95.74	
1	2.919	363.83	1920.57	0	1921.44	207.26	
1	2.919	363.83	1920.99	0.42	1921.62	206	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9785.37	9939.16	1927.69	9453.06	9932.28	1927.7
2	10040.4	10552.01	1927.69	10035.3	10696.5	1927.7

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0.8 Submerged Cd: 0.8

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

MaxLowChord:	1922.1	MinTopRd:	1927.71	MinElPrs:	1922.1
	1922.1		1927.82		1922.1

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9939.16	10040.4U
					9932.28	10035.3D
			9935	10031.9		U
			9935	10031.9		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9941.83	10038.03	1927.70	1927.70	1927.70	1922.10 U
	9930.16	10032.20	1927.70	1927.81	1927.70	1924.54 D
	9941.83	10038.03	1927.70	1927.70	1927.70	1922.10 U
	9941.00	10032.20	1927.81	1927.81	1927.81	1924.50 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type

```
---------------------------------------------------------------------------
Bridge #1     3540      3540      0         Energy only         Sluicegate Pressure Flow
              3540      3540      0         Energy only         Sluicegate Pressure Flow
---------------------------------------------------------------------------

   ETRIC CHECK
-----------------

TYPE OF FLOW CHECK
------------------

RS:        2.9355 This is Bridge #1
BR PF 01   Type of flow is sluicegate pressure flow because,
           1. EGEL 3 of 1924.33 is equal to or less than MinTopRd of 1927.71.
           2. EGEL 3 of 1924.33 is equal to or greater than MxLoCdU of 1922.10.
           3. WSEL 2 of 1921.26 is less than MxLoCdD of 1924.54.

RS:        2.9355 This is Bridge #1
BR PF 01   Type of flow is sluicegate pressure flow because,
           1. EGEL 3 of 1924.33 is equal to or less than MinTopRd of 1927.82.
           2. EGEL 3 of 1924.33 is equal to or greater than MxLoCdU of 1922.10.
           3. WSEL 2 of 1921.29 is less than MxLoCdD of 1924.50.

DISTANCE CHECK
--------------

RS:        2.9355 This is Bridge #1
ST DT 01   'Distance from Upstream XS' of 0.01 is less than the height of the
           bridge opening of  7.54
           Section 3 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4 & 3, and 'Distance from Upstream XS' should
           be adjusted.


RS:        2.9355 This is Bridge #1
ST DT 02   The channel distance of 2.181002 at Downstream Internal Section is less than
           the height of the bridge opening of 7.84
           Section 2 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4, 3 & 2 should be adjusted.

INEFFECTIVE FLOW CHECK
----------------------

RS:        2.932 This is Section 2.
ST IF 05   Pressure flow occurs at Bridge
           The left ineffective flow station of 9932.28 is greater than
           the left abutment station of 9930.16
           The left ineffective flow station should be adjusted.

RS:        2.939 This is Section 3
ST IF 06   Pressure flow occurs at Bridge
           The velocity head at Section 3 is more than 0.5
           The computed left ineffective flow station of 9936.73 is less than
           the selected left ineffective flow station of 9939.16
           The left ineffective flow station should be adjusted.

RS:        2.939 This is Section 3.
ST IF 06   Pressure flow occurs at Bridge
           The velocity head at Section 3 is more than 0.5
           The computed right ineffective flow station of 10043.13 is greater than
           the selected right ineffective flow station of 10040.4
           The right ineffective flow station should be adjusted.

RS:        2.932 This is Section 2
ST IF 06   Pressure flow occurs at Bridge
           The velocity head at Section 2 is more than 0.5
           The computed left ineffective flow station of 9922.32 is less than
           the selected left ineffective flow station of 9932.28
           The left ineffective flow station should be adjusted.

RS:        2.932 This is Section 2.
ST IF 06   Pressure flow occurs at Bridge
           The velocity head at Section 2 is more than 0.5
           The computed right ineffective flow station of 10040.04 is greater than
           the selected right ineffective flow station of 10035.3
           The right ineffective flow station should be adjusted.

RS:        2.945 This is Section 4
ST IF 07   Ineffective flow option was considered at this section.
```

However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from
this section, unless the areas beyond the ineffective flow stations
are not within the flow path of the stream.
This message should be ignored if this section is Section 2 of
the upstream structure.

FLOODWAY CHECK

RS: 2.9355 This is Bridge
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1
should be used.

RS: 2.932 This is Section 2
ST FW 04 The left encroachment station of 9936 is greater than the
left bank station of 9935
The left encroachment station is within the channel.
The encroachment station and/or channel bank station should be reevaluated.

RS: 2.932 This is Section 2
ST FW 10 Left encroachment station 9936 is more than the left ineffective flow
station 9932.28 and less than the right ineffective flow station 10035.3
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left
ineffective flow station.

RS: 2.932 This is Section 2
ST FW 10 Right encroachment station 10032 is less than the right ineffective flow
station 10035.3 and greater than the left ineffective flow station 9932.28
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right
ineffective flow station.

RS: 2.939 This is Section 3
ST FW 03 The right station effective of 10038.09 for the natural profile is greater than
right most abutment station of 10038.03
The 1% annual chance floodplain is outside the structure opening area.
The right encroachment station of 10038 is less than the
right abutment station of 10038.03
The encroachment station should be recomputed.

RS: 2.939 This is Section 3
ST FW 04 The right encroachment station of 10038 is less than the
right bank station of 10038.1
The right encroachment station is within the channel.
The encroachment station and/or channel bank station should be reevaluated.

RS: 2.939 This is Section 3
ST FW 10 Right encroachment station 10038 is less than the right ineffective flow
station 10040.4 and greater than the left ineffective flow station 9939.16
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right
ineffective flow station.

---END

IONA NORTH WEST SLPIT-1

IONA_NORTH_WS-1
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.nt
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 1:47:35 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #2,Iona North WS-1						
.549		0.033	0.039	0.033	0.1	0.3
.45		0.033	0.039	0.033	0.1	0.3
.388		0.033	0.039	0.033	0.1	0.3
.318		0.033	0.039	0.033	0.1	0.3
.224		0.033	0.039	0.033	0.1	0.3
.156		0.033	0.039	0.033	0.1	0.3
.1		0.033	0.039	0.033	0.1	0.3
0		0.041	-----	0	0.1	0.3
		0.046	-----	0.041		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.046
Right Overbank n Value:	0	0.041
Channel n Value:	0.039	0.039
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 0.549
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.549
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.549
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.039
The overbank n values should be reevaluated.

RS: 0.45
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.45
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.45
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.039
The overbank n values should be reevaluated.

RS: 0.388
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

```
RS:       0.388
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.388
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:       0.318
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.318
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.318
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:       0.224
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.224
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.224
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:       0.156
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.156
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.156
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:       0.1
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.1
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.1
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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IONA_NORTH_WS-1
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.xs
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 2:29:15 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #2,Iona North WS-1						
.549	530.195	523.919	520.568	465.97	3100	D,C >(5K)
.45	326.6	329.253	322.209	309.88	1520	D
.388	351.972	371.825	370.684	206.01	1520	C
.318	498.705	497.276	491.69	97.23	1520	
.224	344.634	357.335	354.507	215.55	1520	
.156	267.849	297.562	310.053	109.57	1520	
.1	564.436	526.254	493.121	146.64	1520	
0	445.862	445.862	445.862	338.03	3210	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.45
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 0.45
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.60
MaxChlDpth Up/MaxChlDpth Dn = 1.16
TopwdthAct Up/TopwdthAct Dn = 1.50
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #2,Iona North WS-1
Known WS = 2000.82 is specified as the downstream boundary for profile Floodplain

XS BC 02 The name of the stream is Reach #2,Iona North WS-1
Known WS = 2001.75 is specified as the downstream boundary for profile Floodway

LATERAL WEIRS CHECK

---END---

IONA_NORTH_WS-1
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA_NORTH_WS-1.fw
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 2:29:17 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #2,Iona North WS-1							
0.549					9805.18	10279.35	
0.549	1	0.98	9948	10142	9948	10142	
0.45					9965.95	10309.5	
0.45	1	0.85	9967	10180	9967	10180	
0.388					9918.26	10124.27	
0.388	1	0.69	9983	10075	9983	10075	
0.318					9964.94	10062.17	
0.318	1	0.17	9980	10051	9980	10051	
0.224					9917.49	10133.04	
0.224	1	0.46	9919	10033	9919	10033	
0.156					9909.59	10019.16	
0.156	1	0.35	9952	10017	9952	10017	
0.1					9914.12	10060.75	
0.1	1	0.89	9953	10020	9953	10020	
0					9715.54	10053.57	
0	1	0.93	9924	10035	9924	10035	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 0.45
FW FW 01 Left encroachment station 9967 is more than left channel bank station 9966.905 and less than the right channel bank station 10019.1
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.388
FW FW 01 Left encroachment station 9983 is more than left channel bank station 9982.667 and less than the right channel bank station 10017.33
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.318
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.224
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.156
FW FW 01 Right encroachment station 10017 is less than right channel bank station 10017.36 and greater than the left channel bank station 9972.958
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.156
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.156
FW FW 03 The right channel bank station may not be at the proper

IONA EAST SPLIT-1

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.nt
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:01:10 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Iona ES-1						
5.261		0.033	-----	-----	0.1	0.3
		0.041	-----	-----		
5.172		0.035	0.051	0.037	0.1	0.3
5.108		0.035	0.051	0.037	0.1	0.3
5.056		0.035	0.051	0.037	0.1	0.3
4.977		0.034	-----	-----	0.1	0.3
		0.047	-----	-----		
4.895		0.034	0.047	-----	0.1	0.3
		-----	0.035	-----		
4.808		0.033	-----	-----	0.1	0.3
		0.046	-----	-----		
4.732		0.033	0.046	0.033	0.1	0.3
4.638		0.035	0.051	0.037	0.1	0.3
4.539		0.035	0.051	0.051	0.1	0.3
		-----	-----	0.037		
4.46		0.035	0.046	0.037	0.1	0.3
4.349		0.035	0.046	0.037	0.1	0.3
4.047		0.035	0.046	0.037	0.1	0.3
[illegible]759		0.034	0.047	0.034	0.1	0.3
[illegible]19		0.036	0.056	0.036	0.1	0.3
3		0.036	0.056	0.036	0.1	0.3
2.828		0.036	0.056	0.036	0.1	0.3
2.545		0.042	0.048	0.04	0.1	0.3
2.266		0.042	0.048	0.04	0.1	0.3
2.054		0.042	0.048	0.04	0.1	0.3
1.949		0.042	0.048	0.04	0.1	0.3
1.834		0.042	0.048	0.04	0.1	0.3
1.722		0.042	0.048	0.04	0.1	0.3
1.628		0.042	0.048	0.04	0.1	0.3
1.547		0.042	0.048	0.04	0.1	0.3
1.48		0.042	0.048	0.04	0.1	0.3
1.387		0.034	0.056	0.034	0.1	0.3
1.298		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
1.187		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
1.091		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
1.002		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
.916		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
.827		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
.737		0.034	-----	-----	0.1	0.3
		0.056	-----	-----		
.654		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
.579		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
.492		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
.408		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
[illegible]29		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
2		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		
.179		0.036	0.046	0.034	0.1	0.3
.151		0.036	0.046	0.034	0.1	0.3
.061		0.036	0.046	0.034	0.1	0.3

```
 0                          0.036     0.046     0.034     0.1       0.3
-------------------------------------------------------------------------------

---Summary of Statistics---
                            Minimum        Maximum
  Overbank n Value:          0.033          0.069
Right Overbank n Value:      0.033          0.051
Channel n Value:             0.035          0.056
Contraction Coefficient:     0.1            0.1
Expansion   Coefficient:     0.3            0.3
```

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

```
ROUGHNESS COEFFICIENT CHECK
-----------------------------------

RS:       5.172
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       5.108
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       5.056
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.895
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       4.732
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

          4.732
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       4.732
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       4.638
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.46
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       4.349
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       4.047
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       3.759
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

          3.759
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.759
```

NT RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.047
The overbank n values should be reevaluated.

3.419
C 05 The left overbank n value of 0.036 and the right overbank n value
of 0.036 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 3.13
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
of 0.036 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 2.828
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
of 0.036 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 2.545
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 2.266
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 2.054
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.949
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

1.834
C 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.722
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.628
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.547
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.48
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
of 0.04 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 1.387
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.387
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.387
RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.179
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.

```
         The n value should be reevaluated.

RS:      0.179
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      0.151
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.151
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      0.061
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.061
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.xs
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:01:11 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Iona ES-1						
5.261	453.83	471.111	450.035	1445.86	4550	D
5.172	262.951	336.38	388.435	180.68	700	
5.108	331.293	273.411	258.661	159.48	700	C (S/C)
5.056	415.493	419.097	399.03	308.47	700	
4.977	452.756	431.121	407.544	226.84	700	D
4.895	436.841	457.918	434.805	168.65	700	
4.808	395.822	398.728	380.433	183.55	700	
4.732	451.211	496.786	450.026	215.81	700	D
4.638	491.75	524.217	617.556	457.34	700	
4.539	452.364	418.448	398.242	479.33	700	D
4.46	587.439	587.439	587.439	208.95	190	
4.349	1595.91	1595.91	1595.91	50.21	190	D,C (S/C)
4.047	1520.04	1520.04	1520.04	267.07	290	D
3.759	1794.81	1794.81	1794.81	212.82	290	C
3.419	1528.55	1528.55	1528.55	211.92	290	D (S/C)
3.13	1596.41	1596.41	1596.41	174.22	440	
2.828	1491.75	1491.75	1491.75	773.29	1000	D
[illegible]45	1471.38	1471.38	1471.38	524.41	1000	D
[illegible]6	1117.82	1117.82	1117.82	1007.2	1000	
[illegible]4	556.758	556.561	477.776	743.37	1000	D
1.949	589.514	607.252	622.175	913.65	1410	
1.834	587.641	592.722	549.702	662.59	1410	
1.722	475.348	497.951	481.161	849.69	1410	D
1.628	435.892	427.126	433.456	751.73	1410	D
1.547	338.385	355.4	361.728	475.54	1410	D
1.48	498.611	491.704	479.491	87.54	1410	
1.387	472.086	468.78	472.082	52.75	1410	
1.298	583.437	584.586	582.179	147.31	1410	
1.187	519.42	506.885	517.293	104.46	1410	
1.091	466.795	470.774	469.704	183.48	1730	D
1.002	446.487	453.437	449.337	157.75	1730	D
.916	471.56	471.167	466.197	129.39	1730	
.827	452.71	475.682	469.282	115.37	1730	
.737	427.909	439.912	413.837	164.79	1730	
.654	378.22	396.342	376.929	273.02	1730	
.579	423.321	458.689	438.507	182.23	1730	
.492	466.284	445.493	421.699	200.24	1730	D
.408	390.895	418.645	435.763	324.78	2020	D
.329	311.468	300.968	266.442	321	2020	D
.272	477.717	489.969	494.991	350.23	2020	D
.179	153.119	145.248	126.726	230.37	2020	D
.151	428.846	475.55	502.143	188.95	2020	D
.061	323.126	319.506	324.325	412.56	2020	D
0	0	0	0	229.84	2020	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

HARGE CHECK

RS: 5.172
XS DC 01 Discharge decreases in the downstream direction.

RS: 4.46
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 5.172
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.11
MaxChlDpth Up/MaxChlDpth Dn = 1.57
TopwdthAct Up/TopwdthAct Dn = 1.13
This cross section is located too far upstream from the critical depth cross section.

RS: 4.047
XS LC 01 Lenchl Up/TopwdthAct Dn = 7.14
MaxChlDpth Up/MaxChlDpth Dn = 4.47
TopwdthAct Up/TopwdthAct Dn = 1.25
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Iona ES-1
Normal S = 0.00797 is specified as the downstream boundary for profile Floodplain

C 02 The name of the stream is Reach #1,Iona ES-1
Normal S = 0.00797 is specified as the downstream boundary for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\IONA ES-1\IONA_ES-1.fw
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:01:13 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Iona ES-1							
5.261					9895.69	11504.34	
5.261	1	0.38	9967	10811	9967	10811	
5.172					9889.89	10070.57	
5.172	1	0.16	9939	10039	9939	10039	
5.108					9923.08	10082.56	
5.108	1	0.26	9948	10038	9948	10038	
5.056					9763.98	10072.45	
5.056	1	0.88	9908	10070	9908	10070	
4.977					9907.12	10201.38	
4.977	1	0.31	9994	10060	9994	10060	
4.895					9974.89	10143.53	
4.895	1	0.1	9977	10114	9977	10114	
4.808					9955.95	10139.5	
4.808	1	0.79	9961	10040	9961	10040	
4.732					9659.89	10009.17	
4.732	1	0.83	9825	10008	9825	10008	
4.638					9852.36	10309.7	
4.638	1	0.73	9972	10159	9972	10159	
4.539					9977.04	10491.2	
4.539	1	1	9977	10109	9977	10109	
4.46					9926.29	10135.24	
4.46	1	0.71	9981	10023	9981	10023	
4.349					9972.81	10090.58	
4.349	0	0	0	0	9972.82	10090.57	
4.047					9968.13	10259.47	
4.047	0	0.01	0	0	9967.77	10259.52	
3.759					9916.56	10129.38	
3.759	0	0	0	0	9916.56	10129.38	
3.419					9996.58	10209.51	
3.419	0	0.04	0	0	9996.52	10210.72	
3.13					9951.17	10125.39	
3.13	0	-0.68	0	0	9954.68	10097.31	
2.828					9440.44	10494.76	
2.828	0	-0.03	0	0	9441.81	10488	
2.545					9651.16	10223.44	
2.545	0	-0.1	0	0	9661.2	10220.6	
2.266					9220.44	10227.64	
2.266	0	0.06	0	0	9217.85	10268.98	
2.054					9257.33	10116.7	
2.054	1	0.73	9855	10065	9855	10065	
1.949					9301.45	10215.1	
1.949	1	0.99	9986	10233	9986	10233	
1.834					9671.21	10333.8	
1.834	1	0.96	9907	10035	9907	10035	
1.722					9528.05	10383.3	
1.722	1	0.98	9814	10011	9814	10011	
1.628					9546.44	10353.5	
1.628	1	0.95	9840	10019	9840	10019	
1.547					9596.37	10118.76	
1.547	1	0.91	9899	10020	9899	10020	
1.48					9967.85	10055.4	
1.48	1	0.22	9982	10022	9982	10022	
1.387					9974.44	10027.19	
1.387	1	0.34	9981	10019	9981	10019	
1.298					9931.07	10078.38	
1.298	1	0.87	9970	10047	9970	10047	
1.187					9943.32	10047.78	
1.187	1	0.62	9982	10019	9982	10019	
1.091					9918.54	10115.87	
1.091	1	0.95	9970	10086	9970	10086	
1.002					9892.48	10050.76	

1.002	1	0.83	9930	10013	9930	10013
0.916					9934.18	10063.57
0.916	1	0.89	9956	10032	9956	10032
[illegible]827					9944.92	10060.29
[illegible]27	1	0.86	9970	10030	9970	10030
[illegible]37					9865.68	10030.47
0.737	1	1	9917	10008	9917	10008
0.654					9850.19	10123.21
0.654	1	0.85	9915	10066	9915	10066
0.579					9904.6	10086.83
0.579	1	0.82	9927	10047	9927	10047
0.492					9830.34	10050.68
0.492	1	0.93	9909	10027	9909	10027
0.408					9864.48	10206.36
0.408	1	0.8	9919	10080	9919	10080
0.329					9826.98	10151.9
0.329	1	0.94	9871	10105	9871	10105
0.272					9960.45	10401.71
0.272	1	0.42	9977	10250	9977	10250
0.179					9876.4	10801.85
0.179	1	0.06	9877	10421	9877	10073
0.151					9882.9	10696.05
0.151	1	0.23	9896	10263	9896	10100
0.061					9884.33	10349.59
0.061	1	0.13	9902	10052	9902	10052
0					9814.7	10065.31
0	1	0.05	9906	10069	9906	10065.47

ENCROACHMENT METHOD CHECK

RS: 4.349
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.047
FW EM 01 Floodway encroachment method is not selected at this section.

[illegible] 3.759
[illegible]M 01 Floodway encroachment method is not selected at this section.

RS: 3.419
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.13
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.828
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.545
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.266
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 5.108
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.108
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.056
FW FW 01 Right encroachment station 10070 is less than right channel bank station 10073.24 and greater than the left channel bank station 9973.471
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

[illegible] 4.977
[illegible]W 03 The right channel bank station may not be at the proper location.

RS: 4.895
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9973.015 and less than the right channel bank station 10113.02

Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

4.895
FW 03 The right channel bank station may not be at the proper location.

RS: 4.732
FW FW 01 Right encroachment station 10008 is less than right channel bank station 10028.85 and greater than the left channel bank station 9968.821
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.638
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.539
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9962.049 and less than the right channel bank station 10022.68
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.539
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.349
FW FW 06 The left station effective of 9972.82 for the floodway profile is more than the left channel bank station of 9965.923
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.419
FW FW 06 The left station effective of 9996.52 for the floodway profile is more than the left channel bank station of 9993.77
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.13
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.13
FW FW 06 The left station effective of 9954.68 for the floodway profile is more than the left channel bank station of 9950.319
The left side of the floodway boundary is within the channel.
The left encroachment station of 0 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.545
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.949
FW FW 04 The right station effective of 10215.1 for 1% annual chance floodplain is greater than the right channel bank station (10011.22).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10233) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.834
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.628
FW 03 The right channel bank station may not be at the proper location.

RS: 1.547
FW FW 03 The Left channel bank station may not be at the proper location.

```
RS:        1.387
FW FW 03   The right channel bank station may not be at the proper
           location.

           1.298
   W 03    The Left channel bank station may not be at the proper
           location.

RS:        1.187
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        1.091
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.492
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.408
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.329
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.179
FW FW 01   Left encroachment station 9877 is more than left channel bank
           station 9864.931 and less than the right channel bank station 10027.72
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.179
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.151
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.061
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0
FW FW 06   The right station effective of 10065.47 for the floodway profile is less
           than the right channel bank station of 10068.17
           The right side of the floodway boundary is within the channel.
           The right encroachment station of 10069 is greater than the right channel
           bank station.
           The right encroachment station should be the same as the right
           channel bank station.


SURCHARGE CHECK
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RS:        3.13
FW SC 01   The surcharge value is negative.


DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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IONA EAST SPLIT-2

IONA ES-2
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.nt
Selected profiles: Floodplain
Date: 7/19/2005
Time: 4:01:45 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #2,Iona East Split-						
2.151		0.059	-----	-----	0.1	0.3
		0.049	-----	-----		
		0.063	-----	-----		
2.051		0.036	0.047	0.042	0.1	0.3
1.97		0.031	0.049	0.034	0.1	0.3
1.868		0.031	0.049	0.034	0.1	0.3
1.798		0.031	0.049	0.034	0.1	0.3
1.729		0.031	0.049	0.034	0.1	0.3
		0.049	0.034	0.036		
		-----	-----	0.034		
1.674		0.03	-----	-----	0.1	0.3
		0.042	-----	-----		
		0.049	-----	-----		
1.601		0.034	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.03	-----	-----		
1.482		0.031	0.034	0.031	0.1	0.3
		0.04	0.035	-----		
		0.034	-----	-----		
1.407		0.031	0.04	0.034	0.1	0.3
		0.04	0.049	-----		
1.344		0.031	0.049	0.034	0.1	0.3
1.224		0.03	0.047	0.034	0.1	0.3
1.143		0.03	0.047	0.034	0.1	0.3
1.044		0.03	0.047	0.034	0.1	0.3
.982		0.03	0.047	0.034	0.1	0.3
.904		0.03	0.047	0.034	0.1	0.3
.778		0.03	0.047	0.034	0.1	0.3
.684		0.03	0.047	0.034	0.1	0.3
.609		0.03	0.047	0.034	0.1	0.3
.525		0.03	0.047	0.034	0.1	0.3
.427		0.03	0.047	0.034	0.1	0.3
.379		0.03	0.047	0.034	0.1	0.3
.314		0.03	0.047	0.034	0.1	0.3
.203		0.03	0.047	0.034	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.03	0.063
Right Overbank n Value:	0.031	0.042
Channel n Value:	0.034	0.049
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 2.051
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.047
The overbank n values should be reevaluated.

RS: 1.97
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.

```
         The n value should be reevaluated.

RS:      1.97
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.97
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.868
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.868
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.868
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.798
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.798
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.798
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.482
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.407
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.344
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.344
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.344
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      1.224
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.224
NT RC 01 Right overbank n value is less than 0.035
```

```
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.224
NT RC 05  The left overbank n value of 0.03 and the right overbank n value
          of 0.034 are less than or equal to the channel n value of 0.047
          The overbank n values should be reevaluated.

RS:       1.143
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.143
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.143
NT RC 05  The left overbank n value of 0.03 and the right overbank n value
          of 0.034 are less than or equal to the channel n value of 0.047
          The overbank n values should be reevaluated.

RS:       1.044
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.044
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.044
NT RC 05  The left overbank n value of 0.03 and the right overbank n value
          of 0.034 are less than or equal to the channel n value of 0.047
          The overbank n values should be reevaluated.

RS:       0.982
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.982
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.982
NT RC 05  The left overbank n value of 0.03 and the right overbank n value
          of 0.034 are less than or equal to the channel n value of 0.047
          The overbank n values should be reevaluated.

RS:       0.904
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.904
NT RC 01  Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.904
NT RC 05  The left overbank n value of 0.03 and the right overbank n value
          of 0.034 are less than or equal to the channel n value of 0.047
          The overbank n values should be reevaluated.

RS:       0.778
NT RC 01  Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.778
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NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.778
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.684
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.684
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.684
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.609
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.609
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.609
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.525
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.525
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.525
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.427
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.427
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.427
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:      0.379
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       0.379
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.379
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       0.314
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.314
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.314
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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IONA ES-2
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\IONA ES-2.xs
Selected profiles: Floodplain
Date: 7/19/2005
Time: 4:01:45 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #2,Iona East Split-						
2.151	418.105	526.192	438.427	2656.54	7020	
2.051	412.128	427.081	431.469	1266.66	4090	
1.97	482.467	538.833	539.874	1160.42	4090	
1.868	345.986	368.553	404.206	1441.86	4090	
1.798	338.37	366.372	294.182	1398.07	4090	D
1.729	315.296	287.842	243.993	1485.4	4090	
1.674	484.36	386.569	339.877	1316.61	4090	D
1.601	503.312	629.929	589.319	1326.43	4090	D
1.482	534.874	398.526	411.992	1375.89	4090	D
1.407	337.716	330.897	318.157	1270	4090	D
1.344	549.423	633.71	646.203	1556.49	4090	
1.224	415.362	428.445	388.192	1319.21	4090	D
1.143	488.221	521.689	522.098	1358.59	4090	
1.044	353.098	325.713	290.508	1118.92	4090	
.982	349.856	409.28	391.092	1331.52	4090	
.904	671.819	666.914	730.741	1523.29	4090	D
.778	485.702	496.765	508.832	1293.1	4090	D
.684	378.077	397.802	336.369	1029.59	4090	D
.609	480.249	443.407	382.134	1001.29	4090	D
.525	546.196	519.266	424.912	1165.99	4090	
.427	346.486	250.881	214.962	956.64	4090	D
.379	414.416	343.33	251.119	1322.51	4090	D
.314	318.268	586.701	824.241	657.94	4090	D
.203	441.202	441.202	441.202	4365.46	7100	

split flow

Q(SIC)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

RS: 0.314
XS SP 01 Diff. HV = 0.57 ; Kratio = 87.76 ; Depth Ratio = 3.29
TopWdthAct ratio = 6.64 ; Length Chl Up / 500 = 1.17
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 2.051
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #2,Iona East Split-
Known WS = 1553.51 is specified as the downstream boundary
for profile Floodplain

storage elevation behind AP canal.

LATERAL WEIRS CHECK

---END---

TRILBY WASH

TRILBY
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.nt
Selected profiles: Zone A;PF 2
Date: 7/19/2005
Time: 12:45:56 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,TRILBY						
20.434		0.033	0.038	0.033	0.1	0.3
20.281		0.033	0.038	0.033	0.1	0.3
20.08		0.033	0.038	0.033	0.1	0.3
19.829		0.033	0.038	0.033	0.1	0.3
19.686		0.033	0.038	0.033	0.1	0.3
19.556		0.033	0.038	0.033	0.1	0.3
19.493		0.033	0.038	0.033	0.1	0.3
19.439		0.033	0.038	0.033	0.1	0.3
19.352		0.033	0.038	0.033	0.1	0.3
19.298		0.033	0.038	0.033	0.1	0.3
19.24		0.033	0.038	0.033	0.1	0.3
19.158		0.033	0.038	0.033	0.1	0.3
19.104		0.033	0.038	0.033	0.1	0.3
19.018		0.033	0.038	0.033	0.1	0.3
18.927		0.033	0.038	0.033	0.1	0.3
18.854		0.033	0.038	0.033	0.1	0.3
18.769		0.033	0.038	0.033	0.1	0.3
18.71		0.033	0.038	0.033	0.1	0.3
18.615		0.033	0.038	0.033	0.1	0.3
18.537		0.033	0.038	0.033	0.1	0.3
18.481		0.08	0.05	0.08	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.08
Right Overbank n Value:	0.033	0.08
Channel n Value:	0.038	0.05
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 20.434
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 20.434
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 20.434
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 20.281
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 20.281
NT RC 01 Right overbank n value is less than 0.035

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         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      20.281
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      20.08
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      20.08
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      20.08
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.829
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.829
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.829
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.686
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.686
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.686
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.556
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.556
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.556
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.493
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.493
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NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.493
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.439
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.439
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.439
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.352
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.352
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.352
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.298
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.298
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.298
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.24
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.24
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      19.24
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      19.158
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       19.158
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19.158
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       19.104
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19.104
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19.104
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       19.018
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19.018
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       19.018
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.927
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.927
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.927
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.854
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.854
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.854
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.769
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       18.769
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.769
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.71
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.71
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.71
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.615
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.615
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.615
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       18.537
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.537
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       18.537
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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TRILBY
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.xs
Selected profiles: Zone A;PF 2
Date: 7/19/2005
Time: 12:45:57 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,TRILBY						
20.434	809.695	809.695	809.695	406.75	5900	
20.281	1059.24	1059.24	1059.24	130.89	5900	D
20.08	1323.79	1323.79	1323.79	512.75	5900	D
19.829	752.765	752.765	752.765	658.07	5900	D
19.686	685.202	685.202	685.202	801.72	5900	D
19.556	333.16	333.16	333.16	686.23	5900	D
19.493	278.653	287.541	264.078	514.78	5900	D,C
19.439	472.158	460.982	465.5	746.41	5900	D,C
19.352	284.675	287.081	276.764	487.38	5900	D,C
19.298	283.966	308.524	274.188	553.87	5900	D,C
19.24	450.054	430.676	452.973	937.03	5900	D,C
19.158	292.16	286.244	294.339	828.23	5900	C
19.104	460.014	453.94	454.904	577.47	5900	D,C
19.018	434.002	482.661	465.146	668.05	5900	D,C
18.927	463.144	387.589	405.925	856.08	5900	D,C
18.854	362.706	448.776	412.722	780.55	5900	C
18.769	333.718	310.509	372.437	936.8	5900	C
18.71	501.925	499.514	468.944	720.62	5900	D,C
18.615	378.988	409.73	398.271	756.69	~~5900~~	D,C
18.537	254.863	295.14	295.273	280.04	2670	C
18.481	280	290	310	348	2670	

C = (S/c) Supercritical

flow from effective strg. TRILBY WASH.

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 18.537
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 18.615
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.46
MaxChlDpth Up/MaxChlDpth Dn = 1.42
TopwdthAct Up/TopwdthAct Dn = 2.70
This cross section is located too far upstream from the

critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,TRILBY
Known WS = 1920.6 is specified as the downstream boundary
for profile Zone A

XS BC 02 The name of the stream is Reach #1,TRILBY
Known WS = 1920.9 is specified as the downstream boundary
for profile PF 2

LATERAL WEIRS CHECK

---END---

TRILBY
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\TRILBY.fw
Selected profiles: Zone A;PF 2
Date: 7/19/2005
Time: 12:45:59 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,TRILBY							
20.434					9790.68	10197.43	
20.434	0	-0.01	0	0	9790.74	10197.38	
20.281					9655.67	10033.84	
20.281	0	-0.18	0	0	9656.13	10032.97	
20.08					9594.92	10137.15	Zone A
20.08	0	0	0	0	9594.92	10137.12	
19.829					55.33	752.11	
19.829	0	-0.04	0	0	56.7	750.46	
19.686					70.92	977.04	
19.686	0	0	0	0	70.88	977.12	
19.556					99.74	949.39	
19.556	0	-0.13	0	0	100.64	947.41	
19.493					9451.34	10088.83	
19.493	1	0.97	9738	10040	9738	10040	
19.439					9437.94	10187.09	
19.439	1	0.67	9803	10059	9803	10059	
19.352					9540.99	10218.58	
19.352	1	0.96	9834	10119	9834	10119	
19.298					9677.92	10327.98	
19.298	1	0.13	9900	10204	9900	10204	
19.24					9434.76	10414.78	
19.24	1	0.99	9877	10136	9877	10136	
19.158					9599.1	10427.33	
19.158	1	0.92	9879	10118	9879	10118	
19.104					9692.12	10292.36	
19.104	1	0.98	9895	10135	9895	10135	
19.018					9716.33	10456.97	
19.018	1	0.37	9949	10153	9949	10153	
18.927					9447.81	10376.02	
18.927	1	0.74	9830	10129	9830	10129	
18.854					9522.89	10303.44	
18.854	1	0.97	9770	10052	9770	10052	
18.769					9640.53	10577.32	
18.769	1	0.54	9892	10284	9892	10284	
18.71					9788.44	10510.8	
18.71	1	0.57	9964	10378	9964	10378	
18.615					9486.47	10304	
18.615	1	0.48	9853	10181	9853	10181	
18.537					9864.09	10144.13	
18.537	1	0.03	9955	10092	9955	10092	
18.481					4756	5104	
18.481	1	0.3	4940	5065	4940	5065	

ENCROACHMENT METHOD CHECK

RS: 20.434
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 20.281
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 20.08
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 19.829

```
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       19.686
FW EM 01  Floodway encroachment method is not selected at this section.

RS:       19.556
FW EM 01  Floodway encroachment method is not selected at this section.


FLOODWAY WIDTH CHECK
---------------------

RS:       20.281
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       20.08
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       19.829
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       19.686
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       19.556
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       19.439
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       19.24
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       18.854
FW FW 01  Right encroachment station 10052 is less than right channel bank
          station 10052.21 and greater than the left channel bank station 9991.79
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       18.615
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       18.537
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
----------------

RS:       20.281
FW SC 01  The surcharge value is negative.

RS:       19.556
FW SC 01  The surcharge value is negative.


DISCHARGE CHECK
----------------


STARTING WATER-SURFACE ELEVATION CHECK
---------------------------------------

FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
```

Total conveyance for the natural profile is 23518.6
Total conveyance for the floodway profile is 20724.7
The difference in conveyance between the floodway profile and the natural profile is more than 1%.
Normal Depth option with the same energy slope as the natural profile must be used for the floodway profile and rerun the plan.
This message is not applicable for the revisions.

---END---

CIRCLE CITY AREA WASH 1

CC AREA WASH 1
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.nt
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 11:39:45 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
1.738		0.033	0.043	0.033	0.1	0.3
1.687		0.033	0.043	0.033	0.1	0.3
1.61		0.033	0.043	0.033	0.1	0.3
1.539		0.033	0.043	0.033	0.1	0.3
1.454		0.033	0.043	0.033	0.1	0.3
1.373		0.033	0.043	0.033	0.1	0.3
1.281		0.033	0.043	0.033	0.1	0.3
1.208		0.033	0.043	0.033	0.1	0.3
1.121		0.033	0.043	0.033	0.1	0.3
1.03		0.033	0.043	0.033	0.1	0.3
.977		0.033	0.043	0.033	0.1	0.3
.894		0.033	0.043	0.033	0.1	0.3
.829		0.035	0.048	0.035	0.1	0.3
.707		0.035	0.048	0.035	0.1	0.3
.629		0.035	0.048	0.035	0.1	0.3
.555		0.035	0.048	0.035	0.1	0.3
.493		0.035	0.048	0.035	0.1	0.3
.401		0.035	0.048	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.035
Right Overbank n Value:	0.033	0.035
Channel n Value:	0.043	0.048
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.738
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.738
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.738
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 1.687
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.687
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

```
RS:       1.687
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.61
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.61
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.61
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.539
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.539
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.539
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.454
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.454
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.454
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.373
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.373
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.373
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.281
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.281
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
```

```
RS:       1.281
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.208
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.208
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.208
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.121
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.121
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.121
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       1.03
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.03
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.03
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       0.977
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.977
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.977
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:       0.894
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.894
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
```

```
         The n value should be reevaluated.

RS:      0.894
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      0.829
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      0.707
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      0.629
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      0.555
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      0.493
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
```

CC AREA WASH 1
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.xs
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 11:39:46 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
1.738	280.049	269.18	260.487	76.62	520	
1.687	395.074	408.044	431.39	148.74	520	D
1.61	392.215	374.208	364.287	106.89	520	D,C(SK)
1.539	431.165	451.061	459.468	154.2	520	
1.454	427.407	429.588	384.718	105.81	520	D
1.373	465.148	488.084	492.837	148.97	520	D
1.281	384.418	386.033	382.366	126.63	520	
1.208	465.267	460.514	395.506	130.86	660	
1.121	447.273	482.002	466.624	79.6	660	
1.03	279.766	281.655	285.946	94.13	660	D
.977	433.133	436.425	413.113	143.43	660	
.894	351.633	343.373	329.882	105.11	660	C(SK)
.829	552.951	645.254	602.386	176.29	660	D
.707	426.541	410.278	381.295	106.9	660	
.629	391.307	392.766	408.126	169.82	660	
.555	328.814	327.158	335.317	110.62	660	
.493	509.327	486.225	478.004	105.11	660	
.401	0	0	0	102.23	660	

ZONE A

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.894
XS DC 04 There is no flow on the left overbank at the downstream cross section. There is no flow on the right overbank at this section.

LOCATION CHECK

RS: 0.977
XS LC 01 Lenchl Up/TopwdthAct Dn = 4.15
MaxChlDpth Up/MaxChlDpth Dn = 1.26
TopwdthAct Up/TopwdthAct Dn = 1.36
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

```
XS BC 02 The name of the stream is Reach #1,Reach #1
         Known WS = 1776.21 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Reach #1
         Known WS = 1776.21 is specified as the downstream boundary
         for profile Floodway
```

LATERAL WEIRS CHECK

---END---

CC AREA WASH 1
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\CC AREA WASH 1.fw
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 11:39:48 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
1.738					9976.86	10053.48	
1.738	1	-0.03	9983	10057	9983	10052.95	
1.687					9883.62	10033.92	
1.687	1	0.31	9909	10021	9909	10021	
1.61					9924.24	10075.97	
1.61	1	0.56	9953	10022	9953	10022	
1.539					9890.68	10044.88	
1.539	1	0.06	9904	10018	9904	10018	
1.454					9922.61	10028.79	
1.454	1	0.78	9972	10016	9972	10016	
1.373					9947.7	10113.7	
1.373	1	0.02	9968	10033	9968	10033	
1.281					9974.49	10101.12	
1.281	1	0.29	9977	10075	9977	10075	
1.208					9940.53	10071.38	
1.208	1	0.85	9985	10057	9985	10057	
1.121					9984.97	10064.57	
1.121	1	0.04	9983	10032	9984.88	10032	
1.03					9984.69	10082.1	
1.03	1	0.55	9985	10027	9985	10027	
0.977					9878.71	10022.14	
0.977	1	-0.03	9962	10014	9962	10014	
0.894					9925.09	10030.2	
0.894	1	0.75	9969	10030	9969	10030	
0.829					9992.77	10192.09	
0.829	1	0.93	9993	10068	9993	10068	
0.707					9985.54	10092.44	
0.707	1	0.3	9986	10088	9986	10088	
0.629					9889.63	10059.45	
0.629	1	0.69	9973	10035	9973	10035	
0.555					9969.11	10079.73	
0.555	1	0.01	9967	10058	9969.05	10058	
0.493					9937.02	10042.13	
0.493	1	0	9938	10040	9938	10040	
0.401					9927.83	10030.06	
0.401	1	0	9934	10033	9934	10030.06	

ZONE A

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 1.738
FW FW 01 Right encroachment station 10057 is less than right channel bank station 10057.14 and greater than the left channel bank station 9983.141
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.687
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.61
FW FW 01 Right encroachment station 10022 is less than right channel bank

station 10022.3 and greater than the left channel bank station 9987.358
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.539
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.539
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.454
FW FW 01 Left encroachment station 9972 is more than left channel bank station 9971.674 and less than the right channel bank station 10015.71
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.373
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.373
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.281
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9976.948 and less than the right channel bank station 10045.75
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.281
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.208
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.121
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.121
FW FW 04 The left station effective of 9984.97 for 1% annual chance floodplain is less than the left channel bank station 9987.241
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9983) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.03
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.977
FW FW 01 Right encroachment station 10014 is less than right channel bank station 10014.35 and greater than the left channel bank station 9962.387
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.894
FW FW 01 Left encroachment station 9969 is more than left channel bank station 9968.55 and less than the right channel bank station 10029.99
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.894
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.829
FW FW 01 Left encroachment station 9993 is more than left channel bank

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          station 9992.791 and less than the right channel bank station 10022.78
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.829
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.707
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.707
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.629
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.629
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.555
FW FW 06  The left station effective of 9969.05 for the floodway profile is more
          than the left channel bank station of 9967.398
          The left side of the floodway boundary is within the channel.
          The left encroachment station of 9967 is less than the left channel
          bank station.
          The left encroachment station should be the same as the left
          channel bank station.

RS:       0.493
FW FW 01  Left encroachment station 9938 is more than left channel bank
          station 9937.041 and less than the right channel bank station 10042.09
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.493
FW FW 01  Right encroachment station 10040 is less than right channel bank
          station 10042.09 and greater than the left channel bank station 9937.041
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.493
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.401
FW FW 01  Right encroachment station 10033 is less than right channel bank
          station 10033.02 and greater than the left channel bank station 9934.401
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.401
FW FW 03  The Left channel bank station may not be at the proper
          location.


SURCHARGE CHECK
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DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
```

2 WEST (NORTH OF CAP)

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.nt
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 9:26:28 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
3.553		0.038	0.059	0.036	0.1	0.3
3.484		0.038	0.059	0.036	0.1	0.3
3.399		0.038	0.059	0.036	0.1	0.3
3.315		0.038	-----	-----	0.1	0.3
		0.059	-----	-----		
3.219		0.038	-----	-----	0.1	0.3
		0.059	-----	-----		
3.136		0.038	-----	-----	0.1	0.3
		0.059	-----	-----		
3.045		0.038	-----	-----	0.1	0.3
		0.059	-----	-----		
2.965		0.031	0.038	0.033	0.1	0.3
2.884		0.031	0.038	0.033	0.1	0.3
2.794		0.031	0.038	0.033	0.1	0.3
2.718		0.031	0.038	0.033	0.1	0.3
2.667		0.031	0.038	0.033	0.1	0.3
2.622		0.031	0.038	0.033	0.1	0.3
2.565		0.033	0.046	0.033	0.1	0.3
2.478		0.033	0.046	0.033	0.1	0.3
2.426		0.033	0.046	0.033	0.1	0.3
2.369		0.033	0.046	0.033	0.1	0.3
2.303		0.033	0.046	0.033	0.1	0.3
2.215		0.033	0.046	0.033	0.1	0.3
2.134		0.033	0.046	0.033	0.1	0.3
2.048		0.033	0.046	0.033	0.1	0.3
2.023		0.033	0.046	0.033	0.1	0.3
1.947		0.033	0.046	0.033	0.1	0.3
1.911		0.033	0.046	0.033	0.1	0.3
1.808		0.035	0.05	0.037	0.1	0.3
1.75		0.035	-----	-----	0.1	0.3
		0.05	-----	-----		
1.714		0.035	0.05	0.037	0.1	0.3
1.658		0.035	0.05	0.037	0.1	0.3
1.592		0.035	0.05	0.037	0.1	0.3
1.55		0.035	-----	-----	0.1	0.3
		0.05	-----	-----		
1.472		0.035	0.05	0.037	0.1	0.3
1.387		0.035	0.05	0.037	0.1	0.3
1.298		0.038	0.058	0.036	0.1	0.3
1.196		0.038	-----	-----	0.3	0.5
		0.058	-----	-----		
1.127		0.038	0.058	0.036	0.3	0.5
1.1185	Culvert-Up	0.038	0.058	0.036	0.3	0.5
1.1185	Culvert-Dn	0.038	0.058	0.036	0.3	0.5
1.11		0.038	0.058	0.036	0.3	0.5
1.046		0.038	0.058	0.036	0.1	0.3
.961		0.038	-----	-----	0.1	0.3
		0.058	-----	-----		
.9		0.038	-----	-----	0.1	0.3
		0.056	-----	-----		
.812		0.038	-----	-----	0.1	0.3
		0.03	-----	-----		
.736		0.035	0.055	0.033	0.1	0.3
.673		0.035	0.055	0.033	0.1	0.3
.597		0.035	0.055	0.033	0.1	0.3
.53		0.035	0.055	0.033	0.1	0.3
.426		0.035	0.055	0.033	0.1	0.3
.319		0.035	-----	-----	0.1	0.3

b/c of structure

```
                                                  2W
                                0.055     -----     -----
 .237                           0.035     -----     -----     0.1       0.3
                                0.055     -----     -----
 .161                           0.035     -----     -----     0.1       0.3
                                0.065     -----     -----
 .066                           0.069     -----     0         0.1       0.3
                                -----     -----     0.035
-----------------------------------------------------------------------------
```

```
---Summary of Statistics---
                                Minimum          Maximum
Left Overbank n Value:           0.03             0.069
Right Overbank n Value:          0                0.037
Channel n Value:                 0.038            0.059
Contraction Coefficient:         0.1              0.3
Expansion   Coefficient:         0.3              0.5
```

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

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ROUGHNESS COEFFICIENT CHECK
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RS:       3.553
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:       3.484
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:       3.399
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:       2.965
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.965
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.965
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       2.884
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.884
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.884
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       2.794
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.794
NT RC 01 Right overbank n value is less than 0.035
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```
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.794
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      2.718
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.718
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.718
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      2.667
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.667
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.667
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      2.622
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.622
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.622
NT RC 05 The left overbank n value of 0.031 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      2.565
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.565
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.565
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      2.478
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.478
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NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.478
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.426
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.426
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.426
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.369
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.369
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.369
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.303
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.303
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.303
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.215
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.215
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.215
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.134
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

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RS:       2.134
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.134
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       2.048
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.048
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.048
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       2.023
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.023
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.023
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       1.947
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.947
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.947
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       1.911
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.911
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.911
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       1.808
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.
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RS:       1.714
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       1.658
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       1.592
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       1.472
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       1.387
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       1.298
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       1.127
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       1.1185
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       1.1185
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       1.11
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       1.046
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       0.736
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.736
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       0.673
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.673
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
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         The overbank n values should be reevaluated.

RS:      0.597
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.597
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:      0.53
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.53
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:      0.426
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.426
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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2W

CHECK-RAS Program, XS Check

Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.xs
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 9:26:29 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
3.553	362.877	363.085	357.787	204.46	1040	
3.484	448.168	451.255	449.129	251.84	1040	
3.399	447.905	441.615	439.031	226.4	1040	
3.315	510.968	505.063	510.09	390.04	1040	D
3.219	416.983	436.746	454.361	422.57	1040	
3.136	495.986	481.359	476.155	575.93	1040	
3.045	422.679	420.882	393.615	365.51	1040	
2.965	497.065	428.658	430.764	275.92	1040	D,C (S/C)
2.884	388.195	475.927	473.891	422.42	1040	D,C
2.794	246.286	401.352	411.771	418.57	1040	
2.718	255.612	271.414	273.221	141.71	1040	D
2.667	270.042	239.994	223.279	55.53	1040	
2.622	279.793	303.452	310.523	59.37	1040	C (S/C)
2.565	457.604	459.179	448.553	121.69	1040	
2.478	273.292	276.445	277.578	52.66	1040	
2.426	292.713	301.07	312.209	54.13	1040	
2.369	350.765	349.301	336.085	108.02	1040	
2.303	462.247	463.992	465.891	102.09	1040	D
2.215	424.734	425.901	423.597	50.91	1040	D
2.134	442.243	452.573	444.109	136.05	1040	
2.048	136.997	133.526	135.811	121.12	1040	C (S/C)
2.023	389.889	398.878	402.044	91.7	1040	
1.947	201.634	191.003	184.5	325.28	1040	
1.911	495.569	544.121	533.85	147.92	1040	
1.808	322.301	307.958	297.056	286.71	1410	
1.75	226.815	188.178	173.763	272.25	1410	
1.714	274.889	294.593	296.536	344.96	1410	
1.658	305.384	348.892	381.007	236.63	1410	D
1.592	218.602	219.752	225.872	299.87	1410	D
1.55	438.957	414.341	322.572	340.88	1410	
1.472	450.561	450.256	494.691	238.38	1410	D
1.387	464.921	467.817	466.386	216.56	1410	D
1.298	457.847	537.382	627.749	324.01	1410	D,C (S/C)
1.196	262.519	366.887	422.774	676.96	1410	
1.127	154.589	89.931	82.701	446.35	4100	D
1.1185	CULVERT#1-Up					
1.1185	CULVERT#1-Dn					
1.11	415.797	338.592	202.248	275.16	4100	D,C,B (S/C) — Scour at the culvert outlet has formed a drop that was simulated using a blocked conveyance obstruction below the culvert outlet.
1.046	526.829	446.503	329.546	836.12	4100	
.961	347.673	322.854	320.381	520.45	4100	C
.9	526.368	465.675	350.749	918.98	4100	D
.812	302.056	399.801	632.684	993.95	4100	D,C (S/C)
.736	335.766	334.55	343.971	748.17	4100	
.673	392.679	402.315	395.229	788.46	4100	D
.597	389.971	355.853	335.802	611.09	4100	
.53	495.23	548.352	587.21	466.02	4100	
.426	582.17	563.638	524.689	812.41	4100	
.319	444.149	434.39	420.067	878.78	4100	
.237	387.562	400.297	430.439	958.01	4100	
.161	468.932	499.4	424.679	1328.01	4100	E — ok, in one AH ponding area
.066	0	0	0	1685.88	4100	E

B=blocked obstruction XS SC 05
C=critical depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

					2W		
1.55					9746.62	10087.5	
1.55	1	0.89	9893	10026	9893	10026	
1.472					9950.75	10224.8	
1.472	1	0.84	9960	10078	9960	10078	
1.387					9916.58	10135.99	
1.387	1	0.94	9970	10079	9970	10079	
1.298					9866.7	10202.74	
1.298	1	0.68	9959	10123	9959	10123	
1.196					9614.42	10291.38	
1.196	1	0.67	9765	10094	9765	10094	
1.127					9976.08	10665.05	
1.127	1	0.73	9982	10479	9982	10479	
1.1185					0	0	CULVERT#1-Up
1.1185					0	0	CULVERT#1-Dn
1.1185	0	0	0	0	0	0	CULVERT#1-Up
1.1185	0	0	0	0	0	0	CULVERT#1-Dn
1.11					9969.77	10648.69	
1.11	1	0.42	9970	10467	9970	10467	
1.046					9711.7	10547.83	
1.046	1	0.28	9840	10267	9840	10267	
0.961					9839.53	10359.99	
0.961	1	0.57	9841	10179	9841	10179	
0.9					9505	10438.18	
0.9	1	0.92	9800	10174	9800	10174	
0.812					9402.47	10417.88	
0.812	1	0.84	9660	10100	9660	10100	
0.736					9674.14	10422.31	
0.736	1	0.27	9870	10115	9870	10115	
0.673					9530.52	10319.17	
0.673	1	0.98	9899	10121	9899	10121	
0.597					9646.7	10257.79	
0.597	1	0.36	9873	10086	9873	10086	
0.53					9711.29	10177.31	
0.53	1	1	9795	10083	9795	10083	
0.426					9817.57	10629.98	
0.426	1	0.76	9953	10185	9953	10185	
0.319					9798.14	10676.92	
0.319	1	0.53	9891	10225	9891	10225	
0.237					9685.67	10643.68	
0.237	1	0.8	9873	10289	9873	10289	
0.161					9488.99	10817	
0.161	1	0.05	9866	10670	9866	10670	
0.066					9529.12	11215	
0.066	1	0	9748	11074	9748	11074	

ENCROACHMENT METHOD CHECK

RS: 1.1185
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 3.553
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.553
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.484
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.399
FW FW 01 Left encroachment station 9945 is more than left channel bank station 9944.963 and less than the right channel bank station 10023.46
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.219
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.045
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.045
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.965
FW FW 01 Right encroachment station 10014 is less than right channel bank station 10015.72 and greater than the left channel bank station 9988.341
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.884
FW FW 04 The right station effective of 10010.92 for 1% annual chance floodplain is greater than the right channel bank station (10010.58).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10011) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.794
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.718
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.718
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.718
FW FW 04 The right station effective of 10045.64 for 1% annual chance floodplain is greater than the right channel bank station (10045.41).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10046) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.667
FW FW 01 Left encroachment station 9974 is more than left channel bank station 9973.959 and less than the right channel bank station 10008.18
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.667
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.622
FW FW 01 Left encroachment station 9979 is more than left channel bank station 9978.558 and less than the right channel bank station 10020.92
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.565
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.478
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.478
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.215
FW FW 01 Left encroachment station 9987 is more than left channel bank station 9986.582 and less than the right channel bank station 10015.95
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.215
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.215
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.134
FW FW 01 Left encroachment station 9984 is more than left channel bank station 9983.977 and less than the right channel bank station 10026.82
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.134
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.947
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.911
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.808
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.75
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.658
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.592
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.55
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.472
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.472
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.387
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.196
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.11
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.046

```
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.961
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.9
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.9
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.812
FW FW 01  Right encroachment station 10100 is less than right channel bank
          station 10100.07 and greater than the left channel bank station 9939.955
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.812
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.812
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.736
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.319
FW FW 03  The Left channel bank station may not be at the proper
          location.


