PLAN SCALE

200 0 200

FEET

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1020 Wasco Street, Suite I
Hood River, OR 97031
541.386.9003
www.interfluve.com

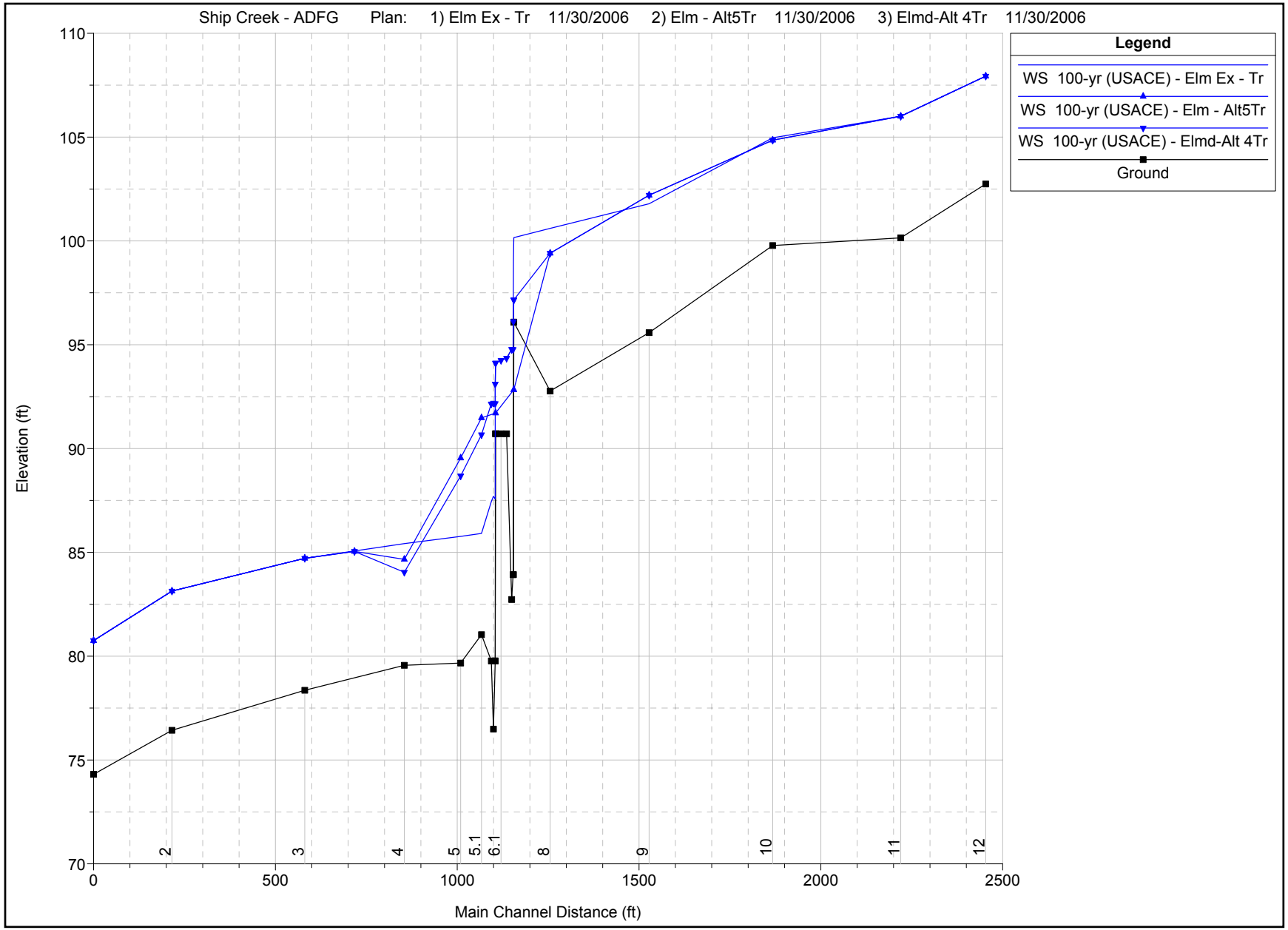
SHIP CREEK ASSESSMENT

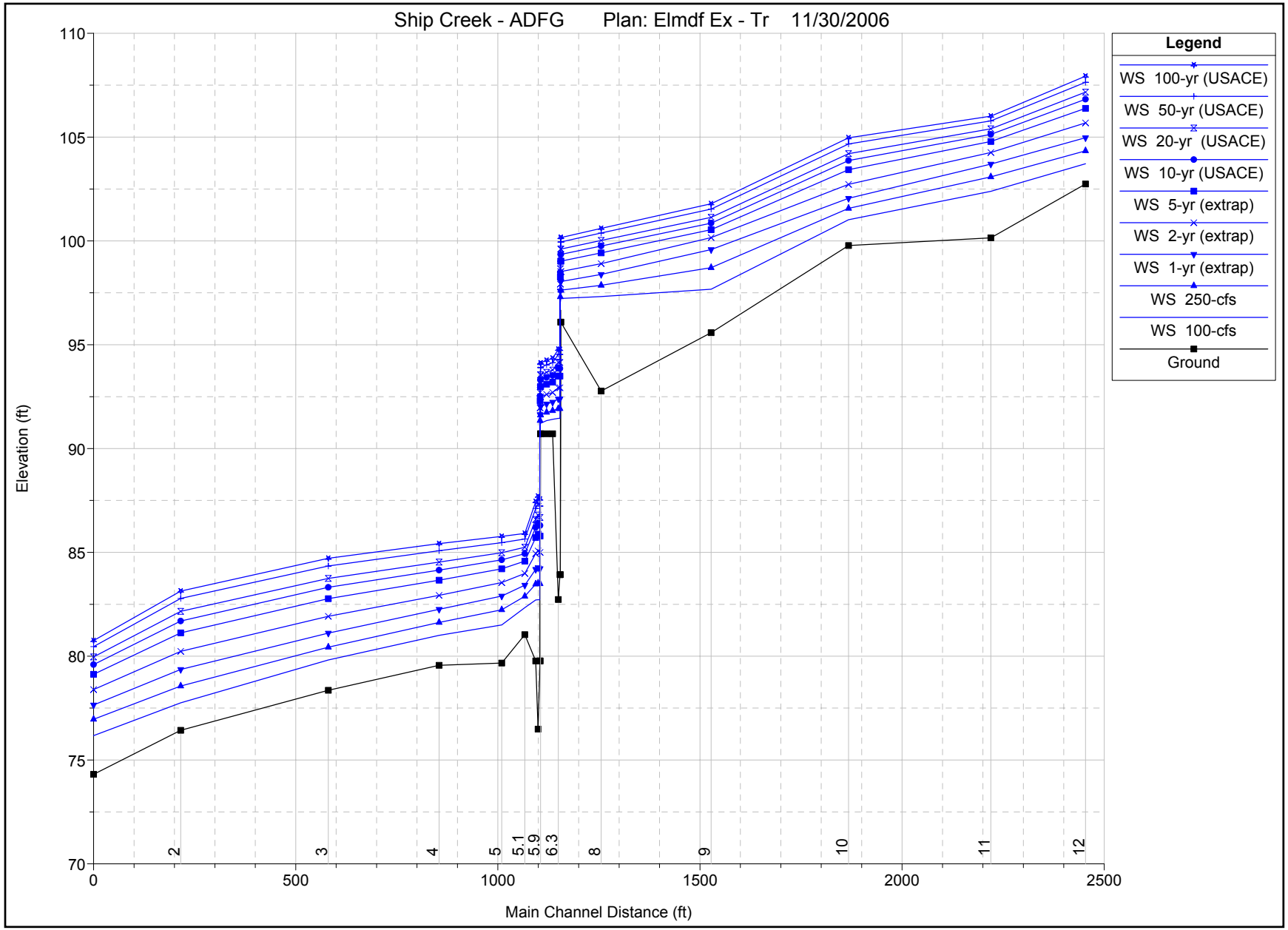
ALASKA DEPARTMENT OF FISH AND GAME

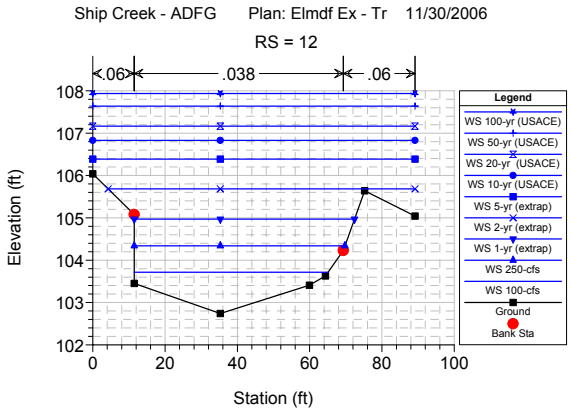
ELMENDORF HEC-RAS CROSS SECTION LOCATIONS

