APPENDIX K

DESIGN EXAMPLE - HYDRAULIC DESIGN OPTION (ROCK WEIR)

Hydraulic Rock Weir Design Tutorial

Project Description – Route 22 Excessive Scour Design Project

In Sonoma County, a bridge across Frogger Creek has experienced channel degradation. Fifteen years ago, a concrete apron was constructed under the bridge to decrease channel scour to protect the bridge abutments. Although the concrete apron significantly reduced the rate of channel degradation that has been occurring near the structure, a large scour pool has now formed downstream of the bridge. The concrete apron is damaged beyond repair and needs to be removed.

Adult steelhead are inhibited in their migration upstream because of this excessive drop. Therefore, a solution must be found that will successfully remove the damaged concrete apron, prevent future scour, while encouraging steelhead to migrate upstream.

Data for Forms 1-4 have been provided for informational purposes only. For this tutorial, Form 6E – Hydraulic Rock Weir Design Option will be the only form filled out.

Form 1 - Existing Data and Information Summary

The Engineer collected all existing data prior to going to the field.

Existing Data:

- Surveyed bridge data (No as-builts can be found)
- USGS topographic DEM
- Stream flow gage data
- Precipitation gage data
- Right-of-Entry is not required

Form 2 - Site Visit Summary

The Engineer and project team visited the project site and collected existing conditions data.

Bridge Characteristics:

- Elevation of high chord: 54.23 ft
- Elevation of low chord: 44.0 ft
- Channel lining: Concrete - damaged
- Channel lining roughness: 0.022
- Bridge width/apron length: 96 ft
- Pier Type: Twin cylinder piers without connecting diaphragm
- Number of Piers: 2 rows of 2
- Pier Width: 4 ft at top to 6 ft at base
- Upstream cross-section starting station: 1987

- Downstream cross-section starting station: 1969
- Pier Conditions: Scour

Active Channel Width Measurements:

1	2	3	4	5	Average
14.2 ft	20.1 ft	16.7 ft	26.2 ft	16.7 ft	18.8 ft

Bankfull Channel Width Measurements:

1	2	3	4	5	Average
20.3 ft	30.5 ft	26.7 ft	26.2 ft	21.0 ft	24.9 ft

Boundary Conditions:

- Downstream slope = 0.024, normal depth is appropriate

Form 2b – Manning's n-value Computation

Manning's n-values:

Factor	Left Overbank	Main Channel	Right Overbank
n-value	0.052	0.045	0.052

Form 3 - Guidance on Selection of Fish Passage Design Option

The Engineer completed Form 3 and determined which design option was most appropriate for the project site.

Site Characteristics:

- Retrofit bridge installation
- Perched condition at outlet
- Target species identified for passage

Hydraulic Rock Weir Design Option was selected.

Form 4 - Guidance on Methodology for Hydrologic Analysis

The Engineer calculated peak discharges using USGS Regional Regression equations, Transfer Basin Methodology, and a stream flow hydrograph and duration curve allowing High and Low Fish Design Flows to be calculated.

Low Fish Design Flows	High Fish Design Flows	2-Year Event	50-Year Event	100-Year Event
12 cfs	70 cfs	156 cfs	765 cfs	1255 cfs

Form 6E – Hydraulic Rock Weir Design Option

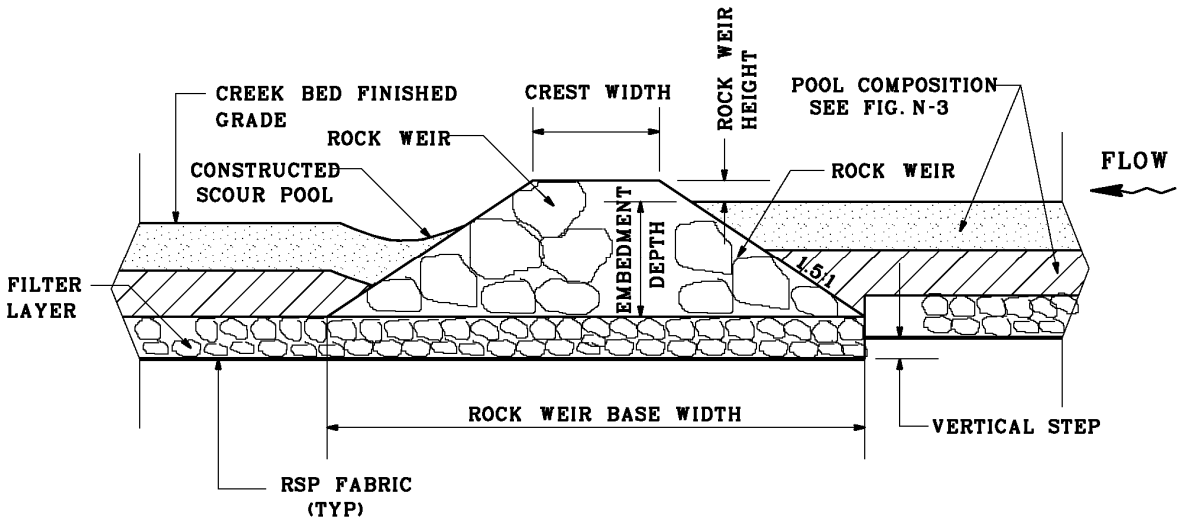
Form 6E provides guidance to appropriately design a structure that meets specific fish passage design criteria, while also considering hydraulic impacts and scour concerns.

Rock Weir Design Criteria for Adult Steelhead that must be met:

Velocity	Depth
Maximum average velocity for adult steelhead is 6 ft/s	Minimum 1-ft flow depth within step pools during low fish passage flows
Jump Pool Depth Minimum 2-ft depth within jump pool at downstream base of each weir during low fish passage flows	Weir Drop (if unavoidable) Maximum 1-ft drop depth

Objective:

The Engineer must calculate initial rock weir sizing, embedment, and geometry before modeling proposed conditions. Once sizing, embedment, and geometry conditions are defined, rock weir spacing, height, and low-flow notch dimensions can be modeled in an iterative fashion until all design goals are met.



The Engineer selects HEC-RAS to conduct the hydraulic modeling of rock weirs through a bridge structure.

Step 1: Prepare an Existing Conditions HEC-RAS hydraulic model and find the average velocity for the 50-Yr Event, check existing bridge capacity for 50-Yr and 100-Yr HDM criteria.

Check 100-Year capacity.

Soffit / low chord elevation = 44 ft

The Existing Conditions HEC-RAS hydraulic model has already been modeled. Open Existing Conditions HEC-RAS model and review results.

Step 2: Calculate rock weir size.

The rock for a rock weir will be sized by three methods: Field Inspection Method, RSP Revetment Design Method, and Boulder Cluster Design Method. Rock weir sizing is calculated to withstand a 50-Year event.

Field Inspection Method:

Field Measured Average Rough D_{50} = 2.85 ft

Caltrans RSP Class	Rough D_{50} (ft)
Cobble	0.66
Backing No. 1	0.95
Light	1.32
¼ Ton	1.79
½ Ton	2.26
1 Ton	2.85
2 Ton	3.59
4 Ton	4.50
8 Ton	5.70

Selected Caltrans RSP Class: 1 Ton

RSP Revetment Design Method:

Calculate the minimum rock weight that corresponds to a RSP material class using the Existing Conditions HEC-RAS model results provided. See provided datasheet of 50-Year Existing Conditions model results to complete calculations.

$$\text{W, Minimum Rock Weight} = \frac{0.00002V^6 SG}{0.207(SG-1)^3}$$

SG = 2.65

V_{max} = 13.5 ft/s

V = 1.33*V_{max} = 18.0 ft/s

W = 1939 lbs

RSP Class	Weight (lbs)
Backing No. 1	75
Light	200
¼ Ton	500
½ Ton	1000
1 Ton	2000
2 Ton	4000
4 Ton	8000

Selected Caltrans RSP Class: 1 Ton

Boulder Cluster Design Method:

V_c, Critical Channel Velocity = 13.50 ft/s

Min. Diameter (in)	Shear, ϑc (lb/sf)	Channel Velocity Vc (ft/s)
>80	37.4	25
>40	18.7	19
>20	9.3	14
>10	4.7	10
>5	2.3	7
>2.5	1.1	5

Minimum Diameter = 18.75 in = 1.7 ft

Caltrans RSP Class	Rough D_{50} (ft)
Cobble	0.66
Backing No. 1	0.95
Light	1.32
¼ Ton	1.79
½ Ton	2.26
1 Ton	2.85
2 Ton	3.59
4 Ton	4.50
8 Ton	5.70

Selected Caltrans RSP Class: ¼ ton

For this example, select Most Conservative RSP class of the three methods: 1 Ton

Fill in Rock Size (RSP Class) in Form 6E.

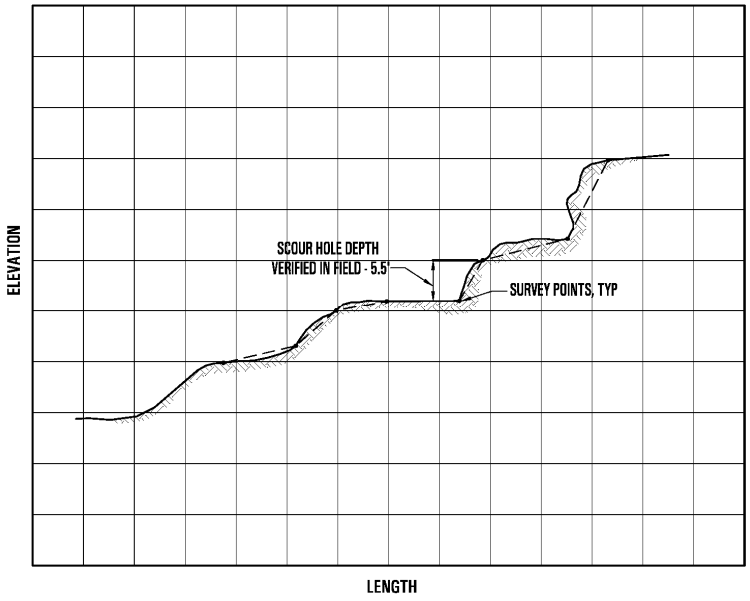
Step 3: Find potential scour depth for rock weir embedment.

The rock weir embedment depth will be determined by two methods: Field Inspection/Topographic Survey Method and Toe-Scour Estimate Method. Rock weir embedment depth is calculated to withstand a 50-Year event.

Field Inspection/Topographic Survey Method:

Scour Hole Depth = 5.5 ft

Potential Scour Depth = Scour Hole Depth*1.2 (SF) = 6.6 ft



Toe-Scour Estimate Method:

See provided datasheet of 50-Year Existing Conditions model results to complete calculations.

Scour Depth = D_{mxb}- D_{mnc}

D_{mnc}= mean channel depth = 5.2 ft

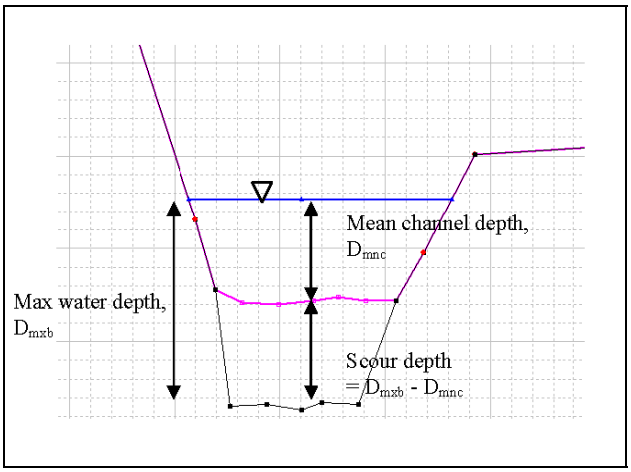
W = average water surface width = 36 ft

W/D_{mnc} = 6.9 < 20 = 20

Note, based on the range of field and laboratory data sets, W/D_{mnc} is limited from 20-125. When W/D_{mnc} is less than 20, a value of 20 must be used.

D_{mxb}= max. water depth = $1.14 D_{mnc}\left[1.72+\left(\frac{0.0084W}{D_{mnc}}\right)\right]$ = <u>11.2 ft</u>

Scour Depth = D_{mxb} - D_{mnc} = <u>11.2 - 5.2 = 6.0 ft</u>



For this example, select Average Embedment Depth (Tsp) of the two methods: <u>6 ft</u> (Round down to whole number, if needed)

The total height of the rock weir, equal to the height above channel bed plus the embedment depth, must be equal to or greater than the recommended RSP class thickness recommended by the CA RSP Report shown below. If the embedment depth plus the rock weir height is less, the minimum RSP Class layer thickness would control.

CALTRANS RSP CLASS	MINIMUM THICKNESS (FEET)
½ Ton	3.40
1 Ton	4.30
2 Ton	5.40
4 Ton	6.80
8 Ton	8.50

Check Minimum Thickness = <u>4.3 ft</u> < Scour Depth = <u>6 ft</u>

The height of rock weir above the channel bed will be determined during the hydraulics analysis.

Fill in Embedment Depth in Form 6E.

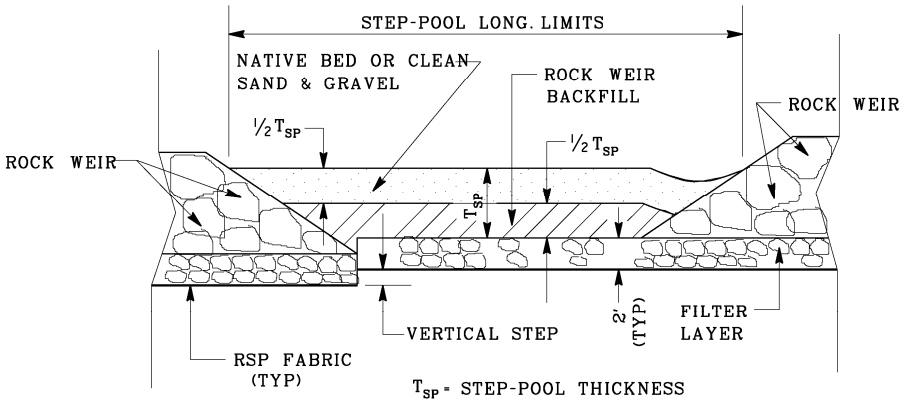
<u>Step 4</u>: Determine step pool composition and thickness.

The step-pool is composed of two layers of equal thickness, rock weir backfill and native bed or clean sand and gravel.

Rock Weir Backfill layer + Native Bed layer = Average Embedment Depth (Tsp)

3 ft + 3 ft = 6 ft

Fill in step pool composition and thickness in Form 6E.



Step 5: Determine crest width.

Crest Width = 2*(Rock Weir D_{50}) = 2*2.85 = 5.7 ≈ 6.0 ft

Side slope ratio = 1.5:1

Fill this information in Form 6E.

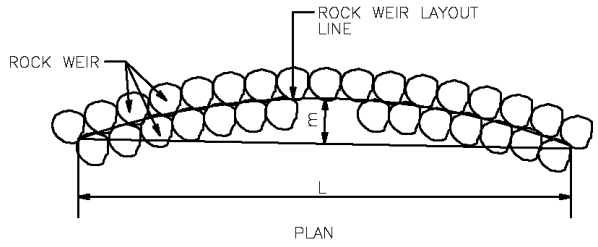
Step 6: Calculate plan view radius of vortex shape.

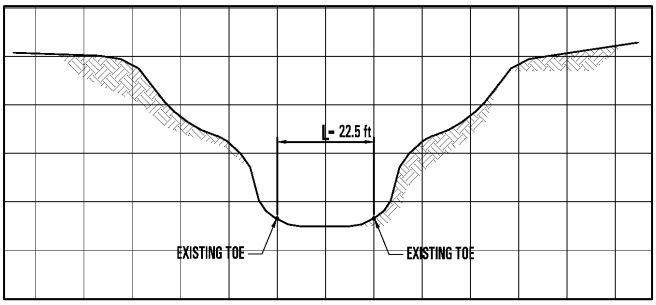
R, Plan View Rock Weir Radius = $L^2/8m + m/2$

L, chord length (toe-to-toe width) = 22.5 ft

m, mid-chord offset= 3*(Rock Weir D_{50}) = 8.55 ft

R = 11.7 ft





Fill this information in Form 6E.

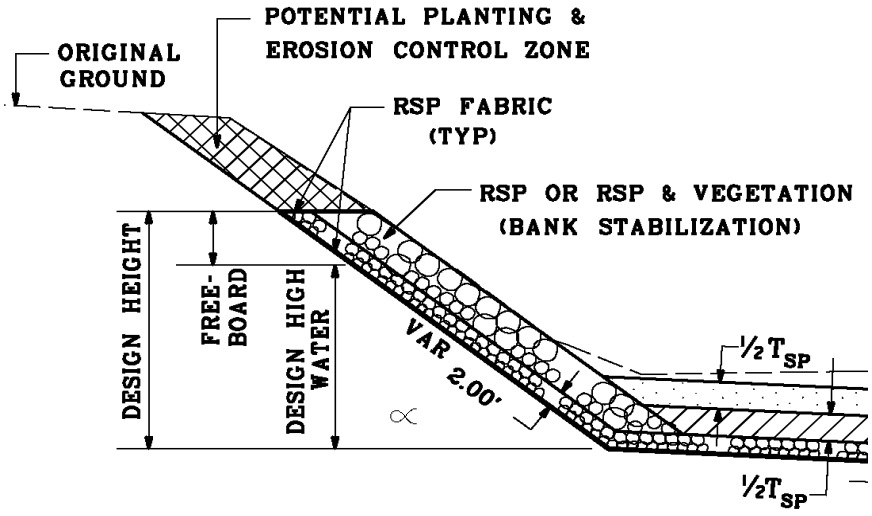
Step 7: Size RSP for bank and toe stabilization.

The banks and toes are vulnerable to scour during overtopping and flanking conditions, and therefore, must be stabilized through rock slope protection and/or vegetation. Two feet of freeboard is assumed appropriate for this design. Note, a minimum of 3 ft of RSP above the toe must be constructed.

Look at results and select highest depth for 50-Yr event.

Design High Water + Freeboard = Design Height

6.9 ft + 2 ft ≈ 9.0 ft



Calculate minimum rock weight, lbs.

$$W = \frac{0.00002 V^6 SG}{(SG-1)^3 SIN^3 (r-a)}$$

V_{max} = 13.5 ft/s

(For this example, assume impinging flow) V = V_{max}*1.33 = 18 ft/s

r = 70º

SG = 2.65

a (Q) = 26.57º

Bank slope = 2:1

W = 1236 lbs = 0.6175 tons

STANDARD Rock SIZE or Rock MASS or Rock WEIGHT		GRADING OF ROCK SLOPE PROTECTION **PERCENTAGE LARGER THAN**											
		RSP-Classes [A]											
		Method A Placement					Method B Placement						
		RSP-Classes other than Backing									Backing No.		
US unit		8 ton	4 ton	2 ton	1 ton	1/2 ton	1 ton	1/2 ton	1/4 ton	Light	1 [B]	2	3
	SI unit	8 T	4 T	2 T	1 T	1/2 T	1 T	1/2 T	1/4 T	Light	1 [B]	2	3
16 ton	14.5 tonne	0-5											
8 ton	7.25 tonne	50-100	0-5										
4 ton	3.6 tonne	95-100	50-100	0-5									
2 ton	1.8 tonne		95-100	50-100	0-5		0-5						
1 ton	900 kg			95-100	50-100	0-5	50-100	0-5					
1/2 ton	450 kg				95-100	50-100	-----	50-100	0-5				
1/4 ton	220 kg					95-100	95-100	-----	50-100	0-5			
200 lb	90 kg							95-100	-----	50-100	0-5		
75 lb	34 kg								95-100	-----	50-100	0-5	
25 lb	11 kg									95-100	90-100	25-75	0-5
5 lb	2.2 kg											90-100	25-75
1 lb	0.4 kg												90-100

[A] US customary names (units) of RSP-Classes listed above SI names, example US is "2 ton" metric is "2 T".
[B] "Facing" has same gradation as "Backing No. 1". To conserve space "Facing" is not shown .

Example for determining RSP-Class of outside layer. By using Equation 1, if the calculated W=135 kg (minimum stable rock size):
1. Enter table at left and select closest value of STANDARD Rock SIZE which is greater than calculated W, in this case 220 kg
2. Trace to right and locate "50-100" entry 3. Trace upward and read column heading "1/4 T", then 1/4 T is first trial RSP-Class.

Table 5-1. Guide for Determining RSP-Class of Outside Layer

Selected Caltrans Outside RSP Class: ½ Ton

Table 5-2. California Layered RSP
SI metric (US customary values shown for OUTSIDE LAYER only)

OUTSIDE LAYER RSP-CLASS *	INNER LAYERS RSP-CLASS *	BACKING CLASS No. *	RSP-FABRIC TYPE **
8 T (8 ton)	2 T over 1/2 T	1	B
8 T (8 ton)	1 T over 1/4 T	1 or 2	B
4 T (4 ton)	1/2 T	1	B
4 T (4 ton)	1 T over 1/4 T	1 or 2	B
2 T (2 ton)	1/2 T	1	B
2 T (2 ton)	1/4 T	1 or 2	B
1 T (1 ton)	LIGHT	NONE	B
1 T (1 ton)	1/4 T	1 or 2	B
1/2 T (1/2 ton)	NONE	1	B
1/4 T (1/4 ton)	NONE	1 or 2	A
LIGHT (LIGHT)	NONE	NONE	A
Backing No. 1*** (Backing No. 1)	NONE	NONE	A

* Rock grading and quality requirements per Section 72-2.02 Materials of the Caltrans *Standard Specifications*. (See Appendix B).
** RSP-fabric Type of geotextile and quality requirements per Section 88-1.04 Rock Slope Protection Fabric of the Caltrans *Standard Specifications*. (See Appendix B). Type A RSP-fabric has lighter mass per unit area and it also has lower toughness (tensile x elongation, both at break) than Type B RSP-fabric. Both types require minimum permittivity of 0.5 per second.
*** "Facing" RSP-Class has same gradation as Backing No. 1.

Selected Caltrans Backing Layer RSP Class: Backing Class No. 1

Table 5-3. Minimum Layer Thickness SI metric (US customary)		
RSP-Class Layer	Method of Placement	Minimum Thickness
8 T (8 ton)	A	2.60 meters (8.5 feet)
4 T (4 ton)	A	2.07 meters (6.8 feet)
2 T (2 ton)	A	1.65 meters (5.4 feet)
1 T (1 ton)	A	1.31 meters (4.3 feet)
1/2 T (1/2 ton)	A	1.04 meters (3.4 feet)
1 T (1 ton)	B	1.65 meters (5.4 feet)
1/2 T (1/2 ton)	B	1.31 meters (4.3 feet)
1/4 T (1/4 ton)	B	1.00 meters (3.3 feet)
Light	B	760 millimeters (2.5 feet)
Facing	B	550 millimeters (1.8 feet)
Backing No. 1	B	550 millimeters (1.8 feet)
Backing No. 2	B	380 millimeters (1.25 feet)
Backing No. 3	B	230 millimeters (0.75 feet)

Selected Caltrans Minimum Outside Layer Thickness: 3.4 ft

Selected Caltrans Minimum Backing Layer Thickness: 1.8 ft

Fill in bank and toe RSP Size in Form 6E.

Step 8: Estimate number of steps (1 ft max per step), rock weirs, step pools, as well as linear spacing of rock weirs. Step 9: Develop a preliminary reach profile including longitudinal slope of step pools and vertical step height.

Tips:

1. Rock weir spacing = step pool length = 30 ft
2. Number of rock weirs = number of vertical steps = number of step pools = d_3/d_1 (rounded down to nearest whole number)
3. $$\text{Step Pool Length}\left(ft/ft\right) = \frac{d_2 - d_1(\#\text{ of vertical steps})}{(\#\text{ of step pools})(\text{step pool length})}$$
4. Total length = (# of step pools)(step pool length)

d_1 = 1 ft

d_2 = 5.5 ft

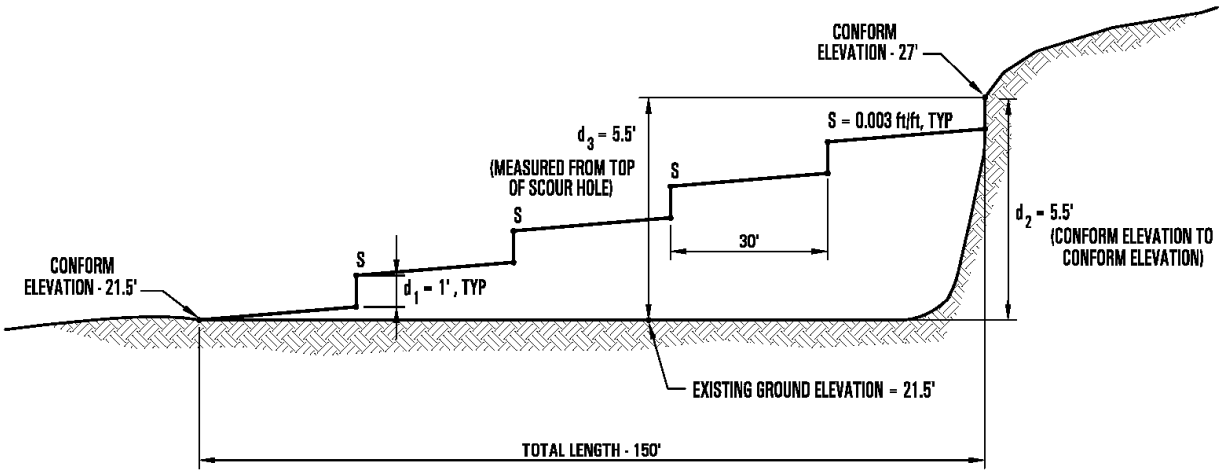
d_3 = 5.5 ft

Number of weirs = 5

Number of vertical drops = 5

Number of step pools = 5

Longitudinal slope of pools = 0.003 ft/ft



Fill in results in Form 6E.

Step 10: Estimate a trial rock weir height and "constructed" jump pool depth.

Tips:

A. Estimate weir height (h_1 = 2 ft) and calculate h_2 and h_3
B. $h_4 = 2 \text{ ft} - h_3$
C. $h_3 + h_4 \geq 2$ ft, where $h_4 \geq 0.5$ ft (minimum), if $h_3 \geq 1.5$ ft then $h_4 = 0.5$ ft

Design Criteria:

1) Jump pool must be 2 ft or greater ($h_3 + h_4 \geq 2$ ft)
2) Mid-pool must be 1 ft or greater ($h_2 \geq 1$ ft)

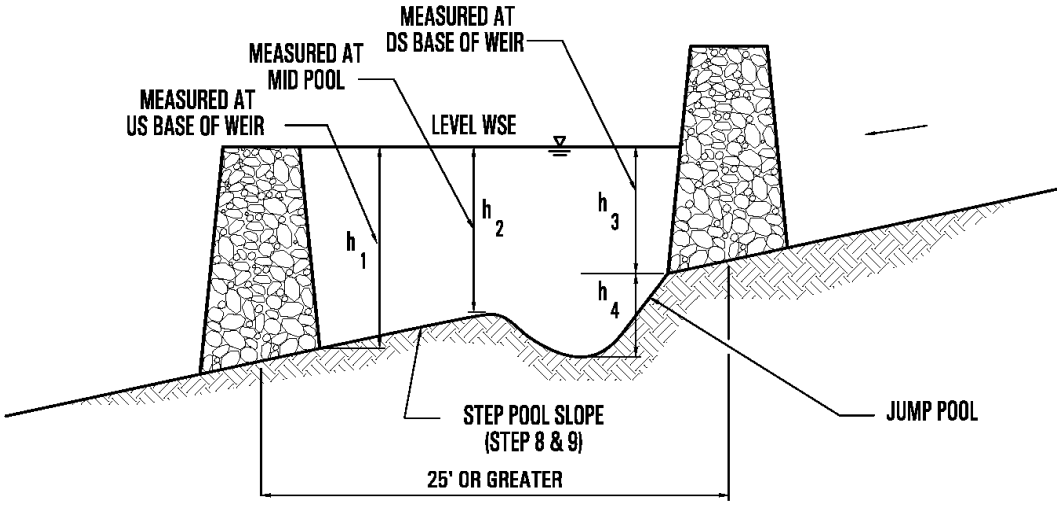
Weir height, h_1 = 2 ft

h_2 = 1.96 ft

h_3 = 1.91 ft

h_4, Jump pool depth = 0.5 ft (minimum)

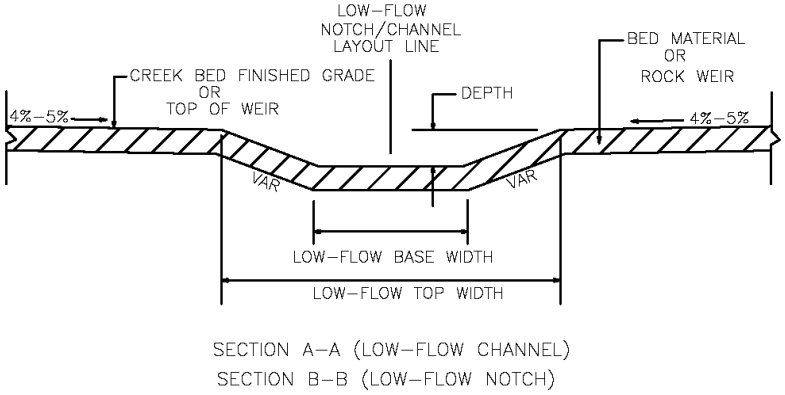
Step pool slope = 0.3% = 0.003 ft/ft



Step 11: Estimate trial geometry for low flow channel and notch (depth, bottom width, side slopes). Use minimum suggested dimensions for first trial.

1st Design Trial:

Rock Weir Spacing = 30 ft
Rock Weir Height = 2.0 ft
Rock Weir Low-Flow Depth = 0.5 ft
Rock Weir Low-Flow Base Width = 2 ft
Rock Weir Low-Flow Top Width = 4 ft
Rock Weir Top Slope = 5%



Step 12: Prepare HEC-RAS plan of proposed conditions using Low and High Fish Passage Design flows and determine weir coefficient through iterative process (calibrate with Low Fish Passage Flow).

Determine weir coefficient.

A. Estimate the highest weir coefficient using the highest head for the previously calculated crest width (breadth of crest of weir) from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.83 $ft^{0.5}$/sec

B. Run the proposed HEC-RAS model and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results. Weir Average Depth = 1.03 ft

C. Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a second weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.68 $ft^{0.5}$/sec

D. Run the proposed HEC-RAS model with the second weir coefficient from Step C and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results. Weir Average Depth = 1.06 ft

E. Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a third weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.68 $ft^{0.5}$/sec

F. Compare weir coefficient from Step C and Step E. If weir coefficients are close in value, then use Step E weir coefficient for remaining HEC-RAS modeling. If weir coefficients are not close in value, repeat Steps C-F until an appropriate weir coefficient is found.

Broad-Crested Weir Coefficient C Values as a Function of Weir Crest Breadth and Head (coefficient has units of $ft^{0.5}$/sec).(1)

Head(2) (ft)	Breadth of Crest of Weir (ft)										
	0.50	0.75	1.00	1.5	2.0	2.50	3.00	4.00	5.00	10.00	15.00
0.2	2.80	2.75	2.69	2.62	2.54	2.48	2.44	2.38	2.34	2.49	2.68
0.4	2.92	2.80	2.72	2.64	2.61	2.60	2.58	2.54	2.50	2.56	2.70
0.6	3.08	2.89	2.75	2.64	2.61	2.60	2.68	2.69	2.70	2.70	2.70
0.8	3.30	3.04	2.85	2.68	2.60	2.60	2.67	2.68	2.68	2.69	2.64
1.0	3.32	3.14	2.98	2.75	2.66	2.64	2.65	2.67	2.68	2.68	2.63
1.2	3.32	3.20	3.08	2.86	2.70	2.65	2.64	2.67	2.66	2.69	2.64
1.4	3.32	3.26	3.20	2.92	2.77	2.68	2.64	2.65	2.65	2.67	2.64
1.6	3.32	3.29	3.28	3.07	2.89	2.75	2.68	2.66	2.65	2.64	2.63
1.8	3.32	3.32	3.31	3.07	2.88	2.74	2.68	2.66	2.65	2.64	2.63
2.0	3.32	3.31	3.30	3.03	2.85	2.76	2.72	2.68	2.65	2.64	2.63
2.5	3.32	3.32	3.31	3.28	3.07	2.89	2.81	2.72	2.67	2.64	2.63
3.0	3.32	3.32	3.32	3.32	3.20	3.05	2.92	2.73	2.66	2.64	2.63
3.5	3.32	3.32	3.32	3.32	3.32	3.19	2.97	2.76	2.68	2.64	2.63
4.0	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.70	2.64	2.63
4.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.74	2.64	2.63
5.0	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.64	2.63
5.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.64	2.63

(1) Table is taken from reference 49.

Input rock weir 1st Design Trial parameters into HEC-RAS Proposed Conditions 1st Trial plan. Inline weir station and elevation coordinates are provided at end of tutorial package. Also, enter low-flow geometry data at channel cross sections between weir sections by matching rock weir low-flow notch data. Run HEC-RAS plan.

Step 13: Find average weir depth and average channel depth for Low Fish Passage Flow. Check HEC-RAS Proposed Conditions 1st Trial plan against criteria. Perform hand calculations to check velocity through low flow notch. Note: velocity will be checked using High Fish Passage Flow.

Low Flow Depth Check:

Average weir depth: 1.06 ft

Average channel depth: 1.40 ft

High Flow Velocity Check:

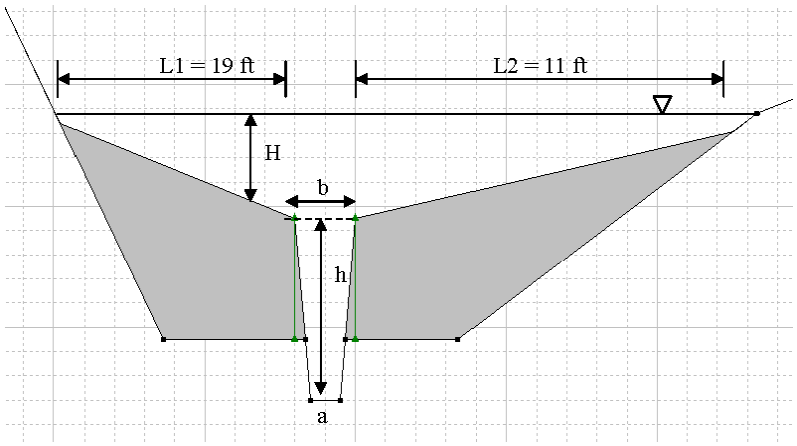
Find average depth over weir, H, in HEC-RAS model (Step 12) for High Fish Passage Flow.

Calculate flow over weir, Q_{over_weir}.

$Q_{over\_weir} = CLH^{1.5}$

$L = L_1 + L_2 = 30$ ft

$L_1 = 19$ ft, $L_2 = 11$ ft



To capture H, open HEC-RAS Proposed Conditions 1st Trial plan and click on "View Cross-Sections." For this tutorial, view 1754 IS and zoom in around weir. Display High Fish Passage Flow water surface elevation. High Flow WSE = 24.63 ft

Mid-height of head over weir = 24.03 ft

H = High WSE – Mid-Weir Elevation = 24.63 ft – 24.03 = 0.60 ft

C = 2.68 $ft^{0.5}$/sec (Step 12)

Q_{over_weir} = 37 cfs

$Q_{through\_notch} = Q_{Total\_(HighQ)} - Q_{over\_weir} = 70 – 37 = 33$ cfs

A_{Notch} = 0.5h(a+b) (Trapezoid) = 4.5 ft^2

h = 1.5 ft

a, Rock Weir Low-Flow Base Width = 2 ft

b, Rock Weir Low-Flow Top Width = 4 ft

V_{Notch} = Q/A = 33 cfs / 4.5 ft^2 = 7.3 ft/s

Repeat Steps 11-13 if Trial 1 does not meet fish passage criteria for selected design species and lifestage.

Repeat Step 11: Estimate trial geometry for low flow channel and notch (depth, bottom width, side slopes).

2nd Design Trial:

Rock Weir Spacing = 30 ft
Rock Weir Height = 2 ft
Rock Weir Low-Flow Notch Depth = 1 ft
Rock Weir Low-Flow Notch Base Width = 3 ft
Rock Weir Low-Flow Notch Top Width = 6 ft
Rock Weir Top Slope = 5%

Repeat Step 12: Prepare HEC-RAS plan of proposed conditions using Low and High Fish Passage Design flows and determine weir coefficient through iterative process (calibrate with Low Fish Passage Flow).

Determine weir coefficient.

A. Estimate the highest weir coefficient using the highest head for the previously calculated crest width (breadth of crest of weir) from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.83 $ft^{0.5}$/sec

B. Run the proposed HEC-RAS model and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results. Weir Average Depth = 0.93 ft

C. Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a second weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.68 $ft^{0.5}$/sec

D. Run the proposed HEC-RAS model with the second weir coefficient from Step C and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results. Weir Average Depth = 0.94 ft

E. Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a third weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table. C = 2.68 $ft^{0.5}$/sec

F. Compare weir coefficient from Step C and Step E. If weir coefficients are close in value, then use Step E weir coefficient for remaining HEC-RAS modeling. If weir coefficients are not close in value, repeat Steps C-F until an appropriate weir coefficient is found.

Broad-Crested Weir Coefficient C Values as a Function of Weir Crest Breadth and Head (coefficient has units of $ft^{0.5}/sec$).[1]

Head[2] (ft)	Breadth of Crest of Weir (ft)										
	0.50	0.75	1.00	1.5	2.0	2.50	3.00	4.00	5.00	10.00	15.00
0.2	2.80	2.75	2.69	2.62	2.54	2.48	2.44	2.38	2.34	2.49	2.68
0.4	2.92	2.80	2.72	2.64	2.61	2.60	2.58	2.54	2.50	2.56	2.70
0.6	3.08	2.89	2.75	2.64	2.61	2.60	2.68	2.69	2.70	2.70	2.70
0.8	3.30	3.04	2.85	2.68	2.60	2.60	2.67	2.68	2.68	2.69	2.64
1.0	3.32	3.14	2.98	2.75	2.66	2.64	2.65	2.67	2.68	2.68	2.63
1.2	3.32	3.20	3.08	2.86	2.70	2.65	2.64	2.67	2.66	2.69	2.64
1.4	3.32	3.26	3.20	2.92	2.77	2.68	2.64	2.65	2.65	2.67	2.64
1.6	3.32	3.29	3.29	3.07	2.89	2.75	2.68	2.66	2.65	2.64	2.63
1.8	3.32	3.32	3.31	3.07	2.88	2.74	2.68	2.66	2.65	2.64	2.63
2.0	3.32	3.31	3.30	3.03	2.85	2.76	2.72	2.68	2.65	2.64	2.63
2.5	3.32	3.32	3.31	3.28	3.07	2.89	2.81	2.72	2.67	2.64	2.63
3.0	3.32	3.32	3.32	3.32	3.20	3.05	2.92	2.73	2.66	2.64	2.63
3.5	3.32	3.32	3.32	3.32	3.32	3.19	2.97	2.76	2.68	2.64	2.63
4.0	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.70	2.64	2.63
4.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.74	2.64	2.63
5.0	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.07	2.79	2.64	2.63
5.5	3.32	3.32	3.32	3.32	3.32	3.32	3.32	3.32	2.88	2.64	2.63

(1) Table is taken from reference 49.

Input rock weir 2nd Design Trial parameters into HEC-RAS Proposed Conditions 2nd Trial plan. Inline weir station and elevation coordinates are provided at end of tutorial package. Also, enter low-flow geometry data at channel cross sections between weirs by matching rock weir low-flow notch data. Run HEC-RAS plan.

Repeat Step 13: Find average weir depth and average channel depth for Low Fish Passage Flow. Check HEC-RAS Proposed Conditions 2nd Trial plan against criteria. Perform hand calculations to check velocity through low flow notch. Note: velocity will be checked using High Fish Passage Flow.

Low Flow Depth Check:

Average weir depth: 0.94 ft

Average channel depth: 1.15 ft

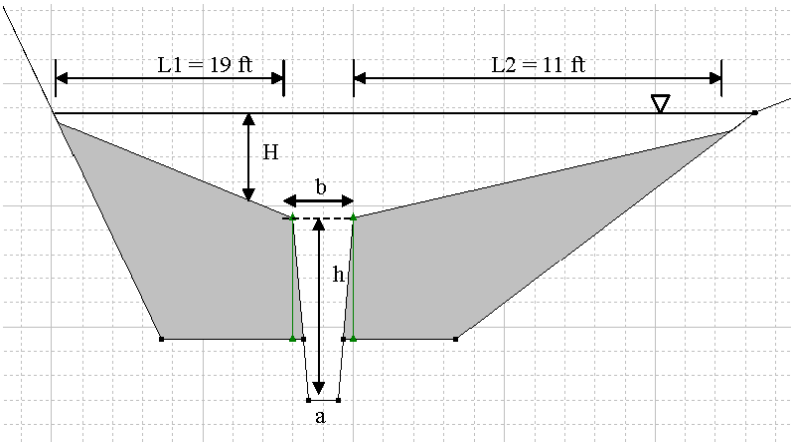
High Flow Velocity Check:

Find average depth over weir, H, in HEC-RAS model (Step 12) for High Fish Passage Flow.

Calculate flow over weir, Q_{over_weir}.