SURCHARGE CHECK
---------------


DISCHARGE CHECK
---------------


STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 533176.4
          Total conveyance for the floodway profile is 379404.8
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

FW SW 05  The name of stream is Reach #1
          Encroachment method 1 is used.
          The floodway starting water-surface elevation of 1551.76 is equal to the
          natural starting water-surface elevation of 1551.76
          Normal depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
```

CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W.br
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 9:26:32 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,Reach #1						
3.553			1671.02	1670.53	1668.08	
3.484			1668.2	1668.06	1664.42	
3.399			1664.61	1664.21	1662.26	
3.315			1661.18	1661.07	1659.01	
3.219			1657.75	1657.6	1655.19	
3.136			1655.02	1654.98	1653.3	
3.045			1652.54	1652.41	1648.6	
2.965			1649.64	1649.23	1644.15	
2.884			1645.83	1645.53	1642.02	
2.794			1642.96	1642.87	1640.25	
2.718			1642.13	1641.83	1637.17	
2.667			1641	1640.21	1635.66	
2.622			1638.8	1637.69	1633.82	
2.565			1635.47	1635.24	1630.89	
2.478			1633.43	1632.76	1627.12	
2.426			1630.72	1629.69	1625.72	
2.369			1627.49	1626.96	1619.8	
2.303			1624.64	1623.88	1617.05	
2.215			1619.6	1618.53	1613.64	
2.134			1616.81	1616.5	1610.76	
2.048			1614.12	1613.34	1608.32	
2.023			1612.2	1611.42	1606.72	
1.947			1609.04	1608.9	1604.36	
1.911			1607.61	1607.09	1603.29	
1.808			1603.54	1603.34	1598.86	
1.75			1600.88	1600.55	1596.8	
1.714			1599.62	1599.49	1595.63	
1.658			1598.06	1597.69	1593.64	
1.592			1595.73	1595.56	1591.88	
1.55			1594.82	1594.69	1590.44	
1.472			1592.65	1592.34	1588.52	
1.387			1590.03	1589.84	1585.62	
1.298			1586.27	1585.83	1583.16	
1.196			1584.34	1584.32	1580.04	
1.127			1583.76	1583.59	1577.05	
1.1185	1582.7	1579.48	0	1581.42	1577.7	CULVERT#1-Up @ 219th Ave.
1.1185	1581.8	1578.83	0	1580.98	1576.8	CULVERT#1-Dn
1.11			1581.91	1580.98	1575.8	
1.046			1579.15	1578.99	1571.54	
0.961			1576.54	1575.94	1570.27	
0.9			1574.98	1574.89	1568.66	
0.812			1573.31	1572.87	1572.23	
0.736			1568.91	1568.61	1561.86	
0.673			1566.21	1565.89	1560.07	
0.597			1563.7	1563.45	1556.74	
0.53			1561.42	1560.97	1553.69	
0.426			1557.29	1557.02	1551.04	
0.319			1555	1554.87	1549.65	
0.237			1552.71	1552.36	1550.25	
0.161			1551.83	1551.81	1548.8	
0.066			1551.77	1551.76	1546.93	

RIVER/REACH: Reach #1, Reach #1
RIVER STATION: 1.1185
TYPE OF STRUCTURE: Culvert

	2W
Description:	
Distance from Upstream XS:	0.01
Deck/Roadway Width:	30
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	0
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	1.196	366.89	1584.32	0	1584.34	676.96	
4	1.196	366.89	1584.99	0.67	1585.03	329	
3	1.127	89.93	1583.59	0	1583.76	446.35	
3	1.127	89.93	1584.31	0.73	1584.5	261.1	
	1.1185	78.90	1581.42	0	0	0	CULVERT#1-Up
	1.1185	11.02	1580.98	0	0	0	CULVERT#1-Dn
	1.1185	78.90	1582.7	0	0	0	CULVERT#1-Up
	1.1185	11.02	1582.51	0	0	0	CULVERT#1-Dn
2	1.11	338.59	1580.98	0	1581.91	275.16	
2	1.11	338.59	1581.41	0.42	1583.33	96.06	
1	1.046	446.50	1578.99	0	1579.15	836.12	
1	1.046	446.50	1579.27	0.28	1579.52	427	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9701.07	9976.08	1585.4	9723.71	9959.02	1585.69
				10047.41	1585.69	1585.69

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS	
Culvert Group					9976.08		U
					9959.02	10047.41	
							D
			0	0			U
			0	0			D

CULVERT:
Culvert Name: CULVERT#1
Shape: Circular Rise: 5 Span: 0 Barrels: 4
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 2 - Mitered to conform to slope
Solution Crit:Highest U.S. EG

UpstrmDist:	0.01	Length:	78.9	n-Value:	0.021		
EntLossCoef:	0.7	ExtLossCoef:	1	CulvInvElU	1577.7	CulvInvElD	1576.8
LCntStaU:	9997.3	RCntStaU:	10053.5	LCntStaD	9977	RCntStaD	10033.5

Culvert Depth Blocked: 0

Culv Area:	78.54	CulvQ:	590.45	MinTopRd:	1579.49
	78.54		567.94		1579.49

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9994.8	10056	1584.46	1579.48	1579.48	1582.7	U
	9974.5	10036	1585.69	1578.83	1578.83	1581.8	D
	9994.8	10056	1584.46	1579.48	1579.48	1582.7	U
	9974.5	10036	1585.69	1578.83	1578.83	1581.8	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type

```
                                                    2W
CULVERT#1                  590.45    3509.55   Highest U.S. EG     Low and Weir Flow
                           567.94    3532.06   Highest U.S. EG     Pressure and Weir Flow
-------------------------------------------------------------------------------
```

GEOMETRIC CHECK

```
RS:        1.1185
ST GD 03   The end station of 10442.91 from downstream road/weir data
           is less than the end station of 10695.59 from downstream internal
           section.
           The high chord elevation of 1585.69 for the end road/weir station is
           greater than the ground elevation of 1582.22 for the same ground station.
           The road/weir profile may need to be extended.
```

TYPE OF FLOW CHECK

```
RS:        1.1185 This is CULVERT#1
CV LW 01   Type of flow is low and weir flow because,
           1. EGEL 3 of 1583.76 is greater than MinTopRd of 1579.49.
           2. CulvWSIn of 1581.42 is less than MxLoCdU of 1582.70.
           3. CulvWSOut of 1580.98 is less than MxLoCdD of 1581.80.
           4. Q/AD^0.5 of 3.36 is less than 4.0.

RS:        1.1185 This is CULVERT#1
CV PW 01   Type of flow is pressure and weir flow because,
           1. EGEL 3 of 1584.5 is greater than MinTopRd of 1579.49.
           2. CulvWSIn of 1582.70 is greater than or equal to MxLoCdU of 1582.70.
           3. CulvWSOut of 1582.51 is greater than or equal to MxLoCdD of 1581.80.
```

DISTANCE CHECK

```
RS:        1.1185 This is CULVERT#1
ST DT 01   'Culvert Upstrm Dist' of 0.01 is less than the height of the
           culvert opening of 5 .
           Section 3 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4 & 3, and 'Distance from Upstream XS'
           should be adjusted.
```

CULVERT COEFFICIENT CHECK

CULVERT CRITERIA CHECK

INEFFECTIVE FLOW CHECK

```
RS:        1.11 This is Section 2
ST IF 02   Weir flow occurs at Culvert Group 1
           However, the ineffective flow elevation of 1585.69 between stations 10047.41
           and 1585.69 is equal to or greater than the WSEL of 1580.98
           The RMnTpRdD is 1578.829 and the MxLoCdD is 1581.8
           The ineffective flow elevation should be between the RMnTpRdD and the MxLoCdD
           if RMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to RMnTpRdD.
           It should also be less than the WSEL.

RS:        1.046 This is Section 1
ST IF 07   Ineffective flow option was considered at this section.
           However, it should be a fully expanded cross section.
           Ineffective flow stations and elevations should be cleared from
           this section, unless the ares beyond the ineffective flow stations
           are not within the flow path of the stream.
           This message should be ignored if this section is Section 3 of the downstream
           structure.
```

FLOODWAY CHECK

```
RS:        1.1185 This is Culvert
```

```
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       1.11 This is Section 2
ST FW 10  Left encroachment station 9970 is more than the left ineffective flow
          station 9959.02 and less than the right ineffective flow station 10047.41
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       1.127 This is Section 3
ST FW 10  Left encroachment station 9982 is more than the left ineffective flow
          station 9976.08 and equal to or greater than the right ineffective flow station -9999
          The effective flow area is totally blocked by the encroachment
          stations.
          The encroachment stations should be adjusted.

---END
```

2 WEST TRIBUTARY-1

2W TRIBUTARY-1
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.nt
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:42:29 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Wash 2 West Trib						
3.413		0.038	0.049	0.038	0.1	0.3
3.335		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
3.237		0.038	0.049	0.038	0.1	0.3
3.161		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
3.062		0.038	0.049	-----	0.1	0.3
		0.049	0.038	-----		
2.969		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.885		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.788		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.73		0.038	0.049	0.038	0.1	0.3
2.64		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.571		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.51		0.038	0.049	0.038	0.1	0.3
2.418		0.038	0.049	0.038	0.1	0.3
2.339		0.038	-----	-----	0.1	0.3
		0.049	-----	-----		
2.262		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
2.195		0.038	-----	-----	0.3	0.5
		0.052	-----	-----		
2.105		0.038	0.052	0.038	0.3	0.5
2.098	Culvert-Up	0.038	0.052	0.038	0.3	0.5
2.098	Culvert-Dn	0.038	0.052	0.038	0.3	0.5
2.091		0.038	0.052	0.038	0.3	0.5
2.033		0.038	0.052	0.038	0.1	0.3
1.944		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
1.864		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
1.793		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
1.74		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
1.651		0.038	-----	-----	0.1	0.3
		0.052	-----	-----		
		0.038	-----	-----		
		0.052	-----	-----		
1.572		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.511		0.044	0.053	0.04	0.1	0.3
1.393		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.328		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.25		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.181		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.098		0.044	-----	-----	0.1	0.3
		0.053	-----	-----		
1.031		0.044	0.053	0.04	0.1	0.3

bk of structure

2W TRIBUTARY-1

.974	0.025	0.048	0.033	0.1	0.3
.9	0.025	0.048	0.033	0.1	0.3
.81	0.037	-----	-----	0.1	0.3
	0.052	-----	-----		
	0.036	-----	-----		
.728	0.037	-----	-----	0.1	0.3
	0.052	-----	-----		
	0.036	-----	-----		
.629	0.037	-----	-----	0.1	0.3
	0.052	-----	-----		
	0.036	-----	-----		
.543	0.037	-----	-----	0.1	0.3
	0.052	-----	-----		
	0.036	-----	-----		
.456	0.037	-----	-----	0.1	0.3
	0.052	-----	-----		
	0.036	-----	-----		
.36	0.025	0.048	0.033	0.1	0.3
.282	0.025	0.048	0.033	0.1	0.3
.109	0.025	0.048	0.033	0.1	0.3
0	0.025	0.048	0.033	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.025	0.053
Right Overbank n Value:	0.033	0.04
Channel n Value:	0.038	0.053
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 3.413
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.049 The overbank n values should be reevaluated.

RS: 3.237
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.049 The overbank n values should be reevaluated.

RS: 2.73
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.049 The overbank n values should be reevaluated.

RS: 2.51
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.049 The overbank n values should be reevaluated.

RS: 2.418
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.049 The overbank n values should be reevaluated.

RS: 2.105
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.052 The overbank n values should be reevaluated.

RS: 2.098
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.052 The overbank n values should be reevaluated.

RS: 2.098
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.052

```
          The overbank n values should be reevaluated.

RS:       2.091
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       2.033
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       1.511
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
          of 0.04 are less than or equal to the channel n value of 0.053
          The overbank n values should be reevaluated.

RS:       1.031
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
          of 0.04 are less than or equal to the channel n value of 0.053
          The overbank n values should be reevaluated.

RS:       0.974
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.974
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.974
NT RC 05 The left overbank n value of 0.025 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.048
          The overbank n values should be reevaluated.

RS:       0.9
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.9
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.9
NT RC 05 The left overbank n value of 0.025 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.048
          The overbank n values should be reevaluated.

RS:       0.36
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.36
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.36
NT RC 05 The left overbank n value of 0.025 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.048
          The overbank n values should be reevaluated.

RS:       0.282
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.282
NT RC 01 Right overbank n value is less than 0.035
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         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.282
NT RC 05 The left overbank n value of 0.025 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      0.109
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.109
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.109
NT RC 05 The left overbank n value of 0.025 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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2W TRIBUTARY-1
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.xs
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:42:30 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Wash 2 West Trib						
3.413	260.156	411.835	478.539	374.72	1800	
3.335	525.972	515.135	509.525	541.02	1800	
3.237	430.88	400.225	346.501	469.05	1800	D
3.161	517.909	522.481	515.736	424.38	1800	D
3.062	487.888	489.255	474.489	253.63	1800	
2.969	435.289	440.978	441.574	264.16	1800	
2.885	499.197	511.049	510.233	305.51	1800	
2.788	319.39	308.299	305.071	267.01	1800	
2.73	468.898	472.997	462.527	250.66	1800	D
2.64	369.251	366.781	363.412	216	1800	
2.571	315.97	320.25	307.156	178.08	1800	
2.51	480.291	485.847	481.79	171.7	1800	
2.418	418.999	418.885	417.216	178.16	1800	
2.339	397.658	407.738	387.507	165.03	1800	
2.262	322.56	353.555	350.961	214.25	1800	
2.195	449.244	475.737	493.175	185.34	1800	C (S/C)
2.105	72.463	75.239	79.356	361.95	1800	D
2.098	CULVERT#1-Up					
2.098	CULVERT#1-Dn					
2.098	CULVERT#2-Up					
2.098	CULVERT#2-Dn					
2.091	292.187	307.021	301.667	177.71	1800	D
2.033	420.957	469.933	504.876	371.03	1800	
1.944	390.693	422.261	428.159	525.9	4030	D
1.864	372.393	376.985	369.729	586.27	4030	D
1.793	285.855	278.356	281.533	306.76	4030	
1.74	493.538	472.07	477.02	338.63	4030	
1.651	434.57	414.997	408.861	745.43	4030	D
1.572	353.848	319.894	288.783	937.76	4030	D
1.511	605.737	625.262	633.915	518.92	4030	D
1.393	293.944	341.765	314.429	895.55	4030	D
1.328	374.761	410.901	412.615	958.23	4030	D
1.25	278.991	364.888	402.641	934.63	4030	D
1.181	284.032	438.039	335.904	963.03	3930	D
1.098	345.509	354.801	324.881	978.11	3930	D
1.031	367.809	301.443	304.596	951.42	3930	D
.974	373.757	392.242	364.983	630.6	3930	C (S/C)
.9	365.584	472.926	297.609	342.21	3930	D
.81	430.553	433.978	437.678	870.02	5080	D
.728	524.84	525.279	525.935	735.32	5080	D
.629	454.788	454.068	462.76	940.58	5080	D
.543	382.604	459.272	462.462	874.62	5080	D
.456	583.017	506.675	508.329	1064.6	5080	
.36	438.622	412.396	414.741	604.21	3930	C (S/C)
.282	806.834	915.991	904.9	467.16	3930	D
.109	563.007	576.434	584.598	661.89	3930	
0	0	0	0	557.55	3930	D

split flow CUBY 4

combined flow area w/ 2W TRIB 2

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 1.181
XS DC 01 Discharge decreases in the downstream direction.

RS: 0.36
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 2.262
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.91
MaxChlDpth Up/MaxChlDpth Dn = 1.19
TopwdthAct Up/TopwdthAct Dn = 1.16
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Wash 2 West Trib
Normal S = 0.0058 is specified as the downstream boundary for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Wash 2 West Trib
Normal S = 0.0058 is specified as the downstream boundary for profile Floodway

LATERAL WEIRS CHECK

---END---

2W TRIBUTARY-1
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.fw
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:42:32 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Wash 2 West Trib							
3.413					9665.25	10039.96	
3.413	1	0.96	9864	10045	9864	10045	
3.335					9735.57	10276.59	
3.335	1	0.84	9952	10043	9952	10043	
3.237					9820.97	10389.2	
3.237	1	0.75	9975	10215	9975	10215	
3.161					9719	10346.07	
3.161	1	0.96	9907	10108	9907	10108	
3.062					9893.88	10147.51	
3.062	1	0.77	9941	10025	9941	10025	
2.969					9898.69	10162.85	
2.969	1	0.91	9982	10087	9982	10087	
2.885					9811.35	10116.86	
2.885	1	0.81	9923	10025	9923	10025	
2.788					9849.15	10116.16	
2.788	1	0.96	9936	10024	9936	10024	
2.73					9903.64	10154.7	
2.73	1	0.82	9989	10065	9989	10065	
2.64					9894.42	10110.42	
2.64	1	0.85	9941	10025	9941	10025	
2.571					9919.42	10097.5	
2.571	1	0.73	9964	10025	9964	10025	
2.51					9972.37	10144.07	
2.51	1	0.82	9974	10069	9974	10069	
2.418					9911.69	10089.85	
2.418	1	0.91	9981	10034	9981	10034	
2.339					9899.61	10064.64	
2.339	1	0.76	9952	10038	9952	10038	
2.262					9842.74	10056.99	
2.262	1	0.78	9905	10015	9905	10015	
2.195					9840.51	10025.85	
2.195	1	0.46	9932	10026	9932	10026	
2.105					9963.13	10328.7	
2.105	1	0.75	9968	10227	9968	10227	
2.098					0	0	CULVERT#1-Up
2.098					0	0	CULVERT#1-Dn
2.098	0	0	0	0	0	0	CULVERT#1-Up
2.098	0	0	0	0	0	0	CULVERT#1-Dn
2.098					0	0	CULVERT#2-Up
2.098					0	0	CULVERT#2-Dn
2.098	0	0	0	0	0	0	CULVERT#2-Up
2.098	0	0	0	0	0	0	CULVERT#2-Dn
2.091					9960.65	10261.38	
2.091	1	0.58	9966	10219	9966	10219	
2.033					9723	10094.03	
2.033	1	-0.03	9885	10091	9885	10091	
1.944					9604.65	10229.9	
1.944	1	1	9816	10154	9816	10154	
1.864					9630.01	10218.2	
1.864	1	0.81	9880	10142	9880	10142	
1.793					9868.01	10174.77	
1.793	1	0.76	9930	10090	9930	10090	
1.74					9806.32	10144.95	
1.74	1	0.91	9899	10070	9899	10070	
1.651					9567.77	10316.73	
1.651	1	0.89	9773	10059	9773	10059	
1.572					9479.97	10428.55	
1.572	1	0.88	9760	10234	9760	10234	

1.511					9498.88	10260.01
1.511	1	0.71	9646	10179	9646	10179
1.393					9339.6	10393.1
1.393	1	0.98	9600	10314	9600	10314
1.328					9176.24	10249.61
1.328	1	0.54	9338	10048	9338	10048
1.25					9179.51	10307.74
1.25	1	0.9	9298	10068	9298	10068
1.181					9146.33	10317.3
1.181	1	0.19	9228	10052	9228	10052
1.098					9320.5	10406.1
1.098	1	0.79	9438	10192	9438	10192
1.031					9423.83	10424.9
1.031	1	0.23	9700	10027	9700	10027
0.974					9476.56	10107.15
0.974	1	0.79	9762	10019	9762	10019
0.9					9560.53	10009.13
0.9	1	0.98	9744	10009	9744	10009
0.81					9234.9	10131.45
0.81	1	0.31	9915	10126	9915	10126
0.728					9427.25	10349.93
0.728	1	0.21	9855	10052	9855	10052
0.629					9396.93	10409.21
0.629	1	0.38	9542	10064	9542	10064
0.543					9346.39	10258.2
0.543	1	0.51	9573	10079	9573	10079
0.456					9273.66	10338.26
0.456	1	0.26	9456	10077	9456	10077
0.36					9680.72	10284.93
0.36	1	0.2	9828	10091	9828	10091
0.282					9476.35	10039.17
0.282	1	0.9	9716	10039	9716	10039
0.109					9564.9	10226.8
0.109	1	0.92	9872	10053	9872	10053
0					9665.81	10327.03
0	1	1	9971	10140	9971	10140

ENCROACHMENT METHOD CHECK

RS: 2.098
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.098
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 3.413
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.969
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.885
FW FW 01 Right encroachment station 10025 is less than right channel bank station 10025.28 and greater than the left channel bank station 9985.432
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.571
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.51
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.418
FW FW 01 Left encroachment station 9981 is more than left channel bank station 9980.51 and less than the right channel bank station 10014.36
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.418
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.262
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.31 and greater than the left channel bank station 9981.245
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.195
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.195
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.195
FW FW 04 The right station effective of 10025.85 for 1% annual chance floodplain is greater than the right channel bank station (10023.05).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10026) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.091
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.033
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.033
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.944
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.793
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.74
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.74
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.572
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.328
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.25
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.974
FW FW 01 Right encroachment station 10019 is less than right channel bank

```
          station 10019.14 and greater than the left channel bank station 9975.268
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.9
FW FW 01  Right encroachment station 10009 is less than right channel bank
          station 10017.54 and greater than the left channel bank station 9977.539
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.81
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.728
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.629
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.543
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.456
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.282
FW FW 01  Right encroachment station 10039 is less than right channel bank
          station 10039.22 and greater than the left channel bank station 9938.317
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.282
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.109
FW FW 03  The Left channel bank station may not be at the proper
          location.


SURCHARGE CHECK
---------------


DISCHARGE CHECK
---------------

RS:       0.81
FW FD 01  The floodway discharge of 3930 is not equal to the natural 1% chance
          discharge of 5080
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.728
FW FD 01  The floodway discharge of 3930 is not equal to the natural 1% chance
          discharge of 5080
          Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

---END---
```

2W TRIBUTARY-1
CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-1.br
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:42:33 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,Wash 2 West Trib						
3.413			1719.83	1719.66	1715.45	
3.335			1717.41	1717.02	1712.51	
3.237			1711.46	1711.1	1707.46	
3.161			1707.2	1706.94	1703.51	
3.062			1702.19	1701.73	1697.34	
2.969			1697.32	1696.9	1693.02	
2.885			1693.14	1692.81	1689.06	
2.788			1688.57	1688.17	1684.02	
2.73			1685.85	1685.41	1680.69	
2.64			1681.69	1681.25	1676.47	
2.571			1678.22	1677.62	1672.92	
2.51			1675.51	1675.07	1669.59	
2.418			1671.81	1671.22	1665.53	
2.339			1666.95	1666.19	1662.4	
2.262			1663.18	1662.91	1658.78	
2.195			1659.87	1659.16	1655.71	
2.105			1657.52	1657.43	1652.43	
2.098	1658.5	1658.9	0	1655.25	1652	CULVERT#1-Up
2.098	1657.4	1658.4	0	1653.35	1650.9	CULVERT#1-Dn
2.098	1655.3	1658.9	0	1655.3	1651.3	CULVERT#2-Up
2.098	1654.8	1658.4	0	1654.8	1650.8	CULVERT#2-Dn
2.091			1655.6	1655	1652.5	
2.033			1653.42	1653.12	1648.51	
1.944			1648.73	1648.21	1644.58	
1.864			1645.66	1645.45	1640.27	
1.793			1643.36	1642.79	1637.33	
1.74			1640.81	1640.39	1635.62	
1.651			1636.2	1635.9	1632.81	
1.572			1632.65	1632.47	1630.54	
1.511			1629.87	1629.46	1628.33	
1.393			1624.63	1624.45	1623.47	
1.328			1622.4	1622.18	1620.56	
1.25			1618.77	1618.5	1616.53	
1.181			1616.02	1615.8	1613.97	
1.098			1613.5	1613.24	1608.4	
1.031			1610.69	1610.47	1605.41	
0.974			1607.59	1607.03	1602.71	
0.9			1604.79	1604.03	1598.98	
0.81			1602.23	1601.8	1596.04	
0.728			1600.22	1599.43	1593.6	
0.629			1596.42	1595.96	1591.19	
0.543			1593.47	1593.03	1588.43	
0.456			1591.44	1591.18	1585.73	
0.36			1588.91	1588.34	1582	
0.282			1585.48	1584.95	1580.55	
0.109			1579.19	1578.82	1571.49	
0			1575.77	1575.4	1569.92	

@ Lone Mtn. Rd.

RIVER/REACH: Reach #1, Wash 2 West Trib
RIVER STATION: 2.098
TYPE OF STRUCTURE: Culvert

Description:
Distance from Upstream XS: 0.01
Deck/Roadway Width: 50
Weir Coefficient: 2.5

2W TRIBUTARY-1

Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 1662.71
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.195	475.74	1659.16	0	1659.87	185.34	
4	2.195	475.74	1659.61	0.46	1660.74	94	
3	2.105	75.24	1657.43	0	1657.52	361.95	
3	2.105	75.24	1658.18	0.75	1658.3	258.01	
	2.098	72.00	1655.25	0	0	0	CULVERT#1-Up
	2.098	3.23	1653.35	0	0	0	CULVERT#1-Dn
	2.098	72.00	1655.71	0	0	0	CULVERT#1-Up
	2.098	3.23	1653.74	0	0	0	CULVERT#1-Dn
	2.098	75.00	1655.3	0	0	0	CULVERT#2-Up
	2.098	0.23	1654.8	0	0	0	CULVERT#2-Dn
	2.098	75.00	0	0	0	0	CULVERT#2-Up
	2.098	0.23	0	0	0	0	CULVERT#2-Dn
2	2.091	307.02	1655	0	1655.6	177.71	
2	2.091	307.02	1655.58	0.58	1656.13	237.69	
1	2.033	469.93	1653.12	0	1653.42	371.03	
1	2.033	469.93	1653.1	-0.03	1653.52	206	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	10328.7	10769.02	1658.89	10319.2	10696.63	1658.36

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group						10328.7U
						10319.2D
			0	0		U
			0	0		D

CULVERT:
Culvert Name: CULVERT#1
Shape: Box Rise: 6.5 Span: 7.4 Barrels: 6
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:	0.01	Length:	72	n-Value:	0.015		
EntLossCoef:	0.4	ExtLossCoef:	1	CulvInvElU	1652	CulvInvElD	1650.9
LCntStaU:	9977	RCntStaU:	10020.7	LCntStaD	9969.9	RCntStaD	10013.5
Culvert Depth Blocked:	0						

Culv Area:	288.6	CulvQ:	1474.77	MinTopRd:	1662.71
	288.6		1800		1662.71

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9973.3	10024.4	1662.2	1658.9	1658.9	1658.5	U
	9966.2	10017.2	1662.72	1658.4	1658.4	1657.4	D
	9973.3	10024.4	1662.2	1658.9	1658.9	1658.5	U
	9966.2	10017.2	1662.72	1658.4	1658.4	1657.4	D

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group						10328.7U
						10319.2D

```
                                        2W TRIBUTARY-1
                                    0         0                          U
                                    0         0                          D
-----------------------------------------------------------------------------

CULVERT:
Culvert Name: CULVERT#2
Shape:        Circular       Rise:      4        Span:           0        Barrels:        3
FHWA Chart #: # 2 - Corrugated Metal Pipe C
FHWA Scale #: # 1 - Headwall
Solution Crit:Highest U.S. EG

UpstrmDist:    0.01     Length:         75       n-Value:        0.02
EntLossCoef:   0.5      ExtLossCoef:    0.5      CulvInvElU      1651.3   CulvInvElD      1650.8
LCntStaU:      10272    RCntStaU:       10289.4  LCntStaD        10210    RCntStaD        10227.3
Culvert Depth Blocked:   0


-----------------------------------------------------------------------------
Culv Area:     37.7     CulvQ:          325.23   MinTopRd:       1662.71
               0                        0                        1662.71
-----------------------------------------------------------------------------

                    LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-----------------------------------------------------------------------------
CULVERT#2           10270     10291.4   1658.9    1658.9    1658.9    1655.3   U
                    10208     10229.3   1658.4    1658.4    1658.4    1654.8   D
                    10270     10291.4   1658.9    1658.9    1658.9    1655.3   U
                    10208     10229.3   1658.4    1658.4    1658.4    1654.8   D
-----------------------------------------------------------------------------


Name          Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
-----------------------------------------------------------------------------
CULVERT#1               1474.77   0         Highest U.S. EG     Low Flow
                        1800      0         Highest U.S. EG     Low Flow
CULVERT#2               325.23    0         Highest U.S. EG     Pressure Flow
                        0         0         Highest U.S. EG     Pressure Flow
-----------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------

TYPE OF FLOW CHECK
------------------

RS:        2.098 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1657.52 is less than or equal to MinTopRd of 1662.71.
           2. EGEL 3 of 1657.52 is less than MxLoCdU of 1658.50.

RS:        2.098 This is CULVERT#2
CV PF 01   Type of flow is pressure flow because,
           1. EGEL 3 of 1657.52 is less than or equal to MinTopRd of 1662.71.
           2. CulvWSIn of 1655.30 is greater than or equal to MxLoCdU of 1655.30.
           3. CulvWSOut of 1654.80 is greater than or equal to MxLoCdD of 1654.80.

RS:        2.098 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1658.3 is less than or equal to MinTopRd of 1662.71.
           2. EGEL 3 of 1658.3 is less than MxLoCdU of 1658.50.

RS:        2.098 This is CULVERT#2
CV PF 01   Type of flow is pressure flow because,
           1. EGEL 3 of 1658.3 is less than or equal to MinTopRd of 1662.71.
           2. CulvWSIn of 0.00 is less than MxLoCdU of 1655.30.
           3. CulvWSOut of 0.00 is less than MxLoCdD of 1654.80.
           4. (EGEL 3 - CulvInvUp) / Rise is greater than or equal to 1.2

DISTANCE CHECK
---------------

RS:        2.098 This is CULVERT#1
ST DT 01   'Culvert Upstrm Dist' of 0.01 is less than the height of the
           culvert opening of 6.5 .
```

```
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


RS:       2.098 This is CULVERT#1
ST DT 02  The channel distance of 3.228998 at Downstream Internal Section is less than
          the height of the culvert opening of 6.5
          Section 2 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4, 3 & 2 should be adjusted.


RS:       2.098 This is CULVERT#2
ST DT 01  'Culvert Upstrm Dist' of 0.01 is less than the height of the
          culvert opening of 4 .
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS'
          should be adjusted.


RS:       2.098 This is CULVERT#2
ST DT 02  The channel distance of 0.2289984 at Downstream Internal Section is less than
          the height of the culvert opening of 4
          Section 2 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4, 3 & 2 should be adjusted.


CULVERT COEFFICIENT CHECK
-------------------------

RS:       2.098 This is CULVERT#2
CV CF 02  Culvert exit loss coefficient is 0.5
          It should be equal to 1.0, unless there is supporting evidence
          to use this value.

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       2.105 This is Section 3
ST IF 01  Pressure or low flow occurs at Culvert Group 1
          However, left ineffective flow station was not considered at Section 3.
          The ineffective flow station(s) and elevations should be inserted.

RS:       2.091 This is Section 2
ST IF 01  Pressure or low flow occurs at Culvert Group 1
          However, left ineffective flow station was not considered at Section 2.
          The ineffective flow station(s) and elevations should be inserted.

RS:       2.033 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.

RS:       2.105 This is Section 3
ST IF 01  Pressure or low flow occurs at Culvert Group 2
          However, left ineffective flow station was not considered at Section 3.
          The ineffective flow station(s) and elevations should be inserted.

RS:       2.091 This is Section 2
ST IF 01  Pressure or low flow occurs at Culvert Group 2
          However, left ineffective flow station was not considered at Section 2.
          The ineffective flow station(s) and elevations should be inserted.
```

```
RS:        2.091 This is Section 2.
ST IF 04   Pressure flow occurs at the structure. Ineffective flow is
           considered at Section 2.
           The EGEL at Section2 is greater than the lowest MxLoCdD by 0.5
           The velocity head at Section 2 is more than 0.5 foot and
           more than the velocity head at section 1.
           The ineffective flow stations should be widened until the velocity
           head at Section 2 is equal to or less than 0.5 foot, or equal to or less than
           the velocity head at Section 1.

RS:        2.033 This is Section 1
ST IF 07   Ineffective flow option was considered at this section.
           However, it should be a fully expanded cross section.
           Ineffective flow stations and elevations should be cleared from
           this section, unless the ares beyond the ineffective flow stations
           are not within the flow path of the stream.
           This message should be ignored if this section is Section 3 of the downstream
           structure.

FLOODWAY CHECK
---------------

RS:        2.098 This is Culvert
ST FW 01   Encroachment Method was not specified at this river station.
           For flood insurance studies Encroachment Methods 4 and 1
           should be used.

RS:        2.091 This is Section 2
ST FW 03   The right station effective of 10261.38 for the natural profile is greater than
           right most abutment station of 10229.3
           The right encroachment station of 10219 is less than the
           The 1% annual chance floodplain is outside the structure opening area.
           right abutment station of 10229.3
           The encroachment station should be recomputed.

RS:        2.091 This is Section 2
ST FW 10   Right encroachment station 10219 is less than the right ineffective flow
           station 10319.2 and greater than the left ineffective flow station -9999
           Right encroachment station is within the effective flow area.
           Right encroachment station should at least be equal to the right
           ineffective flow station.

RS:        2.105 This is Section 3
ST FW 03   The right station effective of 10328.7 for the natural profile is greater than
           right most abutment station of 10291.4
           The 1% annual chance floodplain is outside the structure opening area.
           The right encroachment station of 10227 is less than the
           right abutment station of 10291.4
           The encroachment station should be recomputed.

RS:        2.105 This is Section 3
ST FW 10   Right encroachment station 10227 is less than the right ineffective flow
           station 10328.7 and greater than the left ineffective flow station -9999
           Right encroachment station is within the effective flow area.
           Right encroachment station should at least be equal to the right
           ineffective flow station.

---END
```

2 WEST TRIBUTARY-2

2W TRIBUTARY-2
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.nt
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:11:26 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,2 West Trib-2						
3.014		0.035	0.048	0.035	0.1	0.3
2.953		0.035	0.048	0.035	0.1	0.3
2.893		0.035	0.048	0.035	0.1	0.3
2.817		0.035	0.048	0.035	0.1	0.3
2.722		0.035	0.048	0.035	0.1	0.3
2.633		0.035	0.048	0.035	0.1	0.3
2.549		0.035	0.048	0.035	0.1	0.3
2.479		0.035	0.048	0.035	0.1	0.3
2.401		0.035	0.048	0.035	0.1	0.3
2.346		0.035	0.048	0.035	0.1	0.3
2.276		0.035	0.048	0.035	0.1	0.3
2.195		0.043	-----	-----	0.1	0.3
		0.048	-----	-----		
2.138		0.043	0.048	0.043	0.1	0.3
2.078		0.043	0.048	0.043	0.1	0.3
2.007		0.043	0.048	0.043	0.1	0.3
1.932		0.043	0.048	0.043	0.1	0.3
1.846		0.043	0.048	0.043	0.1	0.3
1.765		0.043	0.048	0.043	0.1	0.3
1.679		0.043	0.048	0.043	0.1	0.3
1.66		0.037	0.052	-----	0.1	0.3
		0.052	0.036	-----		
1.571		0.037	-----	-----	0.1	0.3
		0.052	-----	-----		
1.469		0.037	-----	-----	0.1	0.3
		0.052	-----	-----		
1.386		0.037	-----	-----	0.1	0.3
		0.052	-----	-----		
1.315		0.037	0.037	0.052	0.1	0.3
		-----	0.052	0.036		
1.272		0.037	0.052	0.035	0.1	0.3
1.199		0.038	-----	-----	0.1	0.3
		0.053	-----	-----		
1.128		0.038	-----	-----	0.1	0.3
		0.053	-----	-----		
1.04		0.038	-----	-----	0.1	0.3
		0.053	-----	-----		
.937		0.036	0.05	0.036	0.1	0.3
.85		0.036	0.05	0.036	0.1	0.3
.79		0.036	0.05	0.036	0.1	0.3
.726		0.036	0.05	0.036	0.1	0.3
.638		0.036	0.05	0.036	0.1	0.3
.508		0.036	0.05	0.036	0.1	0.3
.405		0.036	0.036	0.052	0.1	0.3
		-----	0.052	0.036		
.313		0.036	-----	-----	0.1	0.3
		0.052	-----	-----		
.225		0.036	-----	-----	0.1	0.3
		0.052	-----	-----		
		0.036	-----	-----		
		0.052	-----	-----		
.154		0.036	0.036	-----	0.1	0.3
		-----	0.052	-----		
		-----	0.036	-----		
.084		0.036	0.036	-----	0.1	0.3
		0.075	0.075	-----		
		0.036	0.038	-----		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.075
Right Overbank n Value:	0.035	0.052
Channel n Value:	0.036	0.075
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 3.014
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.953
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.893
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.817
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.722
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.633
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.549
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.479
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.401
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.346
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.276
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.138
NT RC 05 The left overbank n value of 0.043 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

```
RS:       2.078
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       2.007
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.932
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.846
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.765
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.679
NT RC 05 The left overbank n value of 0.043 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.272
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       0.937
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.85
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.79
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.726
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.638
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.508
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.036 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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2W TRIBUTARY-2
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.xs
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:11:27 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,2 West Trib-2						
3.014	321.813	322.858	328.566	152.64	530	
2.953	302.697	315.782	311.497	125.75	530	
2.893	405.117	399.302	394.637	189.29	530	
2.817	502.076	502.874	498.957	95.04	530	
2.722	462.639	468.663	461.727	164.58	530	
2.633	443.92	445.243	458.803	70.88	530	C (B/C)
2.549	373.083	371.58	373.81	157.65	1150	D
2.479	410.865	414.295	419.524	97.9	1150	
2.401	296.648	289.726	291.184	100.04	1150	
2.346	370.889	369.579	378.796	154.84	1150	
2.276	426.371	426.403	429.044	294.48	1150	
2.195	308.368	298.707	324.868	342	1150	
2.138	312.056	317.979	292.603	267.5	1150	
2.078	371.816	374.978	372.482	399.37	1150	
2.007	398.528	395.443	395.942	444.45	1150	
1.932	462.27	452.829	458.717	538.98	1150	
1.846	457.493	429.658	425.93	519.91	1150	D
1.765	447.068	452.08	459.993	302.97	1150	
1.679	91.439	101.97	157.707	527.84	1150	D
1.66	483.702	471.897	441.278	840.55	5080	D
1.571	531.317	540.373	534	889.19	5080	D
1.469	447.576	451.672	453.575	940.63	5080	D
1.386	267.131	333.804	419.012	920.99	5080	
1.315	246.851	254.642	243.714	914.45	5080	D
1.272	365.109	386.714	352.378	629.29	1150	D
1.199	397.327	375.104	374.511	688.17	1150	D
1.128	474.123	466.745	442.562	837.14	1410	D
1.04	554.848	541.64	536.735	825.83	1410	
.937	495.852	460.691	490.325	802.41	1410	D
.85	300.112	316.094	364.623	765.82	1410	D
.79	320.612	340.336	427.921	689.37	1410	D
.726	418.403	467.189	403.504	942.27	1410	
.638	556.54	689.026	745.928	522.48	1410	D
.508	532.7	541.801	513.974	589.09	1410	D
.405	597.545	484.156	470.8	837.91	1410	C (B/C)
.313	568.723	465.89	477.039	1032.1	1410	
.225	394.452	373.071	350.908	639.41	1410	D, C
.154	350.803	369.536	386.647	1011	2870	E
.084	0	0	0	1294	2870	E — In Zone AH ponding area

combine flow w/ 2W TRIB-1

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 1.272
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,2 West Trib-2
Known WS = 1551.8 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,2 West Trib-2
Known WS = 1551.8 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

2W TRIBUTARY-2
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2W TRIBUTARY-2.fw
Selected profiles: Floodplain;Floodway
Date: 7/26/2005
Time: 10:11:29 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,2 West Trib-2							
3.014					9966.75	10119.39	
3.014	1	0.4	9978	10026	9978	10026	
2.953					9941.44	10067.18	
2.953	1	0.87	9975	10025	9975	10025	
2.893					9879.35	10068.64	
2.893	1	0.44	9957	10027	9957	10027	
2.817					9968.21	10063.25	
2.817	1	0.09	9969	10063	9969	10063	
2.722					9976.02	10140.6	
2.722	1	-0.03	9979	10031	9979	10031	
2.633					9941.31	10012.19	
2.633	1	0.33	9971	10012	9971	10012	
2.549					9930.85	10103.7	
2.549	1	0.61	9967	10057	9967	10057	
2.479					9924.35	10022.25	
2.479	1	0.67	9976	10018	9976	10018	
2.401					9935.41	10035.46	
2.401	1	0.62	9968	10032	9968	10032	
2.346					9925.56	10080.4	
2.346	1	0.27	9960	10056	9960	10056	
2.276					9882.86	10177.34	
2.276	1	0.71	9922	10028	9922	10028	
2.195					9777.8	10119.8	
2.195	1	0.5	9950	10085	9950	10085	
2.138					9828.35	10095.85	
2.138	1	0.08	9898	10037	9898	10037	
2.078					9868.71	10268.08	
2.078	1	0.55	9918	10085	9918	10085	
2.007					9895.55	10340	
2.007	1	0.68	9985	10174	9985	10174	
1.932					9755.32	10294.3	
1.932	1	0.94	9942	10141	9942	10141	
1.846					9677.59	10220.31	
1.846	1	0.55	9914	10114	9914	10114	
1.765					9798.3	10101.27	
1.765	1	0.85	9891	10045	9891	10045	
1.679					9705.48	10278.52	
1.679	1	0.86	9935	10094	9935	10094	
1.66					9721.03	10612.71	
1.66	1	0.89	9891	10100	9891	10100	
1.571					9808.02	10766.88	
1.571	1	0.24	9935	10095	9935	10095	
1.469					9699.48	10711.06	
1.469	1	0.49	9986	10368	9986	10368	
1.386					9660.36	10581.35	
1.386	1	0.63	9952	10397	9952	10397	
1.315					9776.48	10825.53	
1.315	1	0.35	9947	10568	9947	10568	
1.272					9762.53	10413.64	
1.272	1	0.45	9899	10174	9899	10174	
1.199					9945.98	10636.57	
1.199	1	0.57	9945	10228	9945	10228	
1.128					9753.25	10664.04	
1.128	1	0.96	9951	10305	9951	10305	
1.04					9504.47	10330.3	
1.04	1	0.65	9911	10172	9911	10172	
0.937					9669.97	10864.12	
0.937	1	0.85	9951	10135	9951	10135	

0.85					9777.12	10560.7
0.85	1	0.78	9971	10144	9971	10144
0.79					9896.44	10595.28
0.79	1	0.92	9986	10184	9986	10184
0.726					9967.19	10909.46
0.726	1	0.98	9978	10210	9978	10210
0.638					9555	10083.85
0.638	1	0.72	9873	10073	9873	10073
0.508					9429.03	10151.11
0.508	1	0.99	9663	10028	9663	10028
0.405					9364.16	10202.07
0.405	1	0.45	9797	10063	9797	10063
0.313					9197.6	10229.71
0.313	1	0.55	9640	10049	9640	10049
0.225					9468.57	10181.07
0.225	1	0.27	9696	10097	9696	10097
0.154					9220	10231
0.154	1	0.02	9437	10132	9437	10132
0.084					8949	10243
0.084	1	0	9203	10141	9203	10141

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 3.014
FW FW 01 Left encroachment station 9978 is more than left channel bank station 9977.777 and less than the right channel bank station 10025.75
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.014
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.953
FW FW 01 Left encroachment station 9975 is more than left channel bank station 9974.854 and less than the right channel bank station 10007.31
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.893
FW FW 01 Right encroachment station 10027 is less than right channel bank station 10027.19 and greater than the left channel bank station 9985.471
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.817
FW FW 01 Left encroachment station 9969 is more than left channel bank station 9968.896 and less than the right channel bank station 10068.9
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.817
FW FW 01 Right encroachment station 10063 is less than right channel bank station 10068.9 and greater than the left channel bank station 9968.896
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.817
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.633
FW FW 01 Right encroachment station 10012 is less than right channel bank station 10012.22 and greater than the left channel bank station 9971.17
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.633
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.479
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.401
FW FW 01 Right encroachment station 10032 is less than right channel bank station 10038.32 and greater than the left channel bank station 9985.862
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.346
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.346
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.138
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.007
FW FW 01 Left encroachment station 9985 is more than left channel bank station 9984.526 and less than the right channel bank station 10024.56
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.007
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.007
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.765
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.66
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.571
FW FW 01 Left encroachment station 9935 is more than left channel bank station 9934.624 and less than the right channel bank station 10034.62
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.571
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.199
FW FW 04 The left station effective of 9945.98 for 1% annual chance floodplain is less than the left channel bank station 9974.064
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9945) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.128
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.04
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.937
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.85
FW FW 01 Left encroachment station 9971 is more than left channel bank station 9970.759 and less than the right channel bank station 10055.31
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.85
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.85
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.79
FW FW 01 Left encroachment station 9986 is more than left channel bank station 9985.846 and less than the right channel bank station 10015.77
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.79
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.726
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.638
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.313
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.225
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.154
FW FW 01 Right encroachment station 10132 is less than right channel bank station 10132.01 and greater than the left channel bank station 9742.396
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.154
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.084
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.084
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

RS: 1.66
FW FD 01 The floodway discharge of 1150 is not equal to the natural 1% chance discharge of 5080
Please justify the use of different discharges for the natural and floodway profiles.

```
RS:        1.571
FW FD 01   The floodway discharge of 1150 is not equal to the natural 1% chance
           discharge of 5080
           Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
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FW SW 04   The name of the stream is Reach #1
           Encroachment method 1 is used.
           Total conveyance for the natural profile is 416983.5
           Total conveyance for the floodway profile is 297821
           The difference in conveyance between the floodway profile and the
           natural profile is more than 1%.
           Normal Depth option with the same energy slope as the natural
           profile must be used for the floodway profile and rerun the plan.
           This message is not applicable for the revisions.

FW SW 05   The name of stream is Reach #1
           Encroachment method 1 is used.
           The floodway starting water-surface elevation of 1551.80 is equal to the
           natural starting water-surface elevation of 1551.80
           Normal depth option with the same energy slope as the natural
           profile must be used for the floodway profile and rerun the plan.
           This message is not applicable for the revisions.

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WITTMANN WASH

WITT
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.nt
Selected profiles: Floodplain;Floodway
Date: 7/28/2005
Time: 4:21:56 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Wittmann Wash						
5.774		0.035	0.055	0.033	0.1	0.3
5.727		0.035	0.055	0.033	0.1	0.3
5.671		0.035	0.055	0.033	0.1	0.3
5.587		0.035	0.055	0.033	0.1	0.3
5.476		0.035	0.055	0.033	0.1	0.3
5.345		0.035	0.055	0.033	0.1	0.3
5.254		0.035	0.055	0.033	0.1	0.3
5.15		0.035	0.055	0.033	0.1	0.3
5.056		0.035	0.055	0.033	0.1	0.3
5.006		0.035	0.055	0.033	0.1	0.3
4.955		0.035	0.055	0.033	0.1	0.3
4.847		0.035	0.055	0.033	0.1	0.3
4.738		0.039	0.051	0.041	0.1	0.3
4.676		0.039	0.051	0.041	0.1	0.3
4.573		0.039	0.051	0.041	0.1	0.3
4.455		0.039	0.051	0.041	0.1	0.3
4.37		0.039	0.051	0.041	0.1	0.3
4.271		0.039	0.051	0.041	0.1	0.3
4.19		0.035	0.049	0.031	0.1	0.3
4.102		0.035	0.049	0.031	0.1	0.3
4.048		0.035	0.049	0.031	0.1	0.3
3.956		0.035	0.049	0.031	0.1	0.3
3.868		0.035	0.049	0.031	0.1	0.3
3.773		0.045	0.059	0.053	0.1	0.3
3.69		0.045	0.059	0.053	0.1	0.3
3.597		0.045	0.059	0.053	0.1	0.3
3.516		0.045	0.059	0.053	0.1	0.3
3.428		0.045	0.059	0.053	0.1	0.3
3.377		0.045	-----	-----	0.1	0.3
		0.059	-----	-----		
3.333		0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
3.327	Culvert-Up	0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
3.327	Culvert-Dn	0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
3.321		0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
3.305		0.045	-----	-----	0.3	0.5
		0.053	-----	-----		
3.274		0.045	0.059	0.053	0.1	0.3
3.198		0.045	0.059	0.053	0.1	0.3
3.141		0.045	0.059	0.053	0.1	0.3
3.085		0.045	0.059	0.053	0.1	0.3
3.034		0.045	0.059	0.053	0.1	0.3
3.008		0.032	0.052	0.038	0.3	0.5
3.004	Bridge-Up	0.032	0.052	0.038	0.3	0.5
3.004	Bridge-Dn	0.032	0.052	0.038	0.3	0.5
3		0.032	0.052	0.038	0.3	0.5
2.987		0.032	0.052	0.038	0.3	0.5
2.972		0.032	0.052	0.038	0.3	0.5
2.9645	Bridge-Up	0.032	0.052	0.038	0.3	0.5
2.9645	Bridge-Dn	0.032	0.052	0.038	0.3	0.5
2.957		0.032	0.052	0.038	0.3	0.5
2.952		0.032	0.052	0.038	0.3	0.5
2.949		0.032	0.052	0.038	0.3	0.5
2.9415	Bridge-Up	0.032	0.052	0.038	0.3	0.5
2.9415	Bridge-Dn	0.032	0.052	0.038	0.3	0.5

b/c of structure

b/c of structure

			WITT		
2.934	0.032	0.052	0.038	0.3	0.5
2.916	0.045	0.035	0.045	0.3	0.5
2.885	0.045	0.035	0.045	0.1	0.3
2.86	0.045	0.035	0.045	0.1	0.3
2.837	0.045	0.035	0.045	0.1	0.3
2.753	0.032	0.052	0.038	0.1	0.3
2.694	0.032	0.052	0.038	0.1	0.3
2.632	0.032	0.052	0.038	0.1	0.3
2.58	0.032	0.052	0.038	0.1	0.3
2.507	0.032	0.052	0.038	0.1	0.3
2.419	0.032	0.052	0.038	0.1	0.3
2.338	0.032	0.052	0.038	0.1	0.3
2.246	0.032	0.052	0.038	0.1	0.3
2.161	0.032	0.052	0.038	0.1	0.3
2.081	0.032	0.052	0.038	0.1	0.3
1.989	0.032	0.052	-----	0.1	0.3
	0.042	0.038	-----		
	0.032	-----	-----		
	0.052	-----	-----		
1.933	0.041	0.041	0.028	0.1	0.3
1.833	0.041	0.041	0.028	0.1	0.3
1.747	0.041	0.041	0.028	0.1	0.3
1.674	0.041	0.041	0.028	0.1	0.3
1.569	0.041	0.041	0.028	0.1	0.3
1.512	0.044	0.06	0.041	0.1	0.3
1.466	0.044	0.06	0.041	0.1	0.3
1.394	0.044	0.06	0.041	0.1	0.3
1.312	0.044	0.06	0.06	0.1	0.3
	0.06	-----	0.041		
	0.041	-----	-----		
1.248	0.044	0.06	0.041	0.1	0.3
1.177	0.044	0.06	0.041	0.1	0.3
1.078	0.044	0.075	0.075	0.1	0.3
	-----	-----	0.041		
.996	0.036	-----	-----	0.1	0.3
	0.061	-----	-----		
.916	0.036	-----	-----	0.1	0.3
	0.061	-----	-----		
.855	0.036	0.061	0.034	0.1	0.3
	0.061	0.034	0.038		
	-----	-----	0.075		
	-----	-----	0.034		
.808	0.036	0.061	0.034	0.1	0.3
.712	0.036	0.061	0.034	0.1	0.3
.634	0.036	0.061	0.034	0.1	0.3
.529	0.036	0.061	0.034	0.1	0.3
.438	0.036	0.054	0.04	0.1	0.3
.339	0.036	0.054	0.04	0.1	0.3
.246	0.036	0.054	0.04	0.1	0.3
.17	0.036	0.054	0.04	0.1	0.3
.082	0.036	0.054	0.04	0.1	0.3
.04	0.036	0.054	-----	0.1	0.3
	0.054	0.04	-----		
.019	0.054	-----	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.032	0.061
Right Overbank n Value:	0.028	0.075
Channel n Value:	0.034	0.075
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 5.774
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

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RS:       5.774
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.727
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.727
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.671
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.671
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.587
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.587
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.476
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.476
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.345
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.345
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.254
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.254
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.15
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.15
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.
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RS:       5.056
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.056
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       5.006
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       5.006
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       4.955
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       4.955
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       4.847
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       4.847
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.

RS:       4.738
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.676
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.573
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.455
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.37
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.271
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       4.19
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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         The n value should be reevaluated.

RS:      4.19
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.031 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      4.102
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.102
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.031 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      4.048
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      4.048
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.031 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      3.956
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.956
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.031 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      3.868
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.868
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.031 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      3.773
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
         of 0.053 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      3.69
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
         of 0.053 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      3.597
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
         of 0.053 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      3.516
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
         of 0.053 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      3.428
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
         of 0.053 are less than or equal to the channel n value of 0.059
         The overbank n values should be reevaluated.

RS:      3.274
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
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          of 0.053 are less than or equal to the channel n value of 0.059
          The overbank n values should be reevaluated.

RS:       3.198
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
          of 0.053 are less than or equal to the channel n value of 0.059
          The overbank n values should be reevaluated.

RS:       3.141
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
          of 0.053 are less than or equal to the channel n value of 0.059
          The overbank n values should be reevaluated.

RS:       3.085
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
          of 0.053 are less than or equal to the channel n value of 0.059
          The overbank n values should be reevaluated.

RS:       3.034
NT RC 05 The left overbank n value of 0.045 and the right overbank n value
          of 0.053 are less than or equal to the channel n value of 0.059
          The overbank n values should be reevaluated.

RS:       3.008
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.008
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       3.004
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.004
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       3.004
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3.004
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       3
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       3
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       2.987
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       2.987
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
          of 0.038 are less than or equal to the channel n value of 0.052
          The overbank n values should be reevaluated.

RS:       2.972
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NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.972
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.9645
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9645
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.9645
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9645
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.957
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.957
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.952
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.952
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.949
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.949
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.9415
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.9415
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:      2.9415
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       2.9415
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.934
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.934
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.753
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.753
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.694
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.694
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.632
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.632
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.58
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.58
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.507
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.507
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.419
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.419
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.
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RS:       2.338
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.338
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.246
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.246
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.161
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.161
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       2.081
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.081
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.052
         The overbank n values should be reevaluated.

RS:       1.933
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.933
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
         of 0.028 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:       1.833
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.833
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
         of 0.028 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:       1.747
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.747
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
         of 0.028 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:       1.674
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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         The n value should be reevaluated.

RS:      1.674
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
         of 0.028 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.569
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.569
NT RC 05 The left overbank n value of 0.041 and the right overbank n value
         of 0.028 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.512
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:      1.466
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:      1.394
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:      1.248
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:      1.177
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:      0.808
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.808
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.712
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.712
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.634
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.634
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.061
         The overbank n values should be reevaluated.