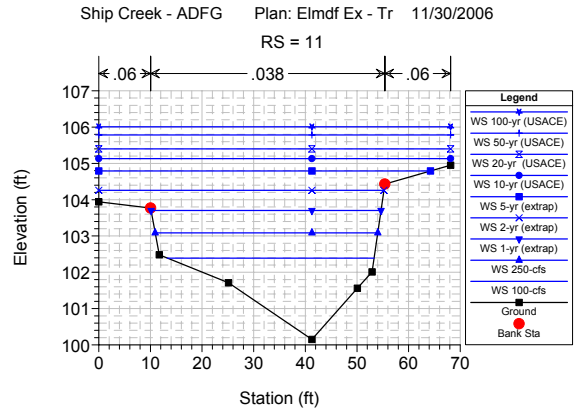
DESIGNED BY	CHECKED BY
MB	MM
DRAWN BY	DATE APPD.
MM	5-13-03

i


Ship Creek - ADFG Plan: 1) Elm Ex - Tr 11/30/2006 2) Elm - Alt5Tr 11/30/2006 3) Elmd-Alt 4Tr 11/30/2006
Legend
WS 100-yr (USACE) - Elm Ex - Tr
WS 100-yr (USACE) - Elm - Alt5Tr
WS 100-yr (USACE) - Elmd-Alt 4Tr
Ground
Elevation (ft)
110
105
100
95
90
85
80
75
70
0
500
1000
1500
2000
2500
Main Channel Distance (ft)
2
3
4
5
5.1
6.1
8
9
10
11
12


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
Elevation (ft)
Main Channel Distance (ft)
110
105
100
95
90
85
80
75
70
0
500
1000
1500
2000
2500
2
3
4
5
5.1
5.9
6.3
8
9
10
11
12
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 12
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta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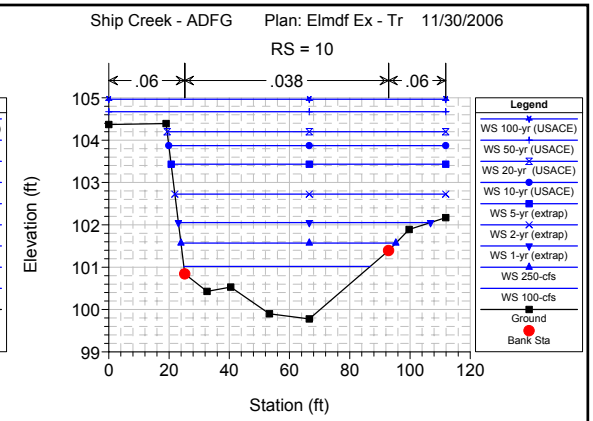
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta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.038
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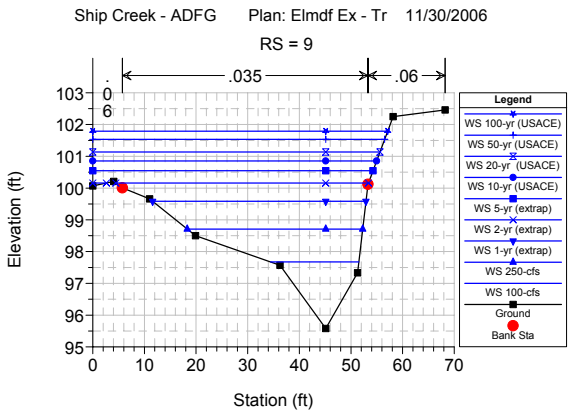
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 9
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Elevation (ft)
Station (ft)
Legend
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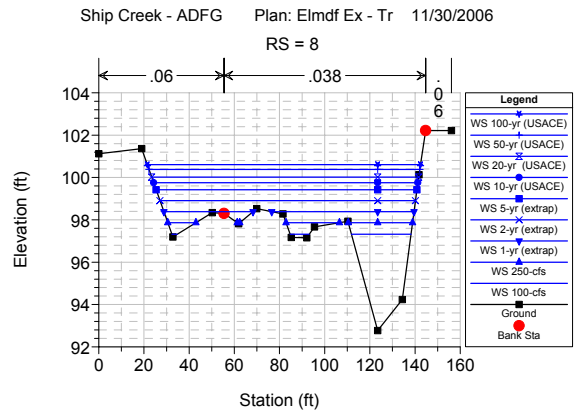
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 8
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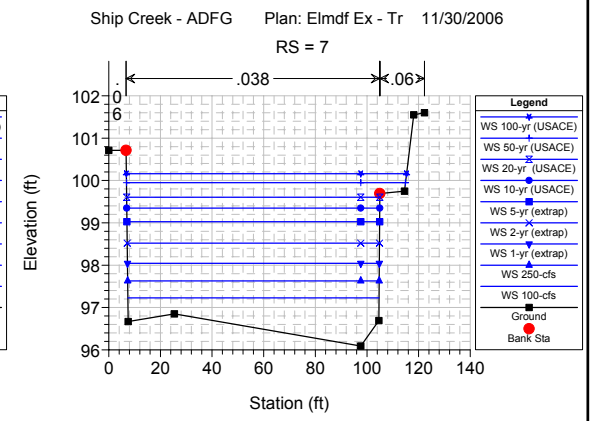
.038
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta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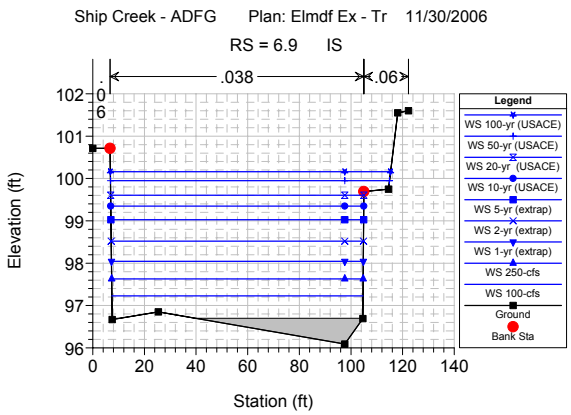
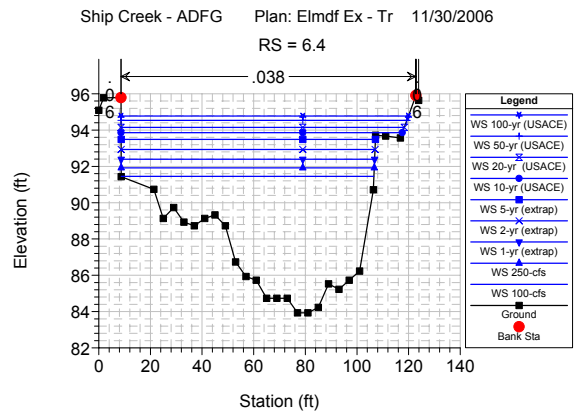
RS = 7
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 6.9 IS
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 6.4
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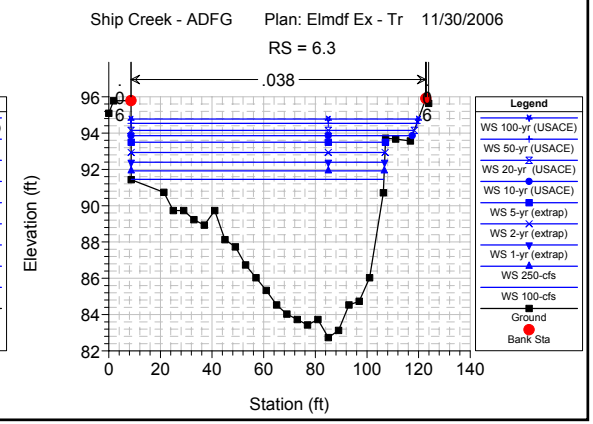
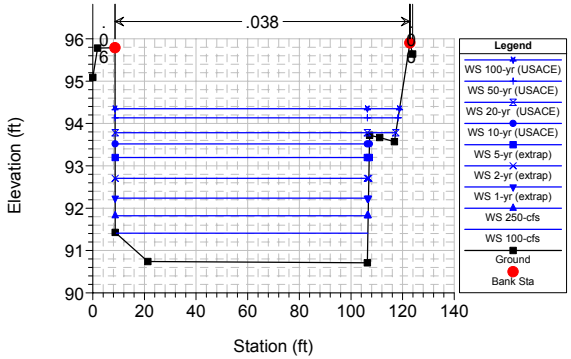
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006
RS = 6.3
.038
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