$Q_{over\_weir} = CLH^{1.5}$

$L = L_1 + L_2 = 30$ ft



To capture H, open HEC-RAS Proposed Conditions 2nd Trial plan and click on "View Cross-Sections." For this tutorial, view 1754 IS and zoom in around weir. Display High Fish Passage Flow water surface elevation. High Flow WSE = 24.33 ft

Mid-height of head over weir = 23.84 ft

H = High WSE – Mid-Weir Elevation = 24.33 ft – 23.83 = 0.50 ft

C = 2.68 $ft^{0.5}$/sec (Step 12)

Q_{over_weir} = 28 cfs

$Q_{through\_notch}$ = $Q_{Total\_(HighQ)}$ - Q_{over_weir} = 70 – 28 = 42 cfs

A_{Notch} = 0.5h(a+b) (Trapezoid) = 9 ft^2

h = 2.0 ft

a, Rock Weir Low-Flow Base Width = 3 ft

b, Rock Weir Low-Flow Top Width = 6 ft

V_{Notch} = Q/A = 42 / 9 ft/s

V_{Notch} = 4.7 ft/s

Step 14: Identify velocity and depth at appropriate cross-sections from HEC-RAS model and hand calculations and compare against design criteria. If velocity or depths are not met, change rock weir spacing, rock weir height, and/or low flow channel/notch geometry to ultimately meet design criteria. Re-run HEC-RAS models and perform hand calculations as needed. Once criteria have been met, summarize calculated velocities in Velocity Criteria Versus Design (High Fish Passage Flow) and depths in Depth Criteria Versus Design (Low Fish Passage Flow) tables in Form 6E.

Open Proposed Conditions 2nd Trial Plan and analyze depths and velocities at these locations:

- Downstream base of weir
- Mid-pool
- Over weir

Fill in results in Form 6E.

Step 15: Add 50-Year and 100-Year peak discharges to Proposed Conditions 2nd Trial Plan and run HEC-RAS. Evaluate results.

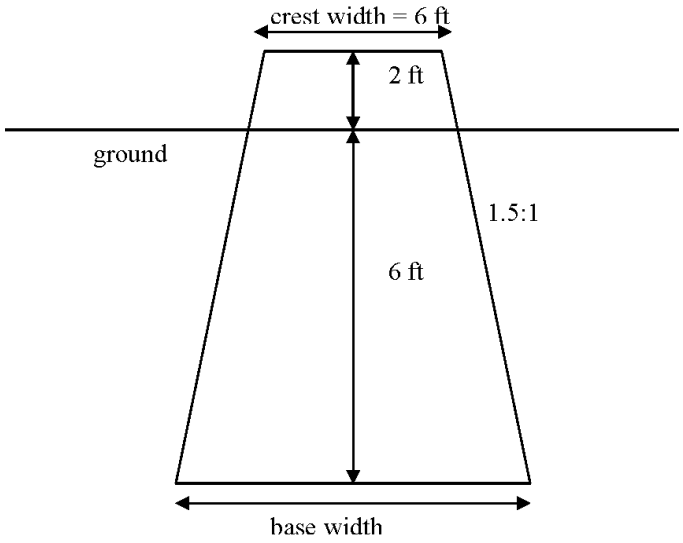
Soffit / low chord elevation = 44 ft

50-Year Event	100-Year Event
765 cfs	1255 cfs

Complete Depth Impacts at 100-Yr Flood Flow and Allowable Hydraulic Impacts sections of Form 6E.

Step 16: Based on final weir height, calculate rock weir base width.

Fill in rock weir base width in Form 6E.



ROCK WEIR DESIGN STEPS

Step 1: Prepare an Existing Conditions HEC-RAS hydraulic model and find the average velocity for the 50-Yr Event, check existing bridge capacity for 50-Yr and 100-Yr HDM criteria.

Step 2: Calculate rock weir size.

Step 3: Find potential scour depth for rock weir embedment.

Step 4: Determine step pool composition and thickness.

Step 5: Determine crest width.

Step 6: Calculate plan view radius of vortex shape.

Step 7: Size RSP for bank and toe stabilization.

Step 8: Estimate number of steps (1 ft max per step), rock weirs, step pools, as well as linear spacing of rock weirs.

Step 9: Develop a preliminary reach profile including longitudinal slope of step pools and vertical step height.

Step 10: Estimate a trial rock weir height and "constructed" jump pool depth.

Step 11: Estimate trial geometry for low flow channel and notch (depth, bottom width, side slopes) Use minimum suggested dimensions for first trial.

Step 12: Prepare HEC-RAS plan of proposed conditions using Low and High Fish Passage Design flows and determine weir coefficient through iterative process (calibrate with Low Fish Passage Flow).

Step 13: Find average weir depth and average channel depth for Low Fish Passage Flow. Check HEC-RAS Proposed Conditions 1st Trial plan against criteria. Perform hand calculations to check velocity through low flow notch. Note, velocity will be checked using High Fish Passage Flow.

Step 14: Identify velocity and depth at appropriate cross-sections from HEC-RAS model and hand calculations and compare against design criteria. If velocity or depths are not met, change rock weir spacing, rock weir height, and/or low flow channel/notch geometry to ultimately meet design criteria. Re-run HEC-RAS models and perform hand calculations as needed. Once criteria have been met, summarize calculated velocities in *Velocity Criteria Versus Design (High Fish Passage Flow)* and depths in *Depth Criteria Versus Design (Low Fish Passage Flow)* tables in Form 6E.

Step 15: Add 50-Year and 100-Year peak discharges to Proposed Conditions 2nd Trial Plan and evaluate results.

Step 16: Based on final weir height, calculate rock weir base width.

COMPLETED FORMS

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Project Information Route 22 – Excessive Scour Design Project		Computed: EKB	Date: 7/11/07
		Checked: JJL	Date: 7/12/07
Stream Name: Frogger Creek	County: Sonoma	Route: 22	Postmile: 100

General Considerations - Rock weirs shall be used in the design of retrofitted or new bridges and culverts in order to meet the hydraulic design criteria.

Hydrology Results - Peak Discharge Values

50% Annual Probability (2-Year Flood Event)	156 cfs	Low Fish Passage Design Flow	12 cfs
2% Annual Probability (50-Year Flood Event)	765 cfs	High Fish Passage Design Flow	70 cfs
1% Annual Probability (100-Year Flood Event)	1255 cfs		

Summarize Retrofitted Culvert Physical Characterstics N/A

Inlet Characteristics - Retrofitted design to inlet: ☐ Yes ☐ No

Inlet Type	☐ Projecting	☐ Headwall	☐ Wingwall
	☐ Flared end section	☐ Segment connection	☐ Skew Angle: °

Barrel Characteristics - Retrofitted design to barrel: ☐ Yes ☐ No

Diameter:	in	Fill height above culvert:	ft
Height/Rise:	ft	Length:	ft
Width/Span:	ft	Number of barrels:	

Culvert Type	☐ Arch	☐ Box	☐ Circular
	☐ Pipe-Arch	☐ Elliptical	
Culvert Material	☐ HDPE	☐ Steel Plate Pipe	☐ Concrete Pipe
	☐ Spiral Rib / Corrugated Metal Pipe		

Horizontal alignment breaks:	ft	Vertical alignment breaks:	ft

Outlet Characteristics - Retrofitted design to outlet: ☐ Yes ☐ No

Outlet Type	☐ Projecting	☐ Headwall	☐ Wingwall
	☐ Flared end section	☐ Segment connection	Skew Angle: °

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Summarize Retrofitted Bridge Physical Characterstics

Bridge Physical Characteristics Retrofitted design to bridge structure: ☒ Yes ☐ No

Elevation of high chord (top of road):	54.23 ft	Elevation of low chord:	44.00 ft
Channel Lining	☐ No lining ☒ Concrete removed ☐ Rock ☐ Other		
Skew Angle:	- °	Bridge width (length):	96 ft

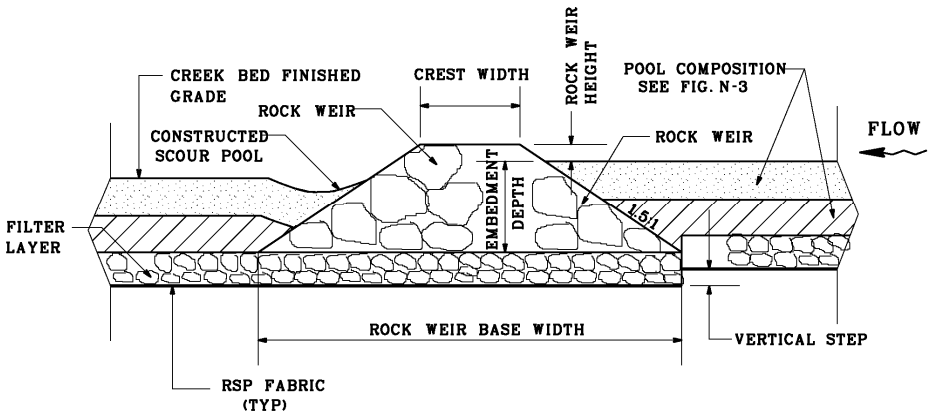
Pier Characteristics (if applicable) Retrofitted design to piers: ☐ Yes ☒ No

Number of Piers:	2 ft	Upstream cross-section starting station:	1987 ft
Pier Width:	4 ft	Downstream cross-section starting station:	1875 ft
Pier Centerline Spacing:	20, 130 ft	Skew angle:	- °

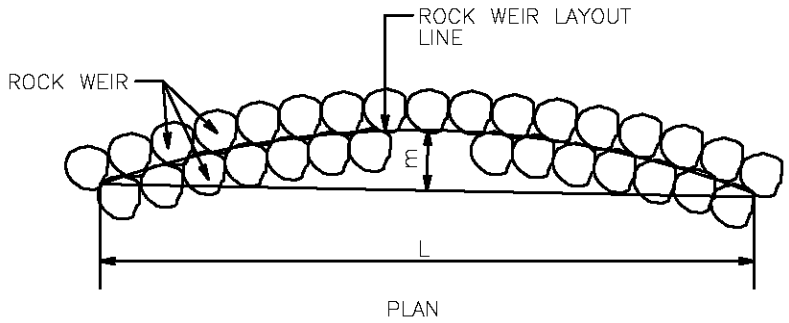
Pier Shape	☐ Square nose and tail	☐ Semi-circular nose and tail	☐ 90° triangular nose and tail
	☐ Twin-cylinder piers with connecting diaphragm	☒ Twin-cylinder piers without connecting diaphragm	☐ Ten pile trestle bent

Determine Rock Weir Dimensions

Rock weir size (RSP class):	1 ton	Embedment depth:	6 ft
Crest width:	6 ft	Height:	2 ft
Side slope:	1.5:1	Rock weir plan view radius	11.7 ft
		Rock weir base width	30 ft

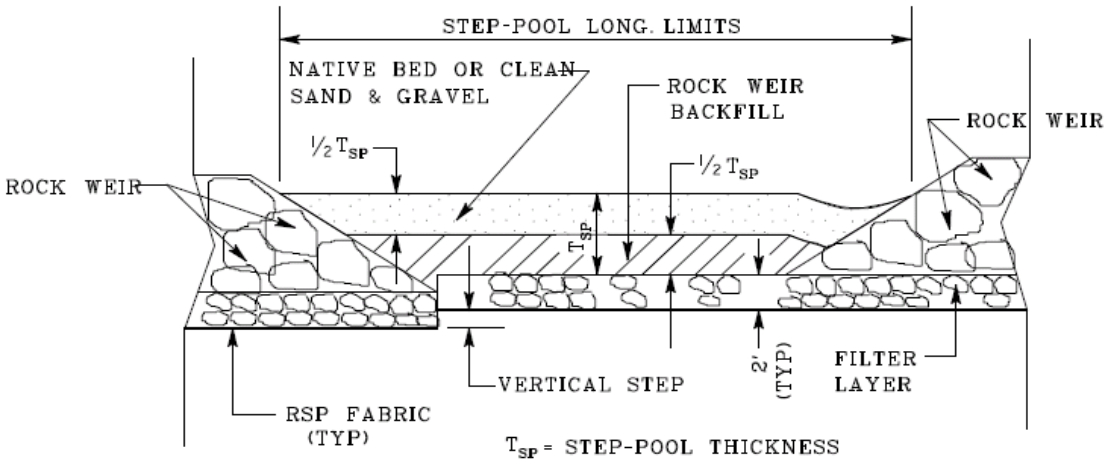


FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E



Determine Step-Pool Composition and Thickness

Tsp:		6 ft
Rock weir backfill thickness (1/2 Tsp):		3 ft
Native bed: ☒ Yes ☐ No	Thickness (if applicable):	3 ft
Clean sand and gravel: ☒ Yes ☐ No	Thickness (if applicable):	3 ft



Step Pool Profile

Design Bank and Toe Revetment

RSP revetment: ☒ Yes ☐ No

Combined RSP and vegetative revetment: ☐ Yes ☒ No

If yes, contact District Hydraulics Engineer and District Landscape Architect to coordinate design.

Parallel flow: ☐ Yes ☐ No If parallel flow, apply a 0.67 factor to design velocity.

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Impinging flow: ☒ Yes ☐ No If impinging flow, apply 1.33 factor to design velocity.

Bank slope (α): 26.57 °

Design velocity (Suggested 50-Yr max velocity): 18 ft/s

SG = 2.65	R = 70°	W = 1236 lbs = ½ ton

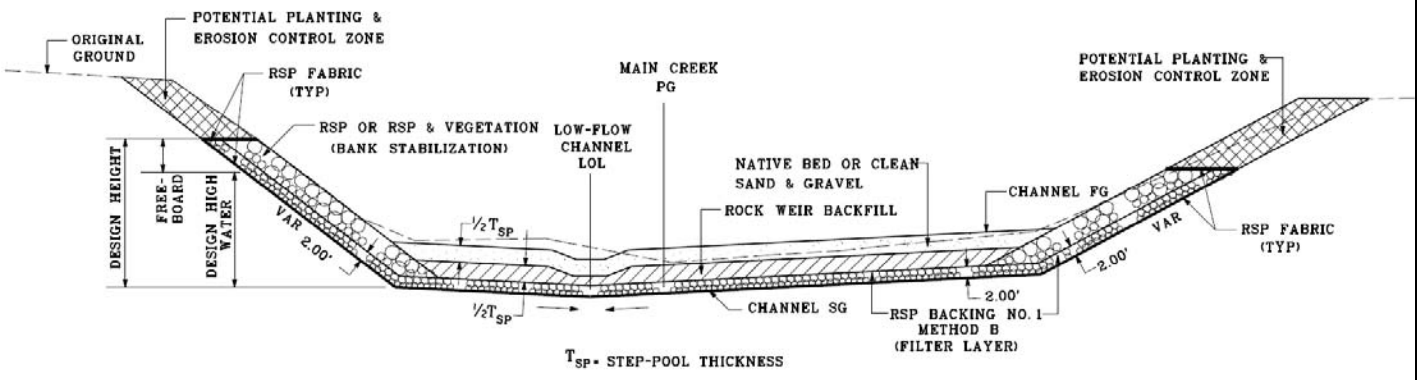
$$W = \frac{0.00002 V^6 SG}{(SG-1)^3 \, SIN^3 (r-a)}$$

Field contributing features (i.e. high water marks):

Freeboard: 2 ft

Design height: 10 ft

RSP class (outside layer):	½ ton	RSP thickness:	3.4 ft
RSP class (backing layer):	Backing class #1	RSP thickness:	1.8 ft
RSP class (inner layer):	none	RSP thickness:	- ft



Step Pool Cross Section

Determine Rock Weir Series Dimensions

Number of steps: 5		Number of step pools: 5	
Number of rock weirs: 5		Spacing of rock weirs:	30 ft
Height of rock weir:	2 ft	Jump pool depth	0.5 ft

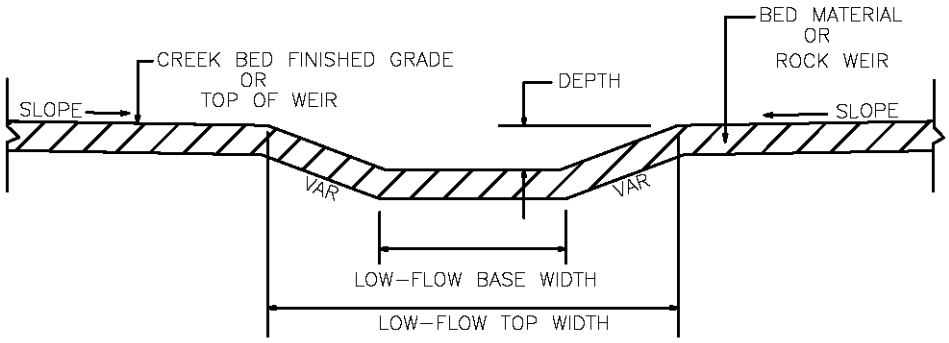
FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Selecting Weir Coefficient, C

1) Estimate the highest weir coefficient using the highest head for the previously calculated crest width (breadth of crest of weir) from the HEC-22 Broad Crested Weir Coefficient Table.	C =	2.83 $ft^{0.5}$/sec
2) Run the proposed HEC-RAS model and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results.	Weir Average Depth =	0.93 ft
3) Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a second weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table.	C =	2.68 $ft^{0.5}$/sec
4) Run the proposed HEC-RAS model with the second weir coefficient from Step C and find the average head (weir average depth) over a weir for the Low Fish Passage Flow from HEC-RAS results.	Weir Average Depth =	0.94 ft
5) Given the average head (weir average depth) from the HEC-RAS results and the crest width (breadth of crest of weir), find a third weir coefficient from the HEC-22 Broad Crested Weir Coefficient Table.	C =	2.68 $ft^{0.5}$/sec
6) Compare weir coefficient from Step C and Step E. If weir coefficients are close in value, then use Step E weir coefficient for remaining HEC-RAS modeling. If weir coefficients are not close in value, repeat Steps C-F until an appropriate weir coefficient is found.	Modeled broad-crested weir coefficient:	2.68 $ft^{0.5}$/sec

Determine Rock Weir Low-Flow Notch/Channel Dimensions

Base Width:	3 ft	Top Width:	6 ft
Depth:	1 ft		



Low Flow Notch / Channel

Verify High Design Flow for Fish Passage - Depending on species, develop high design flows:

Species/Life Stage	Percent Annual Exceedance Flow	Percentage of 2-Yr Recurrence Interval Flow	Design Flows (cfs)
☒ Adult Anadromous Salmonids	1%	50%	70

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION			FORM 6E
☐ Adult Non-Anadromous	5%	30%	
☐ Juvenile Salmonids	10%	10%	
☐ Native Non-Salmonids	5%	30%	
☐ Non-Native Species	10%	10%	

Verify Low Design Flow for Fish Passage - Depending on species, develop low design flows:

Species/Life Stage	Percent Annual Exceedance Flow	Alternate Minimum Flow (cfs)	Design Flow (cfs)
☒ Adult Anadromous Salmonids	50%	3	12
☐ Adult Non-Anadromous	90%	2	
☐ Juvenile Salmonids	95%	1	
☐ Native Non-Salmonids	90%	1	
☐ Non-Native Species	90%	1	

Verify Maximum Average Water Velocity (at High Design Flow) and Minimum Flow Depth in Culvert (at Low Design Flow) Depending on culvert length and/or species, select Maximum Average Water Veolcity and Minimum Flow Depth.

Species/Life Stage	Maximum Average Water Velocity at High Fish Design Flow (ft/sec)	Minimum Flow Depth at Low Fish Design Flow (ft)
☒ Adult Anadromous Salmonids	6 (Culvert length <60 ft)	1.0
	5 (Culvert length 60-100 ft)	
	4 (Culvert length 100-200 ft)	
	3 (Culvert length 200-300 ft)	
	2 (Culvert length >300 ft)	
☐ Adult Non-Anadromous Salmonids	4 (Culvert length <60 ft)	0.67
	4 (Culvert length 60-100 ft)	
	3 (Culvert length 100-200 ft)	
	2 (Culvert length 200-300 ft)	
	2 (Culvert length >300 ft)	
☐ Juvenile Salmonids	1	0.5
☐ Native Non-Salmonids	Species specific swimming performance data is required for the use of the hydraulic design option for non-salmonids. Hydraulic design is not allowed for these species without this data.	
☐ Non-Native Species		

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Verify Maximum Outlet Drop - Hydraulic drops between the water surface in the culvert to the pool below the culvert should be avoided for all cases. Where fish passage is required and a hydraulic drop is unavoidable, it's magnitude should be evaluated for both high design flow and low design flow and shall not exceed the values shown below. If a hydraulic drop occurs at the culvert outlet, a jump pool of at least 2 feet in depth shall be provided.

Species/Life Stage	Maximum Drop (ft)
☒ Adult Anadromous Salmonids	1
☐ Adult Non-Anadromous Salmonids	1
☐ Juvenile Salmonids	0.5
☐ Native Non-Salmonids	Where fish passage is required for native non-salmonids no hydraulic drop shall be allowed at the culvert outlet unless data is presented which will establish the leaping ability and leaping behavior of the target species of fish.
☐ Non-Native Species	

Develop and run hydraulic models to compute water surface elevations, flow depths, and velocities for Low Fish Design Flow, High Fish Design Flow, and the 100-Year peak or design discharge reflecting existing and proposed conditions. Evaluate results.

Maximum average velocity in culvert at High Fish Design Flow: 5 ft/s

Does the velocity exceed the maximum allowable for the culvert length and design species? ☐ Yes ☒ No

If yes, modify design to comply and rerun hydraulic anaylses to verify.

Minimum flow depth in culvert at Low Fish Design Flow: 1 ft

Does the depth equal or not exceed the mimimum allowable for the culvert length and design species? ☐ Yes ☒ No

If yes, modify design to comply and rerun hydraulic anaylses to verify.

Depth impacts at 100-Year Flood Flow:

If water surface elevations increase, does the increase exceed the maximum elevation? ☐ Yes ☒ No Maximum elevation: 44.0 ft

If maximum elevation is exceeded for bridge, check 50-Year water surface elevation and determine if freeboard exists. Consult Structures Hydraulics for freeboard validation.

Allowable Hydraulic Impacts:

Is the crossing located within a floodplain as designated by the Federal Emergency Management Agency or another responsible state or local agency? ☐ Yes ☒ No

If yes, establish allowable hydraulic impacts and hydraulic design requirements with the appropriate agency. Attach results.

Will the project result in the decrease capacity of an existing crossing? ☐ Yes ☒ No

If yes, will it significantly increase upstream backwater effects due to the reduced upstream attenuation? ☐ Yes ☐ No

If yes, consult District Hydraulics. Further analysis may be needed.

FISH PASSAGE: HYDRAULIC ROCK WEIR DESIGN OPTION — FORM 6E

Drop between the water surface elevation in the culvert and the outlet channel:

Low Fish Design Flow Drop Length: 0 ft

Does the drop between the water surface in the culvert and the outlet channel at high or low design fish flows exceed the maximum allowable for the design species? ☐ Yes ☒ No

If yes, modify design to avoid a drop if possible. If a drop is unavoidable modify design to meet criteria and provide a jump pool at least two feet in depth. Rerun hydraulic analyses to verfiy.

Velocity Criteria Versus Design (High Fish Passage Flow)

Bridge / Culvert Velocity	Design Flow Velocity (ft/s)	Criteria Flow Velocity (ft/s)
Culvert Inlet Velocity (evaluated at x-section immediately located upstream of culvert)	1.43	5.0
Culvert Barrel Velocity (evaluated through Culvert Output in HEC-RAS)	1.43 - 1.75	5.0
Culvert Outlet Velocity (evaluated at x-section immediately located downstream of culvert)	1.78	5.0

Depth Criteria Versus Design (Low Fish Passage Flow)

Cross-Section	Design Flow Depth (ft)	Criteria Flow Depth (ft)
1856	1.0	1.0
1826	1.2	1.0
1796	1.2	1.0
1766	1.2	1.0

Proposed Plan and Profile Drawing Attached ☒ Yes ☐ No

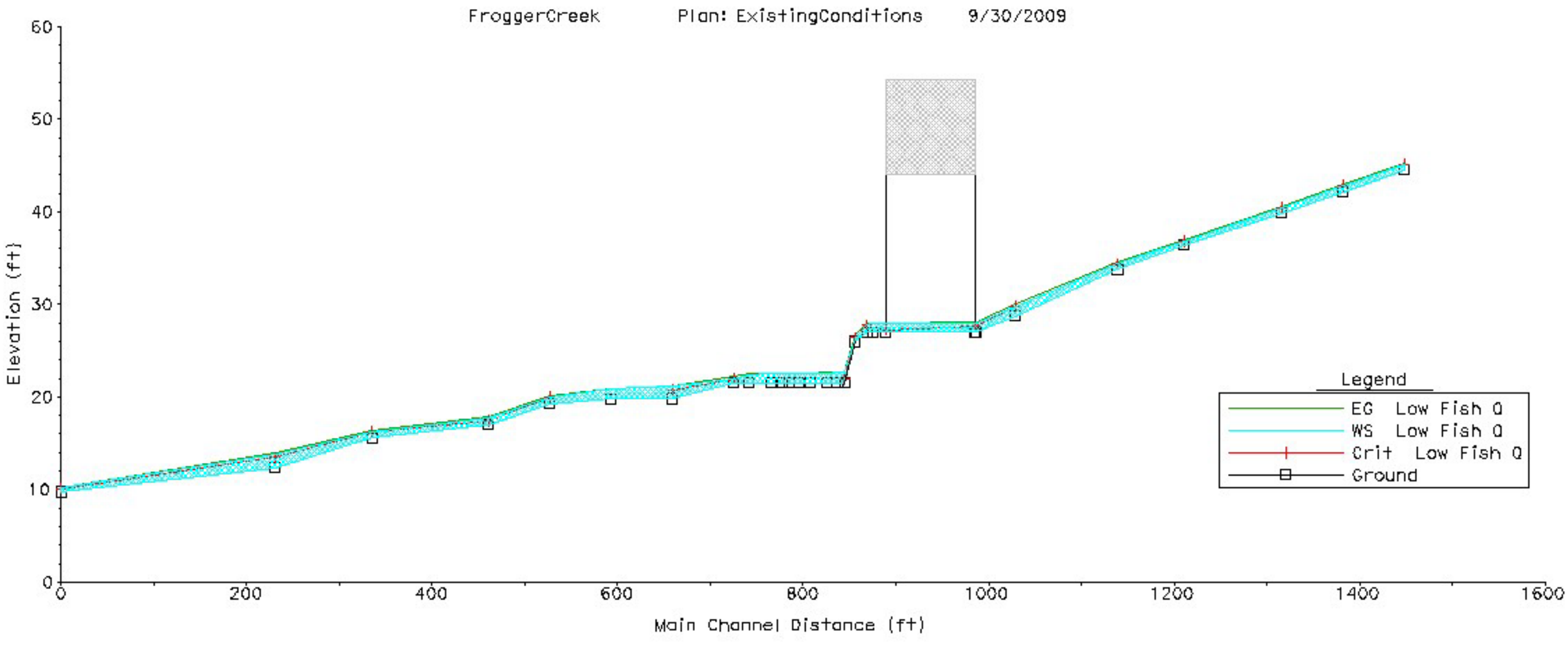
Hydraulic Analysis Index Sheet Attached ☒ Yes ☐ No

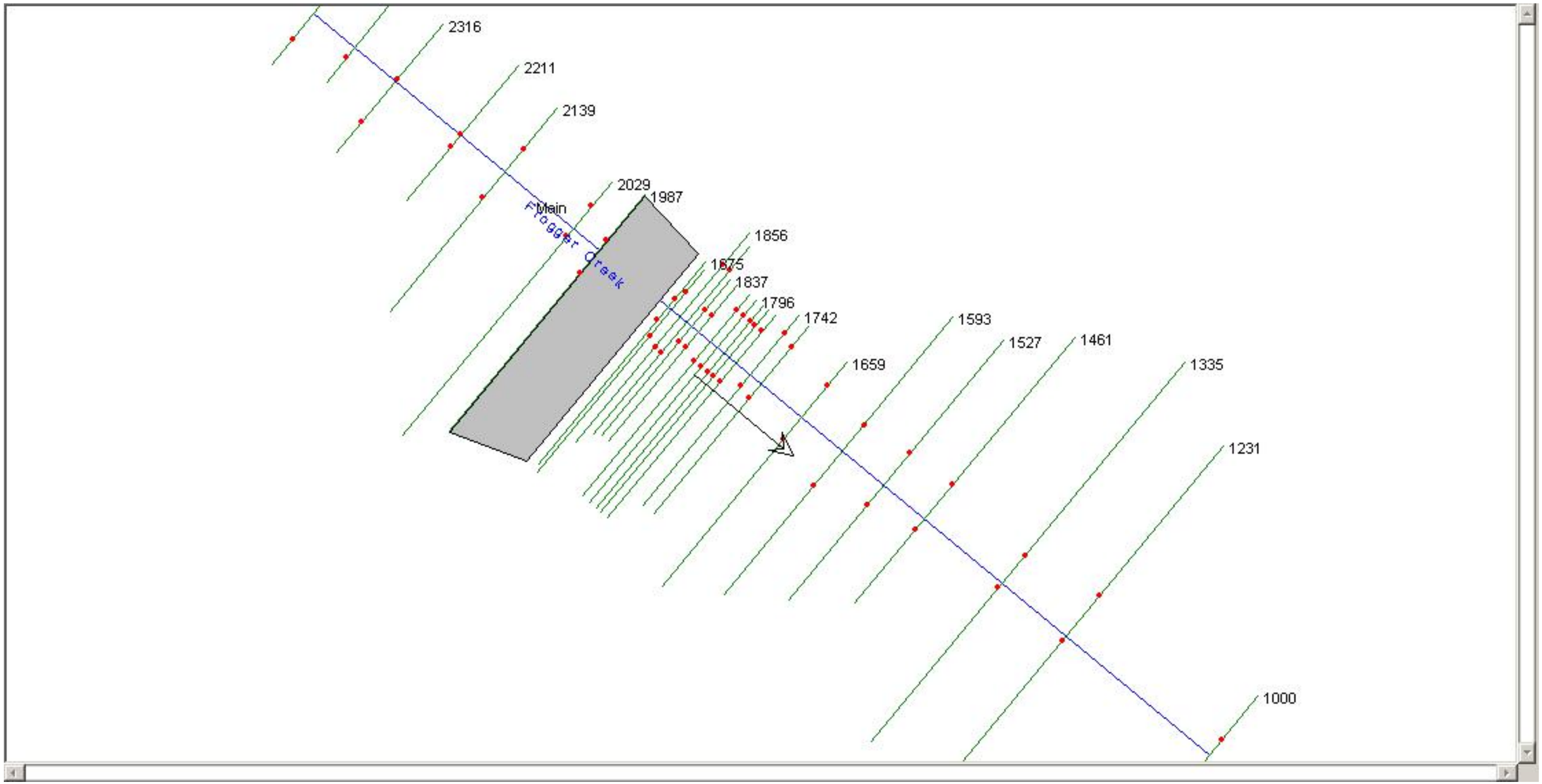
HEC-RAS MODELLING RESULTS

EXISTING CONDITIONS

EXISTING CONDITIONS

LOW FLOW FISH PASSAGE RESULTS


FroggerCreek
Plan: ExistingConditions
9/30/2009
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground


2316
2211
2139
2029
1987
Main
Flagger Creek
1856
1875
1837
1796
1742
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1593
1527
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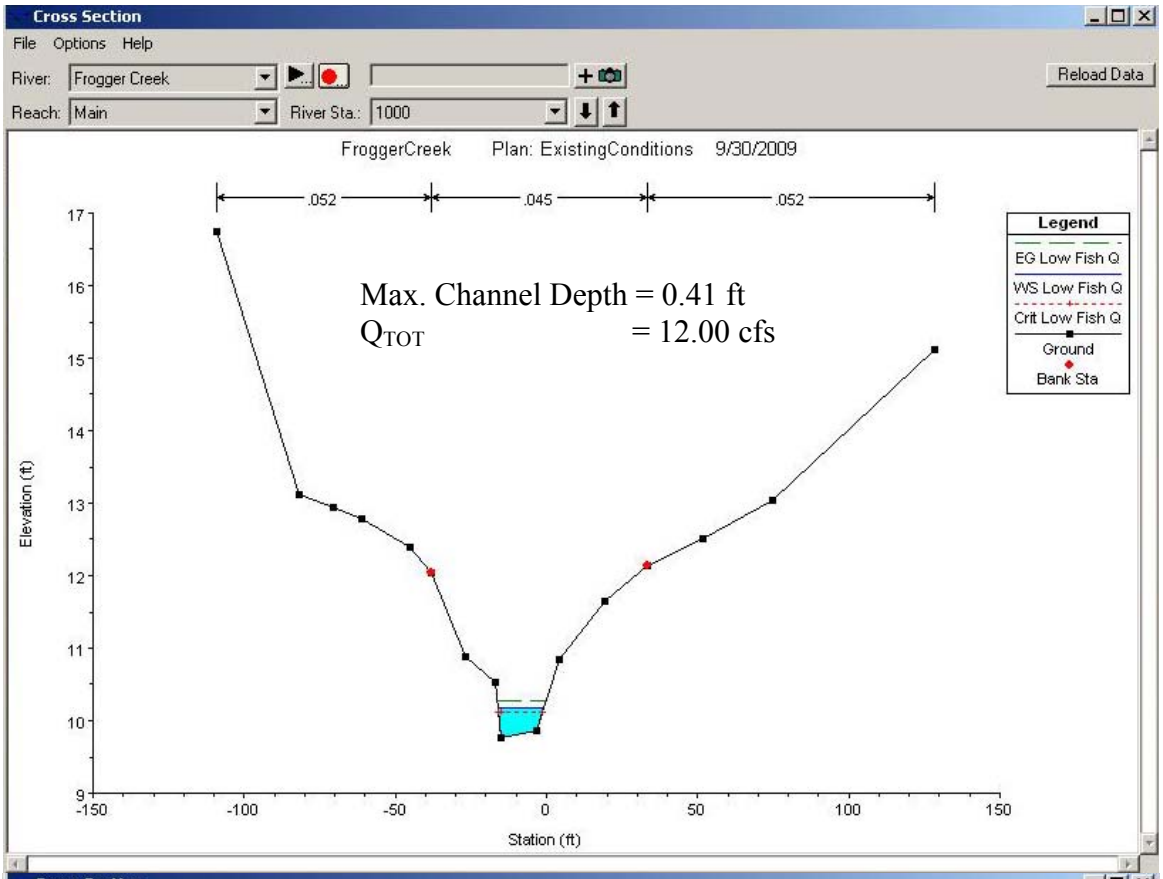
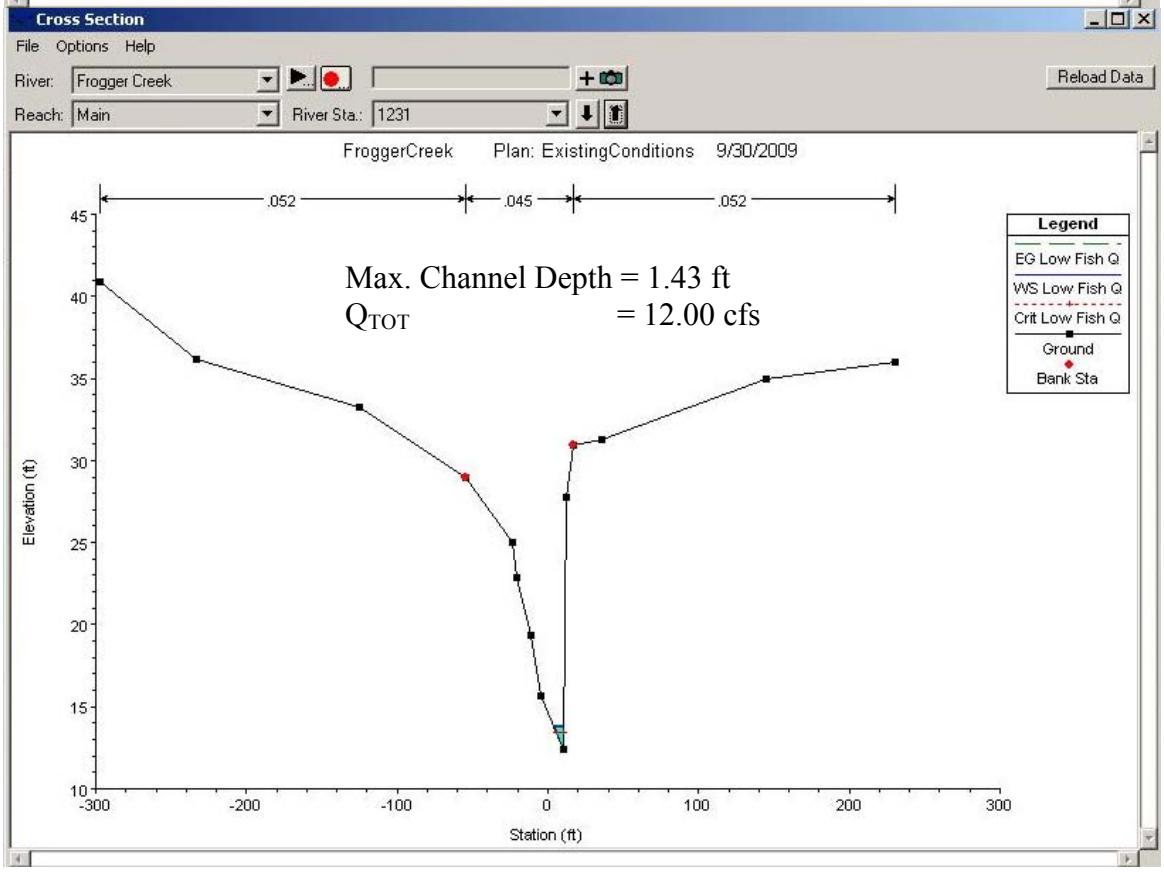
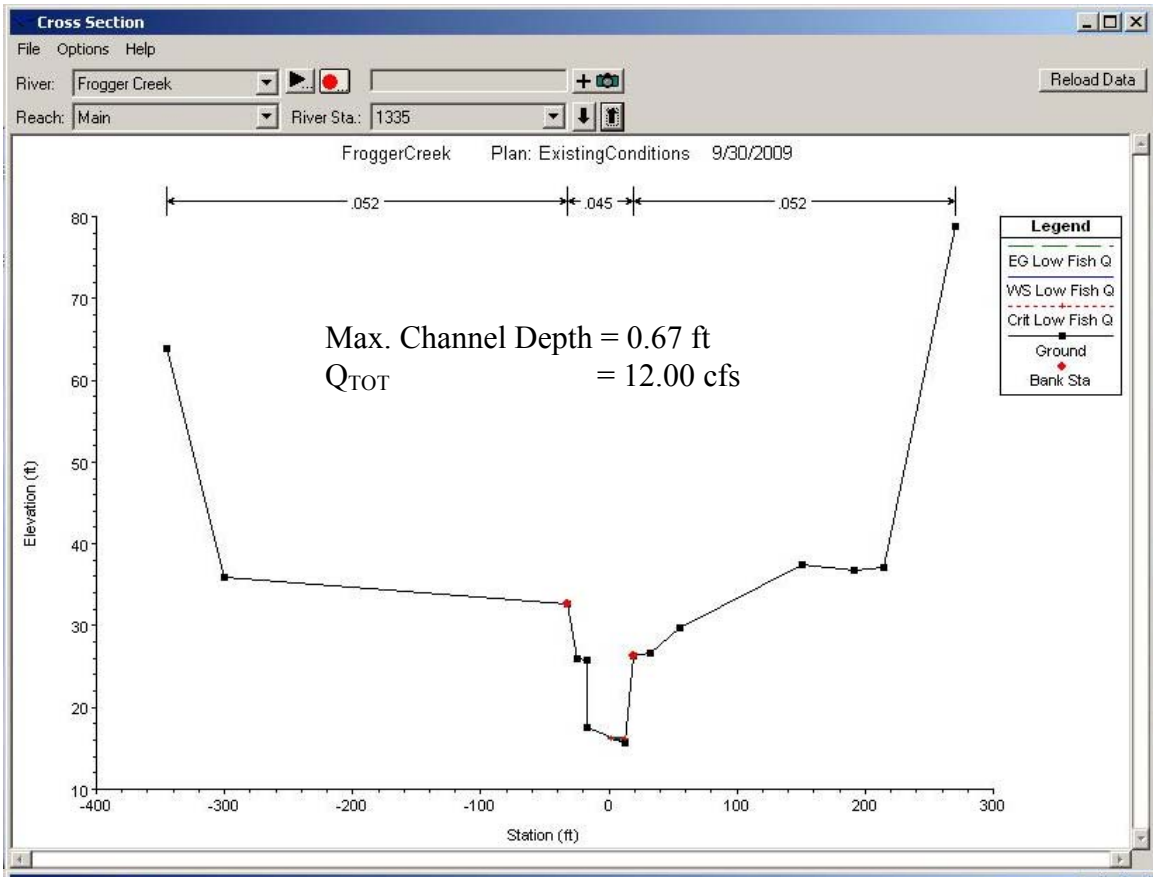
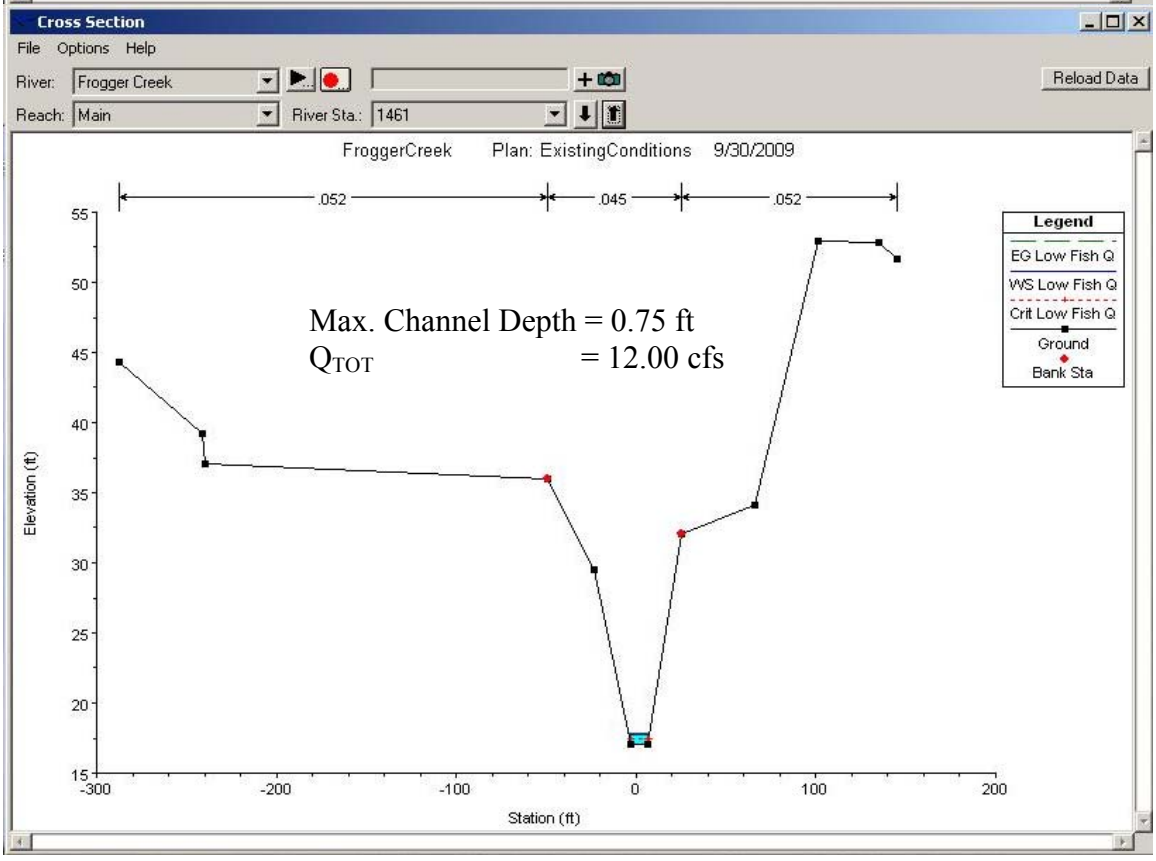
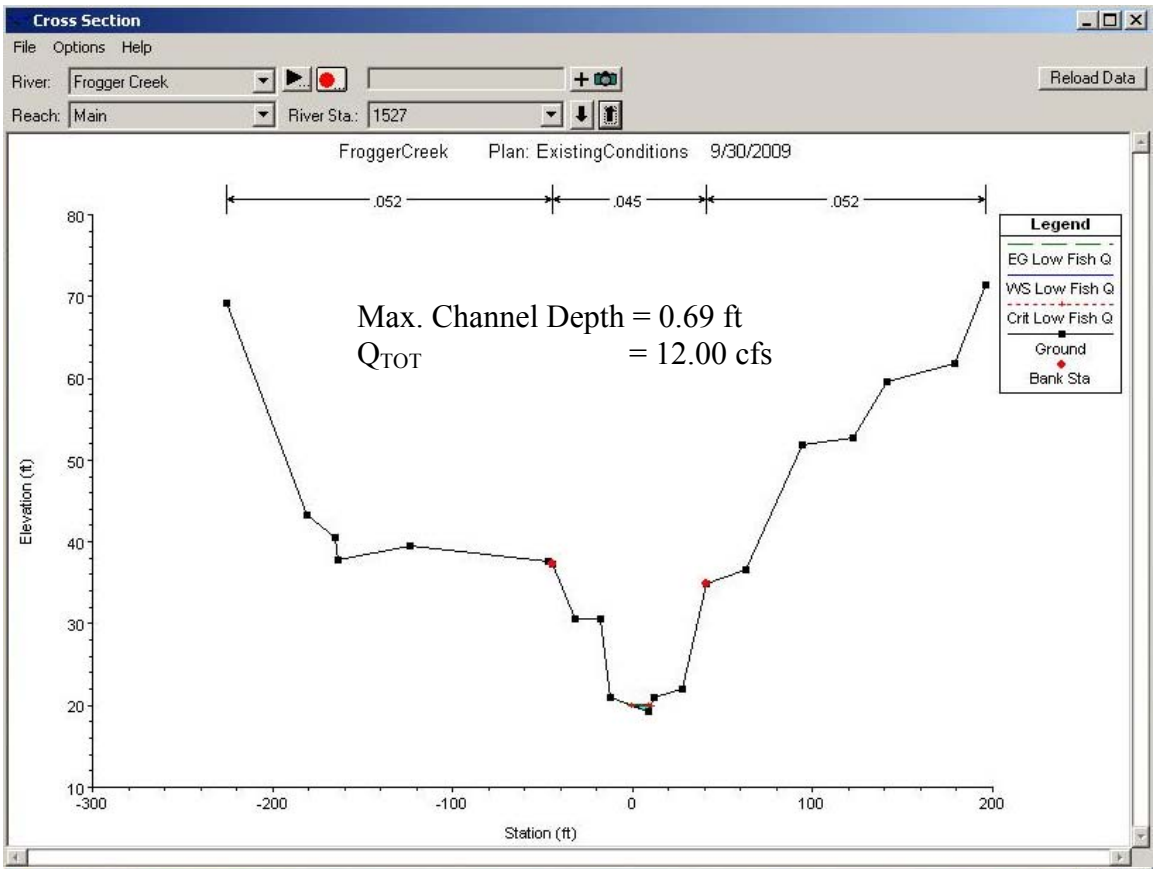
1231
1000