RS:      0.529
NT RC 01 Right overbank n value is less than 0.035
```

The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.529
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.061
The overbank n values should be reevaluated.

RS: 0.438
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.04 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

RS: 0.339
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.04 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

RS: 0.246
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.04 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

RS: 0.17
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.04 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

RS: 0.082
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.04 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

RS: 3.377
NT TL 01 This is section 4
Contraction and expansion loss coefficients are 0.1 and 0.3
They should be equal to 0.3 and 0.5 respectively.

RS: 3.305
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5 respectively. However, this cross section is not at the structure.
They should be equal to 0.1 and 0.3.

RS: 3.034
NT TL 01 This is section 4
Contraction and expansion loss coefficients are 0.1 and 0.3
They should be equal to 0.3 and 0.5 respectively.

RS: 2.916
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5 respectively. However, this cross section is not at the structure.
They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES

RS: 3.008
NT RS 01 This is Section 3.
Channel n value of 0.052 is less than the channel n value of 0.059 at Section 4.

RS: 3.004
NT RS 02 The channel n value of 0.052 for the upstream internal bridge opening section is equal or larger than the channel n value of 0.052 at Section 3.
Usually, the channel n value of the bridge opening section is less than the channel n value of Section 3.
The selection of the n value(s) should be reevaluated.

RS: 3.004
NT RS 02 The channel n value of 0.052 for the downstream internal bridge opening section is equal or larger than the channel n value of 0.052 at Section 2

```
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

RS:      2.9645
NT RS 02 The channel n value of 0.052 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.052 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:      2.9645
NT RS 02 The channel n value of 0.052 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.052 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

RS:      2.9415
NT RS 02 The channel n value of 0.052 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.052 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:      2.9415
NT RS 02 The channel n value of 0.052 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.052 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

---END---
```

WITT
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.xs
Selected profiles: Floodplain;Floodway
Date: 7/28/2005
Time: 4:21:57 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Wittmann Wash						
5.774	225.627	245.539	243.085	243.02	640	D
5.727	301.366	297.77	296.805	282.75	640	D
5.671	453.012	444.871	439.731	283.66	640	D
5.587	612.112	587.288	559.835	288.47	640	
5.476	678.816	689.932	668.189	232.75	640	
5.345	427.16	481.26	506.222	236.24	640	
5.254	565.645	549.139	535.8	161.02	690	
5.15	467.142	496.256	462.35	186.69	690	
5.056	134.451	259.41	141.975	274.06	690	C
5.006	283.143	271.33	268.397	208.83	690	D
4.955	582.291	572.747	543.702	249.85	690	D,C
4.847	578.709	572.979	545.306	442.19	690	
4.738	322.153	327.541	322.368	425.64	1000	D,C
4.676	520.44	545.653	521.541	527.6	1000	
4.573	569.752	625.467	617.362	303.26	1000	D,C
4.455	412.672	446.597	443.846	567.01	1000	D
4.37	463.06	525.2	527.5	660.82	1730	C
4.271	383.845	425.217	404.25	596.58	1730	
4.19	451.238	464.34	441.075	465.47	1730	C
4.102	320.104	284.2	292.714	512.97	1730	
4.048	410.789	485.824	474.459	343.83	1730	D,C
3.956	448.132	467.266	420.403	390.89	2130	
3.868	485.115	501.544	522.344	282.15	2130	C
3.773	451.757	436.086	406.453	349.84	2130	D
3.69	457.594	488.628	473.559	337.68	2130	
3.597	428.298	425.393	428.659	529.52	2130	
3.516	464.896	462.266	441.104	426.34	2130	D,C
3.428	250.503	257.518	254.058	345.67	2130	
3.377	207.013	226.639	229.245	114.85	2130	D,C
3.333	71.28	68.773	72.375	890.83	2130	D
3.327	CULVERT#1-Up					
3.327	CULVERT#1-Dn					
3.321	89.166	89.726	88.473	331.93	2130	D
3.305	164.821	163.724	154.663	33.48	640	
3.274	403.348	399.976	392.766	40.11	640	
3.198	296.478	303.595	289.12	116.75	640	
3.141	268.908	295.117	304.058	89.58	640	
3.085	254.841	270.535	281.277	435.74	2280	
3.034	180.363	138.71	61.841	149.81	2280	D,C
3.008	38.999	39.922	61.487	133.18	2280	
3.004	Bridge #1-Up					
3.004	Bridge #1-Dn					
3	67.648	66.809	68.703	128.76	2280	
2.987	87.194	80.127	78.991	123.61	2280	
2.972	71.471	77.13	86.041	106.18	2280	
2.9645	Bridge #1-Up					
2.9645	Bridge #1-Dn					
2.957	26	26	26	110.17	2280	
2.952	15	15	15	146.33	2280	
2.949	79.792	78.209	76.752	118.43	2280	
2.9415	Bridge #1-Up					
2.9415	Bridge #1-Dn					
2.934	76.352	94.184	125.35	122.14	2280	
2.916	162.571	165.577	164.165	62.68	2280	C
2.885	130.783	129.472	130.55	80.46	2280	
2.86	126.504	120.926	118.86	65.25	2280	C
2.837	397.372	440.998	497.226	61.13	2280	

C = supercritical (S/C)

2.753	324.756	312.439	304.956	303.07	2280	D
2.694	285.415	327.537	340.559	680	2280	C
2.632	232.294	273.363	299.151	1121.63	2280	D
2.58	391.363	383.429	388.575	1422.66	2280	D
2.507	450.865	464.672	535.2	759.34	2280	D
2.419	445.15	427.033	443.464	1066.86	2280	D
2.338	435.425	486.85	480.487	1102.84	2280	
2.246	448.001	448.127	427.273	776.12	2280	D
2.161	407.77	422.108	424.593	770.13	2280	
2.081	495.841	483.521	467.706	644.35	2280	D
1.989	299.769	295.372	270.936	826.73	2280	
1.933	509.6	526.569	506.56	1071.02	3070	
1.833	476.654	456.591	417.75	790.72	3070	
1.747	409.675	386.757	368.442	784.07	3070	
1.674	519.797	553.484	547.67	642.25	3070	C
1.569	284.612	300.291	273.688	551.19	3070	D
1.512	246.63	243.684	230.288	653.31	3070	
1.466	349.506	382.383	416.884	531.94	3070	D
1.394	409.155	435.345	400.429	747.36	3070	
1.312	353.373	335.394	312.361	919.44	3070	D
1.248	377.936	372.668	363.174	1026.69	3070	
1.177	460.615	520.328	549.377	833.28	3070	
1.078	411.414	433.147	423.766	642.13	3070	
.996	389.212	423.219	440.508	639.54	3070	
.916	305.761	322.315	342.526	847.18	3070	
.855	233.412	247.401	263.316	945.6	3070	D
.808	466.246	505.698	486.314	517.51	2800	D
.712	398.597	413.93	409.782	1016.73	2800	D
.634	507.346	553.542	542.265	922.91	2800	
.529	516.371	482.21	458.715	713.4	2800	
.438	544.052	524.315	425.201	509.68	2800	
.339	497.382	488.576	432.672	581.89	2800	
.246	441.34	402.537	386.056	768.77	2800	
.17	450.256	462.68	437.506	949.44	2800	
.082	251.546	221.909	213.752	1307.66	2800	D
.04	170.466	111.835	33.316	1638.05	2800	D,E
.019	0	0	0	1877.35	2800	D,E

b/c of ponding

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 3.305
XS DC 01 Discharge decreases in the downstream direction.

RS: 0.808
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 4.676
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.80
MaxChlDpth Up/MaxChlDpth Dn = 1.63

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          TopwdthAct Up/TopwdthAct Dn = 1.74
          This cross section is located too far upstream from the
          critical depth cross section.

RS:       3.428
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.24
          MaxChlDpth Up/MaxChlDpth Dn = 1.18
          TopwdthAct Up/TopwdthAct Dn = 3.01
          This cross section is located too far upstream from the
          critical depth cross section.

RS:       3.085
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.81
          MaxChlDpth Up/MaxChlDpth Dn = 1.12
          TopwdthAct Up/TopwdthAct Dn = 2.91
          This cross section is located too far upstream from the
          critical depth cross section.

RS:       2.934
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.50
          MaxChlDpth Up/MaxChlDpth Dn = 1.34
          TopwdthAct Up/TopwdthAct Dn = 1.95
          This cross section is located too far upstream from the
          critical depth cross section.

RS:       2.885
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.98
          MaxChlDpth Up/MaxChlDpth Dn = 1.22
          TopwdthAct Up/TopwdthAct Dn = 1.23
          This cross section is located too far upstream from the
          critical depth cross section.


BOUNDARY CONDITION CHECK
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XS BC 02 The name of the stream is Reach #1,Wittmann Wash
          Known WS = 1553.36 is specified as the downstream boundary
          for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Wittmann Wash
          Known WS = 1553.36 is specified as the downstream boundary
          for profile Floodway


LATERAL WEIRS CHECK
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---END---
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WITT
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.fw
Selected profiles: Floodplain;Floodway
Date: 7/28/2005
Time: 4:21:59 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Wittmann Wash							
5.774					9825.54	10126.43	
5.774	1	0.85	9932	10031	9932	10031	
5.727					9782.58	10066.53	
5.727	1	0.12	9961	10056	9961	10056	
5.671					9695.63	10039.48	
5.671	1	0.73	9960	10038	9960	10038	
5.587					9752.09	10040.55	
5.587	1	0.79	9947	10024	9947	10024	
5.476					9913.83	10146.58	
5.476	1	0.49	9957	10063	9957	10063	
5.345					9838.79	10075.03	
5.345	1	0.41	9946	10029	9946	10029	
5.254					9879.67	10040.69	
5.254	1	0.56	9950	10040	9950	10040	
5.15					9927.94	10114.63	
5.15	1	0.61	9946	10038	9946	10038	
5.056					9821.09	10095.15	
5.056	1	0.15	9821	10036	9821	10036	
5.006					9788.71	10046.06	
5.006	1	0.18	9878	10031	9878	10031	
4.955					9807.05	10067.24	
4.955	1	0.5	9913	10028	9913	10028	
4.847					9637.19	10079.38	
4.847	1	0.78	9876	10032	9876	10032	
4.738					9587.79	10037.1	
4.738	1	0.84	9925	10036	9925	10036	
4.676					9869.6	10397.2	
4.676	1	0.87	9941	10117	9941	10117	
4.573					9733.38	10143.81	
4.573	1	0.47	9925	10060	9925	10060	
4.455					9483.09	10083.33	
4.455	1	0.82	9848	10014	9848	10014	
4.37					9435.69	10096.51	
4.37	1	0.5	9882	10029	9882	10029	
4.271					9583.48	10180.06	
4.271	1	0.76	9900	10057	9900	10057	
4.19					9736.41	10201.88	
4.19	1	0.87	9971	10091	9971	10091	
4.102					9603.85	10116.82	
4.102	1	0.47	9867	10071	9867	10071	
4.048					9609.65	10009.06	
4.048	1	0.99	9774	10009	9774	10009	
3.956					9665.69	10056.58	
3.956	1	0.92	9866	10031	9866	10031	
3.868					9946.89	10229.04	
3.868	1	0.31	9947	10106	9947	10106	
3.773					9755.24	10172.41	
3.773	1	0.11	9883	10029	9883	10029	
3.69					9855.96	10193.64	
3.69	1	0.16	9860	10078	9860	10078	
3.597					9697.46	10226.98	
3.597	1	0.5	9845	10066	9845	10066	
3.516					9733.75	10161	
3.516	1	0.12	9839	10018	9839	10018	
3.428					9914.72	10260.39	
3.428	1	0.43	9959	10050	9959	10050	
3.377					9963.44	10180.11	
3.377	1	-0.02	9978	10165	9978	10165	

					WITT		
3.333					9804.63	10696.07	
3.333	1	-0.01	9909	10571	9909	10571	
3.327					0	0	CULVERT#1-Up
3.327					0	0	CULVERT#1-Dn
3.327	0	0	0	0	0	0	CULVERT#1-Up
3.327	0	0	0	0	0	0	CULVERT#1-Dn
3.321					9976.04	10670.88	
3.321	1	0.11	9977	10630	9977	10630	
3.305					9983.69	10017.17	
3.305	1	0	9980	10024	9983.69	10017.17	
3.274					9981.16	10021.27	
3.274	1	-0.02	9978	10021	9981.25	10021	
3.198					9961.22	10077.97	
3.198	1	0.2	9956	10037	9959.88	10037	
3.141					9946.45	10036.03	
3.141	1	0.52	9947	10036	9947	10036	
3.085					9649.31	10085.06	
3.085	1	0.59	9959	10070	9959	10070	
3.034					9869.72	10030.52	
3.034	1	0.18	9920	10021	9920	10021	
3.008					9912.22	10045.4	
3.008	1	0.63	9924	10038	9924	10038	
3.004					9912.27	10045.37	Bridge #1-Up
3.004					9942.5	10071.48	Bridge #1-Dn
3.004	0	0.63	9924.4	10037.6	9924.4	10037.6	Bridge #1-Up
3.004	0	0.61	9953	10059	9953	10059	Bridge #1-Dn
3					9942.67	10071.43	
3	1	0.62	9953	10059	9953	10059	
2.987					9946.48	10070.09	
2.987	1	0.84	9948	10076	9948	10075.22	
2.972					9919.46	10025.64	
2.972	1	0.89	9934	10028	9934	10025.79	
2.9645					9919.46	10025.63	Bridge #1-Up
2.9645					9949.99	10060.17	Bridge #1-Dn
2.9645	0	0.6	9933.7	10027.7	9933.7	10025.69	Bridge #1-Up
2.9645	0	0.22	9950	10044	9950	10044	Bridge #1-Dn
2.957					9949.99	10060.16	
2.957	1	0.28	9950	10044	9950	10044	
2.952					9932.97	10079.3	
2.952	1	0.26	9957	10062	9957	10062	
2.949					9938.58	10057.02	
2.949	1	0.39	9938	10057	9938.47	10057	
2.9415					9938.62	10057.01	Bridge #1-Up
2.9415					9938.9	10061.11	Bridge #1-Dn
2.9415	0	0.41	9938.7	10057	9938.7	10057	Bridge #1-Up
2.9415	0	0.42	9947	10055	9947	10055	Bridge #1-Dn
2.934					9938.97	10061.11	
2.934	1	0.44	9947	10055	9947	10055	
2.916					9965.13	10027.81	
2.916	1	0.03	9973	10021	9973	10021	
2.885					9960.85	10041.31	
2.885	1	0.46	9970	10033	9970	10033	
2.86					9965.3	10030.55	
2.86	1	0.13	9975	10022	9975	10022	
2.837					9964.32	10025.45	
2.837	1	0.76	9973	10022	9973	10022	
2.753					9807.71	10120.9	
2.753	1	0.74	9927	10077	9927	10077	
2.694					9520	10200	
2.694	1	0.56	9910	10131	9910	10131	
2.632					9270.54	10500	
2.632	1	1	9855	10175	9855	10175	
2.58					9259.15	10804.5	
2.58	1	0.91	9840	10245	9840	10245	
2.507					9401.83	10634.16	
2.507	1	0.93	9876	10361	9876	10361	
2.419					9505.61	10644.46	
2.419	1	0.67	9906	10258	9906	10258	
2.338					9629.16	10732	
2.338	1	0.83	9972	10301	9972	10301	
2.246					9728.47	10592.14	
2.246	1	0.94	9961	10228	9961	10228	
2.161					9798.52	10568.65	
2.161	1	0.51	9926	10163	9926	10163	

					WITT	
2.081					9748.97	10397.07
2.081	1	0.84	9901	10151	9901	10151
1.989					9335.77	10162.5
1.989	1	0.8	9715	10051	9715	10051
1.933					9236.28	10307.3
1.933	1	0.54	9656	10024	9656	10024
1.833					9562.28	10353
1.833	1	0.99	9850	10140	9850	10140
1.747					9776.71	10560.78
1.747	1	0.54	9891	10124	9891	10124
1.674					9681	10323.25
1.674	1	0.72	9861	10049	9861	10049
1.569					9692.9	10282.55
1.569	1	0.98	9874	10061	9874	10061
1.512					9805.71	10459.02
1.512	1	0.63	9847	10119	9847	10119
1.466					9809.42	10343.05
1.466	1	0.71	9881	10167	9881	10167
1.394					9664.64	10412
1.394	1	1	9860	10172	9860	10172
1.312					9542.38	10465.11
1.312	1	0.74	9891	10210	9891	10210
1.248					9438.11	10464.8
1.248	1	0.94	9843	10190	9843	10190
1.177					9544.72	10378
1.177	1	0.78	9892	10235	9892	10235
1.078					9719.68	10361.81
1.078	1	0.98	9870	10250	9870	10250
0.996					9782.12	10421.66
0.996	1	0.11	9920	10302	9920	10302
0.916					9813.82	10661
0.916	1	0.54	9975	10624	9975	10624
0.855					9805.37	10794.7
0.855	1	0.54	9909	10152	9909	10152
0.808					9709.06	10243.99
0.808	1	0.67	9834	10147	9834	10147
0.712					8999	10131.9
0.712	1	0.98	9710	10047	9710	10047
0.634					9216.23	10139.15
0.634	1	0.94	9782	10047	9782	10047
0.529					9356.49	10069.89
0.529	1	0.83	9743	10031	9743	10031
0.438					9667.72	10177.4
0.438	1	0.32	9751	10057	9751	10057
0.339					9763.51	10345.4
0.339	1	0.85	9917	10207	9917	10207
0.246					9741.23	10510
0.246	1	0.7	9927	10197	9927	10197
0.17					9650	10599.44
0.17	1	0.96	9803	10186	9803	10186
0.082					9297	10717.5
0.082	1	0.67	9791	10190	9791	10190
0.04					9178	10917
0.04	1	0.74	9702	10325	9702	10325
0.019					9036	10919.7
0.019	1	0	9472	10369	9472	10369

ENCROACHMENT METHOD CHECK

RS: 3.327
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.004
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.9645
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.9415
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 5.727
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.671
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.587
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.476
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.345
FW FW 01 Left encroachment station 9946 is more than left channel bank station 9945.845 and less than the right channel bank station 10028.86
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 5.254
FW FW 01 Right encroachment station 10040 is less than right channel bank station 10043.82 and greater than the left channel bank station 9969.024
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 5.15
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.15
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.056
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.056
FW FW 04 The left station effective of 9821.09 for 1% annual chance floodplain is less than the left channel bank station 9985.253
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9821) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 5.006
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.955
FW FW 01 Left encroachment station 9913 is more than left channel bank station 9912.747 and less than the right channel bank station 10013.77
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.955
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.676
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.455
FW FW 01 Right encroachment station 10014 is less than right channel bank station 10014.38 and greater than the left channel bank station 9976.999
Right encroachment station is within the channel.

```
          The encroachment station or channel bank station should be adjusted.

RS:       4.455
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       4.455
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       4.37
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       4.271
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       4.271
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       4.19
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       4.048
FW FW 01  Right encroachment station 10009 is less than right channel bank
          station 10010.18 and greater than the left channel bank station 9985.339
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       3.956
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.868
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.773
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.69
FW FW 01  Right encroachment station 10078 is less than right channel bank
          station 10078.37 and greater than the left channel bank station 9984.891
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       3.69
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       3.597
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.516
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.428
FW FW 01  Left encroachment station 9959 is more than left channel bank
          station 9958.607 and less than the right channel bank station 10049.53
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       3.333
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       3.305
FW FW 01  Left encroachment station 9980 is more than left channel bank
```

station 9979.054 and less than the right channel bank station 10024.12
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.305
FW FW 01 Right encroachment station 10024 is less than right channel bank station 10024.12 and greater than the left channel bank station 9979.054
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.274
FW FW 04 The left station effective of 9981.16 for 1% annual chance floodplain is less than the left channel bank station 9981.826
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9978) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 3.198
FW FW 04 The left station effective of 9961.22 for 1% annual chance floodplain is less than the left channel bank station 9964.046
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9956) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 3.141
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.085
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.034
FW FW 01 Right encroachment station 10021 is less than right channel bank station 10021.06 and greater than the left channel bank station 9967.35
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.034
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.008
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.987
FW FW 01 Left encroachment station 9948 is more than left channel bank station 9941.7 and less than the right channel bank station 10075.15
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.987
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10076 is outside the channel.
Right channel bank station is 10075.15
Right encroachment station and/or right channel bank station should be adjusted.

RS: 2.972
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.972
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 2.957
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.952
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.949
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.949
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.934
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.934
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.916
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.916
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.885
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.86
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.86
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.837
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.246
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.161
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.081
FW FW 01 Left encroachment station 9901 is more than left channel bank station 9900.836 and less than the right channel bank station 10151.32
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.081
FW FW 01 Right encroachment station 10151 is less than right channel bank station 10151.32 and greater than the left channel bank station 9900.836
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.081
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.081
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.989
FW FW 01 Right encroachment station 10051 is less than right channel bank station 10051.4 and greater than the left channel bank station 9898.329
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.989
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.989
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.933
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.833
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.833
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.674
FW FW 01 Right encroachment station 10049 is less than right channel bank station 10049.09 and greater than the left channel bank station 9968.905
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.674
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.569
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.512
FW FW 01 Left encroachment station 9847 is more than left channel bank station 9846.84 and less than the right channel bank station 10026.01
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.512
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.466
FW FW 01 Left encroachment station 9881 is more than left channel bank station 9880.867 and less than the right channel bank station 10166.63
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.466
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.466
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.394
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.248
FW FW 01 Right encroachment station 10190 is less than right channel bank

```
          station 10190.28 and greater than the left channel bank station 9892.509
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       1.248
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       1.248
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.916
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.855
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.634
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.529
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.339
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.17
FW FW 01  Left encroachment station 9803 is more than left channel bank
          station 9802.813 and less than the right channel bank station 10136
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.17
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.082
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.04
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
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DISCHARGE CHECK
---------------

RS:       0.855
FW FD 01  The floodway discharge of 2800 is not equal to the natural 1% chance
          discharge of 3070
          Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 87603.6
          Total conveyance for the floodway profile is 30541.4
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
```

```
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

FW SW 05  The name of stream is Reach #1
          Encroachment method 1 is used.
          The floodway starting water-surface elevation of 1553.36 is equal to the
          natural starting water-surface elevation of 1553.36
          Normal depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
```

WITT
CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT.br
Selected profiles: Floodplain;Floodway
Date: 7/28/2005
Time: 4:22:00 PM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure	
Reach #1,Wittmann Wash							
5.774			1826.84	1826.54	1824.83		
5.727			1824.23	1824.03	1820.9		
5.671			1820.46	1820.17	1817.44		
5.587			1815.38	1815.26	1812.82		
5.476			1808.9	1808.59	1806.64		
5.345			1800.7	1800.54	1797.28		
5.254			1795.92	1795.63	1791.99		
5.15			1790.13	1789.92	1787.46		
5.056			1784.69	1784.38	1781.28		
5.006			1782.14	1781.97	1778.95		
4.955			1778.81	1778.49	1776.22		
4.847			1772.21	1772.12	1769.88		
4.738			1764.95	1764.67	1763.31		
4.676			1760.83	1760.73	1759.01		
4.573			1754.67	1754.31	1751.61		
4.455			1748.55	1748.44	1743.57		
4.37			1744.41	1744.13	1739.59		
4.271			1739.15	1739	1734.9		
4.19			1735	1734.62	1731.67		
4.102			1730.7	1730.54	1727.73		
4.048			1727.87	1727.4	1725.12		
3.956			1724.01	1723.76	1719.22		
3.868			1720.46	1719.86	1713.6		
3.773			1714.85	1714.68	1709.13		
3.69			1710.79	1710.3	1704.81		
3.597			1706.14	1706	1700.28		
3.516			1702.09	1701.62	1697.4		
3.428			1697.3	1697.05	1692.02		
3.377			1694.93	1693.76	1689.55		
3.333			1692.86	1692.83	1687.94		
3.327	1691.44	-9999	0	1691.23	1687.44	CULVERT#1-Up	@ Center St
3.327	1691.21	-9999	0	1690.6	1687.21	CULVERT#1-Dn	
3.321			1690.83	1690.6	1687.71		
3.305			1689.85	1689.32	1683.83		
3.274			1688.17	1687.73	1682.91		
3.198			1685.77	1685.63	1680.73		
3.141			1684.8	1684.68	1679.25		
3.085			1683.72	1683.47	1677.02		
3.034			1681.59	1680.59	1674.85		
3.008			1679.79	1679.58	1673.5		
3.004	1681.14	1682.69	1679.78	1679.53	1673.5	Bridge #1-Up	BNSF RR
3.004	1681.26	1684	1679.69	1679.41	1672.5	Bridge #1-Dn	
3			1679.61	1679.37	1672.5		
2.987			1679.36	1678.99	1673.25		
2.972			1679.05	1678.75	1673		
2.9645	1679.3	1682.66	1679.04	1678.7	1673	Bridge #1-Up	US 60
2.9645	1679.3	1682.59	1678.86	1678.57	1672.3	Bridge #1-Dn	
2.957			1678.77	1678.51	1672.3		
2.952			1678.68	1678.53	1671.94		
2.949			1678.63	1678.39	1672.6		
2.9415	1681.65	1685.79	1678.61	1678.27	1672.6	Bridge #1-Up	US 60
2.9415	1680.48	1684.85	1678.4	1678.14	1672	Bridge #1-Dn	
2.934			1678.31	1678.1	1672		
2.916			1677.51	1675.65	1671.09		
2.885			1675.74	1674.92	1669.61		
2.86			1674.85	1673.07	1668.7		
2.837			1671.83	1671.14	1663.13		
2.753			1669.94	1669.42	1664.97		
2.694			1666.24	1665.91	1662.81		

2.632	1662.6	1662.46	1661.4
2.58	1660.42	1660.28	1658.06
2.507	1656.55	1656.29	1654.73
2.419	1651.41	1651.25	1647.3
2.338	1646.89	1646.75	1643.09
2.246	1642.2	1641.99	1638.37
2.161	1638.56	1638.41	1634.62
2.081	1634.74	1634.49	1631.55
1.989	1630.23	1630.08	1625.23
1.933	1627.94	1627.76	1624.11
1.833	1623.86	1623.65	1621.59
1.747	1620.15	1619.84	1613.39
1.674	1616.98	1616.51	1610.74
1.569	1612.91	1612.64	1609.29
1.512	1611.08	1610.9	1607.01
1.466	1609.31	1609.12	1605.57
1.394	1606.23	1606.04	1602.89
1.312	1603.26	1603.1	1600.37
1.248	1600.76	1600.62	1596.55
1.177	1598.04	1597.9	1594.44
1.078	1594.39	1594.15	1591.03
0.996	1591.48	1591.31	1585.06
0.916	1588.26	1588.01	1581.61
0.855	1585.81	1585.68	1579.07
0.808	1583.8	1583.36	1578.61
0.712	1579.42	1579.28	1574.31
0.634	1576.31	1576.1	1572.41
0.529	1571.49	1571.26	1568.52
0.438	1568.74	1568.56	1564.39
0.339	1565.27	1565	1561.08
0.246	1561.95	1561.83	1558.67
0.17	1558.81	1558.56	1555.85
0.082	1555.31	1555.23	1552.36
0.04	1553.72	1553.58	1552.21
0.019	1553.38	1553.36	1551.57

RIVER/REACH: Reach #1, Wittmann Wash
RIVER STATION: 3.327
TYPE OF STRUCTURE: Culvert

Description:

Distance from Upstream XS:	5
Deck/Roadway Width:	50
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	0
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.377	226.64	1693.76	0	1694.93	114.85	
4	3.377	226.64	1693.74	-0.02	1695.13	84.86	
3	3.333	68.77	1692.83	0	1692.86	890.83	
3	3.333	68.77	1692.82	-0.01	1692.88	662	
	3.327	41.00	1691.23	0	0	0	CULVERT#1-Up
	3.327	22.77	1690.6	0	0	0	CULVERT#1-Dn
	3.327	41.00	1691.28	0	0	0	CULVERT#1-Up
	3.327	22.77	1690.71	0	0	0	CULVERT#1-Dn
2	3.321	89.73	1690.6	0	1690.83	331.93	
2	3.321	89.73	1690.71	0.11	1691.01	308.59	
1	3.305	163.72	1689.32	0	1689.85	33.48	
1	3.305	163.72	1689.32	0	1689.85	33.48	

Ineffective Flow, Section 3			Ineffective Flow, Section 2		
Sta L	Sta R	Elev	Sta L	Sta R	Elev

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS	
Culvert Group							U
							D
			0	0			U
			0	0			D

CULVERT:
Culvert Name: CULVERT#1
Shape: Circular Rise: 4 Span: 0 Barrels: 12
FHWA Chart #: # 1 - Concrete Pipe Culvert
FHWA Scale #: # 3 - Groove end entrance; pipe projecting from f
Solution Crit:Highest U.S. EG

UpstrmDist:	5	Length:	41	n-Value:	0.02		
EntLossCoef:	0.5	ExtLossCoef:	1	CulvInvElU	1687.44	CulvInvElD	1687.21
LCntStaU:	9979	RCntStaU:	0	LCntStaD	0	RCntStaD	0

Culvert Depth Blocked: 0

Culv Area:	150.8	CulvQ:	1235.71	MinTopRd:	1691.91
	150.8		1232.73		1691.91

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9977	2	-9999	1691.9	-9999	1691.44	U
	-2	2	-9999	1691.33	-9999	1691.21	D
	9977	2	-9999	1691.9	-9999	1691.44	U
	-2	2	-9999	1691.33	-9999	1691.21	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
CULVERT#1		1235.71	894.29	Highest U.S. EG	Pressure and Weir Flow
		1232.73	897.27	Highest U.S. EG	Pressure and Weir Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 3.327 This is CULVERT#1
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 1692.86 is greater than MinTopRd of 1691.91.
2. CulvWSIn of 1691.23 is less than MxLoCdU of 1691.44.
3. CulvWSOut of 1690.60 is less than MxLoCdD of 1691.21.
4. Q/AD^0.5 of 4.10 is greater than or equal to 4.0.

RS: 3.327 This is CULVERT#1
CV PW 01 Type of flow is pressure and weir flow because,
1. EGEL 3 of 1692.88 is greater than MinTopRd of 1691.91.
2. CulvWSIn of 1691.28 is less than MxLoCdU of 1691.44.
3. CulvWSOut of 1690.71 is less than MxLoCdD of 1691.21.
4. Q/AD^0.5 of 4.09 is greater than or equal to 4.0.

DISTANCE CHECK

CULVERT COEFFICIENT CHECK

RS: 3.327 This is CULVERT#1
CV CF 01 Culvert Chart # is 1 and Scale # is 3
Culvert entrance shape is Groove end entrance; pipe projecting from f
Culvert entrance loss coefficient is 0.5 It should be equal

```
          to 0.2
          Please refer to Table 6.3 on page 6-22 and Tabble 6.4 on page 6-23
          of HEC-RAS Hydraulic Reference Manual, September 1998.

RS:       3.327 This is CULVERT#1
CV CF 03  Type of material is Concrete. Culvert n-value is 0.02
          Culvert n-value is not within the recommended range.
          It should be within 0.011 and 0.017
          Please refer to Table 6.1 on page 6-20 and Tabble 6.2 on page 6-21
          of HEC-RAS Hydraulic Reference Manual, September 1998.

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       3.305 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.

FLOODWAY CHECK
--------------

RS:       3.327 This is Culvert
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       3.327 This is Culvert
ST FW 09  The right most weir station of 10567.29 for the floodway profile is equal
          or greater than the right most weir station of 10566.85 for the natural
          profile.
          The floodway weir flow boundary is equal to or outside of the
          natural profile weir flow boundary.
          Encroachment computations should be investigated.

RS:       3.321 This is Section 2
ST FW 04  The left encroachment station of 9977 is greater than the
          left bank station of 9974.732
          The left encroachment station is within the channel.
          The encroachment station and/or channel bank station should be reevaluated.


-------------------------------------------------------------------------------
RIVER/REACH:        Reach #1, Wittmann Wash
RIVER STATION:      3.004
TYPE OF STRUCTURE:  Bridge
-------------------------------------------------------------------------------
Description:
Distance from Upstream XS:                          0.01
Deck/Roadway Width:                                 20
Weir Coefficient:                                   2.5
Maximum allowable submergence for weir flow:        0.95
Elevation at which weir flow begins:                1684.25
Weir crest shape:                                  Broad Crested
-------------------------------------------------------------------------------


Sec  River    Length   WSEL      Surch.    EGEL      TopWidth
     Station  Channel                                 Actual
-------------------------------------------------------------------------------
 4   3.034     138.71  1680.59   0         1681.59   149.81
 4   3.034     138.71  1680.77   0.18      1682.15   91.95
 3   3.008     39.92   1679.58   0         1679.79   133.18
 3   3.008     39.92   1680.21   0.63      1680.4    114
     3.004     20.00   1679.53   0         1679.78   122.06   Bridge #1-Up
     3.004     19.91   1679.41   0         1679.69   117.94   Bridge #1-Dn
     3.004     20.00   1680.16   0.63      1680.39   99.85    Bridge #1-Up
```

					WITT		
	3.004	19.91	1680.02	0.61	1680.3	94.96	Bridge #1-Dn
2	3	66.81	1679.37	0	1679.61	128.76	
2	3	66.81	1679.99	0.62	1680.23	106	
1	2.987	80.13	1678.99	0	1679.36	123.61	
1	2.987	80.13	1679.83	0.84	1680.08	127.22	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9777.55	9908.27	1683.15	9841.4	9939.39	1683.88
2	10050.1	10053.1	1685.44	10082	10208.78	1685.58

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

MaxLowChord:	1681.14	MinTopRd:	1684.25	MinElPrs:	1681.14
	1681.14		1684.45		1681.14

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS	
Bridge					9908.27	10050.1	U
					9939.39	10082	D
			9953	10059			U
			9953	10059			D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
Bridge #1	9911.75	10046.27	1682.69	1684.33	1682.69	1681.14	U
	9940.64	10073.59	1684.00	1684.24	1684.00	1681.26	D
	9953.00	10046.27	1684.67	1684.89	1684.67	1681.14	U
	9953.00	10059.00	1684.36	1684.36	1684.36	1681.11	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	2280	2280	0	Energy only	Low Flow
	2280	2280	0	Energy only	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 3.004 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1679.79 is equal to or less than MinTopRd of 1684.3.
2. EGEL 3 of 1679.79 is less than MxLoCdU of 1681.1.

RS: 3.004 This is Bridge #1
BR LF 01 Type of flow is low flow because,

1. EGEL 3 of 1680.4 is equal to or less than MinTopRd of 1684.5.
2. EGEL 3 of 1680.4 is less than MxLoCdU of 1681.1.

DISTANCE CHECK

RS: 3.004 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.01 is less than the height of the bridge opening of 7.76
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 2.987 This is Section 1
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from this section, unless the ares beyond the ineffective flow stations are not within the flow path of the stream.
This message should be ignored if this section is Section 3 of the downstream structure.

FLOODWAY CHECK

RS: 3.004 This is Bridge
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1 should be used.

RS: 3 This is Section 2
ST FW 10 Left encroachment station 9953 is more than the left ineffective flow station 9939.39 and less than the right ineffective flow station 10082
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left ineffective flow station.

RS: 3 This is Section 2
ST FW 10 Right encroachment station 10059 is less than the right ineffective flow station 10082 and greater than the left ineffective flow station 9939.39
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right ineffective flow station.

RS: 3.008 This is Section 3
ST FW 10 Left encroachment station 9924 is more than the left ineffective flow station 9908.27 and less than the right ineffective flow station 10050.1
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left ineffective flow station.

RS: 3.008 This is Section 3
ST FW 10 Right encroachment station 10038 is less than the right ineffective flow station 10050.1 and greater than the left ineffective flow station 9908.27
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right ineffective flow station.

RIVER/REACH: Reach #1, Wittmann Wash
RIVER STATION: 2.9645
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	47.33
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95

WITT

Elevation at which weir flow begins: 1682.66

Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.987	80.13	1678.99	0	1679.36	123.61	
4	2.987	80.13	1679.83	0.84	1680.08	127.22	
3	2.972	77.13	1678.75	0	1679.05	106.18	
3	2.972	77.13	1679.64	0.89	1679.9	91.79	
	2.9645	47.33	1678.7	0	1679.04	102.17	Bridge #1-Up
	2.9645	29.79	1678.57	0	1678.86	106.18	Bridge #1-Dn
	2.9645	47.33	1679.3	0.6	1679.9	87.99	Bridge #1-Up
	2.9645	29.79	1678.79	0.22	1679.11	90	Bridge #1-Dn
2	2.957	26.00	1678.51	0	1678.77	110.17	
2	2.957	26.00	1678.79	0.28	1679.11	94	
1	2.952	15.00	1678.53	0	1678.68	146.33	
1	2.952	15.00	1678.8	0.26	1679.01	105	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9867.51	9919.46	1682.64	9858.44	9946.26	1682.57
2	10026.7	10242.92	1682.61	10063.5	10265.3	1682.57

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

MaxLowChord: 1679.3 MinTopRd: 1682.67 MinElPrs: 1679.3
1679.3 1682.67 1679.3

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9919.46	10026.7U
					9946.26	10063.5D
			9950	10044		U
			9950	10044		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9907.24	10125.09	1682.66	1682.66	1682.66	1679.30 U
	9930.33	10060.20	1682.59	1682.59	1682.59	1679.30 D
	9950.00	10025.69	1682.66	1682.66	1682.66	1679.30 U
	9950.00	10044.00	1682.59	1682.59	1682.59	1679.30 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	2280	2280	0	Energy only	Low Flow
	2280	2280	0	Press Only	Sluicegate Pressure Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

```
RS:       2.9645 This is Bridge #1
BR LF 01  Type of flow is low flow because,
          1. EGEL 3 of 1679.05 is equal to or less than MinTopRd of 1682.7.
          2. EGEL 3 of 1679.05 is less than MxLoCdU of 1679.3.

RS:       2.9645 This is Bridge #1
BR PF 01  Type of flow is sluicegate pressure flow because,
          1. EGEL 3 of 1679.9 is equal to or less than MinTopRd of 1682.67.
          2. EGEL 3 of 1679.9 is equal to or greater than MxLoCdU of 1679.30.
          3. WSEL 2 of 1678.79 is less than MxLoCdD of 1679.30.
```

DISTANCE CHECK

```
RS:       2.9645 This is Bridge #1
ST DT 01  'Distance from Upstream XS' of 0.01 is less than the height of the
          bridge opening of  6.30
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS' should
          be adjusted.
```

INEFFECTIVE FLOW CHECK

```
RS:       2.972 This is Section 3.
ST IF 05  Low flow occurs at Bridge
          The left ineffective flow station of 9919.46 is greater than
          the left abutment station of 9907.24
          The left ineffective flow station should be adjusted

RS:       2.972 This is Section 3.
ST IF 05  Low flow occurs at Bridge
          The right ineffective flow station of 10026.7 is less than
          the right abutment station of 10125.09
          The right ineffective flow station should be adjusted.

RS:       2.957 This is Section 2.
ST IF 05  Low flow occurs at Bridge
          The left ineffective flow station of 9946.26 is greater than
          the left abutment station of 9930.33
          The left ineffective flow station should be adjusted.

RS:       2.987 This is Section 4
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the areas beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 2 of
          the upstream structure.

RS:       2.952 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.
```

FLOODWAY CHECK

```
RS:       2.9645 This is Bridge
```

```
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       2.957 This is Section 2
ST FW 10  Left encroachment station 9950 is more than the left ineffective flow
          station 9946.26 and less than the right ineffective flow station 10063.5
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       2.957 This is Section 2
ST FW 10  Right encroachment station 10044 is less than the right ineffective flow
          station 10063.5 and greater than the left ineffective flow station 9946.26
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       2.972 This is Section 3
ST FW 08  The right station effective of 10025.64 for the natural profile.
          is greater than the right channel bank station of 10025.1
          The right encroachment station is outside the channel.
          The right encroachment station of 10028 is greater than the right
          station effective of 10025.64 for the natural profile.
          The right encroachment station should be adjusted.

RS:       2.972 This is Section 3
ST FW 10  Left encroachment station 9934 is more than the left ineffective flow
          station 9919.46 and less than the right ineffective flow station 10026.7
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.
```

RIVER/REACH: Reach #1, Wittmann Wash
RIVER STATION: 2.9415
TYPE OF STRUCTURE: Bridge

Description:	
Distance from Upstream XS:	0.01
Deck/Roadway Width:	47.12
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1685.79
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.952	15.00	1678.53	0	1678.68	146.33	
4	2.952	15.00	1678.8	0.26	1679.01	105	
3	2.949	78.21	1678.39	0	1678.63	118.43	
3	2.949	78.21	1678.77	0.39	1678.99	118.53	
	2.9415	47.12	1678.27	0	1678.61	105.8	Bridge #1-Up
	2.9415	31.08	1678.14	0	1678.4	109.62	Bridge #1-Dn
	2.9415	47.12	1678.68	0.41	1678.96	105.7	Bridge #1-Up
	2.9415	31.08	1678.55	0.42	1678.82	95.4	Bridge #1-Dn
2	2.934	94.18	1678.1	0	1678.31	122.14	
2	2.934	94.18	1678.54	0.44	1678.73	108	
1	2.916	165.58	1675.65	0	1677.51	62.68	
1	2.916	165.58	1675.68	0.03	1677.87	48	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9824.9	9918.49	1685.72	9788.48	9927.71	1684.79
2	10078.5	10270.01	1685.76	10080	10082	1684.83

```
BRIDGE:
Bridge Name:     Bridge #1
LowFlowMethod:   Highest Energy Answer
Momentum Cd:      0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0        Submerged Cd:   0.8

--------------------------------------------------------------------------
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
--------------------------------------------------------------------------

--------------------------------------------------------------------------
MaxLowChord:   1681.65  MinTopRd:  1685.8        MinElPrs:       1681.65
               1681.65             1685.8                        1681.65
--------------------------------------------------------------------------


Opening Type      StagStaL    StagStaR  EncStaL   EncStaR   LIfStaS   RIfStaS
--------------------------------------------------------------------------
Bridge                                                      9918.49   10078.5U
                                                            9927.71   10080  D
                                        9947      10055                       U
                                        9947      10055                       D
--------------------------------------------------------------------------

                  LAbutSt     RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
--------------------------------------------------------------------------
Bridge #1         9824.90     10270.01  1685.79   1685.79   1685.79   1681.65 U
                  9933.58     10061.16  1684.85   1684.85   1684.85   1680.48 D
                  9947.00     10055.00  1685.79   1685.79   1685.79   1681.65 U
                  9947.00     10055.00  1684.85   1684.85   1684.85   1680.48 D
--------------------------------------------------------------------------


Name          Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
--------------------------------------------------------------------------
Bridge #1     2280      2280      0         Energy only         Low Flow
              2280      2280      0         Energy only         Low Flow
--------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------

TYPE OF FLOW CHECK
------------------

RS:       2.9415 This is Bridge #1
BR LF 01  Type of flow is low flow because,
          1. EGEL 3 of 1678.63 is equal to or less than MinTopRd of 1685.8.
          2. EGEL 3 of 1678.63 is less than MxLoCdU of 1681.7.

RS:       2.9415 This is Bridge #1
BR LF 01  Type of flow is low flow because,
          1. EGEL 3 of 1678.99 is equal to or less than MinTopRd of 1685.8.
          2. EGEL 3 of 1678.99 is less than MxLoCdU of 1681.7.

DISTANCE CHECK
---------------

RS:       2.9415 This is Bridge #1
ST DT 01  'Distance from Upstream XS' of 0.01 is less than the height of the
          bridge opening of  9.05
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS' should
          be adjusted.
```

INEFFECTIVE FLOW CHECK

```
RS:       2.949 This is Section 3.
ST IF 05  Low flow occurs at Bridge
          The left ineffective flow station of 9918.49 is greater than
          the left abutment station of 9824.90
          The left ineffective flow station should be adjusted

RS:       2.949 This is Section 3.
ST IF 05  Low flow occurs at Bridge
          The right ineffective flow station of 10078.5 is less than
          the right abutment station of 10270.01
          The right ineffective flow station should be adjusted.

RS:       2.952 This is Section 4
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the areas beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 2 of
          the upstream structure.
```

FLOODWAY CHECK

```
RS:       2.9415 This is Bridge
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       2.934 This is Section 2
ST FW 10  Left encroachment station 9947 is more than the left ineffective flow
          station 9927.71 and less than the right ineffective flow station 10080
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       2.934 This is Section 2
ST FW 10  Right encroachment station 10055 is less than the right ineffective flow
          station 10080 and greater than the left ineffective flow station 9927.71
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       2.949This is Section 3
ST FW 08  The left station effective of 9938.58 for the natural profile.
          is less than the left channel bank station of 9938.7
          The left encroachment station is outside the channel.
          The left encroachment station of 9938 is less than the left
          station effective of 9938.58 for the natural profile.
          The left encroachment station should be adjusted.

RS:       2.949 This is Section 3
ST FW 10  Left encroachment station 9938 is more than the left ineffective flow
          station 9918.49 and less than the right ineffective flow station 10078.5
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       2.949 This is Section 3
ST FW 10  Right encroachment station 10057 is less than the right ineffective flow
          station 10078.5 and greater than the left ineffective flow station 9918.49
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.
```

---END

WITTMANN WASH (NORTH SPLIT)

WITT_NORTH_SPLIT
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.nt
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 10:35:10 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Wittmann Wash						
3.428		0.045	0.059	0.053	0.1	0.3
3.377		0.045	-----	-----	0.1	0.3
		0.059	-----	-----		
		0.045	-----	-----		
		0.059	-----	-----		
3.333		0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
		0.045	-----	-----		
		0.059	-----	-----		
3.327	Culvert-Up	0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
		0.045	-----	-----		
		0.059	-----	-----		
3.327	Culvert-Dn	0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
		0.045	-----	-----		
3.321		0.045	-----	-----	0.3	0.5
		0.059	-----	-----		
		0.045	-----	-----		
		0.059	-----	-----		
3.305		0.045	-----	-----	0.3	0.5
		0.053	-----	-----		
		0.045	-----	-----		
		0.059	-----	-----		
3.226		0.045	0.059	0.053	0.1	0.3
3.154		0.045	0.059	0.053	0.1	0.3
3.085		0.045	0.059	0.053	0.1	0.3

b/c of - structure

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.045	0.059
Right Overbank n Value:	0.053	0.053
Channel n Value:	0.059	0.059
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 3.428
NT RC 05 The left overbank n value of 0.045 and the right overbank n value of 0.053 are less than or equal to the channel n value of 0.059 The overbank n values should be reevaluated.

RS: 3.226
NT RC 05 The left overbank n value of 0.045 and the right overbank n value of 0.053 are less than or equal to the channel n value of 0.059 The overbank n values should be reevaluated.

RS: 3.154
NT RC 05 The left overbank n value of 0.045 and the right overbank n value

of 0.053 are less than or equal to the channel n value of 0.059
The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

RS: 3.377
NT TL 01 This is section 4
Contraction and expansion loss coefficients are 0.1 and 0.3
They should be equal to 0.3 and 0.5 respectively.

RS: 3.305
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
respectively. However, this cross section is not at the structure.
They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

WITT_NORTH_SPLIT
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.xs
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 10:35:11 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Wittmann Wash						
3.428	250.503	257.518	254.058	350.02	2130	
3.377	207.013	226.639	229.245	114.91	2130	D,@ (SK)
3.333	71.28	68.773	72.375	889.91	2130	D
3.327	CULVERT#1-Up					
3.327	CULVERT#1-Dn					
3.321	89.166	89.726	88.473	243.42	2130	D
3.305	316.858	312.905	305.367	241.89	1600	D
3.226	360.512	379.891	359.089	353.95	1600	D
3.154	367.742	362.82	358.197	143.74	1600	
3.085	254.841	270.535	281.277	435.85	2280	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 3.305
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 3.428
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.24
MaxChlDpth Up/MaxChlDpth Dn = 1.18
TopwdthAct Up/TopwdthAct Dn = 3.05
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Wittmann Wash

```
        Known WS = 1683.47 is specified as the downstream boundary
        for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Wittmann Wash
        Known WS = 1684.06 is specified as the downstream boundary
        for profile Floodway


LATERAL WEIRS CHECK
-----------------------

---END---
```

WITT_NORTH_SPLIT
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.fw
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 10:35:13 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Wittmann Wash							
3.428					9914.18	10264.2	
3.428	1	0.41	9959	10050	9959	10050	
3.377					9963.42	10180.12	
3.377	1	-0.01	9978	10165	9978	10165	
3.333					9804.95	10696.03	
3.333	1	0	9909	10571	9909	10571	
3.327					0	0	CULVERT#1-Up
3.327					0	0	CULVERT#1-Dn
3.327	0	0	0	0	0	0	CULVERT#1-Up
3.327	0	0	0	0	0	0	CULVERT#1-Dn
3.321					9977	10668.08	
3.321	1	0.9	9977	10630	9977	10630	
3.305					10219.37	10692.47	
3.305	1	0.85	10325	10636	10325	10636	
3.226					9834.94	10205.81	
3.226	1	0.96	9966	10090	9966	10090	
3.154					9954.98	10098.73	
3.154	1	0.37	9981	10045	9981	10045	
3.085					9649.2	10085.06	
3.085	1	0.59	9959	10070	9959	10070	

ENCROACHMENT METHOD CHECK

RS: 3.327
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 3.428
FW FW 01 Left encroachment station 9959 is more than left channel bank station 9958.607 and less than the right channel bank station 10049.53
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.377
FW FW 01 Right encroachment station 10165 is less than right channel bank station 10167.4 and greater than the left channel bank station 10140.89
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.333
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.321
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.321

```
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       3.226
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.226
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       3.154
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       3.085
FW FW 03  The Left channel bank station may not be at the proper
          location.


SURCHARGE CHECK
----------------


DISCHARGE CHECK
----------------


STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 36309.9
          Total conveyance for the floodway profile is 37315.1
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
```

WITT_NORTH_SPLIT
CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_NORTH_SPLIT.br
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 10:35:14 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,Wittmann Wash						
3.428			1697.31	1697.07	1692.02	
3.377			1694.95	1693.76	1689.48	
3.333			1692.85	1692.82	1687.64	
3.327	1691.44	-9999	0	1691.18	1687.44	CULVERT#1-Up @ Carter st.
3.327	1691.21	-9999	0	1690.29	1687.21	CULVERT#1-Dn
3.321			1690.54	1690.08	1687.41	
3.305			1689.45	1689.2	1684.25	
3.226			1687.93	1687.77	1682.4	
3.154			1685.79	1685.22	1678.69	
3.085			1683.72	1683.47	1677.02	

RIVER/REACH: Reach #1, Wittmann Wash
RIVER STATION: 3.327
TYPE OF STRUCTURE: Culvert

Description:

Distance from Upstream XS:	5
Deck/Roadway Width:	50
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	0
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.377	226.64	1693.76	0	1694.95	114.91	
4	3.377	226.64	1693.75	-0.01	1695.14	85.02	
3	3.333	68.77	1692.82	0	1692.85	889.91	
3	3.333	68.77	1692.82	0	1692.88	662	
	3.327	41.00	1691.18	0	0	0	CULVERT#1-Up
	3.327	22.77	1690.29	0	0	0	CULVERT#1-Dn
	3.327	41.00	1691.44	0	0	0	CULVERT#1-Up
	3.327	22.77	1690.99	0	0	0	CULVERT#1-Dn
2	3.321	89.73	1690.08	0	1690.54	243.42	
2	3.321	89.73	1690.99	0.9	1691.23	440.53	
1	3.305	312.91	1689.2	0	1689.45	241.89	
1	3.305	312.91	1690.06	0.85	1690.46	213.06	

Ineffective Flow, Section 3			Ineffective Flow, Section 2		
Sta L	Sta R	Elev	Sta L	Sta R	Elev

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group						U

```
                                                                                D
                                        0          0                            U
                                        0          0                            D
-------------------------------------------------------------------------------
```

```
CULVERT:
Culvert Name: CULVERT#1
Shape:        Circular       Rise:      4        Span:          0        Barrels:        12
FHWA Chart #: # 1 - Concrete Pipe Culvert
FHWA Scale #: # 3 - Groove end entrance; pipe projecting from f
Solution Crit:Highest U.S. EG

UpstrmDist:    5        Length:        41       n-Value:       0.02
EntLossCoef:   0.5      ExtLossCoef:   1        CulvInvElU     1687.44  CulvInvElD      1687.21
LCntStaU:      9979     RCntStaU:      0        LCntStaD       0        RCntStaD        0
Culvert Depth Blocked:   0


-------------------------------------------------------------------------------
Culv Area:     150.8    CulvQ:         1241.79  MinTopRd:      1691.91
               150.8                   1183.73                 1691.91
-------------------------------------------------------------------------------

                    LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
CULVERT#1            9977      2        -9999     1691.9    -9999     1691.44  U
                    -2         2        -9999     1691.33   -9999     1691.21  D
                     9977      2        -9999     1691.9    -9999     1691.44  U
                    -2         2        -9999     1691.33   -9999     1691.21  D
-------------------------------------------------------------------------------


Name           Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
-------------------------------------------------------------------------------
CULVERT#1                1241.79   888.21    Highest U.S. EG     Pressure and Weir Flow
                         1183.73   946.27    Highest U.S. EG     Low and Weir Flow
-------------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------

TYPE OF FLOW CHECK
------------------

RS:        3.327 This is CULVERT#1
CV PW 01   Type of flow is pressure and weir flow because,
           1. EGEL 3 of 1692.85 is greater than MinTopRd of 1691.91.
           2. CulvWSIn of 1691.18 is less than MxLoCdU of 1691.44.
           3. CulvWSOut of 1690.29 is less than MxLoCdD of 1691.21.
           4. Q/AD^0.5 of 4.12 is greater than or equal to 4.0.

RS:        3.327 This is CULVERT#1
CV LW 01   Type of flow is low and weir flow because,
           1. EGEL 3 of 1692.88 is greater than MinTopRd of 1691.91.
           2. CulvWSIn of 1691.44 is greater than or equal to MxLoCdU of 1691.44.
           3. CulvWSOut of 1690.99 is less than MxLoCdD of 1691.21.
           4. Q/AD^0.5 of 3.92 is less than 4.0.

DISTANCE CHECK
---------------

CULVERT COEFFICIENT CHECK
-------------------------

RS:        3.327 This is CULVERT#1
CV CF 01   Culvert Chart # is 1 and Scale # is 3
           Culvert entrance shape is Groove end entrance; pipe projecting from f
           Culvert entrance loss coefficient is 0.5 It should be equal
           to 0.2
           Please refer to Table 6.3 on page 6-22 and Tabble 6.4 on page 6-23
           of HEC-RAS Hydraulic Reference Manual, September 1998.

RS:        3.327 This is CULVERT#1
CV CF 03   Type of material is Concrete. Culvert n-value is 0.02
```

```
          Culvert n-value is not within the recommended range.
          It should be within 0.011 and 0.017
          Please refer to Table 6.1 on page 6-20 and Tabble 6.2 on page 6-21
          of HEC-RAS Hydraulic Reference Manual, September 1998.

CULVERT CRITERIA CHECK
----------------------

INEFFECTIVE FLOW CHECK
----------------------

RS:       3.305 This is Section 1
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the ares beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 3 of the downstream
          structure.

FLOODWAY CHECK
--------------

RS:       3.327 This is Culvert
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       3.327 This is Culvert
ST FW 09  The left most weir station of 9927.42 for the floodway profile is equal
          or less than the left most weir station of 9931.82 for the natural
          profile.
          The floodway weir flow boundary is equal to or outside of the
          natural profile weir flow boundary.
          Encroachment computations should be investigated.

---END
```

WITTMANN WASH (SOUTH SPLIT)

WITT_SOUTH_SPLIT
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.nt
Selected profiles: Floodplain;Floodway
Date: 7/22/2005
Time: 8:08:39 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #3,Wittmann South S						
.807		0.036	-----	-----	0.1	0.3
		0.061	-----	-----		
		0.034	-----	-----		
		0.075	-----	-----		
.746		0.036	-----	-----	0.1	0.3
		0.061	-----	-----		
		0.034	-----	-----		
		0.038	-----	-----		
		0.075	-----	-----		
.684		0.033	0.058	0.037	0.1	0.3
.593		0.033	0.058	0.037	0.1	0.3
.509		0.033	0.058	0.037	0.1	0.3
.458		0.033	0.058	0.037	0.1	0.3
.415		0.033	0.058	0.037	0.1	0.3
.328		0.033	0.058	0.037	0.1	0.3
.278		0.033	0.047	0.033	0.1	0.3
.169		0.033	0.047	0.033	0.1	0.3
.09		0.033	0.047	0.033	0.1	0.3
.016		0.033	0.047	0.033	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.075
Right Overbank n Value:	0.033	0.037
Channel n Value:	0.047	0.058
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 0.684
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.684
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.058
The overbank n values should be reevaluated.

RS: 0.593
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.593
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.058
The overbank n values should be reevaluated.

```
RS:       0.509
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.509
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       0.458
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.458
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       0.415
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.415
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       0.328
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.328
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.058
         The overbank n values should be reevaluated.

RS:       0.278
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.278
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.278
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       0.169
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.169
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.169
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

RS:       0.09
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
```

```
RS:       0.09
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.09
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

---END---
```

WITT_SOUTH_SPLIT
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.xs
Selected profiles: Floodplain;Floodway
Date: 7/22/2005
Time: 8:08:40 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #3,Wittmann South S						
.807	353.776	364.486	350.373	880.59	3070	
.746	417.793	326.43	308.159	1050.67	3070	D
.684	478.808	478.505	465.503	351.13	420	D, C (s/c)
.593	421.215	442.829	469.761	431.53	420	D
.509	256.557	267.587	277.916	446.31	420	
.458	227.943	224.728	222.824	397.66	420	
.415	478.581	461.638	452.132	345	420	C (s/c)
.328	239.535	264.358	247.71	335.14	420	D
.278	521.303	572.965	620.582	501.8	420	D
.169	408.931	417.243	415.799	339.75	420	
.09	396.803	392.862	437.003	421.23	420	C (s/c)
.016	0	0	0	215.89	420	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.684
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #3,Wittmann South S
Normal S = 0.0036 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #3,Wittmann South S
Normal S = 0.0036 is specified as the downstream boundary

for profile Floodway

LATERAL WEIRS CHECK

---END---

WITT_SOUTH_SPLIT
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITT_SOUTH_SPLIT.fw
Selected profiles: Floodplain;Floodway
Date: 7/22/2005
Time: 8:08:42 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #3,Wittmann South S							
0.807					9780.41	10661	
0.807	1	0.73	10187	10627	10187	10627	
0.746					9811.34	10914	
0.746	1	0.3	10550	10812	10550	10812	
0.684					9568.85	10037.19	
0.684	1	0.87	9920	10036	9920	10036	
0.593					9614.33	10052.07	
0.593	1	0.64	9928	10049	9928	10049	
0.509					9721.86	10168.17	
0.509	1	0.21	9927	10148	9927	10148	
0.458					9661.79	10059.45	
0.458	1	0.09	9855	10059	9855	10059	
0.415					9732.8	10077.79	
0.415	1	0.24	9840	10064	9840	10064	
0.328					9734.75	10076.79	
0.328	1	0.65	9902	10043	9902	10043	
0.278					9728.87	10316.8	
0.278	1	0.3	9903	10025	9903	10025	
0.169					9882.09	10221.83	
0.169	1	0.65	9963	10035	9963	10035	
0.09					9910.1	10331.33	
0.09	1	0.32	9933	10044	9933	10044	
0.016					9825.22	10057.29	
0.016	1	0	9853	10066	9853	10057.34	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 0.746
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.684
FW FW 01 Right encroachment station 10036 is less than right channel bank station 10041.41 and greater than the left channel bank station 9921.323
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.593
FW FW 01 Left encroachment station 9928 is more than left channel bank station 9927.975 and less than the right channel bank station 10048.01
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.593
FW FW 03 The right channel bank station may not be at the proper location.

```
RS:        0.509
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.458
FW FW 01   Right encroachment station 10059 is less than right channel bank
           station 10059.49 and greater than the left channel bank station 9855.073
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.458
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.415
FW FW 01   Right encroachment station 10064 is less than right channel bank
           station 10064.16 and greater than the left channel bank station 9840.177
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.328
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.278
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.169
FW FW 01   Left encroachment station 9963 is more than left channel bank
           station 9962.586 and less than the right channel bank station 10034.97
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        0.09
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.016
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.016
FW FW 06   The right station effective of 10057.34 for the floodway profile is less
           than the right channel bank station of 10065.84
           The right side of the floodway boundary is within the channel.
           The right encroachment station of 10066 is greater than the right channel
           bank station.
           The right encroachment station should be the same as the right
           channel bank station.