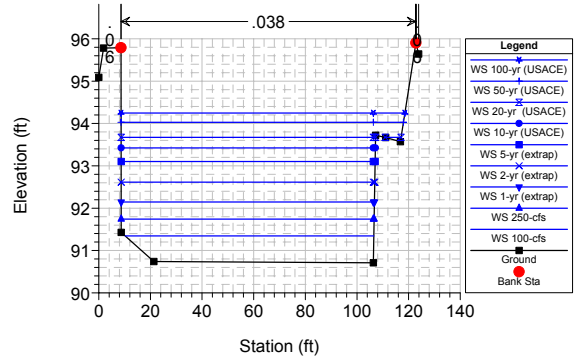
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 6.2



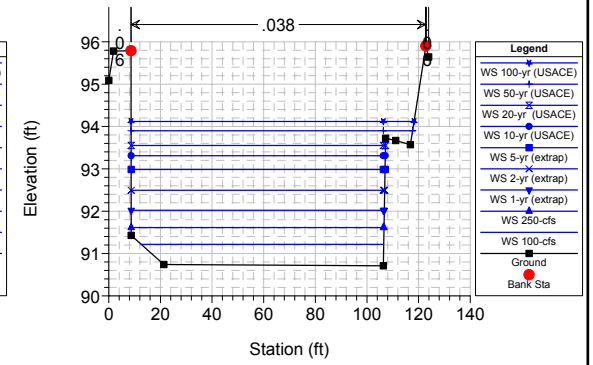
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 6.1



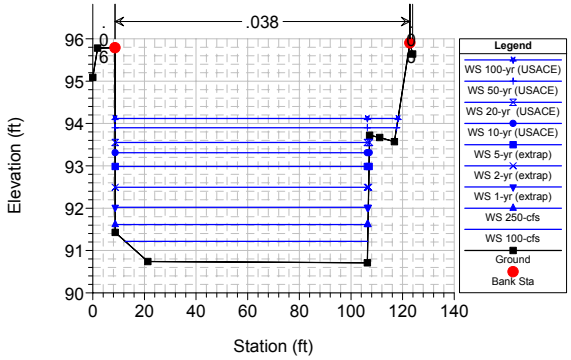
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 6



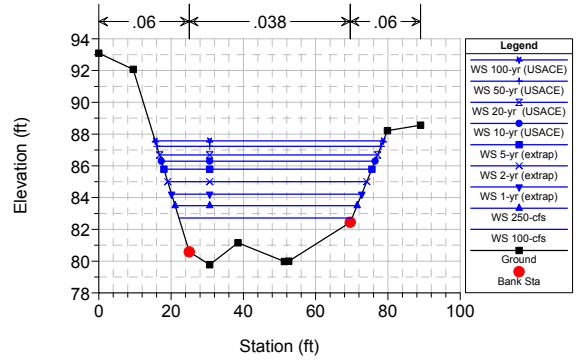
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5.9 IS



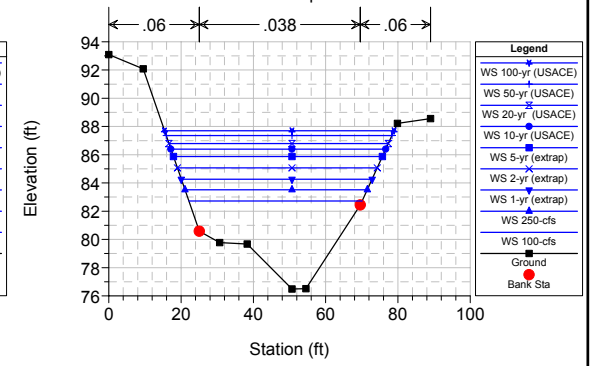
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5.4 Extrapolate XS 5.2



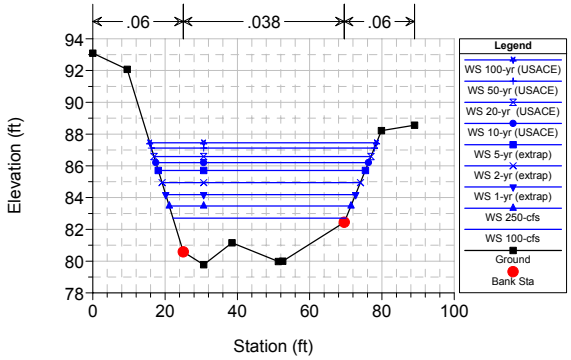
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5.3 XS extrapolated from XS-5



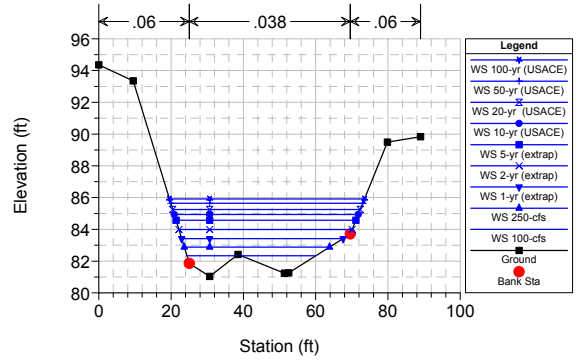
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5.2 Extrapolate to low thalweg elev surveyed d/s of weir scour pool



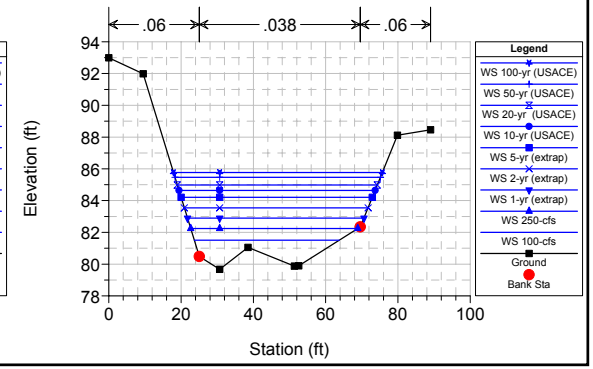
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5.1 Extrapolate to tailspill of weir scour pool