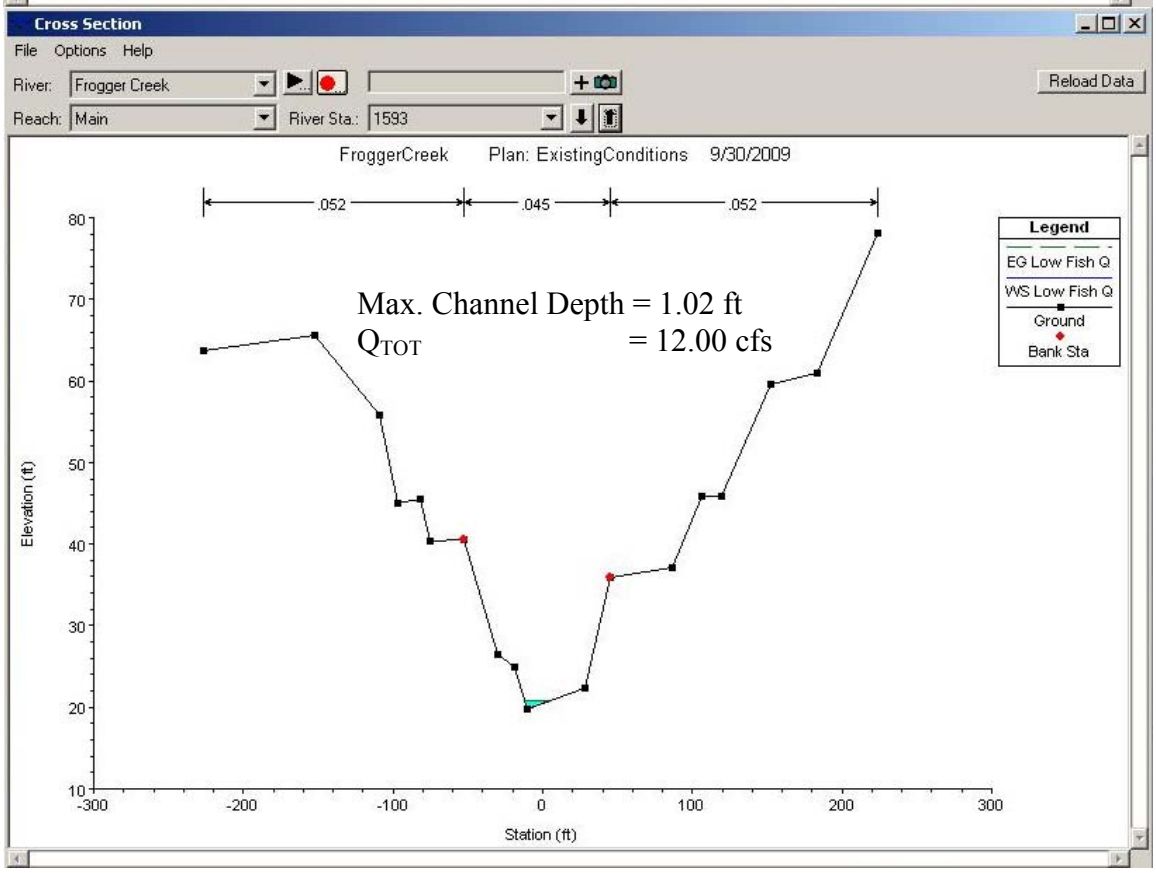

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1000
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.41 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

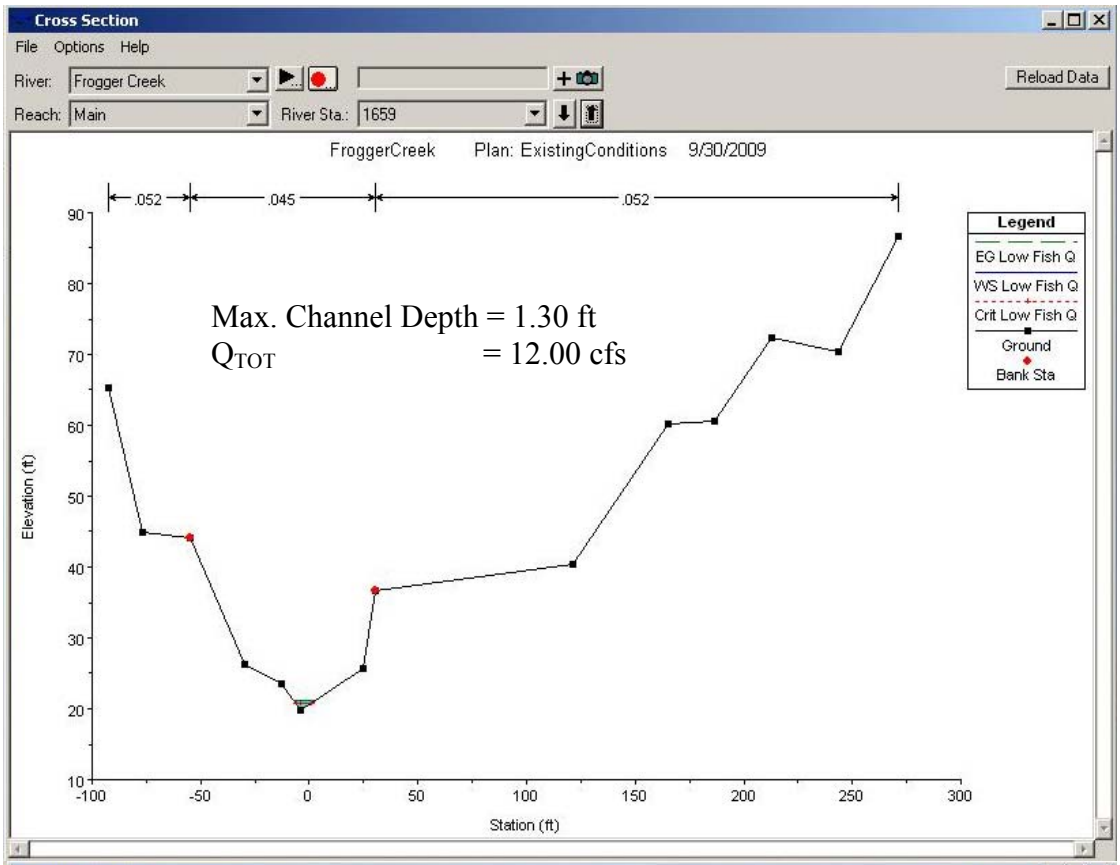

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1231
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.43 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

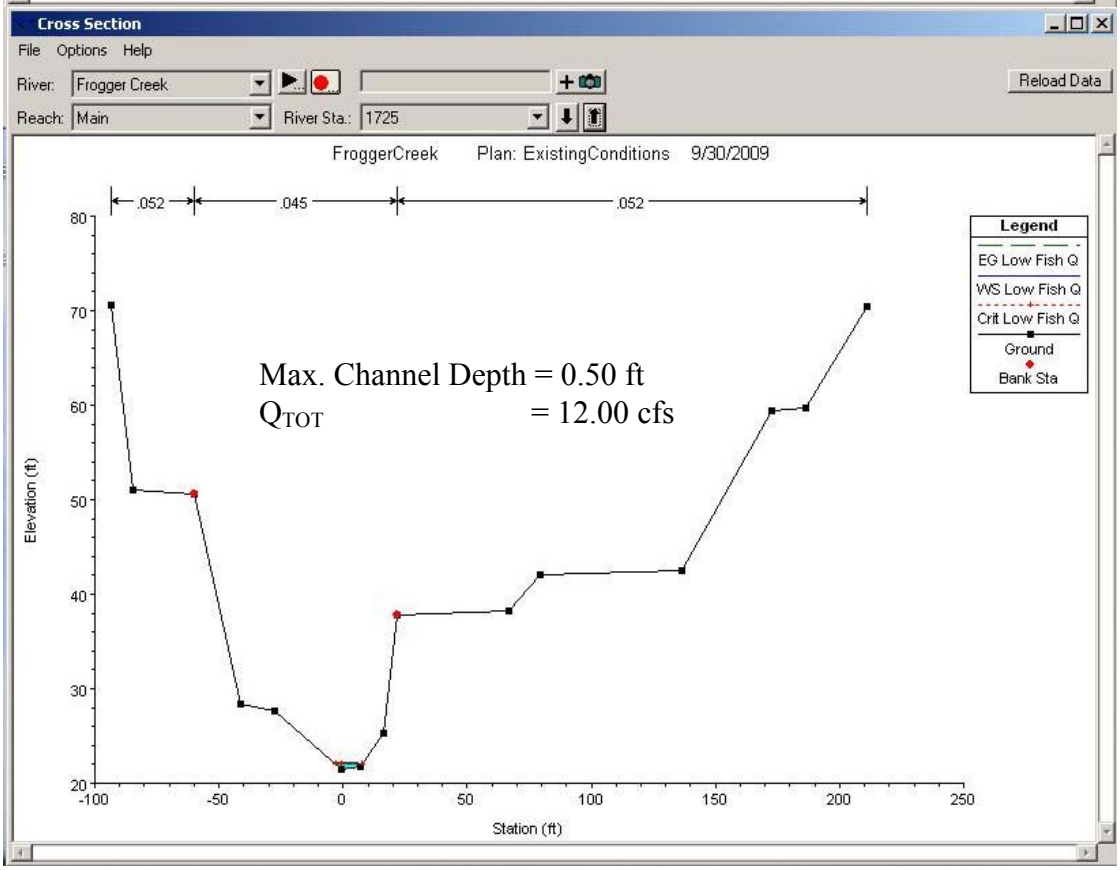

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1335
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.67 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

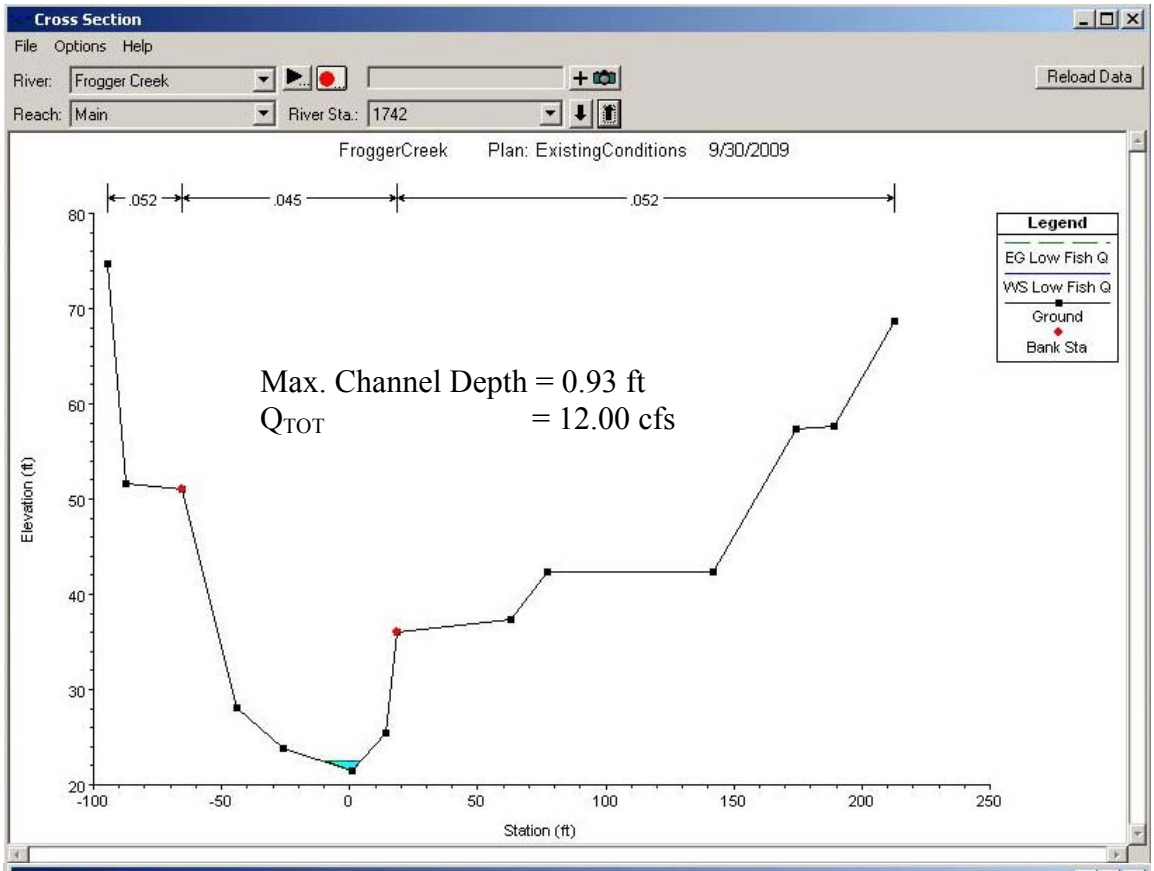

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1461
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.75 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

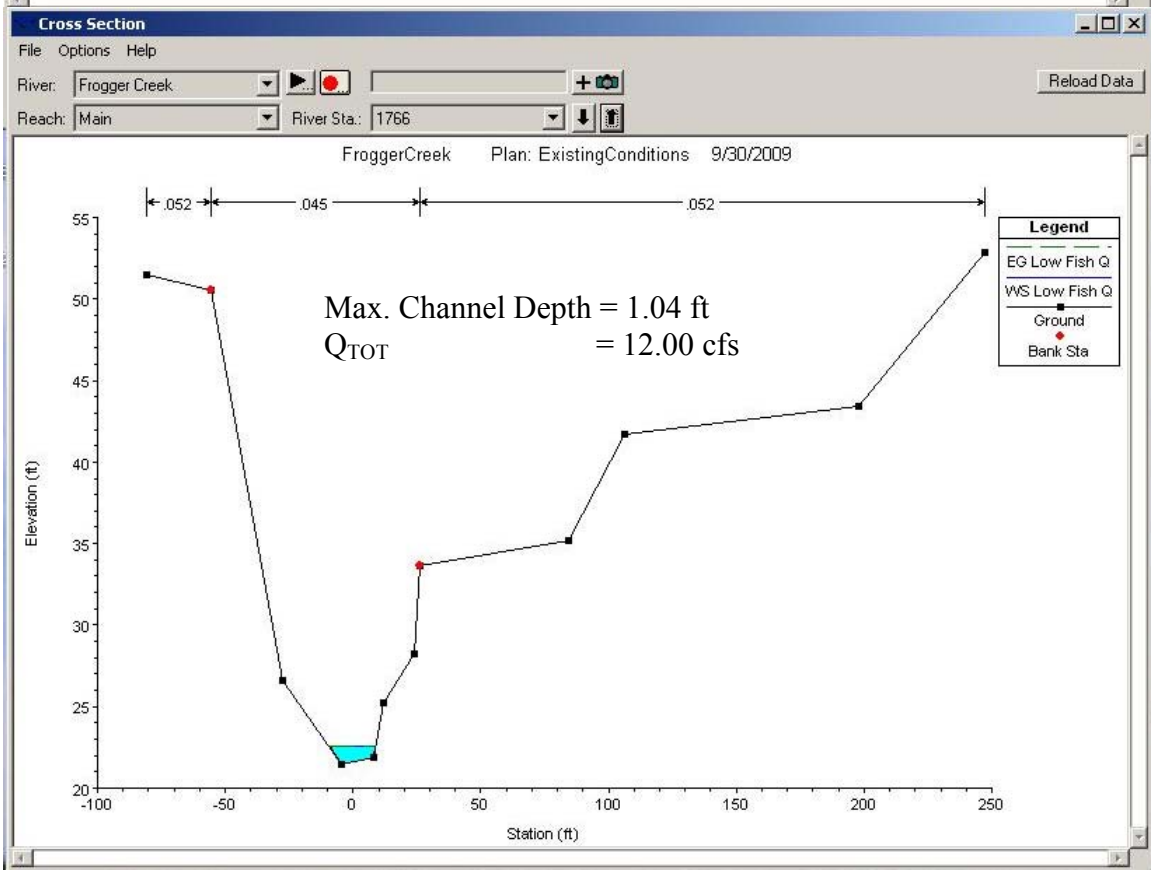

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1527
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.69 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

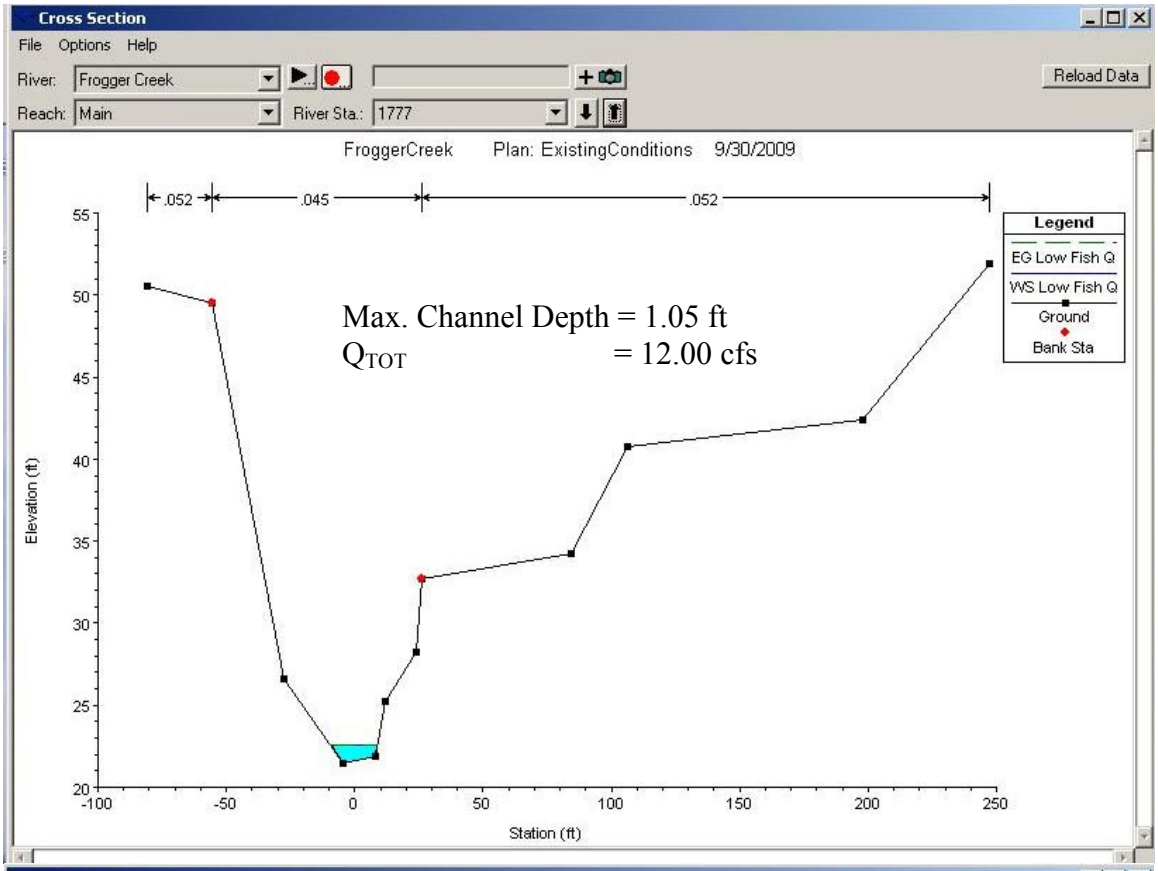

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1593
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.02 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

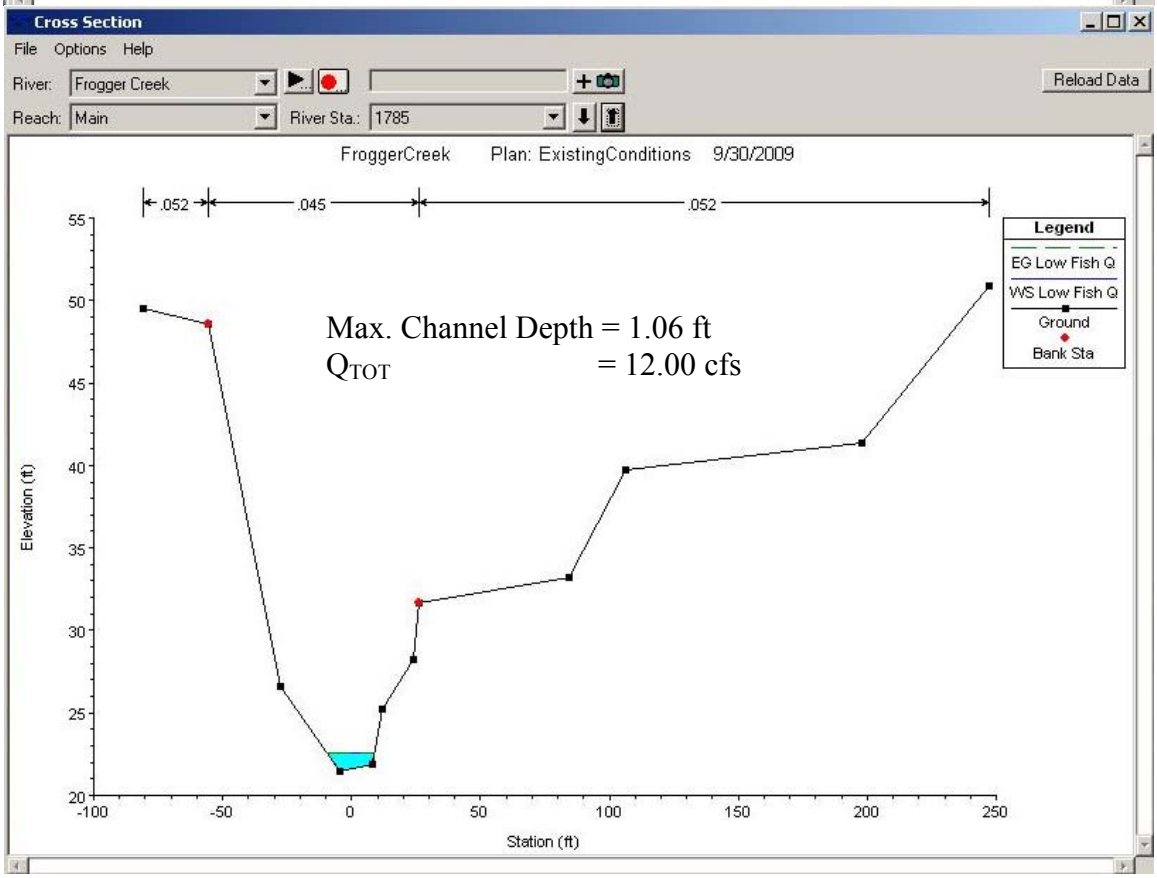

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1659
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.30 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

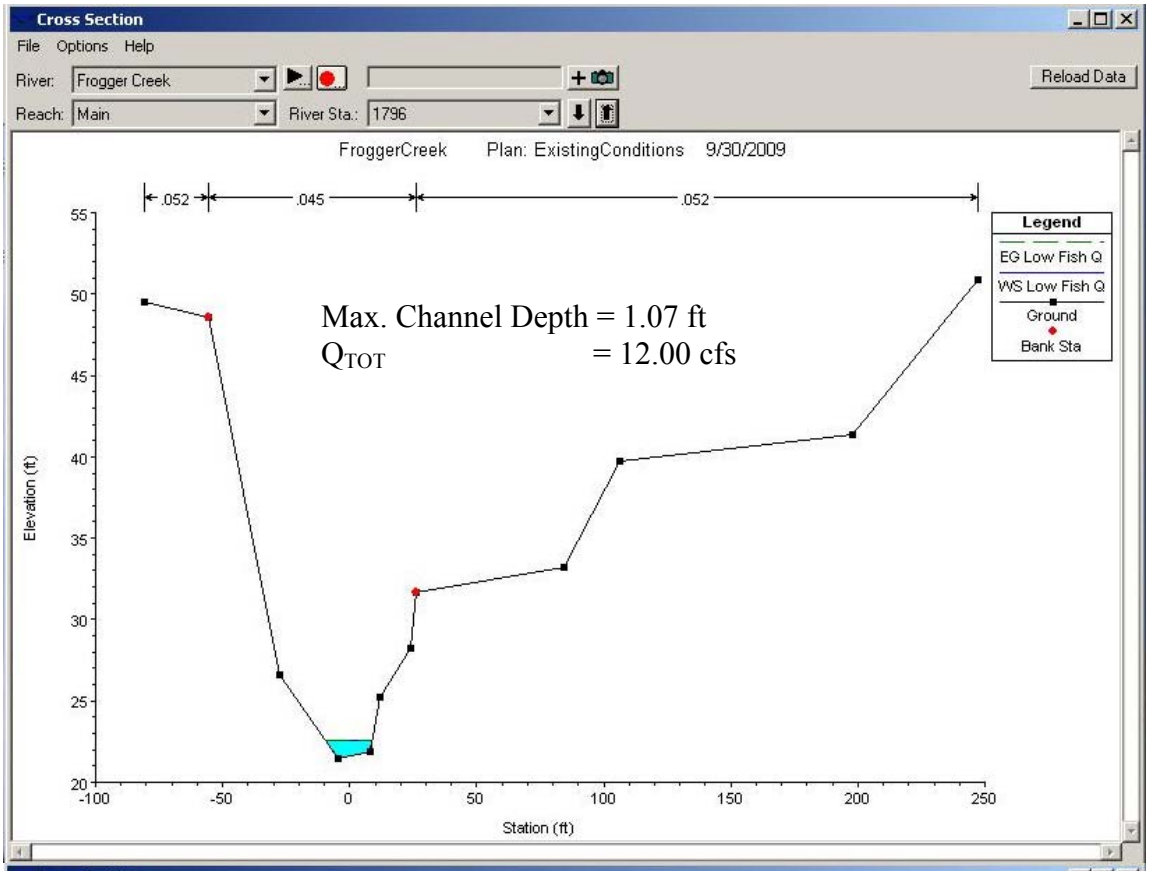

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1725
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.50 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

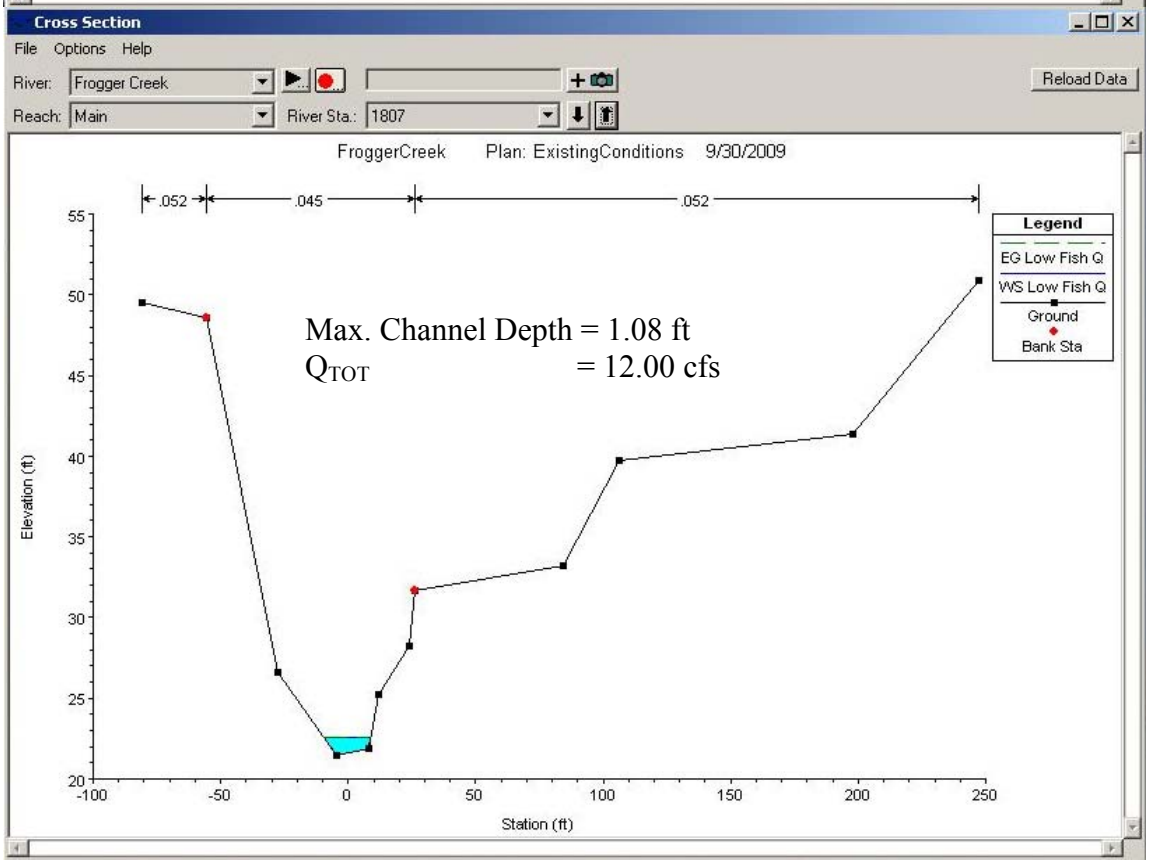

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.93 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

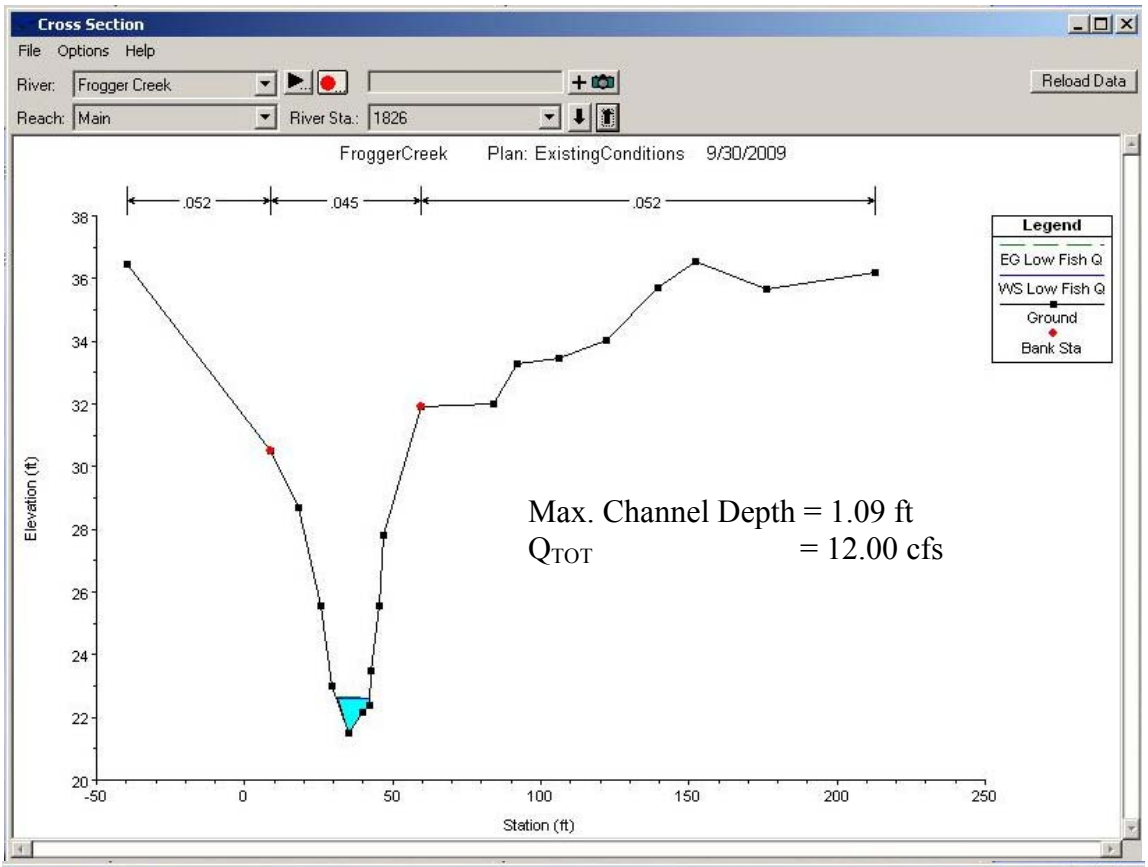

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.04 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

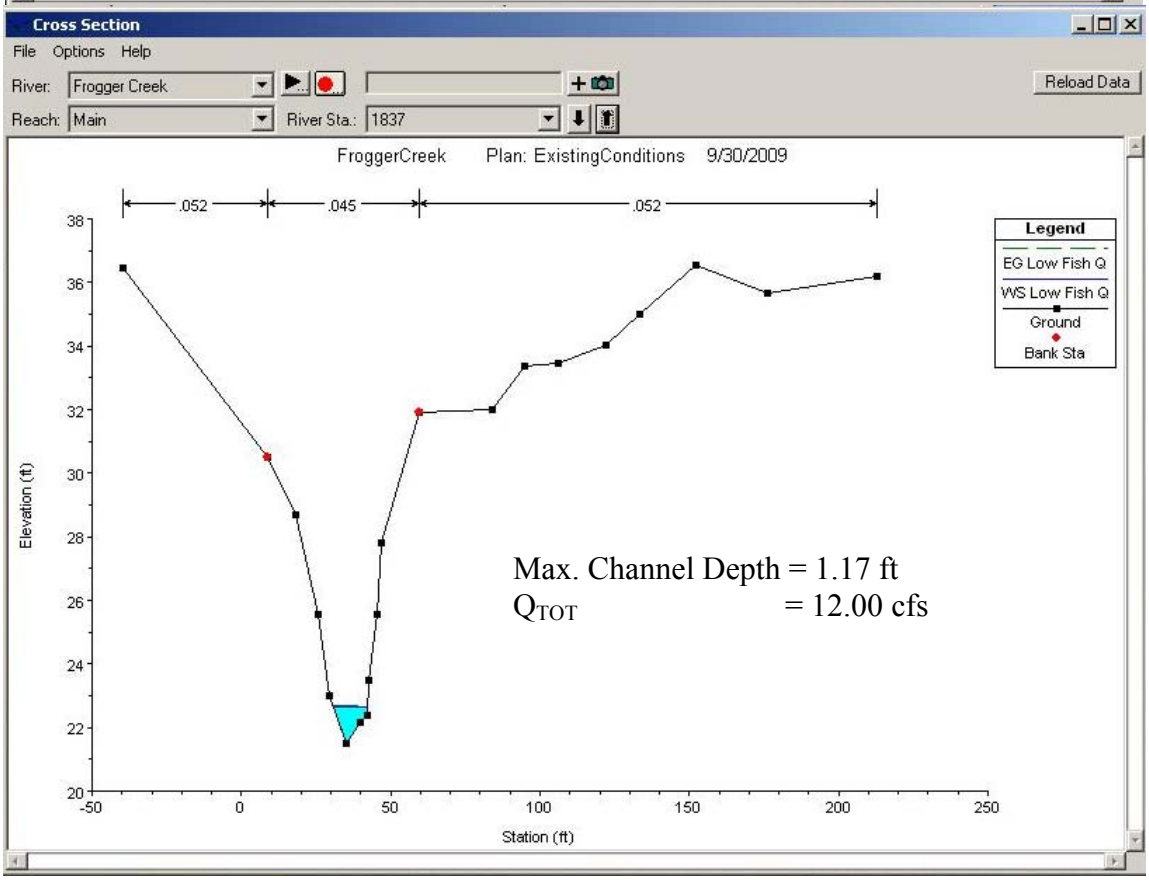

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.05 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