SURCHARGE CHECK
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DISCHARGE CHECK
----------------

RS:        0.746
FW FD 01   The floodway discharge of 420 is not equal to the natural 1% chance
           discharge of 3070
           Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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WITTMANN TRIBUTARY

WITTMANN TRIBUTARY
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.nt
Selected profiles: Floodplain;Floodway
Date: 7/21/2005
Time: 5:24:03 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Wittmann Tributa						
2.156		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
2.064		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
		0.039	-----	-----		
1.983		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
		0.039	-----	-----		
1.919		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.851		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.77		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
		0.05	-----	-----		
1.693		0.035	0.051	0.035	0.1	0.3
1.631		0.035	0.051	0.035	0.1	0.3
1.578		0.035	0.051	0.035	0.1	0.3
1.473		0.035	0.051	0.035	0.1	0.3
1.396		0.035	0.051	0.035	0.1	0.3
1.33		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.045	-----	-----		
		0.035	-----	-----		
		0.05	-----	-----		
1.237		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.035	-----	-----		
		0.045	-----	-----		
		0.035	-----	-----		
		0.05	-----	-----		
1.13		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.035	-----	-----		
		0.045	-----	-----		
		0.035	-----	-----		
		0.051	-----	-----		
1.047		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
		0.035	-----	-----		
		0.045	-----	-----		
		0.051	-----	-----		
.952		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
		0.04	-----	-----		
		0.045	-----	-----		
		0.04	-----	-----		
		0.051	-----	-----		
.864		0.035	0.051	0.035	0.1	0.3
.789		0.035	0.051	0.035	0.1	0.3
.697		0.035	0.051	0.035	0.1	0.3
.622		0.035	-----	-----	0.1	0.3
		0.051	-----	-----		

WITTMANN TRIBUTARY

.554	0.035	0.051	0.035	0.1	0.3
.468	0.035	0.051	0.035	0.1	0.3
.396	0.035	0.051	0.035	0.1	0.3
.306	0.035	0.051	0.035	0.1	0.3
.235	0.035	0.051	0.035	0.1	0.3
.153	0.035	0.051	0.051	0.1	0.3
	-----	-----	0.035		
.066	0.035	0.035	0.051	0.1	0.3
	-----	0.051	0.035		
0	0.035	-----	0.035	0.1	0.3
	0.051	-----	0.051		
	-----	-----	0.035		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.051
Right Overbank n Value:	0.035	0.051
Channel n Value:	0.035	0.051
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.693
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 1.631
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 1.578
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 1.473
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 1.396
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 0.864
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 0.789
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 0.697
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 0.554
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.051 The overbank n values should be reevaluated.

RS: 0.468
NT RC 05 The left overbank n value of 0.035 and the right overbank n value

```
         of 0.035 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:      0.396
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:      0.306
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:      0.235
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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WITTMANN TRIBUTARY
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.xs
Selected profiles: Floodplain;Floodway
Date: 7/21/2005
Time: 5:24:03 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Wittmann Tributa						
2.156	434.53	443.348	450.922	392.01	1010	D
2.064	485.241	501.232	517.129	513.21	1010	D
1.983	378.715	376.24	324.31	397.88	1010	D
1.919	429.264	455.963	433.562	516.26	1010	D
1.851	327.262	326.41	315.135	575.16	1010	D
1.77	488.784	505.85	466.652	574.25	1010	D
1.693	308.134	327.137	283.64	220.65	350	D
1.631	265.2	280.918	306.977	120.74	350	D
1.578	542.25	554.486	526.808	191.23	350	C
1.473	397.53	406.808	403.408	148.54	350	
1.396	353.86	347.34	295.81	151.85	460	D
1.33	474.124	490.884	427.455	1338.72	3020	D
1.237	549.115	562.443	547.415	884.83	3020	D
1.13	434.041	435.8	419.465	1226.64	3020	D
1.047	502.097	500.378	497.107	1380.5	3020	D
.952	482.009	462.379	414.582	1437.02	3020	D
.864	391.954	394.575	353.017	357.43	460	D
.789	472.284	485.534	487.609	215.77	460	D
.697	385.575	394.886	395.539	124.52	460	
.622	366.519	359.209	356.804	290.01	460	
.554	436.893	453.249	450.563	326.92	460	
.468	344.89	378.024	361.919	335.59	460	D
.396	437.547	475.836	470.586	142.41	460	D
.306	333.165	375.921	400.898	402.11	460	D
.235	389.648	434.649	511.86	286.02	460	D
.153	441.057	458.522	467.895	68.47	460	D
.066	352.559	346.677	345.241	92.01	460	D
0	0	0	0	77.27	460	D

combined flow area w/ T5N-R2W-S07

combined flow area w/ T5N-R2WS07 + T5N-R3WS24E

(5/c)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

```
RS:       1.693
XS DC 01 Discharge decreases in the downstream direction.

RS:       0.864
XS DC 01 Discharge decreases in the downstream direction.


LOCATION CHECK
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BOUNDARY CONDITION CHECK
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XS BC 02 The name of the stream is Reach #1,Wittmann Tributa
         Normal S = 0.00977 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Wittmann Tributa
         Normal S = 0.00977 is specified as the downstream boundary
         for profile Floodway


LATERAL WEIRS CHECK
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---END---
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WITTMANN TRIBUTARY
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\WITTMANN TRIBUTARY.fw
Selected profiles: Floodplain;Floodway
Date: 7/21/2005
Time: 5:24:05 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Wittmann Tributa							
2.156					9746.3	10153.93	
2.156	1	0.46	9836	10026	9836	10026	
2.064					9660.4	10247.95	
2.064	1	0.2	9943	10050	9943	10050	
1.983					9818.83	10245.42	
1.983	1	0.21	9992	10025	9992	10025	
1.919					9465.66	10196.28	
1.919	1	0.68	9751	10032	9751	10032	
1.851					9657.15	10402.33	
1.851	1	0.58	9818	10023	9818	10023	
1.77					9639.02	10352.81	
1.77	1	0.39	9993	10131	9993.94	10131	
1.693					9966.1	10213.19	
1.693	1	0.36	9992	10079	9992	10079	
1.631					9892.71	10025.14	
1.631	1	0.45	9978	10023	9978	10023	
1.578					9939.18	10130.4	
1.578	1	0.27	9991	10015	9991	10015	
1.473					9956.14	10104.68	
1.473	1	0.53	9985	10016	9985	10016	
1.396					9912.9	10073.79	
1.396	1	0.34	9986	10060	9986	10060	
1.33					8701.01	10317.97	
1.33	1	0.6	9959	10066	9959	10066	
1.237					9039.39	10421.56	
1.237	1	-0.01	9986	10034	9986	10034	
1.13					8728.15	10945.51	
1.13	1	0.12	9700	10026	9745.7	10026	
1.047					8682.08	10928.3	
1.047	1	0.97	9838	10052	9838	10052	
0.952					8196.22	10181.54	
0.952	1	0.92	9986	10101	9986	10101	
0.864					9815.4	10238.64	
0.864	1	0.58	9982	10095	9982	10095	
0.789					9947.46	10176.72	
0.789	1	0.69	9990	10043	9990	10043	
0.697					9958.39	10082.91	
0.697	1	0.91	9988	10027	9988	10027	
0.622					9846.83	10136.84	
0.622	1	0.56	9978	10053	9978	10053	
0.554					9823.47	10150.39	
0.554	1	0.56	9955	10037	9955	10037	
0.468					9759.91	10203.65	
0.468	1	0.76	9926	10045	9926	10045	
0.396					9926.43	10163.93	
0.396	1	0.89	9942	10041	9942	10041	
0.306					9695.94	10217.6	
0.306	1	0.85	9934	10094	9934	10094	
0.235					9861.98	10190.6	
0.235	1	0.33	9931	10038	9931	10038	
0.153					9995.18	10165.6	
0.153	1	0.05	9989	10173	9995.06	10165.83	
0.066					9890.12	10234.24	

0.066	1	0.16	9969	10136	9976.98	10129.65
0					9906.64	10147.57
0	1	0.2	9981	10145	9985.57	10145

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 2.156
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.064
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.919
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.919
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.851
FW FW 01 Right encroachment station 10023 is less than right channel bank station 10023.24 and greater than the left channel bank station 9980.51
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.77
FW FW 06 The left station effective of 9993.94 for the floodway profile is more than the left channel bank station of 9993.673
The left side of the floodway boundary is within the channel.
The left encroachment station of 9993 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.631
FW FW 01 Left encroachment station 9978 is more than left channel bank station 9977.943 and less than the right channel bank station 10022.89
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.631
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.578
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.24 and greater than the left channel bank station 9991.176
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.396
FW FW 01 Left encroachment station 9986 is more than left channel bank station 9985.675 and less than the right channel bank station 10060.01
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.396
FW FW 01 Right encroachment station 10060 is less than right channel bank station 10060.01 and greater than the left channel bank station 9985.675
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.396
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 1.33
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.237
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.13
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.13
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.697
FW FW 01 Left encroachment station 9988 is more than left channel bank station 9987.759 and less than the right channel bank station 10005.6
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.153
FW FW 01 Left encroachment station 9989 is more than left channel bank station 9988.847 and less than the right channel bank station 10014.67
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.153
FW FW 04 The right station effective of 10165.6 for 1% annual chance floodplain is greater than the right channel bank station (10014.67).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10173) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.066
FW FW 06 The left station effective of 9976.98 for the floodway profile is more than the left channel bank station of 9969.058
The left side of the floodway boundary is within the channel.
The left encroachment station of 9969 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0
FW FW 06 The left station effective of 9985.57 for the floodway profile is more than the left channel bank station of 9981.434
The left side of the floodway boundary is within the channel.
The left encroachment station of 9981 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

SURCHARGE CHECK

DISCHARGE CHECK

RS: 2.064
FW FD 01 The floodway discharge of 350 is not equal to the natural 1% chance discharge of 1010
Please justify the use of different discharges for the natural and floodway profiles.

RS: 1.983
FW FD 01 The floodway discharge of 350 is not equal to the natural 1% chance discharge of 1010
Please justify the use of different discharges for the natural and floodway profiles.

```
RS:        1.77
FW FD 01   The floodway discharge of 350 is not equal to the natural 1% chance
           discharge of 1010
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        1.33
FW FD 01   The floodway discharge of 460 is not equal to the natural 1% chance
           discharge of 3020
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        1.237
FW FD 01   The floodway discharge of 460 is not equal to the natural 1% chance
           discharge of 3020
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        1.13
FW FD 01   The floodway discharge of 790 is not equal to the natural 1% chance
           discharge of 3020
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        1.047
FW FD 01   The floodway discharge of 790 is not equal to the natural 1% chance
           discharge of 3020
           Please justify the use of different discharges for the natural and floodway profiles.

RS:        0.952
FW FD 01   The floodway discharge of 460 is not equal to the natural 1% chance
           discharge of 3020
           Please justify the use of different discharges for the natural and floodway profiles.


STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

---END---
```

T5N-R3W-S24E

T5N-R3W-S24E
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.nt
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 11:55:51 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,T5N-R3W-S24E						
2.71		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
		0.037	-----	-----		
		0.05	-----	-----		
2.617		0.041	0.041	0.05	0.1	0.3
		0.048	0.05	0.035		
		0.041	-----	-----		
2.525		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
2.454		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
2.404		0.04	0.048	-----	0.1	0.3
		0.048	0.04	-----		
2.32		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
2.243		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
2.164		0.04	0.048	-----	0.1	0.3
		0.048	0.04	-----		
2.071		0.04	0.048	0.04	0.1	0.3
1.976		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
1.906		0.04	-----	-----	0.1	0.3
		0.048	-----	-----		
1.801		0.04	0.048	0.04	0.1	0.3
1.697		0.039	0.048	0.039	0.1	0.3
1.638		0.039	0.048	0.039	0.1	0.3
1.623		0.039	0.048	0.039	0.1	0.3
1.538		0.039	0.048	0.039	0.1	0.3
1.462		0.039	-----	-----	0.1	0.3
		0.048	-----	-----		
1.39		0.033	0.038	0.033	0.1	0.3
1.304		0.033	0.038	0.033	0.1	0.3
1.213		0.033	0.038	0.033	0.1	0.3
1.104		0.033	0.038	0.033	0.1	0.3
1.037		0.033	0.038	0.033	0.1	0.3
.972		0.033	0.038	0.033	0.1	0.3
.89		0.033	0.038	0.033	0.1	0.3
.806		0.033	0.038	0.033	0.1	0.3
.725		0.033	0.038	0.033	0.3	0.5
.681		0.033	0.038	0.033	0.3	0.5
.6795	Bridge-Up	0.033	0.038	0.033	0.3	0.5
.6795	Bridge-Dn	0.033	0.038	0.033	0.3	0.5
.678		0.033	0.038	0.033	0.3	0.5
.658		0.033	0.038	0.033	0.3	0.5
.635	Culvert-Up	0.033	0.038	0.033	0.3	0.5
.635	Culvert-Dn	0.037	0.045	0.037	0.3	0.5
.612		0.037	0.045	0.037	0.3	0.5
.548		0.037	0.045	0.037	0.3	0.5
.472		0.037	0.045	0.037	0.1	0.3
.393		0.037	0.045	0.037	0.1	0.3
.319		0.037	0.045	0.037	0.1	0.3
.258		0.037	-----	-----	0.1	0.3
		0.045	-----	-----		
.158		0.037	-----	-----	0.1	0.3
		0.045	-----	-----		
.076		0.037	0.045	0.045	0.1	0.3
		-----	-----	0.037		

b/c of structure

0	0.037	0.045	0.037	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.05
Right Overbank n Value:	0.033	0.05
Channel n Value:	0.038	0.05
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:       2.071
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
         of 0.04 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.801
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
         of 0.04 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.697
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.638
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.623
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.538
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       1.39
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.39
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.39
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:       1.304
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.304
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.304
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
```

The overbank n values should be reevaluated.

RS: 1.213
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.213
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.213
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 1.104
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.104
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.104
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 1.037
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.037
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.037
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 0.972
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.972
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.972
NT RC 05 The left overbank n value of 0.033 and the right overbank n value of 0.033 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 0.89
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.89
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.89
NT RC 05 The left overbank n value of 0.033 and the right overbank n value

```
          of 0.033 are less than or equal to the channel n value of 0.038
          The overbank n values should be reevaluated.

RS:       0.806
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.806
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.806
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.038
          The overbank n values should be reevaluated.

RS:       0.725
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.725
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.725
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.038
          The overbank n values should be reevaluated.

RS:       0.681
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.681
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.681
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.038
          The overbank n values should be reevaluated.

RS:       0.6795
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.6795
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.6795
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.038
          The overbank n values should be reevaluated.

RS:       0.6795
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.6795
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.6795
```

```
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      0.678
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.678
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.678
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      0.658
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.658
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.658
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      0.635
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.635
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.635
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.038
         The overbank n values should be reevaluated.

RS:      0.635
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:      0.612
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:      0.548
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:      0.472
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:      0.393
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.037 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.
```

RS: 0.319
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.045 The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

RS: 0.548
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5 respectively. However, this cross section is not at the structure. They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES

RS: 0.6795
NT RS 02 The channel n value of 0.038 for the upstream internal bridge opening section is equal or larger than the channel n value of 0.038 at Section 3. Usually, the channel n value of the bridge opening section is less than the channel n value of Section 3. The selection of the n value(s) should be reevaluated.

RS: 0.6795
NT RS 02 The channel n value of 0.038 for the downstream internal bridge opening section is equal or larger than the channel n value of 0.038 at Section 2 Usually, the channel n value of the bridge opening section is less than the channel n value of Section 2. The selection of the n value(s) should be reevaluated.

---END---

T5N-R3W-S24E
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.xs
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 11:55:51 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,T5N-R3W-S24E						
2.71	522.935	489.979	491.846	1429.9	3020	D) combined flow area w/ Wittmann Tributary and T5N-R2W-S8.
2.617	447.789	484.142	519.724	1393.48	3020	D
2.525	374.754	374.588	367.431	464.68	510	
2.454	247.72	264.387	277.35	564.31	510	
2.404	462.889	441.104	425.406	578.97	510	D
2.32	414.743	404.833	401.105	500.61	510	
2.243	371.943	415.876	417.074	532.14	510	D
2.164	443.996	489.174	530.583	390.11	510	D
2.071	519.321	502.188	491.024	323.96	510	D,C (S/C)
1.976	402.467	370.873	327.522	490.36	1660	
1.906	543.854	553.595	542.285	570.1	1660	
1.801	552.397	548.077	524.37	595.82	1660	D
1.697	331.579	309.735	260.656	550.93	1660	
1.638	83.577	81.485	82.1	390.28	1660	
1.623	432.793	448.853	431.177	427.38	1660	D
1.538	384.067	400.674	383.548	361.5	1660	D
1.462	360.213	382.506	387.441	437.05	1660	
1.39	411.388	452.974	459.367	383.41	1660	D,C (S/C)
1.304	483.361	482.426	395.546	220.72	1660	
1.213	551.894	573.39	565.67	360.46	1660	
1.104	366.679	352.973	314.113	430.69	1660	D
1.037	310.403	342.416	387.78	333.22	1660	
.972	443.175	433.932	420.036	220.16	1660	C
.89	410.16	442.234	374.034	293.62	1660	
.806	405.452	425.246	455.76	202.21	1660	D,C (S/C)
.725	184.259	232.607	207.868	322.91	1660	
.681	15.108	16.583	17.59	53.16	1660	
.6795	Bridge #1-Up					
.6795	Bridge #1-Dn					
.678	104.92	104.648	129.553	55.19	1660	
.658	257.994	243.513	283.798	31.3	1660	
.635	CULVERT#1-Up					
.635	CULVERT#1-Dn					
.612	224.443	331.233	359.449	31.31	1660	C (S/C)
.548	390.799	399.878	396.573	350.7	1660	
.472	427.417	415.009	405.954	396.94	1660	D
.393	402.124	391.602	381.745	522.93	1660	
.319	287.746	320.175	332.819	355.15	1660	D
.258	510.623	529.986	542.866	530.33	1660	
.158	421.961	430.509	443.805	756.02	1660	D
.076	401.362	402.727	410.781	731.97	1660	
0	0	0	0	771.77	1660	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

```
RS:      2.525
XS DC 01 Discharge decreases in the downstream direction.
```

LOCATION CHECK

```
RS:      2.164
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.51
         MaxChlDpth Up/MaxChlDpth Dn = 1.68
         TopwdthAct Up/TopwdthAct Dn = 1.20
         This cross section is located too far upstream from the
         critical depth cross section.

RS:      1.037
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.56
         MaxChlDpth Up/MaxChlDpth Dn = 1.20
         TopwdthAct Up/TopwdthAct Dn = 1.51
         This cross section is located too far upstream from the
         critical depth cross section.
```

BOUNDARY CONDITION CHECK

```
XS BC 02 The name of the stream is Reach #1,T5N-R3W-S24E
         Normal S = 0.00954 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,T5N-R3W-S24E
         Normal S = 0.00954 is specified as the downstream boundary
         for profile Floodway
```

LATERAL WEIRS CHECK

---END---

T5N-R3W-S24E
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.fw
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 11:55:53 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,T5N-R3W-S24E							
2.71					8814.63	11064.31	
2.71	1	0.87	9972	10188	9972	10188	
2.617					8398.55	10379.09	
2.617	1	0.94	9880	10073	9880	10073	
2.525					9583.53	10048.21	
2.525	1	0.58	9919	10048	9919	10048	
2.454					9542.5	10106.8	
2.454	1	0.77	9951	10102	9951	10102	
2.404					9564.38	10189.06	
2.404	1	0.42	9911	10046	9911	10046	
2.32					9587.82	10088.43	
2.32	1	0.53	9946	10073	9946	10073	
2.243					9594.93	10241.25	
2.243	1	0.82	9922	10044	9922	10044	
2.164					9707.22	10131.3	
2.164	1	0.6	9958	10054	9958	10054	
2.071					9831.19	10261.97	
2.071	1	0.08	9901	10037	9901	10037	
1.976					9632.48	10122.84	
1.976	1	0.99	9918	10105	9918	10105	
1.906					9844.98	10415.08	
1.906	1	0.67	9911	10072	9911	10072	
1.801					9623.89	10256.27	
1.801	1	0.99	9932	10068	9932	10068	
1.697					9793.65	10344.58	
1.697	1	0.94	9960	10058	9960	10058	
1.638					9847.59	10237.87	
1.638	1	0.69	9953	10054	9953	10054	
1.623					9799.3	10260.17	
1.623	1	0.81	9965	10065	9965	10065	
1.538					9893.45	10255.08	
1.538	1	1	9986	10064	9986	10064	
1.462					9829.94	10266.99	
1.462	1	0.82	9975	10062	9975	10062	
1.39					9903.58	10386.9	
1.39	1	0.89	9989	10079	9989	10079	
1.304					9799.56	10020.28	
1.304	1	0.54	9950	10011	9950	10011	
1.213					9793.01	10153.47	
1.213	1	1	9948	10056	9948	10056	
1.104					9735.03	10217.94	
1.104	1	0.93	9945	10051	9945	10051	
1.037					9888.85	10222.07	
1.037	1	0.83	9981	10087	9981	10087	
0.972					9916.23	10136.39	
0.972	1	0.89	9987	10069	9987	10069	
0.89					9785.1	10078.73	
0.89	1	0.81	9911	10023	9911	10023	
0.806					9846.15	10087.42	
0.806	1	0.23	9935	10039	9943.91	10039	
0.725					9740	10062.91	
0.725	1	0.01	9951	10075	9951	10062.93	
0.681					9970.26	10023.41	
0.681	1	0.02	9971	10022	9971	10022	
0.6795					9970.65	10023.02	Bridge #1-Up
0.6795					9953.28	10008.4	Bridge #1-Dn
0.6795	0	0.02	9934.47	0	9970.61	10023.05	Bridge #1-Up
0.6795	0	0.03	0	10245	9953.28	10008.42	Bridge #1-Dn

0.678					9953.28	10008.47	
0.678	1	0.03	9925	10245	9953.27	10008.49	
0.658					9986.1	10017.4	
0.658	1	0.05	9986	10018	9986.1	10017.4	
0.635					0	0	CULVERT#1-Up
0.635					0	0	CULVERT#1-Dn
0.635	0	0	0	0	0	0	CULVERT#1-Up
0.635	0	0	0	0	0	0	CULVERT#1-Dn
0.612					9979.09	10010.4	
0.612	1	0	9941	10011	9979.09	10010.4	
0.548					9838.13	10188.83	
0.548	1	0.9	9922	10060	9922	10060	
0.472					9721.85	10212.99	
0.472	1	0.91	9930	10036	9930	10036	
0.393					9640.74	10163.67	
0.393	1	0.89	9874	10019	9874	10019	
0.319					9729.03	10143.85	
0.319	1	0.92	9891	10046	9891	10046	
0.258					9630.99	10161.32	
0.258	1	0.99	9861	10031	9861	10031	
0.158					9587.01	10383.14	
0.158	1	0.9	9900	10052	9900	10052	
0.076					9697.6	10429.57	
0.076	1	0.99	9905	10077	9905	10077	
0					9613.31	10426.41	
0	1	1	9858	10065	9858	10065	

ENCROACHMENT METHOD CHECK

RS: 0.6795
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.635
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 2.525
FW FW 01 Right encroachment station 10048 is less than right channel bank station 10050.63 and greater than the left channel bank station 9989.948
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.454
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.32
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.243
FW FW 01 Right encroachment station 10044 is less than right channel bank station 10044.16 and greater than the left channel bank station 9959.93
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.164
FW FW 01 Right encroachment station 10054 is less than right channel bank station 10054.44 and greater than the left channel bank station 9979.66
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.164
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.071
FW FW 03 The Left channel bank station may not be at the proper

location.

RS: 1.976
FW FW 01 Right encroachment station 10105 is less than right channel bank station 10107.33 and greater than the left channel bank station 9976.613
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.906
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.623
FW FW 01 Left encroachment station 9965 is more than left channel bank station 9964.9 and less than the right channel bank station 10059.68
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.623
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.304
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.213
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.213
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.104
FW FW 01 Right encroachment station 10051 is less than right channel bank station 10051.03 and greater than the left channel bank station 9988.184
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.037
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.89
FW FW 01 Right encroachment station 10023 is less than right channel bank station 10023.29 and greater than the left channel bank station 9983.25
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.89
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.806
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.725
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.725
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.725
FW FW 04 The right station effective of 10062.91 for 1% annual chance floodplain is greater than the right channel bank station (10044.3).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10075) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.681
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.681
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.678
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.658
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.658
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.612
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.612
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.393
FW FW 01 Right encroachment station 10019 is less than right channel bank station 10019.47 and greater than the left channel bank station 9970.73
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.393
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.319
FW FW 01 Right encroachment station 10046 is less than right channel bank station 10046.1 and greater than the left channel bank station 9930.81
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.319
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.258
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.076
FW FW 03 The Left channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

RS: 2.71
FW FD 01 The floodway discharge of 790 is not equal to the natural 1% chance discharge of 3020
Please justify the use of different discharges for the natural and floodway profiles.

RS: 2.617
FW FD 01 The floodway discharge of 510 is not equal to the natural 1% chance discharge of 3020
Please justify the use of different discharges for the natural and floodway profiles.

STARTING WATER-SURFACE ELEVATION CHECK

---END---

T5N-R3W-S24E
CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R3W-S24E.br
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 11:55:54 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure	
Reach #1,T5N-R3W-S24E							
2.71			1759.67	1759.5	1758.93		
2.617			1754.42	1754.26	1754.14		
2.525			1749.94	1749.85	1748.16		
2.454			1745.85	1745.77	1744.29		
2.404			1742.96	1742.9	1741.73		
2.32			1738.53	1738.47	1737.41		
2.243			1734.22	1734.14	1733.7		
2.164			1730.7	1730.61	1729.13		
2.071			1725.09	1724.87	1723.99		
1.976			1718.78	1718.64	1717.07		
1.906			1715.6	1715.39	1713.96		
1.801			1708.81	1708.6	1706.09		
1.697			1703.25	1703.04	1699.39		
1.638			1699.97	1699.63	1696.39		
1.623			1698.97	1698.7	1696.1		
1.538			1694.65	1694.29	1688.9		
1.462			1690.54	1690.17	1684.59		
1.39			1686.7	1686.26	1680.72		
1.304			1681.7	1681.06	1676.15		
1.213			1676.45	1676.11	1672.08		
1.104			1670.43	1670.08	1666.04		
1.037			1667.6	1667.3	1662.14		
0.972			1664.25	1663.63	1659.33		
0.89			1659.82	1659.51	1655.42		
0.806			1656.11	1655.37	1650.44		
0.725			1652.92	1652.88	1646.58		
0.681			1652.65	1652.12	1644.3		
0.6795	1652.7	1655.9	1652.58	1651.84	1644.35	Bridge #1-Up	BNSF RR
0.6795	1652.6	1655.8	1652.45	1651.74	1644.5	Bridge #1-Dn	
0.678			1652.35	1651.83	1644.5		
0.658			1651.8	1650.58	1644.6		
0.635	1649.3	1646.32	0	1649.3	1644.3	CULVERT#1-Up	US60
0.635	1648.1	1650.9	0	1648.97	1643.1	CULVERT#1-Dn	
0.612			1650.26	1648.05	1643.6		
0.548			1644.37	1644.17	1639.94		
0.472			1641.5	1641.22	1637.45		
0.393			1638.26	1638.1	1633.8		
0.319			1635.08	1634.77	1631.16		
0.258			1632.11	1631.93	1628.11		
0.158			1627.62	1627.47	1621.84		
0.076			1623.86	1623.69	1618.38		
0			1620.21	1620.04	1614.21		

RIVER/REACH: Reach #1, T5N-R3W-S24E
RIVER STATION: 0.6795
TYPE OF STRUCTURE: Bridge

Description:
Distance from Upstream XS: 0.01
Deck/Roadway Width: 15
Weir Coefficient: 2.5
Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 1652.6
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	0.725	232.61	1652.88	0	1652.92	322.91	
4	0.725	232.61	1652.89	0.01	1653.14	111.93	
3	0.681	16.58	1652.12	0	1652.65	53.16	
3	0.681	16.58	1652.14	0.02	1652.67	51	
	0.6795	15.00	1651.84	0	1652.58	46.37	Bridge #1-Up
	0.6795	1.57	1651.74	0	1652.45	49.12	Bridge #1-Dn
	0.6795	15.00	1651.86	0.02	1652.6	46.44	Bridge #1-Up
	0.6795	1.57	1651.77	0.03	1652.47	49.14	Bridge #1-Dn
2	0.678	104.65	1651.83	0	1652.35	55.19	
2	0.678	104.65	1651.86	0.03	1652.37	55.21	
1	0.658	243.51	1650.58	0	1651.8	31.3	
1	0.658	243.51	1650.64	0.05	1651.84	31.3	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9639.122	9960.5	1655.9	9925.2	9950.51	1655.8
2	10037.9	10134.81	1655.9	10013.8	10245.15	1655.8

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

MaxLowChord:	1652.7	MinTopRd:	1655.91	MinElPrs:	1652.7
	1652.7		1655.91		1652.7

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9960.5	10037.9U
					9950.51	10013.8D
			0	10245		U
			0	10245		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9966.98	10024.99	1655.90	1655.90	1655.90	1652.70 U
	9952.32	10009.04	1655.80	1655.80	1655.80	1652.60 D
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00U
	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00	-9999.00D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	1660	1660	0	Energy only	Low Flow
	1660	1660	0	Energy only	UNKNOWN

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 0.6795 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1652.65 is equal to or less than MinTopRd of 1655.9.
2. EGEL 3 of 1652.65 is less than MxLoCdU of 1652.7.

RS: 0.6795 This is Bridge #1
BR TF 01 Type of flow is UNKNOWN.
CHECKRAS can not find MxLoCd or MnTpRd elevation
or the given conditions do not satisfy the type of flow
specified in the CHECK-RAS program.
Please review the ground and road data, and encroachment stations.
or please review the messages, BR LF 01, BR PF 01, BR PF 02, BR LW 01
BR PW 01 for bridges to determine the type of flow.

RIVER/REACH: Reach #1, T5N-R3W-S24E
RIVER STATION: 0.635
TYPE OF STRUCTURE: Culvert

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	200
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1650.91
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	0.678	104.65	1651.83	0	1652.35	55.19	
4	0.678	104.65	1651.86	0.03	1652.37	55.21	
3	0.658	243.51	1650.58	0	1651.8	31.3	
3	0.658	243.51	1650.64	0.05	1651.84	31.3	
	0.635	242.00	1649.3	0	0	0	CULVERT#1-Up
	0.635	1.50	1648.97	0	0	0	CULVERT#1-Dn
	0.635	242.00	1649.3	0	0	0	CULVERT#1-Up
	0.635	1.50	1648.95	0	0	0	CULVERT#1-Dn
2	0.612	331.23	1648.05	0	1650.26	31.31	
2	0.612	331.23	1648.05	0	1650.26	31.31	
1	0.548	399.88	1644.17	0	1644.37	350.7	
1	0.548	399.88	1645.08	0.9	1645.42	138	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9881.717	9986.1	1651.8	9517.91	9979.09	1650.9
2	10017.4	10832.27	1651.8	10010.4	10601.1	1650.9

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group					9986.1	10017.4U
					9979.09	10010.4D
			0	0		U
			0	0		D

CULVERT:
Culvert Name: CULVERT#1
Shape: Box Rise: 5 Span: 10 Barrels: 3
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

```
UpstrmDist:     0.01     Length:         242      n-Value:        0.015
EntLossCoef:    0.4      ExtLossCoef:    1        CulvInvElU      1644.3   CulvInvElD      1643.1
LCntStaU:       9991     RCntStaU:       10012.4  LCntStaD        9984     RCntStaD        10005.3
Culvert Depth Blocked:    0

-------------------------------------------------------------------------------
Culv Area:      150      CulvQ:          1365.48  MinTopRd:       1651.81
                150                      1379.91                  1651.81
-------------------------------------------------------------------------------

                    LAbutSt   RAbutSt   LMnTpRd   RMnTpRd   MnTpRd    MxLoCd
-------------------------------------------------------------------------------
CULVERT#1           9986      10017.4   1646.32   1651.79   1646.32   1649.3   U
                    9979      10010.3   1650.9    1650.9    1650.9    1648.1   D
                    9986      10017.4   1646.32   1651.79   1646.32   1649.3   U
                    9979      10010.3   1650.9    1650.9    1650.9    1648.1   D
-------------------------------------------------------------------------------

Name           Q Total.  Q Struc   Q Weir    Selected Method     Flow Type
-------------------------------------------------------------------------------
CULVERT#1                1365.48   1160.28   Highest U.S. EG     Pressure Flow
                         1379.91   280.09    Highest U.S. EG     Pressure and Weir Flow
-------------------------------------------------------------------------------

GEOMETRIC CHECK
-----------------

RS:        0.635
ST GD 03   The end station of 10692.31 from upstream road/weir data
           is less than the end station of 10832.27 from upstream internal
           section/section 3.
           The high chord elevation of 1651.8 for the end road/weir station is
           greater than the ground elevation of 1651.794 for the same ground station.
           The road/weir profile may need to be extended.

TYPE OF FLOW CHECK
------------------

RS:        0.635 This is CULVERT#1
CV PF 01   Type of flow is pressure flow because,
           1. EGEL 3 of 1651.8 is less than or equal to MinTopRd of 1651.81.
           2. CulvWSIn of 1649.30 is greater than or equal to MxLoCdU of 1649.30.
           3. CulvWSOut of 1648.97 is greater than or equal to MxLoCdD of 1648.10.

RS:        0.635 This is CULVERT#1
CV PW 01   Type of flow is pressure and weir flow because,
           1. EGEL 3 of 1651.84 is greater than MinTopRd of 1651.81.
           2. CulvWSIn of 1649.30 is greater than or equal to MxLoCdU of 1649.30.
           3. CulvWSOut of 1648.95 is greater than or equal to MxLoCdD of 1648.10.

DISTANCE CHECK
---------------

RS:        0.635 This is CULVERT#1
ST DT 01   'Culvert Upstrm Dist' of 0.01 is less than the height of the
           culvert opening of 5 .
           Section 3 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4 & 3, and 'Distance from Upstream XS'
           should be adjusted.


RS:        0.635 This is CULVERT#1
ST DT 02   The channel distance of 1.503 at Downstream Internal Section is less than
           the height of the culvert opening of 5
           Section 2 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4, 3 & 2 should be adjusted.


CULVERT COEFFICIENT CHECK
```

CULVERT CRITERIA CHECK

RS: 0.635 This is CULVERT#1
CV PF 02 A value of 1650.91 is specified in the MinWeirFlowEl box under
Deck/Roadway Data Window.
It is greater than the computed MnTpRd of 1650.9 from the ground
and road data.
The type of flow will be changed from low or pressure flow to
weir flow if the box is left blank.
Please delete this value and rerun the plan, unless there is a
reason to specify this value.

RS: 0.635 This is CULVERT#1
CV PF 03 EGEL of 1651.8 is equal to or less than the MinTopRd of 1651.81
However, low or pressure flow is not computed by HEC-RAS.
HEC-RAS computes weir flow because the EGEL is greater than the MnTpRd 1650.9
Please delete the MinWeirElev value or lower the Ineffective flow elevation
and rerun the plan, unless there is a reason to specify these values.

INEFFECTIVE FLOW CHECK

RS: 0.658 This is Section 3
ST IF 08 EGEL 3 (1651.8) is greater than the MnTpRd (1650.9) at Culvert Group 1
However, the ineffective flow elevation of 1651.8 between stations 9881.717
and 9986.1 is equal to or greater than the WSEL of 1650.58
The ineffective flow elevation should be equal to or lower than the MnTpRd
It should also be less than the WSEL.

RS: 0.658 This is Section 3
ST IF 08 EGEL 3 (1651.8) is greater than the MnTpRd (1650.9) at Culvert Group 1
However, the ineffective flow elevation of 1651.8 between stations 10017.4
and 10832.27 is equal to or greater than the WSEL of 1650.58
The ineffective flow elevation should be equal to or lower than the MnTpRd
It should also be less than the WSEL.

RS: 0.658 This is Section 2
ST IF 08 EGEL 3 (1651.8) is greater than the MnTpRd (1650.9) at Culvert Group 1
However, the ineffective flow elevation of 1650.9 between stations 9517.91
and 9979.09 is equal to or greater than the WSEL of 1648.05
The MnTpRd is 1650.9 and the MxLoCdD is 1648.1
The ineffective flow elevation should be between the MnTpRd and the MxLoCdD
It should also be less than the WSEL.

RS: 0.612 This is Section 2
ST IF 08 EGEL 3 (1651.8) is greater than the MnTpRd (1650.9) at Culvert Group 1
However, the ineffective flow elevation of 1650.9 between stations 10010.4
and 10601.1 is equal to or greater than the WSEL of 1648.05
The MnTpRd is 1650.9 and the MxLoCdD is 1648.1
The ineffective flow elevation should be between the MnTpRd and the MxLoCdD
It should also be less than the WSEL.

RS: 0.658 This is Section 3.
ST IF 03 Pressure flow occurs at the structure. Ineffective flow is
considered at Section 3.
However, the velocity head at Section 3 is more than 0.5 foot and
more than the velocity head at section 4.
The ineffective flow stations should be widened until the velocity
head at Section 3 is equal to or less than 0.5 foot, or equal to or less than
the velocity head at Section 4.

RS: 0.612 This is Section 2.
ST IF 04 Pressure flow occurs at the structure. Ineffective flow is
considered at Section 2.
The EGEL at Section2 is greater than the lowest MxLoCdD by 0.5
The velocity head at Section 2 is more than 0.5 foot and
more than the velocity head at section 1.
The ineffective flow stations should be widened until the velocity
head at Section 2 is equal to or less than 0.5 foot, or equal to or less than
the velocity head at Section 1.

```
RS:        0.658 This is Section 3
ST IF 06   Pressure flow occurs at Culvert Group 1
           The velocity head at Section 3 is more than 0.5
           The computed left ineffective flow station of 9981.00 is less than
           the selected left ineffective flow station of 9986.1
           The left ineffective flow station should be adjusted.

RS:        0.658 This is Section 3.
ST IF 06   Pressure flow occurs at Culvert Group 1
           The velocity head at Section 3 is more than 0.5
           The computed right ineffective flow station of 10022.40 is greater than
           the selected right ineffective flow station of 10017.4
           The right ineffective flow station should be adjusted.

RS:        0.612 This is Section 2
ST IF 06   Pressure flow occurs at Culvert Group 1
           The velocity head at Section 2 is more than 0.5
           The computed left ineffective flow station of 9974.00 is less than
           the selected left ineffective flow station of 9979.09
           The left ineffective flow station should be adjusted.

RS:        0.612 This is Section 2.
ST IF 06   Pressure flow occurs at Culvert Group 1
           The velocity head at Section 2 is more than 0.5
           The computed right ineffective flow station of 10015.30 is greater than
           the selected right ineffective flow station of 10010.4
           The right ineffective flow station should be adjusted.

RS:        0.678 This is Section 4
ST IF 07   Ineffective flow option was considered at this section.
           However, it should be a fully expanded cross section.
           Ineffective flow stations and elevations should be cleared from
           this section, unless the areas beyond the ineffective flow stations
           are not within the flow path of the stream.
           This message should be ignored if this section is Section 2 of
           the upstream structure.

RS:        0.548 This is Section 1
ST IF 07   Ineffective flow option was considered at this section.
           However, it should be a fully expanded cross section.
           Ineffective flow stations and elevations should be cleared from
           this section, unless the ares beyond the ineffective flow stations
           are not within the flow path of the stream.
           This message should be ignored if this section is Section 3 of the downstream
           structure.

FLOODWAY CHECK
--------------

RS:        0.635 This is Culvert
ST FW 01   Encroachment Method was not specified at this river station.
           For flood insurance studies Encroachment Methods 4 and 1
           should be used.

RS:        0.612 This is Section 2
ST FW 08   The right station effective of 10010.4 for the natural profile.
           is greater than the right channel bank station of 10009.7
           The right encroachment station is outside the channel.
           The right encroachment station of 10011 is greater than the right
           station effective of 10010.4 for the natural profile.
           The right encroachment station should be adjusted.

---END
```

T5N-R2W-S19E

T5N-R2W-S19E
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.nt
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 12:53:30 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
2.054		0.035	0.04	0.035	0.1	0.3
1.981		0.035	0.04	0.035	0.1	0.3
1.859		0.035	0.04	0.035	0.1	0.3
1.741		0.035	0.04	0.035	0.1	0.3
1.653		0.035	0.04	0.035	0.1	0.3
1.56		0.035	0.04	0.035	0.1	0.3
1.497		0.035	0.04	0.035	0.1	0.3
1.421		0.035	0.04	0.035	0.1	0.3
1.33		0.035	0.04	0.035	0.1	0.3
1.244		0.035	0.04	0.035	0.1	0.3
1.147		0.034	0.05	0.034	0.1	0.3
1.042		0.034	0.05	0.034	0.1	0.3
.954		0.034	0.05	0.034	0.1	0.3
.855		0.034	0.05	0.034	0.1	0.3
.778		0.034	0.05	0.034	0.1	0.3
.695		0.034	0.05	0.034	0.1	0.3
.586		0.034	0.05	0.034	0.1	0.3
.503		0.034	0.05	0.034	0.1	0.3
.394		0.034	0.05	0.034	0.1	0.3
.302		0.034	0.05	0.034	0.1	0.3
.24		0.034	0.05	0.034	0.1	0.3
.21		0.034	0.05	0.034	0.1	0.3
.15		0.034	0.05	0.034	0.1	0.3
.075		0.034	0.05	0.034	0.1	0.3
.013		0.034	0.05	0.034	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.034	0.035
Right Overbank n Value:	0.034	0.035
Channel n Value:	0.04	0.05
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 2.054
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04 The overbank n values should be reevaluated.

RS: 1.981
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04 The overbank n values should be reevaluated.

RS: 1.859
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04 The overbank n values should be reevaluated.

RS: 1.741
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04

The overbank n values should be reevaluated.

RS: 1.653
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.56
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.497
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.421
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.33
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.244
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.04
The overbank n values should be reevaluated.

RS: 1.147
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.147
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.147
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 1.042
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.042
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.042
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 0.954
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.954
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.954
NT RC 05 The left overbank n value of 0.034 and the right overbank n value

```
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.855
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.855
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.855
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.778
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.778
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.778
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.695
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.695
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.695
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.586
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.586
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.586
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.503
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.503
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.503
```

```
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.394
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.394
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.394
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.302
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.302
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.302
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.24
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.24
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.24
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.21
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.21
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.21
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.15
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      0.15
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
```

```
RS:       0.15
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.075
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.075
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.075
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
```

T5N-R2W-S19E
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.xs
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 12:53:31 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
2.054	379.39	382.967	378.936	41.13	270	
1.981	622.33	646.637	633.671	31.73	270	D,C
1.859	531.088	621.241	605.93	200.17	270	D
1.741	445.173	461.062	472.442	198.93	1490	D
1.653	477	492	488	495.33	1490	
1.56	331.617	333.151	319.031	629.2	1490	D,C
1.497	404	402	398	473.64	1490	
1.421	475.324	479.218	476.995	491.13	1490	C
1.33	446.181	453.18	412.213	334.48	1660	D
1.244	482.986	513.321	471.937	878.71	1660	D
1.147	553.818	551.894	528.917	1024.84	1660	D
1.042	463.509	462.171	449.296	1181.83	1660	D
.954	522.782	520.344	502.351	715.38	1660	D
.855	406.626	405.679	399.777	966.01	1660	
.778	419.141	438.371	420.875	779.87	1660	D
.695	578.198	573.243	546.968	746.76	1660	
.586	432.98	438.886	458.263	814.75	1660	
.503	456.377	573.51	442.037	787.58	1660	D,C
.394	592.521	487.833	443.551	525.8	1660	D
.302	310.589	326.576	334.55	49.46	1660	D,C
.24	175.402	157.783	156.256	123.14	2380	D
.21	278.863	315.018	316.41	79.95	2380	C
.15	379.576	398.448	401.268	236.93	2380	D
.075	330.564	327.794	329.905	113.27	2380	
.013	0	0	0	65.64	2380	D

C = supercritical (S/C)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

RS: 1.981
XS SP 01 Diff. HV = 0.51 ; Kratio = 2.29 ; Depth Ratio = 1.36
TopWdthAct ratio = 6.31 ; Length Chl Up / 500 = 1.29
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

```
RS:       0.394
XS LC 01 Lenchl Up/TopwdthAct Dn = 9.86
         MaxChlDpth Up/MaxChlDpth Dn = 1.16
         TopwdthAct Up/TopwdthAct Dn = 10.63
         This cross section is located too far upstream from the
         critical depth cross section.
```

BOUNDARY CONDITION CHECK

```
XS BC 02 The name of the stream is Reach #1,Reach #1
         Normal S = 0.0105 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Reach #1
         Normal S = 0.0105 is specified as the downstream boundary
         for profile Floodway
```

LATERAL WEIRS CHECK

---END---

T5N-R2W-S19E
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19E.fw
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 12:53:33 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
2.054					9978.03	10019.15	
2.054	1	0	9939	10022	9978.04	10019.15	
1.981					9990.11	10060.31	
1.981	1	0	9987	10062	9990.11	10060.32	
1.859					9653.73	10011.82	
1.859	1	0.43	9983	10013	9983	10013	
1.741					9825.61	10025.36	
1.741	1	0.07	9950	10025	9950	10025	
1.653					9701.8	10197.13	
1.653	1	0.91	9908	10051	9908	10051	
1.56					9623.69	10264.05	
1.56	1	0.31	9960	10027	9960	10027	
1.497					9680.13	10153.78	
1.497	1	0.66	9949	10035	9949	10035	
1.421					9608.2	10099.33	
1.421	1	0.92	9907	10017	9907	10017	
1.33					9394	10272	
1.33	1	0.99	9519	10012	9519	10012	
1.244					9464	10605	
1.244	1	0.95	9737	10021	9737	10021	
1.147					9675.66	10869	
1.147	1	0.99	9885	10128	9885	10128	
1.042					9718.45	10903.57	
1.042	1	0.67	9900	10060	9900	10060	
0.954					9780.34	10661.04	
0.954	1	1	9944	10128	9944	10128	
0.855					9497.83	10463.84	
0.855	1	0.98	9915	10105	9915	10105	
0.778					9496.78	10375.93	
0.778	1	1	9820	10080	9820	10080	
0.695					9465.99	10212.75	
0.695	1	0.73	9838	10080	9838	10080	
0.586					9495.86	10310.61	
0.586	1	1	9845	10064	9845	10064	
0.503					9473.44	10334.83	
0.503	1	0.91	9879	10035	9879	10035	
0.394					9494	10139.62	
0.394	1	0.32	9937	10028	9937	10028	
0.302					9966.18	10017.71	
0.302	1	-0.04	9968	10036	9968	10017.66	
0.24					9949.45	10080.97	
0.24	1	0.96	9949	10052	9949.21	10052	
0.21					9995.98	10075.92	
0.21	1	0.32	9997	10043	9997	10043	
0.15					9797.31	10045.48	
0.15	1	0.49	9956	10043	9956	10043	
0.075					9906.58	10019.85	
0.075	1	0.38	9946	10018	9946	10018	
0.013					9941.56	10024.92	
0.013	1	0.62	9955	10026	9955	10025.91	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 2.054
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9939 is outside the channel.
Left channel bank station is 9939.786
Left encroachment station and/or left channel bank station should be adjusted.

RS: 2.054
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10022 is outside the channel.
Right channel bank station is 10021.27
Right encroachment station and/or right channel bank station should be adjusted.

RS: 2.054
FW FW 06 The left station effective of 9978.04 for the floodway profile is more than the left channel bank station of 9939.786
The left side of the floodway boundary is within the channel.
The left encroachment station of 9939 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.054
FW FW 06 The right station effective of 10019.15 for the floodway profile is less than the right channel bank station of 10021.27
The right side of the floodway boundary is within the channel.
The right encroachment station of 10022 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.981
FW FW 01 Left encroachment station 9987 is more than left channel bank station 9986.718 and less than the right channel bank station 10062.1
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.981
FW FW 01 Right encroachment station 10062 is less than right channel bank station 10062.1 and greater than the left channel bank station 9986.718
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.741
FW FW 01 Right encroachment station 10025 is less than right channel bank station 10025.42 and greater than the left channel bank station 9950.935
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.56
FW FW 01 Right encroachment station 10027 is less than right channel bank station 10027.68 and greater than the left channel bank station 9960.529
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.497
FW FW 01 Right encroachment station 10035 is less than right channel bank station 10035.24 and greater than the left channel bank station 9949.611
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.421
FW FW 01 Right encroachment station 10017 is less than right channel bank station 10017.43 and greater than the left channel bank station 9974.645
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.33
FW FW 01 Right encroachment station 10012 is less than right channel bank station 10012.07 and greater than the left channel bank station 9947.645
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.244
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.147
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.147
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.042
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.855
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.586
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.302
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.302
FW FW 04 The right station effective of 10017.71 for 1% annual chance floodplain is greater than the right channel bank station (10014.19).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10036) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.24
FW FW 01 Right encroachment station 10052 is less than right channel bank station 10052.42 and greater than the left channel bank station 9952.375
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.24
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.24
FW FW 04 The left station effective of 9949.45 for 1% annual chance floodplain is less than the left channel bank station 9952.375
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9949) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0.21
FW FW 01 Left encroachment station 9997 is more than left channel bank station 9996.682 and less than the right channel bank station 10040.09
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.15
FW FW 01 Right encroachment station 10043 is less than right channel bank station 10043.39 and greater than the left channel bank station 9957.931
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.15
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.075
FW FW 01 Right encroachment station 10018 is less than right channel bank station 10018.34 and greater than the left channel bank station 9946.283
Right encroachment station is within the channel.

```
          The encroachment station or channel bank station should be adjusted.

RS:       0.013
FW FW 01  Right encroachment station 10026 is less than right channel bank
          station 10026.26 and greater than the left channel bank station 9964.115
          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.