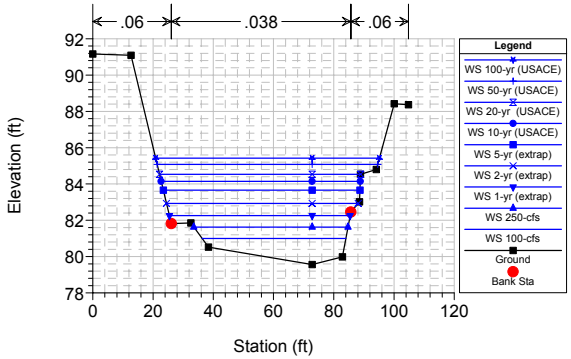
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 5



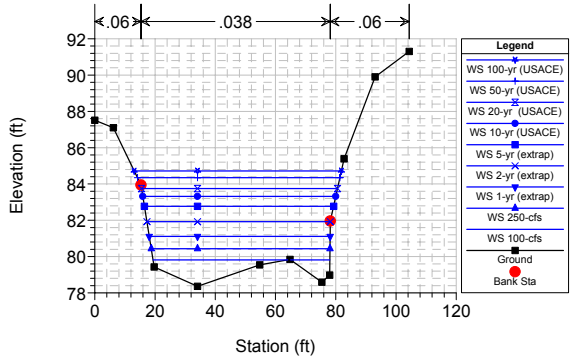
Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 4



Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 3



Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

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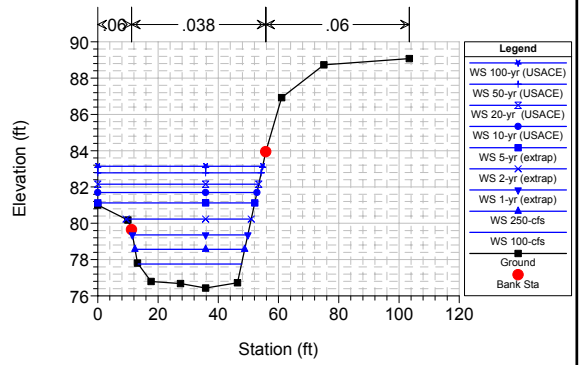
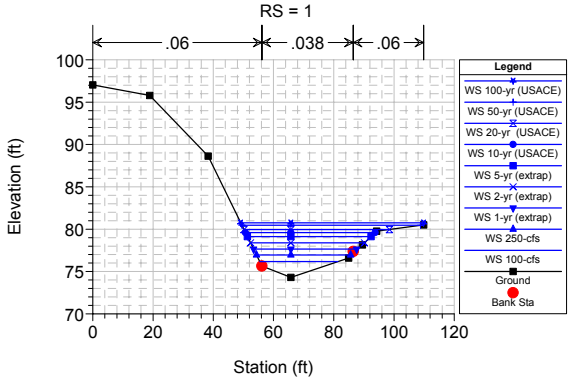
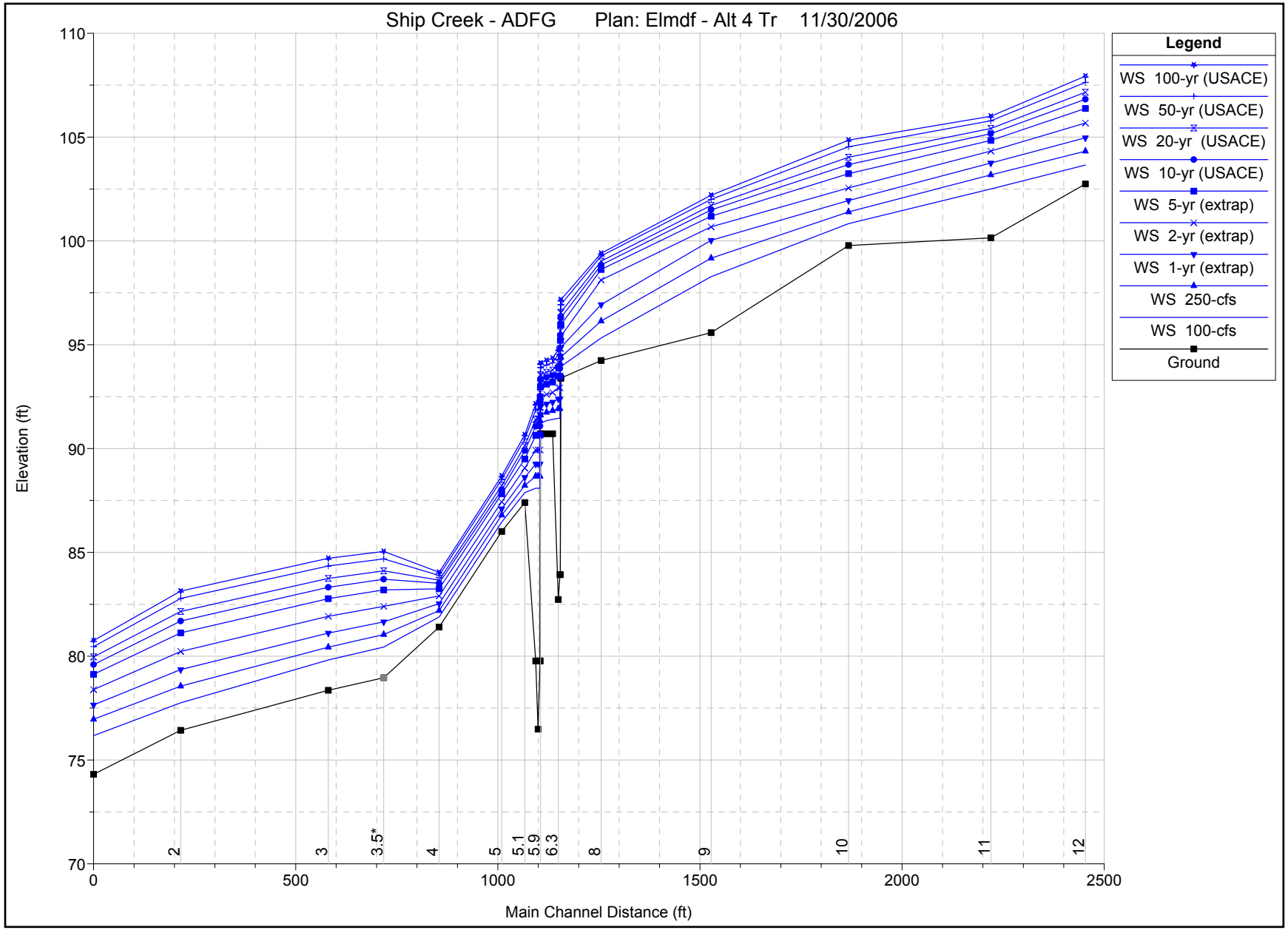
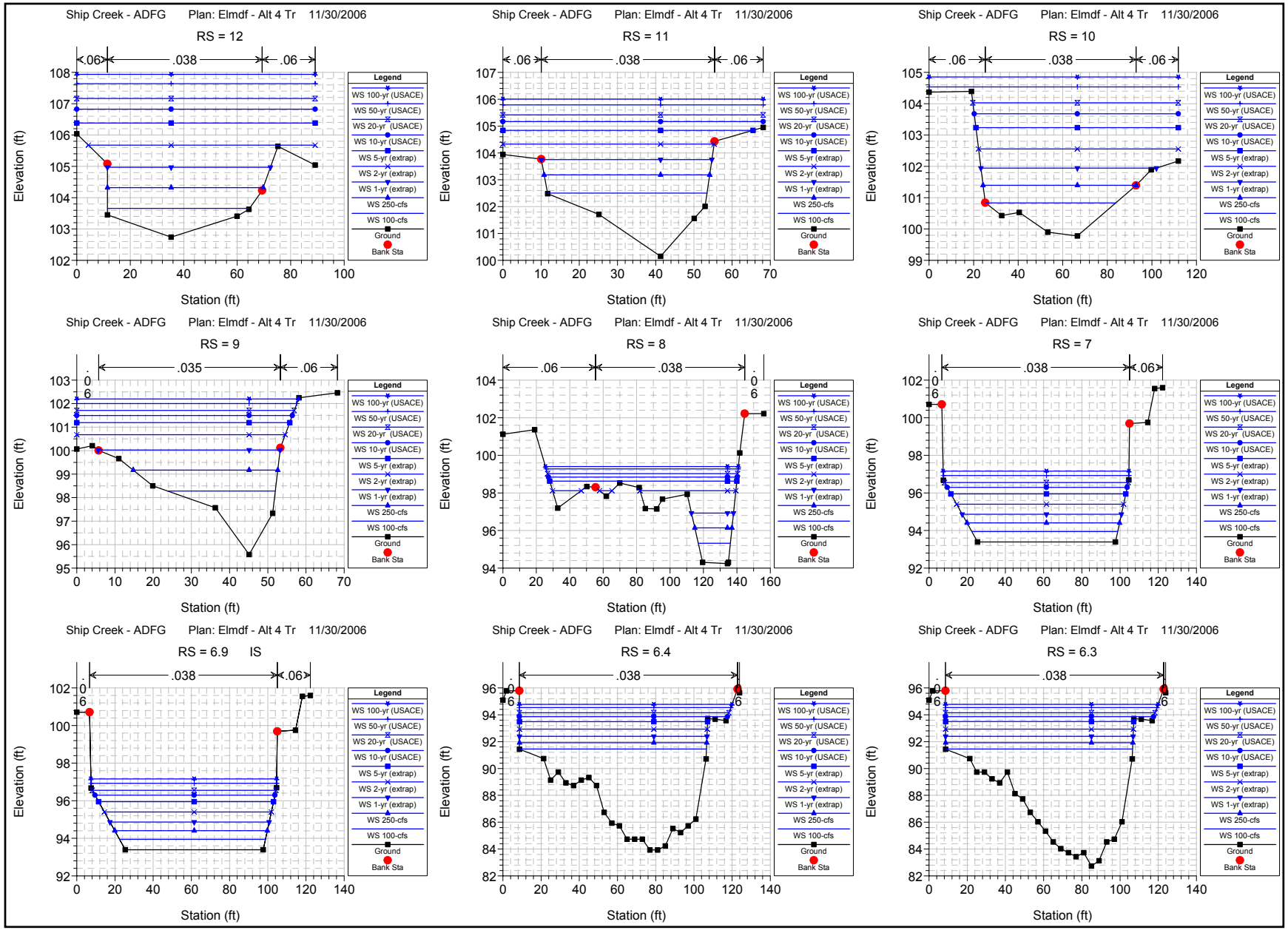