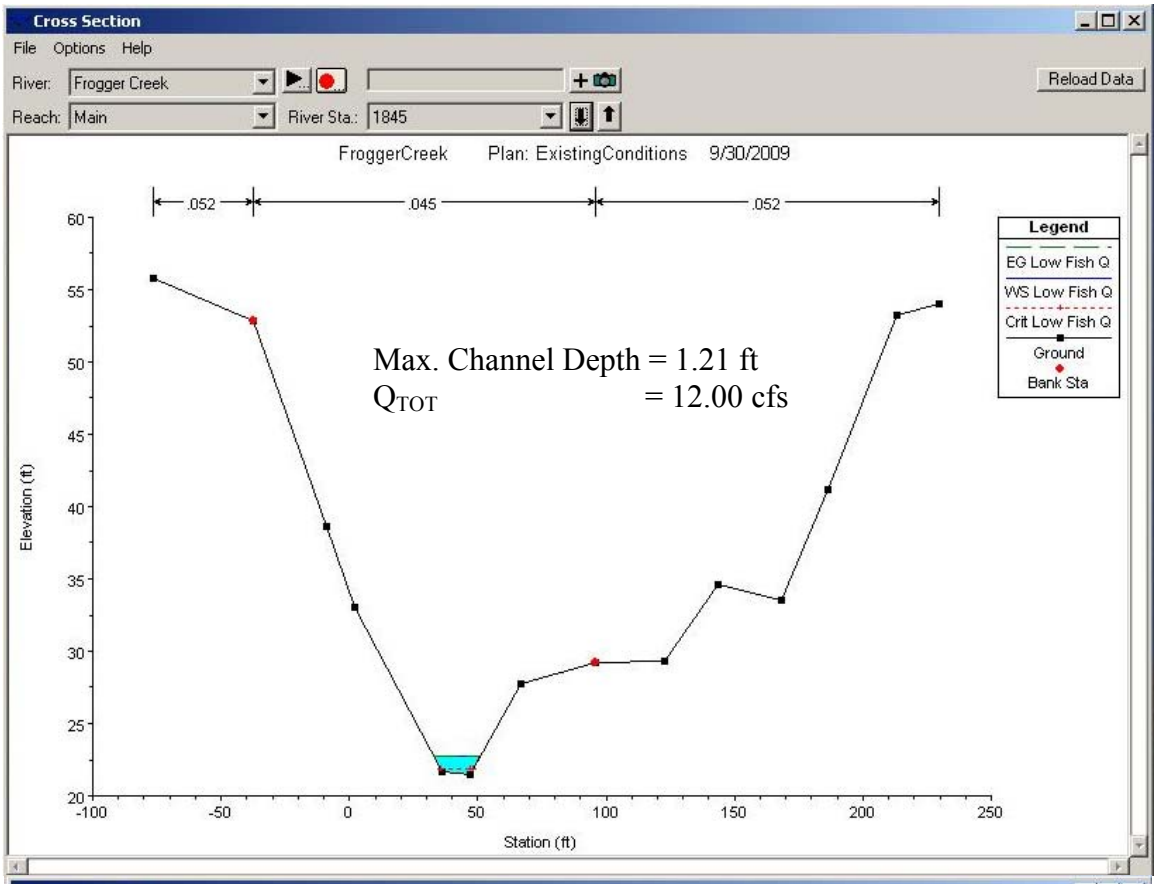

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.06 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

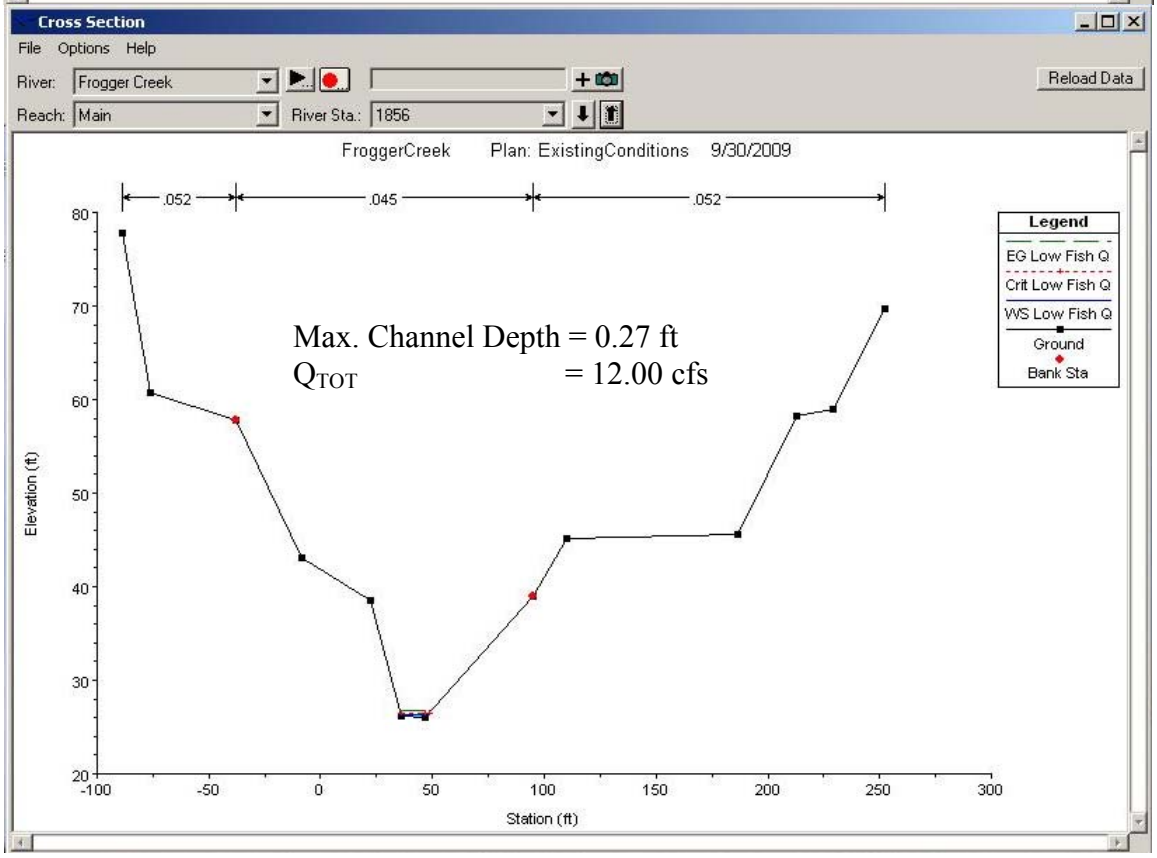

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.07 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

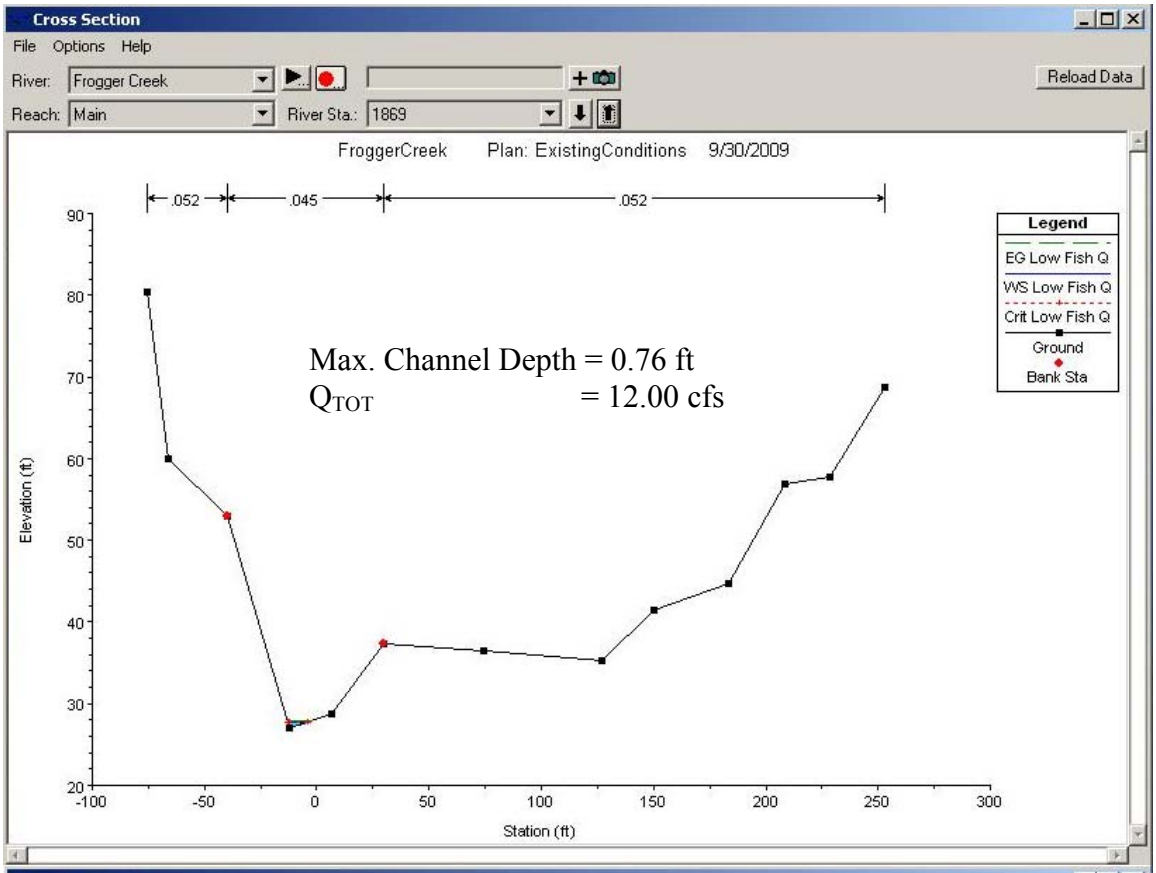

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.08 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

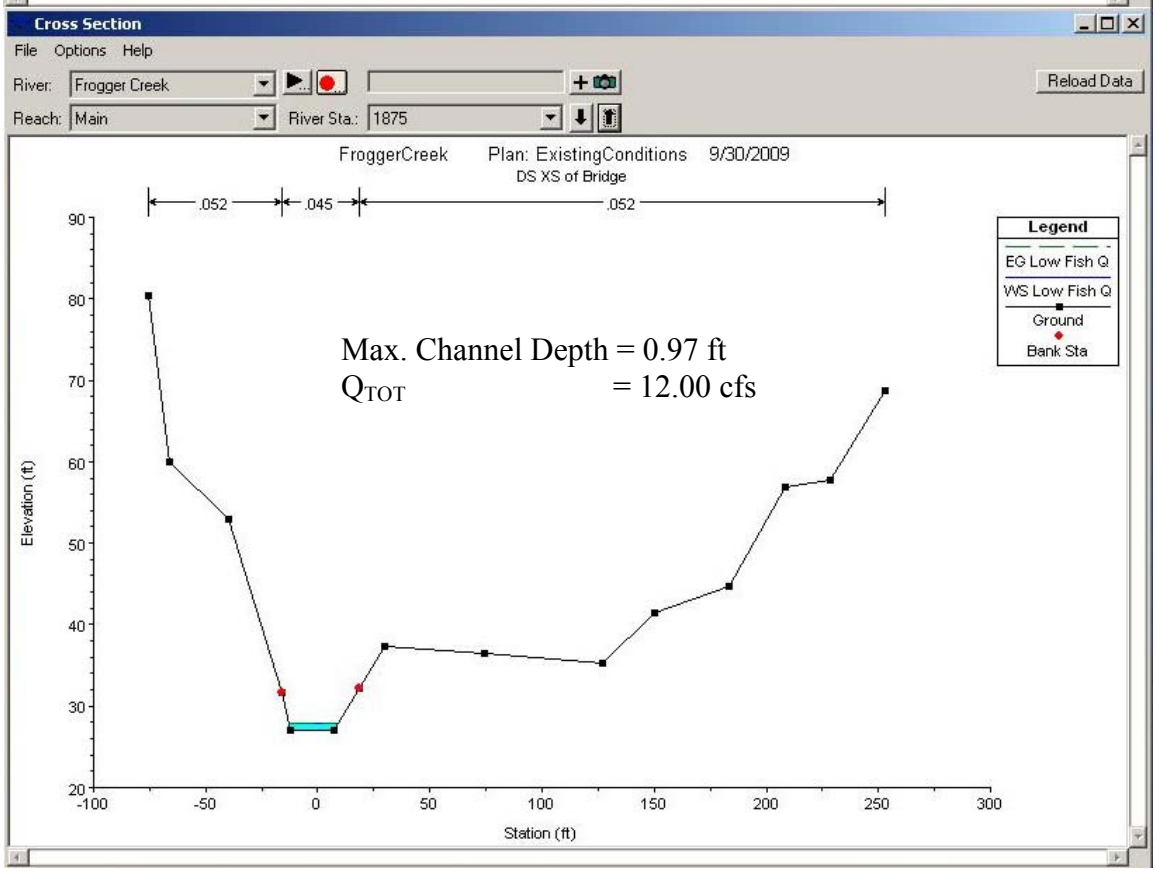

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Max. Channel Depth = 1.09 ft
Q_{TOT} = 12.00 cfs

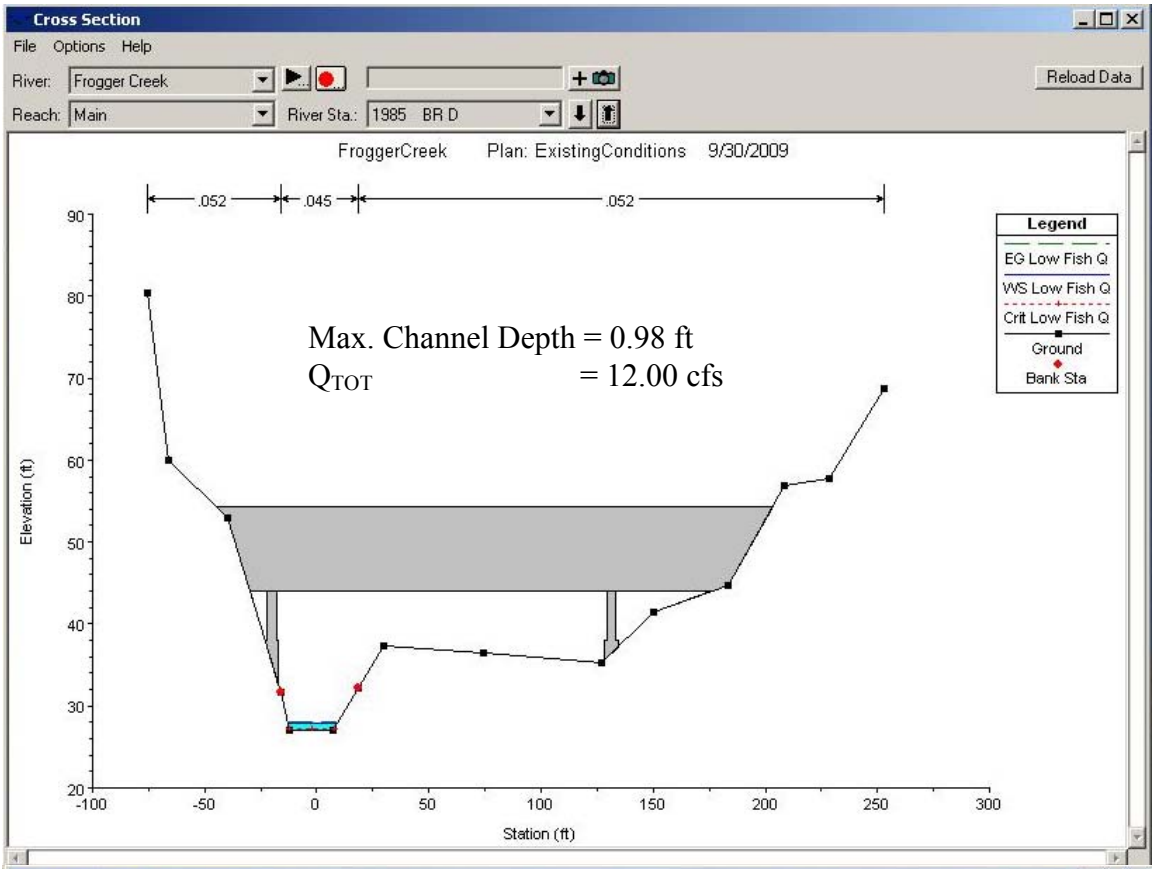

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Max. Channel Depth = 1.17 ft
Q_{TOT} = 12.00 cfs

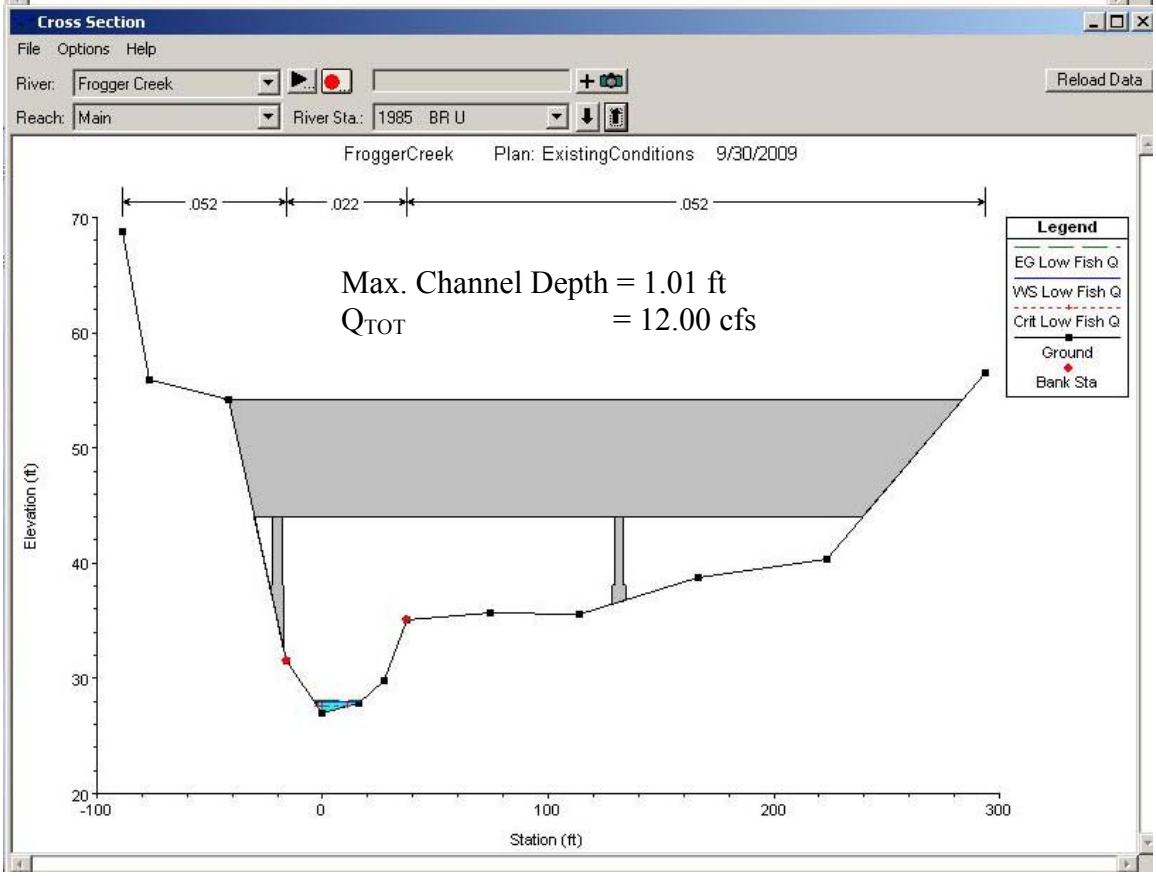

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.21 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

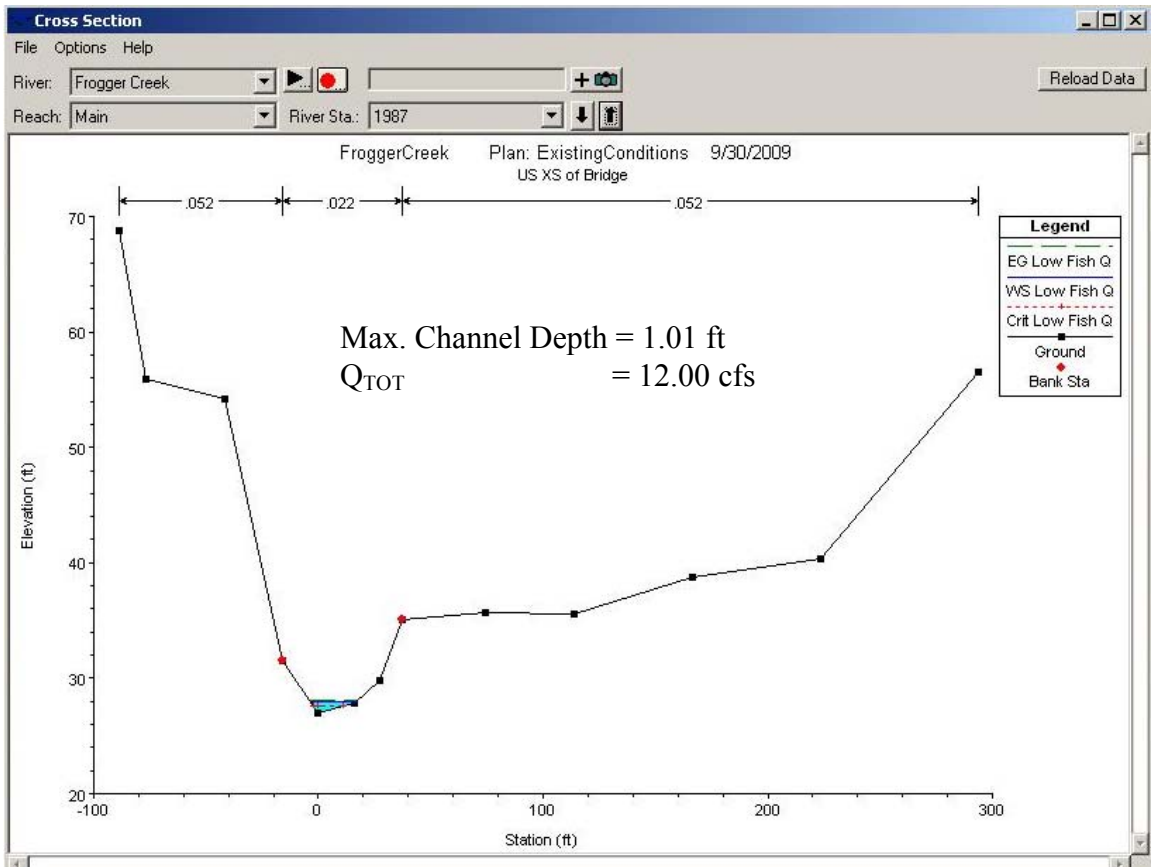

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
Crit Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.27 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

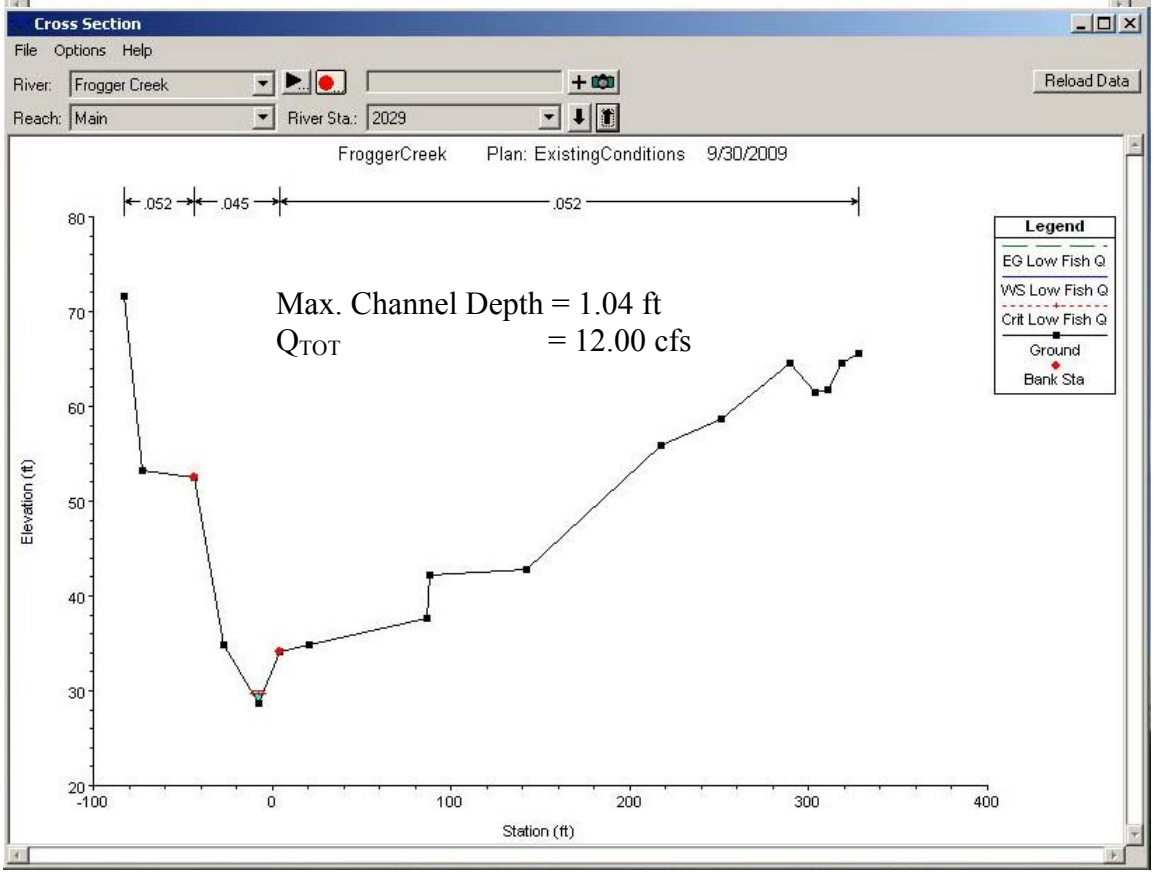

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1869
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.76 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

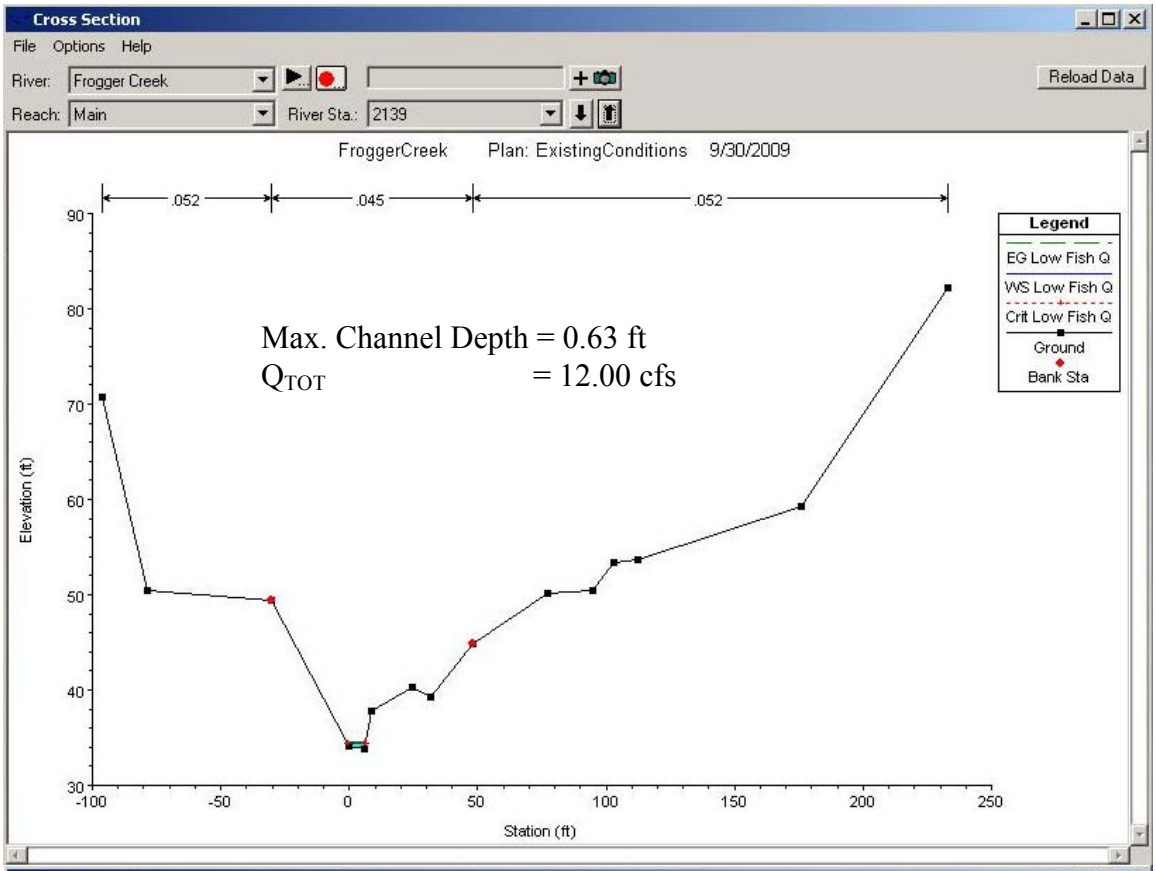

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
DS XS of Bridge
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.97 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

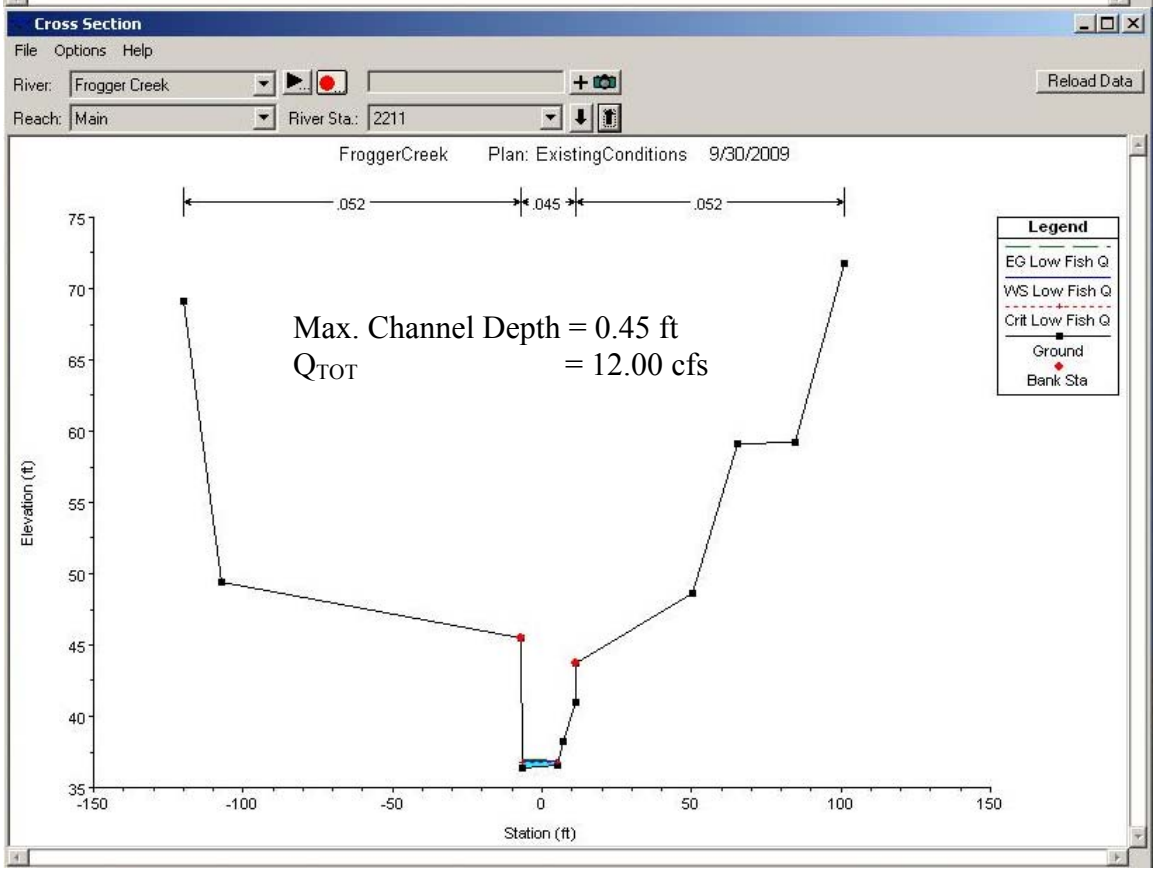

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.98 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

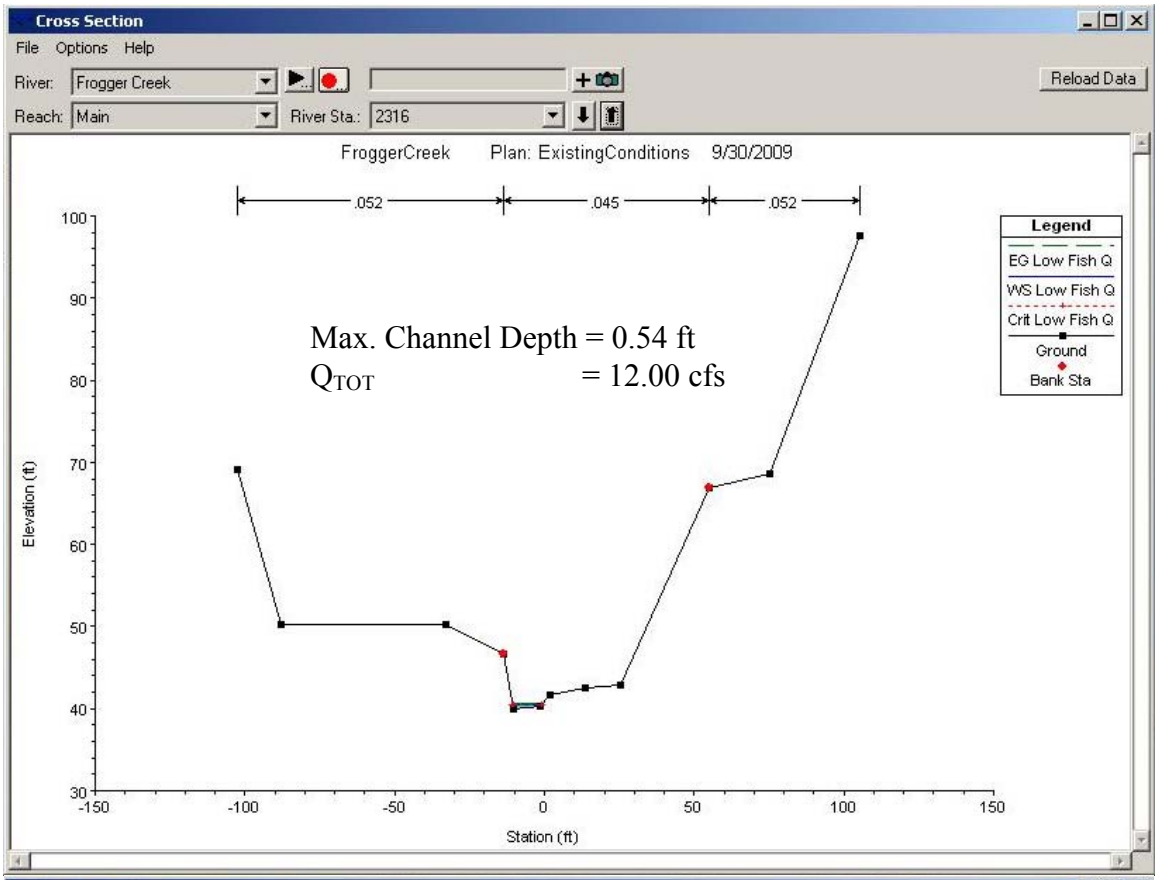

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.022
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.01 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

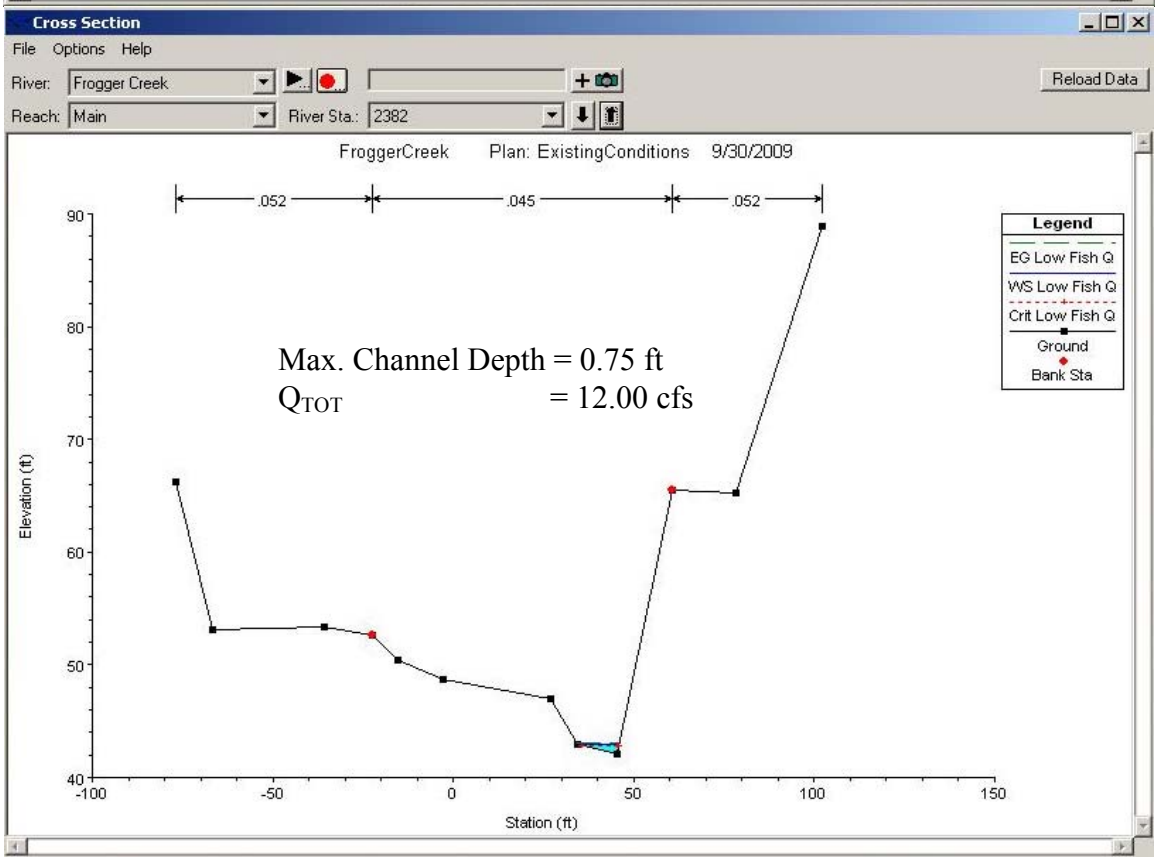

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
US XS of Bridge
.052
.022
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.01 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

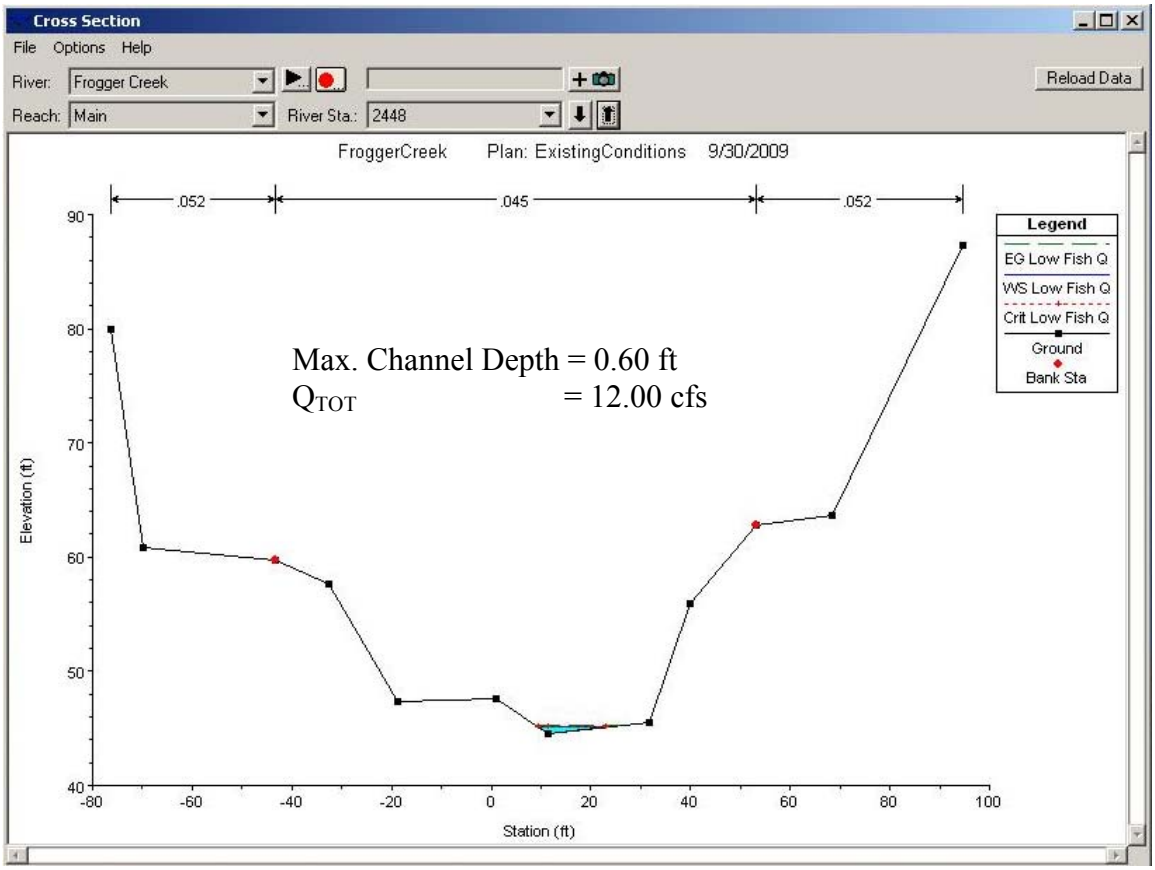

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2029
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.04 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2139
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.63 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2211
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.45 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