SURCHARGE CHECK
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DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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T5N-R2W-S19W

T5N-R2W-S19W
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.nt
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 4:35:41 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,T5N-R2W-S19W						
3.763		0.034	0.046	0.034	0.1	0.3
3.678		0.034	0.046	0.034	0.1	0.3
3.576		0.034	0.046	0.034	0.1	0.3
3.483		0.034	0.046	0.034	0.1	0.3
3.397		0.034	0.046	0.034	0.1	0.3
3.369		0.034	0.046	0.034	0.1	0.3
3.318		0.034	0.046	0.034	0.1	0.3
3.265		0.034	0.046	0.034	0.1	0.3
3.221		0.034	0.046	0.034	0.1	0.3
3.13		0.034	0.046	0.034	0.1	0.3
3.037		0.035	0.044	0.035	0.1	0.3
2.953		0.035	0.044	0.035	0.1	0.3
2.859		0.035	0.044	0.035	0.1	0.3
2.789		0.035	0.044	0.035	0.1	0.3
2.725		0.035	0.044	0.035	0.1	0.3
2.64		0.035	0.044	0.035	0.1	0.3
2.575		0.035	0.044	0.035	0.1	0.3
2.493		0.035	0.044	0.035	0.1	0.3
2.398		0.03	-----	-----	0.1	0.3
		0.043	-----	-----		
2.343		0.037	-----	-----	0.1	0.3
		0.043	-----	-----		
2.299		0.037	-----	-----	0.1	0.3
		0.043	-----	-----		
2.265		0.041	-----	-----	0.1	0.3
2.187		0.041	-----	-----	0.1	0.3
2.124		0.041	-----	-----	0.1	0.3
1.99		0.035	-----	-----	0.1	0.3
		0.038	-----	-----		
		0.033	-----	-----		
		0.04	-----	-----		
1.902		0.035	-----	-----	0.1	0.3
		0.04	-----	-----		
1.866		0.035	-----	-----	0.1	0.3
		0.04	-----	-----		
1.787		0.035	-----	-----	0.1	0.3
		0.04	-----	-----		
1.704		0.033	-----	-----	0.1	0.3
1.632		0.035	-----	-----	0.1	0.3
		0.04	-----	-----		
1.607		0.035	0.04	0.04	0.1	0.3
		-----	-----	0.033		
1.538		0.03	-----	-----	0.1	0.3
1.474		0.03	-----	-----	0.1	0.3
1.398		0.035	0.044	0.035	0.1	0.3
1.315		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
1.225		0.035	0.044	0.035	0.1	0.3
1.135		0.035	0.044	0.035	0.1	0.3
1.079		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
1.004		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		
.923		0.035	0.047	0.047	0.1	0.3
		-----	-----	0.035		
.846		0.035	0.044	0.035	0.1	0.3
.764		0.035	-----	-----	0.1	0.3
		0.047	-----	-----		

.662	0.035	-----	-----	0.1	0.3
	0.047	-----	-----		
.589	0.035	-----	-----	0.1	0.3
	0.047	-----	-----		
.497	0.035	0.044	0.035	0.1	0.3
.408	0.035	0.044	0.04	0.1	0.3
	-----	-----	0.035		
.332	0.035	0.044	0.035	0.1	0.3
.244	0.035	0.044	0.035	0.1	0.3
.164	0.035	0.044	0.035	0.1	0.3
.086	0.035	0.044	0.035	0.1	0.3
0	0.035	0.044	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.03	0.047
Right Overbank n Value:	0.033	0.047
Channel n Value:	0.04	0.047
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:       3.763
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.763
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.763
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       3.678
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.678
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.678
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       3.576
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.576
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.576
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       3.483
NT RC 01 Left overbank n value is less than 0.035
```

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         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.483
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.483
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      3.397
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.397
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.397
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      3.369
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.369
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.369
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      3.318
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.318
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.318
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      3.265
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.265
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      3.265
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:      3.221
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NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.221
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.221
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 3.13
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.13
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.13
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 3.037
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.953
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.859
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.789
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.725
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.64
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.575
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 2.493
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 1.704
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

```
RS:       1.538
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.474
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.398
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       1.225
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       1.135
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.846
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.497
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.332
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.244
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.164
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.086
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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T5N-R2W-S19W
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.xs
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 4:35:42 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,T5N-R2W-S19W						
3.763	446.098	450.395	454.402	139.55	800	
3.678	522.131	539.298	521.245	154.2	800	
3.576	483.028	491.148	493.91	72.45	800	C
3.483	458.004	453.647	441.102	132.95	800	D
3.397	152.936	148.71	143.172	88.89	800	
3.369	270.819	269.807	243.539	77.78	800	C
3.318	273.234	282.389	290.173	99.03	800	
3.265	233.203	232.374	229.46	64.56	800	C
3.221	455.512	479.912	484.966	132.9	800	
3.13	492.807	491.778	465.205	114.81	800	
3.037	448.386	444.555	432.93	94.85	800	
2.953	490.635	496.952	488.748	98.68	800	
2.859	352.287	369.951	369.949	119.22	800	
2.789	336.606	339.793	335.425	101.39	800	
2.725	426.917	447.792	450.341	65.12	800	
2.64	345.08	341.411	341.229	119.15	800	
2.575	423.826	431.013	439.885	108.32	800	
2.493	493.081	500.943	495.988	127.55	800	
2.398	294.977	291.495	280.127	129.77	800	C
2.343	250.861	236.74	205.413	424.07	800	D
2.299	164.055	178.973	248.407	364.05	800	D,C
2.265	390.885	410.969	453.035	648.95	2380	D
2.187	340.678	330.255	267.88	624.65	2380	D
2.124	658.299	709.406	704.084	467.88	2380	D
1.99	448.782	463.337	444.133	686.92	2740	D
1.902	183.059	187.603	220.628	440.64	2740	D,C
1.866	416.587	414.801	464.964	660.44	2740	D
1.787	442.165	436.714	394.313	537.29	2740	D
1.704	370.813	382.095	413.405	621.93	2740	D,C
1.632	130.471	129.628	116.496	526.79	2740	
1.607	417.443	362.209	282.016	500.48	2740	
1.538	321.937	336.305	343.854	579.69	5620	C
1.474	366.56	399.347	428.703	602.61	5620	
1.398	387.964	439.996	415.595	1444.06	5620	
1.315	473.53	473.26	421.887	1611.35	5620	D
1.225	390.488	478.265	445.234	1919.35	5620	
1.135	221.006	260.183	242.183	1165.85	4250	
1.079	422.666	397.868	372.989	1066.14	4250	D
1.004	409.951	425.899	407.74	1153.81	4250	D
.923	392.068	407.941	387.647	1111.71	4250	D
.846	439.813	432.474	400.48	1486.23	4250	D,C
.764	516.285	540.993	571.921	1329.76	4250	D
.662	400.969	388.037	372.388	1135.2	4250	D
.589	503.158	486.334	415.119	1315.77	4250	D
.497	493.436	471.432	470.701	1301.41	4250	D
.408	405.353	402.211	325.778	924.45	2790	D
.332	458.433	463.779	521.509	1134.61	2790	
.244	394.107	423.326	489.232	130.75	2790	D,C
.164	373.77	413.402	413.876	70.48	2790	D
.086	453.659	454.01	451.924	60.02	2790	D
0	0	0	0	49.17	2790	D

C = supercritical (S/C)

combined flowarea w/ T5N-R2W-S07

split flow C 554_13**

split flow C 554_12**

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

```
RS:       1.135
XS DC 01 Discharge decreases in the downstream direction.

RS:       0.408
XS DC 01 Discharge decreases in the downstream direction.
```

LOCATION CHECK

```
RS:       3.318
XS LC 01 Lenchl Up/TopwdthAct Dn = 4.37
         MaxChlDpth Up/MaxChlDpth Dn = 1.32
         TopwdthAct Up/TopwdthAct Dn = 1.53
         This cross section is located too far upstream from the
         critical depth cross section.
```

BOUNDARY CONDITION CHECK

```
XS BC 02 The name of the stream is Reach #1,T5N-R2W-S19W
         Normal S = 0.0137 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,T5N-R2W-S19W
         Normal S = 0.0137 is specified as the downstream boundary
         for profile Floodway
```

LATERAL WEIRS CHECK

---END---

T5N-R2W-S19W
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\T5N-R2W-S19W.fw
Selected profiles: Floodplain;Floodway
Date: 7/25/2005
Time: 4:35:43 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,T5N-R2W-S19W							
3.763					9888.37	10027.92	
3.763	1	0.18	9897	10024	9897	10024	
3.678					9940.29	10094.49	
3.678	1	0.47	9968	10015	9968	10015	
3.576					9959.06	10031.51	
3.576	1	-0.03	9950	10192	9959.52	10031.14	
3.483					9942.15	10086.55	
3.483	1	0.72	9985	10041	9985	10041	
3.397					9974.01	10062.9	
3.397	1	0.65	9988	10017	9988	10017	
3.369					9971.2	10048.98	
3.369	1	0.11	9971	10009	9971	10009	
3.318					9970.45	10069.48	
3.318	1	0.43	9982	10035	9982	10035	
3.265					9970.46	10035.02	
3.265	1	0.08	9986	10026	9986	10026	
3.221					9911.95	10044.85	
3.221	1	0.55	9960	10018	9960	10018	
3.13					9935.48	10050.29	
3.13	1	0.7	9973	10015	9973	10015	
3.037					9950.17	10045.03	
3.037	1	0.34	9974	10019	9974	10019	
2.953					9972.11	10070.79	
2.953	1	0.24	9984	10048	9984	10048	
2.859					9953.62	10072.84	
2.859	1	0.42	9964	10019	9964	10019	
2.789					9937.03	10038.43	
2.789	1	0.01	9970	10192	9970	10038.53	
2.725					9965.67	10030.78	
2.725	1	0.15	9965	10030	9965	10030	
2.64					9976.68	10095.83	
2.64	1	0.05	9983	10051	9983	10051	
2.575					9934.33	10042.64	
2.575	1	0.49	9967	10022	9967	10022	
2.493					9974.77	10102.32	
2.493	1	0.84	9982	10024	9982	10024	
2.398					9903.73	10033.51	
2.398	1	0.72	9978	10025	9978	10025	
2.343					9786.96	10236.73	
2.343	1	0.78	9990	10071	9990	10071	
2.299					9806.73	10216.56	
2.299	1	0.59	9940	10057	9940	10057	
2.265					9972.15	10779.98	
2.265	1	0.61	9972	10194	9972	10194	
2.187					9989.2	10644.85	
2.187	1	0.26	9989	10155	9989	10155	
2.124					9774.42	10264.92	
2.124	1	0.89	9918	10170	9918	10170	
1.99					9676.6	10368.53	
1.99	1	0.67	9904	10086	9904	10086	
1.902					9874.56	10401.34	
1.902	1	0.96	9977	10156	9977	10156	
1.866					9942.31	10605	
1.866	1	0.71	9984	10200	9984	10200	
1.787					9856.39	10398.52	
1.787	1	0.78	9987	10175	9987	10175	
1.704					9893.2	10604.3	
1.704	1	0.5	9943	10107	9943	10091.21	

1.632					9870.56	10397.35
1.632	1	0.64	9986	10120	9986	10120
1.607					9914.11	10414.58
1.607	1	0.76	9943	10160	9943	10160
1.538					9597.73	10177.42
1.538	1	0.64	9870	10097	9870	10097
1.474					9645.65	10248.25
1.474	1	0.96	9832	10143	9832	10143
1.398					9565.91	11009.96
1.398	1	0.94	9892	10247	9892	10247
1.315					9404.89	11118.05
1.315	1	1	9775	10225	9775	10225
1.225					9268.61	11187.96
1.225	1	1	9767	10275	9767	10275
1.135					9520.75	10686.59
1.135	1	0.98	9813	10195	9813	10195
1.079					9565.81	10762.65
1.079	1	0.98	9744	10200	9744	10200
1.004					9749.32	10940.12
1.004	1	0.86	9969	10340	9969	10340
0.923					9767.8	10952.01
0.923	1	0.97	9973	10328	9973	10328
0.846					9506.69	11137.2
0.846	1	0.85	9934	10268	9934	10268
0.764					9902.79	11267.2
0.764	1	1	9907	10385	9907	10385
0.662					9554.84	11284.12
0.662	1	0.7	9816	10253	9816	10253
0.589					9463.13	10849
0.589	1	0.76	9825	10265	9825	10265
0.497					9421.88	11032.1
0.497	1	1	9881	10361	9881	10361
0.408					9811.64	10769.7
0.408	1	1	9952	10310	9952	10310
0.332					9571.49	10706.1
0.332	1	0.76	9949	10315	9949	10315
0.244					9903.8	10266.92
0.244	1	1	9916	10183	9916	10183
0.164					9972.04	10228.44
0.164	1	-0.01	9980	10224	9993.36	10224
0.086					9954.08	10024.95
0.086	1	0.03	9954	10024	9954	10024
0					9960.38	10018.04
0	1	0	9960	10016	9960.38	10016

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 3.763
FW FW 01 Right encroachment station 10024 is less than right channel bank station 10024.27 and greater than the left channel bank station 9897.184
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.763
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.678
FW FW 01 Left encroachment station 9968 is more than left channel bank station 9967.67 and less than the right channel bank station 10015.49
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.678
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.49 and greater than the left channel bank station 9967.67
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 3.678
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.576
FW FW 04 The left station effective of 9959.06 for 1% annual chance floodplain is less than the left channel bank station 9992.957
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9950) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 3.576
FW FW 04 The right station effective of 10031.51 for 1% annual chance floodplain is greater than the right channel bank station (10015.04).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10192) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 3.483
FW FW 01 Right encroachment station 10041 is less than right channel bank station 10041.26 and greater than the left channel bank station 9985.259
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.397
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.369
FW FW 01 Left encroachment station 9971 is more than left channel bank station 9969.081 and less than the right channel bank station 10009.35
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.369
FW FW 01 Right encroachment station 10009 is less than right channel bank station 10009.35 and greater than the left channel bank station 9969.081
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.318
FW FW 01 Right encroachment station 10035 is less than right channel bank station 10035.02 and greater than the left channel bank station 9982.393
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.318
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.265
FW FW 01 Right encroachment station 10026 is less than right channel bank station 10026.27 and greater than the left channel bank station 9986.053
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.265
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.221
FW FW 01 Right encroachment station 10018 is less than right channel bank station 10018.27 and greater than the left channel bank station 9960.08
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.221
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.13
FW FW 01 Left encroachment station 9973 is more than left channel bank station 9972.936 and less than the right channel bank station 10015.23
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.13
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.23 and greater than the left channel bank station 9972.936
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.037
FW FW 01 Left encroachment station 9974 is more than left channel bank station 9973.51 and less than the right channel bank station 10019.33
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.037
FW FW 01 Right encroachment station 10019 is less than right channel bank station 10019.33 and greater than the left channel bank station 9973.51
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.953
FW FW 01 Right encroachment station 10048 is less than right channel bank station 10048.42 and greater than the left channel bank station 9984.024
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.953
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.859
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.789
FW FW 04 The right station effective of 10038.43 for 1% annual chance floodplain is greater than the right channel bank station (10032.94).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10192) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.725
FW FW 01 Right encroachment station 10030 is less than right channel bank station 10031.48 and greater than the left channel bank station 9971.482
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.725
FW FW 04 The left station effective of 9965.67 for 1% annual chance floodplain is less than the left channel bank station 9971.482
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9965) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.575
FW FW 01 Left encroachment station 9967 is more than left channel bank station 9966.613 and less than the right channel bank station 10021.52
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.575
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.398
FW FW 01 Right encroachment station 10025 is less than right channel bank station 10025.29 and greater than the left channel bank station 9978.27
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 2.398
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.265
FW FW 01 Left encroachment station 9972 is more than left channel bank station 9968.922 and less than the right channel bank station 10028.93
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.187
FW FW 01 Left encroachment station 9989 is more than left channel bank station 9977.514 and less than the right channel bank station 10027.24
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.99
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.902
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9976.642 and less than the right channel bank station 10018.07
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.902
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.902
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.866
FW FW 01 Left encroachment station 9984 is more than left channel bank station 9983.628 and less than the right channel bank station 10008.95
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.787
FW FW 01 Left encroachment station 9987 is more than left channel bank station 9986.625 and less than the right channel bank station 10014.74
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.704
FW FW 01 Left encroachment station 9943 is more than left channel bank station 9942.935 and less than the right channel bank station 10017.93
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.704
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.632
FW FW 01 Left encroachment station 9986 is more than left channel bank station 9985.569 and less than the right channel bank station 10014.57
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.607
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.538
FW FW 01 Right encroachment station 10097 is less than right channel bank station 10097.34 and greater than the left channel bank station 9948.063
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.538
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.538
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.225
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.079
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.004
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.923
FW FW 01 Left encroachment station 9973 is more than left channel bank station 9972.849 and less than the right channel bank station 10047.23
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.764
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.164
FW FW 06 The left station effective of 9993.36 for the floodway profile is more than the left channel bank station of 9992.823
The left side of the floodway boundary is within the channel.
The left encroachment station of 9980 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.086
FW FW 01 Right encroachment station 10024 is less than right channel bank station 10024.46 and greater than the left channel bank station 9961.855
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.086
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.086
FW FW 04 The left station effective of 9954.08 for 1% annual chance floodplain is less than the left channel bank station 9961.855
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9954) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0
FW FW 04 The left station effective of 9960.38 for 1% annual chance floodplain is less than the left channel bank station 9981.751
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9960) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

SURCHARGE CHECK

DISCHARGE CHECK

RS: 2.265

```
FW FD 01  The floodway discharge of 800 is not equal to the natural 1% chance
          discharge of 2380
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       2.187
FW FD 01  The floodway discharge of 800 is not equal to the natural 1% chance
          discharge of 2380
          Please justify the use of different discharges for the natural and floodway profiles.

STARTING WATER-SURFACE ELEVATION CHECK
--------------------------------------

---END---
```

T5N-R3W-S01S

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.nt
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:33:16 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,T5N-R3W-S01S						
.934		0.036	0.044	0.036	0.1	0.3
.881		0.035	0.044	0.035	0.1	0.3
.817		0.035	-----	-----	0.1	0.3
		0.044	-----	-----		
.721		0.035	0.044	-----	0.1	0.3
		0.044	0.035	-----		
.62		0.035	-----	-----	0.1	0.3
		0.044	-----	-----		
.61		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.54		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.53		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.437		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.371		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.344		0.033	0.042	0.042	0.1	0.3
		-----	-----	0.033		
		-----	-----	0.046		
		-----	-----	0.039		
.268		0.033	-----	-----	0.1	0.3
		0.042	-----	-----		
.194		0.033	0.042	0.042	0.1	0.3
		-----	-----	0.033		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.044
Right Overbank n Value:	0.033	0.046
Channel n Value:	0.035	0.044
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 0.934
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 0.881
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 0.344
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.xs
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:33:16 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,T5N-R3W-S01S						
.934	255.238	278.805	272.567	635.81	2240	D
.881	356.844	338.149	335.04	566.53	2240	
.817	496.92	504.961	506.047	353.98	2240	C
.721	344.072	332.36	317.831	475.27	2240	
.62	207.975	208.159	210.521	326.11	2240	C
.61	348.389	384.854	343.412	380.71	2240	D
.54	247.553	258.393	258.007	492.65	2240	D,C
.53	302.552	312.863	302.382	482.53	2240	D,C
.437	306.916	346.826	344.049	498.47	2240	D,C
.371	140.148	139.939	143.696	810.14	2240	D,C
.344	401.673	399.582	395.828	612.11	2240	D,C
.268	364.207	392.252	394.493	1135.46	2240	D
.194	423.961	462.403	420.103	761.07	2240	D

C = supercritical (S/C)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
W=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Reach #1,T5N-R3W-S01S

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,T5N-R3W-S01S
Normal S = 0.0109 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,T5N-R3W-S01S
Normal S = 0.0109 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R3W-S01S\T5N-R3W-S01S.fw
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 9:33:18 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,T5N-R3W-S01S							
0.934					9586.68	10338.05	
0.934	1	0.99	9937	10160	9937	10160	
0.881					9564.53	10131.06	
0.881	1	0.59	9905	10090	9905	10090	
0.817					9731.82	10085.8	
0.817	1	0.79	9888	10032	9888	10032	
0.721					9669.77	10145.05	
0.721	1	0.75	9928	10053	9928	10053	
0.62					9779.07	10105.18	
0.62	1	0.62	9932	10066	9932	10066	
0.61					9789.21	10205	
0.61	1	0.9	9979	10145	9979	10145	
0.54					9475.16	10067.28	
0.54	1	0.38	9910	10028	9910	10028	
0.53					9545.7	10194.85	
0.53	1	0.76	9951	10051	9951	10051	
0.437					9594.65	10185.53	
0.437	1	0.23	9827	10085	9856.44	10085	
0.371					9661.98	10609.61	
0.371	1	0.33	9891	10136	9891	10136	
0.344					9704.12	10507.21	
0.344	1	0.28	9877	10151	9877	10151	
0.268					9576.1	10752.44	
0.268	1	0.55	9984	10381	9984	10381	
0.194					9742.2	10895.77	
0.194	1	0.83	9925	10394	9925	10394	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 0.934
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.934
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.721
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.54
FW FW 01 Right encroachment station 10028 is less than right channel bank station 10028.41 and greater than the left channel bank station 9984.714
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.437
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.268
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

[illegible]HARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

---END---

T5N-R2W-S07

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.nt
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 10:29:47 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Wash T5N-R2W-S07						
1.82		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.736		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.647		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.57		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.486		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.43		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.403		0.039	0.046	0.039	0.1	0.3
1.31		0.039	0.046	0.039	0.1	0.3
1.235		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.205		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
1.124		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
45		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
.961		0.039	-----	-----	0.1	0.3
		0.046	-----	-----		
.875		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
.779		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
.682		0.037	-----	-----	0.1	0.3
		0.044	-----	-----		
.588		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
.474		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
.39		0.041	0.048	0.048	0.1	0.3
		-----	-----	0.041		
.305		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
.235		0.041	0.048	0.048	0.1	0.3
		-----	-----	0.041		
.166		0.041	-----	-----	0.1	0.3
		0.03	-----	-----		
		0.041	-----	-----		
		0.048	-----	-----		
.094		0.041	-----	-----	0.1	0.3
		0.03	-----	-----		
		0.048	-----	-----		
.048		0.041	0.048	0.041	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.03	0.048
Right Overbank n Value:	0.039	0.048
Channel n Value:	0.046	0.048
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.403
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
of 0.039 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 1.31
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
of 0.039 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

ect File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
aulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-
hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.xs
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 10:29:48 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Wash T5N-R2W-S07						
1.82	428.935	444.072	429.43	383.8	1010	D
1.736	454.793	467.286	487.299	547.05	1010	D
1.647	418.357	408.314	365.457	393.03	1010	D
1.57	423.534	444.869	436.942	718.88	1010	D
1.486	277.059	296.003	330.373	506.3	1010	D
1.43	130.888	141.905	153.818	697.99	1010	D
1.403	489.833	491.602	469.276	377.96	660	D
1.31	461.574	393.91	375.279	375.01	660	
1.235	143.384	155.902	154.551	938.65	2670	D
1.205	419.24	425.88	400.616	637.81	2670	D
1.124	403.251	415.716	417.178	1184.21	2670	D
1.045	505.402	446.068	422.683	824.77	2670	D
.961	399.464	456.181	468.348	1439.6	3020	D
.875	483.849	507.024	555.554	891.78	3020	D
.779	494.301	513.974	531.494	1269.18	3020	D
.682	479.429	497.604	531.428	1385.61	3020	D
.588	604.291	602.177	604.422	1387.36	3020	D
[illegible]	379.049	445.04	381.509	827.42	2700	D E (5/6)
[illegible]	451.367	449.641	454.487	660.56	2700	D
[illegible]	358.675	370.001	368.661	757.47	2700	
.235	347.186	362.642	369.027	915.86	2700	D
.166	373.268	378.27	352.028	492.68	1390	D
.094	269.734	244.708	304.106	331.94	1390	D
.048	0	0	0	378.63	1390	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 1.403
XS DC 01 Discharge decreases in the downstream direction.

RS: 0.474
XS DC 01 Discharge decreases in the downstream direction.

[illegible] 0.166
[illegible] C 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

C 02 The name of the stream is Reach #1,Wash T5N-R2W-S07
Normal S = 0.011 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Wash T5N-R2W-S07
Normal S = 0.011 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Deliverables\TDN (Detailed Reports)\TDN Section 5-hydraulics\MODIFED-UPDATED MODELS, TABLES, ETC.---08-26-05--AMB\T5N-R2W-S07\T5N-R2W-S07.fw
Selected profiles: Floodplain;Floodway
Date: 9/7/2005
Time: 10:29:50 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Wash T5N-R2W-S07							
1.82					9856.04	10259.19	
1.82	1	0.48	9940	10134	9940	10134	
1.736					9853.04	10442.62	
1.736	1	0.62	9930	10055	9930	10055	
1.647					9989.98	10413.61	
1.647	1	0.65	9990	10136	9990	10136	
1.57					9625.93	10416.32	
1.57	1	0.57	9921	10203	9921	10203	
1.486					9831.14	10551.5	
1.486	1	0.67	9968	10173	9968	10173	
1.43					9828.62	10558.2	
1.43	1	0.63	9944	10147	9944	10147	
1.403					9777.5	10164.42	
1.403	1	0.22	9872	10022	9872	10022	
1.31					9896.86	10271.87	
1.31	1	0.5	9933	10025	9933	10025	
1.235					9240.53	10232.65	
1.235	1	0.32	9914	10027	9914	10027	
1.205					9348.34	10157.59	
1.205	1	0.52	9897	10050	9915.3	10050	
1.124					9318.3	10517.32	
1.124	1	0.61	9740	10143	9740	10143	
1.045					9575.38	10735.81	
1.045	1	0.91	9757	10289	9757	10289	
0.961					9582.16	11213.65	
0.961	1	0.5	9822	10500	9822	10500	
0.875					9903.32	11286.12	
0.875	1	0.47	9907	10617	9907	10617	
0.779					9602.77	11825.52	
0.779	1	0.91	9751	10904	9751	10904	
0.682					9687.19	11933.77	
0.682	1	0.82	9709	10156	9709	10156	
0.588					9617.14	11597.02	
0.588	1	0.85	9858	10187	9858	10187	
0.474					9806.79	10641.23	
0.474	1	0.32	9906	10168	9906	10168	
0.39					9740.57	10411.35	
0.39	1	0.27	9822	10177	9822	10177	
0.305					9707.69	10465.16	
0.305	1	0.61	9876	10173	9876	10173	
0.235					9585.5	10639.28	
0.235	1	0.99	9800	10216	9800	10216	
0.166					9351.14	10042.81	
0.166	1	0.84	9798	10033	9798	10033	
0.094					9663.51	10295.46	
0.094	1	0.72	9909	10067	9909	10067	
0.048					9735.19	10146.92	
0.048	1	0.64	9932	10071	9932	10071	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

RS: 1.736
FW FW 01 Left encroachment station 9930 is more than left channel bank station 9929.986 and less than the right channel bank station 10032.46

Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.647
FW 01 Left encroachment station 9990 is more than left channel bank station 9983.052 and less than the right channel bank station 10026.26
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.486
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.486
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.403
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.31
FW FW 01 Right encroachment station 10025 is less than right channel bank station 10025.09 and greater than the left channel bank station 9933.365
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.235
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.305
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.235
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.094
FW 01 Right encroachment station 10067 is less than right channel bank station 10067.14 and greater than the left channel bank station 9978.509
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.094
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.048
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.048
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

RS: 1.736
FW FD 01 The floodway discharge of 660 is not equal to the natural 1% chance discharge of 1010
Please justify the use of different discharges for the natural and floodway profiles.

RS: 1.647
FW FD 01 The floodway discharge of 660 is not equal to the natural 1% chance discharge of 1010
Please justify the use of different discharges for the natural and floodway profiles.

RS: 1.43
FD 01 The floodway discharge of 660 is not equal to the natural 1% chance discharge of 1010
Please justify the use of different discharges for the natural and floodway profiles.

RS: 1.235
FW FD 01 The floodway discharge of 660 is not equal to the natural 1% chance

```
          discharge of 2670
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       1.205
FW FD 01  The floodway discharge of 660 is not equal to the natural 1% chance
          discharge of 2670
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.961
FW FD 01  The floodway discharge of 2670 is not equal to the natural 1% chance
          discharge of 3020
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.875
FW FD 01  The floodway discharge of 2670 is not equal to the natural 1% chance
          discharge of 3020
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.682
FW FD 01  The floodway discharge of 2700 is not equal to the natural 1% chance
          discharge of 3020
          Please justify the use of different discharges for the natural and floodway profiles.

RS:       0.588
FW FD 01  The floodway discharge of 2700 is not equal to the natural 1% chance
          discharge of 3020
          Please justify the use of different discharges for the natural and floodway profiles.

STARTING WATER-SURFACE ELEVATION CHECK
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---END---
```

2 EAST (NORTH OF CAP)

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.nt
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 2:23:46 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
2.598		0.036	0.044	0.036	0.1	0.3
2.571		0.036	0.044	0.036	0.1	0.3
2.542		0.036	0.044	0.036	0.1	0.3
2.501		0.036	0.044	0.036	0.1	0.3
2.412		0.036	0.044	0.036	0.1	0.3
2.347		0.036	0.044	0.036	0.1	0.3
2.276		0.036	0.044	0.036	0.1	0.3
2.196		0.036	0.044	0.036	0.1	0.3
2.12		0.036	0.044	0.036	0.1	0.3
2.077		0.036	0.044	0.036	0.1	0.3
1.991		0.036	0.044	0.036	0.1	0.3
1.907		0.036	0.044	0.036	0.1	0.3
1.831		0.036	0.044	0.036	0.1	0.3
1.742		0.036	0.046	0.036	0.1	0.3
1.651		0.036	0.046	0.036	0.1	0.3
1.559		0.036	0.046	0.036	0.1	0.3
1.478		0.036	0.046	0.036	0.1	0.3
1.417		0.036	0.046	0.036	0.1	0.3
1.338		0.036	0.046	0.036	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.036	0.036
Right Overbank n Value:	0.036	0.036
Channel n Value:	0.044	0.046
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 2.598
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.571
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.542
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.501
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.412
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.347
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.276
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.196
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.12
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 2.077
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 1.991
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 1.907
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 1.831
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.044 The overbank n values should be reevaluated.

RS: 1.742
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.046 The overbank n values should be reevaluated.

RS: 1.651
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.046 The overbank n values should be reevaluated.

RS: 1.559
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.046 The overbank n values should be reevaluated.

RS: 1.478
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.046 The overbank n values should be reevaluated.

RS: 1.417
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.046 The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

2EAST
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.xs
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 2:23:46 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
2.598	135.934	140.211	140.492	305.26	890	D
2.571	155.985	150.616	124.147	248.59	890	D
2.542	215.221	218.029	234.22	332.24	890	D
2.501	439.452	472.405	480.602	250.86	890	
2.412	295.497	344.131	322.11	429.44	890	D
2.347	346.399	377.335	372.823	399.59	890	D
2.276	414.15	422.74	429.709	494.58	890	D
2.196	393.785	398.766	364.318	343.29	890	D, E (SIC)
2.12	254.434	227.198	250.425	347.49	1450	D
2.077	423.173	453.724	437.901	192.23	1450	D
1.991	456.575	445.493	447.525	333.32	1450	C
1.907	405.299	399.894	378.675	390.2	1450	D
1.831	469.695	471.151	466.471	269.96	1450	
1.742	485.116	483.018	477.135	290.79	1450	
1.651	488.045	487.241	474.207	236.12	1450	E (SIC)
1.559	376.117	429.789	400.043	321.2	1450	
1.478	301.257	320.921	315.928	218.42	1450	D
1.417	442.977	417.646	401.618	291.64	1450	D, D (SIC)
1.338	0	0	0	349.78	1450	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 2.276
XS LC 01 Lenchl Up/TopwdthAct Dn = 1.23
MaxChlDpth Up/MaxChlDpth Dn = 1.11
TopwdthAct Up/TopwdthAct Dn = 1.44
This cross section is located too far upstream from the critical depth cross section.

RS: 1.742
XS LC 01 Lenchl Up/TopwdthAct Dn = 2.05
MaxChlDpth Up/MaxChlDpth Dn = 1.25

TopwdthAct Up/TopwdthAct Dn = 1.23
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Reach #1
Normal S = 0.01013 is specified as the downstream boundary for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Reach #1
Normal S = 0.01013 is specified as the downstream boundary for profile Floodway

LATERAL WEIRS CHECK

---END---

2EAST

CHECK-RAS Program: Floodway Check

Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2EAST.fw
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 2:23:48 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
2.598					9779.83	10150.9	
2.598	1	0.09	9810	10131	9810	10131	
2.571					9826.75	10124.93	
2.571	1	0.18	9869	10118	9869	10118	
2.542					9838.13	10215.41	
2.542	1	0.18	9958	10165	9958	10165	
2.501					9938.41	10189.27	
2.501	1	0.41	9989	10082	9989	10082	
2.412					9781.74	10237.22	
2.412	1	0.54	9929	10045	9929	10045	
2.347					9612.22	10096.24	
2.347	1	0.93	9937	10013	9937	10013	
2.276					9520.84	10084.76	
2.276	1	0.24	9935	10031	9935	10031	
2.196					9618.78	10016.63	
2.196	1	0.96	9845	10018	9845	10018	
2.12					9784.1	10169.78	
2.12	1	0.32	9894	10068	9894	10068	
2.077					9946.49	10186.39	
2.077	1	0.42	9921	10075	9925.35	10075	
1.991					9791.48	10124.8	
1.991	1	0.63	9916	10028	9916	10028	
1.907					9839.65	10245.46	
1.907	1	0.64	9977	10110	9977	10110	
1.831					9859.21	10129.17	
1.831	1	0.47	9893	10043	9893	10043	
1.742					9824.86	10115.65	
1.742	1	0.35	9879	10032	9879	10032	
1.651					9951.62	10187.73	
1.651	1	0.94	9952	10032	9952	10032	
1.559					9968.7	10289.9	
1.559	1	0.68	9967	10099	9967	10099	
1.478					9824.52	10080.45	
1.478	1	0.33	9942	10034	9942	10034	
1.417					9781.76	10197.99	
1.417	1	0.5	9972	10051	9977.83	10051	
1.338					9617.44	10090.5	
1.338	4	1	9854.27	10033.67	9854.27	10033.67	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 2.501
FW FW 01 Left encroachment station 9989 is more than left channel bank station 9988.701 and less than the right channel bank station 10025.67
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.501
FW FW 03 The right channel bank station may not be at the proper location.

```
RS:        2.276
FW FW 01   Right encroachment station 10031 is less than right channel bank
           station 10031.17 and greater than the left channel bank station 9970.097
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.907
FW FW 01   Left encroachment station 9977 is more than left channel bank
           station 9976.918 and less than the right channel bank station 10018
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.742
FW FW 01   Right encroachment station 10032 is less than right channel bank
           station 10032.29 and greater than the left channel bank station 9973.691
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.651
FW FW 01   Left encroachment station 9952 is more than left channel bank
           station 9949.305 and less than the right channel bank station 10018.7
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.559
FW FW 01   Left encroachment station 9967 is more than left channel bank
           station 9966.896 and less than the right channel bank station 10043.42
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.559
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        1.478
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        1.417
FW FW 03   The Left channel bank station may not be at the proper
           location.


SURCHARGE CHECK
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DISCHARGE CHECK
---------------


STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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2 EAST TRIBUTARY

2E_TRIB
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.nt
Selected profiles: Floodplain;Floodway
Date: 7/27/2005
Time: 5:34:14 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
1.753		0.033	0.045	0.033	0.1	0.3
1.698		0.033	0.045	0.033	0.1	0.3
1.646		0.033	0.045	0.033	0.1	0.3
1.578		0.033	0.045	0.033	0.1	0.3
1.496		0.033	0.045	0.033	0.1	0.3
1.416		0.033	0.045	0.033	0.1	0.3
1.317		0.033	0.045	0.033	0.1	0.3
1.233		0.033	0.045	0.033	0.1	0.3
1.147		0.033	0.045	0.033	0.1	0.3
1.078		0.033	0.045	0.033	0.1	0.3
1		0.033	0.045	0.033	0.1	0.3
.92		0.033	0.045	0.033	0.1	0.3
.844		0.035	0.045	0.035	0.1	0.3
.762		0.035	0.045	0.035	0.1	0.3
.681		0.035	0.045	0.035	0.1	0.3
.599		0.035	0.045	0.035	0.1	0.3
.537		0.035	0.045	0.035	0.1	0.3
.45		0.035	0.045	0.035	0.1	0.3
.392		0.035	0.045	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.035
Right Overbank n Value:	0.033	0.035
Channel n Value:	0.045	0.045
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.753
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.753
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.753
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

RS: 1.698
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.698
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

```
RS:       1.698
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.646
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.646
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.646
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.578
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.578
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.578
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.496
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.496
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.496
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.416
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.416
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.416
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.317
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       1.317
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
```

```
          The n value should be reevaluated.

RS:       1.317
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       1.233
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.233
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.233
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       1.147
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.147
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.147
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       1.078
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.078
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1.078
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       1
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1
NT RC 01 Right overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       1
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.92
NT RC 01 Left overbank n value is less than 0.035
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.92
NT RC 01 Right overbank n value is less than 0.035
```

```
          The n value for overbank is usually larger then 0.035.
          The n value should be reevaluated.

RS:       0.92
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
          of 0.033 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.844
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.762
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.681
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.599
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.537
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

RS:       0.45
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
          of 0.035 are less than or equal to the channel n value of 0.045
          The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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2E_TRIB
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.xs
Selected profiles: Floodplain;Floodway
Date: 7/27/2005
Time: 5:34:14 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
1.753	224.217	292.475	321.958	328.6	2150	
1.698	262.386	273.722	243.837	196	2150	D
1.646	363.345	359.45	357.107	152.6	2150	
1.578	463.527	435.576	397.966	195.67	2150	C
1.496	418.457	422.645	417.859	188.76	2150	
1.416	483.037	523.244	541.96	94.17	2150	C
1.317	455.329	445.307	444.467	122.27	2150	
1.233	461.011	454.393	394.434	115.37	2150	C
1.147	352.171	364.299	376.102	203.92	2150	
1.078	401.409	413.226	424.887	100.38	2150	C
1	450.414	423.311	384.311	232.05	2150	
.92	406.873	402.691	404.169	146.07	2150	C
.844	433.441	431.033	428.577	310.35	2150	
.762	409.828	430.028	461.756	221.94	2150	
.681	405.307	432.436	352.848	320.65	2150	
.599	321.25	326.443	333.013	331.82	2150	D,E
.537	462.364	459.448	450.775	265.69	2150	
.45	284.511	306.559	309.776	239.43	2150	
.392	0	0	0	290.03	2150	D,C

C = supercritical (s/c)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

XS DC 02 Constant dicharge used for the Reach #1,Reach #1

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Reach #1
Normal S = 0.0093 is specified as the downstream boundary
for profile Floodplain

2E_TRIB
XS BC 02 The name of the stream is Reach #1,Reach #1
Normal S = 0.0093 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

2E_TRIB
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\2E_TRIB.fw
Selected profiles: Floodplain;Floodway
Date: 7/27/2005
Time: 5:34:16 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
1.753					9799.55	10128.15	
1.753	1	0.86	9958	10098	9958	10098	
1.698					9861.7	10065.27	
1.698	1	0.09	9897	10041	9897	10041	
1.646					9933.51	10086.1	
1.646	1	0.29	9939	10052	9939	10052	
1.578					9926.99	10122.66	
1.578	1	0.63	9928	10038	9928	10038	
1.496					9886.48	10075.24	
1.496	1	0.29	9986	10061	9986	10061	
1.416					9961.82	10055.99	
1.416	1	0	9964	10043	9964	10043	
1.317					9945.16	10067.43	
1.317	1	0.64	9966	10059	9966	10059	
1.233					9914.68	10030.06	
1.233	1	0.46	9959	10020	9959	10020	
1.147					9858.27	10062.19	
1.147	1	0.89	9937	10041	9937	10041	
1.078					9963.66	10064.04	
1.078	1	0.48	9988	10039	9988	10039	
1					9907.55	10139.6	
1	1	0.9	9943	10040	9943	10040	
0.92					9981.23	10127.3	
0.92	1	0.59	9982	10045	9982	10045	
0.844					9889.29	10199.64	
0.844	1	0.92	9940	10048	9940	10048	
0.762					9825.82	10047.76	
0.762	1	0.14	9936	10047	9936	10047	
0.681					9787.09	10107.74	
0.681	1	0.97	9908	10051	9908	10051	
0.599					9916.33	10327.46	
0.599	1	0.04	9974	10049	9974	10049	
0.537					9865.93	10131.63	
0.537	1	0.49	9875	10036	9875	10036	
0.45					9845.8	10085.23	
0.45	1	0.86	9947	10049	9947	10049	
0.392					9893.01	10190.98	
0.392	1	1	9970	10117	9970	10117	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 1.753
FW FW 01 Left encroachment station 9958 is more than left channel bank station 9938.342 and less than the right channel bank station 10098.36
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.753
FW FW 01 Right encroachment station 10098 is less than right channel bank station 10098.36 and greater than the left channel bank station 9938.342
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 1.753
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.753
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.698
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.646
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.578
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.496
FW FW 01 Left encroachment station 9986 is more than left channel bank station 9985.721 and less than the right channel bank station 10060.96
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.317
FW FW 01 Right encroachment station 10059 is less than right channel bank station 10059.07 and greater than the left channel bank station 9966.09
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.317
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.317
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.233
FW FW 01 Right encroachment station 10020 is less than right channel bank station 10020.22 and greater than the left channel bank station 9987.329
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.078
FW FW 01 Left encroachment station 9988 is more than left channel bank station 9987.961 and less than the right channel bank station 10019.97
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.078
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.92
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.681
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.599
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.45
FW FW 01 Right encroachment station 10049 is less than right channel bank station 10049.43 and greater than the left channel bank station 9947.353
Right encroachment station is within the channel.

2E_TRIB

The encroachment station or channel bank station should be adjusted.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

---END---

7 EAST

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.nt
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 1:36:04 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Reach #1						
1.854		0.036	0.043	0.036	0.1	0.3
1.625		0.036	0.043	0.036	0.1	0.3
1.399		0.036	0.043	0.036	0.1	0.3
1.122		0.038	0.045	0.038	0.1	0.3
.897		0.038	0.045	0.038	0.1	0.3
.811		0.038	0.045	0.038	0.1	0.3
.724		0.038	0.051	0.038	0.1	0.3
.637		0.038	0.051	0.038	0.1	0.3
.561		0.038	0.051	0.038	0.1	0.3
.467		0.038	0.051	0.038	0.1	0.3
.385		0.038	0.051	0.038	0.1	0.3
.287		0.038	0.051	0.038	0.1	0.3
.2		0.038	-----	-----	0.1	0.3
		0.051	-----	-----		
.127		0.038	-----	0	0.1	0.3
		0.051	-----	0.038		
		-----	-----	0.051		
		-----	-----	0.038		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.036	0.051
Right Overbank n Value:	0	0.051
Channel n Value:	0.043	0.051
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.854
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 1.625
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 1.399
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.043 The overbank n values should be reevaluated.

RS: 1.122
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.045 The overbank n values should be reevaluated.

RS: 0.897
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.045 The overbank n values should be reevaluated.

```
RS:       0.811
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       0.724
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       0.637
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       0.561
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       0.467
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       0.385
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

RS:       0.287
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.051
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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7EAST
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.xs
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 1:36:05 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Reach #1						
1.854	1208.2	1207.26	1160.04	135.43	1290	
1.625	1191.12	1191.62	1199.29	251.12	1290	D
1.399	1445.01	1464.46	1433.11	105.74	1290	
1.122	1146.06	1185.7	1190.58	328.68	1290	
.897	451.134	456.683	440.594	471.2	3930	D
.811	449.132	460.739	441.549	649.95	3930	D
.724	438.063	461.09	546.618	586.78	3930	D
.637	350.289	402.191	406.863	664.6	3930	D
.561	501.843	497.462	500.485	752.3	3930	D,C — (Ste)
.467	428.028	434.759	485.74	832.28	3930	
.385	517.133	516.035	474.246	618.64	3930	D,C — (Ste)
.287	448.107	457.798	504.939	933.13	3930	
.2	398.749	383.399	408.332	876.63	3930	D,C — (Ste)
.127	0	0	0	1279.1	3930	B

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

in Zone AH
bounding area

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Reach #1
Known WS = 1555.23 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Reach #1
Known WS = 1555.23 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

7EAST

CHECK-RAS Program: Floodway Check

Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST.fw
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 1:36:07 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Reach #1							
1.854					9880.29	10015.72	
1.854	0	-0.02	0	0	9881.51	10015.68	
1.625					9955.66	10223.05	
1.625	0	-0.02	0	0	9956.28	10222.97	
1.399					9973.52	10079.27	Zone A
1.399	0	0.04	0	0	9973.14	10079.54	
1.122					9916.36	10245.04	
1.122	0	-0.02	0	0	9916.62	10244.6	
0.897					9804.22	10367.83	
0.897	0	0.13	0	0	9746.63	10368.91	
0.811					9731.2	10389.03	
0.811	1	0.84	9920	10140	9920	10140	
0.724					9530.98	10142.02	
0.724	1	0.41	9889	10033	9889	10033	
0.637					9636.78	10369.8	
0.637	1	0.37	9785	10030	9785	10030	
0.561					9752.82	10561.3	
0.561	1	0.34	9820	10238	9820	10238	
0.467					9688.12	10520.4	
0.467	1	0.42	9699	10132	9699	10132	
0.385					9904.48	10538.4	
0.385	1	0.5	9927	10279	9927	10279	
0.287					9687.87	10621	
0.287	1	1	9882	10223	9882	10223	
0.2					9841.15	10747.7	
0.2	1	0.75	9862	10227	9862	10227	
0.127					9741.51	11020.61	
0.127	1	0	9742	10719	9742	10719	

ENCROACHMENT METHOD CHECK

RS: 1.854
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.625
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.399
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 1.122
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 0.897
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 1.854
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.625

FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.122
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.122
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.897
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.811
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.724
FW FW 01 Right encroachment station 10033 is less than right channel bank station 10033.29 and greater than the left channel bank station 9979.59
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.637
FW FW 01 Right encroachment station 10030 is less than right channel bank station 10030.19 and greater than the left channel bank station 9977.502
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.561
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.467
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.287
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.287
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

FW SW 04 The name of the stream is Reach #1
Encroachment method 1 is used.
Total conveyance for the natural profile is 315258.4
Total conveyance for the floodway profile is 216037.5
The difference in conveyance between the floodway profile and the natural profile is more than 1%.
Normal Depth option with the same energy slope as the natural profile must be used for the floodway profile and rerun the plan.
This message is not applicable for the revisions.

FW SW 05 The name of stream is Reach #1
Encroachment method 1 is used.
The floodway starting water-surface elevation of 1555.23 is equal to the natural starting water-surface elevation of 1555.23
Normal depth option with the same energy slope as the natural

profile must be used for the floodway profile and rerun the plan.
This message is not applicable for the revisions.

---END---

7 EAST TRIBUTARY

7EAST_TRIB
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.nt
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 1:14:48 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,All elevations a						
2.039		0.035	0.045	0.035	0.1	0.3
1.903		0.035	0.045	0.035	0.1	0.3
1.848		0.035	0.045	0.035	0.1	0.3
1.776		0.035	0.045	0.035	0.1	0.3
1.686		0.035	0.045	0.035	0.1	0.3
1.596		0.035	0.045	0.035	0.1	0.3
1.518		0.035	0.045	0.035	0.1	0.3
1.451		0.035	0.045	0.035	0.1	0.3
1.383		0.035	0.045	0.035	0.1	0.3
1.323		0.035	0.045	0.035	0.1	0.3
1.271		0.035	0.045	0.035	0.1	0.3
1.187		0.035	0.045	0.035	0.1	0.3
1.105		0.035	0.045	0.035	0.1	0.3
1.031		0.035	0.045	0.035	0.1	0.3
.94		0.035	0.045	0.035	0.1	0.3
.857		0.035	0.044	0.039	0.1	0.3
.778		0.035	0.044	0.039	0.1	0.3
.722		0.035	0.044	0.039	0.1	0.3
.666		0.035	0.044	0.039	0.1	0.3
.567		0.035	0.044	0.039	0.1	0.3
.488		0.035	0.044	0.039	0.1	0.3
.418		0.035	0.044	0.039	0.1	0.3
.347		0.035	0.044	0.039	0.1	0.3
.291		0.035	0.044	0.039	0.1	0.3
.198		0.035	0.044	0.039	0.1	0.3
.145		0.03	0.039	0.03	0.1	0.3
.099		0.03	0.039	0.03	0.1	0.3
.043		0.03	0.039	0.03	0.1	0.3

Zone A

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.03	0.035
Right Overbank n Value:	0.03	0.039
Channel n Value:	0.039	0.045
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 2.039
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

RS: 1.903
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

RS: 1.848
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.045
The overbank n values should be reevaluated.

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RS:       1.776
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.686
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.596
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.518
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.451
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.383
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.323
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.271
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.187
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.105
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       1.031
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       0.94
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       0.857
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.778
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.722
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.
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RS:       0.666
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.567
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.488
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.418
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.347
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.291
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.198
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       0.145
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.145
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.145
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:       0.099
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.099
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       0.099
NT RC 05 The left overbank n value of 0.03 and the right overbank n value
         of 0.03 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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7EAST_TRIB
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.xs
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 1:14:48 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,All elevations a						
2.039	718.646	718.646	718.646	37.46	140	
1.903	288.929	288.929	288.929	26.81	140	
1.848	378.268	380.996	374.044	50.62	140	
1.776	468.644	472.654	478.482	28.19	140	
1.686	463.925	477.738	483.483	53.38	140	D
1.596	415.569	413.647	408.254	30.7	140	
1.518	360.819	355.726	354.246	25.73	140	
1.451	367.939	361.623	354.944	37.38	140	
1.383	320.931	315.611	311.905	37.58	140	
1.323	269.827	277.139	285.866	44.82	140	
1.271	442.985	441.342	437.824	79.59	510	
1.187	434.148	434.821	429.151	96.71	510	C
1.105	384.376	392.807	392.108	122.23	510	
1.031	479.879	482.657	479.675	74.98	510	C
.94	417.726	436.132	443.124	103.06	510	
.857	411.556	419.122	420.014	67.04	510	
.778	293.321	295.105	294.905	228.68	510	D
.722	287.66	293.097	294.034	282.07	510	D,C
.666	512.551	523.728	509.453	222.47	510	
.567	418.967	415.62	401.834	126.68	510	
.488	384.484	371.111	354.58	140	510	
.418	367.361	377.189	376.016	79.69	510	
.347	298.775	294.499	286.386	134.6	510	
.291	481.555	488.898	493.716	71.44	510	
.198	277.241	281.111	278.917	88.05	510	D
.145	249.962	241.782	234.671	84.07	510	
.099	287.422	294.97	299.486	98.89	510	
.043	0	0	0	236.64	510	D

zone A

(Slc)

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 1.105

```
XS LC 01 Lenchl Up/TopwdthAct Dn = 5.24
         MaxChlDpth Up/MaxChlDpth Dn = 1.22
         TopwdthAct Up/TopwdthAct Dn = 1.63
         This cross section is located too far upstream from the
         critical depth cross section.


BOUNDARY CONDITION CHECK
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XS BC 02 The name of the stream is Reach #1,All elevations a
         Normal S = 0.00567 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,All elevations a
         Normal S = 0.00567 is specified as the downstream boundary
         for profile Floodway


LATERAL WEIRS CHECK
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---END---
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7EAST_TRIB
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\NORTH_CAP\7EAST_TRIB.fw
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 1:14:50 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,All elevations a							
2.039					9983.98	10021.45	
2.039	1	-0.02	9795	10182	9984.19	10021.3	
1.903					9987.85	10014.66	
1.903	1	0.04	9984	10019	9987.68	10014.84	
1.848					9974.07	10024.69	
1.848	1	-0.02	9745	10115	9974.25	10024.38	
1.776					9988.35	10016.54	
1.776	1	0.04	9986	10019	9988.11	10016.73	
1.686					9957.56	10011.23	
1.686	1	0.08	9966	10011	9966	10011	
1.596					9989.04	10019.74	
1.596	1	0.02	9992	10018	9992	10018	
1.518					9984.62	10010.35	
1.518	1	-0.02	9914	10105	9984.69	10010.29	
1.451					9983.61	10020.99	
1.451	1	0.02	9983	10017	9983.51	10017	
1.383					9987.9	10025.47	
1.383	1	-0.02	9876	10082	9988.09	10025.12	
1.323					9978.25	10023.07	
1.323	1	0.04	9983	10015	9983	10015	
1.271					9962.96	10042.55	
1.271	1	0.08	9980	10024	9980	10024	
1.187					9981.84	10078.55	
1.187	1	0.44	9989	10024	9989	10024	
1.105					9985.65	10107.88	
1.105	1	0.4	9988	10044	9988	10044	
1.031					9960.11	10035.09	
1.031	1	0.32	9971	10018	9971	10018	
0.94					9959.34	10062.4	
0.94	1	0.07	9987	10023	9987	10023	
0.857					9977.76	10044.81	
0.857	1	0.22	9980	10038	9980	10038	
0.778					9840.76	10109.48	
0.778	1	0.68	9982	10022	9982	10022	
0.722					9781.01	10076.76	
0.722	1	0.4	9975	10015	9975	10015	
0.666					9811.95	10034.42	
0.666	1	0.82	9980	10030	9980	10030	
0.567					9921.74	10048.42	
0.567	1	0.8	9980	10016	9980	10016	
0.488					9912.15	10052.14	
0.488	1	0.38	9976	10017	9976	10017	
0.418					9972.82	10052.51	
0.418	1	0.61	9979	10022	9979	10022	
0.347					9982.23	10116.83	
0.347	1	0.58	9988	10020	9988	10020	
0.291					9966.13	10037.56	
0.291	1	0.14	9987	10021	9987	10021	
0.198					9941.71	10034.34	
0.198	1	0.14	9977	10020	9977	10020	
0.145					9968.44	10052.51	
0.145	1	-0.04	9965	10041	9969.02	10041	
0.099					9973.43	10072.32	
0.099	1	0.15	9976	10054	9976	10054	
0.043					9758.6	10094.98	
0.043	1	0.34	9975	10095	9975.19	10095	

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 2.039
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9795 is outside the channel.
Left channel bank station is 9982.285
Left encroachment station and/or left channel bank station should be adjusted.

RS: 2.039
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10182 is outside the channel.
Right channel bank station is 10022.29
Right encroachment station and/or right channel bank station should be adjusted.

RS: 2.039
FW FW 06 The left station effective of 9984.19 for the floodway profile is more than the left channel bank station of 9982.285
The left side of the floodway boundary is within the channel.
The left encroachment station of 9795 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.039
FW FW 06 The right station effective of 10021.3 for the floodway profile is less than the right channel bank station of 10022.29
The right side of the floodway boundary is within the channel.
The right encroachment station of 10182 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.903
FW FW 01 Left encroachment station 9984 is more than left channel bank station 9983.868 and less than the right channel bank station 10018.76
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.903
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10019 is outside the channel.
Right channel bank station is 10018.76
Right encroachment station and/or right channel bank station should be adjusted.

RS: 1.903
FW FW 06 The right station effective of 10014.84 for the floodway profile is less than the right channel bank station of 10018.76
The right side of the floodway boundary is within the channel.
The right encroachment station of 10019 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.848
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.848
FW FW 04 The right station effective of 10024.69 for 1% annual chance floodplain is greater than the right channel bank station (10012.32).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10115) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.848
FW FW 06 The left station effective of 9974.25 for the floodway profile is more than the left channel bank station of 9972.304

The left side of the floodway boundary is within the channel.
The left encroachment station of 9745 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.776
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9986 is outside the channel.
Left channel bank station is 9986.478
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.776
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10019 is outside the channel.
Right channel bank station is 10018.9
Right encroachment station and/or right channel bank station should be adjusted.

RS: 1.776
FW FW 06 The left station effective of 9988.11 for the floodway profile is more than the left channel bank station of 9986.478
The left side of the floodway boundary is within the channel.
The left encroachment station of 9986 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.776
FW FW 06 The right station effective of 10016.73 for the floodway profile is less than the right channel bank station of 10018.9
The right side of the floodway boundary is within the channel.
The right encroachment station of 10019 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.686
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.686
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.596
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.518
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9914 is outside the channel.
Left channel bank station is 9980.617
Left encroachment station and/or left channel bank station should be adjusted.

RS: 1.518
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10105 is outside the channel.
Right channel bank station is 10013.4
Right encroachment station and/or right channel bank station should be adjusted.

RS: 1.518
FW FW 06 The left station effective of 9984.69 for the floodway profile is more than the left channel bank station of 9980.617
The left side of the floodway boundary is within the channel.
The left encroachment station of 9914 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 1.518
FW FW 06 The right station effective of 10010.29 for the floodway profile is less than the right channel bank station of 10013.4
The right side of the floodway boundary is within the channel.
The right encroachment station of 10105 is greater than the right channel

bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.451
FW FW 04 The left station effective of 9983.61 for 1% annual chance floodplain is less than the left channel bank station 9983.757
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9983) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.383
FW FW 04 The left station effective of 9987.9 for 1% annual chance floodplain is less than the left channel bank station 9989.295
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9876) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.383
FW FW 04 The right station effective of 10025.47 for 1% annual chance floodplain is greater than the right channel bank station (10012.4).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10082) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.031
FW FW 01 Right encroachment station 10018 is less than right channel bank station 10018.4 and greater than the left channel bank station 9971.981
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.94
FW FW 01 Right encroachment station 10023 is less than right channel bank station 10023.05 and greater than the left channel bank station 9987.039
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.857
FW FW 01 Left encroachment station 9980 is more than left channel bank station 9979.981 and less than the right channel bank station 10038.47
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.857
FW FW 01 Right encroachment station 10038 is less than right channel bank station 10038.47 and greater than the left channel bank station 9979.981
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.778
FW FW 01 Right encroachment station 10022 is less than right channel bank station 10022.08 and greater than the left channel bank station 9982.08
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.722
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.24 and greater than the left channel bank station 9975.231
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.666
FW FW 01 Left encroachment station 9980 is more than left channel bank station 9979.717 and less than the right channel bank station 10029.74
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.567
FW FW 01 Right encroachment station 10016 is less than right channel bank station 10016.02 and greater than the left channel bank station 9980.114
Right encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 0.567
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.488
FW FW 01 Left encroachment station 9976 is more than left channel bank station 9975.653 and less than the right channel bank station 10016.76
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.418
FW FW 01 Right encroachment station 10022 is less than right channel bank station 10022.07 and greater than the left channel bank station 9979.365
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.418
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.418
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.347
FW FW 01 Right encroachment station 10020 is less than right channel bank station 10020.18 and greater than the left channel bank station 9988.83
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.347
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.291
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.198
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.145
FW FW 04 The left station effective of 9968.44 for 1% annual chance floodplain is less than the left channel bank station 9977.354
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9965) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0.099
FW FW 01 Right encroachment station 10054 is less than right channel bank station 10054.61 and greater than the left channel bank station 9976.354
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.043
FW FW 04 The right station effective of 10094.98 for 1% annual chance floodplain is greater than the right channel bank station (10093.13).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10095) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

---END---

IONA EAST (SOUTH OF CAP CANAL)

IONA_EAST
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.nt
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 5:03:06 PM

3.709 was deleted from model

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Iona East (South						
~~3.709~~		~~0.033~~	~~0.025~~	~~0.033~~	~~0.3~~	~~0.5~~
3.683		0.033	0.025	0.033	0.3	0.5
3.654		0.033	0.044	0.033	0.3	0.5
3.615		0.033	0.044	0.033	0.3	0.5
3.554		0.033	0.044	0.033	0.1	0.3
3.476		0.033	0.044	0.033	0.1	0.3
3.389		0.033	0.044	0.033	0.1	0.3
3.32		0.033	0.044	0.033	0.1	0.3
3.242		0.033	0.044	0.033	0.1	0.3
3.169		0.033	0.044	0.033	0.1	0.3
3.108		0.033	0.044	0.033	0.1	0.3
3.049		0.037	0.046	0.034	0.1	0.3
3.001		0.037	0.046	0.034	0.1	0.3
2.932		0.037	-----	-----	0.1	0.3
		0.046	-----	-----		
2.86		0.037	0.046	0.034	0.1	0.3
2.814		0.037	-----	-----	0.1	0.3
		0.046	-----	-----		
2.761		0.037	-----	-----	0.1	0.3
		0.046	-----	-----		
2.699		0.037	-----	-----	0.1	0.3
		0.046	-----	-----		
2.625		0.037	0.046	0.034	0.1	0.3
2.566		0.037	0.046	0.034	0.1	0.3
2.471		0.037	0.046	0.034	0.1	0.3
2.385		0.037	-----	-----	0.1	0.3
		0.043	-----	-----		
2.317		0.037	0.043	0.039	0.1	0.3
2.244		0.037	0.043	0.039	0.1	0.3
2.189		0.037	0.043	0.039	0.1	0.3
2.106		0.037	0.043	0.039	0.1	0.3
2.05		0.037	0.043	0.039	0.1	0.3
1.986		0.037	0.043	0.039	0.1	0.3
1.899		0.039	0.048	-----	0.1	0.3
		0.048	0.039	-----		
1.845		0.039	0.039	0.048	0.1	0.3
		-----	0.048	0.039		
1.775		0.039	0.039	-----	0.1	0.3
		-----	0.048	-----		
		-----	0.039	-----		
1.73		0.039	0.039	0.039	0.1	0.3
		-----	0.048	-----		
1.664		0.039	0.039	0.048	0.1	0.3
		-----	0.048	0.039		
1.567		0.039	0.039	-----	0.1	0.3
		-----	0.048	-----		
		-----	0.039	-----		
1.497		0.032	0.039	0.032	0.1	0.3
		-----	-----	0.033		
1.438		0.032	-----	-----	0.1	0.3
		0.039	-----	-----		
1.371		0.032	-----	-----	0.1	0.3
		0.039	-----	-----		
1.294		0.032	0.039	-----	0.1	0.3
		-----	0.033	-----		
1.215		0.032	0.039	0.033	0.1	0.3
1.146		0.032	0.039	0.033	0.1	0.3
1.062		0.032	0.039	0.033	0.1	0.3

b/c of outflow @ overchute

IONA_EAST

.983	0.034	0.034	0.049	0.1	0.3
	-----	0.049	0.038		
.855	0.034	-----	-----	0.1	0.3
	0.049	-----	-----		
.808	0.034	-----	-----	0.1	0.3
	0.049	-----	-----		
.741	0.049	0.038	0.04	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.032	0.049
Right Overbank n Value:	0.032	0.049
Channel n Value:	0.025	0.049
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

~~RS: 3.709~~
~~NT RC 01 Left overbank n value is less than 0.035~~
~~The n value for overbank is usually larger then 0.035.~~
~~The n value should be reevaluated.~~

RS: 3.709
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.709
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 3.683
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.683
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.683
NT RC 03 Channel n value is equal to or less than 0.025
The n value of the channel is usually larger than 0.025.
The n value should be reevaluated it if is not representing a
concrete lined channel.

RS: 3.654
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.654
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 3.654
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
of 0.033 are less than or equal to the channel n value of 0.044
The overbank n values should be reevaluated.

RS: 3.615
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

```
RS:       3.615
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.615
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.554
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.554
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.554
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.476
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.476
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.476
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.389
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.389
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.389
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.32
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.32
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.32
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.242
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.
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RS:       3.242
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.242
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.169
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.169
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.169
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.108
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.108
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.108
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.044
         The overbank n values should be reevaluated.

RS:       3.049
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.049
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       3.001
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       3.001
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       2.86
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       2.86
NT RC 05 The left overbank n value of 0.037 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.046
         The overbank n values should be reevaluated.

RS:       2.625
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
```

The n value should be reevaluated.

RS: 2.625
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.566
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.566
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.471
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.471
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 2.317
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 2.244
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 2.189
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 2.106
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 2.05
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 1.986
NT RC 05 The left overbank n value of 0.037 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.043
The overbank n values should be reevaluated.

RS: 1.73
NT RC 05 The left overbank n value of 0.039 and the right overbank n value of 0.039 are less than or equal to the channel n value of 0.039
The overbank n values should be reevaluated.