Ship Creek - ADFG Plan: Elmdf Ex - Tr 11/30/2006

RS = 1

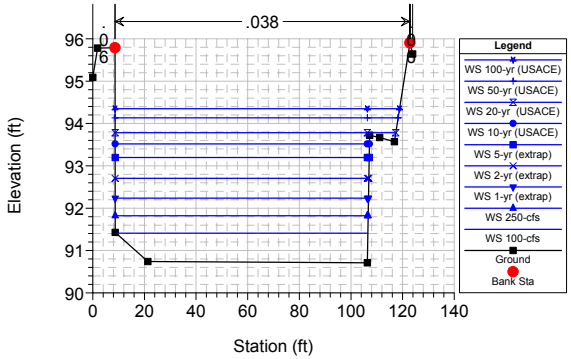



Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
Elevation (ft)
Main Channel Distance (ft)
110
105
100
95
90
85
80
75
70
0
500
1000
1500
2000
2500
2
3
3.5*
4
5
5.1
5.9
6.3
8
9
10
11
12
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground


Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 12
.06 .038 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 11
.06 .038 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 10
.06 .038 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 9
.035 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 8
.06 .038
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 7
.038 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 6.9 IS
.038 .06
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 6.4
.038
Elevation (ft)
Station (ft)
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 6.3
.038
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

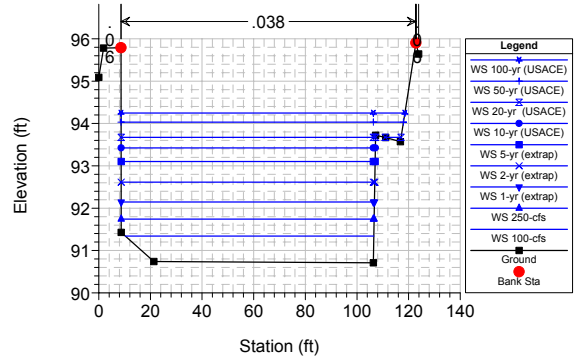
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 6.2



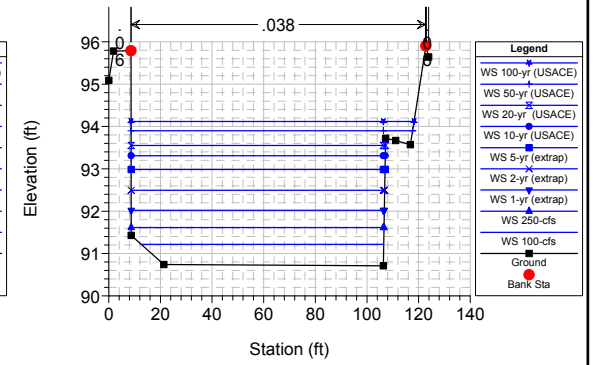
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 6.1



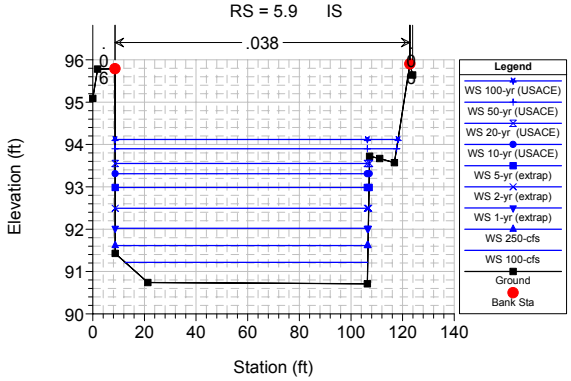
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 6



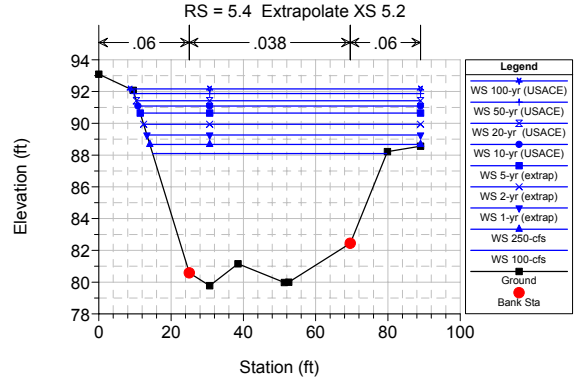
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 5.9 IS



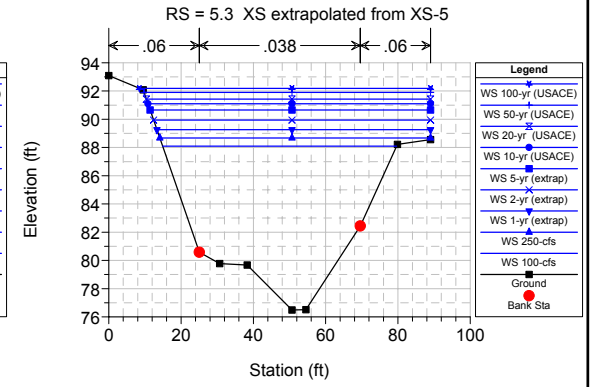
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 5.4 Extrapolate XS 5.2