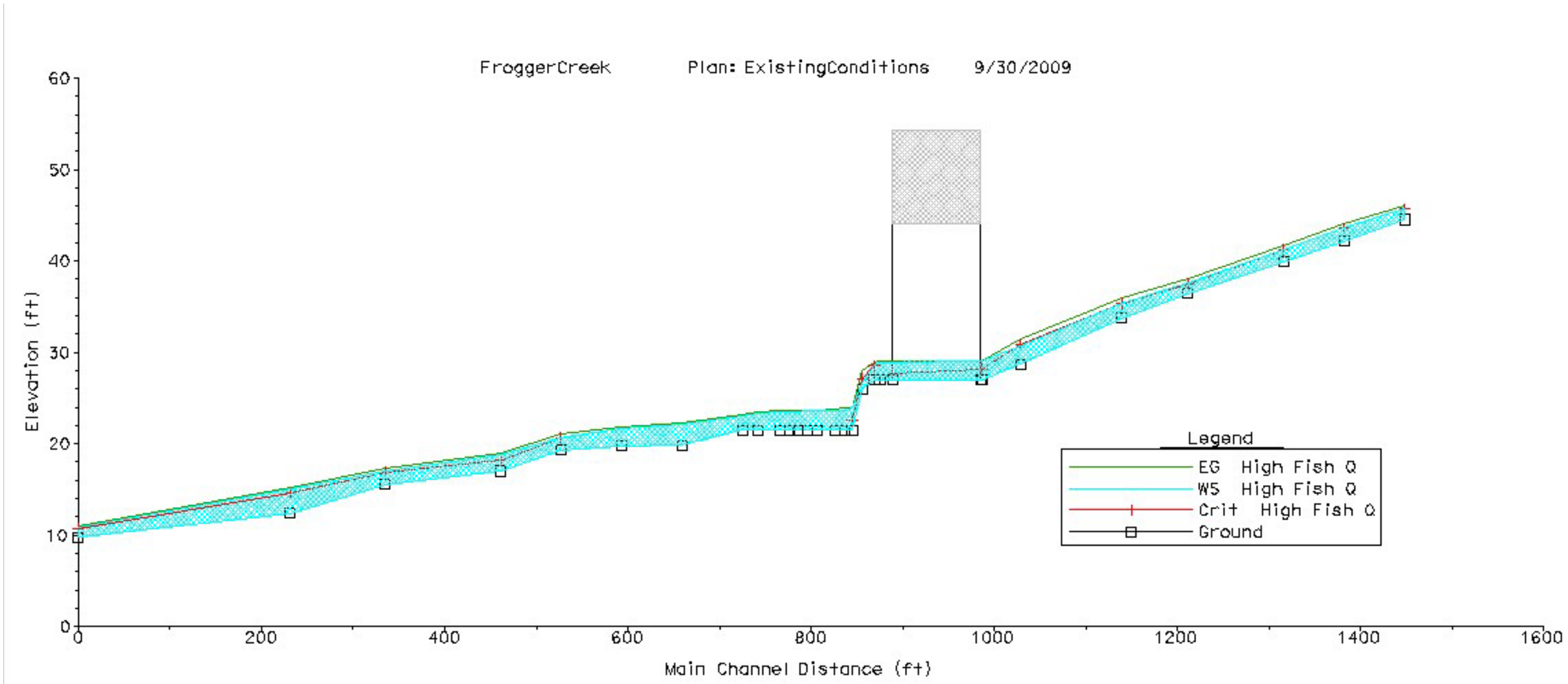

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2316
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.54 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

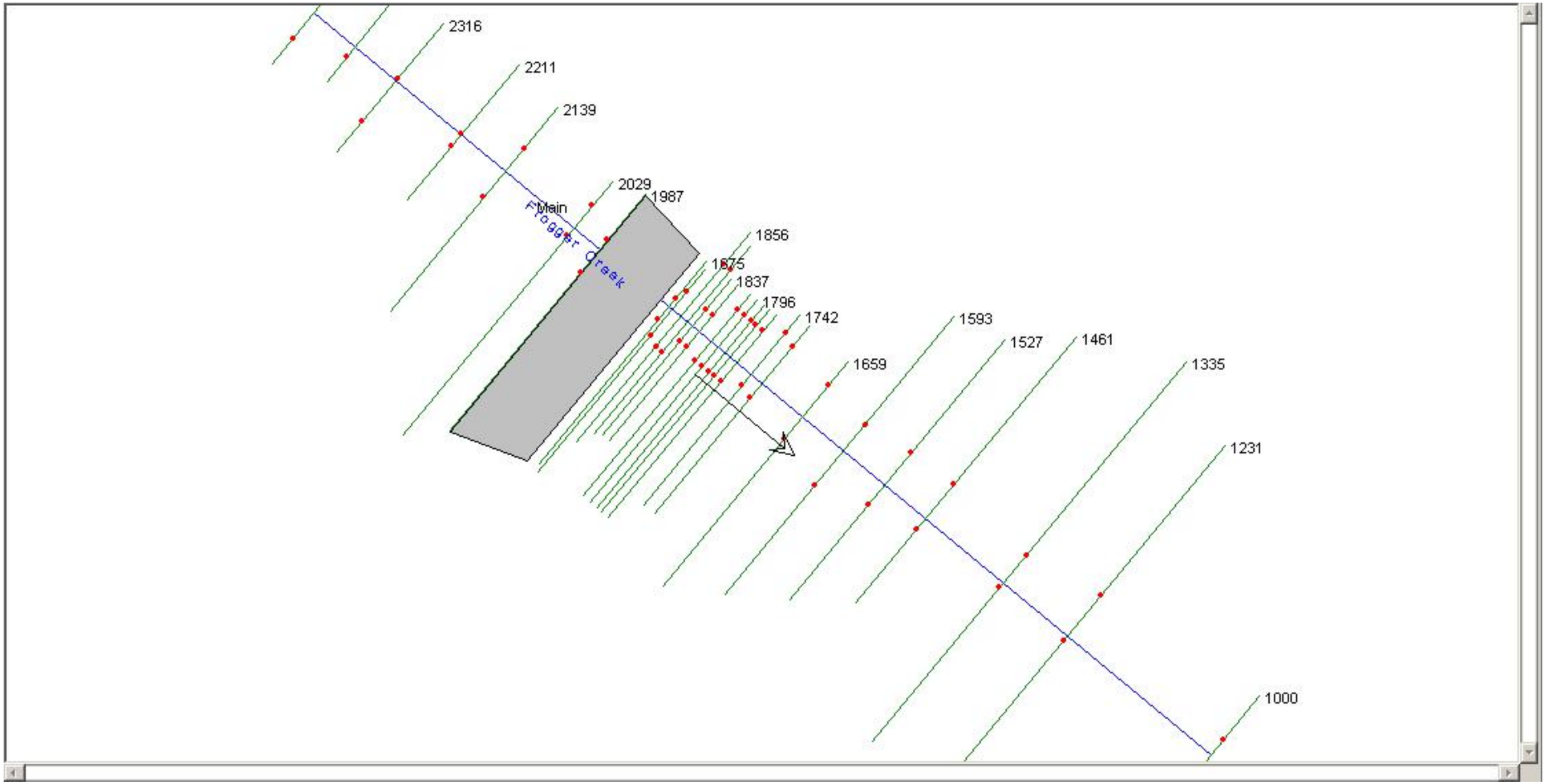

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2382
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.75 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

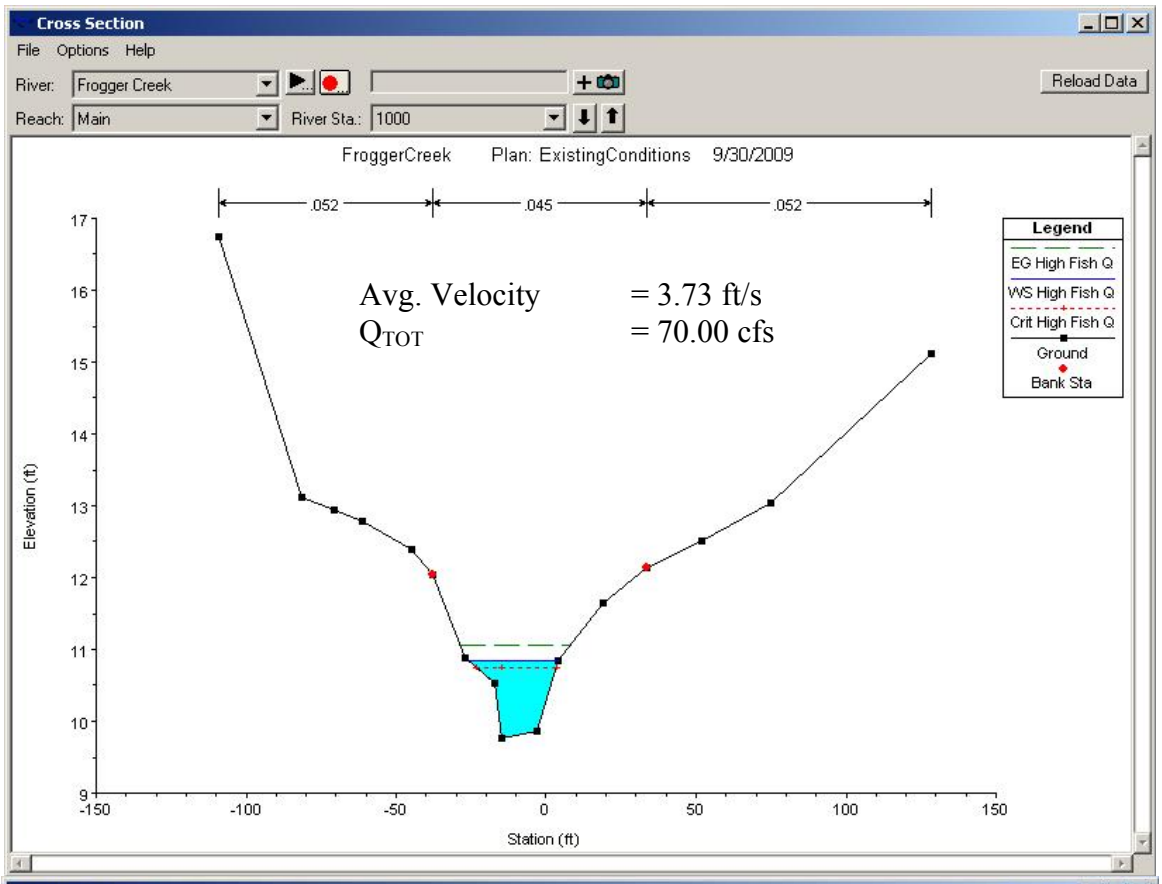

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2448
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.60 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)
90
80
70
60
50
40
-80
-60
-40
-20
0
20
40
60
80
100

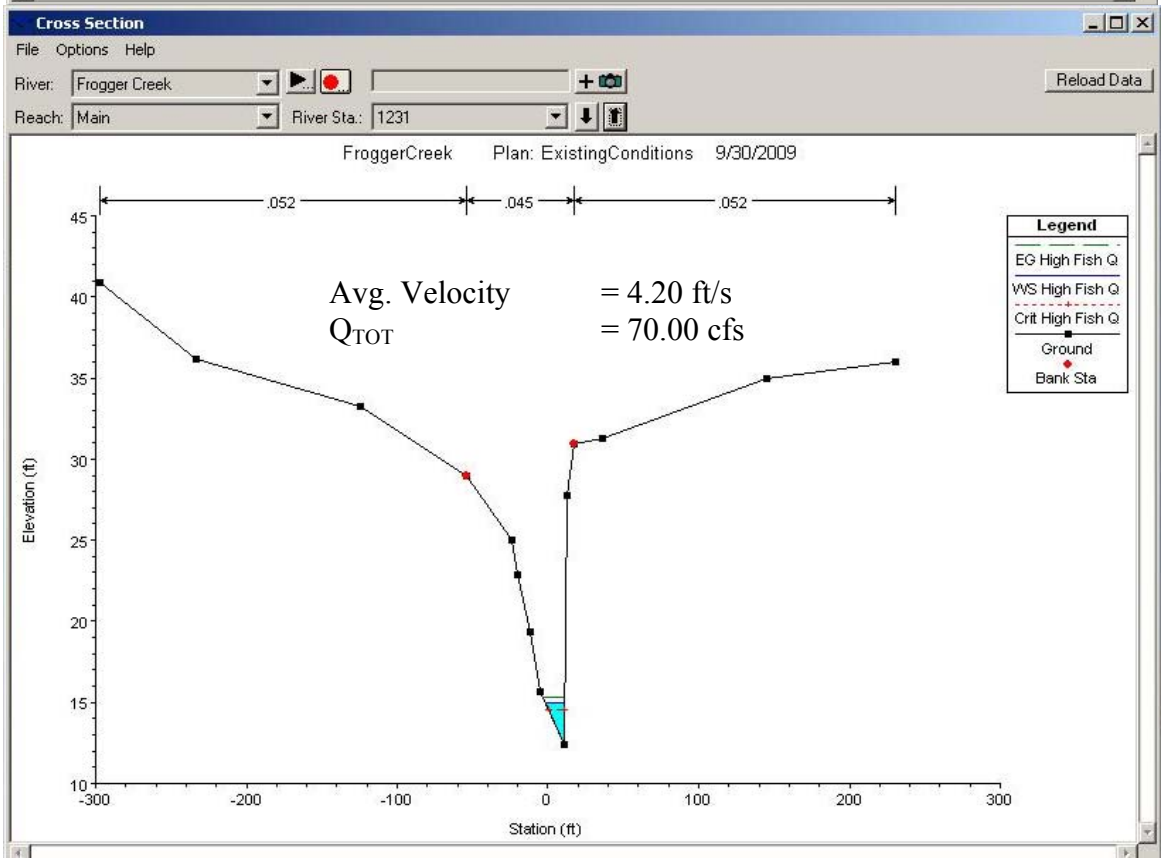
EXISTING CONDITIONS

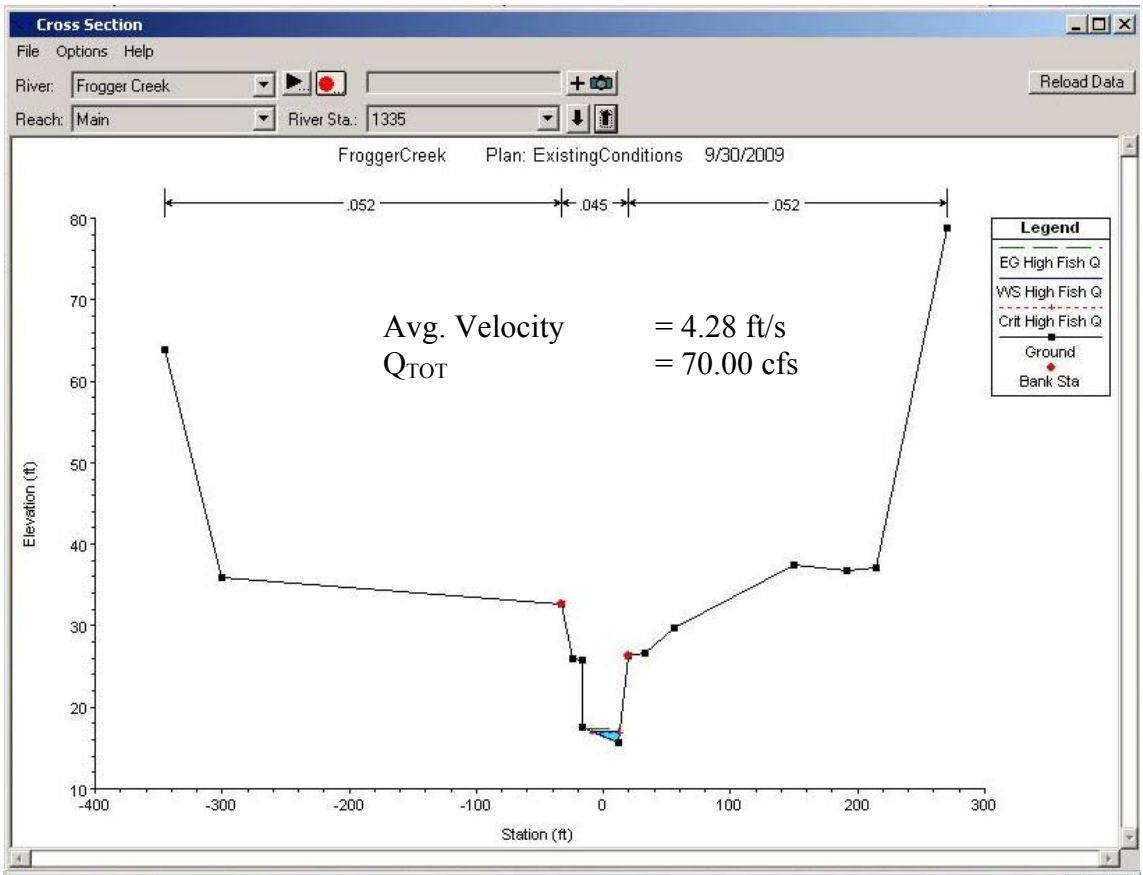
HIGH FLOW FISH PASSAGE RESULTS

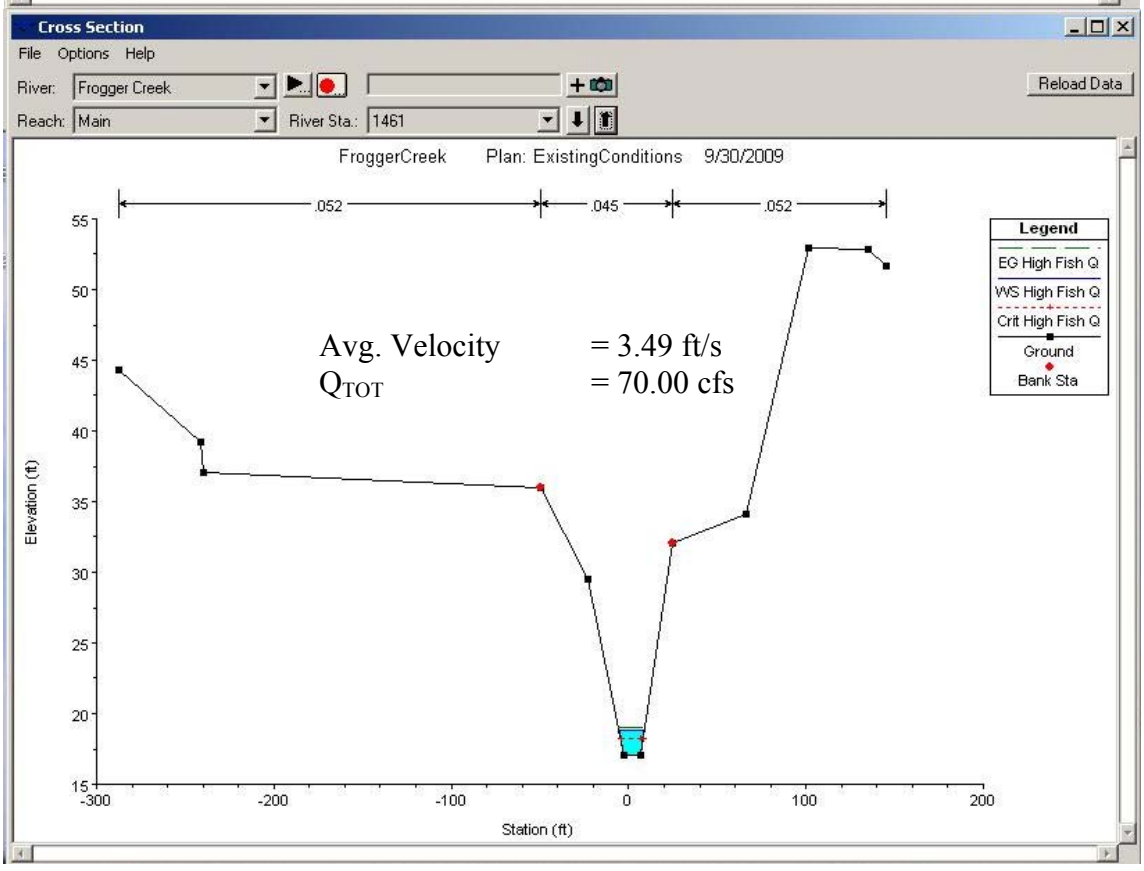

FroggerCreek
Plan: ExistingConditions
9/30/2009
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground

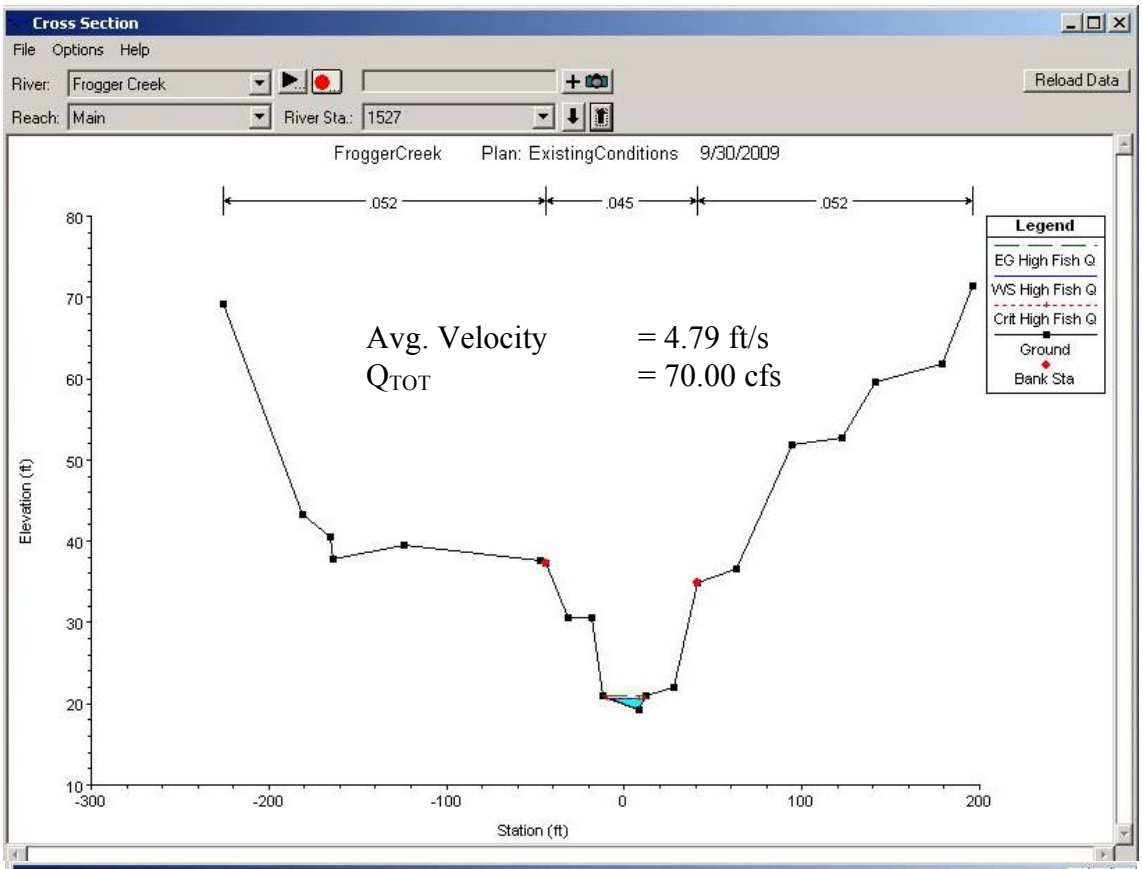

2316
2211
2139
2029
1987
Main
Flagger Creek
1856
1675
1837
1796
1742
1659
1593
1527
1461
1335
1231
1000

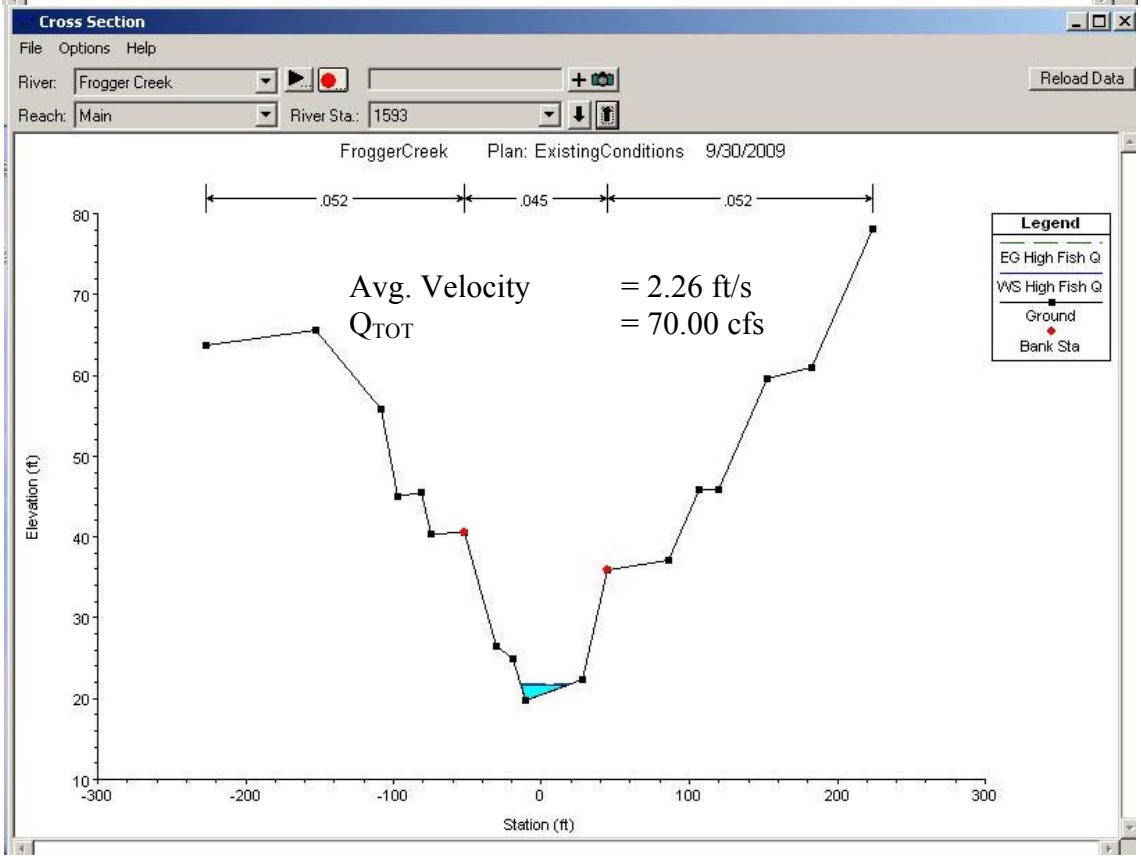

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1000
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 3.73 ft/s
QTOT = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

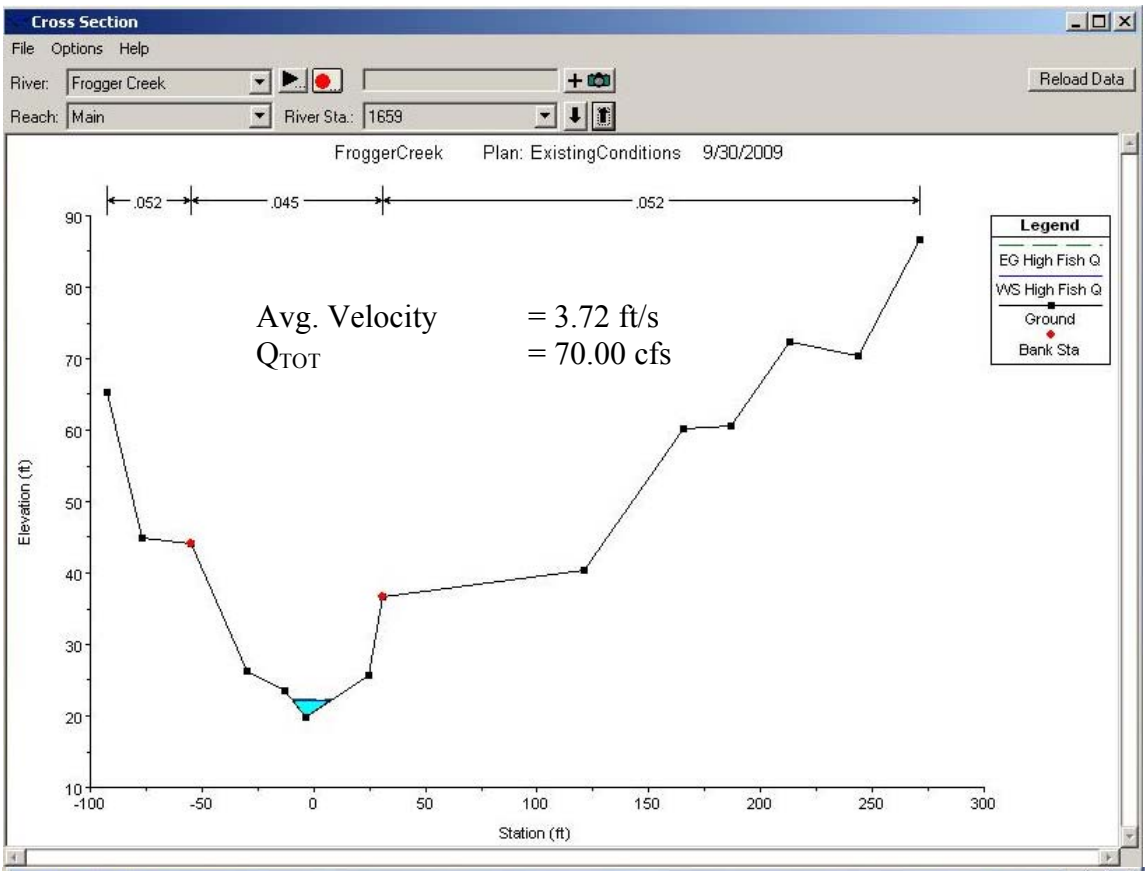

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1231
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 4.20 ft/s
QTOT = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

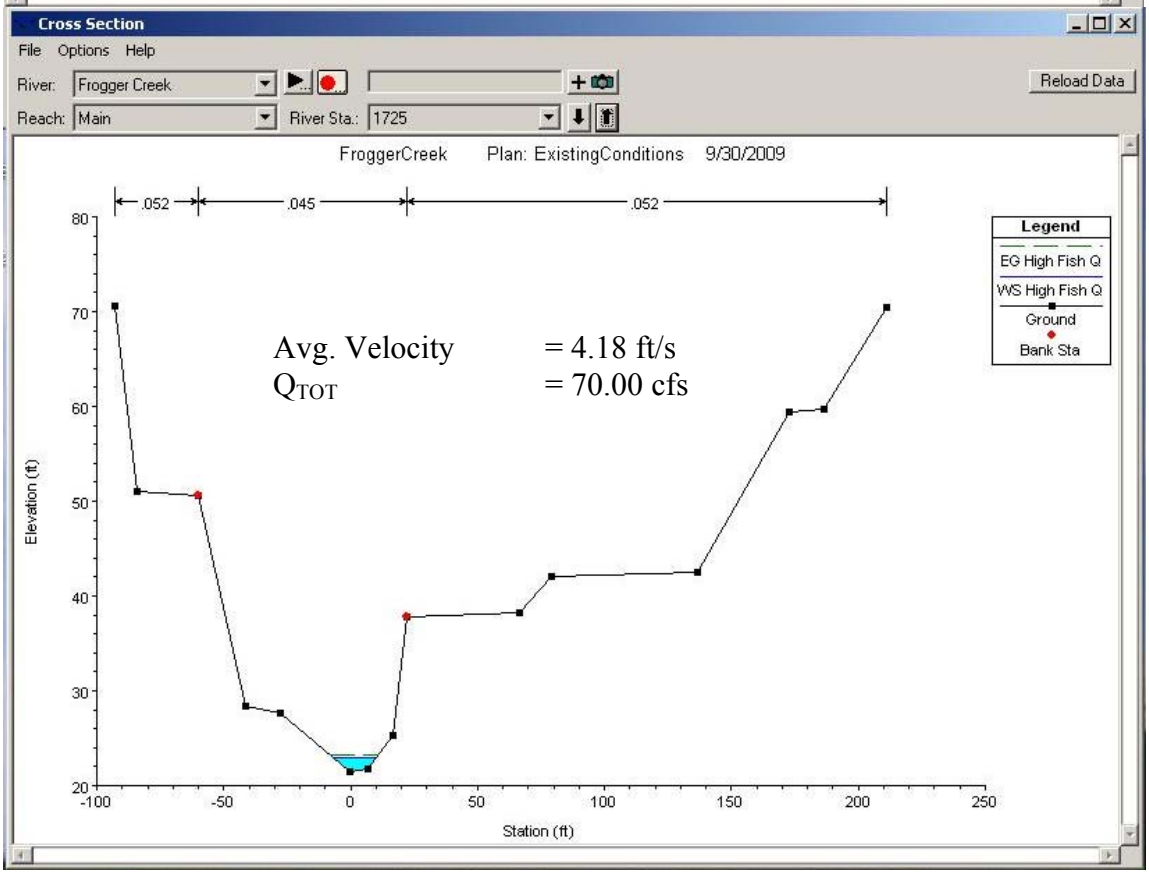

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1335
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 4.28 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

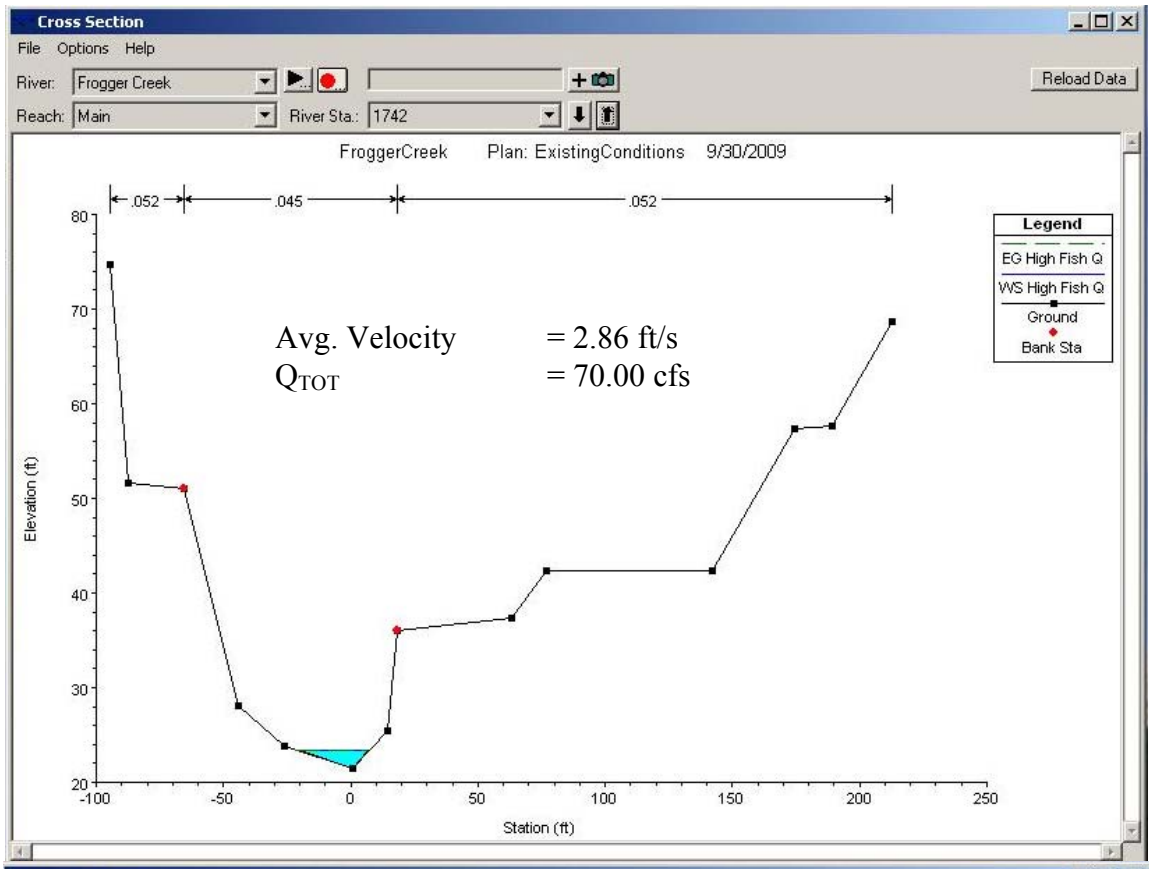

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1461
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 3.49 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

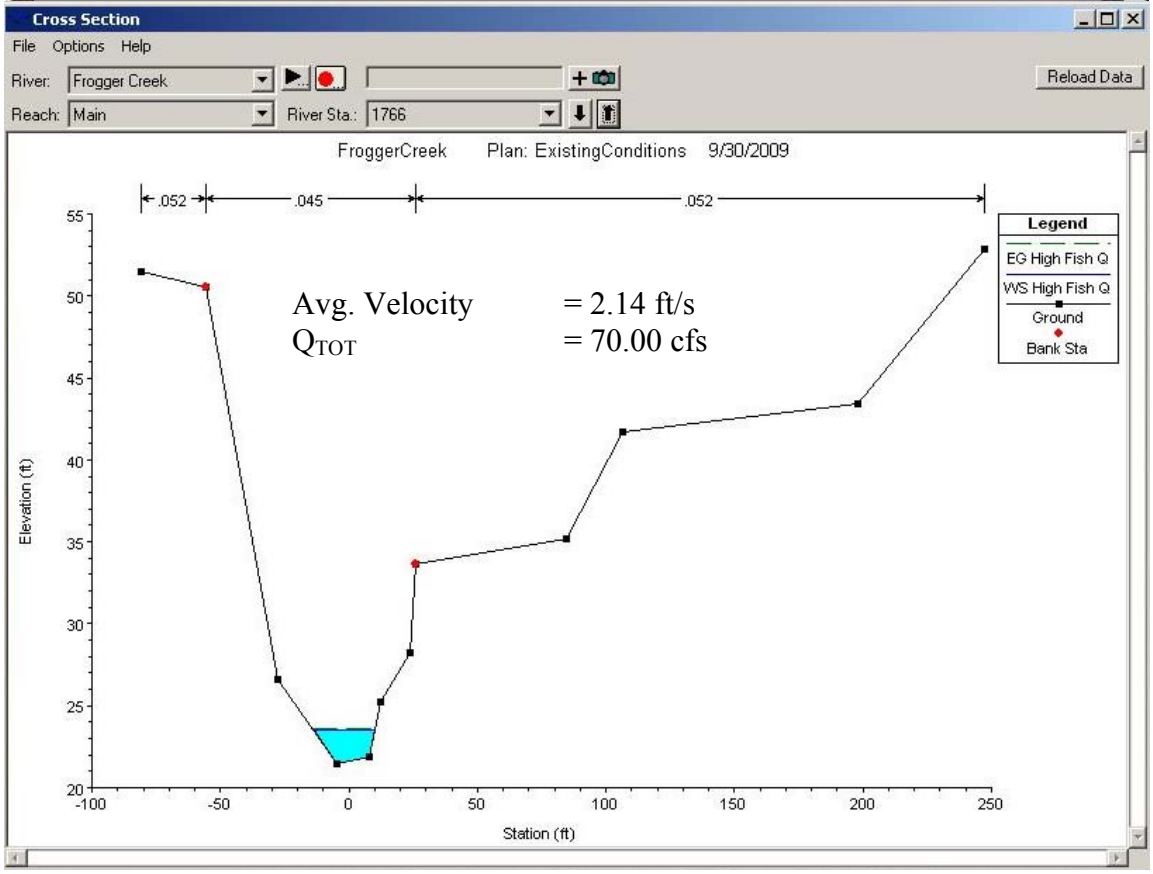

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1527
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 4.79 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