RS: 1.497
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.497
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.294
NT RC 01 Left overbank n value is less than 0.035

```
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.215
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.215
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.215
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:      1.146
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.146
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.146
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:      1.062
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.062
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.062
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.039
         The overbank n values should be reevaluated.

RS:      0.983
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:      3.709
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:      3.683
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:      3.654
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:      3.615
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
```

They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

IONA_EAST
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.xs
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 5:03:06 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Iona East (South						
~~3.709~~	~~136.215~~	~~135.304~~	~~137.657~~	~~70.59~~	~~7170~~	~~E~~
3.683	177.466	153.703	154.699	50.23	7170	C
3.654	230.661	203.515	186.669	293.55	7170	
3.615	338.68	323.841	292.01	546.66	7170	
3.554	415.256	413.582	404.558	484.48	7170	
3.476	455.629	457.941	521.282	351.14	7170	
3.389	358.233	365.667	398.567	625.54	7170	
3.32	413.839	413.575	404.604	909.34	7170	
3.242	394.722	387.071	406.817	1136.26	7170	C
3.169	330.494	322.01	334.665	1202.94	7170	D
3.108	316.12	309.084	302.585	1287.57	7170	D
3.049	264.687	251.199	231.865	1565.32	7170	D
3.001	355.976	363.853	339.373	1471.2	7170	D
2.932	281.819	377.554	448.017	1549.93	7170	D
2.86	212.354	244.627	222.008	1043.3	5380	
2.814	265.503	280.101	311.819	993.74	5380	D
2.761	315.862	328.177	346.604	1078.87	5380	D
2.699	374.3	388.357	329.445	1121.84	5380	D
2.625	310.348	309.162	221.914	803.71	5380	D
2.566	408.679	499.253	519.842	965.38	5380	
2.471	455.67	455.481	450.974	767	5460	
2.385	391.944	359.737	363.047	703.21	5460	
2.317	280.308	384.655	420.211	956.84	5460	
2.244	330.652	289.326	324.973	1309.65	5460	
2.189	433.459	438.187	438.934	872.35	5460	
2.106	277.737	298.244	259.467	1033.72	5460	D
2.05	302.727	335.293	292.478	1087.92	5460	
1.986	471.989	459.388	432.704	1019.63	5460	D
1.899	298.612	286.814	256.215	946.65	5460	
1.845	392.26	371.701	359.587	812.59	5460	D
1.775	244.964	237.823	279.508	941.64	5540	
1.73	376.606	347.333	351.083	615.34	5540	D
1.664	542.173	512.012	500.151	752.53	5540	
1.567	387.006	371.388	367.313	702.68	5540	
1.497	319.186	312.854	323.047	811.09	5540	
1.438	361.641	352.864	358.026	814.26	5540	D
1.371	402.86	406.474	411.393	938.97	5540	
1.294	393.353	416.799	396.913	734.63	5540	
1.215	343.285	364.654	393.621	751.36	5540	
1.146	415.578	442.761	499.638	977.46	5540	
1.062	405.791	414.721	423.88	1140.14	5540	D
.983	661.065	675.499	728.683	1198.14	5540	D
.855	267.083	246.505	240.826	1030.76	5540	D
.808	305.675	351.37	380.451	1122.42	5540	
.741	0	0	0	1169.48	5540	

ok, south of CAP at ponding area

split flow @ C300_11

B=blocked obstruction XS SC 05
C=critial depth XS. SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 2.86
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Iona East (South
Normal S = 0.0055 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Iona East (South
Normal S = 0.0055 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

IONA_EAST
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_EAST.fw
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 5:03:08 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Iona East (South							
~~3.709~~					~~9967.01~~	~~10038.4~~	
~~3.709~~	~~1~~	~~0.04~~	~~9970~~	~~10036~~	~~9970~~	~~10036~~	
3.683					9976.41	10026.64	
3.683	1	0	9976	10027	9976.41	10026.64	
3.654					9845	10138.55	
3.654	1	0.86	9844	10095	9845	10095	
3.615					9672	10218.66	
3.615	1	0.61	9869	10125	9869	10125	
3.554					9827.52	10312.01	
3.554	1	0.82	9925	10195	9925	10195	
3.476					9869.86	10221	
3.476	1	0.9	9937	10104	9937	10104	
3.389					9785.76	10411.3	
3.389	1	0.72	9935	10174	9935	10174	
3.32					9674.66	10584	
3.32	1	0.69	9856	10209	9856	10209	
3.242					9643.74	10780	
3.242	1	0.49	9855	10313	9855	10313	
3.169					9508.2	10948	
3.169	1	0.76	9832	10439	9832	10439	
3.108					9365.3	11059	
3.108	1	0.96	9614	10609	9614	10609	
3.049					9348.01	11279.8	
3.049	1	0.95	9575	10850	9575	10850	
3.001					9247.46	11113.43	
3.001	1	0.57	9520	10832	9520	10832	
2.932					9024.82	10923.6	
2.932	1	0.85	9498	10787	9498	10787	
2.86					9051.78	10095.08	
2.86	1	0.65	9565	10068	9565	10068	
2.814					9199.48	10221.78	
2.814	1	0.62	9616	10149	9616	10149	
2.761					9334.11	10549.82	
2.761	1	0.59	9595	10288	9595	10288	
2.699					9531.38	10848.16	
2.699	1	0.98	9693	10524	9693	10524	
2.625					9854.06	10870.48	
2.625	1	0.77	9888	10566	9888	10566	
2.566					9830.49	10795.87	
2.566	1	0.53	9979	10493	9979	10493	
2.471					9666.24	10433.24	
2.471	1	0.63	9945	10333	9945	10333	
2.385					9561.21	10264.42	
2.385	1	0.54	9773	10205	9773	10205	
2.317					9321.48	10278.32	
2.317	1	0.99	9583	10103	9583	10103	
2.244					9075.64	10385.29	
2.244	1	0.95	9583	10131	9583	10131	
2.189					9232.94	10105.29	
2.189	1	0.55	9548	10063	9548	10063	
2.106					9078.3	10116.01	
2.106	1	0.74	9500	10038	9500	10038	
2.05					9348.08	10436	
2.05	1	0.66	9695	10115	9695	10115	
1.986					9617.16	10731.88	
1.986	1	0.78	9748	10202	9748	10202	
1.899					9665.5	10612.16	
1.899	1	0.55	9835	10234	9835	10234	

					IONA_EAST	
1.845					9783.09	10608.13
1.845	1	0.42	9843	10328	9843	10328
1.775					9663.26	10604.9
1.775	1	0.15	9727	10229	9727	10229
1.73					9706.54	10323.21
1.73	1	0.57	9777	10249	9777	10249
1.664					9548.7	10301.24
1.664	1	0.49	9810	10187	9810	10187
1.567					9546.16	10248.84
1.567	1	0.2	9758	10199	9758	10199
1.497					9574.92	10386
1.497	1	0.3	9778	10224	9778	10224
1.438					9678.06	10520.43
1.438	1	0.55	9802	10282	9802	10282
1.371					9685.49	10624.46
1.371	1	0.17	9802	10309	9802	10309
1.294					9702.67	10437.3
1.294	1	0.38	9775	10345	9775	10345
1.215					9871.66	10623.02
1.215	1	0.99	9920	10349	9920	10349
1.146					9707.21	10684.67
1.146	1	0.5	9877	10246	9877	10246
1.062					9635.78	10814.1
1.062	1	0.47	9906	10407	9906	10407
0.983					9610.29	10876
0.983	1	0.47	9875	10366	9875	10366
0.855					9448.62	10500.85
0.855	1	0.41	9869	10358	9869	10358
0.808					9415.82	10538.24
0.808	1	0.49	9898	10498	9898	10498
0.741					9539.58	10709.06
0.741	1	0.37	9819	10429	9819	10429

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 3.709
FW FW 01 Left encroachment station 9970 is more than left channel bank station 9969.535 and less than the right channel bank station 10036.42
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.709
FW FW 01 Right encroachment station 10036 is less than right channel bank station 10036.42 and greater than the left channel bank station 9969.535
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.709
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.683
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.654
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.654
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.654
FW FW 04 The left station effective of 9845 for 1% annual chance floodplain is less than the left channel bank station 9960.25
The 1% annual chance floodplain is outside the channel.

However, the left encroachment station (9844) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 3.554
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.476
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.389
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.389
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.242
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.932
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.932
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.86
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.625
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.566
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.471
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.244
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.106
FW FW 01 Right encroachment station 10038 is less than right channel bank station 10038.06 and greater than the left channel bank station 9982.2
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.05
FW FW 01 Right encroachment station 10115 is less than right channel bank station 10165.08 and greater than the left channel bank station 9965.55
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.05
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.986
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.899
FW FW 03 The right channel bank station may not be at the proper

location.

RS: 1.775
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.73
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.73
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.497
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.371
FW FW 01 Right encroachment station 10309 is less than right channel bank station 10320.17 and greater than the left channel bank station 9804.37
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.371
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.294
FW FW 01 Right encroachment station 10345 is less than right channel bank station 10351.44 and greater than the left channel bank station 9787.62
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.294
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.294
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.215
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.062
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.983
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.855
FW FW 01 Right encroachment station 10358 is less than right channel bank station 10360.17 and greater than the left channel bank station 9893.371
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.808
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.741
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

DISCHARGE CHECK

STARTING WATER-SURFACE ELEVATION CHECK

---END---

IONA WEST (SOUTH OF CAP CANAL)

IONA_WEST
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.nt
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 1:57:46 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,Iona West (South						
2.991		0.036	0.049	0.039	0.1	0.3
2.914		0.036	0.049	0.049	0.1	0.3
		-----	-----	0.039		
2.803		0.036	0.036	0.049	0.1	0.3
		-----	0.049	0.039		
2.728		0.036	0.049	0.039	0.1	0.3
2.659		0.036	0.049	0.039	0.1	0.3
2.573		0.036	0.049	0.039	0.1	0.3
2.529		0.036	0.049	0.039	0.1	0.3
2.451		0.036	0.049	0.039	0.1	0.3
2.363		0.033	0.041	0.034	0.1	0.3
2.279		0.033	0.041	0.034	0.1	0.3
2.203		0.033	0.041	0.034	0.1	0.3
2.126		0.033	0.041	0.034	0.1	0.3
2.034		0.033	0.041	0.034	0.1	0.3
1.99		0.033	0.041	0.034	0.1	0.3
1.925		0.033	0.041	0.034	0.1	0.3
1.858		0.033	0.041	0.034	0.1	0.3
1.786		0.036	-----	-----	0.1	0.3
		0.073	-----	-----		
1.747		0.036	-----	-----	0.1	0.3
		0.073	-----	-----		
1.692		0.036	-----	-----	0.1	0.3
		0.073	-----	-----		
1.652		0.036	-----	-----	0.1	0.3
		0.073	-----	-----		
1.615		0.036	-----	-----	0.1	0.3
		0.073	-----	-----		
1.582		0.036	0.073	0.038	0.1	0.3
1.549		0.033	0.042	0.033	0.1	0.3
1.504		0.033	0.042	0.033	0.1	0.3
1.44		0.033	0.042	0.033	0.1	0.3
1.348		0.033	0.042	0.033	0.1	0.3
1.291		0.033	0.042	0.033	0.1	0.3
1.237		0.033	0.042	0.033	0.1	0.3
1.156		0.035	0.073	0.04	0.1	0.3
1.097		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
1.022		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.98		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.936		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.879		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.815		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.722		0.035	-----	-----	0.1	0.3
		0.073	-----	-----		
.651		0.043	-----	-----	0.1	0.3
		0.05	-----	-----		
.572		0.043	-----	-----	0.1	0.3
		0.055	-----	-----		
.521		0.043	-----	-----	0.1	0.3
		0.053	-----	-----		
.447		0.043	-----	-----	0.1	0.3
		0.053	-----	-----		

.378	0.043	-----	-----	0.1	0.3
	0.053	-----	-----		
.289	0.043	-----	-----	0.1	0.3
	0.053	-----	-----		
.139	0.043	-----	0	0.1	0.3
	0.055	-----	0.04		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.033	0.073
Right Overbank n Value:	0	0.049
Channel n Value:	0.036	0.073
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

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RS:      2.991
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.728
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.659
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.573
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.529
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.451
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.039 are less than or equal to the channel n value of 0.049
         The overbank n values should be reevaluated.

RS:      2.363
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.363
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.363
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2.279
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.279
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
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         The n value should be reevaluated.

RS:      2.279
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2.203
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.203
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.203
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2.126
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.126
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.126
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      2.034
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.034
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      2.034
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.99
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.99
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.99
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.925
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.925
NT RC 01 Right overbank n value is less than 0.035
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         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.925
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.858
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.858
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.858
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.034 are less than or equal to the channel n value of 0.041
         The overbank n values should be reevaluated.

RS:      1.582
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.073
         The overbank n values should be reevaluated.

RS:      1.549
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.549
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.549
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.504
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.504
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.504
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.44
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.44
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.44
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.348
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NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.348
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.348
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.291
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.291
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.291
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.237
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.237
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.237
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.042
         The overbank n values should be reevaluated.

RS:      1.156
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.04 are less than or equal to the channel n value of 0.073
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
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ROUGHNESS COEFFICIENT AT STRUCTURES
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---END---
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IONA_WEST
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.xs
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 1:57:46 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,Iona West (South						
2.991	456.818	407.419	406.258	1591.32	7170	D
2.914	582.863	585.972	541.783	638.2	1790	D
2.803	399.197	393.616	390.411	393.38	1790	
2.728	323.726	362.807	425.22	271.02	1790	C (S/C)
2.659	429.038	451.621	477.317	674.1	1830	
2.573	234.262	234.816	239.948	653.81	1830	
2.529	404.794	410.389	398.828	441.73	1830	
2.451	472.133	463.718	441.616	504.63	1830	
2.363	449.133	441.929	425.22	526.76	1830	
2.279	386.481	400.344	403.79	302.3	1830	
2.203	411.651	405.685	438.315	298.94	1830	
2.126	468.346	485.353	494.592	624.45	2100	
2.034	232.203	234.167	233.918	581.47	2100	D
1.99	339.868	341.939	342.609	660.81	2100	
1.925	353.049	354.206	355.767	556.09	2100	D
1.858	378.448	381.869	364.203	556.75	2100	D
1.786	225.309	208.442	221.942	484.7	2100	
1.747	281.452	289.137	288.753	728.93	2100	
1.692	201.825	211.125	217.433	795.7	2100	
1.652	190.024	194.558	190.506	785.55	2100	
1.615	167.614	174.497	206.554	792.08	2100	
1.582	182.469	172.691	190.506	361.4	2100	D, C (S/C)
1.549	234.67	239.419	244.636	233.51	2100	D
1.504	338.478	340.472	343.055	473.84	2100	
1.44	487.193	486.314	477.231	433.31	2100	
1.348	299.168	299.397	291.51	600.81	2100	
1.291	274.675	283.531	276.027	539.96	2100	
1.237	433.305	429.53	425.515	654.15	2100	D
1.156	285.079	310.805	312.853	776.17	2100	
1.097	359.004	394.71	427.492	901.13	2100	D
1.022	196.358	220.562	232.988	962.41	2100	D
.98	222.687	234.686	242.661	1109.52	2100	D
.936	278.861	301.201	310.765	1197.48	2100	D
.879	403.268	338.53	341.65	1001.99	2100	
.815	467.131	492.23	408.998	1187.32	2100	
.722	328.833	375.185	373.352	1285.66	2100	
.651	373.273	419.228	450.657	811.76	2100	D
.572	259.55	268.75	290.902	1365.91	2100	D
.521	365.977	392.452	423.356	1106.39	2100	D
.447	367.19	365.365	333.796	1385.26	2100	D
.378	460.841	470.896	478.075	1290.58	2100	D
.289	800.669	793.89	775.809	1351.24	2100	D
.139	0	0	0	1413.48	2100	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 2.914
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,Iona West (South
Normal S = 0.00392 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,Iona West (South
Normal S = 0.00392 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

IONA_WEST
CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\IONA_WEST.fw
Selected profiles: Floodplain;Floodway
Date: 7/14/2005
Time: 1:57:49 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,Iona West (South							
2.991					8947.01	10890.92	
2.991	1	0.8	9411	10706	9411	10706	
2.914					9942.68	10592.74	
2.914	1	0.9	9986	10320	9986	10320	
2.803					9968.25	10361.62	
2.803	1	0.84	9976	10187	9976	10187	
2.728					9984.71	10255.73	
2.728	1	0.3	9990	10073	9990	10073	
2.659					9843.52	10517.63	
2.659	1	0.97	9979	10178	9979	10178	
2.573					9662.15	10315.96	
2.573	1	0.81	9940	10050	9940	10050	
2.529					9718.42	10160.15	
2.529	1	0.52	9914	10043	9914	10043	
2.451					9764.47	10269.09	
2.451	1	0.98	9951	10072	9951	10072	
2.363					9750.87	10277.63	
2.363	1	0.56	9935	10036	9935	10036	
2.279					9876.56	10178.86	
2.279	1	0.73	9956	10071	9956	10071	
2.203					9828.67	10127.61	
2.203	1	0.99	9953	10027	9953	10027	
2.126					9758.85	10383.3	
2.126	1	0.66	9937	10188	9937	10188	
2.034					9821.09	10456.84	
2.034	1	0.6	9920	10143	9920	10143	
1.99					9811.69	10472.5	
1.99	1	0.92	9960	10183	9960	10183	
1.925					9840.9	10415.95	
1.925	1	0.91	9992	10157	9992	10157	
1.858					9769.43	10350.58	
1.858	1	0.98	9964	10134	9964	10134	
1.786					9673.29	10157.99	
1.786	1	0.97	9816	10024	9816	10024	
1.747					9728.21	10457.14	
1.747	1	0.85	9824	10139	9824	10139	
1.692					9546.62	10342.32	
1.692	1	0.65	9750	10096	9750	10096	
1.652					9588.47	10374.01	
1.652	1	0.45	9832	10179	9832	10179	
1.615					9554.65	10346.73	
1.615	1	0.64	9749	10247	9749	10247	
1.582					9571.7	10627.03	
1.582	1	0.29	9651	10320	9651	9772.58	
1.549					9763.71	10435.92	
1.549	1	0.95	9945	10251	9945	10083	
1.504					9850.21	10324.06	
1.504	1	0.93	9984	10091	9984	10091	
1.44					9834.77	10268.09	
1.44	1	0.7	9967	10062	9967	10062	
1.348					9772.87	10373.68	
1.348	1	0.94	9930	10066	9930	10066	
1.291					9758.98	10298.93	
1.291	1	0.76	9939	10036	9939	10036	
1.237					9753.9	10409.95	
1.237	1	0.89	9979	10153	9979	10153	
1.156					9644.35	10420.51	
1.156	1	0.9	9871	10156	9871	10156	

					IONA_WEST	
1.097					9475.11	10378.51
1.097	1	0.85	9796	10057	9796	10057
1.022					9494.87	10473.6
1.022	1	0.89	9794	10119	9794	10119
0.98					9529.11	10723.32
0.98	1	0.83	9850	10205	9850	10205
0.936					9461.64	10665.13
0.936	1	0.54	9854	10244	9854	10244
0.879					9558.28	10560.26
0.879	1	0.69	9766	10240	9766	10240
0.815					9385	10572.32
0.815	1	0.97	9738	10244	9738	10244
0.722					9457.5	10743.16
0.722	1	0.61	9767	10194	9767	10194
0.651					9803.38	10930.42
0.651	1	0.49	9864	10214	9864	10214
0.572					9590.53	11053.53
0.572	1	0.56	9825	10158	9825	10158
0.521					9558.51	11091.83
0.521	1	0.39	9807	10136	9807	10136
0.447					9614.09	11086.46
0.447	1	0.51	9800	10153	9800	10153
0.378					9663.61	11126.75
0.378	1	0.74	9899	10188	9899	10188
0.289					9588.53	11056.74
0.289	1	0.92	9934	10260	9934	10260
0.139					9666.75	11080.23
0.139	1	0.89	9987	10262	9987	10262

ENCROACHMENT METHOD CHECK

FLOODWAY WIDTH CHECK

RS: 2.991
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.914
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.728
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.529
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.529
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.279
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.279
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.203
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.126
FW FW 01 Left encroachment station 9937 is more than left channel bank station 9936.783 and less than the right channel bank station 10029.08 Left encroachment station is within the channel.

The encroachment station or channel bank station should be adjusted.

RS: 1.925
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.786
FW FW 01 Right encroachment station 10024 is less than right channel bank station 10024.15 and greater than the left channel bank station 9928.61
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.786
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.786
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.747
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.692
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.692
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.652
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.615
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.615
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.582
FW FW 06 The right station effective of 9772.58 for the floodway profile is less than the right channel bank station of 10087.6
The right side of the floodway boundary is within the channel.
The right encroachment station of 10320 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.156
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.097
FW FW 01 Right encroachment station 10057 is less than right channel bank station 10057.38 and greater than the left channel bank station 9934.82
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.097
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.097
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.022
FW FW 01 Right encroachment station 10119 is less than right channel bank station 10119.34 and greater than the left channel bank station 9963.47

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          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.98
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.936
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.879
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.815
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.815
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.722
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.651
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.521
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.447
FW FW 03  The Left channel bank station may not be at the proper
          location.

RS:       0.447
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.378
FW FW 03  The right channel bank station may not be at the proper
          location.

RS:       0.289
FW FW 01  Left encroachment station 9934 is more than left channel bank
          station 9933.73 and less than the right channel bank station 10017.35
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.139
FW FW 01  Left encroachment station 9987 is more than left channel bank
          station 9953.163 and less than the right channel bank station 10038.46
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.


SURCHARGE CHECK
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DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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2 WEST (SOUTH OF CAP)

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.nt
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 10:42:00 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,2 West (South of						
7.277		0.033	0.045	0.033	0.1	0.3
7.227		0.033	0.045	0.033	0.1	0.3
7.167		0.033	0.045	0.033	0.1	0.3
7.102		0.033	0.045	0.033	0.1	0.3
7.027		0.033	0.045	0.033	0.1	0.3
6.97		0.033	0.045	0.033	0.1	0.3
6.936		0.033	0.045	0.033	0.1	0.3
6.899		0.033	0.045	0.033	0.1	0.3
6.844		0.033	0.045	0.033	0.1	0.3
6.794		0.033	0.045	0.033	0.1	0.3
6.72		0.037	-----	-----	0.1	0.3
		0.058	-----	-----		
		0.037	-----	-----		
		0.058	-----	-----		
6.642		0.032	-----	-----	0.1	0.3
		0.058	-----	-----		
		0.037	-----	-----		
		0.055	-----	-----		
6.589		0.032	-----	-----	0.1	0.3
		0.058	-----	-----		
		0.037	-----	-----		
		0.05	-----	-----		
6.511		0.058	-----	-----	0.1	0.3
		0.038	-----	-----		
		0.05	-----	-----		
6.414		0.058	-----	-----	0.1	0.3
		0.048	-----	-----		
6.355		0.035	0.05	0.035	0.1	0.3
6.155		0.035	0.05	0.035	0.1	0.3
5.925		0.038	0.057	0.038	0.1	0.3
5.727		0.038	0.057	0.038	0.1	0.3
5.291		0.036	0.05	0.036	0.1	0.3
5.065		0.036	0.05	0.036	0.1	0.3
4.862		0.036	0.05	0.036	0.1	0.3
4.65		0.034	0.05	0.034	0.1	0.3
4.423		0.034	0.05	0.034	0.1	0.3
4.243		0.034	0.05	0.034	0.1	0.3
4.103		0.038	0.05	0.038	0.1	0.3
3.924		0.038	0.05	0.038	0.1	0.3
3.702		0.038	0.05	0.038	0.1	0.3
3.478		0.039	0.053	0.038	0.1	0.3
3.27		0.039	0.053	0.038	0.1	0.3
3.075		0.039	0.053	0.038	0.1	0.3
2.879		0.04	0.052	0.038	0.1	0.3
2.616		0.04	0.052	0.038	0.1	0.3
2.543		0.04	0.052	0.038	0.1	0.3
2.361		0.04	0.052	0.038	0.1	0.3
2.198		0.04	0.052	0.038	0.1	0.3
2.18		0.04	0.052	0.038	0.1	0.3
2.173		0.04	0.052	0.038	0.3	0.5
2.168	Bridge-Up	0.04	0.052	0.038	0.3	0.5
2.168	Bridge-Dn	0.032	0.038	0.032	0.3	0.5
2.163		0.032	0.038	0.032	0.3	0.5
2.151		0.032	0.038	0.032	0.3	0.5
2.096		0.038	0.055	0.038	0.3	0.5
2.02		0.038	0.055	0.038	0.1	0.3
1.949		0.038	0.055	0.038	0.1	0.3
1.863		0.038	0.055	0.038	0.1	0.3

O/c of structure

			2W		
1.779	0.038	0.055	0.038	0.1	0.3
1.692	0.038	0.055	0.038	0.1	0.3
1.635	0.038	0.055	0.038	0.1	0.3
1.586	0.036	0.054	0.038	0.1	0.3
1.554	0.036	0.054	0.038	0.1	0.3
1.486	0.036	0.054	0.038	0.1	0.3
1.412	0.036	0.054	0.038	0.1	0.3
1.336	0.036	0.054	0.038	0.1	0.3
1.285	0.032	0.051	-----	0.1	0.3
	0.051	0.032	-----		
1.204	0.032	-----	-----	0.1	0.3
	0.058	-----	-----		
	0.032	-----	-----		
	0.051	-----	-----		
1.107	0.035	0.045	0.051	0.1	0.3
	0.058	0.051	0.032		
	0.045	-----	-----		
1.041	0.035	-----	-----	0.1	0.3
	0.058	-----	-----		
	0.041	-----	-----		
.967	0.032	-----	-----	0.1	0.3
	0.058	-----	-----		
	0.041	-----	-----		
.877	0.032	-----	-----	0.1	0.3
	0.058	-----	-----		
	0.051	-----	-----		
.787	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.708	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.637	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.579	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.521	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.451	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.376	0.037	0.037	0.056	0.1	0.3
	-----	0.056	0.037		
.303	0.037	-----	-----	0.1	0.3
	0.056	-----	-----		
.232	0.037	-----	0	0.1	0.3
	0.056	-----	0.037		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.032	0.058
Right Overbank n Value:	0	0.056
Channel n Value:	0.032	0.057
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

```
RS:       7.277
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.277
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.277
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.
```

```
RS:       7.227
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.227
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.227
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       7.167
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.167
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.167
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       7.102
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.102
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.102
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       7.027
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.027
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       7.027
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.97
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.97
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.97
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.
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RS:       6.936
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.936
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.936
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.899
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.899
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.899
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.844
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.844
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.844
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.794
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.794
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:       6.794
NT RC 05 The left overbank n value of 0.033 and the right overbank n value
         of 0.033 are less than or equal to the channel n value of 0.045
         The overbank n values should be reevaluated.

RS:       6.355
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       6.155
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       5.925
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.057
```

The overbank n values should be reevaluated.

RS: 5.727
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.057
The overbank n values should be reevaluated.

RS: 5.291
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 5.065
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.862
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.036 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.65
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.65
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.65
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.423
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.423
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.423
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.243
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.243
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 4.243
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 4.103
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.924
NT RC 05 The left overbank n value of 0.038 and the right overbank n value

of 0.038 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.702
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 3.478
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.053
The overbank n values should be reevaluated.

RS: 3.27
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.053
The overbank n values should be reevaluated.

RS: 3.075
NT RC 05 The left overbank n value of 0.039 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.053
The overbank n values should be reevaluated.

RS: 2.879
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.616
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.543
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.361
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.198
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.18
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.173
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.168
NT RC 05 The left overbank n value of 0.04 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.052
The overbank n values should be reevaluated.

RS: 2.168
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.168
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.168

NT RC 05 The left overbank n value of 0.032 and the right overbank n value
of 0.032 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 2.163
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.163
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.163
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
of 0.032 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 2.151
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.151
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 2.151
NT RC 05 The left overbank n value of 0.032 and the right overbank n value
of 0.032 are less than or equal to the channel n value of 0.038
The overbank n values should be reevaluated.

RS: 2.096
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 2.02
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.949
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.863
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.779
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.692
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.635
NT RC 05 The left overbank n value of 0.038 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 1.586
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
of 0.038 are less than or equal to the channel n value of 0.054
The overbank n values should be reevaluated.

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RS:       1.554
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.054
         The overbank n values should be reevaluated.

RS:       1.486
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.054
         The overbank n values should be reevaluated.

RS:       1.412
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.054
         The overbank n values should be reevaluated.

RS:       1.336
NT RC 05 The left overbank n value of 0.036 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.054
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       2.151
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       2.096
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
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RS:       2.168
NT RS 02 The channel n value of 0.052 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.052 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:       2.168
NT RS 02 The channel n value of 0.038 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.038 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

---END---
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CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.xs
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 10:42:01 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,2 West (South of						
7.277	238.886	266.451	277.866	87.49	2880	D,C (S/C)
7.227	317.783	314.882	276.779	279.43	2880	
7.167	307.073	343.33	381.856	777.78	2880	
7.102	359.293	396.427	413.833	1005.69	2880	
7.027	283.147	299.251	325.493	1439.09	2880	
6.97	190.004	178.329	312.847	1561.62	2880	D
6.936	181.499	195.922	195.726	1282.55	2880	D
6.899	260.808	290.337	290.39	1273.47	2880	D
6.844	254.809	265.997	232.194	1154.29	2880	D
6.794	497.947	392.134	337.73	1435.4	2880	D
6.72	398.97	410.262	407.881	1300.67	2880	D
6.642	330.407	278.252	284.253	1315.81	2880	
6.589	348.02	410.128	407.721	1099.97	2880	D
6.511	465.331	512.373	483.435	1071.24	2880	
6.414	309.795	312.909	314.03	826.4	2880	D
6.355	990.557	1055.17	1024.42	802.3	2880	D
6.155	1247.67	1212.85	1240.79	1068.91	2880	D
5.925	1084.86	1044.18	1060.04	1277.03	2880	D,C (S/C)
5.727	2064.25	2302.4	2190.67	1204.75	2880	D
5.291	1147.16	1267.57	1341.76	494.5	2880	D,C (S/C)
5.065	1009.72	1070.65	1027.26	830.23	2880	D
4.862	1115.8	1119.05	1128.63	378.16	2880	D
4.65	1118.97	1196.36	1190.12	207.32	2880	D
4.423	996.162	950.265	943.235	605.44	2880	
4.243	700.16	737.107	693.192	706.04	2970	D
4.103	948.966	946.268	830.049	622.68	2970	
3.924	1096.71	1173.82	1179.16	811.86	2970	D
3.702	1216.06	1181.57	1146.57	1124.26	2970	D
3.478	1122.1	1096.01	1090.86	1006.05	2970	D
3.27	1003.32	1027.68	1021.97	1242.65	2970	D
3.075	1004.17	1033.52	1042.09	1067.34	2970	D,C (S/C)
2.879	1271.36	1386.25	1057.6	2012.99	2970	D
2.616	319.339	384.154	490.52	162.31	2970	D,C (S/C)
2.543	951.932	958.444	840.794	921.25	2970	D
2.361	902.892	861.208	827.261	375.01	2970	D
2.198	126.462	100.973	105.088	339.43	2970	
2.18	36.673	37.395	240.118	175.38	2970	
2.173	51.436	50.807	52.474	146.48	2970	
2.168	Bridge #1-Up					
2.168	Bridge #1-Dn					
2.163	148.86	61.79	100.192	145.74	2970	
2.151	264.455	292.107	323.57	184.49	2970	C (S/C)
2.096	346.657	403.336	416.491	406.4	2970	
2.02	361.712	376.684	385.562	558.48	2970	
1.949	465.784	453.922	450.467	563.77	2970	
1.863	453.355	443.662	444.186	553.59	2970	
1.779	476.674	461.54	453.232	397.67	2970	
1.692	305.915	300.134	290.344	148.02	2970	
1.635	262.193	258.515	261.359	76.88	2970	C (S/C)
1.586	164.389	169.245	188.043	121.83	3130	
1.554	353.327	357.099	367.673	151.8	3130	D
1.486	367.993	389.196	387.273	149.38	3130	B
1.412	373.004	398.809	398.44	259.78	3130	D,B
1.336	236.182	269.538	292.74	659.13	3130	D,B
1.285	491.904	478.87	494.936	616.22	3130	D,B
1.204	571.981	503.061	492.009	955.71	3130	
1.107	398.829	348.459	344.953	1252.68	3130	

Zone A

due to large area that carries non-convey flow @ certain elevations

					2W	
1.041	495.783	392.218	369.779	1037.03	3130	
.967	509.41	477.045	394.83	1023.36	3130	
.877	492.167	513.716	451.256	900	3130	D
.787	425.733	401.932	383.168	1213.01	3130	
.708	385.567	373.064	362.941	1367.72	3130	
.637	320.635	320.361	316.688	1216.05	3130	
.579	306.135	323.266	307.088	1122.4	3130	
.521	358.33	369.426	387.29	1178.87	3130	D
.451	385.267	396.265	449.231	1122.76	3130	
.376	387.544	387.155	379.61	1359.64	3130	
.303	392.458	377.05	343.017	1434.72	3130	
.232	0	0	0	1483.03	3130	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

RS: 2.18
XS DT 03 Right overbank distance is greater than the channel distance by more than five times. Right overbank distance may be in error.

SPACING CHECK

RS: 2.879
XS SP 01 Diff. HV = 1.15 ; Kratio = 0.31 ; Depth Ratio = 1.28
TopWdthAct ratio = 0.08 ; Length Chl Up / 500 = 2.77
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

RS: 5.727
XS LC 01 Lenchl Up/TopwdthAct Dn = 4.66
MaxChlDpth Up/MaxChlDpth Dn = 1.37
TopwdthAct Up/TopwdthAct Dn = 2.44
This cross section is located too far upstream from the critical depth cross section.

RS: 1.692
XS LC 01 Lenchl Up/TopwdthAct Dn = 3.90
MaxChlDpth Up/MaxChlDpth Dn = 1.15
TopwdthAct Up/TopwdthAct Dn = 1.93
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

2W

XS BC 02 The name of the stream is Reach #1,2 West (South of
Normal S = 0.00529 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,2 West (South of
Normal S = 0.00529 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

2W

CHECK-RAS Program: Floodway Check

Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.fw
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 10:42:03 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,2 West (South of							
7.277					9952.96	10043.78	
7.277	1	0	9952	10043	9952.96	10040.21	
7.227					9777.27	10056.7	
7.227	1	0.97	9816	10007	9816	10007	
7.167					9630.62	10408.4	
7.167	1	0.49	9892	10070	9892	10070	
7.102					9545.89	10551.58	
7.102	1	0.77	9842	10242	9842	10242	
7.027					9284.92	10724	
7.027	1	0.74	9900	10360	9900	10360	
6.97					9058.33	10650	
6.97	1	0.99	9712	10331	9712	10331	
6.936					8858.39	10194.52	
6.936	1	0.86	9663	10150	9663	10150	
6.899					8806.27	10169.75	
6.899	1	0.97	9580	10057	9580	10057	
6.844					8905.67	10271.1	
6.844	1	0.84	9558	10086	9558	10086	
6.794					8970.16	10410.1	
6.794	1	0.81	9597	10198	9597	10198	
6.72					8959	10456.4	
6.72	1	0.91	9510	10188	9510	10188	
6.642					8904.39	10220.2	
6.642	1	0.73	9565	10063	9565	10063	
6.589					9116.4	10442.13	
6.589	1	0.64	9703	10061	9703	10061	
6.511					9406.53	10477.77	
6.511	1	0.5	9858	10228	9858	10228	
6.414					9545.49	10378.25	
6.414	1	0.93	9815	10172	9815	10172	
6.355					9599.85	10502.95	
6.355	1	0.75	9889	10212	9889	10212	
6.155					9434.85	10939.74	
6.155	1	0.78	9763	10592	9778.14	10592	
5.925					9180.36	11281.87	
5.925	1	0.71	9567	10675	9567	10675	
5.727					8667.73	11364.88	
5.727	0	0	0	0	8667.73	11364.88	
5.291					8196.44	10009.32	
5.291	0	0	0	0	8196.44	10009.32	
5.065					9080.57	10145.74	
5.065	0	0	0	0	9080.57	10145.74	
4.862					9805.47	10324.71	
4.862	0	0	0	0	9805.47	10324.71	
4.65					9761.83	10036.32	
4.65	0	0	0	0	9761.83	10036.32	
4.423					9422.58	10028.02	
4.423	0	0	0	0	9422.58	10028.02	
4.243					9248.63	10071.3	
4.243	0	0	0	0	9248.63	10071.3	
4.103					9749.04	10371.72	
4.103	0	0	0	0	9749.04	10371.72	
3.924					9317.71	10267.54	
3.924	0	0	0	0	9317.71	10267.54	
3.702					8890	10619.94	
3.702	0	0	0	0	8890	10619.94	
3.478					9360.37	10568.84	
3.478	0	0	0	0	9360.37	10568.84	

Zone A

					2W		
3.27					9327.65	10577.28	
3.27	0	0	0	0	9327.65	10577.28	
3.075					8913.39	10244.4	
3.075	0	0	0	0	8913.39	10244.4	
2.879					8462.58	10506.87	
2.879	0	0	0	0	8462.55	10506.88	
2.616					9468.84	10040.16	
2.616	0	0	0	0	9468.84	10040.16	
2.543					9583.1	10954.7	
2.543	0	0.08	0	0	9582.21	10955.77	
2.361					9892.25	10311.21	
2.361	0	-0.16	0	0	9893.84	10281.52	
2.198					9800.36	10139.79	
2.198	0	0.36	0	0	9800.36	10139.79	
2.18					9912.3	10087.68	
2.18	1	0.32	9935	10079	9935	10079	
2.173					9939.22	10085.7	
2.173	1	0.42	9941	10082	9941	10082	
2.168					9939.4	10085.56	Bridge #1-Up
2.168					9893.69	10039.43	Bridge #1-Dn
2.168	0	0.34	9930.55	10070.55	9938.43	10070.55	Bridge #1-Up
2.168	0	0.4	9895	10035	9895	10035	Bridge #1-Dn
2.163					9893.69	10039.43	
2.163	1	0.41	9895	10035	9895	10035	
2.151					9921.81	10106.3	
2.151	1	0.34	9953	10075	9953	10075	
2.096					9884.96	10291.36	
2.096	1	0.78	9967	10149	9967	10149	
2.02					9563.14	10121.61	
2.02	1	0.7	9810	10045	9810	10045	
1.949					9692.98	10256.75	
1.949	1	0.95	9858	10102	9858	10102	
1.863					9661.01	10214.6	
1.863	1	0.96	9876	10082	9876	10082	
1.779					9761.93	10159.61	
1.779	1	0.74	9908	10096	9908	10096	
1.692					9948.8	10096.82	
1.692	1	0.38	9957	10030	9957	10030	
1.635					9955.08	10031.96	
1.635	1	0	9956	10033	9956	10031.96	
1.586					9926.78	10048.61	
1.586	1	0.06	9958	10034	9958	10034	
1.554					9930.15	10088.44	
1.554	1	0.51	9953	10057	9953	10057	
1.486					9910.94	10060.32	
1.486	1	0.15	9939	10056	9939	10056	
1.412					9833.39	10099.82	
1.412	1	0.12	9880	10104	9880	10099.95	
1.336					9642.66	10310.99	
1.336	1	0.14	9801	10160	9801	10160	
1.285					9484	10187.62	
1.285	1	0.19	9829	10188	9829	10188	
1.204					9209	10164.71	
1.204	1	1	9494	10079	9494	10079	
1.107					8872.46	10125.14	
1.107	1	0.74	9536	10049	9536	10049	
1.041					9139.69	10176.72	
1.041	1	0.9	9487	10099	9487	10099	
0.967					9330.43	10353.79	
0.967	1	0.96	9700	10055	9700	10055	
0.877					9674.9	10633.14	
0.877	1	0.79	9777	10040	9777	10040	
0.787					9649.13	10862.13	
0.787	1	1	9916	10270	9916	10270	
0.708					9589	10956.72	
0.708	1	1	9865	10277	9865	10277	
0.637					9861.6	11077.64	
0.637	1	0.99	9953	10350	9953	10350	
0.579					9844.98	10967.38	
0.579	1	0.99	9916	10320	9916	10320	
0.521					9399.27	11006.54	
0.521	1	0.98	9912	10323	9912	10323	
0.451					9875.6	10998.37	
0.451	1	1	9965	10325	9965	10325	

Zone A

					2W	
0.376					9831.52	11191.15
0.376	1	0.96	9941	10361	9941	10361
0.303					9596.58	11031.3
0.303	1	0.93	9893	10362	9893	10362
0.232					9551.61	11034.65
0.232	1	0.98	9919	10440	9919	10440

ENCROACHMENT METHOD CHECK

RS: 5.727
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.291
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 5.065
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.862
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.65
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.423
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.243
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.103
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.924
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.702
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.478
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.27
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.075
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.879
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.616
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.543
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.361
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.198
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.168
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 7.277

FW FW 01 Left encroachment station 9952 is more than left channel bank station 9951.58 and less than the right channel bank station 10042.51
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 7.277
FW FW 06 The right station effective of 10040.21 for the floodway profile is less than the right channel bank station of 10042.51
The right side of the floodway boundary is within the channel.
The right encroachment station of 10043 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 7.227
FW FW 01 Right encroachment station 10007 is less than right channel bank station 10007.19 and greater than the left channel bank station 9980.483
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 7.027
FW FW 03 The right channel bank station may not be at the proper location.

RS: 6.936
FW FW 03 The right channel bank station may not be at the proper location.

RS: 6.899
FW FW 01 Right encroachment station 10057 is less than right channel bank station 10057.43 and greater than the left channel bank station 9933.274
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 6.899
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.899
FW FW 03 The right channel bank station may not be at the proper location.

RS: 6.844
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.794
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.72
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.642
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.355
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.727
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.065
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.65
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.423
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.243
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.27
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.27
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.543
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.361
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.198
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.18
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.18
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.173
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.02
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.949
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.863
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.863
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.692
FW FW 01 Left encroachment station 9957 is more than left channel bank station 9956.54 and less than the right channel bank station 10030.48
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.692
FW FW 01 Right encroachment station 10030 is less than right channel bank station 10030.48 and greater than the left channel bank station 9956.54
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.635
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.635
FW FW 06 The right station effective of 10031.96 for the floodway profile is less

than the right channel bank station of 10032.69
The right side of the floodway boundary is within the channel.
The right encroachment station of 10033 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 1.586
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.486
FW FW 01 Left encroachment station 9939 is more than left channel bank station 9938.77 and less than the right channel bank station 10055.54
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.486
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.412
FW FW 01 Right encroachment station 10104 is less than right channel bank station 10104.75 and greater than the left channel bank station 9942.57
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.285
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.204
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.107
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.041
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.967
FW FW 01 Right encroachment station 10055 is less than right channel bank station 10055.04 and greater than the left channel bank station 9745.935
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.967
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.877
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.787
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.637
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.579
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.303
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.232

```
FW FW 01  Left encroachment station 9919 is more than left channel bank
          station 9917.99 and less than the right channel bank station 10198.34
          Left encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

RS:       0.232
FW FW 03  The right channel bank station may not be at the proper
          location.


SURCHARGE CHECK
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RS:       2.361
FW SC 01  The surcharge value is negative.


DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
```

CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2W.br
Selected profiles: Floodplain;Floodway
Date: 7/18/2005
Time: 10:42:03 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,2 West (South of						
7.277			1548.13	1546.49	1542.04	
7.227			1543.23	1542.81	1538.48	
7.167			1541.04	1540.77	1535.79	
7.102			1538.79	1538.64	1534.33	
7.027			1536.38	1536.23	1533.18	
6.97			1534.66	1534.56	1532.22	
6.936			1533.55	1533.41	1530.48	
6.899			1532.27	1532.11	1529.71	
6.844			1530.4	1530.23	1528.38	
6.794			1529.03	1528.92	1527.12	
6.72			1526.48	1526.38	1525.5	
6.642			1524.26	1524.18	1520.55	
6.589			1522.32	1522.17	1517.15	
6.511			1519.97	1519.81	1513.92	
6.414			1517.41	1517.26	1511.17	
6.355			1515.15	1514.92	1511.82	
6.155			1510.14	1510.03	1507.31	
5.925			1503.3	1503.04	1502.97	
5.727			1494.82	1494.73	1492.88	
5.291			1482.09	1481.59	1478	
5.065			1475.09	1474.94	1468.7	
4.862			1470.68	1470.06	1461.49	
4.65			1463.54	1462.98	1456.23	
4.423			1457.17	1456.81	1450.97	
4.243			1450.84	1450.6	1447.98	
4.103			1447.5	1447.29	1443.43	
3.924			1442.33	1442.02	1438.43	
3.702			1436.09	1435.98	1432.92	
3.478			1429.77	1429.58	1426.65	
3.27			1424.14	1424.06	1421.89	
3.075			1418.03	1417.68	1414.84	
2.879			1412.62	1412.58	1408.67	
2.616			1407.97	1406.79	1401.79	
2.543			1402.59	1402.46	1394.95	
2.361			1398.68	1398.36	1393.82	
2.198			1395.76	1395.61	1389.48	
2.18			1395.58	1395.4	1389	
2.173			1395.41	1395.07	1389.1	
2.168	1400.6	1405.6	1395.39	1395	1389.1	Bridge #1-Up
2.168	1399.4	1404.4	1395.26	1394.87	1388.59	Bridge #1-Dn @ Deer Valley Rd
2.163			1395.22	1394.87	1388.5	
2.151			1394.76	1393.75	1388.19	
2.096			1392.25	1391.95	1387.25	
2.02			1390.04	1389.87	1385.38	
1.949			1388.67	1388.52	1383.45	
1.863			1387.36	1387.22	1382.18	
1.779			1385.56	1385.27	1379.7	
1.692			1383.21	1382.75	1375.69	
1.635			1380.46	1378.64	1372.51	
1.586			1378.78	1378.65	1364.84	
1.554			1378.43	1376.91	1370.33	
1.486			1376.19	1375.91	1370	
1.412			1375.17	1374.93	1370	
1.336			1374	1373.82	1370	
1.285			1373.22	1372.91	1370	
1.204			1371.05	1370.85	1369.48	
1.107			1367.55	1367.46	1366.15	
1.041			1365.61	1365.5	1364.07	
0.967			1363.54	1363.43	1362	

		2W	
0.877	1361.33	1361.15	1357.72
0.787	1358.92	1358.8	1354.83
0.708	1356.9	1356.79	1354.41
0.637	1354.73	1354.64	1352.19
0.579	1352.83	1352.74	1350.55
0.521	1351.01	1350.92	1348.6
0.451	1348.72	1348.63	1345.98
0.376	1346.26	1346.19	1344.49
0.303	1344.11	1344.03	1342.12
0.232	1342.05	1341.98	1340.69

RIVER/REACH: Reach #1, 2 West (South of
RIVER STATION: 2.168
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	40
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1405.6
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.18	37.40	1395.4	0	1395.58	175.38	
4	2.18	37.40	1395.72	0.32	1395.92	144	
3	2.173	50.81	1395.07	0	1395.41	146.48	
3	2.173	50.81	1395.48	0.42	1395.77	141	
	2.168	40.00	1395	0	1395.39	140.17	Bridge #1-Up
	2.168	10.80	1394.87	0	1395.26	139.75	Bridge #1-Dn
	2.168	40.00	1395.34	0.34	1395.74	126.12	Bridge #1-Up
	2.168	10.80	1395.27	0.4	1395.61	134	Bridge #1-Dn
2	2.163	61.79	1394.87	0	1395.22	145.74	
2	2.163	61.79	1395.27	0.41	1395.57	140	
1	2.151	292.11	1393.75	0	1394.76	184.49	
1	2.151	292.11	1394.09	0.34	1395.14	122	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9912	9923.08	1405.59	9885.6	9893.31	1404.38
2	10098.4	10112.06	1405.59	10048.4	10125.63	1404.38

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

MaxLowChord:	1400.6	MinTopRd:	1405.61	MinElPrs:	1400.6
	1400.6		1405.61		1400.6

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9923.08	10098.4U
					9893.31	10048.4D
			9895	10035		U
			9895	10035		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9919.71	10091.48	1405.60	1405.60	1405.60	1400.60 U
	9886.64	10046.23	1404.40	1404.40	1404.40	1399.40 D
	9930.55	10070.55	1405.60	1405.60	1405.60	1400.60 U
	9930.55	10046.23	1404.40	1404.40	1404.40	1399.40 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	2970	2970	0	Energy only	Low Flow
	2970	2970	0	Energy only	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

```
RS:       2.168 This is Bridge #1
BR LF 01  Type of flow is low flow because,
          1. EGEL 3 of 1395.41 is equal to or less than MinTopRd of 1405.6.
          2. EGEL 3 of 1395.41 is less than MxLoCdU of 1400.6.

RS:       2.168 This is Bridge #1
BR LF 01  Type of flow is low flow because,
          1. EGEL 3 of 1395.77 is equal to or less than MinTopRd of 1405.6.
          2. EGEL 3 of 1395.77 is less than MxLoCdU of 1400.6.
```

DISTANCE CHECK

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RS:       2.168 This is Bridge #1
ST DT 01  'Distance from Upstream XS' of 0.01 is less than the height of the
          bridge opening of  11.50
          Section 3 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4 & 3, and 'Distance from Upstream XS' should
          be adjusted.


RS:       2.168 This is Bridge #1
ST DT 02  The channel distance of 10.797 at Downstream Internal Section is less than
          the height of the bridge opening of 12.01
          Section 2 should be placed at the foot of the road embankment or
          wing walls.
          Distances at Sections 4, 3 & 2 should be adjusted.
```

INEFFECTIVE FLOW CHECK

```
RS:       2.173 This is Section 3.
ST IF 05  Low flow occurs at Bridge
          The left ineffective flow station of 9923.08 is greater than
          the left abutment station of 9919.71
          The left ineffective flow station should be adjusted

RS:       2.163 This is Section 2.
ST IF 05  Low flow occurs at Bridge
          The left ineffective flow station of 9893.31 is greater than
          the left abutment station of 9886.64
```

The left ineffective flow station should be adjusted.

RS: 2.18 This is Section 4
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from
this section, unless the areas beyond the ineffective flow stations
are not within the flow path of the stream.
This message should be ignored if this section is Section 2 of
the upstream structure.

RS: 2.151 This is Section 1
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from
this section, unless the ares beyond the ineffective flow stations
are not within the flow path of the stream.
This message should be ignored if this section is Section 3 of the downstream
structure.

FLOODWAY CHECK

RS: 2.168 This is Bridge
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1
should be used.

RS: 2.163 This is Section 2
ST FW 10 Left encroachment station 9895 is more than the left ineffective flow
station 9893.31 and less than the right ineffective flow station 10048.4
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left
ineffective flow station.

RS: 2.163 This is Section 2
ST FW 10 Right encroachment station 10035 is less than the right ineffective flow
station 10048.4 and greater than the left ineffective flow station 9893.31
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right
ineffective flow station.

RS: 2.173 This is Section 3
ST FW 10 Left encroachment station 9941 is more than the left ineffective flow
station 9923.08 and less than the right ineffective flow station 10098.4
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left
ineffective flow station.

RS: 2.173 This is Section 3
ST FW 10 Right encroachment station 10082 is less than the right ineffective flow
station 10098.4 and greater than the left ineffective flow station 9923.08
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right
ineffective flow station.

---END

1 WEST

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.nt
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 9:47:27 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,1 West (South of						
6.497		0.042	0.06	0.038	0.2	0.4
6.453		0.042	-----	-----	0.2	0.4
		0.038	-----	-----		
		0.06	-----	-----		
6.39		0.038	-----	-----	0.1	0.3
		0.042	-----	-----		
		0.04	-----	-----		
		0.06	-----	-----		
6.32		0.038	-----	-----	0.1	0.3
		0.042	-----	-----		
		0.038	-----	-----		
		0.06	-----	-----		
6.23		0.042	0.06	0.042	0.1	0.3
6.173		0.038	-----	-----	0.1	0.3
		0.06	-----	-----		
6.083		0.038	-----	-----	0.1	0.3
		0.055	-----	-----		
5.994		0.038	-----	-----	0.1	0.3
		0.055	-----	-----		
5.945		0.042	-----	-----	0.1	0.3
		0.055	-----	-----		
5.888		0.042	-----	-----	0.1	0.3
		0.055	-----	-----		
5.836		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.787		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.733		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.672		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.606		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.542		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.463		0.042	-----	-----	0.1	0.3
		0.066	-----	-----		
5.397		0.042	0.048	0.042	0.1	0.3
5.31		0.042	0.048	0.042	0.1	0.3
5.251		0.042	0.048	0.042	0.1	0.3
5.188		0.042	0.048	0.042	0.1	0.3
5.135		0.042	0.048	0.042	0.1	0.3
5.069		0.042	0.048	0.042	0.1	0.3
5.006		0.042	0.048	0.042	0.1	0.3
4.971		0.042	0.048	0.042	0.1	0.3
4.929		0.042	0.048	0.042	0.1	0.3
4.872		0.042	0.048	0.042	0.1	0.3
4.783		0.042	0.048	0.042	0.1	0.3
4.741		0.042	0.048	0.042	0.1	0.3
4.672		0.041	0.046	0.041	0.1	0.3
4.512		0.041	0.046	0.041	0.1	0.3
4.356		0.041	0.046	0.041	0.1	0.3
4.234		0.041	0.046	0.041	0.1	0.3
4.073		0.036	0.055	0.045	0.1	0.3
3.881		0.036	0.055	0.045	0.1	0.3
3.66		0.036	0.055	0.045	0.1	0.3
3.511		0.045	-----	-----	0.1	0.3
		0.055	-----	-----		

b/c of outflow @ overchute

				1W		
3.427		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
3.313		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
3.219		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
3.149		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
3.1		0.045	0.067	-----	0.1	0.3
		0.067	0.04	-----		
3.057		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.978		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.897		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.811		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.725		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.669		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.593		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.513		0.045	-----	-----	0.1	0.3
		0.067	-----	-----		
2.453		0.048	-----	-----	0.1	0.3
		0.067	-----	-----		
2.388		0.045	-----	-----	0.1	0.3
		0.063	-----	-----		
		0.045	-----	-----		
		0.067	-----	-----		
2.34		0.045	0.067	0.038	0.1	0.3
2.277		0.045	0.067	0.038	0.1	0.3
2.211		0.038	0.05	0.037	0.1	0.3
2.135		0.038	0.05	0.037	0.1	0.3
2.081		0.038	0.05	0.037	0.1	0.3
2.022		0.038	0.05	0.037	0.1	0.3
1.932		0.038	0.05	0.037	0.1	0.3
1.859		0.038	0.05	0.037	0.1	0.3
1.803		0.038	0.05	0.037	0.1	0.3
1.722		0.038	0.05	0.037	0.1	0.3
1.625		0.038	0.05	0.037	0.1	0.3
1.56		0.038	0.05	0.037	0.1	0.3
1.498		0.038	-----	-----	0.1	0.3
		0.05	-----	-----		
1.395		0.047	0.055	0.063	0.1	0.3
		0.055	0.063	0.043		
1.302		0.048	-----	-----	0.1	0.3
		0.055	-----	-----		
1.242		0.047	-----	-----	0.1	0.3
		0.055	-----	-----		
1.176		0.047	0.055	0.043	0.1	0.3
1.116		0.047	0.055	0.043	0.1	0.3
1.089		0.047	0.055	0.043	0.3	0.5
1.0735	Bridge-Up	0.047	0.055	0.043	0.3	0.5
1.0735	Bridge-Dn	0.047	0.055	0.043	0.3	0.5
1.058		0.047	0.055	0.043	0.3	0.5
.998		0.048	0.048	0.069	0.3	0.5
		-----	0.069	0.043		
.932		0.048	0.048	0.069	0.1	0.3
		-----	0.069	0.043		
.862		0.048	0.053	0.059	0.1	0.3
		0.053	0.059	0.069		
		-----	-----	0.043		
.778		0.043	-----	-----	0.1	0.3
		0.063	-----	-----		
		0.069	-----	-----		
.701		0.043	-----	-----	0.1	0.3
		0.063	-----	-----		
.634		0.043	-----	-----	0.1	0.3
		0.055	-----	-----		
.558		0.043	-----	-----	0.1	0.3
		0.069	-----	-----		

b/c of structure

```
                                                  1W
                                0.055     -----     -----
 .49                            0.043     0.055     0.048     0.1       0.3
                                0.055     0.048     0.069
                                0.043     -----     0.043
                                0.055     -----     -----
 .419                           0.043     -----     -----     0.1       0.3
                                0.069     -----     -----
                                0.055     -----     -----
 .345                           0.043     -----     -----     0.1       0.3
                                0.069     -----     -----
 .287                           0.043     -----     -----     0.1       0.3
                                0.069     -----     -----
 .22                            0.043     -----     -----     0.1       0.3
                                0.069     -----     -----
 .154                           0.043     -----     0         0.1       0.3
                                0.069     -----     0.055
                                -----     -----     0.045
--------------------------------------------------------------------------------

---Summary of Statistics---
                                Minimum         Maximum
Left Overbank n Value:           0.036           0.069
Right Overbank n Value:          0               0.069
Channel n Value:                 0.04            0.069
Contraction Coefficient:         0.1             0.3
Expansion   Coefficient:         0.3             0.5
```

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

```
ROUGHNESS COEFFICIENT CHECK
-----------------------------------

RS:       6.497
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.038 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:       6.23
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.06
         The overbank n values should be reevaluated.