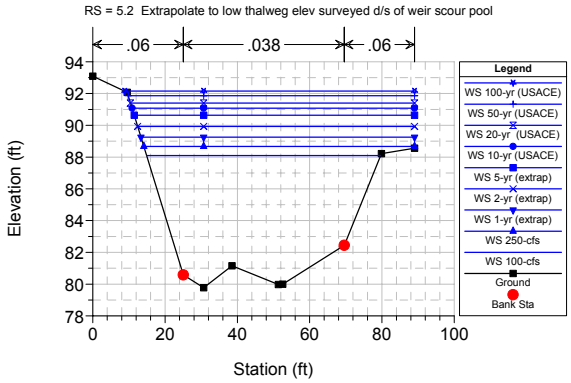
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 5.3 XS extrapolated from XS-5



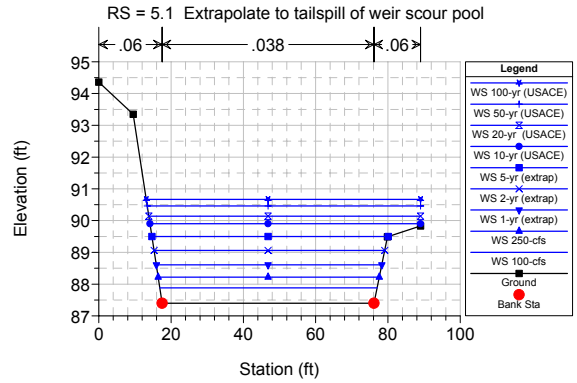
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

RS = 5.2 Extrapolate to low thalweg elev surveyed d/s of weir scour pool



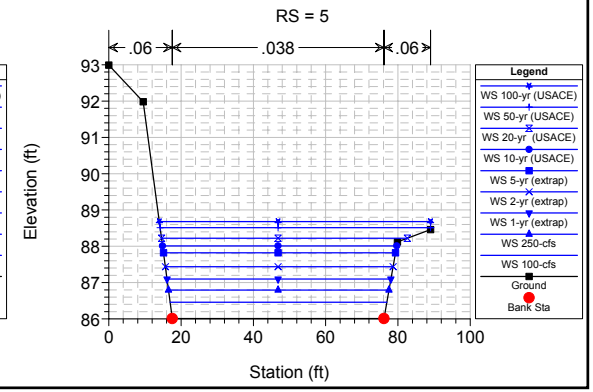
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

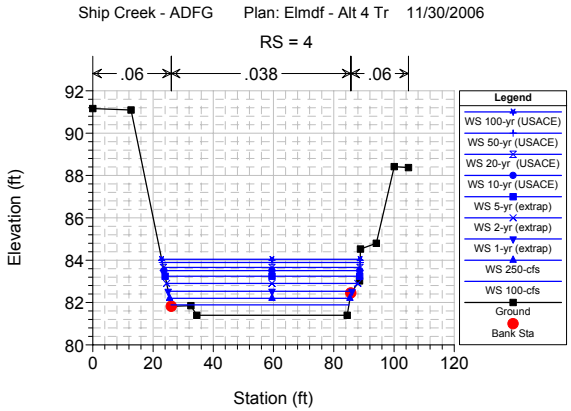
RS = 5.1 Extrapolate to tailspill of weir scour pool

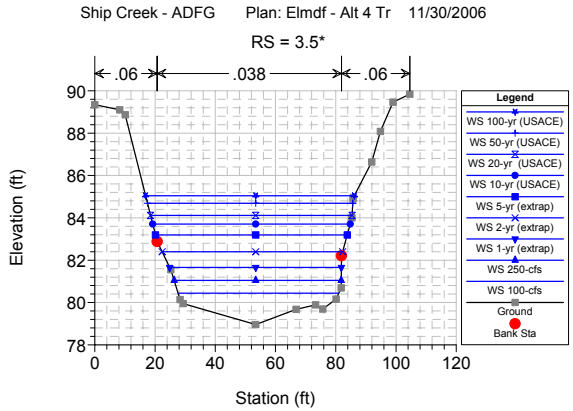


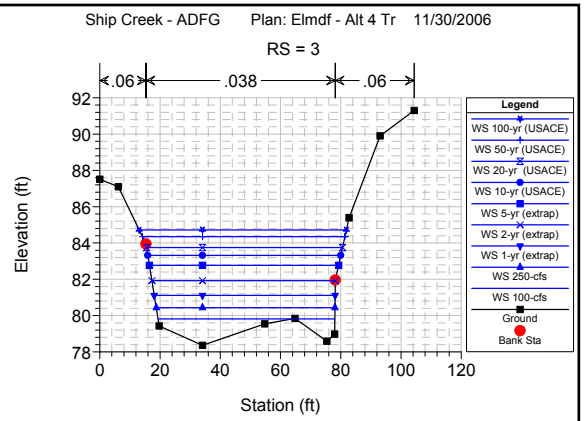
Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006