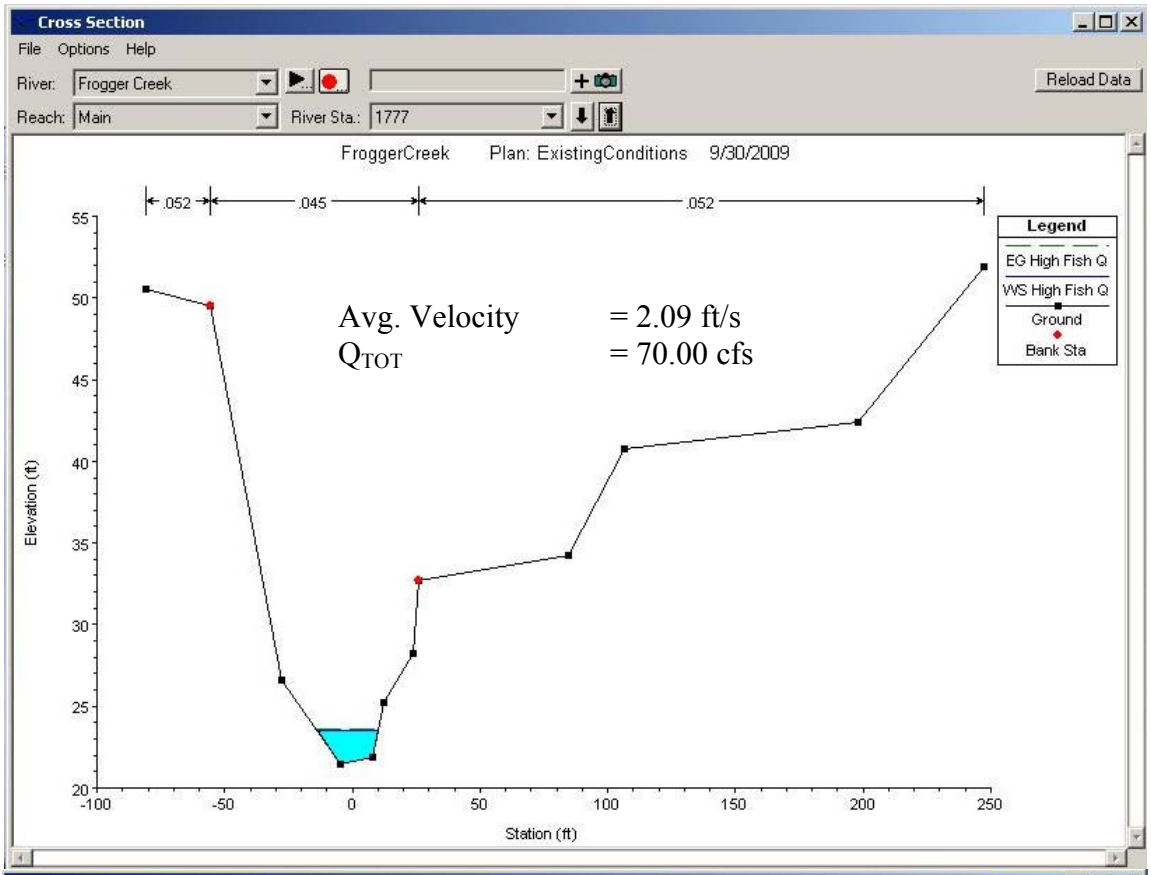

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1593
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.26 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

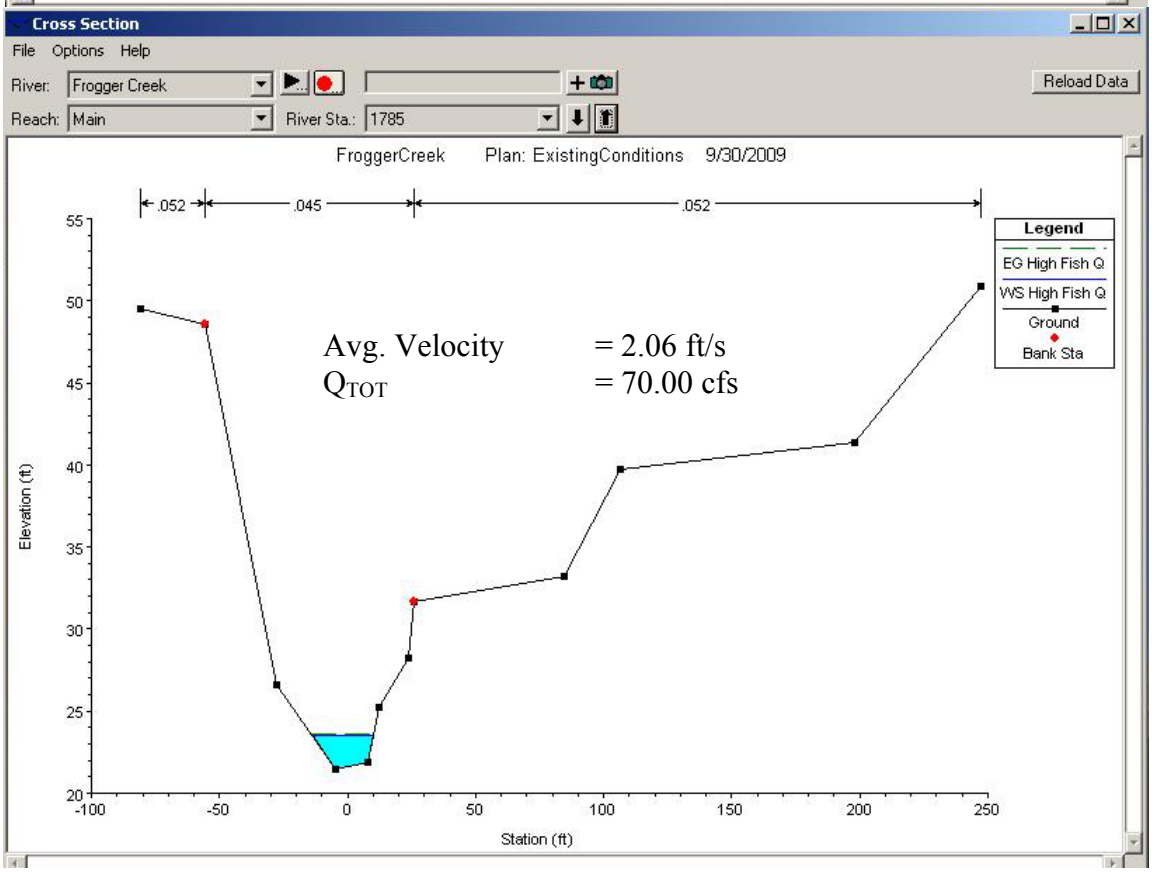

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1659
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 3.72 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

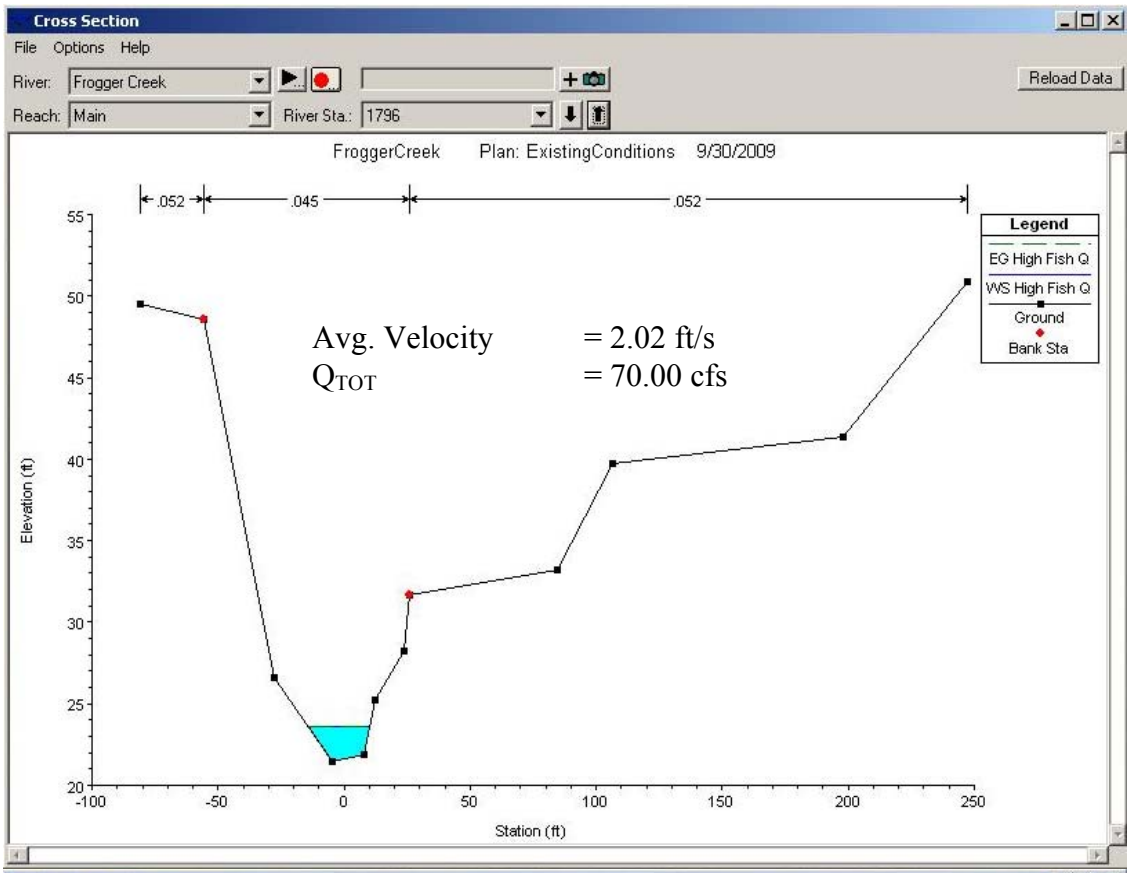

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1725
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 4.18 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

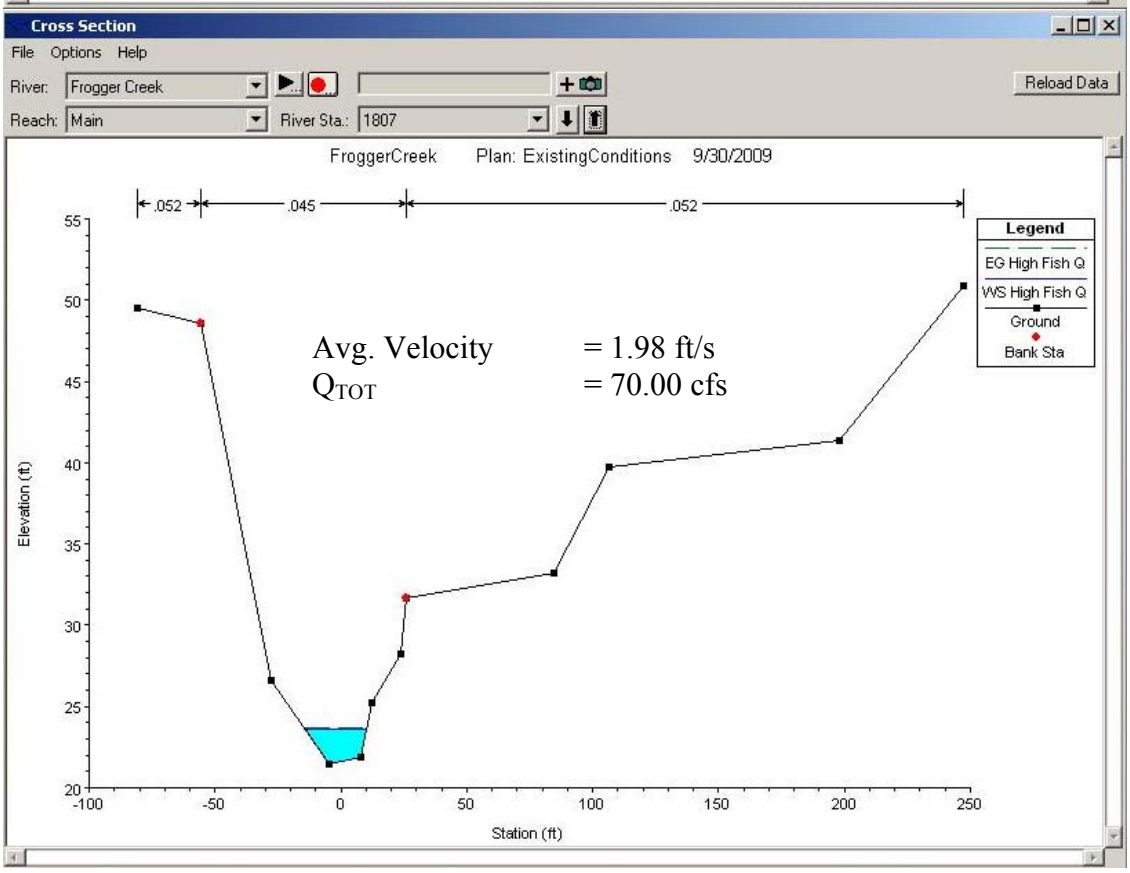

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.86 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

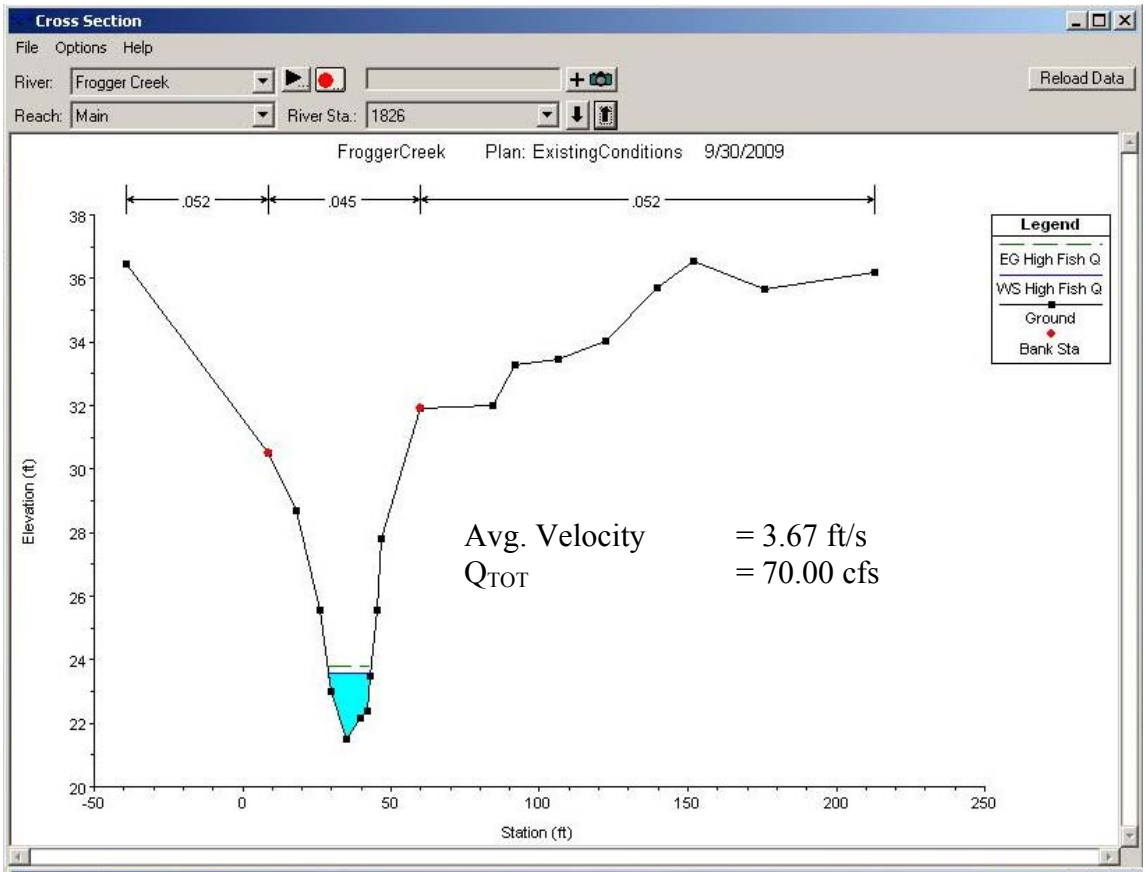

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.14 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

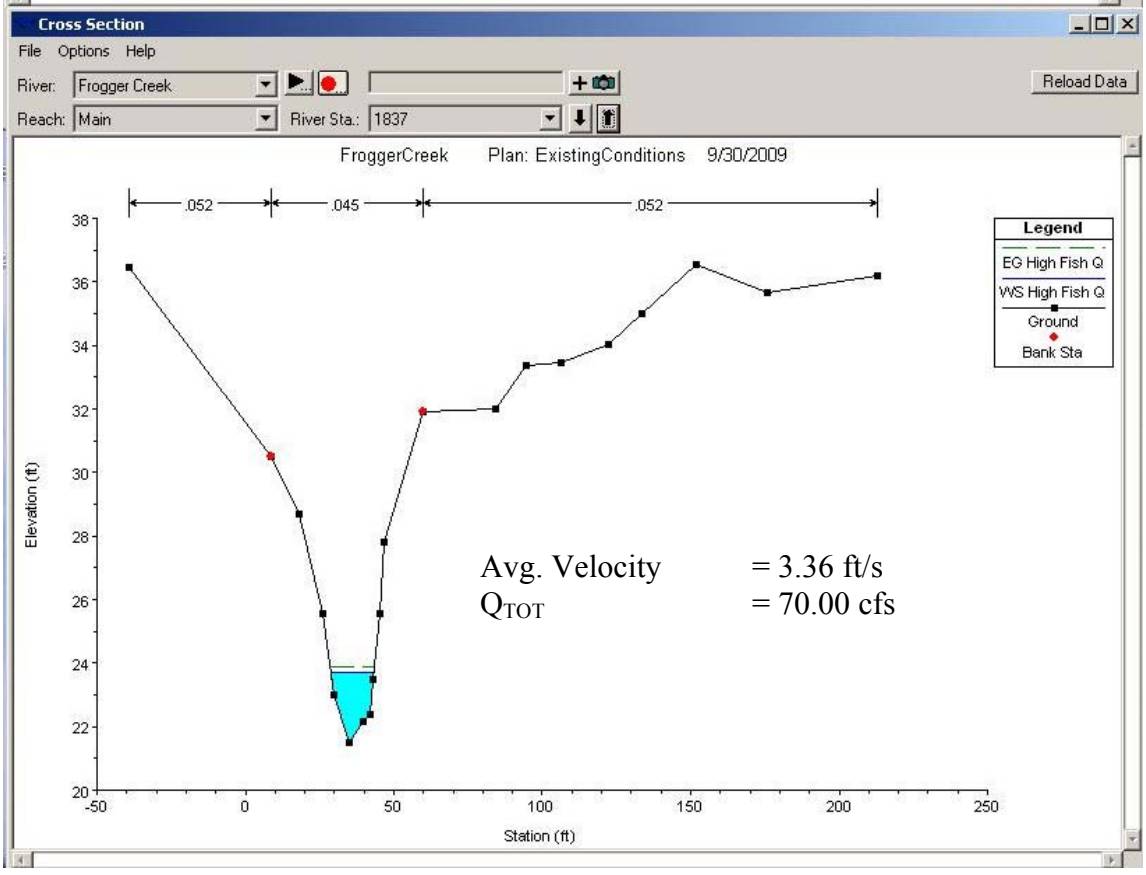

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.09 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

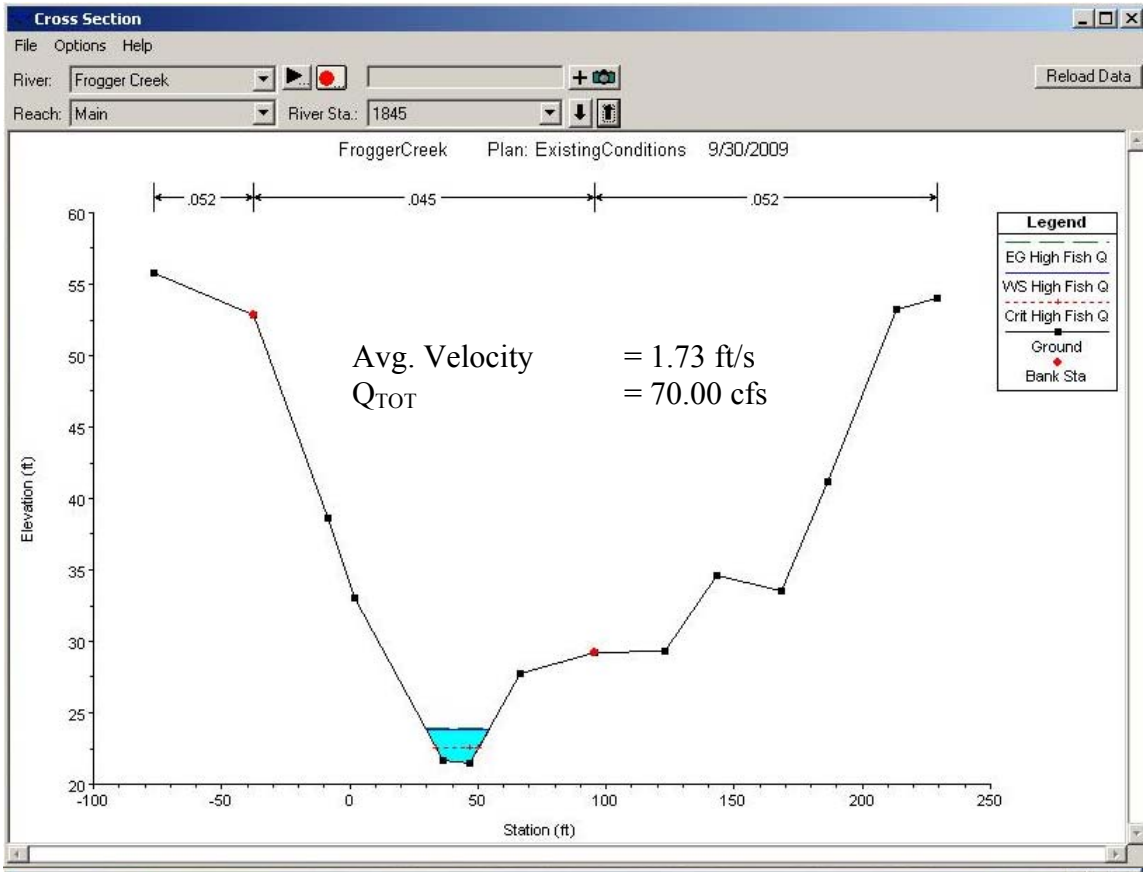

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.06 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

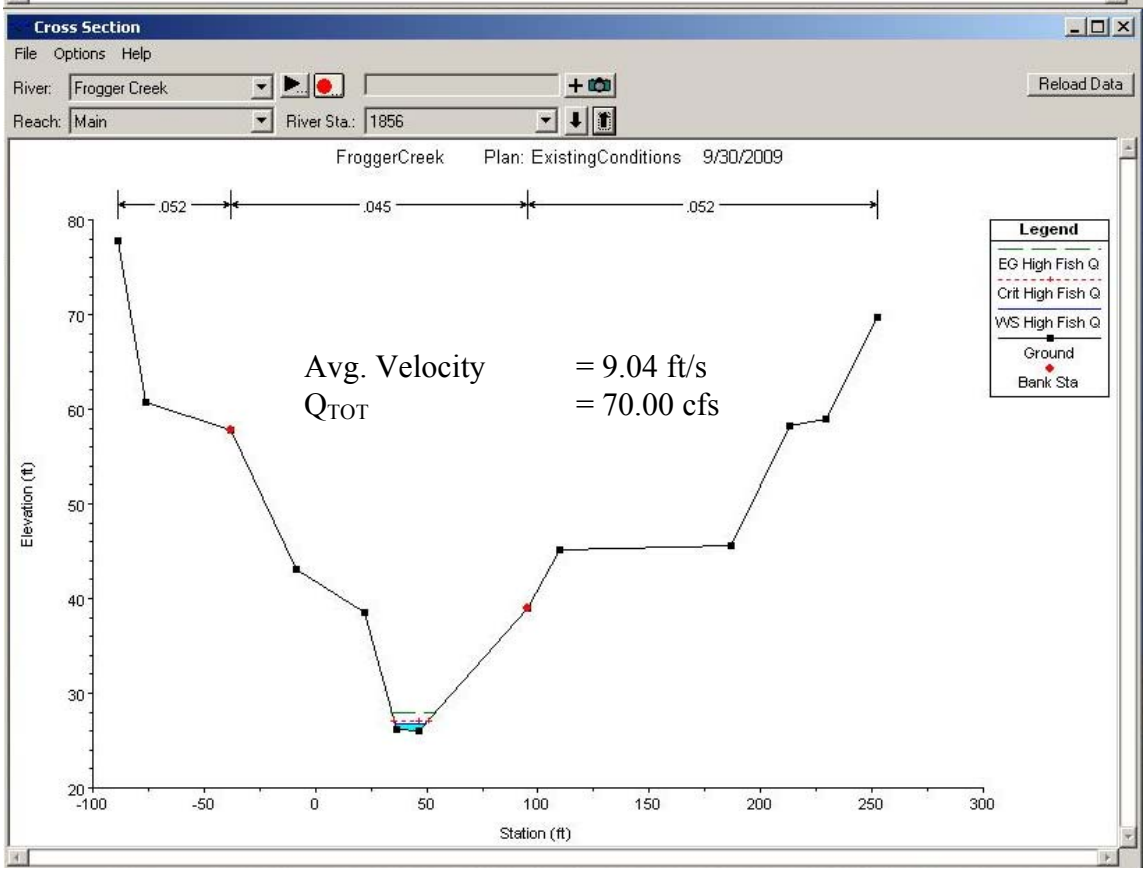

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.02 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

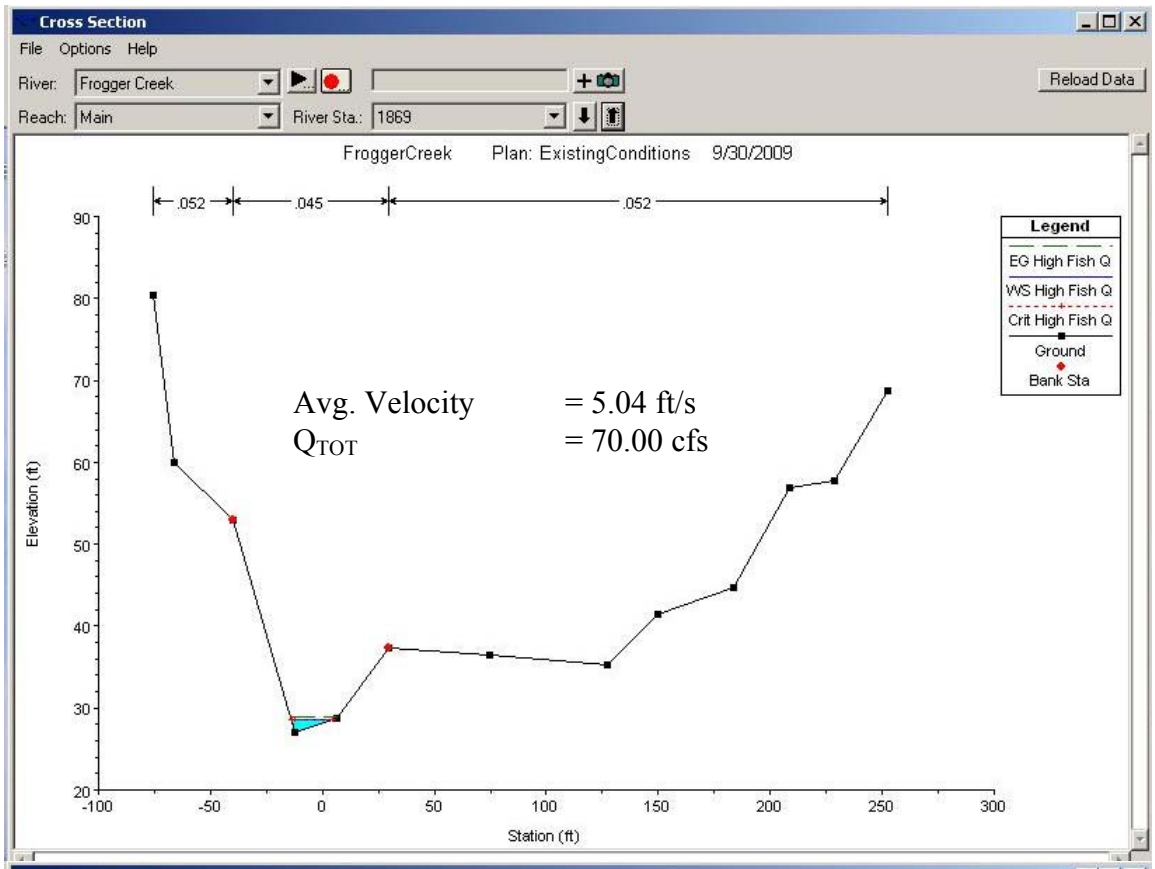

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.98 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

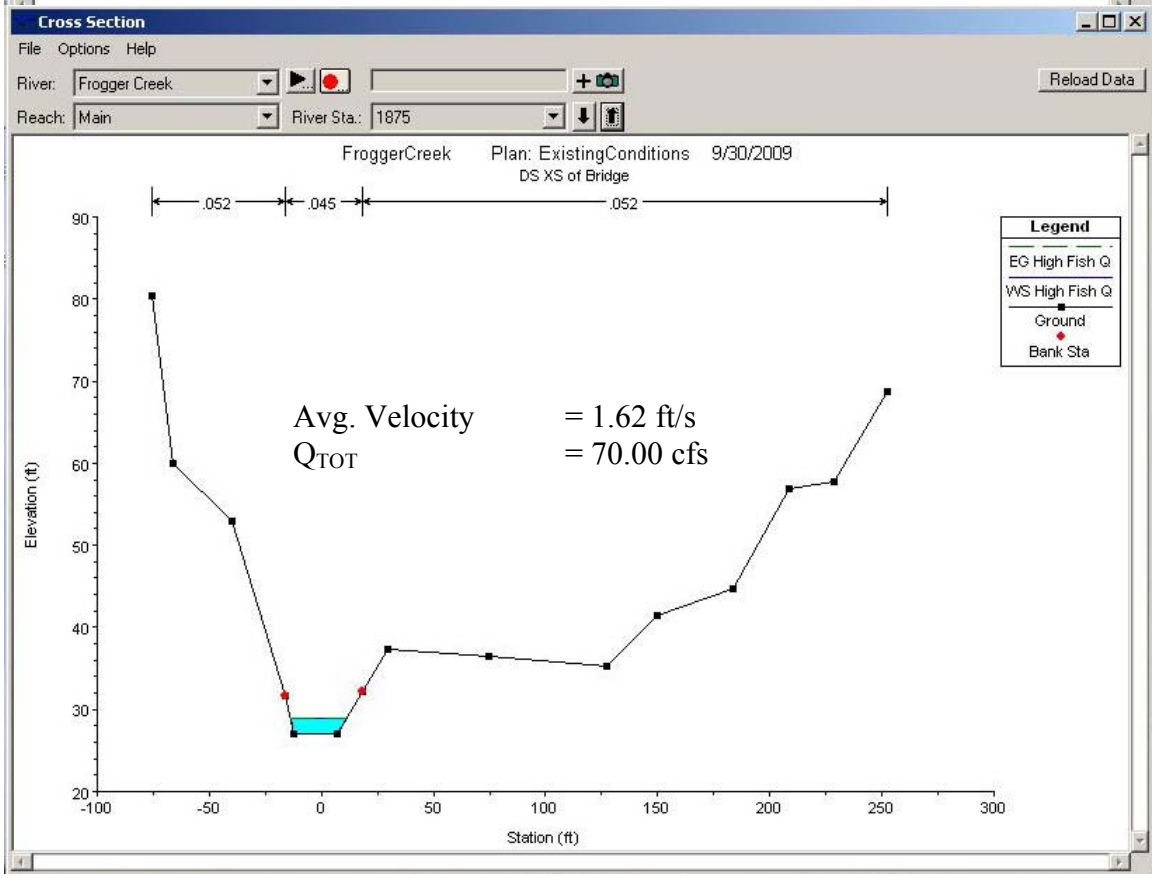

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 3.67 ft/s
Q_{TOT} = 70.00 cfs

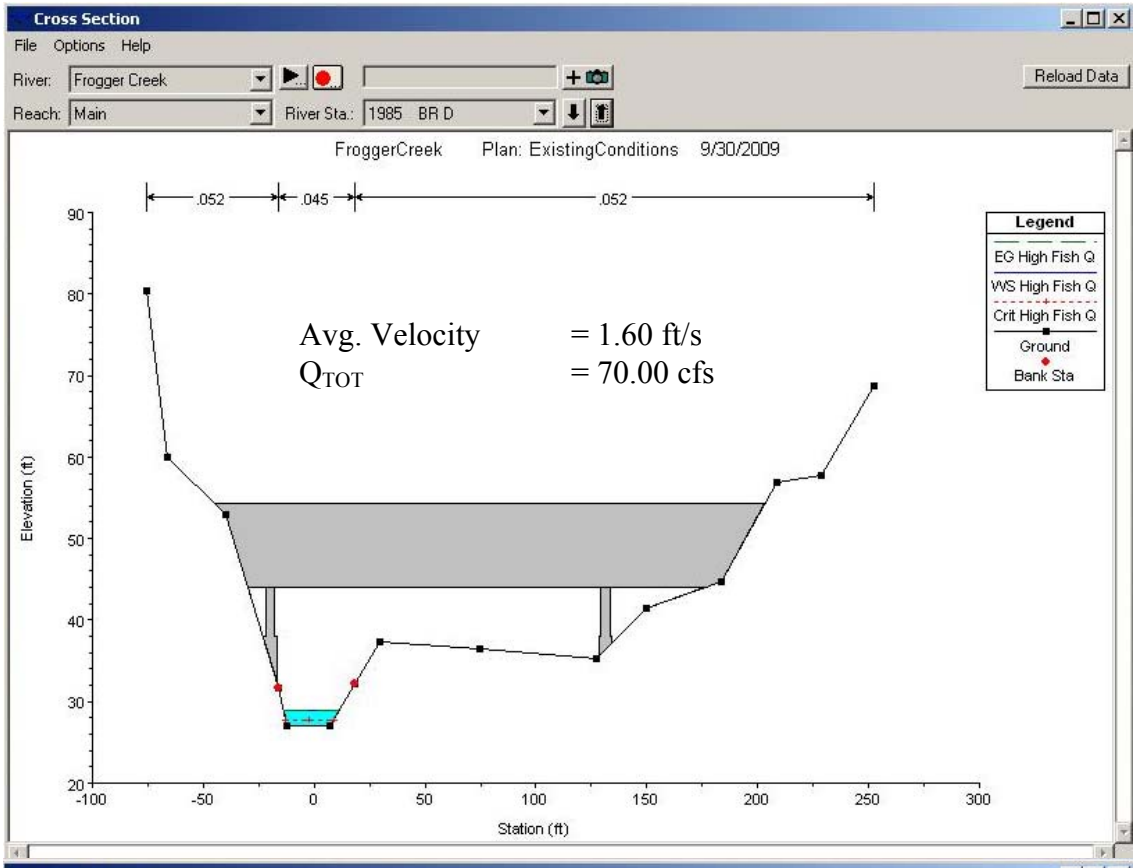

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 3.36 ft/s
Q_{TOT} = 70.00 cfs

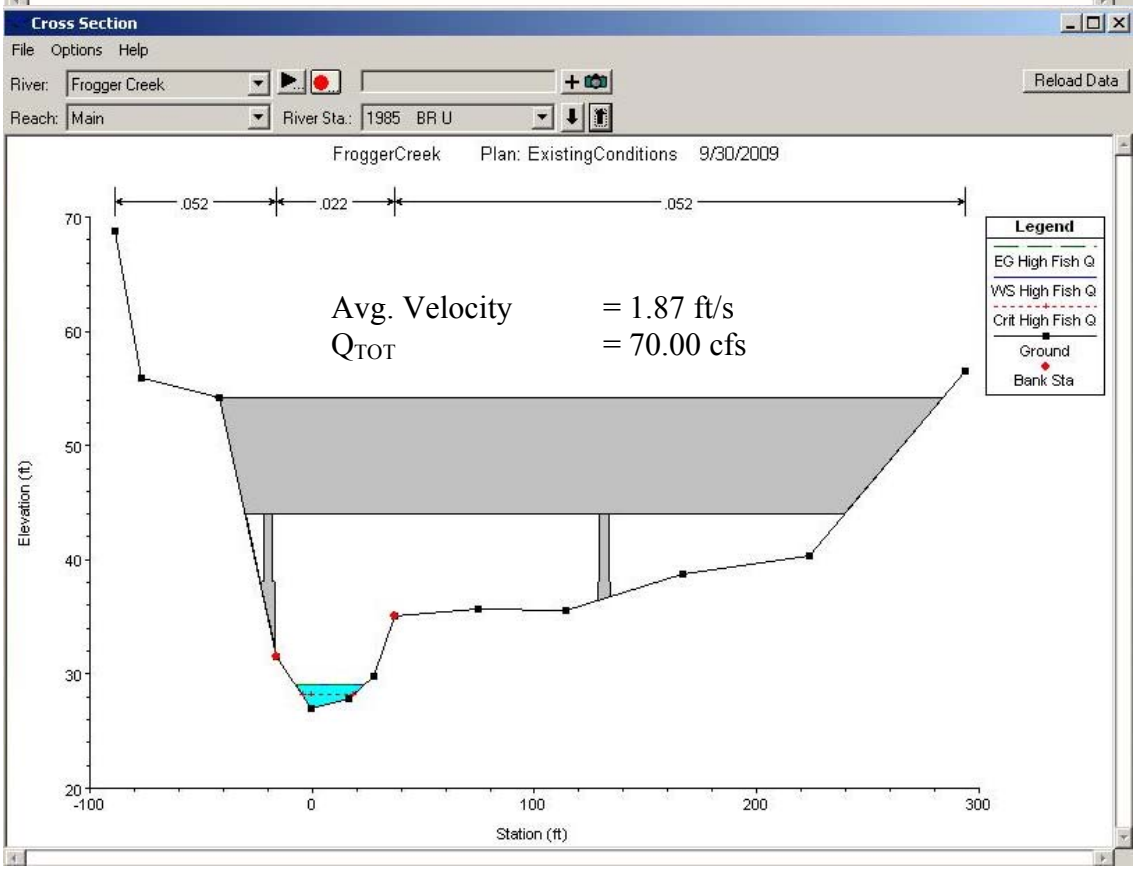

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.73 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

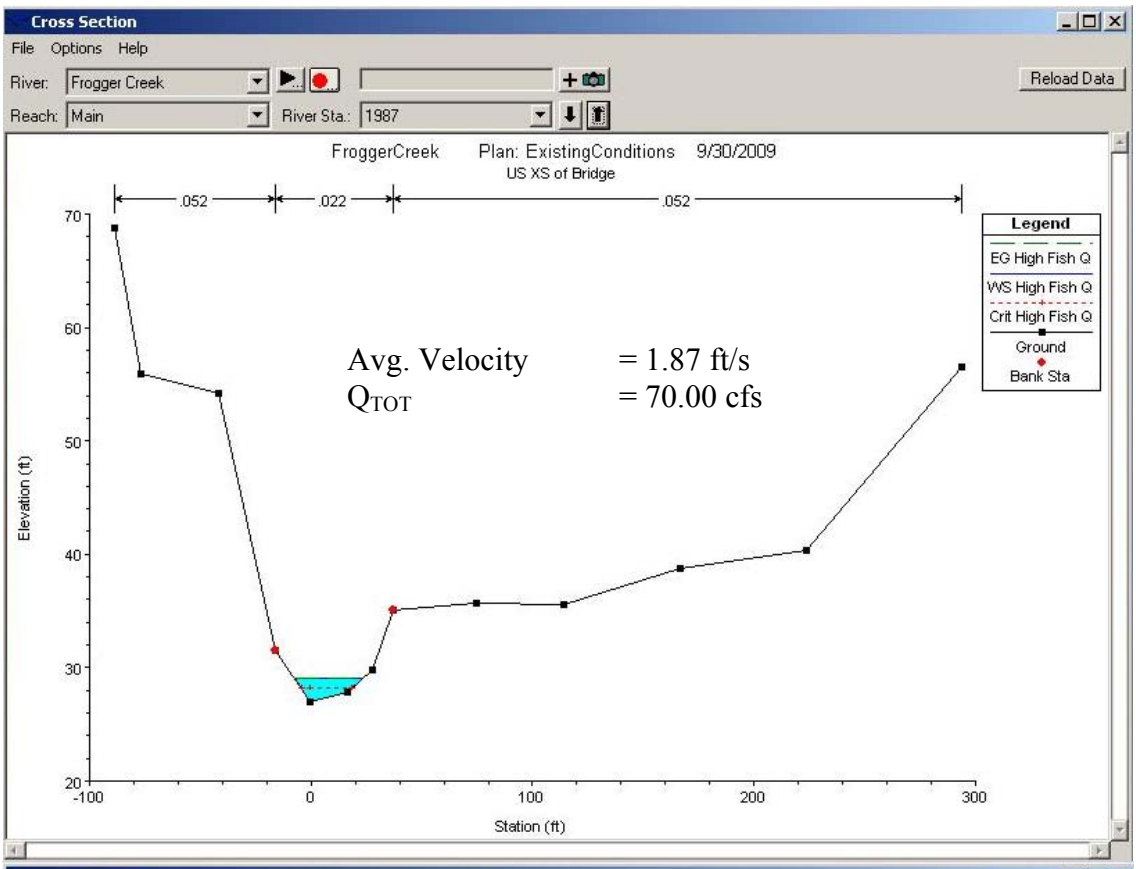

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
Crit High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 9.04 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