RS:       5.397
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.31
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.251
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.188
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.135
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.069
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
         of 0.042 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:       5.006
NT RC 05 The left overbank n value of 0.042 and the right overbank n value
```

of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.971
NT RC 05 The left overbank n value of 0.042 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.929
NT RC 05 The left overbank n value of 0.042 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.872
NT RC 05 The left overbank n value of 0.042 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.783
NT RC 05 The left overbank n value of 0.042 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.741
NT RC 05 The left overbank n value of 0.042 and the right overbank n value of 0.042 are less than or equal to the channel n value of 0.048
The overbank n values should be reevaluated.

RS: 4.672
NT RC 05 The left overbank n value of 0.041 and the right overbank n value of 0.041 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 4.512
NT RC 05 The left overbank n value of 0.041 and the right overbank n value of 0.041 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 4.356
NT RC 05 The left overbank n value of 0.041 and the right overbank n value of 0.041 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 4.234
NT RC 05 The left overbank n value of 0.041 and the right overbank n value of 0.041 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 4.073
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.045 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 3.881
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.045 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 3.66
NT RC 05 The left overbank n value of 0.036 and the right overbank n value of 0.045 are less than or equal to the channel n value of 0.055
The overbank n values should be reevaluated.

RS: 2.34
NT RC 05 The left overbank n value of 0.045 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.067
The overbank n values should be reevaluated.

RS: 2.277
NT RC 05 The left overbank n value of 0.045 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.067
The overbank n values should be reevaluated.

RS: 2.211

NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 2.135
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 2.081
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 2.022
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.932
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.859
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.803
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.722
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.625
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.56
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.037 are less than or equal to the channel n value of 0.05 The overbank n values should be reevaluated.

RS: 1.176
NT RC 05 The left overbank n value of 0.047 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.055 The overbank n values should be reevaluated.

RS: 1.116
NT RC 05 The left overbank n value of 0.047 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.055 The overbank n values should be reevaluated.

RS: 1.089
NT RC 05 The left overbank n value of 0.047 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.055 The overbank n values should be reevaluated.

RS: 1.0735
NT RC 05 The left overbank n value of 0.047 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.055 The overbank n values should be reevaluated.

RS: 1.0735
NT RC 05 The left overbank n value of 0.047 and the right overbank n value of 0.043 are less than or equal to the channel n value of 0.055 The overbank n values should be reevaluated.

```
RS:       1.058
NT RC 05 The left overbank n value of 0.047 and the right overbank n value
         of 0.043 are less than or equal to the channel n value of 0.055
         The overbank n values should be reevaluated.
```

TRANSITION LOSS COEFFICIENT CHECK

```
RS:       6.497
NT TL 02 Contraction and expansion loss coefficients are 0.2 and 0.4
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       6.453
NT TL 02 Contraction and expansion loss coefficients are 0.2 and 0.4
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       1.116
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Width ratio is 0.12
         Contraction loss coefficient is 0.1
         It is outside the range of 0.3 and 0.5 from
         the Table B.4 of HEC-RAS hydraulics Reference Manual.

RS:       0.998
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.
```

ROUGHNESS COEFFICIENT AT STRUCTURES

```
RS:       1.0735
NT RS 02 The channel n value of 0.055 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.055 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:       1.0735
NT RS 02 The channel n value of 0.055 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.055 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.
```

---END---

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.xs
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 9:47:28 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,1 West (South of						
6.497	259.095	233.287	214.061	104.08	7170	C (S/C)
6.453	325.658	330.598	317.649	342.46	7170	C
6.39	329.509	370.524	337.729	618.28	7170	C
6.32	389.453	476.058	410.373	826.05	7170	D
6.23	298.471	302.279	301.395	761.28	7170	
6.173	477.628	472.748	485.207	747.77	7170	D
6.083	501.995	469.64	456.124	659.3	7170	
5.994	258.366	260.354	262.242	848.54	7170	
5.945	284.959	299.496	318.44	843.43	7170	D
5.888	265.52	273.253	286.224	1063.97	7170	D
5.836	244.001	258.5	253.467	1147.61	7170	
5.787	247.115	283.466	259.43	1072.85	7170	D
5.733	257.471	323.967	289.203	1125.89	7170	
5.672	301.264	350.811	344.098	1223.35	7170	
5.606	331.994	337.102	324.293	1187.28	7170	
5.542	389.574	417.422	413.149	843.44	7170	D
5.463	322.362	346.379	348.458	641.22	7170	
5.397	475.243	458.294	445.095	408.6	7170	C -(S/C)
5.31	321.191	310.631	304.599	472.19	7360	
5.251	279.364	334.455	317.059	590.7	7360	
5.188	281.912	282.163	286.85	511.35	7360	
5.135	334.824	348.908	336.433	486.28	7360	
5.069	315.434	334.07	332.147	659.36	7360	
5.006	173.524	186.306	224.521	779.08	7360	C (S/C)
4.971	200.479	223.755	231.315	822.29	7360	
4.929	267.245	301.91	309.901	605.17	7360	
4.872	511.414	468.988	462.285	633.4	7360	
4.783	239.76	221.85	234.1	222.37	7360	
4.741	359.728	363.357	384.941	281.36	7360	D C (S/C) hydraulic jump occurring.
4.672	858.807	845.969	825.153	84.28	7360	C
4.512	818.125	823.008	755.496	180.26	7360	D
4.356	616.166	645.542	649.83	591	7360	D
4.234	851.388	852.093	841.428	461.86	7360	
4.073	1002.85	1014.32	1000.65	532.29	7360	
3.881	1162.3	1166.11	1159.42	815.41	7360	
3.66	699.572	782.917	1084.67	798.25	7360	
3.511	466.211	442.246	503.45	1617.21	7360	D
3.427	565.434	600.268	605.44	1890.71	7360	D
3.313	477.112	495.326	512.205	1818.31	7490	D
3.219	251.047	369.449	389.715	1488.81	7490	D
3.149	314.989	260.413	243.817	1228.51	7490	D
3.1	236.763	225.469	241.987	1017.14	7490	D
3.057	388.526	414.846	449.267	986.6	7490	
2.978	444.432	426.598	404.467	1115.55	7490	
2.897	429.351	454.163	446.053	1305.45	7490	
2.811	425.321	453.931	357.141	1322.76	7490	
2.725	289.468	297.112	298.195	1038.68	7490	D
2.669	366.855	398.695	392.592	1038.94	7490	
2.593	371.041	421.058	382.988	1003.28	7490	
2.513	307.167	315.912	309.352	957.08	7490	
2.453	318.795	344.132	332.722	985.69	7490	D
2.388	233.222	254.286	277.097	915.66	7490	D
2.34	321.032	333.784	318.583	718.11	7490	D
2.277	347.828	348.741	357.476	800.36	7490	
2.211	385.782	403.67	399.549	653.28	7490	C (S/C)
2.135	292.072	287.739	281.471	645.51	7490	
2.081	319.728	311.508	297.359	915.22	7490	

Zone A

					1W	
2.022	507.079	477.08	443.871	1029.67	7490	
1.932	393.308	384.687	373.113	814.93	5980	D
1.859	285.201	293.347	332.61	1059.41	5980	D
1.803	419.187	429.972	457.854	1191.32	5980	D
1.722	537.425	511.213	479.682	1083.41	5980	
1.625	385.312	342.587	336.62	1482.16	5980	
1.56	350.776	325.877	375.112	1632.47	5980	D
1.498	589.255	542.846	601.748	2029.47	6160	D
1.395	491.864	490.64	433.699	2321.81	6160	
1.302	273.382	314.576	309.665	2248.62	6160	D
1.242	356.649	348.201	356.563	2122.01	6160	D
1.176	382.067	318.586	274.97	1959.22	6160	
1.116	314.998	140.686	128.358	1851.12	6160	D
1.089	122.144	164.325	183.06	1193.89	6160	D
1.0735	Bridge #1-Up					
1.0735	Bridge #1-Dn					
1.058	52.648	316.715	396.713	821	6160	D,D(S/L)
.998	249.925	346.123	350.57	2530.28	6160	D
.932	337.786	368.241	343.32	1388.17	6160	D
.862	472.989	446.117	421.281	1545.89	6160	
.778	395.627	407.727	401.773	1413.11	6160	
.701	332.625	352.976	343.738	1264.97	6160	
.634	394.326	401.814	416.822	1309.91	6160	
.558	330.143	360.27	358.645	1523.64	6160	
.49	362.682	376.37	367.089	1401.32	6160	
.419	388.859	390.18	408.798	1296.27	6160	D
.345	290	304.386	296.501	932.65	6160	
.287	331.906	351.983	351.919	961.22	6160	
.22	323.418	346.673	350.609	1110.12	6160	
.154	0	0	0	1524.36	6160	

split flow @ CS08*

hydraulic jump b/c of structure

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

RS: 4.672
XS SP 01 Diff. HV = 3.00 ; Kratio = 3.66 ; Depth Ratio = 1.41
TopWdthAct ratio = 2.14 ; Length Chl Up / 500 = 1.69
Change in HV > 0.5
K ratio < 0.7 or K ratio > 1.4
Depth ratio < 0.9 or Depth ratio > 1.1
TopWdthAct ratio < 0.5 or TopWdthAct ratio > 2.0
and Length Chnl up / 500 > 1.1
addtional cross sections may need to be added between
river station up and river station dn.

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 1.932
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,1 West (South of
Normal S = 0.00189 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,1 West (South of
Normal S = 0.00189 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.fw
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 9:47:29 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,1 West (South of							
6.497					9928.52	10032.6	
6.497	1	0.1	9930	10028	9930	10028	
6.453					9796.24	10138.7	
6.453	1	0.55	9846	10100	9846	10100	
6.39					9520.32	10138.6	
6.39	1	0.62	9610	10026	9610	10026	
6.32					9461.84	10293.28	
6.32	1	0.76	9620	10036	9620	10036	
6.23					9762.64	10523.91	
6.23	1	0.89	9935	10268	9935	10268	
6.173					9904.18	10653.78	
6.173	1	0.92	9969	10307	9969	10307	
6.083					9857.09	10516.38	
6.083	1	0.86	9906	10296	9906	10296	
5.994					9652.03	10500.57	
5.994	1	0.8	9709	10222	9709	10222	
5.945					9552.48	10415.15	
5.945	1	0.75	9610	10168	9610	10168	
5.888					9552.45	10620.94	
5.888	1	0.89	9698	10310	9698	10310	
5.836					9457.85	10605.46	
5.836	1	0.83	9723	10344	9723	10344	
5.787					9432.83	10535.25	
5.787	1	0.8	9677	10307	9677	10307	
5.733					9328.62	10454.51	
5.733	1	0.82	9553	10268	9553	10268	
5.672					9105.29	10328.64	
5.672	1	0.81	9410	10119	9410	10119	
5.606					9054.6	10241.88	
5.606	1	0.93	9360	10040	9360	10040	
5.542					9422.53	10270.32	
5.542	1	0.67	9542	10013	9542	10013	
5.463					9450.52	10091.74	
5.463	1	0.86	9669	10024	9669	10024	
5.397					9676.02	10084.62	
5.397	1	0.86	9860	10010	9860	10010	
5.31					9675.67	10147.86	
5.31	1	0.85	9901	10077	9901	10077	
5.251					9545.31	10136.02	
5.251	1	0.86	9715	10046	9715	10046	
5.188					9655.31	10166.66	
5.188	1	0.36	9857	10100	9857	10100	
5.135					9671.79	10158.07	
5.135	1	0.33	9886	10114	9886	10114	
5.069					9431.38	10090.73	
5.069	1	0.96	9690	10030	9690	10030	
5.006					9569.62	10348.7	
5.006	1	0.91	9807	10130	9807	10130	
4.971					9409.58	10231.87	
4.971	1	0.87	9791	10027	9791	10027	
4.929					9478.08	10083.24	
4.929	1	0.83	9811	10064	9811	10064	
4.872					9505.5	10138.9	
4.872	1	0.46	9767	10075	9767	10075	
4.783					9939.11	10161.48	
4.783	1	0.93	9940	10077	9940	10077	
4.741					9883.1	10165.87	
4.741	1	0.99	9971	10119	9971	10119	

					1W	
4.672					9953.26	10037.54
4.672	1	0.02	9969	10032	9969	10032
4.512					9925.17	10113.94
4.512	0	-0.07	0	0	9925.31	10113.53
4.356					9829.64	10532.4
4.356	0	0.07	0	0	9828.88	10534.42
4.234					9788.4	10250.27
4.234	0	-0.15	0	0	9790.12	10241.13
4.073					9834.63	10366.92
4.073	0	-0.15	0	0	9835.97	10358.54
3.881					9585.15	10400.56
3.881	0	-0.48	0	0	9598.16	10347.55
3.66					9683.7	10481.95
3.66	0	0.07	0	0	9680.85	10484.61
3.511					8885.53	10543.7
3.511	1	0.79	9740	10147	9740	10147
3.427					8085.7	10140.67
3.427	1	0.97	9315	10108	9315	10108
3.313					8010.19	10249.78
3.313	1	0.71	9115	10045	9115	10045
3.219					8622.83	10301.46
3.219	1	0.77	9453	10113	9453	10113
3.149					8987.82	10324.67
3.149	1	0.98	9582	10203	9582	10203
3.1					9168.55	10194.47
3.1	1	1	9559	10122	9559	10122
3.057					9266.46	10253.1
3.057	1	0.99	9533	10062	9533	10062
2.978					9269.45	10385
2.978	1	0.95	9563	10093	9563	10093
2.897					9426.75	10732.2
2.897	1	0.93	9736	10184	9736	10184
2.811					9497.18	10819.94
2.811	1	0.44	9869	10281	9869	10281
2.725					9342.51	10434.02
2.725	1	0.74	9750	10124	9750	10124
2.669					9187.07	10226.01
2.669	1	0.9	9741	10105	9741	10105
2.593					9230.12	10233.4
2.593	1	0.94	9694	10052	9694	10052
2.513					9362.21	10319.29
2.513	1	0.92	9738	10097	9738	10097
2.453					9211.7	10234.29
2.453	1	0.78	9726	10050	9726	10050
2.388					9412.47	10361.9
2.388	1	0.52	9899	10122	9899	10122
2.34					9511.05	10293.19
2.34	1	0.82	9894	10137	9894	10137
2.277					9494.93	10295.29
2.277	1	0.73	9868	10156	9868	10156
2.211					9517.51	10170.79
2.211	1	0.44	9860	10097	9860	10097
2.135					9503.06	10148.57
2.135	1	0.91	9810	10028	9810	10028
2.081					9511.58	10426.8
2.081	1	0.98	9890	10050	9890	10050
2.022					9516.33	10546
2.022	1	0.57	9881	10114	9881	10114
1.932					9780.4	10612.28
1.932	1	0.92	9924	10117	9924	10117
1.859					9654.83	10732.78
1.859	1	0.98	9955	10132	9955	10132
1.803					9557.98	10783.66
1.803	1	0.84	9941	10185	9941	10185
1.722					9624.99	10708.4
1.722	1	0.76	9942	10245	9942	10245
1.625					9257.95	10740.11
1.625	1	0.65	9925	10253	9925	10253
1.56					8890	10712.7
1.56	1	0.99	9812	10242	9812	10242
1.498					8673.22	10809
1.498	1	0.71	9760	10317	9760	10317
1.395					8448.19	10770
1.395	1	0.81	9507	10519	9507	10519

Zone A

					1W		
1.302					8404.96	10733.87	
1.302	1	0.44	9445	10545	9445	10545	
1.242					8378.8	10526.4	
1.242	1	0.92	9259	10481	9259	10481	
1.176					8401.78	10361	
1.176	1	0.96	9048	10328	9048	10328	
1.116					8285.92	10153	
1.116	1	0.97	8812	10120	8812	10120	
1.089					8201.58	10090.82	
1.089	1	0.92	8826	10109	8826	10095.5	
1.0735					9910.99	10080.27	Bridge #1-Up
1.0735					8418.06	10131.31	Bridge #1-Dn
1.0735	0	0.55	8881.43	10053.43	9906.86	10053.43	Bridge #1-Up
1.0735	0	0.15	8951	10123	8951	10123	Bridge #1-Dn
1.058					8249.63	9304.44	
1.058	1	0.49	8951	10123	8951	10123	
0.998					7579.05	10404.24	
0.998	1	0.23	9065	10384	9065	10384	
0.932					9211.15	10620.46	
0.932	1	0.16	9231	10502	9231	10502	
0.862					9055.22	10601.11	
0.862	1	0.33	9441	10371	9441	10371	
0.778					9166	10579.11	
0.778	1	0.39	9402	10300	9402	10300	
0.701					9334.53	10599.5	
0.701	1	0.56	9470	10338	9470	10338	
0.634					9409.09	10719	
0.634	1	0.75	9654	10273	9654	10273	
0.558					9258.21	10781.85	
0.558	1	0.98	9700	10241	9700	10241	
0.49					9213.84	10615.16	
0.49	1	0.98	9765	10219	9765	10219	
0.419					9270.31	10643.6	
0.419	1	0.78	9818	10195	9818	10195	
0.345					9452.55	10385.2	
0.345	1	0.99	9800	10174	9800	10174	
0.287					9325.43	10286.65	
0.287	1	0.99	9765	10082	9765	10082	
0.22					9395.71	10505.82	
0.22	1	0.88	9811	10200	9811	10200	
0.154					9139.27	10663.63	
0.154	1	0.97	9564	10239	9564	10239	

ENCROACHMENT METHOD CHECK

RS: 4.512
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.356
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.234
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 4.073
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.881
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.66
FW EM 01 Floodway encroachment method is not selected at this section..

RS: 1.0735
FW EM 01 Floodway encroachment method is not selected at this section.

FLOODWAY WIDTH CHECK

RS: 6.39

FW FW 01 Right encroachment station 10026 is less than right channel bank station 10026.14 and greater than the left channel bank station 9979.2
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 6.39
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.32
FW FW 01 Right encroachment station 10036 is less than right channel bank station 10036.49 and greater than the left channel bank station 9944.81
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 6.23
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 6.23
FW FW 03 The right channel bank station may not be at the proper location.

RS: 6.173
FW FW 01 Left encroachment station 9969 is more than left channel bank station 9968.95 and less than the right channel bank station 10026.8
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 6.173
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.945
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.888
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.787
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.733
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.733
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.672
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.606
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.31
FW FW 03 The right channel bank station may not be at the proper location.

RS: 5.251
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 5.069
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.971

FW FW 01 Right encroachment station 10027 is less than right channel bank station 10027.06 and greater than the left channel bank station 9985.47
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.872
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.783
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.741
FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.672
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.512
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.356
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.234
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.881
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.881
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.66
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.057
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.978
FW FW 01 Right encroachment station 10093 is less than right channel bank station 10093.03 and greater than the left channel bank station 9807.02
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.978
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.897
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.811
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.669
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.593
FW FW 01 Right encroachment station 10052 is less than right channel bank station 10052.02 and greater than the left channel bank station 9920.41

Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.593
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.593
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.388
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.277
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.211
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.135
FW FW 01 Right encroachment station 10028 is less than right channel bank station 10028.06 and greater than the left channel bank station 9943.76
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.135
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.081
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.081
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.022
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.932
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.803
FW FW 01 Left encroachment station 9941 is more than left channel bank station 9940.98 and less than the right channel bank station 10060.84
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.625
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.625
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.395
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.302
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.242
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.176
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.176
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.116
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.089
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.089
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.932
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.862
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.778
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.701
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.634
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.558
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.558
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.49
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.419
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.154
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.154
FW FW 03 The right channel bank station may not be at the proper location.

SURCHARGE CHECK

RS: 4.234
FW SC 01 The surcharge value is negative.

RS: 4.073
FW SC 01 The surcharge value is negative.

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RS:        3.881
FW SC 01  The surcharge value is negative.

DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1W.br
Selected profiles: Floodplain;Floodway
Date: 7/19/2005
Time: 9:47:30 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,1 West (South of						
6.497			1554.48	1551.75	1544.91	
6.453			1548.92	1548.17	1543.75	
6.39			1543.97	1543.15	1540.14	
6.32			1540.64	1540.31	1536.58	
6.23			1537.25	1536.72	1531.91	
6.173			1534.58	1534.31	1529.51	
6.083			1529.91	1529.34	1525.97	
5.994			1524.99	1524.71	1520.11	
5.945			1522.88	1522.48	1518.74	
5.888			1519.97	1519.73	1517.6	
5.836			1517.84	1517.66	1515.2	
5.787			1515.85	1515.63	1513.05	
5.733			1514.08	1513.93	1510.31	
5.672			1511.87	1511.63	1508.02	
5.606			1509.72	1509.6	1505.7	
5.542			1507.65	1507.36	1503.68	
5.463			1503.88	1503.47	1495.07	
5.397			1500.58	1499.51	1488.63	
5.31			1496.64	1495.91	1486.17	
5.251			1494.58	1493.94	1482.96	
5.188			1492.69	1492.07	1480.82	
5.135			1491.05	1490.27	1477.27	
5.069			1488.74	1488.02	1476.72	
5.006			1486.32	1485.62	1473.06	
4.971			1485.07	1484.45	1472.24	
4.929			1483.92	1483.4	1470.95	
4.872			1482.06	1481.28	1469.78	
4.783			1476.88	1475.21	1467.1	
4.741			1473.74	1472.28	1464.88	
4.672			1467.13	1463.72	1454.66	
4.512			1463.68	1463.27	1450.53	
4.356			1462.1	1461.47	1450.33	
4.234			1458.84	1457.93	1444.67	
4.073			1454.32	1454.02	1441.88	
3.881			1449.12	1448.83	1440.17	
3.66			1442.48	1442.22	1435.81	
3.511			1437.76	1437.58	1431.7	
3.427			1435.38	1435.25	1429.09	
3.313			1432.35	1432.22	1426.47	
3.219			1429.37	1429.17	1424.39	
3.149			1427.91	1427.75	1423.08	
3.1			1426.52	1426.3	1422.24	
3.057			1425.29	1425.07	1421.51	
2.978			1423.19	1423.01	1419.85	
2.897			1420.55	1420.34	1411.76	
2.811			1418.43	1418.31	1408.34	
2.725			1415.93	1415.18	1406.39	
2.669			1413.85	1413.6	1405.88	
2.593			1412.22	1411.97	1403.31	
2.513			1410.37	1410.16	1399.84	
2.453			1408.8	1408.5	1398.73	
2.388			1406.24	1405.6	1396.74	
2.34			1404.19	1403.77	1395.25	
2.277			1402.52	1402.26	1393.33	
2.211			1400.45	1399.6	1391.1	
2.135			1397.64	1397.23	1389.39	
2.081			1396.23	1395.53	1387.32	
2.022			1394.52	1394.1	1386.21	
1.932			1391.54	1390.76	1384.28	

1W

1.859			1389.22	1388.9	1382.87	
1.803			1387.56	1387.13	1381.24	
1.722			1384.62	1384.26	1378.39	
1.625			1381.26	1380.94	1375.03	
1.56			1378.9	1378.65	1372.93	
1.498			1376.72	1376.57	1371.8	
1.395			1373.19	1373.08	1369.94	
1.302			1370.63	1370.54	1366.65	
1.242			1369.12	1369.01	1365.75	
1.176			1368.82	1368.8	1364.68	
1.116			1368.77	1368.77	1362.68	
1.089			1368.76	1368.75	1362.5	
1.0735	1371.6	1367.38	1369.51	1366.89	1362.5	Bridge #1-Up
1.0735	1370.7	1365.84	1367.55	1366.54	1363.4	Bridge #1-Dn
1.058			1363.88	1363.28	1363.4	
0.998			1363	1362.94	1359.5	
0.932			1362.14	1361.96	1357.45	
0.862			1360.47	1360.35	1356.48	
0.778			1358.03	1357.91	1354	
0.701			1355.75	1355.63	1351.93	
0.634			1353.96	1353.83	1350.11	
0.558			1351.87	1351.77	1347.46	
0.49			1350.05	1349.92	1346.37	
0.419			1348.08	1347.9	1338.04	
0.345			1346.34	1346.14	1335.59	
0.287			1345.22	1345.05	1336.55	
0.22			1343.46	1343.27	1333.26	
0.154			1342.29	1342.23	1333.8	

@ Deer Valley Rd.

RIVER/REACH: Reach #1, 1 West (South of
RIVER STATION: 1.0735
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	20
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	0
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	1.116	140.69	1368.77	0	1368.77	1851.12	
4	1.116	140.69	1369.73	0.97	1369.74	1296.37	
3	1.089	164.33	1368.75	0	1368.76	1193.89	
3	1.089	164.33	1369.67	0.92	1369.71	578.71	
	1.0735	20.00	1366.89	0	1369.51	163.28	Bridge #1-Up
	1.0735	144.32	1366.54	0	1367.55	734.44	Bridge #1-Dn
	1.0735	20.00	1367.43	0.55	1369.88	140.56	Bridge #1-Up
	1.0735	144.32	1366.69	0.15	1368.3	225.85	Bridge #1-Dn
2	1.058	316.72	1363.28	0	1363.88	821	
2	1.058	316.72	1363.77	0.49	1364.65	483.93	
1	0.998	346.12	1362.94	0	1363	2530.28	
1	0.998	346.12	1363.17	0.23	1363.32	1138.69	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	7332.22	8201.58	1369.89	7411.11	8201.01	1368.05
2	9205	9882.25	1372.05	9304.44	9859.42	1370.02
3	10095.5	11212.1	1372.64	10179.4	10651.9	1372.01

BRIDGE:

Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

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MaxLowChord:	1371.6	MinTopRd:	1367.39	MinElPrs:	1371.6
	1371.6		1367.82		1371.6

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9882.25	10095.5U
					9859.42	10179.4D
			8951	10123		U
			8951	10123		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9886.34	10104.00	1367.38	1372.64	1367.38	1371.60 U
	9894.92	10142.96	1365.84	1371.16	1365.84	1370.70 D
	9886.34	10104.00	1368.15	1376.11	1368.15	1371.60 U
	9894.92	10123.00	1366.65	1374.56	1366.65	1370.70 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	6160	4563.77	1596.23	Energy/Weir	Low and Weir Flow
	6160	5228.19	931.81	Energy/Weir	Low and Weir Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 1.0735 This is Bridge #1
BR LW 01 Type of flow is low and weir flow because,
1. EGEL 3 of 1368.76 is greater than MinTopRd of 1367.39.
2. EGEL 3 of 1368.76 is less than MxLoCdU of 1371.60.

RS: 1.0735 This is Bridge #1
BR LW 01 Type of flow is low and weir flow because,
1. EGEL 3 of 1369.71 is greater than MinTopRd of 1367.82.
2. EGEL 3 of 1369.71 is less than MxLoCdU of 1371.60.

DISTANCE CHECK

RS: 1.0735 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.01 is less than the height of the bridge opening of 9.10
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 1.089 This is Section 3
ST IF 02 Weir flow occurs at Bridge
However, the ineffective flow elevation of 1369.89 between stations 7332.22 and 8201.58 is equal to or greater than the WSEL of 1368.75
The LMnTpRdU is 1367.383
The ineffective flow elevation should be equal to or lower than the MnTpRd
It should also be less than the WSEL.

RS: 1.089 This is Section 3
ST IF 02 Weir flow occurs at Bridge
However, the ineffective flow elevation of 1372.05 between stations 9205 and 9882.25 is equal to or greater than the WSEL of 1368.75
The LMnTpRdU is 1367.383
The ineffective flow elevation should be equal to or lower than the MnTpRd
It should also be less than the WSEL.

RS: 1.058 This is Section 2
ST IF 02 Weir flow occurs at Bridge
However, the ineffective flow elevation of 1368.05 between stations 7411.11 and 8201.01 is equal to or greater than the WSEL of 1363.28
The LMnTpRdD is 1365.836 and the MxLoCdD is 1370.698
The ineffective flow elevation should be between the LMnTpRdD and the MxLoCdD if LMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to LMnTpRdD.
It should also be less than the WSEL.

RS: 1.058 This is Section 2
ST IF 02 Weir flow occurs at Bridge
However, the ineffective flow elevation of 1370.02 between stations 9304.44 and 9859.42 is equal to or greater than the WSEL of 1363.28
The LMnTpRdD is 1365.836 and the MxLoCdD is 1370.698
The ineffective flow elevation should be between the LMnTpRdD and the MxLoCdD if LMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to LMnTpRdD.
It should also be less than the WSEL.

RS: 1.089 This is Section 3.
ST IF 05 Weir flow occurs at Bridge
The right ineffective flow station of 10095.5 is less than the right abutment station of 10104.00
The right ineffective flow station should be adjusted.

RS: 1.116 This is Section 4
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream.
This message should be ignored if this section is Section 2 of the upstream structure.

FLOODWAY CHECK

RS: 1.0735 This is Bridge
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1 should be used.

RS: 1.0735 This is Bridge
ST FW 09 The right most weir station of 9192.11 for the floodway profile is equal or greater than the right most weir station of 9071.65 for the natural profile.
The floodway weir flow boundary is equal to or outside of the natural profile weir flow boundary.
Encroachment computations should be investigated.

RS: 1.058 This is Section 2
ST FW 10 Right encroachment station 10123 is less than the right ineffective flow station 10179.4 and greater than the left ineffective flow station 9859.42
Right encroachment station is within the effective flow area.
Right encroachment station should at least be equal to the right ineffective flow station.

RS: 1.089 This is Section 3

ST FW 08 The right station effective of 10090.82 for the natural profile.
is greater than the right channel bank station of 10086.25
The right encroachment station is outside the channel.
The right encroachment station of 10109 is greater than the right
station effective of 10090.82 for the natural profile.
The right encroachment station should be adjusted.

---END

1 EAST

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.nt
Selected profiles: Floodplain;Floodway
Date: 7/11/2005
Time: 12:25:14 PM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,1 East (South of						
1.31		0.034	0.046	0.034	0.1	0.3
1.26		0.034	0.046	0.034	0.1	0.3
1.18		0.034	0.046	0.034	0.1	0.3
1.09		0.034	0.046	0.034	0.1	0.3
1.01		0.034	0.046	0.034	0.1	0.3
.96		0.034	0.046	0.034	0.1	0.3
.91		0.034	0.046	0.034	0.1	0.3
.88		0.034	0.046	0.034	0.1	0.3
.875		0.044	0.056	0.041	0.3	0.5
.8725	Bridge-Up	0.044	0.056	0.041	0.3	0.5
.8725	Bridge-Dn	0.044	0.056	0.041	0.3	0.5
.87		0.044	0.056	0.041	0.3	0.5
.86		0.044	0.056	0.041	0.1	0.3
.85		0.044	0.056	0.041	0.3	0.5
.83	Culvert-Up	0.044	0.056	0.041	0.3	0.5
.83	Culvert-Dn	0.044	0.056	0.041	0.3	0.5
.81		0.044	0.056	0.041	0.3	0.5
.79		0.044	0.056	0.041	0.3	0.5
.74		0.044	0.056	0.041	0.1	0.3
.64		0.044	0.056	0.041	0.1	0.3
.58		0.044	0.056	0.041	0.1	0.3
.51		0.044	0.056	0.041	0.1	0.3
.46		0.044	0.056	0.041	0.1	0.3
.4		0.044	0.056	0.041	0.1	0.3
.33		0.044	0.056	0.041	0.1	0.3
.27		0.044	0.056	0.041	0.1	0.3
.18		0.044	0.056	0.041	0.1	0.3
.1		0.044	0.056	0.041	0.1	0.3
.05		0.044	0.056	0.041	0.1	0.3
0		0.044	0.056	0.041	0.1	0.3

b/c of structure

b/c of structure

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.034	0.044
Right Overbank n Value:	0.034	0.041
Channel n Value:	0.046	0.056
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 1.31
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.31
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.31
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046

The overbank n values should be reevaluated.

RS: 1.26
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.26
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.26
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 1.18
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.18
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.18
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 1.09
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.09
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.09
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 1.01
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.01
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 1.01
NT RC 05 The left overbank n value of 0.034 and the right overbank n value of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 0.96
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.96
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.96
NT RC 05 The left overbank n value of 0.034 and the right overbank n value

of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 0.91
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.91
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.91
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 0.88
NT RC 01 Left overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.88
NT RC 01 Right overbank n value is less than 0.035
The n value for overbank is usually larger then 0.035.
The n value should be reevaluated.

RS: 0.88
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
of 0.034 are less than or equal to the channel n value of 0.046
The overbank n values should be reevaluated.

RS: 0.875
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.8725
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.8725
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.87
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.86
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.85
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.83
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.83
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
of 0.041 are less than or equal to the channel n value of 0.056
The overbank n values should be reevaluated.

RS: 0.81

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NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.79
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.74
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.64
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.58
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.51
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.46
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.4
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.33
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.27
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.18
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.1
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

RS:      0.05
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.056
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:      0.88
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Width ratio is 0.19
         Contraction loss coefficient is 0.1
         It is outside the range of 0.3 and 0.5 from
         the Table B.4 of HEC-RAS hydraulics Reference Manual.
```

```
RS:       0.86
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Width ratio is 0.19
         Contraction loss coefficient is 0.1
         It is outside the range of 0.3 and 0.5 from
         the Table B.4 of HEC-RAS hydraulics Reference Manual.

RS:       0.79
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
-----------------------------------

RS:       0.8725
NT RS 02 The channel n value of 0.056 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.056 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:       0.8725
NT RS 02 The channel n value of 0.056 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.056 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.xs
Selected profiles: Floodplain;Floodway
Date: 7/11/2005
Time: 12:25:14 PM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,1 East (South of						
1.31	228.578	248.205	233.281	52.31	470	
1.26	413.123	414.479	425.677	36.52	470	
1.18	465.098	462.525	485.279	17.58	470	
1.09	421.121	426.266	404.755	24.91	470	
1.01	284.732	276.973	278.159	383.56	470	C (s/c) supercritical
.96	293.413	242.219	192.17	314.8	470	D
.91	185.488	166.006	210.67	290.71	470	D
.88	24.467	30.972	23.363	168.56	470	E - left side of channel is an ineffective area,
.875	19.173	25	19.796	31.2	450	therefore x-section not contained is ok.
.8725	Bridge #1-Up					
.8725	Bridge #1-Dn					
.87	58.329	55.707	68.14	29.32	450	
.86	47.293	32.7	39.172	40.04	450	
.85	195.137	187.121	186.533	36.89	450	
.83	CULVERT#1-Up					
.83	CULVERT#1-Dn					
.81	85.2	99.087	99.838	36.91	450	
.79	264.133	280.805	276.857	74.02	450	
.74	431.449	515.399	475.668	46.72	450	
.64	324.397	319.747	298.397	58	450	D
.58	410.097	419.962	413.08	96.38	450	D
.51	213.353	232.928	243.806	49.66	450	
.46	345.675	318.482	315.238	107.49	450	D
.4	345.276	349.401	353.58	26.25	450	
.33	353.228	332.988	296.193	72.05	450	
.27	461.981	470.307	486.957	40.54	450	D
.18	430.397	424.635	429.665	38	450	C (s/c)
.1	267.27	271.581	273.194	52.05	450	
.05	260.263	265.059	279.566	30.02	450	
0	0	0	0	28.64	450	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 0.875
XS DC 01 Discharge decreases in the downstream direction.

RS: 0.18
XS DC 04 There is no flow on the left overbank at the downstream
cross section. There is no flow on the right overbank at this section.

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,1 East (South of
Normal S = 0.012 is specified as the downstream boundary
for profile Floodplain

XS BC 02 The name of the stream is Reach #1,1 East (South of
Normal S = 0.012 is specified as the downstream boundary
for profile Floodway

LATERAL WEIRS CHECK

---END---

CHECK-RAS Program: Floodway Check
Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.fw
Selected profiles: Floodplain;Floodway
Date: 7/11/2005
Time: 12:25:17 PM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,1 East (South of							
1.31					9966.49	10018.8	
1.31	1	0	9966	10018	9966.48	10018	
1.26					9979.79	10016.31	
1.26	1	0.01	9980	10017	9980	10016.34	
1.18					9991.74	10009.32	
1.18	1	-0.04	9992	10009	9992	10009	
1.09					9984.14	10009.04	
1.09	1	0.12	9986	10009	9986	10009	
1.01					9789.46	10173.01	
1.01	1	0.03	9870	10085	9870	10085	
0.96					9880.37	10217.11	
0.96	1	0.45	9951	10056	9951	10056	
0.91					9813	10150.39	
0.91	1	0.25	9930	10081	9930	10081	
0.88					9978.04	10146.6	
0.88	1	-0.04	9985	10055	9985	10055	
0.875					9983	10014.2	
0.875	1	0	9982	10013	9983	10013	
0.8725					9983	10014.2	Bridge #1-Up
0.8725					9983.38	10013.79	Bridge #1-Dn
0.8725	0	0	9935.46	10682.46	9983	10014.2	Bridge #1-Up
0.8725	0	0	0	0	9983.37	10013.8	Bridge #1-Dn
0.87					9983.91	10013.23	
0.87	1	0.01	9935	10682	9983.89	10013.25	
0.86					9987.16	10027.2	
0.86	1	0.03	9987	10027	9987.04	10027	
0.85					9981.61	10018.5	
0.85	1	-0.02	9981	10017	9981.61	10017	
0.83					0	0	CULVERT#1-Up
0.83					0	0	CULVERT#1-Dn
0.83	0	0	0	0	0	0	CULVERT#1-Up
0.83	0	0	0	0	0	0	CULVERT#1-Dn
0.81					9983.89	10020.8	
0.81	1	0.09	9984	10017	9984	10017	
0.79					9958.65	10032.67	
0.79	1	0.02	9966	10031	9966	10031	
0.74					9985.11	10031.83	
0.74	1	-0.02	9985	10031	9985.14	10031	
0.64					9954.27	10017.04	
0.64	1	0.06	9955	10019	9955	10017.14	
0.58					9979.96	10125.21	
0.58	1	0.03	9984	10020	9984	10020	
0.51					9965.81	10015.47	
0.51	1	0.25	9984	10015	9984	10015	
0.46					9896.01	10019.89	
0.46	1	0.17	9929	10019	9929	10019	
0.4					9986.99	10013.24	
0.4	1	0.04	9990	10014	9990	10013.32	
0.33					9945.59	10017.64	
0.33	1	0.09	9981	10019	9981	10017.75	
0.27					9980.05	10021.15	
0.27	1	0.08	9988	10016	9988	10016	
0.18					9979.75	10017.75	
0.18	1	0	9980	10020	9980	10017.74	
0.1					9987.18	10039.23	
0.1	1	0.08	9982	10030	9987.04	10030	
0.05					9985.95	10015.97	
0.05	1	0.1	9985	10014	9985.73	10014	

```
                                                        1E
 0                                                      9982.63   10011.27
 0        1         0.11      9981      10009     9982.31   10009
-----------------------------------------------------------------------------
```

ENCROACHMENT METHOD CHECK

```
RS:        0.8725
FW EM 01   Floodway encroachment method is not selected at this section.

RS:        0.83
FW EM 01   Floodway encroachment method is not selected at this section.
```

FLOODWAY WIDTH CHECK

```
RS:        1.31
FW FW 01   Right encroachment station 10018 is less than right channel bank
           station 10018.81 and greater than the left channel bank station 9966.475
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.31
FW FW 05   The 1% annual chance flood is contained within the channel.
           Left encroachment station 9966 is outside the channel.
           Left channel bank station is 9966.475
           Left encroachment station and/or left channel bank station should be adjusted.

RS:        1.31
FW FW 06   The left station effective of 9966.48 for the floodway profile is more
           than the left channel bank station of 9966.475
           The left side of the floodway boundary is within the channel.
           The left encroachment station of 9966 is less than the left channel
           bank station.
           The left encroachment station should be the same as the left
           channel bank station.

RS:        1.26
FW FW 01   Left encroachment station 9980 is more than left channel bank
           station 9976.97 and less than the right channel bank station 10017.38
           Left encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.26
FW FW 01   Right encroachment station 10017 is less than right channel bank
           station 10017.38 and greater than the left channel bank station 9976.97
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.18
FW FW 01   Right encroachment station 10009 is less than right channel bank
           station 10009.04 and greater than the left channel bank station 9992.042
           Right encroachment station is within the channel.
           The encroachment station or channel bank station should be adjusted.

RS:        1.18
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        1.09
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        1.01
FW FW 03   The Left channel bank station may not be at the proper
           location.

RS:        0.875
FW FW 03   The right channel bank station may not be at the proper
           location.

RS:        0.87
```

FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.87
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.86
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.86
FW FW 04 The left station effective of 9987.16 for 1% annual chance floodplain is less than the left channel bank station 9992.71
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9987) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0.85
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.81
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.81
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.79
FW FW 01 Right encroachment station 10031 is less than right channel bank station 10031.3 and greater than the left channel bank station 9966.46
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.79
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.74
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.74
FW FW 04 The left station effective of 9985.11 for 1% annual chance floodplain is less than the left channel bank station 9989.667
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9985) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 0.64
FW FW 04 The right station effective of 10017.04 for 1% annual chance floodplain is greater than the right channel bank station (10017.03).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10019) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.58
FW FW 01 Left encroachment station 9984 is more than left channel bank station 9983.891 and less than the right channel bank station 10018.87
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.58
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.51
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.4
FW FW 04 The right station effective of 10013.24 for 1% annual chance floodplain is greater than the right channel bank station (10013.23).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10014) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.27
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.18
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.18
FW FW 04 The right station effective of 10017.75 for 1% annual chance floodplain is greater than the right channel bank station (10017.72).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10020) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.1
FW FW 01 Right encroachment station 10030 is less than right channel bank station 10030.04 and greater than the left channel bank station 9982.46
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.1
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.1
FW FW 06 The left station effective of 9987.04 for the floodway profile is more than the left channel bank station of 9982.46
The left side of the floodway boundary is within the channel.
The left encroachment station of 9982 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0.05
FW FW 01 Right encroachment station 10014 is less than right channel bank station 10014.23 and greater than the left channel bank station 9985.5
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.05
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.05
FW FW 06 The left station effective of 9985.73 for the floodway profile is more than the left channel bank station of 9985.5
The left side of the floodway boundary is within the channel.
The left encroachment station of 9985 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 0
FW FW 01 Right encroachment station 10009 is less than right channel bank station 10009.14 and greater than the left channel bank station 9981.44
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0

```
FW FW 06  The left station effective of 9982.31 for the floodway profile is more
          than the left channel bank station of 9981.44
          The left side of the floodway boundary is within the channel.
          The left encroachment station of 9981 is less than the left channel
          bank station.
          The left encroachment station should be the same as the left
          channel bank station.


SURCHARGE CHECK
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DISCHARGE CHECK
----------------


STARTING WATER-SURFACE ELEVATION CHECK
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---END---
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CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\1E.br
Selected profiles: Floodplain;Floodway
Date: 7/11/2005
Time: 12:25:18 PM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure
Reach #1,1 East (South of						
1.31			1542.64	1542.54	1537.8	
1.26			1542.16	1541.91	1535.52	
1.18			1539.4	1538.42	1531.83	
1.09			1535.22	1534.78	1529.23	
1.01			1532.65	1532.44	1527.35	
0.96			1530.06	1529.62	1524.74	
0.91			1527.89	1527.77	1523.85	
0.88			1527.46	1527.39	1522.1	
0.875			1527.36	1526.93	1522.22	
0.8725	1527.74	1530.97	1527.36	1526.93	1522.22	Bridge #1-Up) Located @ R.R.
0.8725	1527.78	1531.88	1527.19	1526.68	1522.22	Bridge #1-Dn
0.87			1527	1526.34	1522.22	
0.86			1526.07	1525.61	1522.03	
0.85			1525.73	1525.46	1522.48	
0.83	1525.48	1527.4	0	1524.39	1522.48	CULVERT#1-Up) Located @ U.S 60
0.83	1523.59	1526	0	1523.59	1520.59	CULVERT#1-Dn
0.81			1523.93	1523.67	1520.59	
0.79			1523.12	1522.83	1519.87	
0.74			1520.42	1520.1	1516.2	
0.64			1516.7	1516.44	1512.26	
0.58			1514.09	1513.76	1509.17	
0.51			1509.2	1508.67	1505.91	
0.46			1507.71	1507.61	1504.08	
0.4			1505.57	1504.81	1500.57	
0.33			1502.42	1502.2	1498.41	
0.27			1500.88	1500.62	1495.56	
0.18			1496.09	1495.26	1492	
0.1			1491.07	1490.91	1486.08	
0.05			1489.85	1489.53	1483.2	
0			1487.58	1487.08	1481.7	

RIVER/REACH: Reach #1, 1 East (South of
RIVER STATION: 0.8725
TYPE OF STRUCTURE: Bridge

Description:
Distance from Upstream XS: 0.01
Deck/Roadway Width: 15
Weir Coefficient: 2.5
Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 1531.9
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	0.88	30.97	1527.39	0	1527.46	168.56	
4	0.88	30.97	1527.34	-0.04	1527.49	70	
3	0.875	25.00	1526.93	0	1527.36	31.2	
3	0.875	25.00	1526.93	0	1527.36	30	
	0.8725	15.00	1526.93	0	1527.36	31.2	Bridge #1-Up
	0.8725	9.99	1526.68	0	1527.19	30.41	Bridge #1-Dn
	0.8725	15.00	1526.93	0	1527.36	31.21	Bridge #1-Up
	0.8725	9.99	1526.69	0	1527.19	30.42	Bridge #1-Dn

						1E
2	0.87	55.71	1526.34	0	1527	29.32
2	0.87	55.71	1526.35	0.01	1527.01	29.36
1	0.86	32.70	1525.61	0	1526.07	40.04
1	0.86	32.70	1525.63	0.03	1526.09	39.96

Ineffective Flow, Section 3			Ineffective Flow, Section 2		
Sta L	Sta R	Elev	Sta L	Sta R	Elev
			9935.3	9978.38	1533.7
			10021.2	10681.54	1533.63

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

MaxLowChord:	1527.74	MinTopRd:	1531.9	MinElPrs:	1527.74
	1527.74		1531.9		1527.74

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge						U
					9978.38	10021.2D
			0	0		U
			0	0		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9981.71	10015.71	1530.99	1530.97	1530.97	1527.74 U
	9981.64	10015.80	1531.88	1531.88	1531.88	1527.78 D
	9981.71	10015.71	1530.99	1530.97	1530.97	1527.74 U
	9981.64	10015.80	1531.88	1531.88	1531.88	1527.78 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	450	450	0	Energy only	Low Flow
	450	450	0	Energy only	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 0.8725 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1527.36 is equal to or less than MinTopRd of 1531.9.
2. EGEL 3 of 1527.36 is less than MxLoCdU of 1527.7.

RS: 0.8725 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1527.36 is equal to or less than MinTopRd of 1531.9.

2. EGEL 3 of 1527.36 is less than MxLoCdU of 1527.7.

DISTANCE CHECK

RS: 0.8725 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.01 is less than the height of the bridge opening of 5.56
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 0.87 This is Section 2
ST IF 06 Low flow occurs at Bridge
The velocity head at Section 2 is more than 0.5
The computed left ineffective flow station of 9976.08 is less than the selected left ineffective flow station of 9978.38
The left ineffective flow station should be adjusted.

RS: 0.88 This is Section 4
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from this section, unless the areas beyond the ineffective flow stations are not within the flow path of the stream.
This message should be ignored if this section is Section 2 of the upstream structure.

RS: 0.86 This is Section 1
ST IF 07 Ineffective flow option was considered at this section.
However, it should be a fully expanded cross section.
Ineffective flow stations and elevations should be cleared from this section, unless the ares beyond the ineffective flow stations are not within the flow path of the stream.
This message should be ignored if this section is Section 3 of the downstream structure.

FLOODWAY CHECK

RS: 0.8725 This is Bridge
ST FW 01 Encroachment Method was not specified at this river station.
For flood insurance studies Encroachment Methods 4 and 1 should be used.

RS: 0.87This is Section 2
ST FW 08 The left station effective of 9983.91 for the natural profile.
is less than the left channel bank station of 9990.11
The left encroachment station is outside the channel.
The left encroachment station of 9935 is less than the left station effective of 9983.91 for the natural profile.
The left encroachment station should be adjusted.

RS: 0.87 This is Section 2
ST FW 08 The right station effective of 10013.23 for the natural profile.
is greater than the right channel bank station of 10009.74
The right encroachment station is outside the channel.
The right encroachment station of 10682 is greater than the right station effective of 10013.23 for the natural profile.
The right encroachment station should be adjusted.

RS: 0.875This is Section 3
ST FW 08 The left station effective of 9983 for the natural profile.
is less than the left channel bank station of 9991.03
The left encroachment station is outside the channel.
The left encroachment station of 9982 is less than the left station effective of 9983 for the natural profile.
The left encroachment station should be adjusted.

RIVER/REACH: Reach #1, 1 East (South of
RIVER STATION: 0.83
TYPE OF STRUCTURE: Culvert

Description:
Distance from Upstream XS: 21.55
Deck/Roadway Width: 143.26
Weir Coefficient: 3.1
Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 1526.04
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	0.86	32.70	1525.61	0	1526.07	40.04	
4	0.86	32.70	1525.63	0.03	1526.09	39.96	
3	0.85	187.12	1525.46	0	1525.73	36.89	
3	0.85	187.12	1525.43	-0.02	1525.73	35.39	
	0.83	156.75	1524.39	0	0	0	CULVERT#1-Up
	0.83	8.82	1523.59	0	0	0	CULVERT#1-Dn
	0.83	156.75	1524.39	0	0	0	CULVERT#1-Up
	0.83	8.82	1523.59	0	0	0	CULVERT#1-Dn
2	0.81	99.09	1523.67	0	1523.93	36.91	
2	0.81	99.09	1523.76	0.09	1524.05	33	
1	0.79	280.81	1522.83	0	1523.12	74.02	
1	0.79	280.81	1522.85	0.02	1523.14	65	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9806.89	9981.61	1527.4	9841.26	9983.89	1526.04
2	10018.5	10716.36	1527.4	10020.8	10417.73	1526.04

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group					9981.61	10018.5U
					9983.89	10020.8D
			0	0		U
			0	0		D

CULVERT:
Culvert Name: CULVERT#1
Shape: Box Rise: 3 Span: 10 Barrels: 3
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:	21.55	Length:	156.75	n-Value:	0.013		
EntLossCoef:	0.4	ExtLossCoef:	1	CulvInvElU	1522.48	CulvInvElD	1520.59
LCntStaU:	9990	RCntStaU:	10010	LCntStaD	9990	RCntStaD	10010

Culvert Depth Blocked: 0

Culv Area:	90	CulvQ:	450	MinTopRd:	1527.41
	90		450		1527.41

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9985	10015	1527.4	1527.4	1527.4	1525.48	U
	9985	10015	1526	1526	1526	1523.59	D
	9985	10015	1527.4	1527.4	1527.4	1525.48	U
	9985	10015	1526	1526	1526	1523.59	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
CULVERT#1		450	0	Highest U.S. EG	Low Flow
		450	0	Highest U.S. EG	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

```
RS:        0.83 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1525.73 is less than or equal to MinTopRd  of 1527.41.
           2. CulvWSIn of 1524.39 is less than MxLoCdU of 1525.48.
           3. CulvWSout of 1523.59 is greater than or equal to MxLoCdD of 1525.48.
           4. Q/AD^0.5 of 2.89 is less than 4.0.

RS:        0.83 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1525.73 is less than or equal to MinTopRd  of 1527.41.
           2. CulvWSIn of 1524.39 is less than MxLoCdU of 1525.48.
           3. CulvWSout of 1523.59 is greater than or equal to MxLoCdD of 1525.48.
           4. Q/AD^0.5 of 2.89 is less than 4.0.
```

DISTANCE CHECK

CULVERT COEFFICIENT CHECK

CULVERT CRITERIA CHECK

INEFFECTIVE FLOW CHECK

```
RS:        0.86 This is Section 4
ST IF 07   Ineffective flow option was considered at this section.
           However, it should be a fully expanded cross section.
           Ineffective flow stations and elevations should be cleared from
           this section, unless the areas beyond the ineffective flow stations
           are not within the flow path of the stream.
           This message should be ignored if this section is Section 2 of
           the upstream structure.
```

FLOODWAY CHECK

```
RS:        0.83 This is Culvert
ST FW 01   Encroachment Method was not specified at this river station.
           For flood insurance studies Encroachment Methods 4 and 1
           should be used.

RS:        0.81 This is Section 2
ST FW 04   The right encroachment station of 10017 is less than the
           right bank station of 10017.01
           The encroachment station and/or channel bank station should be reevaluated.

RS:        0.81 This is Section 2
ST FW 10   Left encroachment station 9984 is more than the left ineffective flow
           station 9983.89 and less than the right ineffective flow station 10020.8
           Left encroachment station is within the effective flow area.
           Left encroachment station should at least be equal to the left
           ineffective flow station.

RS:        0.81 This is Section 2
ST FW 10   Right encroachment station 10017 is less than the right ineffective flow
           station 10020.8 and greater than the left ineffective flow station 9983.89
           Right encroachment station is within the effective flow area.
```

```
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       0.85 This is Section 3
ST FW 04  The right encroachment station of 10017 is less than the
          right bank station of 10017.63
          The right encroachment station is within the channel.
          The encroachment station and/or channel bank station should be reevaluated.

RS:       0.85 This is Section 3
ST FW 10  Right encroachment station 10017 is less than the right ineffective flow
          station 10018.5 and greater than the left ineffective flow station 9981.61
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

---END
```

2 EAST (SOUTH OF CAP)

CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.nt
Selected profiles: Floodplain;Floodway
Date: 7/15/2005
Time: 9:33:04 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,2 East						
4.38		0.038	0.053	0.038	0.1	0.3
4.338		0.038	0.053	0.038	0.1	0.3
4.247		0.038	0.053	0.038	0.1	0.3
4.192		0.038	0.053	0.038	0.1	0.3
4.145		0.038	0.053	0.038	0.1	0.3
4.085		0.038	0.053	0.038	0.1	0.3
4.017		0.038	0.053	0.038	0.1	0.3
3.938		0.038	0.053	0.038	0.1	0.3
3.849		0.038	0.053	0.038	0.1	0.3
3.772		0.038	0.053	0.038	0.1	0.3
3.71		0.038	0.053	0.038	0.1	0.3
3.613		0.038	0.053	0.038	0.1	0.3
3.547		0.038	0.053	0.038	0.1	0.3
3.468		0.038	0.053	0.038	0.1	0.3
3.37		0.038	0.053	0.038	0.1	0.3
3.277		0.038	0.053	0.038	0.1	0.3
3.196		0.038	0.053	0.038	0.1	0.3
3.166		0.038	0.053	0.038	0.1	0.3
3.163		0.038	0.053	0.038	0.3	0.5
3.161	Bridge-Up	0.038	0.053	0.038	0.3	0.5
3.161	Bridge-Dn	0.038	0.053	0.038	0.3	0.5
3.159		0.038	0.053	0.038	0.3	0.5
3.141		0.035	0.048	0.035	0.3	0.5
3.134		0.035	0.048	0.035	0.1	0.3
3.097		0.035	0.048	0.035	0.3	0.5
3.091	Culvert-Up	0.035	0.048	0.035	0.3	0.5
3.091	Culvert-Dn	0.035	0.048	0.035	0.3	0.5
3.085		0.035	0.048	0.035	0.3	0.5
3.078		0.035	0.048	0.035	0.3	0.5
3.059		0.035	0.048	0.035	0.1	0.3
3.036		0.035	0.048	0.035	0.1	0.3
2.997		0.035	0.048	0.035	0.1	0.3
2.972		0.035	0.048	0.035	0.1	0.3
2.931		0.035	0.048	0.035	0.1	0.3
2.9		0.035	0.048	0.035	0.1	0.3
2.824		0.035	0.048	0.035	0.1	0.3
2.75		0.035	0.048	0.035	0.1	0.3
2.667		0.041	-----	-----	0.1	0.3
		0.048	-----	-----		
2.65		0.035	-----	-----	0.3	0.5
		0.048	-----	-----		
2.642	Culvert-Up	0.035	-----	-----	0.3	0.5
		0.048	-----	-----		
2.642	Culvert-Dn	0.035	0.048	0.035	0.3	0.5
2.634		0.035	0.048	0.035	0.3	0.5
2.625		0.063	-----	-----	0.3	0.5
2.583		0.044	-----	-----	0.1	0.3
		0.063	-----	-----		
2.526		0.044	-----	-----	0.1	0.3
		0.063	-----	-----		
2.419		0.063	-----	-----	0.1	0.3
2.225		0.044	-----	-----	0.1	0.3
		0.063	-----	-----		
2.052		0.044	0.063	0.041	0.1	0.3
1.895		0.044	0.063	0.041	0.1	0.3
1.838		0.044	0.063	0.041	0.1	0.3
1.781		0.034	0.043	0.032	0.1	0.3
1.708		0.034	0.043	0.032	0.1	0.3

b/c of structure

b/c of structure

			2E		
1.685	0.034	0.043	0.032	0.1	0.3
1.593	0.034	0.043	0.032	0.1	0.3
1.523	0.034	0.043	0.032	0.1	0.3
1.461	0.034	0.043	0.032	0.1	0.3
1.392	0.034	0.043	0.032	0.1	0.3
1.285	0.034	0.043	0.032	0.1	0.3
1.213	0.034	0.043	0.032	0.1	0.3
1.167	0.046	0.05	0.046	0.1	0.3
1.13	0.046	0.05	0.046	0.1	0.3
1.048	0.046	0.05	0.046	0.1	0.3
.977	0.046	0.05	0.046	0.1	0.3
.911	0.046	0.05	0.046	0.1	0.3
.864	0.046	0.05	0.046	0.1	0.3
.812	0.046	0.05	0.046	0.1	0.3
.747	0.046	0.05	0.046	0.1	0.3
.703	0.046	0.05	0.046	0.1	0.3
.655	0.046	0.05	0.046	0.1	0.3
.612	0.046	0.05	0.046	0.1	0.3
.572	0.046	0.05	0.046	0.1	0.3
.47	0.035	0.035	0.047	0.1	0.3
	-----	0.047	0.03		
	-----	-----	0.05		
	-----	-----	0.035		
.39	0.035	0.047	0.047	0.1	0.3
	-----	-----	0.053		
	-----	-----	0.035		
.329	0.035	-----	-----	0.1	0.3
.267	0.035	0.035	0.047	0.1	0.3
	-----	0.047	0.035		
.195	0.035	0.047	0.035	0.1	0.3
.116	0.053	-----	-----	0.1	0.3
	0.035	-----	-----		
	0.047	-----	-----		
0	0.035	0.047	0.035	0.1	0.3

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.034	0.063
Right Overbank n Value:	0.03	0.053
Channel n Value:	0.035	0.063
Contraction Coefficient:	0.1	0.3
Expansion Coefficient:	0.3	0.5

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 4.38
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.338
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.247
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.192
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.145
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.085
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 4.017
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.938
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.849
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.772
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.71
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.613
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.547
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.468
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.37
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.277
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.196
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.166
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.163
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.161
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.161
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.159
NT RC 05 The left overbank n value of 0.038 and the right overbank n value of 0.038 are less than or equal to the channel n value of 0.053 The overbank n values should be reevaluated.