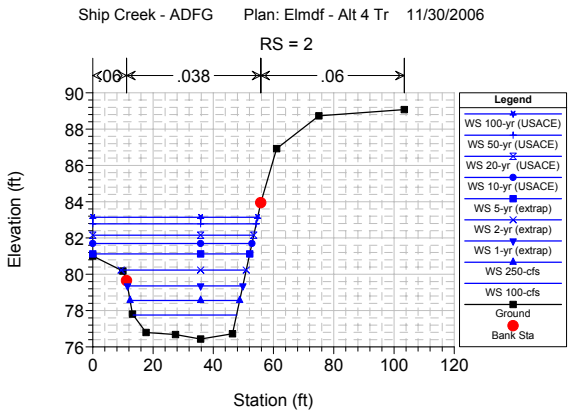
RS = 5

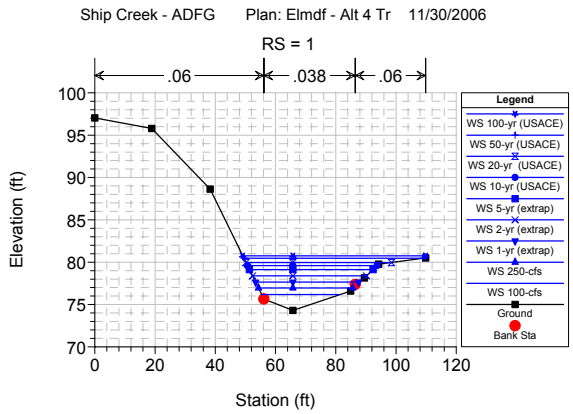


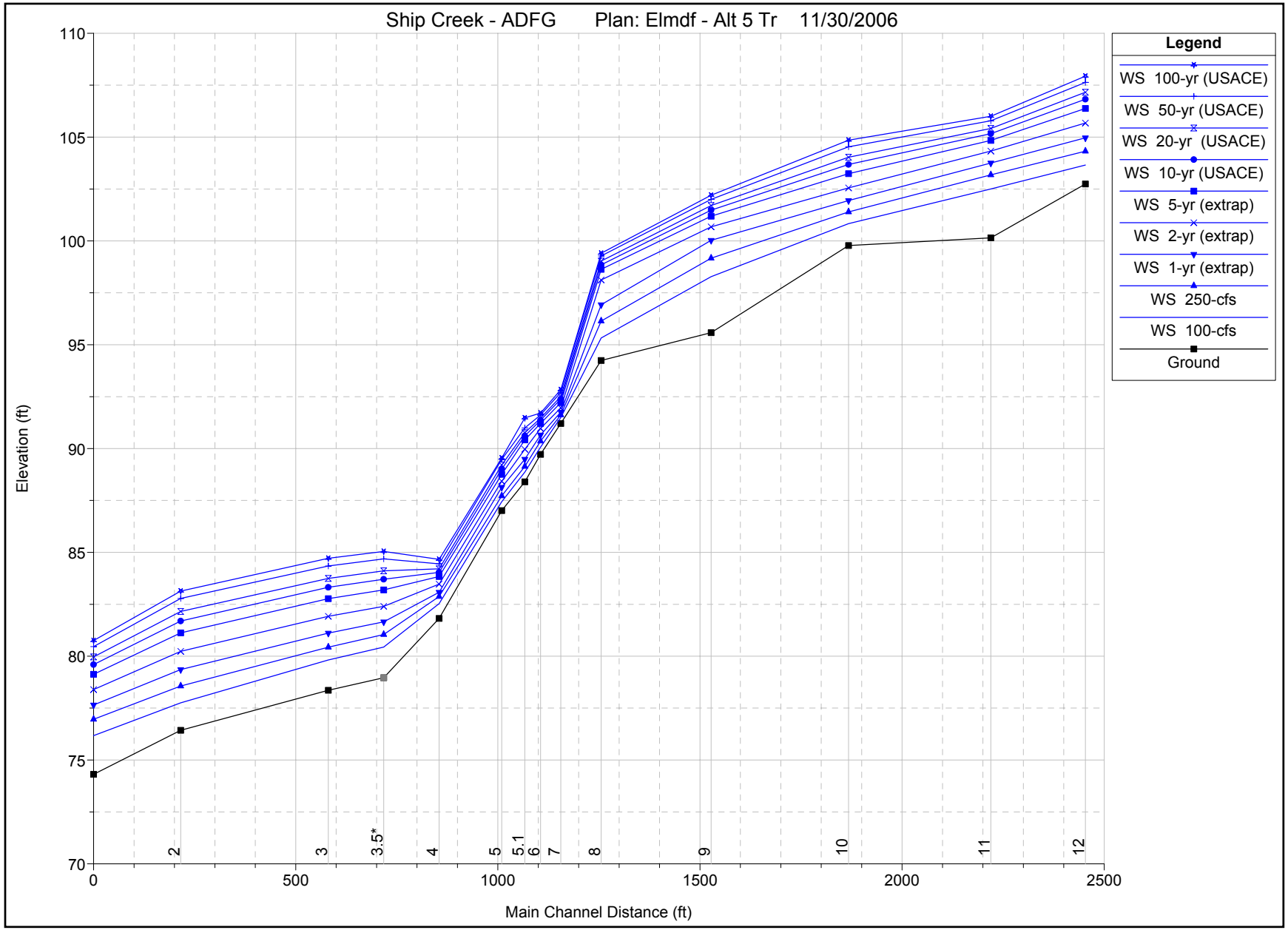

Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 4
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

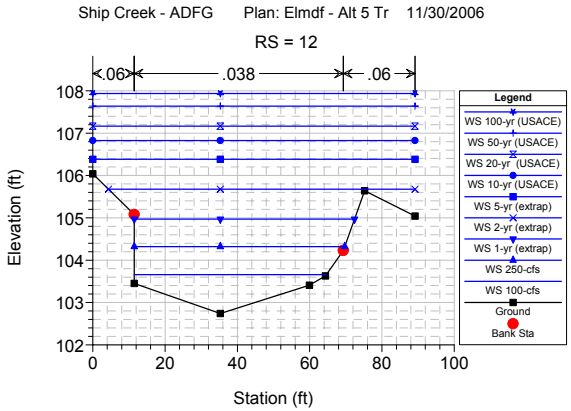

Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 3.5*
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

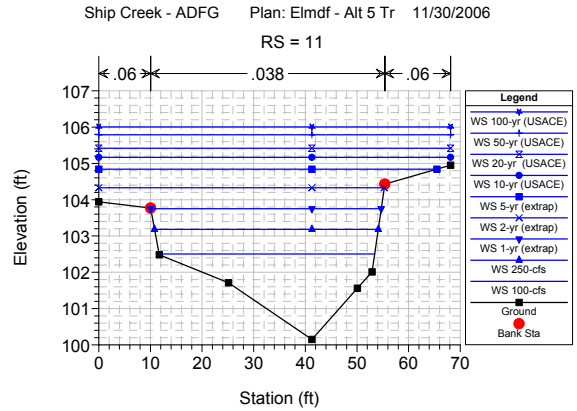

Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 3
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

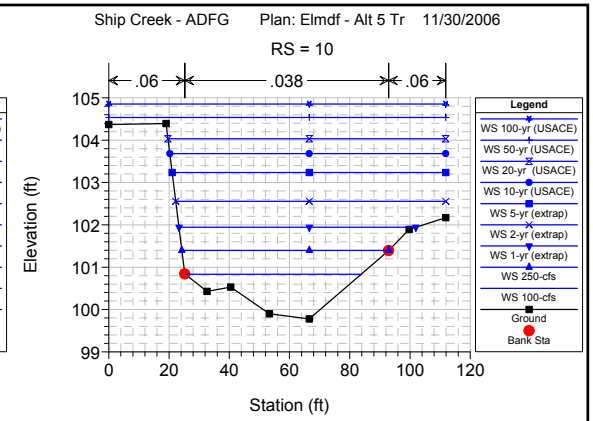

Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 2
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

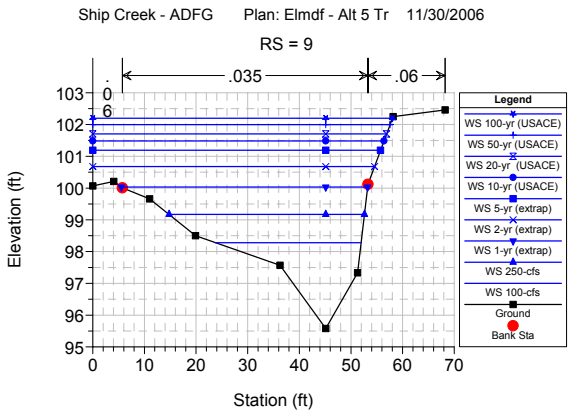

Ship Creek - ADFG Plan: Elmdf - Alt 4 Tr 11/30/2006
RS = 1
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

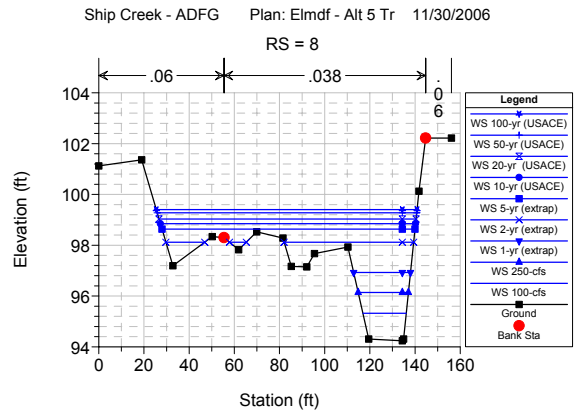

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
Elevation (ft)
Main Channel Distance (ft)
110
105
100
95
90
85
80
75
70
0
500
1000
1500
2000
2500
2
3
3.5*
4
5
5.1
6
7
8
9
10
11
12
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground