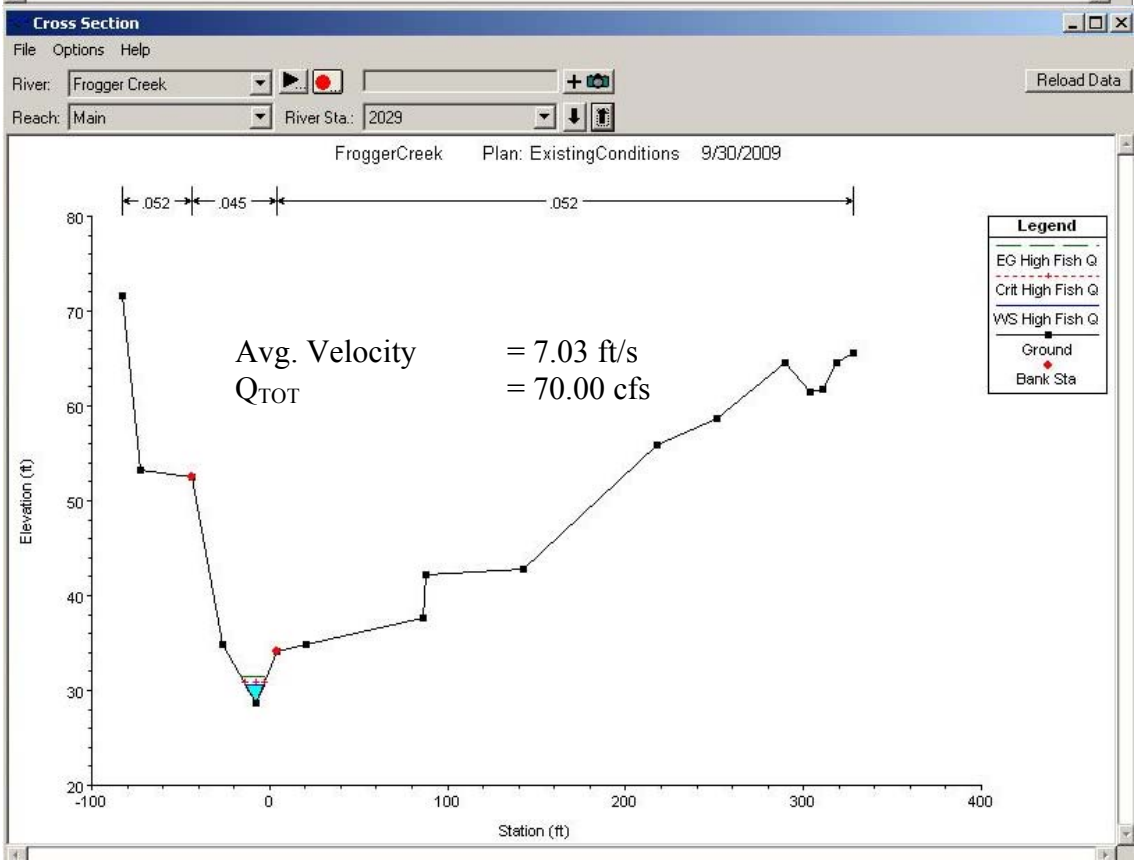

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1869
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 5.04 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

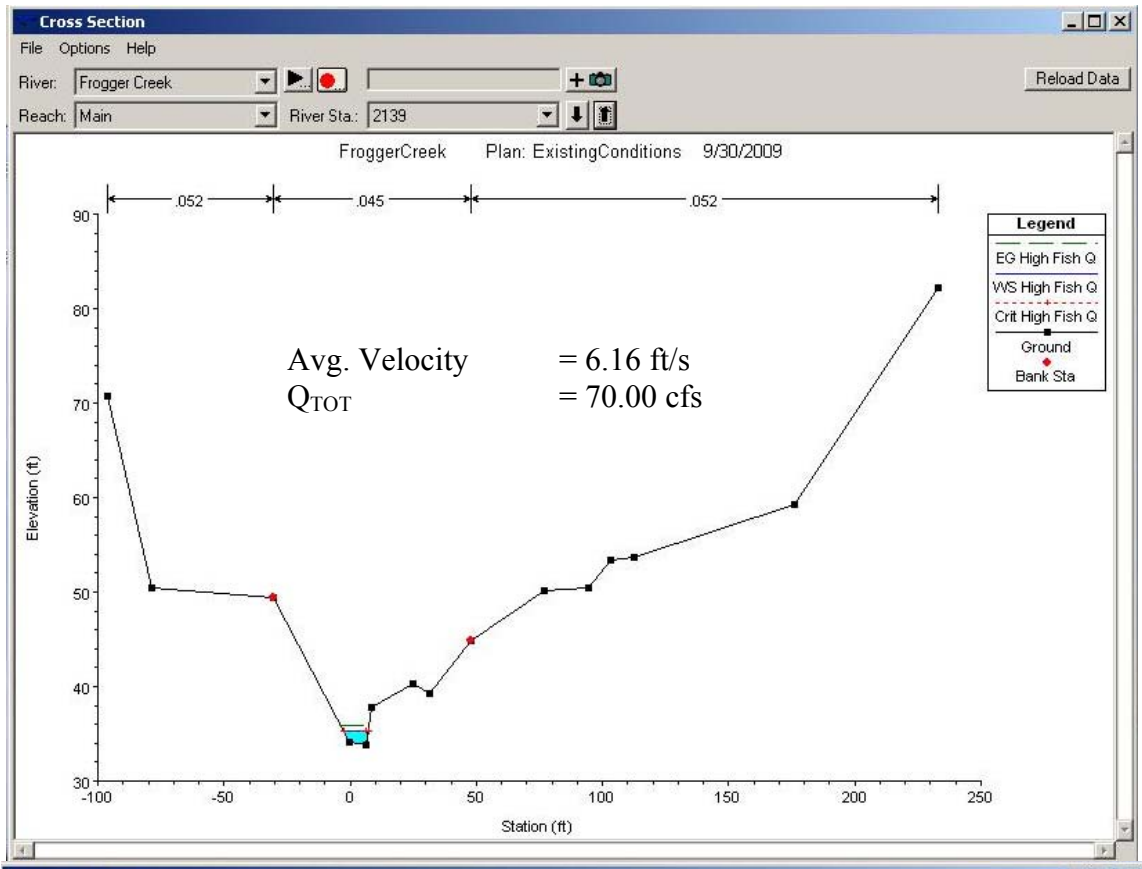

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
DS XS of Bridge
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.62 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

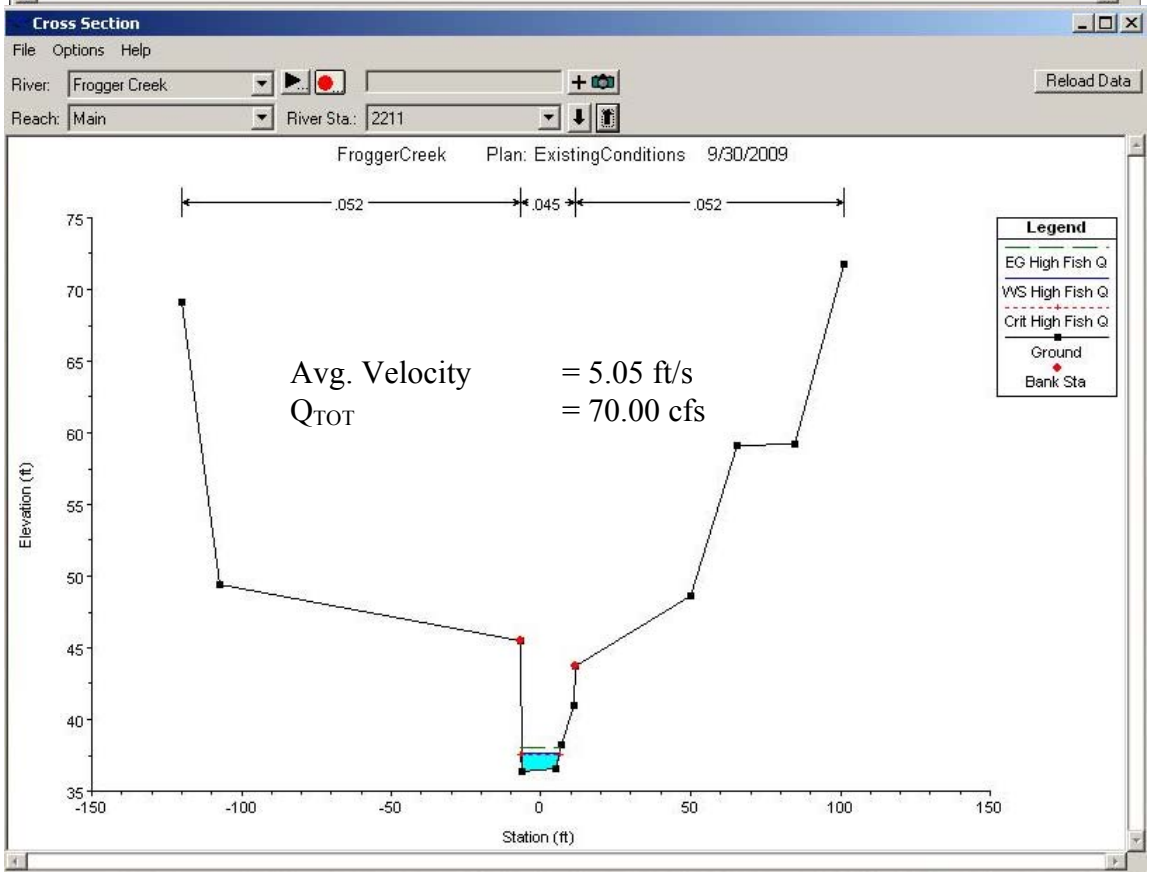

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.60 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

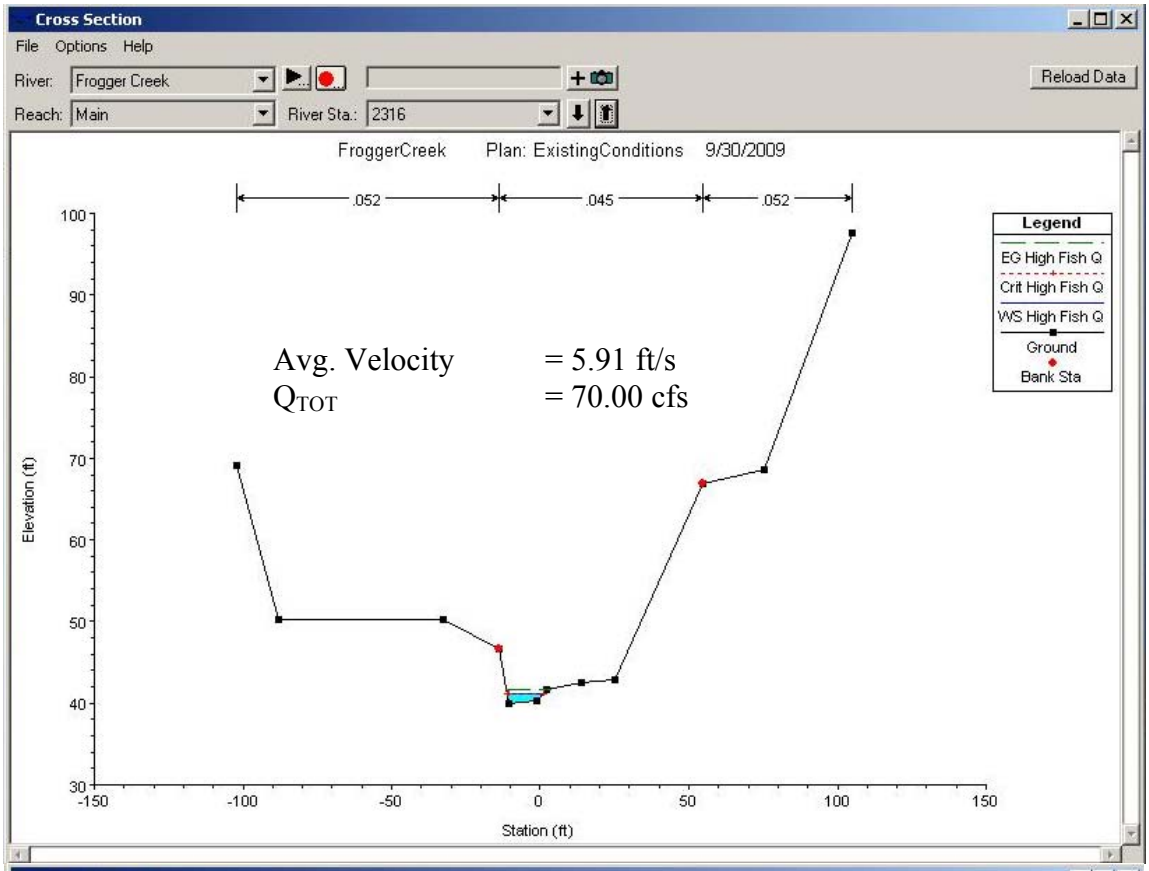

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.022
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.87 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

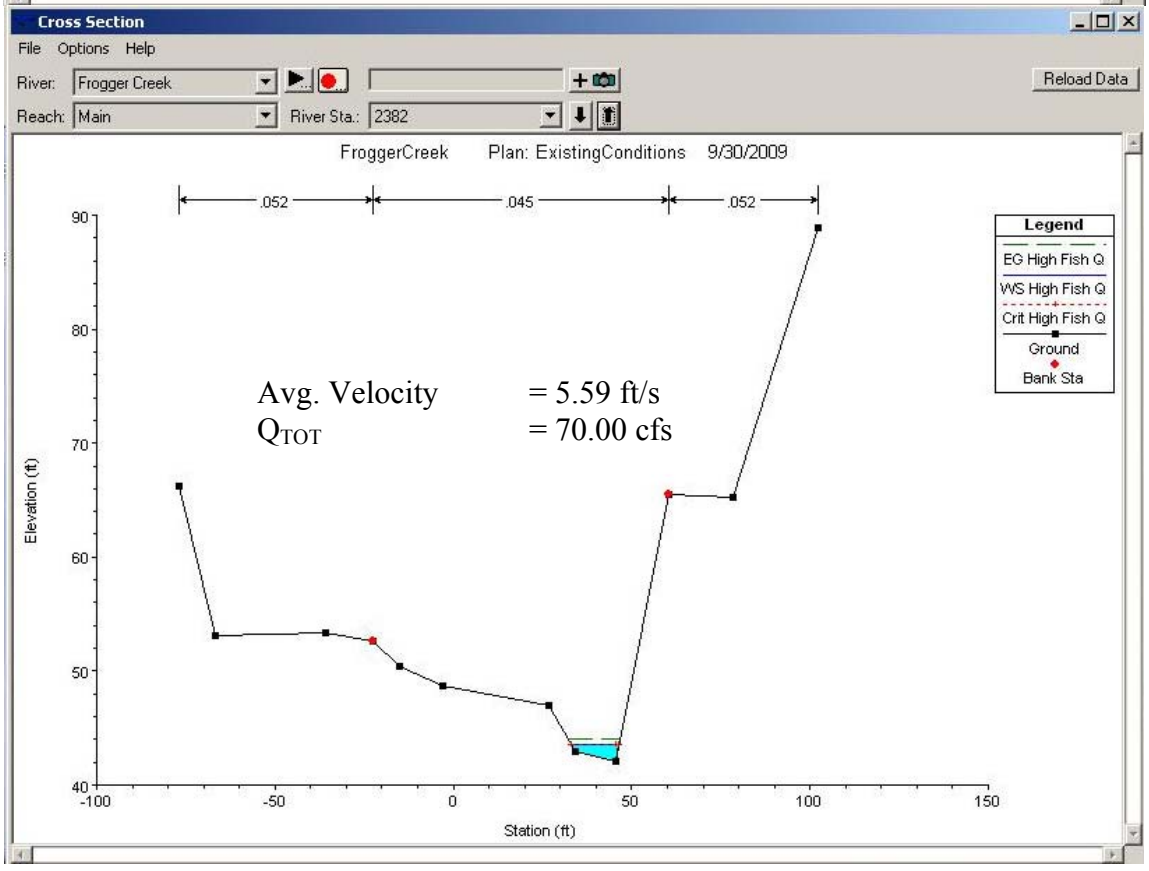

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
US XS of Bridge
.052
.022
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.87 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

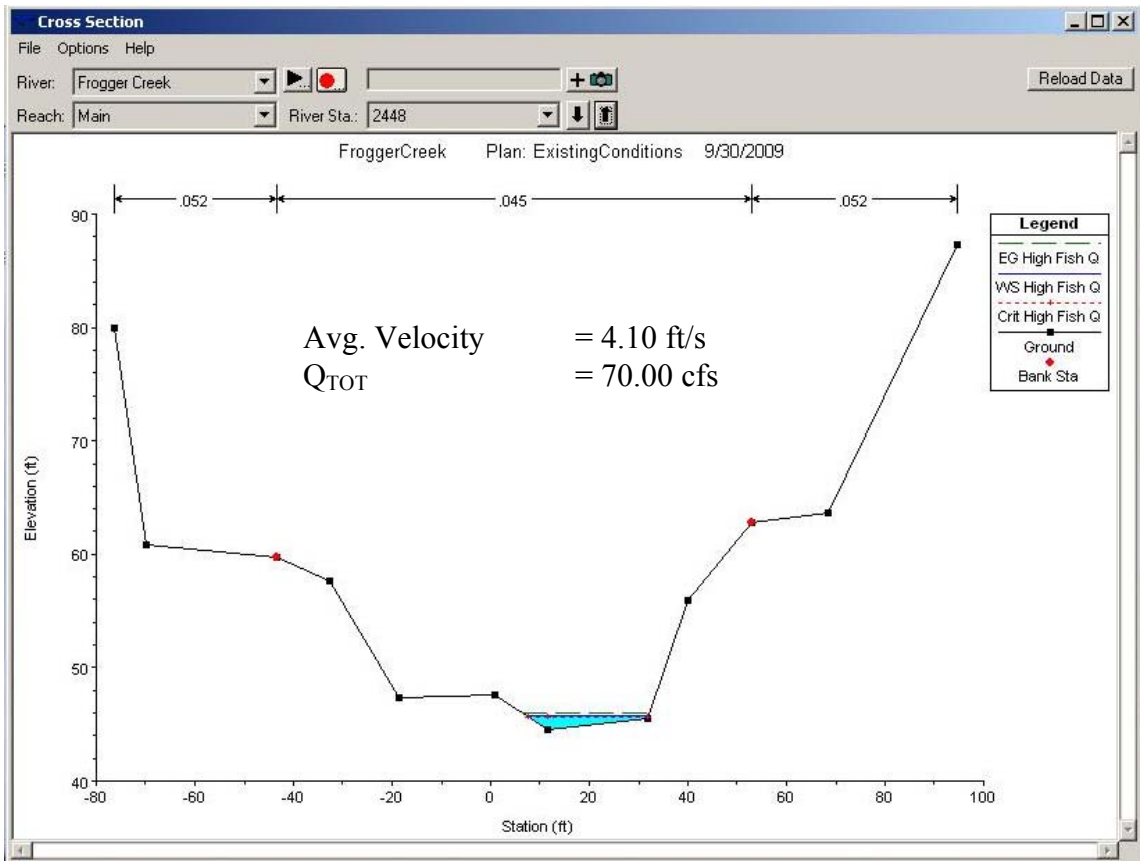

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2029
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
Crit High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 7.03 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2139
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 6.16 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2211
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 5.05 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

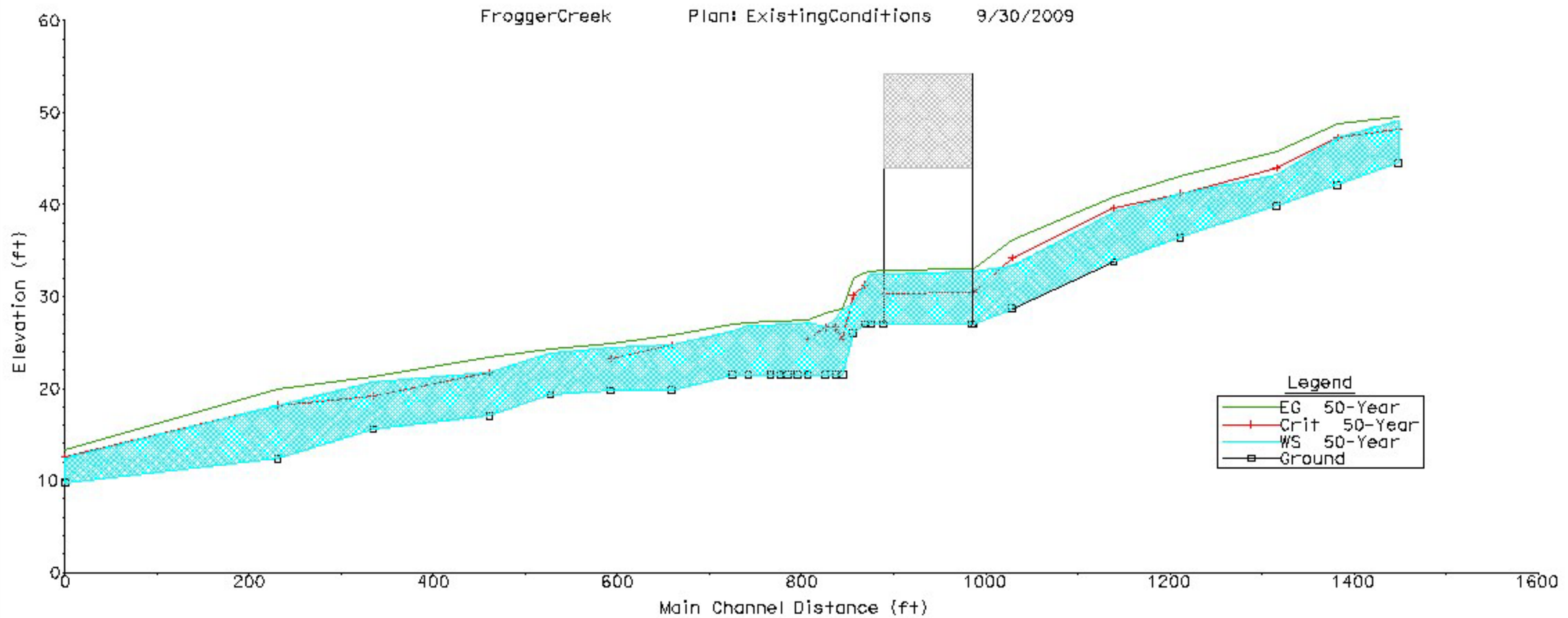

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2316
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
Crit High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 5.91 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

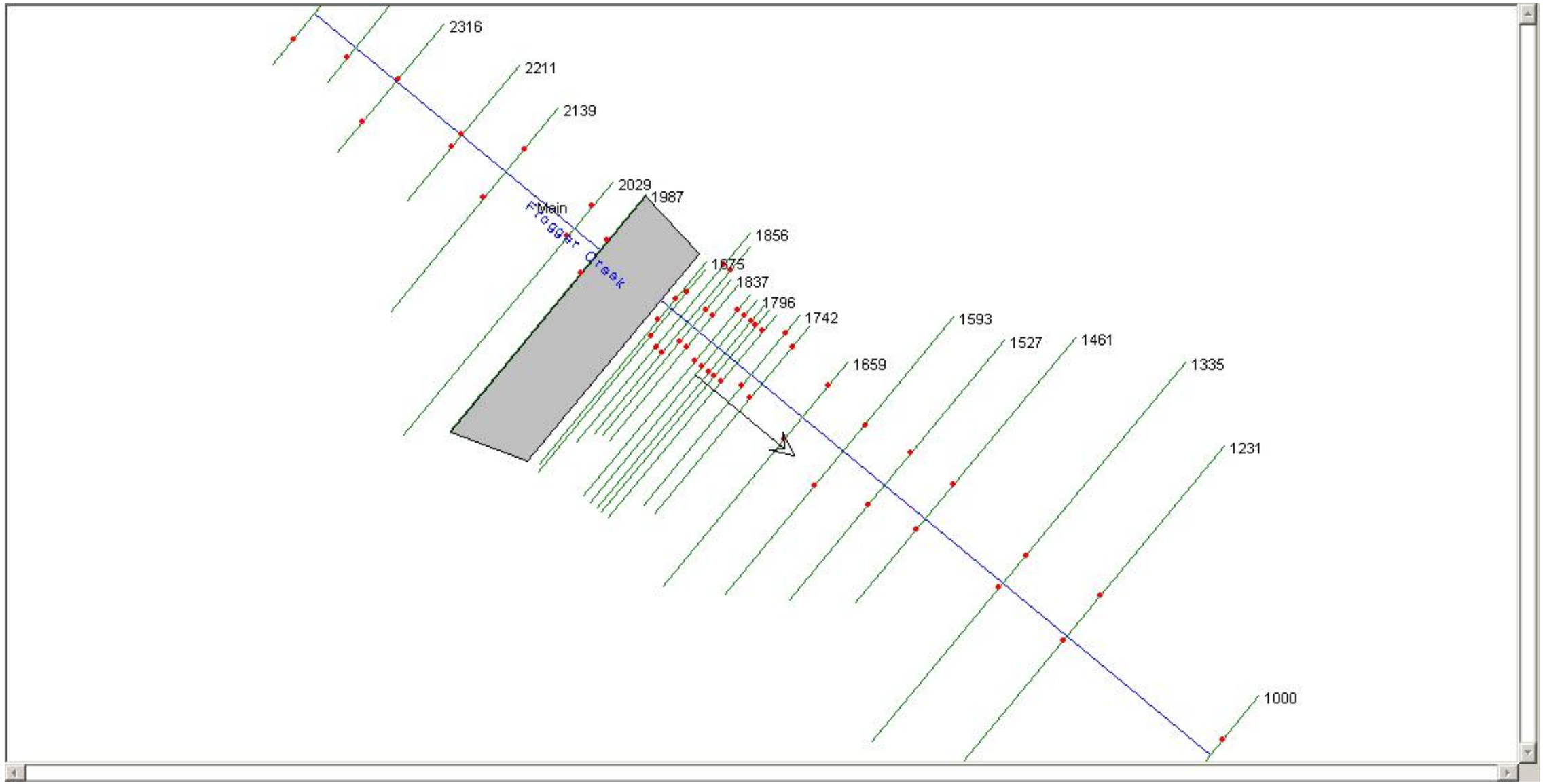

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2382
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 5.59 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

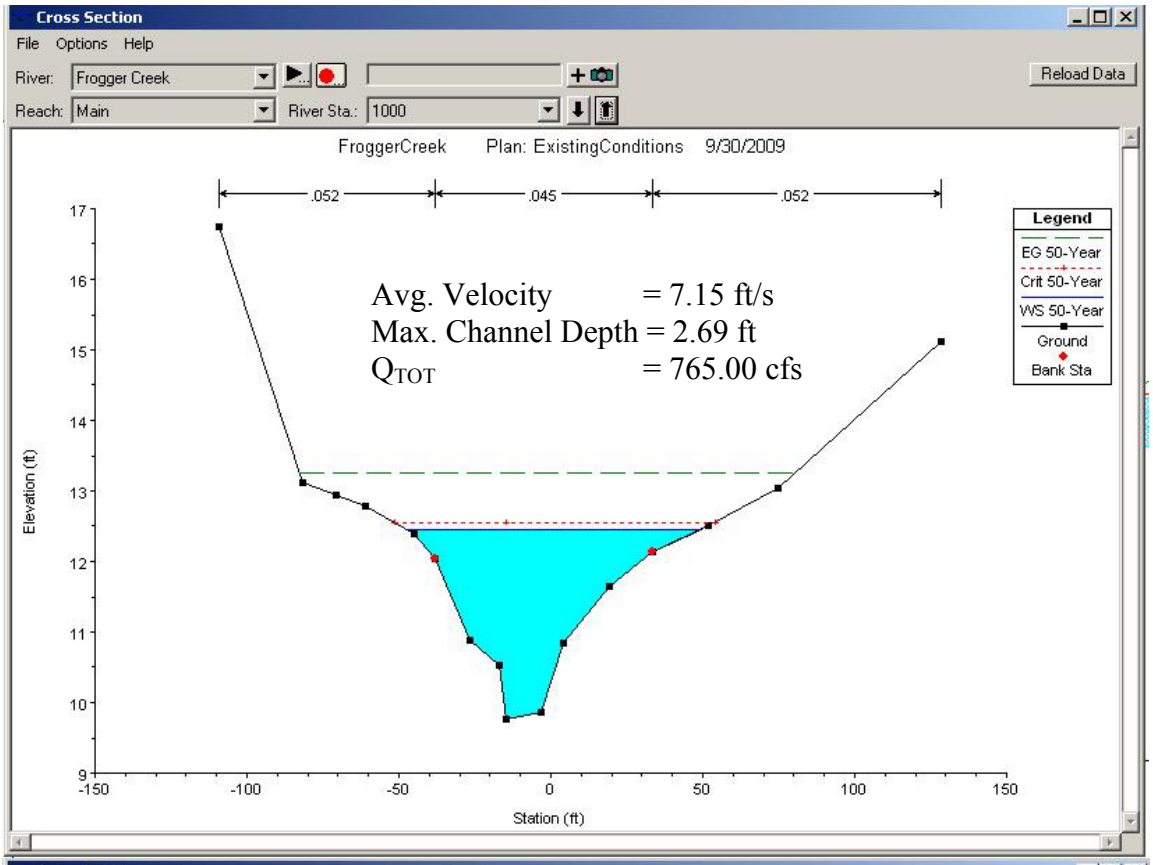

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2448
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 4.10 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)
90
80
70
60
50
40
-80
-60
-40
-20
0
20
40
60
80
100

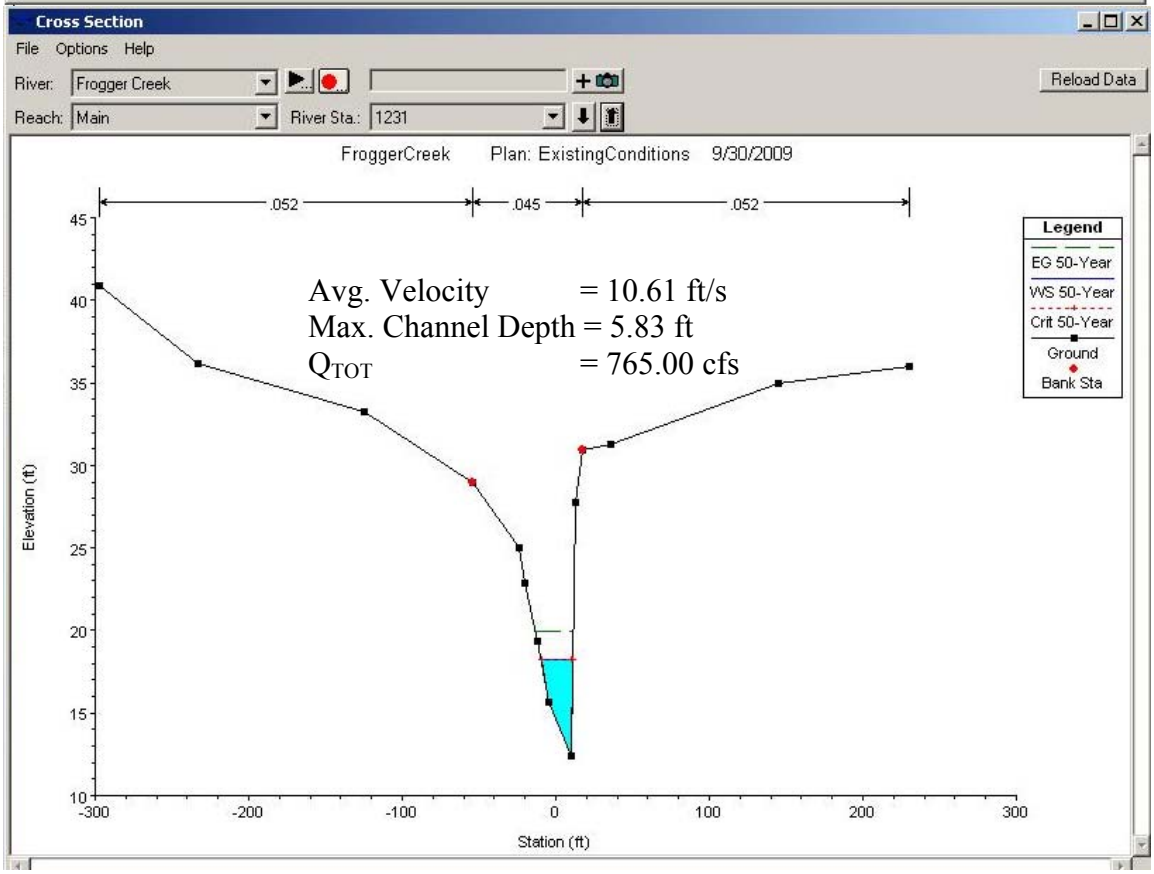
EXISTING CONDITIONS

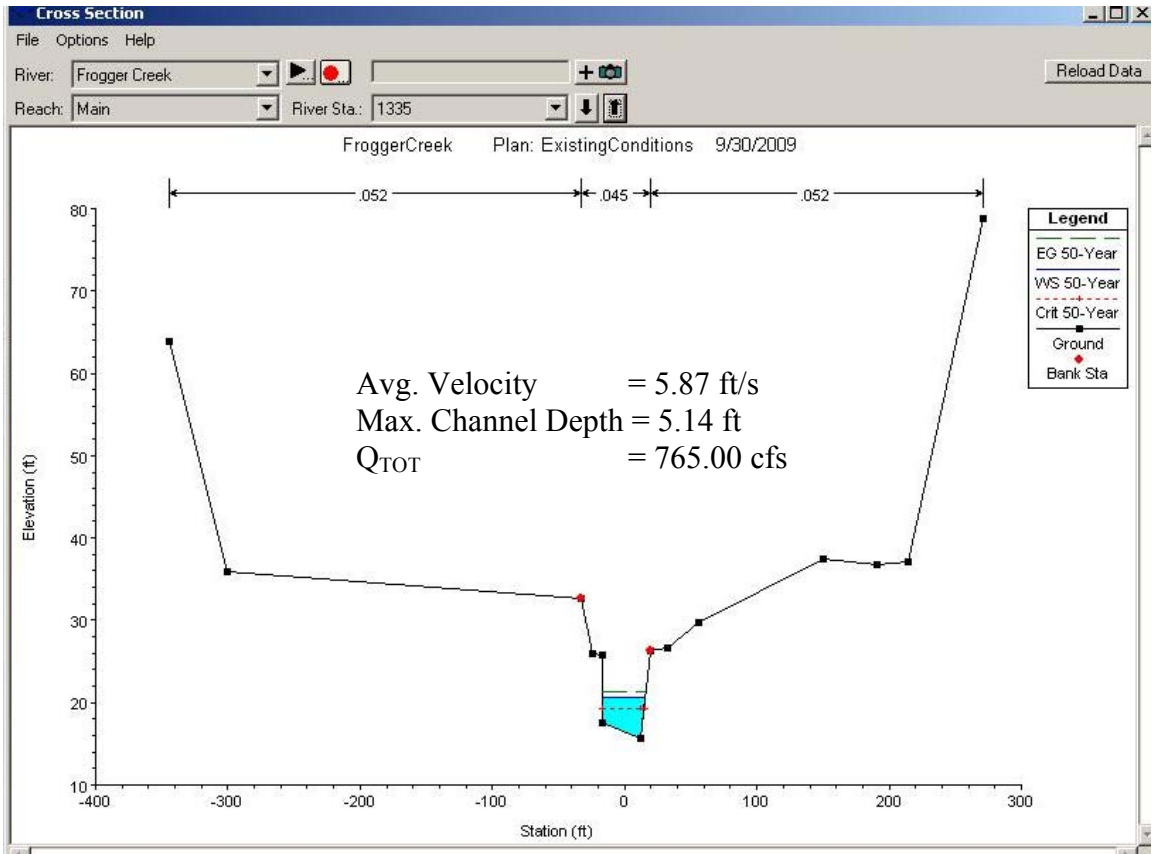
50 YEAR FLOW

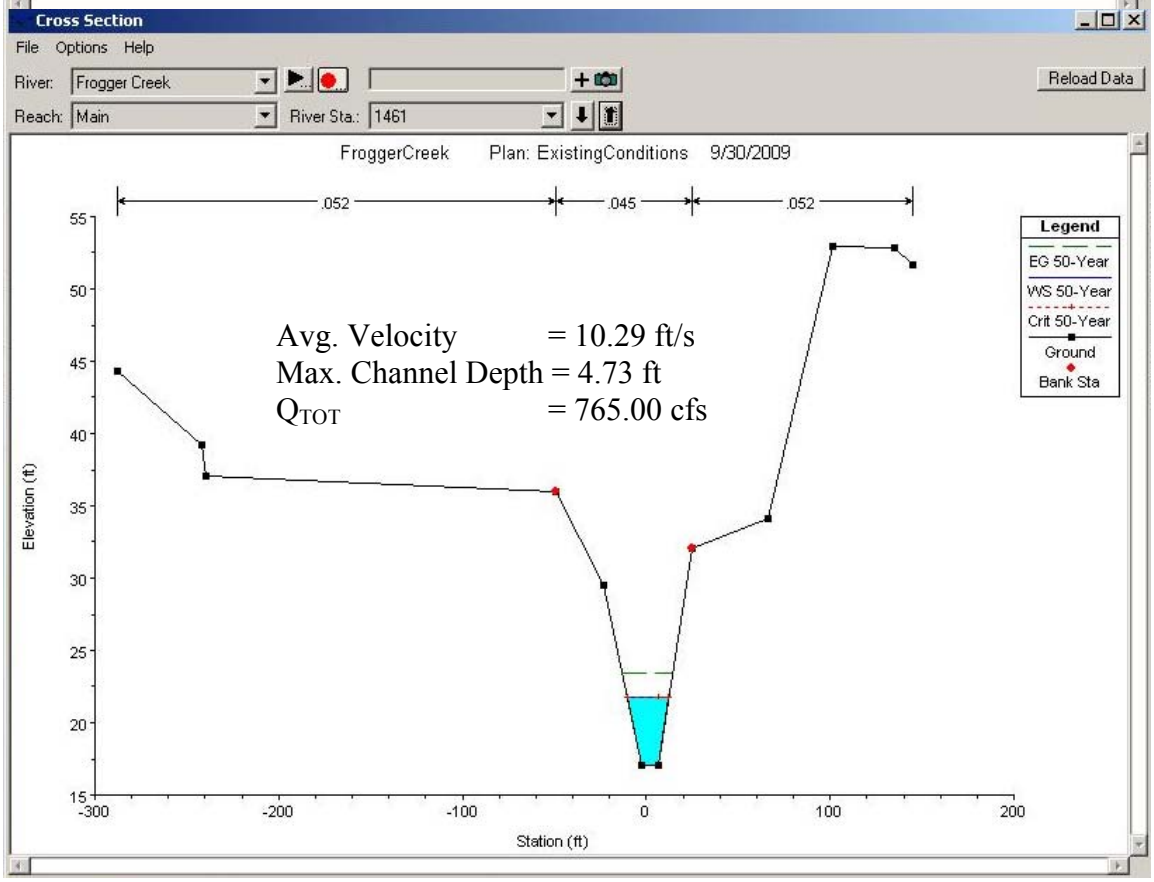

FroggerCreek
Plan: ExistingConditions
9/30/2009
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground

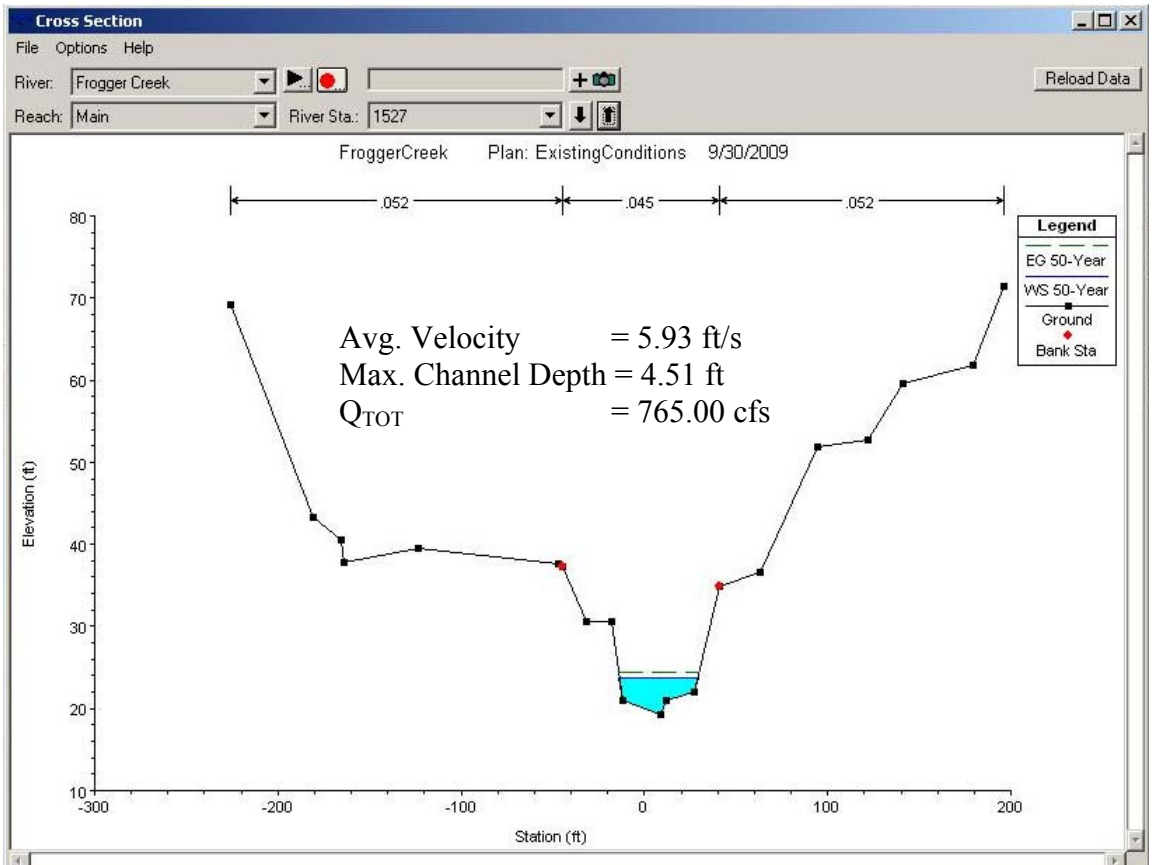

2316
2211
2139
2029
1987
Main
Flagger Creek
1856
1875
1837
1796
1742
1659
1593
1527
1461
1335
1231
1000