RS: 3.141
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.134
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.097
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.091
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.091
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.085
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.078
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.059
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 3.036
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.997
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.972
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.931
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048 The overbank n values should be reevaluated.

RS: 2.9
NT RC 05 The left overbank n value of 0.035 and the right overbank n value of 0.035 are less than or equal to the channel n value of 0.048

```
         The overbank n values should be reevaluated.

RS:      2.824
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      2.75
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      2.642
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      2.634
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.048
         The overbank n values should be reevaluated.

RS:      2.052
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      1.895
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      1.838
NT RC 05 The left overbank n value of 0.044 and the right overbank n value
         of 0.041 are less than or equal to the channel n value of 0.063
         The overbank n values should be reevaluated.

RS:      1.781
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.781
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.781
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.708
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.708
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.708
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.685
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.685
NT RC 01 Right overbank n value is less than 0.035
```

```
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.685
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.593
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.593
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.593
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.523
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.523
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.523
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.461
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.461
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.461
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.392
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.392
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.392
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.285
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.285
```

```
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.285
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.213
NT RC 01 Left overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.213
NT RC 01 Right overbank n value is less than 0.035
         The n value for overbank is usually larger then 0.035.
         The n value should be reevaluated.

RS:      1.213
NT RC 05 The left overbank n value of 0.034 and the right overbank n value
         of 0.032 are less than or equal to the channel n value of 0.043
         The overbank n values should be reevaluated.

RS:      1.167
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      1.13
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      1.048
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.977
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.911
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.864
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.812
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.747
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.703
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:      0.655
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.
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RS:       0.612
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.572
NT RC 05 The left overbank n value of 0.046 and the right overbank n value
         of 0.046 are less than or equal to the channel n value of 0.05
         The overbank n values should be reevaluated.

RS:       0.195
NT RC 05 The left overbank n value of 0.035 and the right overbank n value
         of 0.035 are less than or equal to the channel n value of 0.047
         The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK
---------------------------------

RS:       3.166
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         Hydraulic depth ratio is 0.01
         Froude Number ratio is 1.18
         Expansion loss coefficient is  0.3
         It is outside the range of -0.20 and 0.20 computed by the equations
         from HEC-RAS Hydraulics Reference Manual.

RS:       3.141
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       3.134
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       3.078
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

RS:       2.667
NT TL 01 This is section 4
         Contraction and expansion loss coefficients are 0.1 and 0.3
         They should be equal to 0.3 and 0.5 respectively.

RS:       2.625
NT TL 02 Contraction and expansion loss coefficients are 0.3 and 0.5
         respectively. However, this cross section is not at the structure.
         They should be equal to 0.1 and 0.3.

ROUGHNESS COEFFICIENT AT STRUCTURES
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RS:       3.161
NT RS 02 The channel n value of 0.053 for the upstream internal bridge opening
         section is equal or larger than the channel n value of 0.053 at Section 3.
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 3.
         The selection of the n value(s) should be reevaluated.

RS:       3.161
NT RS 02 The channel n value of 0.053 for the downstream internal bridge opening
         section is equal or larger than the channel n value of 0.053 at Section 2
         Usually, the channel n value of the bridge opening section is
         less than the channel n value of Section 2.
         The selection of the n value(s) should be reevaluated.

---END---
```

CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.xs
Selected profiles: Floodplain;Floodway
Date: 7/15/2005
Time: 9:33:04 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,2 East						
4.38	222.495	223.083	225.75	41.65	470	
4.338	481.832	477.941	472.737	20.97	470	
4.247	278.508	288.006	287.505	36.97	470	
4.192	248.404	249.18	244.484	31.48	470	
4.145	326.751	316.965	308.026	22.81	470	
4.085	349.58	357.604	340.987	43.22	470	
4.017	417.838	418.187	418.307	47.27	470	
3.938	470.626	472.022	473.963	32.93	470	
3.849	398.712	406.704	413.701	43.36	470	
3.772	335.991	325.466	316.201	47.46	470	
3.71	498.921	511.164	515.56	52.05	470	
3.613	340.737	349.431	353.954	81.87	470	
3.547	404.309	418.448	424.607	54.97	470	
3.468	522.738	517.503	499.943	45.48	470	E (SIC)
3.37	477.944	492.263	489.954	66.54	470	
3.277	428.841	429.227	428.826	55.64	470	
3.196	159.653	157.117	159.327	40.7	470	
3.166	110.877	97.957	78.502	48.67	470	
3.163	13.524	14.226	14.09	36.22	470	
3.161	Bridge #1-Up					
3.161	Bridge #1-Dn					
3.159	21.095	19.728	20.017	34.26	470	
3.141	36.914	35.859	36.815	42.23	470	
3.134	41.978	41.362	42.123	56.21	470	
3.097	193.052	193.541	193.949	32.27	470	
3.091	CULVERT#1-Up					
3.091	CULVERT#1-Dn					
3.085	67.112	62.245	72.406	33.04	470	E (SIC)
3.078	94.517	98.494	104.171	54.28	470	
3.059	118.963	123.515	122.691	54.38	470	
3.036	222.468	205.181	195.51	50	470	
2.997	115.682	129.703	150.769	32.38	470	
2.972	215.888	214.759	214.324	49.16	470	D
2.931	166.531	165.466	171.378	48.85	470	C (SIC)
2.9	400.14	403.762	402.308	55.82	470	
2.824	394.136	389.511	387.139	31.75	470	
2.75	479.811	438.366	453.947	28.49	470	C (SIC)
2.667	151.149	61.903	104.607	617.44	470	D
2.65	112.049	91.543	140.982	322.05	610	D
2.642	CULVERT#1-Up					
2.642	CULVERT#1-Dn					
2.634	81.363	69.602	78.618	417.34	610	D, C (SIC)
2.625	210.195	223.841	218.726	525.79	610	D
2.583	237.838	299.683	270.297	556.06	610	D
2.526	630.452	564.776	585.592	740.16	610	
2.419	1012.54	1022.33	1026.54	479.85	610	D
2.225	887.174	911.601	917.665	735.26	610	D
2.052	825.104	828.405	832.005	723.3	610	D
1.895	291.446	299.985	306.504	596.4	610	
1.838	284.854	303.283	307.206	561.42	610	D
1.781	375.629	385.749	412.157	753.19	1020	D
1.708	118.933	119.125	123.136	791.56	1020	D
1.685	471.725	485.616	503.557	567.26	250	D
1.593	362.534	371.671	372.129	368.67	250	D
1.523	271.547	324.936	328.23	155.5	250	E
1.461	355.448	361.987	335.992	33.88	250	
1.392	588.046	564.939	472.071	626.62	450	D

OK, floodplain defined using Levee Failure model in Wash 1 West.

1.285	408.526	378.504	381.763	652.79	450	D
1.213	230.436	243.204	256.79	660.11	450	
1.167	206.332	194.242	174.622	610.65	660	D
1.13	441.06	431.364	437.656	670.87	660	
1.048	379.416	374.522	374.566	520.7	660	D
.977	325.719	346.106	321.661	595.75	660	D
.911	247.219	246.371	227.345	617.41	660	D
.864	295.379	272.563	249.488	814.59	660	
.812	337.188	341.468	346.438	805.66	660	D
.747	235.681	232.319	235.172	556.87	660	
.703	241.466	255.961	265.505	640.55	660	D
.655	210.98	228.529	240.55	734.12	660	
.612	200.272	213.236	189.688	377.41	660	
.572	579.676	538.05	462.025	336.27	660	
.47	295.65	421.452	499.697	682.8	930	D
.39	323.802	319.853	340.704	723.28	930	
.329	333.481	327.657	295.457	813.18	930	
.267	365.866	381.599	401.988	604.09	930	
.195	386.643	417.914	392.179	494.96	930	
.116	640.065	614.507	607.479	483.6	930	D
0	0	0	0	319.56	930	D

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

RS: 3.196
XS DC 05 There is no flow on the right overbank at the downstream cross section. There is no flow on the left overbank at this section.

RS: 1.685
XS DC 01 Discharge decreases in the downstream direction.

LOCATION CHECK

RS: 3.547
XS LC 01 Lenchl Up/TopwdthAct Dn = 9.20
MaxChlDpth Up/MaxChlDpth Dn = 1.88
TopwdthAct Up/TopwdthAct Dn = 1.21
This cross section is located too far upstream from the critical depth cross section.

RS: 2.824
XS LC 01 Lenchl Up/TopwdthAct Dn = 13.67
MaxChlDpth Up/MaxChlDpth Dn = 1.70
TopwdthAct Up/TopwdthAct Dn = 1.11
This cross section is located too far upstream from the critical depth cross section.

BOUNDARY CONDITION CHECK

```
XS BC 02 The name of the stream is Reach #1,2 East
         Normal S = 0.0067 is specified as the downstream boundary
         for profile Floodplain

XS BC 02 The name of the stream is Reach #1,2 East
         Known WS = 1384.77 is specified as the downstream boundary
         for profile Floodway


LATERAL WEIRS CHECK
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---END---
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2E

CHECK-RAS Program: Floodway Check

Encroachment Method, Starting WSEL, Floodway Width, and Surcharge Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.fw
Selected profiles: Floodplain;Floodway
Date: 7/15/2005
Time: 9:33:06 AM

SECNO	Method	Surcharge	EncStaL	EncStaR	LStaEff	RStaEff	Structure
Reach #1,2 East							
4.38					9977.48	10019.13	
4.38	1	0.26	9986	10011	9986	10011	
4.338					9986.94	10007.91	
4.338	1	0	9990	10005	9990	10005	
4.247					9979.46	10016.43	
4.247	1	0	9974	10019	9979.45	10016.43	
4.192					9977.35	10008.83	
4.192	1	0	9975	10011	9977.33	10008.83	
4.145					9988.02	10010.83	
4.145	1	0.18	9987	10012	9987.73	10011.05	
4.085					9963.74	10006.96	
4.085	1	0.1	9975	10004	9975	10004	
4.017					9981.46	10028.73	
4.017	1	0	9978	10024	9981.46	10024	
3.938					9987.7	10020.63	
3.938	1	0.01	9984	10022	9987.68	10020.65	
3.849					9978.56	10021.92	
3.849	1	-0.01	9977	10022	9978.58	10021.87	
3.772					9977.23	10024.69	
3.772	1	0.01	9975	10025	9977.17	10024.7	
3.71					9979.15	10031.2	
3.71	1	0.02	9980	10025	9980	10025	
3.613					9955.83	10037.7	
3.613	1	0	9965	10035	9965	10035	
3.547					9984.64	10039.61	
3.547	1	0	9984	10037	9984.64	10037	
3.468					9989.85	10035.34	
3.468	1	0	9987	10036	9989.84	10035.37	
3.37					9981.4	10047.94	
3.37	1	0.28	9974	10050	9980.52	10048.56	
3.277					9967.26	10022.89	
3.277	1	0.29	9989	10019	9989	10019	
3.196					9984.05	10024.75	
3.196	1	0.01	9977	10023	9984.01	10023	
3.166					9979.26	10027.92	
3.166	1	0	9983	10028	9983	10027.93	
3.163					9981.27	10017.48	
3.163	1	0.01	9981	10022	9981.26	10017.49	
3.161					9981.44	10017.23	Bridge #1-Up
3.161					9984.93	10019.13	Bridge #1-Dn
3.161	0	0.01	9981.38	10022.38	9981.43	10017.25	Bridge #1-Up
3.161	0	0.02	9981	10022	9984.91	10019.15	Bridge #1-Dn
3.159					9984.9	10019.17	
3.159	1	0.02	9981	10022	9984.88	10019.19	
3.141					9979.48	10021.71	
3.141	1	0.02	9976	10021	9979.43	10021	
3.134					9976.85	10033.06	
3.134	1	0.01	9979	10025	9979	10025	
3.097					9977.23	10009.5	
3.097	1	-0.01	9978	10020	9978	10009.5	
3.091					0	0	CULVERT#1-Up
3.091					0	0	CULVERT#1-Dn
3.091	0	0	0	0	0	0	CULVERT#1-Up
3.091	0	0	0	0	0	0	CULVERT#1-Dn
3.085					9973.79	10006.83	
3.085	1	0	9970	10007	9973.79	10006.83	
3.078					9973.81	10028.09	
3.078	1	0	9976	10030	9976	10028.09	

3.059					9982.67	10037.05	
3.059	1	0	9972	10041	9982.67	10037.05	
3.036					9981.89	10031.89	
3.036	1	0	9965	10043	9981.89	10031.89	
2.997					9983.8	10016.18	
2.997	1	0	9960	10037	9983.8	10016.18	
2.972					9985.56	10035.98	
2.972	1	0	9979	10037	9985.56	10035.98	
2.931					9971.43	10020.28	
2.931	1	0	9966	10022	9971.43	10020.28	
2.9					9969.3	10025.12	
2.9	1	0	9960	10029	9969.29	10025.12	
2.824					9983.82	10015.58	
2.824	1	0.01	9982	10016	9983.81	10015.59	
2.75					9985.95	10014.44	
2.75	1	0	9981	10018	9985.95	10014.44	
2.667					9069.8	10126.2	
2.667	1	0.87	9923	10079	9923	10079	
2.65					9017.7	10018.8	
2.65	1	0.66	9923	10065	9968.12	10018.8	
2.642					0	0	CULVERT#1-Up
2.642					0	0	CULVERT#1-Dn
2.642	0	0	0	0	0	0	CULVERT#1-Up
2.642	0	0	0	0	0	0	CULVERT#1-Dn
2.634					9051.21	10041.48	
2.634	1	0.75	9937	10064	9968.46	10043.8	
2.625					9719.93	10256.74	
2.625	1	0.76	9938	10073	9938	10073	
2.583					9662.53	10313.95	
2.583	1	0.94	9955	10129	9955	10129	
2.526					9602.25	10342.4	
2.526	1	0.47	9940	10088	9940	10088	
2.419					9582.37	10276.74	
2.419	4	0.18	9529.11	10319.71	9573.88	10287.48	
2.225					9448.78	10185.71	
2.225	4	-0.12	9406.26	10471.03	9455.93	10176.01	
2.052					9321.38	10145.01	
2.052	4	0.13	9236.95	10310.12	9311.4	10167.7	
1.895					9519.4	10115.79	
1.895	1	0.65	9924	10094	9924	10094	
1.838					9480.91	10167.14	
1.838	1	0.64	9884	10041	9884	10041	
1.781					9687.99	10442.82	
1.781	1	0.93	9913	10115	9913	10115	
1.708					9647.76	10647.8	
1.708	1	0.87	9929	10161	9929	10161	
1.685					9768.99	10585.47	
1.685	1	0.47	9925	10157	9925	10157	
1.593					9733.2	10183.11	
1.593	1	0.04	9856	10211	9856	10186.04	
1.523					9864.23	10019.72	
1.523	1	0.03	9933	10026	9933	10019.97	
1.461					9985.98	10019.86	
1.461	1	0.27	9990	10015	9990	10015	
1.392					9918.16	10570.81	
1.392	1	0.76	9938	10041	9938	10041	
1.285					9842.09	10719.4	
1.285	1	0.83	9936	10058	9936	10058	
1.213					9889.91	10550.01	
1.213	1	0.79	9948	10087	9948	10087	
1.167					9640.18	10336.61	
1.167	1	0.86	9961	10066	9961	10066	
1.13					9517.03	10187.9	
1.13	1	0.62	9925	10053	9925	10053	
1.048					9633	10186	
1.048	1	0.54	9876	10028	9876	10028	
0.977					9654.92	10258.11	
0.977	1	0.53	9957	10067	9957	10067	
0.911					9665.45	10390.34	
0.911	1	0.82	9889	10015	9889	10015	
0.864					9450.12	10264.71	
0.864	1	0.97	9928	10074	9928	10074	
0.812					9326.01	10140.45	
0.812	1	1	9914	10066	9914	10066	

0.747					9670.35	10227.22
0.747	1	0.76	9921	10103	9921	10103
0.703					9611.75	10294.92
0.703	1	0.84	9922	10072	9922	10072
0.655					9542.13	10276.25
0.655	1	0.6	9932	10091	9932	10091
0.612					9723.88	10101.29
0.612	1	0.66	9967	10090	9967	10090
0.572					9710.64	10046.91
0.572	1	0.51	9961	10047	9961	10047
0.47					9558.68	10276.54
0.47	1	0.83	9857	10051	9857	10051
0.39					9886.6	10609.88
0.39	1	0.75	9935	10057	9935	10057
0.329					9911.51	10724.68
0.329	1	0.96	9959	10112	9959	10112
0.267					9958.99	10563.08
0.267	1	0.58	9986	10098	9986	10098
0.195					9886.06	10381.02
0.195	1	0.96	9967	10122	9967	10122
0.116					9597.1	10117.55
0.116	1	0.14	9961	10068	9961	10068
0					9621.36	10016.61
0	1	1	9841	10016	9841	10016

ENCROACHMENT METHOD CHECK

RS: 3.161
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 3.091
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.642
FW EM 01 Floodway encroachment method is not selected at this section.

RS: 2.419
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

RS: 2.225
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

RS: 2.052
FW EM 04 Target surcharge value is equal to zero.
A target surcharge should be greater than 0.00 and less than or equal to the allowable surcharge value.

FLOODWAY WIDTH CHECK

RS: 4.38
FW FW 01 Left encroachment station 9986 is more than left channel bank station 9985.734 and less than the right channel bank station 10010.61
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.38
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.338
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 4.247
FW FW 01 Left encroachment station 9974 is more than left channel bank

station 9973.77 and less than the right channel bank station 10019.35
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.247
FW FW 01 Right encroachment station 10019 is less than right channel bank station 10019.35 and greater than the left channel bank station 9973.77
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.192
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9975 is outside the channel.
Left channel bank station is 9975.03
Left encroachment station and/or left channel bank station should be adjusted.

RS: 4.192
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10011 is outside the channel.
Right channel bank station is 10010.51
Right encroachment station and/or right channel bank station should be adjusted.

RS: 4.192
FW FW 06 The left station effective of 9977.33 for the floodway profile is more than the left channel bank station of 9975.03
The left side of the floodway boundary is within the channel.
The left encroachment station of 9975 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 4.192
FW FW 06 The right station effective of 10008.83 for the floodway profile is less than the right channel bank station of 10010.51
The right side of the floodway boundary is within the channel.
The right encroachment station of 10011 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 4.145
FW FW 01 Left encroachment station 9987 is more than left channel bank station 9986.975 and less than the right channel bank station 10011.86
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.145
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10012 is outside the channel.
Right channel bank station is 10011.86
Right encroachment station and/or right channel bank station should be adjusted.

RS: 4.145
FW FW 06 The right station effective of 10011.05 for the floodway profile is less than the right channel bank station of 10011.86
The right side of the floodway boundary is within the channel.
The right encroachment station of 10012 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 4.085
FW FW 01 Left encroachment station 9975 is more than left channel bank station 9974.999 and less than the right channel bank station 10004.4
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.085
FW FW 01 Right encroachment station 10004 is less than right channel bank station 10004.4 and greater than the left channel bank station 9974.999
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 4.085

FW FW 03 The right channel bank station may not be at the proper location.

RS: 4.017
FW FW 06 The left station effective of 9981.46 for the floodway profile is more than the left channel bank station of 9978.237
The left side of the floodway boundary is within the channel.
The left encroachment station of 9978 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.938
FW FW 01 Left encroachment station 9984 is more than left channel bank station 9983.602 and less than the right channel bank station 10022.03
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.938
FW FW 01 Right encroachment station 10022 is less than right channel bank station 10022.03 and greater than the left channel bank station 9983.602
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.849
FW FW 04 The right station effective of 10021.92 for 1% annual chance floodplain is greater than the right channel bank station (10021.71).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10022) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 3.849
FW FW 06 The left station effective of 9978.58 for the floodway profile is more than the left channel bank station of 9977.368
The left side of the floodway boundary is within the channel.
The left encroachment station of 9977 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.772
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.772
FW FW 04 The right station effective of 10024.69 for 1% annual chance floodplain is greater than the right channel bank station (10024.65).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10025) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 3.772
FW FW 06 The left station effective of 9977.17 for the floodway profile is more than the left channel bank station of 9975.108
The left side of the floodway boundary is within the channel.
The left encroachment station of 9975 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.71
FW FW 01 Left encroachment station 9980 is more than left channel bank station 9979.611 and less than the right channel bank station 10024.92
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.547
FW FW 06 The left station effective of 9984.64 for the floodway profile is more than the left channel bank station of 9984.225
The left side of the floodway boundary is within the channel.
The left encroachment station of 9984 is less than the left channel bank station.

The left encroachment station should be the same as the left channel bank station.

RS: 3.468
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9987 is outside the channel.
Left channel bank station is 9987.01
Left encroachment station and/or left channel bank station should be adjusted.

RS: 3.468
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10036 is outside the channel.
Right channel bank station is 10035.77
Right encroachment station and/or right channel bank station should be adjusted.

RS: 3.468
FW FW 06 The left station effective of 9989.84 for the floodway profile is more than the left channel bank station of 9987.01
The left side of the floodway boundary is within the channel.
The left encroachment station of 9987 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.468
FW FW 06 The right station effective of 10035.37 for the floodway profile is less than the right channel bank station of 10035.77
The right side of the floodway boundary is within the channel.
The right encroachment station of 10036 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 3.37
FW FW 01 Left encroachment station 9974 is more than left channel bank station 9973.558 and less than the right channel bank station 10050.28
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.37
FW FW 01 Right encroachment station 10050 is less than right channel bank station 10050.28 and greater than the left channel bank station 9973.558
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.277
FW FW 01 Right encroachment station 10019 is less than right channel bank station 10019.08 and greater than the left channel bank station 9989.103
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.277
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.196
FW FW 01 Left encroachment station 9977 is more than left channel bank station 9976.921 and less than the right channel bank station 10022.6
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.166
FW FW 01 Right encroachment station 10028 is less than right channel bank station 10028.03 and greater than the left channel bank station 9983.788
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.166
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.163
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.163
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.159
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.141
FW FW 01 Right encroachment station 10021 is less than right channel bank station 10021.04 and greater than the left channel bank station 9976.032
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.141
FW FW 06 The left station effective of 9979.43 for the floodway profile is more than the left channel bank station of 9976.032
The left side of the floodway boundary is within the channel.
The left encroachment station of 9976 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 3.134
FW FW 01 Left encroachment station 9979 is more than left channel bank station 9978.579 and less than the right channel bank station 10025.33
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.134
FW FW 01 Right encroachment station 10025 is less than right channel bank station 10025.33 and greater than the left channel bank station 9978.579
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.134
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.097
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.085
FW FW 03 The right channel bank station may not be at the proper location.

RS: 3.078
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 3.078
FW FW 06 The right station effective of 10028.09 for the floodway profile is less than the right channel bank station of 10029.77
The right side of the floodway boundary is within the channel.
The right encroachment station of 10030 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 3.059
FW FW 01 Left encroachment station 9972 is more than left channel bank station 9971.525 and less than the right channel bank station 10040.62
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.059
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10041 is outside the channel.
Right channel bank station is 10040.62
Right encroachment station and/or right channel bank station should be adjusted.

RS: 3.059

FW FW 06 The right station effective of 10037.05 for the floodway profile is less than the right channel bank station of 10040.62
The right side of the floodway boundary is within the channel.
The right encroachment station of 10041 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 3.036
FW FW 01 Right encroachment station 10043 is less than right channel bank station 10043.09 and greater than the left channel bank station 9965.087
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 3.036
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9965 is outside the channel.
Left channel bank station is 9965.087
Left encroachment station and/or left channel bank station should be adjusted.

RS: 3.036
FW FW 06 The left station effective of 9981.89 for the floodway profile is more than the left channel bank station of 9965.087
The left side of the floodway boundary is within the channel.
The left encroachment station of 9965 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.997
FW FW 05 The 1% annual chance flood is contained within the channel.
Left encroachment station 9960 is outside the channel.
Left channel bank station is 9977.743
Left encroachment station and/or left channel bank station should be adjusted.

RS: 2.997
FW FW 05 The 1% annual chance flood is contained within the channel.
Right encroachment station 10037 is outside the channel.
Right channel bank station is 10026.37
Right encroachment station and/or right channel bank station should be adjusted.

RS: 2.997
FW FW 06 The left station effective of 9983.8 for the floodway profile is more than the left channel bank station of 9977.743
The left side of the floodway boundary is within the channel.
The left encroachment station of 9960 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.997
FW FW 06 The right station effective of 10016.18 for the floodway profile is less than the right channel bank station of 10026.37
The right side of the floodway boundary is within the channel.
The right encroachment station of 10037 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 2.972
FW FW 01 Left encroachment station 9979 is more than left channel bank station 9978.56 and less than the right channel bank station 10037.1
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.972
FW FW 01 Right encroachment station 10037 is less than right channel bank station 10037.1 and greater than the left channel bank station 9978.56
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 2.931
FW FW 04 The left station effective of 9971.43 for 1% annual chance floodplain is less than the left channel bank station 9971.432

The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9966) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.9
FW FW 06 The left station effective of 9969.29 for the floodway profile is more than the left channel bank station of 9969.284
The left side of the floodway boundary is within the channel.
The left encroachment station of 9960 is less than the left channel bank station.
The left encroachment station should be the same as the left channel bank station.

RS: 2.824
FW FW 04 The left station effective of 9983.82 for 1% annual chance floodplain is less than the left channel bank station 9983.824
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9982) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.75
FW FW 04 The left station effective of 9985.95 for 1% annual chance floodplain is less than the left channel bank station 9985.959
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9981) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.75
FW FW 04 The right station effective of 10014.44 for 1% annual chance floodplain is greater than the right channel bank station (10014.43).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10018) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.634
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.625
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.526
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.419
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 2.419
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.419
FW FW 04 The left station effective of 9582.37 for 1% annual chance floodplain is less than the left channel bank station 9913.73
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9529.11) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.419
FW FW 04 The right station effective of 10276.74 for 1% annual chance floodplain is greater than the right channel bank station (10072.45).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10319.71) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.225
FW FW 03 The right channel bank station may not be at the proper location.

RS: 2.225
FW FW 04 The left station effective of 9448.78 for 1% annual chance floodplain is less than the left channel bank station 9916.06
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9406.26) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 2.225
FW FW 04 The right station effective of 10185.71 for 1% annual chance floodplain is greater than the right channel bank station (10180.34).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10471.03) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 2.225
FW FW 06 The right station effective of 10176.01 for the floodway profile is less than the right channel bank station of 10180.34
The right side of the floodway boundary is within the channel.
The right encroachment station of 10471.03 is greater than the right channel bank station.
The right encroachment station should be the same as the right channel bank station.

RS: 2.052
FW FW 04 The left station effective of 9321.38 for 1% annual chance floodplain is less than the left channel bank station 9939.29
The 1% annual chance floodplain is outside the channel.
However, the left encroachment station (9236.95) is outside of 1% annual chance floodplain.
The left encroachment station should be adjusted.

RS: 1.781
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.708
FW FW 01 Left encroachment station 9929 is more than left channel bank station 9928.55 and less than the right channel bank station 10059.3
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.708
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.685
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.593
FW FW 01 Left encroachment station 9856 is more than left channel bank station 9855.006 and less than the right channel bank station 10182.37
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.593
FW FW 04 The right station effective of 10183.11 for 1% annual chance floodplain is greater than the right channel bank station (10182.37).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10211) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.523
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.523

FW FW 04 The right station effective of 10019.72 for 1% annual chance floodplain is greater than the right channel bank station (10008.86).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10026) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 1.461
FW FW 01 Left encroachment station 9990 is more than left channel bank station 9989.935 and less than the right channel bank station 10015.02
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.461
FW FW 01 Right encroachment station 10015 is less than right channel bank station 10015.02 and greater than the left channel bank station 9989.935
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 1.461
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.392
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.213
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.13
FW FW 03 The right channel bank station may not be at the proper location.

RS: 1.048
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 1.048
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.977
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.864
FW FW 01 Right encroachment station 10074 is less than right channel bank station 10074.05 and greater than the left channel bank station 9932.63
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.864
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.864
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.812
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.747
FW FW 01 Left encroachment station 9921 is more than left channel bank station 9920.85 and less than the right channel bank station 10103.43
Left encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.747
FW FW 01 Right encroachment station 10103 is less than right channel bank station 10103.43 and greater than the left channel bank station 9920.85

Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.747
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.703
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.655
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.612
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.612
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.572
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.572
FW FW 04 The right station effective of 10046.91 for 1% annual chance floodplain is greater than the right channel bank station (10046.51).
The 1% annual chance floodplain is outside the channel.
However, the right encroachment station (10047) is outside of 1% annual chance floodplain.
The right encroachment station should be adjusted.

RS: 0.39
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.39
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.329
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.329
FW FW 03 The right channel bank station may not be at the proper location.

RS: 0.267
FW FW 01 Right encroachment station 10098 is less than right channel bank station 10098.04 and greater than the left channel bank station 9986.01
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.267
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0.116
FW FW 01 Right encroachment station 10068 is less than right channel bank station 10068.41 and greater than the left channel bank station 9961.05
Right encroachment station is within the channel.
The encroachment station or channel bank station should be adjusted.

RS: 0.116
FW FW 03 The Left channel bank station may not be at the proper location.

RS: 0
FW FW 01 Right encroachment station 10016 is less than right channel bank station 10021.45 and greater than the left channel bank station 9931.22

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          Right encroachment station is within the channel.
          The encroachment station or channel bank station should be adjusted.

SURCHARGE CHECK
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RS:       2.225
FW SC 01  The surcharge value is negative.

DISCHARGE CHECK
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STARTING WATER-SURFACE ELEVATION CHECK
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FW SW 04  The name of the stream is Reach #1
          Encroachment method 1 is used.
          Total conveyance for the natural profile is 11359
          Total conveyance for the floodway profile is 17168.8
          The difference in conveyance between the floodway profile and the
          natural profile is more than 1%.
          Normal Depth option with the same energy slope as the natural
          profile must be used for the floodway profile and rerun the plan.
          This message is not applicable for the revisions.

---END---
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CHECK-RAS Program: Structure Check

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E.br
Selected profiles: Floodplain;Floodway
Date: 7/15/2005
Time: 9:33:09 AM

RS	MaxLoChord	MnTpRd	EGEL	WSEL	MinChEl	Structure	
Reach #1,2 East							
4.38			1536.91	1536.39	1531.73		
4.338			1534.14	1533.29	1527.49		
4.247			1531.35	1531.17	1525.08		
4.192			1530.12	1529.78	1523.68		
4.145			1528.15	1527.63	1522.35		
4.085			1525.12	1524.7	1520.63		
4.017			1522.84	1522.62	1518.16		
3.938			1520.21	1519.78	1516.04		
3.849			1516.46	1516.19	1512.44		
3.772			1513.54	1513.26	1510.04		
3.71			1511.56	1511.35	1507.98		
3.613			1508.48	1508.27	1505.23		
3.547			1506.82	1506.67	1502.43		
3.468			1503.64	1502.89	1500.63		
3.37			1499.02	1498.88	1495.89		
3.277			1496.91	1496.67	1492.6		
3.196			1494.08	1493.73	1490.02		
3.166			1493.02	1492.79	1488.99		
3.163			1492.52	1492.22	1488.2		
3.161	1497.09	1497.3	1492.48	1492.05	1488.2	Bridge #1-Up	Located at R.R.
3.161	1497.1	1497.83	1492.28	1491.69	1488	Bridge #1-Dn	
3.159			1492.15	1491.72	1488		
3.141			1491.95	1491.67	1488.06		
3.134			1491.77	1491.62	1487.78		
3.097			1491.65	1491.4	1487.62		
3.091	1492.3	1493.9	0	1489.98	1487.3	CULVERT#1-Up	Located at US 60
3.091	1491.64	1494.4	0	1489.22	1486.64	CULVERT#1-Dn	
3.085			1489.95	1489.01	1486.84		
3.078			1488.01	1487.72	1485.07		
3.059			1487.47	1487.3	1484.3		
3.036			1486.95	1486.71	1482.93		
2.997			1485.56	1485.1	1481.65		
2.972			1484.82	1484.64	1480.54		
2.931			1483.18	1482.46	1480.37		
2.9			1481.97	1481.85	1477.47		
2.824			1480.84	1480.54	1475.29		
2.75			1477.19	1476.16	1473.07		
2.667			1473.96	1473.95	1471.57		
2.65			1473.87	1473.83	1470.75		
2.642	1474.75	1472.95	0	1472.85	1470.75	CULVERT#1-Up	Located at Jomax Rd
2.642	1474.61	1472.71	0	1472.47	1470.61	CULVERT#1-Dn	
2.634			1472.65	1472.45	1470.61		
2.625			1472.01	1471.96	1471.08		
2.583			1470.27	1470.18	1468.9		
2.526			1468.04	1468	1466.77		
2.419			1462.4	1462.31	1461.57		
2.225			1454	1453.98	1452.88		
2.052			1447.9	1447.83	1447.28		
1.895			1443.38	1443.35	1440.85		
1.838			1441.65	1441.56	1439.38		
1.781			1440.26	1440.2	1438.96		
1.708			1438.26	1438.11	1437.56		
1.685			1437.11	1437.06	1436.32		
1.593			1434.88	1434.85	1432.04		
1.523			1433.45	1433.34	1431.11		
1.461			1431.44	1431.03	1428.09		
1.392			1429.83	1429.77	1427.62		
1.285			1426.92	1426.82	1426.72		
1.213			1424.25	1424.21	1423.4		

1.167	1422.97	1422.9	1421.83
1.13	1421.72	1421.66	1420.71
1.048	1418.96	1418.9	1417.85
0.977	1416.79	1416.71	1415.03
0.911	1414.65	1414.58	1413.26
0.864	1413.42	1413.38	1412.41
0.812	1411.89	1411.84	1411.31
0.747	1409.94	1409.89	1409.17
0.703	1408.67	1408.62	1407.71
0.655	1407.13	1407.09	1406.29
0.612	1405.99	1405.92	1403.45
0.572	1404.86	1404.76	1403.16
0.47	1401.45	1401.36	1400.6
0.39	1398.19	1398.11	1397.23
0.329	1396.01	1395.95	1393.98
0.267	1393.81	1393.66	1392.72
0.195	1391.03	1390.95	1388.55
0.116	1388.76	1388.63	1387.16
0	1383.93	1383.77	1382.42

RIVER/REACH: Reach #1, 2 East
RIVER STATION: 3.161
TYPE OF STRUCTURE: Bridge

Description:

Distance from Upstream XS:	0.01
Deck/Roadway Width:	10
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1499.4
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.166	97.96	1492.79	0	1493.02	48.67	
4	3.166	97.96	1492.79	0	1493.03	44.93	
3	3.163	14.23	1492.22	0	1492.52	36.22	
3	3.163	14.23	1492.23	0.01	1492.52	36.24	
	3.161	10.00	1492.05	0	1492.48	31.79	Bridge #1-Up
	3.161	4.22	1491.69	0	1492.28	30.2	Bridge #1-Dn
	3.161	10.00	1492.06	0.01	1492.48	31.81	Bridge #1-Up
	3.161	4.22	1491.71	0.02	1492.29	30.24	Bridge #1-Dn
2	3.159	19.73	1491.72	0	1492.15	34.26	
2	3.159	19.73	1491.74	0.02	1492.17	34.3	
1	3.141	35.86	1491.67	0	1491.95	42.23	
1	3.141	35.86	1491.69	0.02	1491.96	41.57	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9729.77	9977.71	1499.23	9734.2	9972.51	1499.28
2	10020.2	10192.91	1499.69	10024	10161.73	1499.6

BRIDGE:
Bridge Name: Bridge #1
LowFlowMethod: Highest Energy Answer
Momentum Cd: 0
HighFlowMethod: Pressure and Weir flow
SluiceGate Cd: 0 Submerged Cd: 0.8

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

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MaxLowChord:	1497.09	MinTopRd:	1499.4	MinElPrs:	1497.09
	1497.09		1499.4		1497.09

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Bridge					9977.71	10020.2U
					9972.51	10024 D
			9981	10022		U
			9981	10022		D

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd
Bridge #1	9979.20	10020.80	1497.30	1499.31	1497.30	1497.09 U
	9977.56	10021.90	1497.83	1498.58	1497.83	1497.10 D
	9981.38	10020.80	1499.33	1499.35	1499.33	1497.09 U
	9981.38	10021.90	1499.36	1499.36	1499.36	1497.10 D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
Bridge #1	470	470	0	Energy only	Low Flow
	470	470	0	Energy only	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 3.161 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1492.52 is equal to or less than MinTopRd of 1499.4.
2. EGEL 3 of 1492.52 is less than MxLoCdU of 1497.1.

RS: 3.161 This is Bridge #1
BR LF 01 Type of flow is low flow because,
1. EGEL 3 of 1492.52 is equal to or less than MinTopRd of 1499.4.
2. EGEL 3 of 1492.52 is less than MxLoCdU of 1497.1.

DISTANCE CHECK

RS: 3.161 This is Bridge #1
ST DT 01 'Distance from Upstream XS' of 0.01 is less than the height of the bridge opening of 8.90
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

RS: 3.161 This is Bridge #1
ST DT 02 The channel distance of 4.216 at Downstream Internal Section is less than the height of the bridge opening of 9.10
Section 2 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4, 3 & 2 should be adjusted.

INEFFECTIVE FLOW CHECK

RS: 3.163 This is Section 3.

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ST IF 05  Low flow occurs at Bridge
          The right ineffective flow station of 10020.2 is less than
          the right abutment station of 10020.80
          The right ineffective flow station should be adjusted.

FLOODWAY CHECK
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RS:       3.161 This is Bridge
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       3.159This is Section 2
ST FW 08  The left station effective of 9984.9 for the natural profile.
          is less than the left channel bank station of 9987.72
          The left encroachment station is outside the channel.
          The left encroachment station of 9981 is less than the left
          station effective of 9984.9 for the natural profile.
          The left encroachment station should be adjusted.

RS:       3.159 This is Section 2
ST FW 08  The right station effective of 10019.17 for the natural profile.
          is greater than the right channel bank station of 10008.02
          The right encroachment station is outside the channel.
          The right encroachment station of 10022 is greater than the right
          station effective of 10019.17 for the natural profile.
          The right encroachment station should be adjusted.

RS:       3.159 This is Section 2
ST FW 10  Left encroachment station 9981 is more than the left ineffective flow
          station 9972.51 and less than the right ineffective flow station 10024
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       3.159 This is Section 2
ST FW 10  Right encroachment station 10022 is less than the right ineffective flow
          station 10024 and greater than the left ineffective flow station 9972.51
          Right encroachment station is within the effective flow area.
          Right encroachment station should at least be equal to the right
          ineffective flow station.

RS:       3.163This is Section 3
ST FW 08  The left station effective of 9981.27 for the natural profile.
          is less than the left channel bank station of 9983.9
          The left encroachment station is outside the channel.
          The left encroachment station of 9981 is less than the left
          station effective of 9981.27 for the natural profile.
          The left encroachment station should be adjusted.

RS:       3.163 This is Section 3
ST FW 08  The right station effective of 10017.48 for the natural profile.
          is greater than the right channel bank station of 10012.6
          The right encroachment station is outside the channel.
          The right encroachment station of 10022 is greater than the right
          station effective of 10017.48 for the natural profile.
          The right encroachment station should be adjusted.

RS:       3.163 This is Section 3
ST FW 10  Left encroachment station 9981 is more than the left ineffective flow
          station 9977.71 and less than the right ineffective flow station 10020.2
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

-----------------------------------------------------------------------------
RIVER/REACH:        Reach #1, 2 East
RIVER STATION:      3.091
TYPE OF STRUCTURE:  Culvert
-----------------------------------------------------------------------------
Description:
Distance from Upstream XS:                    0.01
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	2E
Deck/Roadway Width:	150
Weir Coefficient:	2.5
Maximum allowable submergence for weir flow:	0.95
Elevation at which weir flow begins:	1494.4
Weir crest shape:	Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	3.134	41.36	1491.62	0	1491.77	56.21	
4	3.134	41.36	1491.63	0.01	1491.79	46	
3	3.097	193.54	1491.4	0	1491.65	32.27	
3	3.097	193.54	1491.39	-0.01	1491.65	31.5	
	3.091	176.80	1489.98	0	0	0	CULVERT#1-Up
	3.091	16.73	1489.22	0	0	0	CULVERT#1-Dn
	3.091	176.80	1489.98	0	0	0	CULVERT#1-Up
	3.091	16.73	1489.22	0	0	0	CULVERT#1-Dn
2	3.085	62.25	1489.01	0	1489.95	33.04	
2	3.085	62.25	1489.01	0	1489.95	33.04	
1	3.078	98.49	1487.72	0	1488.01	54.28	
1	3.078	98.49	1487.72	0	1488.02	52.09	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9885.26	9977.23	1493.88	9788.99	9973.79	1494.4
2	10009.5	10161.9	1493.88	10009.7	10436.97	1494.39

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group					9977.23	10009.5U
					9973.79	*10009.7D*
			0	0		U
			0	0		D

CULVERT:
Culvert Name: CULVERT#1
Shape: Box Rise: 5 Span: 10 Barrels: 2
FHWA Chart #: # 8 - flared wingwalls
FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:	0.01	Length:	176.8	n-Value:	0.015		
EntLossCoef:	0.4	ExtLossCoef:	1	CulvInvElU	1487.3	CulvInvElD	1486.64
LCntStaU:	9985.5	RCntStaU:	9995.5	LCntStaD	9985.5	RCntStaD	9995

Culvert Depth Blocked: 0

Culv Area:	100	CulvQ:	470	MinTopRd:	1494.41
	100		470		1494.41

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9980.5	10000.5	1493.9	1493.9	1493.9	1492.3	U
	9980.5	10000	1494.4	1494.4	1494.4	1491.64	D
	9980.5	10000.5	1493.9	1493.9	1493.9	1492.3	U
	9980.5	10000	1494.4	1494.4	1494.4	1491.64	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
CULVERT#1		470	0	Highest U.S. EG	Low Flow
		470	0	Highest U.S. EG	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

```
RS:        3.091 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1491.65 is less than or equal to MinTopRd of 1494.41.
           2. EGEL 3 of 1491.65 is less than MxLoCdU of 1492.30.

RS:        3.091 This is CULVERT#1
CV LF 01   Type of flow is low flow because,
           1. EGEL 3 of 1491.65 is less than or equal to MinTopRd of 1494.41.
           2. EGEL 3 of 1491.65 is less than MxLoCdU of 1492.30.
```

DISTANCE CHECK

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RS:        3.091 This is CULVERT#1
ST DT 01   'Culvert Upstrm Dist' of 0.01 is less than the height of the
           culvert opening of 5 .
           Section 3 should be placed at the foot of the road embankment or
           wing walls.
           Distances at Sections 4 & 3, and 'Distance from Upstream XS'
           should be adjusted.
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CULVERT COEFFICIENT CHECK

CULVERT CRITERIA CHECK

INEFFECTIVE FLOW CHECK

FLOODWAY CHECK

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RS:        3.091 This is Culvert
ST FW 01   Encroachment Method was not specified at this river station.
           For flood insurance studies Encroachment Methods 4 and 1
           should be used.

RS:        3.085This is Section 2
ST FW 08   The left station effective of 9973.79 for the natural profile.
           is less than the left channel bank station of 9974.93
           The left encroachment station is outside the channel.
           The left encroachment station of 9970 is less than the left
           station effective of 9973.79 for the natural profile.
           The left encroachment station should be adjusted.

RS:        3.085 This is Section 2
ST FW 08   The right station effective of 10006.83 for the natural profile.
           is greater than the right channel bank station of 10006.05
           The right encroachment station is outside the channel.
           The right encroachment station of 10007 is greater than the right
           station effective of 10006.83 for the natural profile.
           The right encroachment station should be adjusted.

RS:        3.085 This is Section 2
ST FW 10   Right encroachment station 10007 is less than the right ineffective flow
           station 10009.7 and greater than the left ineffective flow station 9973.79
           Right encroachment station is within the effective flow area.
           Right encroachment station should at least be equal to the right
           ineffective flow station.

RS:        3.097 This is Section 3
ST FW 04   The left encroachment station of 9978 is greater than the
           left bank station of 9977.635
           The left encroachment station is within the channel.
           The encroachment station and/or channel bank station should be reevaluated.
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RS: 3.097 This is Section 3
ST FW 08 The right station effective of 10009.5 for the natural profile.
is greater than the right channel bank station of 10008.52
The right encroachment station is outside the channel.
The right encroachment station of 10020 is greater than the right
station effective of 10009.5 for the natural profile.
The right encroachment station should be adjusted.

RS: 3.097 This is Section 3
ST FW 10 Left encroachment station 9978 is more than the left ineffective flow
station 9977.23 and less than the right ineffective flow station 10009.5
Left encroachment station is within the effective flow area.
Left encroachment station should at least be equal to the left
ineffective flow station.

RIVER/REACH: Reach #1, 2 East
RIVER STATION: 2.642
TYPE OF STRUCTURE: Culvert

Description:
Distance from Upstream XS: 0.01
Deck/Roadway Width: 40
Weir Coefficient: 2.5
Maximum allowable submergence for weir flow: 0.95
Elevation at which weir flow begins: 0
Weir crest shape: Broad Crested

Sec	River Station	Length Channel	WSEL	Surch.	EGEL	TopWidth Actual	
4	2.667	61.90	1473.95	0	1473.96	617.44	
4	2.667	61.90	1474.82	0.87	1474.86	156	
3	2.65	91.54	1473.83	0	1473.87	322.05	
3	2.65	91.54	1474.49	0.66	1474.69	50.68	
	2.642	58.00	1472.85	0	0	0	CULVERT#1-Up
	2.642	33.53	1472.47	0	0	0	CULVERT#1-Dn
	2.642	58.00	1473.43	0	0	0	CULVERT#1-Up
	2.642	33.53	1473.19	0	0	0	CULVERT#1-Dn
2	2.634	69.60	1472.45	0	1472.65	417.34	
2	2.634	69.60	1473.19	0.75	1473.57	75.34	
1	2.625	223.84	1471.96	0	1472.01	525.79	
1	2.625	223.84	1472.72	0.76	1472.87	135	

	Ineffective Flow, Section 3			Ineffective Flow, Section 2		
	Sta L	Sta R	Elev	Sta L	Sta R	Elev
1	9032.96	9150.91	1473	9502.5	9897.5	1475.32
2	9150.91	9289.07	1473.52	10043.8	10303.8	1475
3	9289.07	9350	1474			
4	9350	9429.87	1474.27			
5	9429.87	9968.12	1474.61			
6	10018.8	10306.1	1478			

Opening Type	StagStaL	StagStaR	EncStaL	EncStaR	LIfStaS	RIfStaS
Culvert Group					9968.12	10018.8U
					9897.5	10043.8D
			0	0		U
			0	0		D

CULVERT:
Culvert Name: CULVERT#1
Shape: Box Rise: 4 Span: 10 Barrels: 3
FHWA Chart #: # 8 - flared wingwalls

FHWA Scale #: # 1 - Wingwall flared 30 to 75 deg.
Solution Crit:Highest U.S. EG

UpstrmDist:	0.01	Length:	58	n-Value:	0.015		
EntLossCoef:	0.4	ExtLossCoef:	1	CulvInvElU	1470.75	CulvInvElD	1470.61
LCntStaU:	9985	RCntStaU:	10006.2	LCntStaD	10003	RCntStaD	10024.2

Culvert Depth Blocked: 0

Culv Area:	120	CulvQ:	430.19	MinTopRd:	1472.96
	120		610		1477.6

	LAbutSt	RAbutSt	LMnTpRd	RMnTpRd	MnTpRd	MxLoCd	
CULVERT#1	9980	10011.2	1472.95	1474.74	1472.95	1474.75	U
	9998	10029.2	1472.71	1474.63	1472.71	1474.61	D
	9980	10011.2	1472.95	1474.74	1472.95	1474.75	U
	9998	10029.2	1472.71	1474.63	1472.71	1474.61	D

Name	Q Total.	Q Struc	Q Weir	Selected Method	Flow Type
CULVERT#1		430.19	179.81	Highest U.S. EG	Low and Weir Flow
		610	0	Highest U.S. EG	Low Flow

GEOMETRIC CHECK

TYPE OF FLOW CHECK

RS: 2.642 This is CULVERT#1
CV LW 01 Type of flow is low and weir flow because,
1. EGEL 3 of 1473.87 is greater than MinTopRd of 1472.96.
2. EGEL 3 of 1473.87 is less than MxLoCdU of 1474.75.

RS: 2.642 This is CULVERT#1
CV LW 01 Type of flow is low and weir flow because,
1. EGEL 3 of 1473.87 is greater than MinTopRd of 1472.96.
2. CulvWSIn of 1472.85 is less than MxLoCdU of 1474.75.
3. CulvWSOut of 1472.47 is less than MxLoCdD of 1474.61.
4. Q/AD^0.5 of 1.79 is less than 4.0.

RS: 2.642 This is CULVERT#1
CV LF 01 Type of flow is low flow because,
1. EGEL 3 of 1474.69 is less than or equal to MinTopRd of 1477.60.
2. EGEL 3 of 1474.69 is less than MxLoCdU of 1474.75.

DISTANCE CHECK

RS: 2.642 This is CULVERT#1
ST DT 01 'Culvert Upstrm Dist' of 0.01 is less than the height of the culvert opening of 4 .
Section 3 should be placed at the foot of the road embankment or wing walls.
Distances at Sections 4 & 3, and 'Distance from Upstream XS' should be adjusted.

CULVERT COEFFICIENT CHECK

CULVERT CRITERIA CHECK

INEFFECTIVE FLOW CHECK

RS: 2.65 This is Section 3

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ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1474 between stations 9289.07
          and 9350 is equal to or greater than the WSEL of 1473.83
          The LMnTpRdU is 1472.946
          The ineffective flow elevation should be equal to or lower than the MnTpRd
          It should also be less than the WSEL.

RS:       2.65 This is Section 3
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1474.27 between stations 9350
          and 9429.87 is equal to or greater than the WSEL of 1473.83
          The LMnTpRdU is 1472.946
          The ineffective flow elevation should be equal to or lower than the MnTpRd
          It should also be less than the WSEL.

RS:       2.65 This is Section 3
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1474.61 between stations 9429.87
          and 9968.12 is equal to or greater than the WSEL of 1473.83
          The LMnTpRdU is 1472.946
          The ineffective flow elevation should be equal to or lower than the MnTpRd
          It should also be less than the WSEL.

RS:       2.634 This is Section 2
ST IF 02  Weir flow occurs at Culvert Group 1
          However, the ineffective flow elevation of 1475.32 between stations 9502.5
          and 9897.5 is equal to or greater than the WSEL of 1472.45
          The LMnTpRdD is 1472.714 and the MxLoCdD is 1474.61
          The ineffective flow elevation should be between the LMnTpRdD and the MxLoCdD
          if LMnTpRdD is greater than MxLoCdD. Otherwise, It should be equal to LMnTpRdD.
          It should also be less than the WSEL.

RS:       2.667 This is Section 4
ST IF 07  Ineffective flow option was considered at this section.
          However, it should be a fully expanded cross section.
          Ineffective flow stations and elevations should be cleared from
          this section, unless the areas beyond the ineffective flow stations
          are not within the flow path of the stream.
          This message should be ignored if this section is Section 2 of
          the upstream structure.

FLOODWAY CHECK
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RS:       2.642 This is Culvert
ST FW 01  Encroachment Method was not specified at this river station.
          For flood insurance studies Encroachment Methods 4 and 1
          should be used.

RS:       2.634 This is Section 2
ST FW 08  The right station effective of 10041.48 for the natural profile.
          is greater than the right channel bank station of 10037.42
          The right encroachment station is outside the channel.
          The right encroachment station of 10064 is greater than the right
          station effective of 10041.48 for the natural profile.
          The right encroachment station should be adjusted.

RS:       2.634 This is Section 2
ST FW 10  Left encroachment station 9937 is more than the left ineffective flow
          station 9897.5 and less than the right ineffective flow station 10043.8
          Left encroachment station is within the effective flow area.
          Left encroachment station should at least be equal to the left
          ineffective flow station.

RS:       2.65 This is Section 3
ST FW 08  The right station effective of 10018.8 for the natural profile.
          is greater than the right channel bank station of 10015.15
          The right encroachment station is outside the channel.
          The right encroachment station of 10065 is greater than the right
          station effective of 10018.8 for the natural profile.
          The right encroachment station should be adjusted.

---END
```

2 EAST-DIKE FAILURE

2E_FAILURE
CHECK-RAS Program: NT Check
Manning's n Value and Transition Loss Coefficient Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.nt
Selected profiles: Floodplain
Date: 7/15/2005
Time: 10:42:04 AM

SECNO	STRUCTURE	NLOB	NCHL	NROB	CNTR	EXP
Reach #1,2 East						
.703		0.046	0.05	0.046	0.1	0.3
.66		0.046	0.05	0.046	0.1	0.3
.61		0.046	0.05	0.046	0.1	0.3
.56		0.046	0.05	0.046	0.1	0.3
.47		0.035	0.035	0.047	0.1	0.3
		-----	0.047	0.03		
		-----	-----	0.05		
		-----	-----	0.035		
.39		0.035	0.047	0.047	0.1	0.3
		-----	-----	0.053		
		-----	-----	0.035		

---Summary of Statistics---

	Minimum	Maximum
Left Overbank n Value:	0.035	0.046
Right Overbank n Value:	0.03	0.053
Channel n Value:	0.035	0.05
Contraction Coefficient:	0.1	0.1
Expansion Coefficient:	0.3	0.3

Typical desert washes have heavy vegetation in the wash and almost no vegetation in the overbanks. Therefore, most channel "n" values are larger than the overbanks.

ROUGHNESS COEFFICIENT CHECK

RS: 0.703
NT RC 05 The left overbank n value of 0.046 and the right overbank n value of 0.046 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 0.66
NT RC 05 The left overbank n value of 0.046 and the right overbank n value of 0.046 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 0.61
NT RC 05 The left overbank n value of 0.046 and the right overbank n value of 0.046 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

RS: 0.56
NT RC 05 The left overbank n value of 0.046 and the right overbank n value of 0.046 are less than or equal to the channel n value of 0.05
The overbank n values should be reevaluated.

TRANSITION LOSS COEFFICIENT CHECK

ROUGHNESS COEFFICIENT AT STRUCTURES

---END---

2E_FAILURE
CHECK-RAS Program, XS Check
Cross Section Location and Alignment Review

Project File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.PRJ
Plan File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.P01
Geometry File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.G01
Flow File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.F01
Report File: P:\300\310\310032 (Wittmann ADMSU)\Tasks\HydraFEMA\Detailed\SOUTH_CAP\2E_FAILURE.xs
Selected profiles: Floodplain
Date: 7/15/2005
Time: 10:42:05 AM

SECNO	Len Lob	Len Chl	Len Rob	TopWdthAct	Q Total	Flow Code
Reach #1,2 East						
.703	241.466	241.056	242.264	620.09	660	D
.66	210.98	228.529	240.55	913.71	660	D
.61	200.272	213.236	189.688	676.43	660	D
.56	579.676	538.05	462.025	598.84	660	D
.47	295.65	421.452	499.697	923.41	930	D
.39	323.802	319.853	340.704	724.12	930	

B=blocked obstruction XS SC 05
C=critial depth XS SC 03
D=divided flow XS SC 01
E=cross section extended XS SC 02
K=known water-surface XS SC 04

DISTANCE CHECK

SPACING CHECK

INEFFECTIVE FLOW CHECK

DISCHARGE CHECK

LOCATION CHECK

BOUNDARY CONDITION CHECK

XS BC 02 The name of the stream is Reach #1,2 East
Known WS = 1398.11 is specified as the downstream boundary
for profile Floodplain

LATERAL WEIRS CHECK

---END---