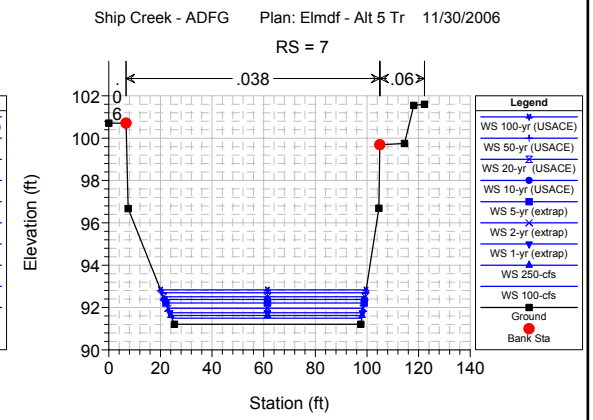

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 12
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

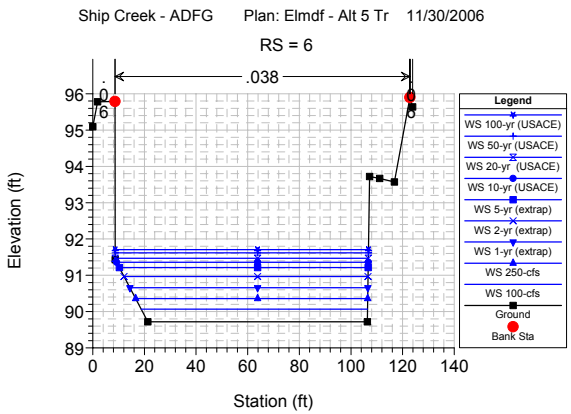

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 11
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

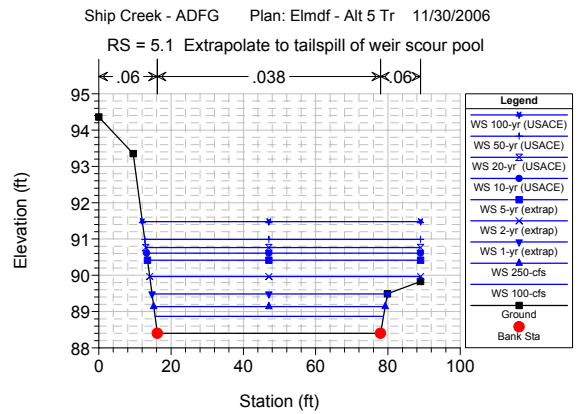

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 10
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

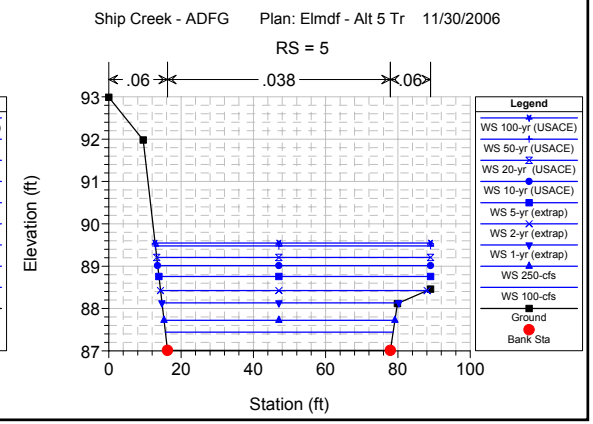

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 9
.035
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

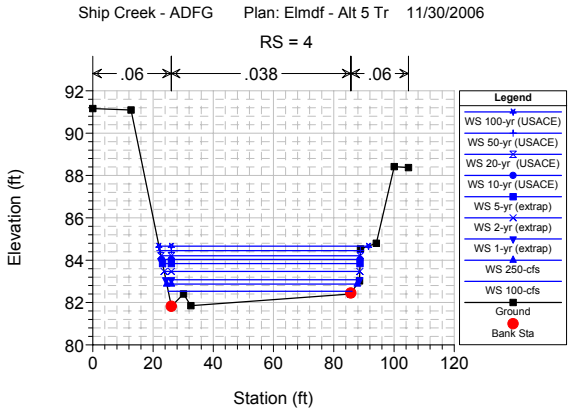

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 8
.06
.038
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

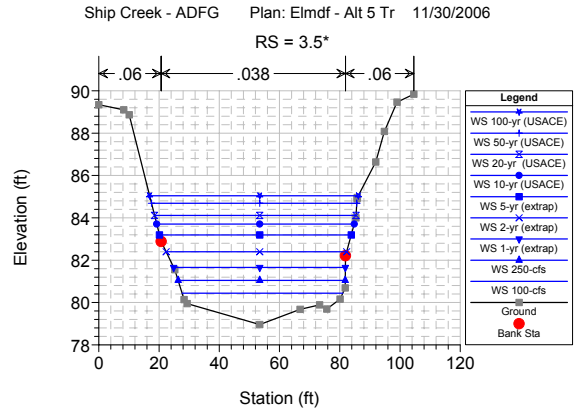

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 7
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

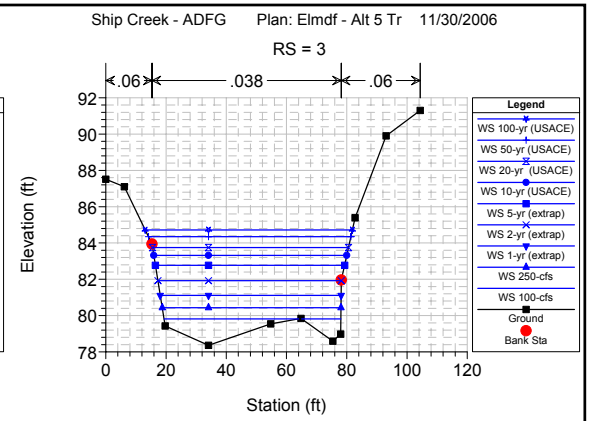

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 6
.038
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

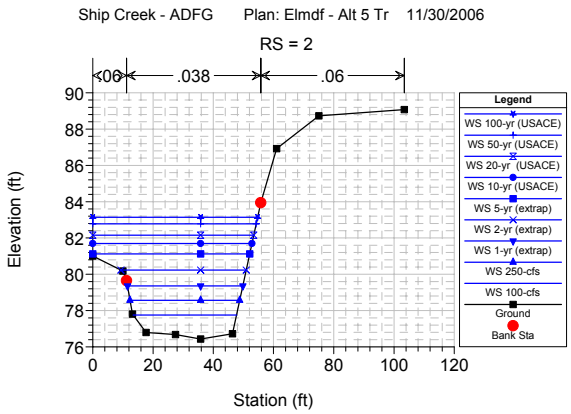

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 5.1 Extrapolate to tailspill of weir scour pool
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta

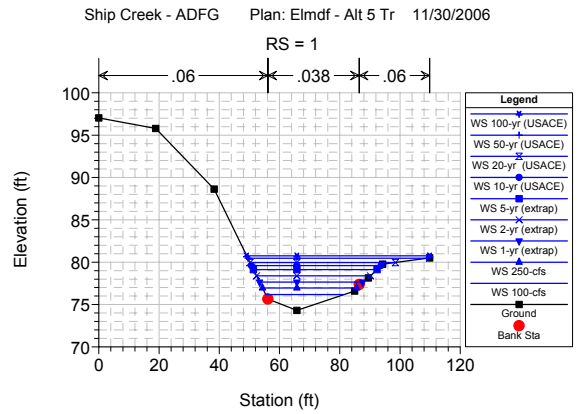

Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 5
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 4
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 3.5*
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 3
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 2
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta


Ship Creek - ADFG Plan: Elmdf - Alt 5 Tr 11/30/2006
RS = 1
.06
.038
.06
Elevation (ft)
Station (ft)
Legend
WS 100-yr (USACE)
WS 50-yr (USACE)
WS 20-yr (USACE)
WS 10-yr (USACE)
WS 5-yr (extrap)
WS 2-yr (extrap)
WS 1-yr (extrap)
WS 250-cfs
WS 100-cfs
Ground
Bank Sta