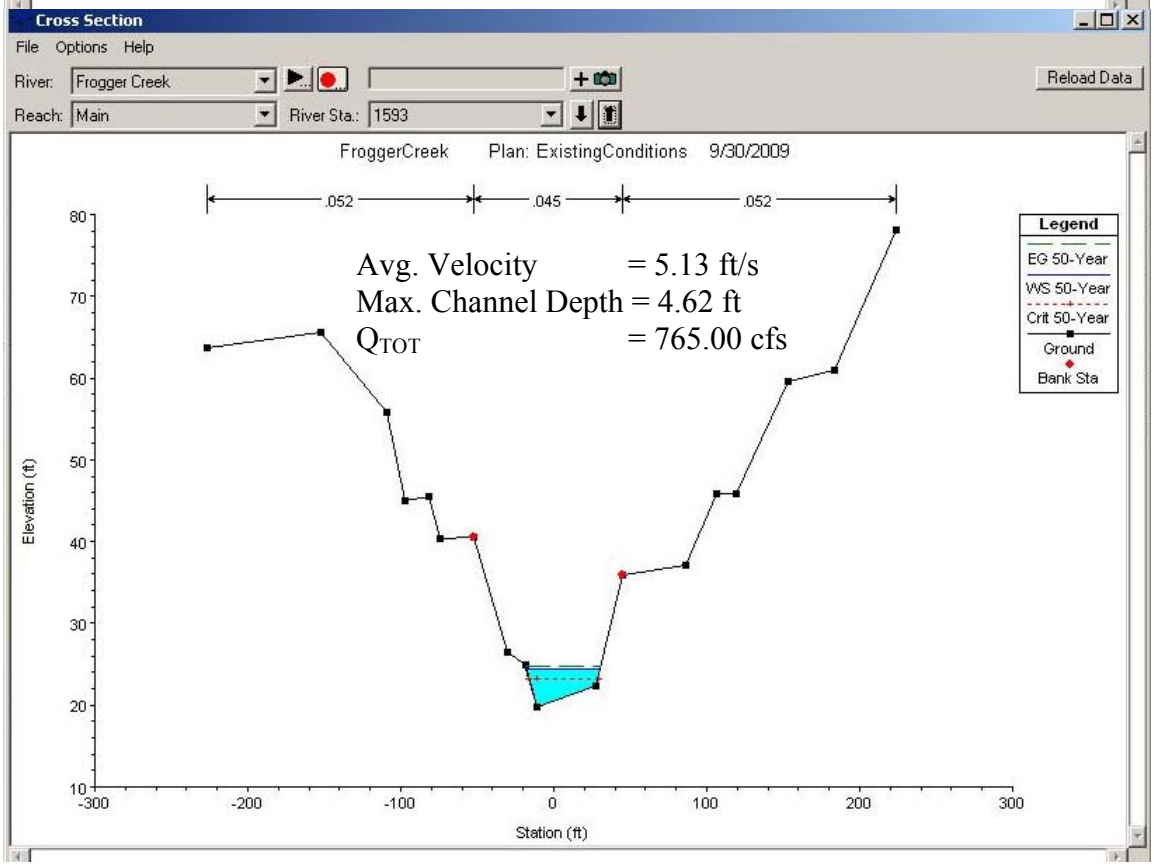

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1000
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 7.15 ft/s
Max. Channel Depth = 2.69 ft
QTOT = 765.00 cfs
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

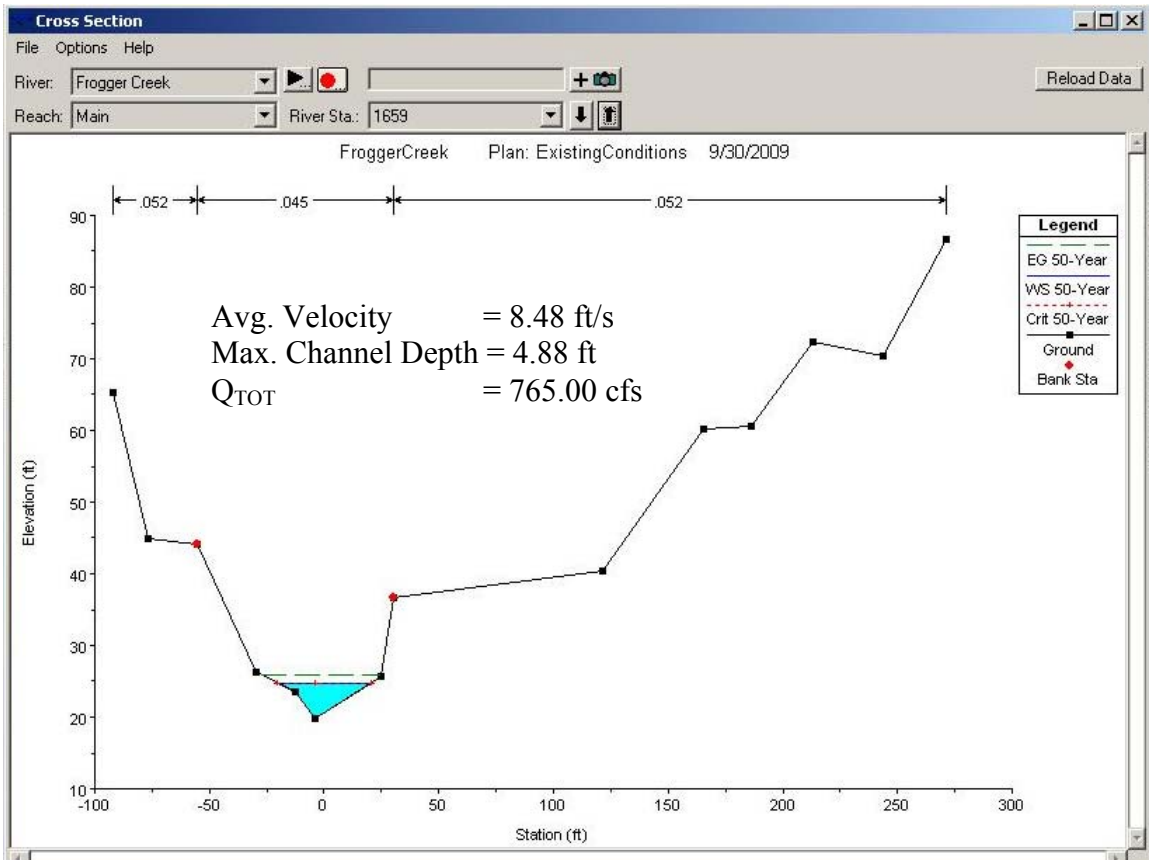

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1231
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 10.61 ft/s
Max. Channel Depth = 5.83 ft
QTOT = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

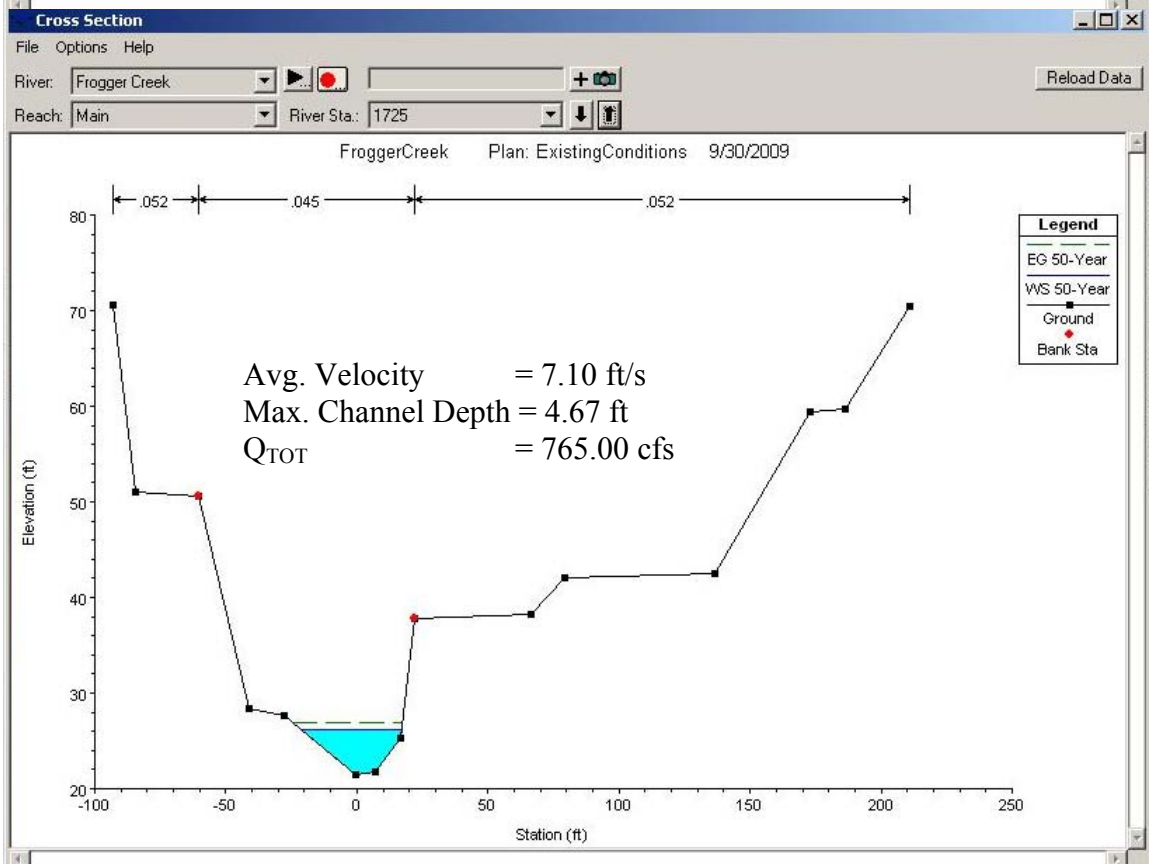

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1335
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 5.87 ft/s
Max. Channel Depth = 5.14 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

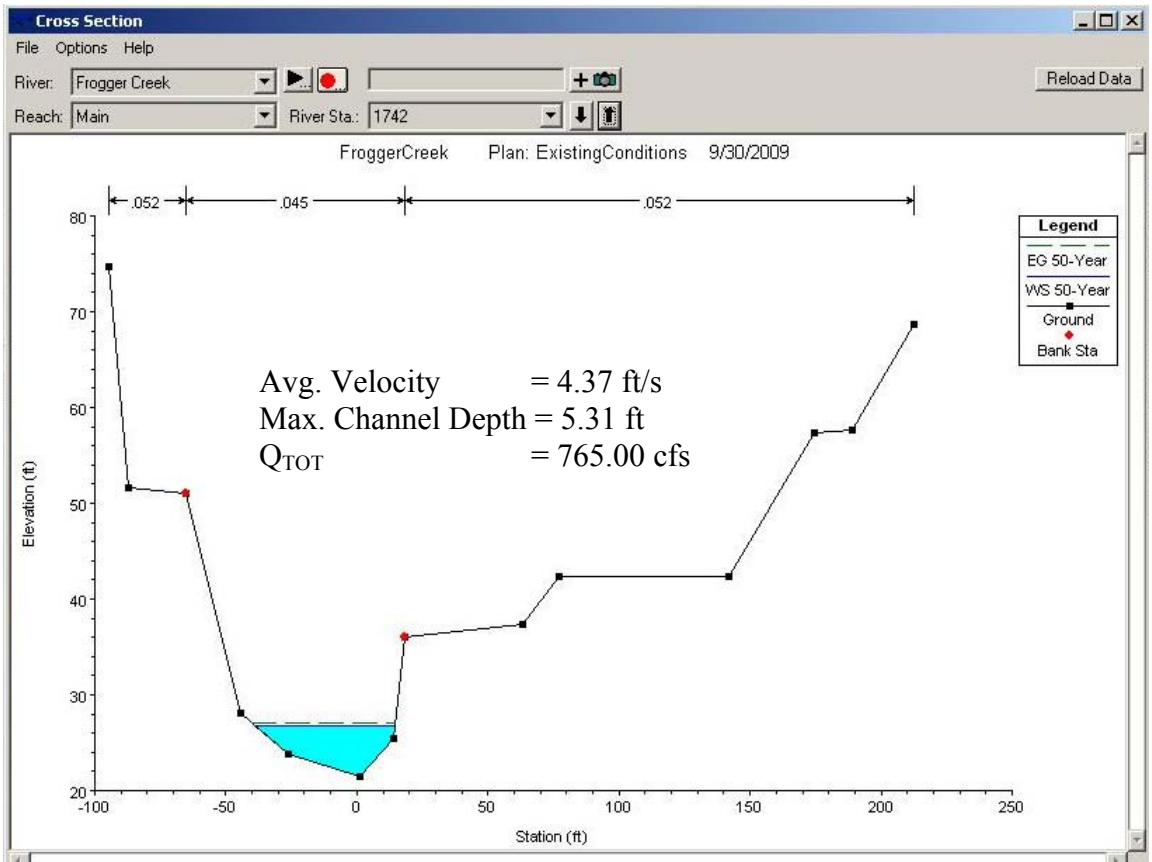

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1461
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 10.29 ft/s
Max. Channel Depth = 4.73 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

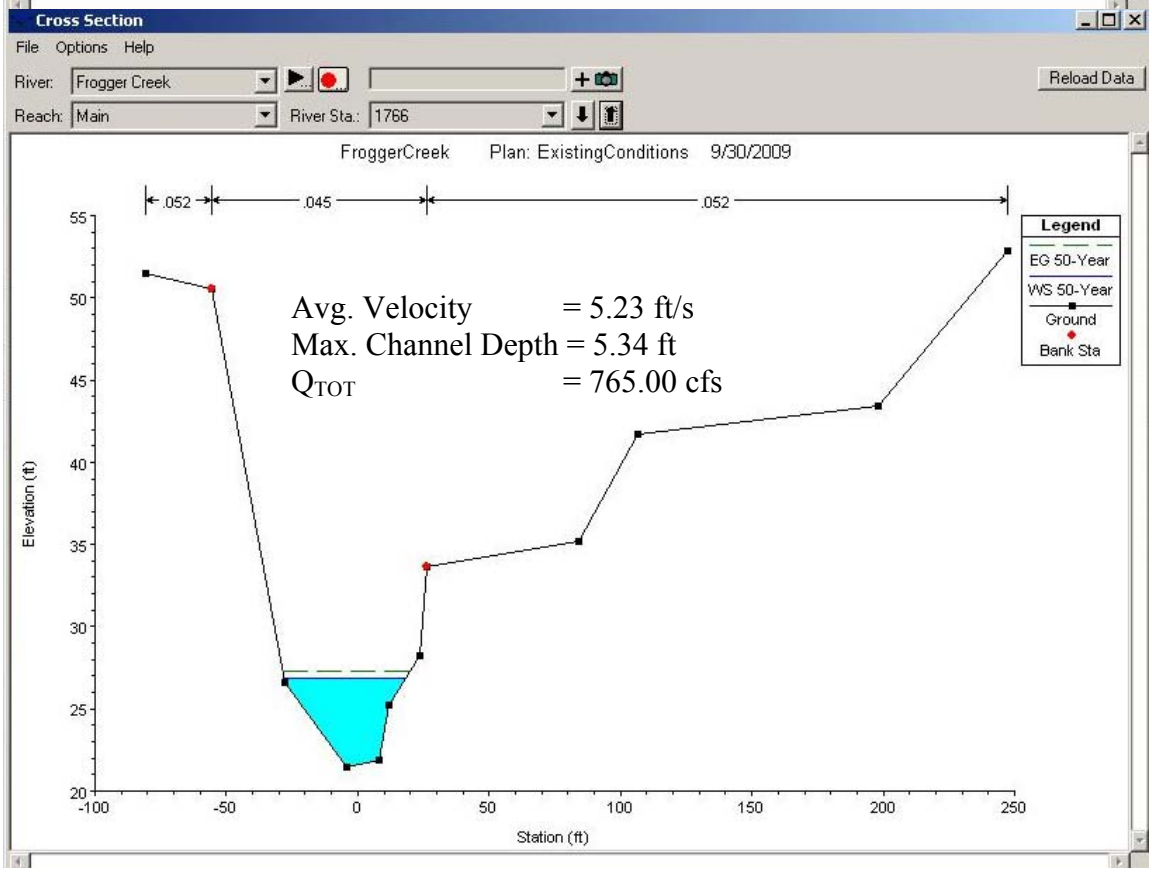

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1527
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.93 ft/s
Max. Channel Depth = 4.51 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

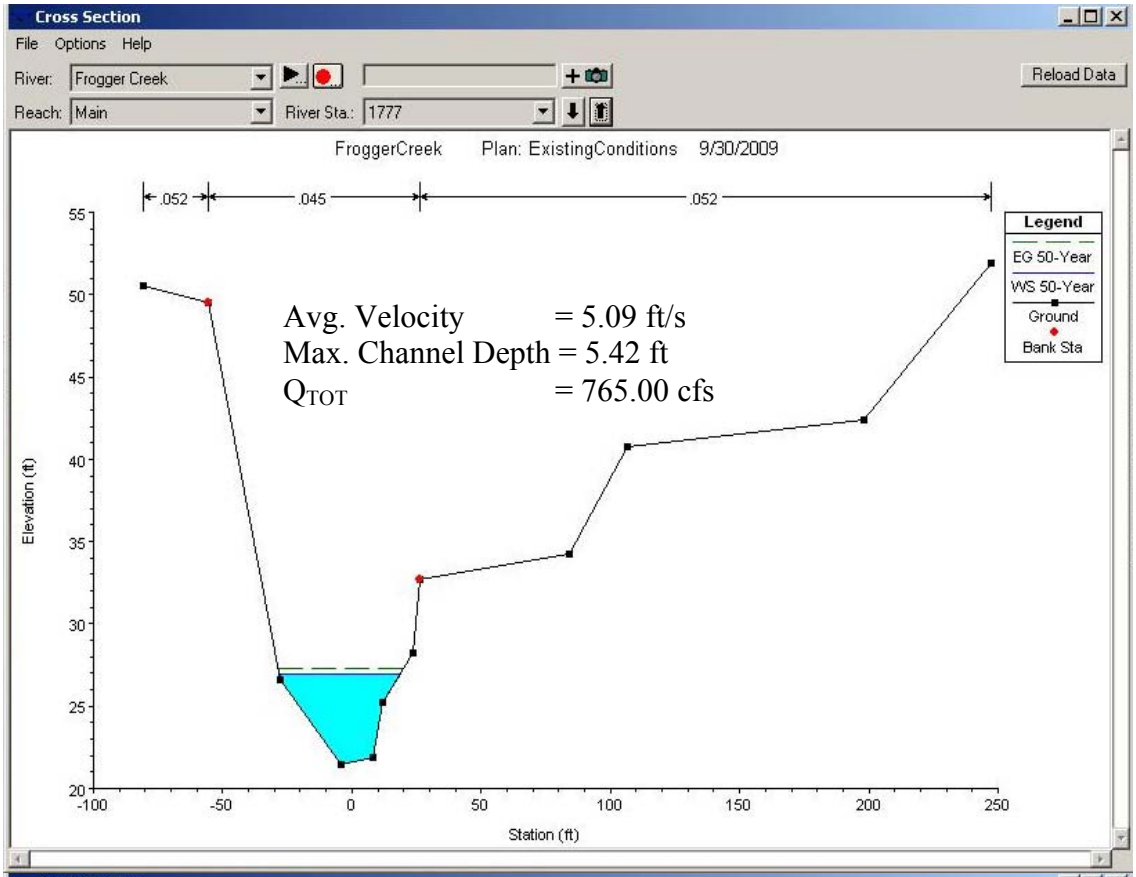

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1593
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 5.13 ft/s
Max. Channel Depth = 4.62 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

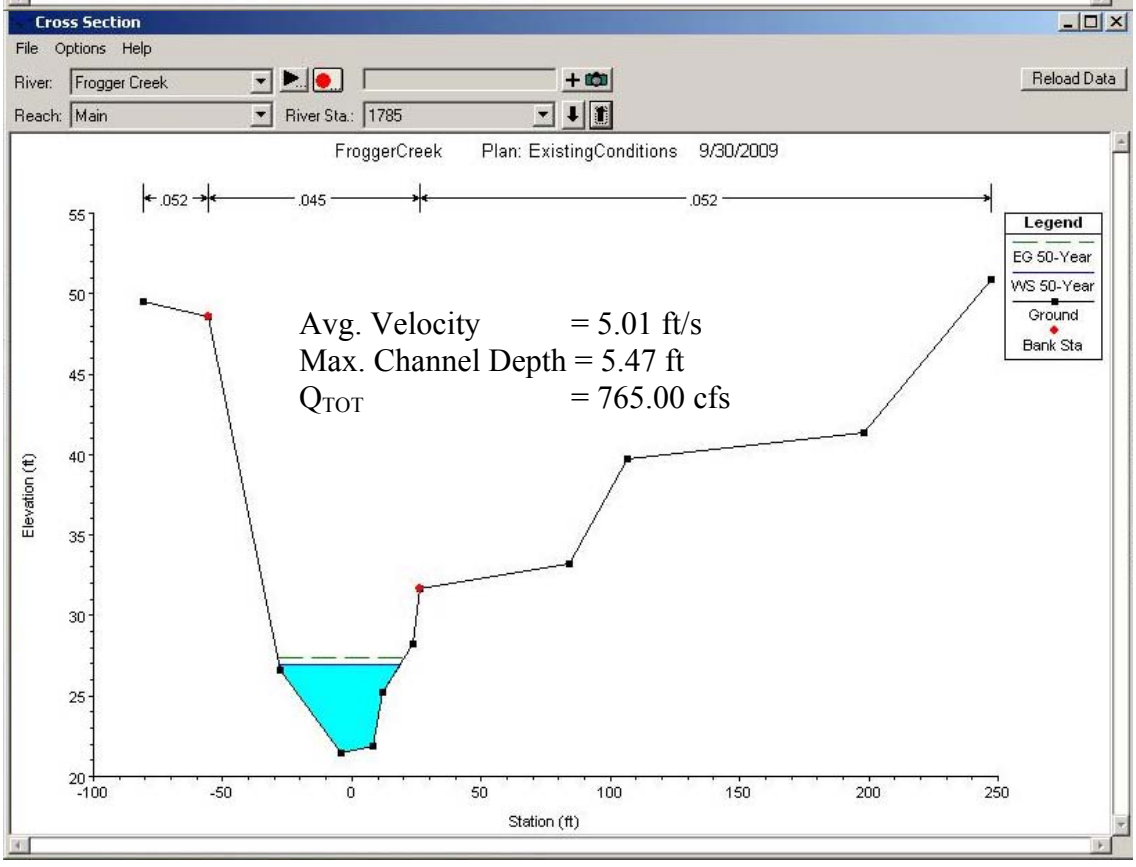

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1659
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 8.48 ft/s
Max. Channel Depth = 4.88 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

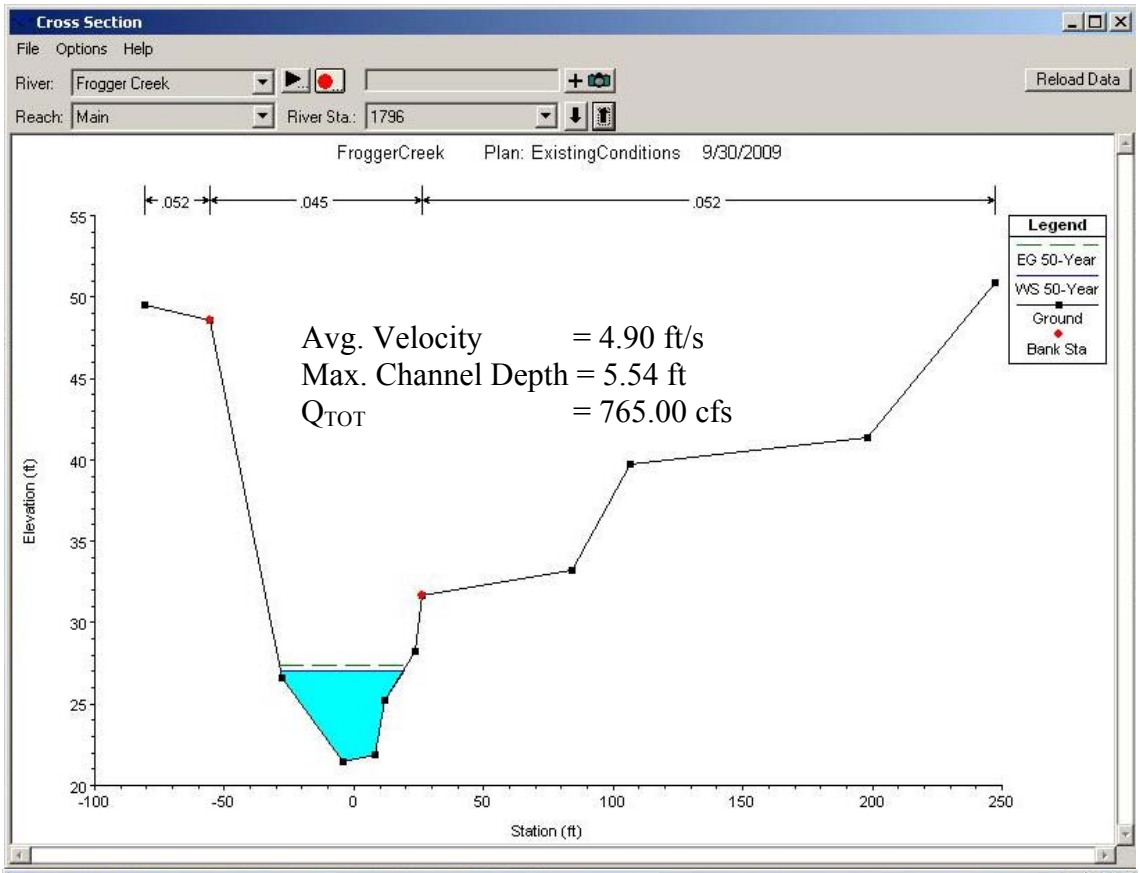

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1725
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 7.10 ft/s
Max. Channel Depth = 4.67 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

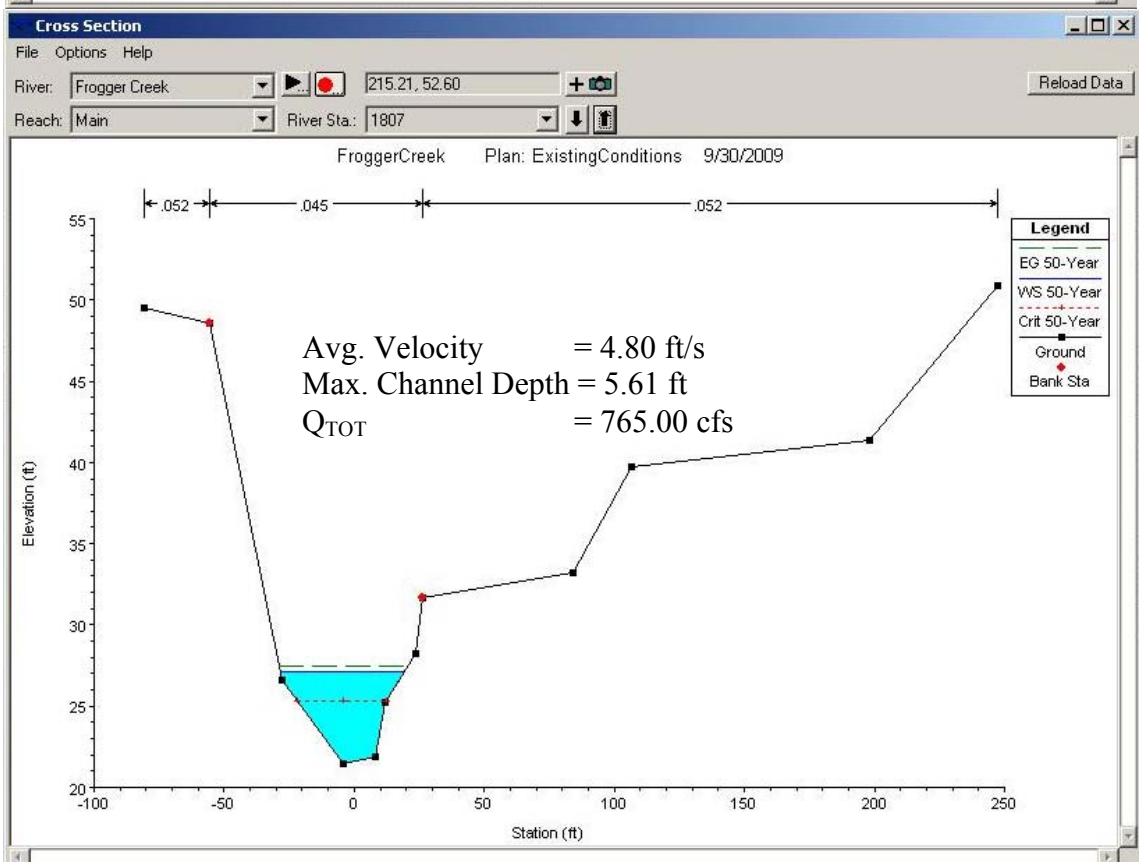

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.37 ft/s
Max. Channel Depth = 5.31 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

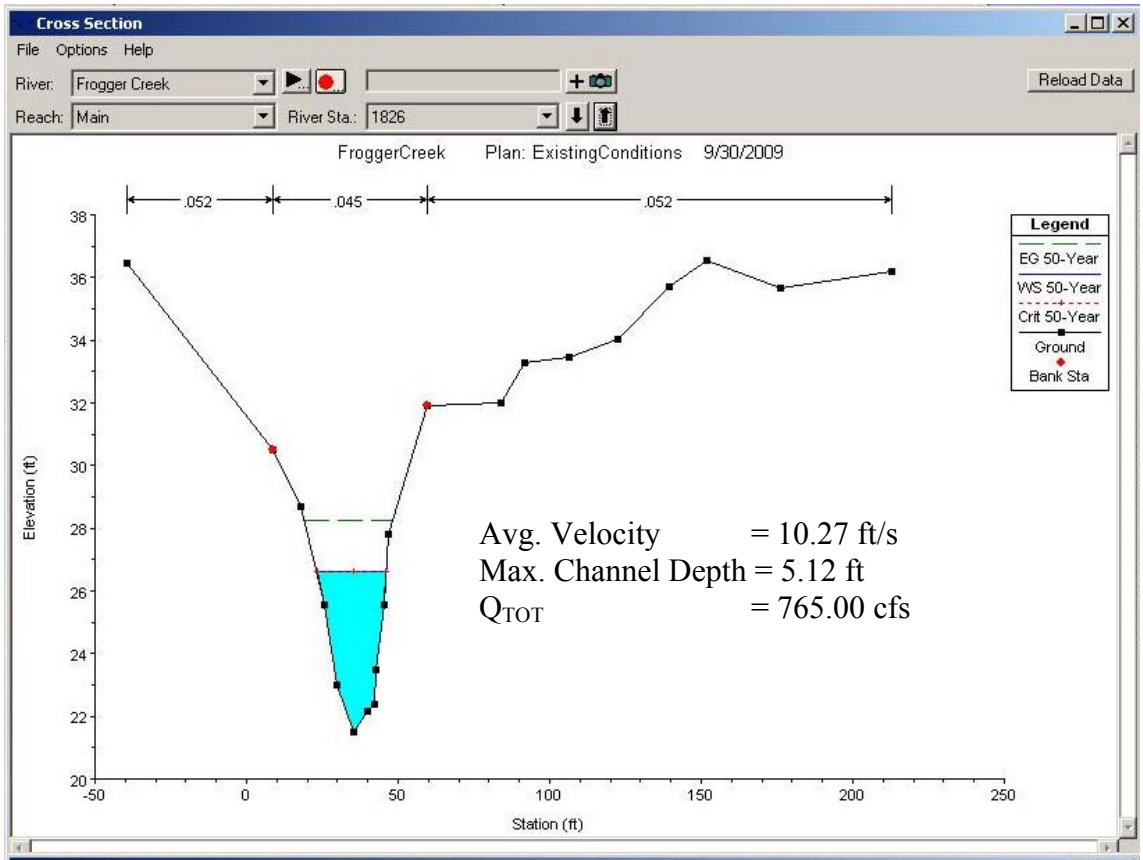

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.23 ft/s
Max. Channel Depth = 5.34 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

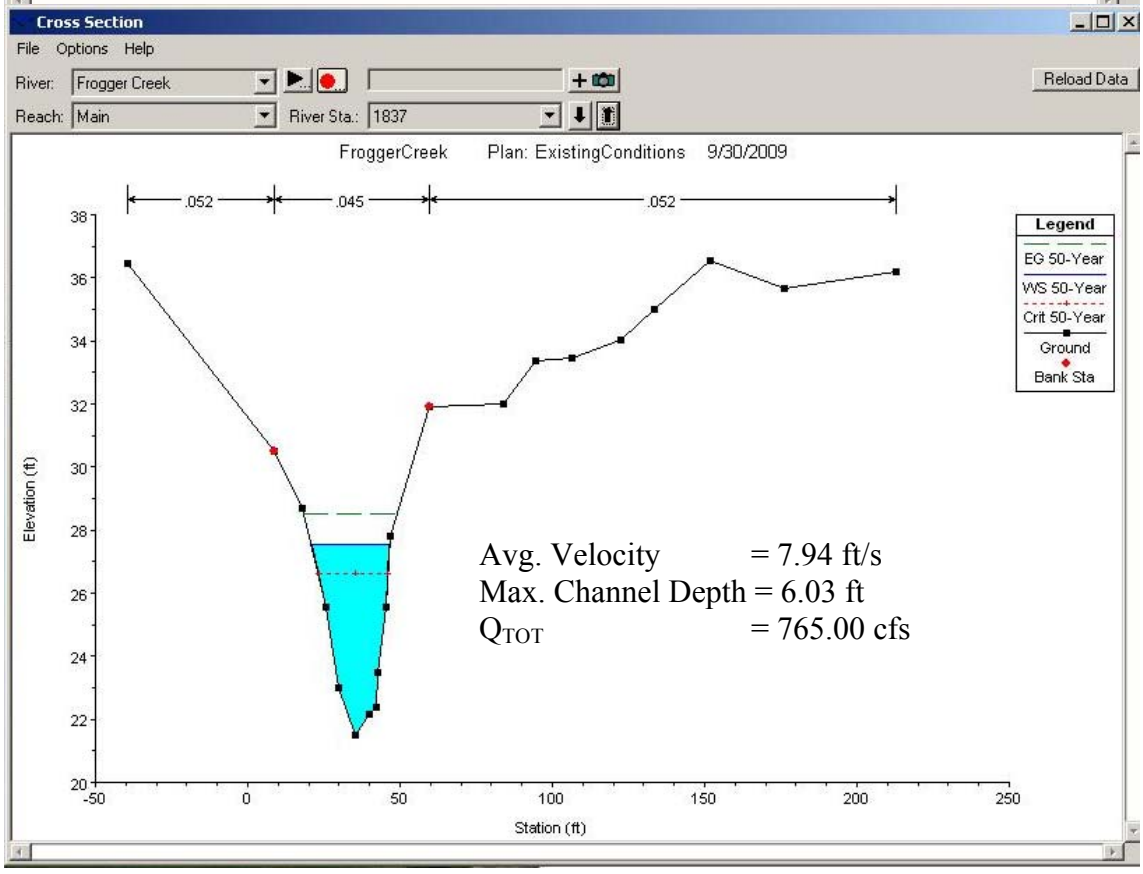

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.09 ft/s
Max. Channel Depth = 5.42 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

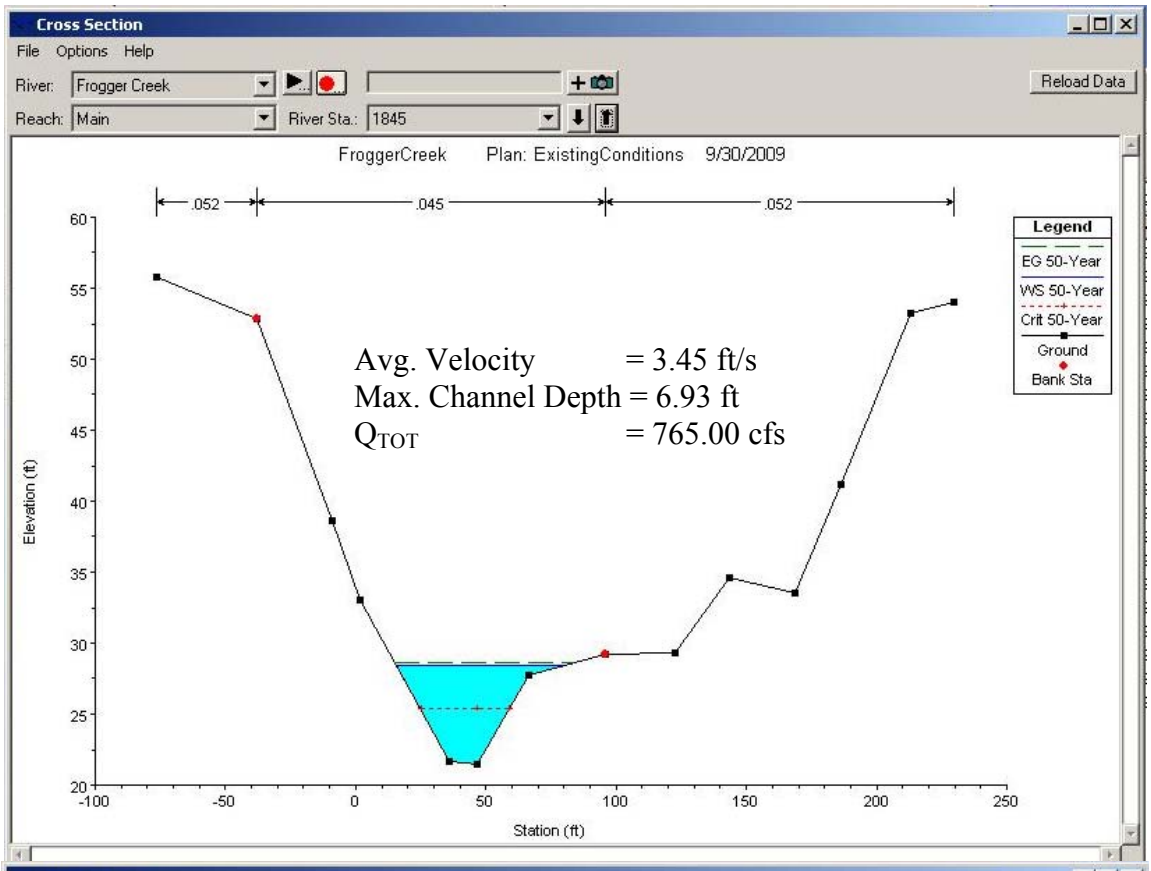

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.01 ft/s
Max. Channel Depth = 5.47 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

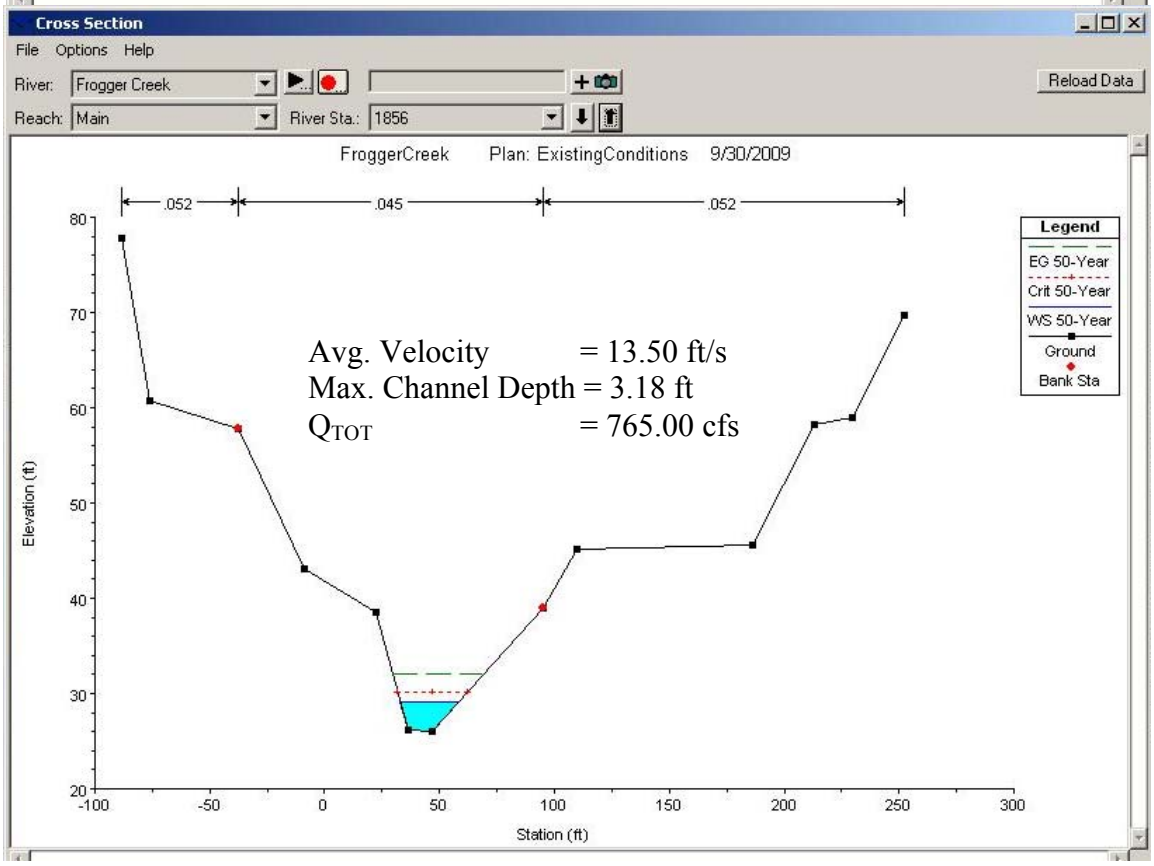

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.90 ft/s
Max. Channel Depth = 5.54 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

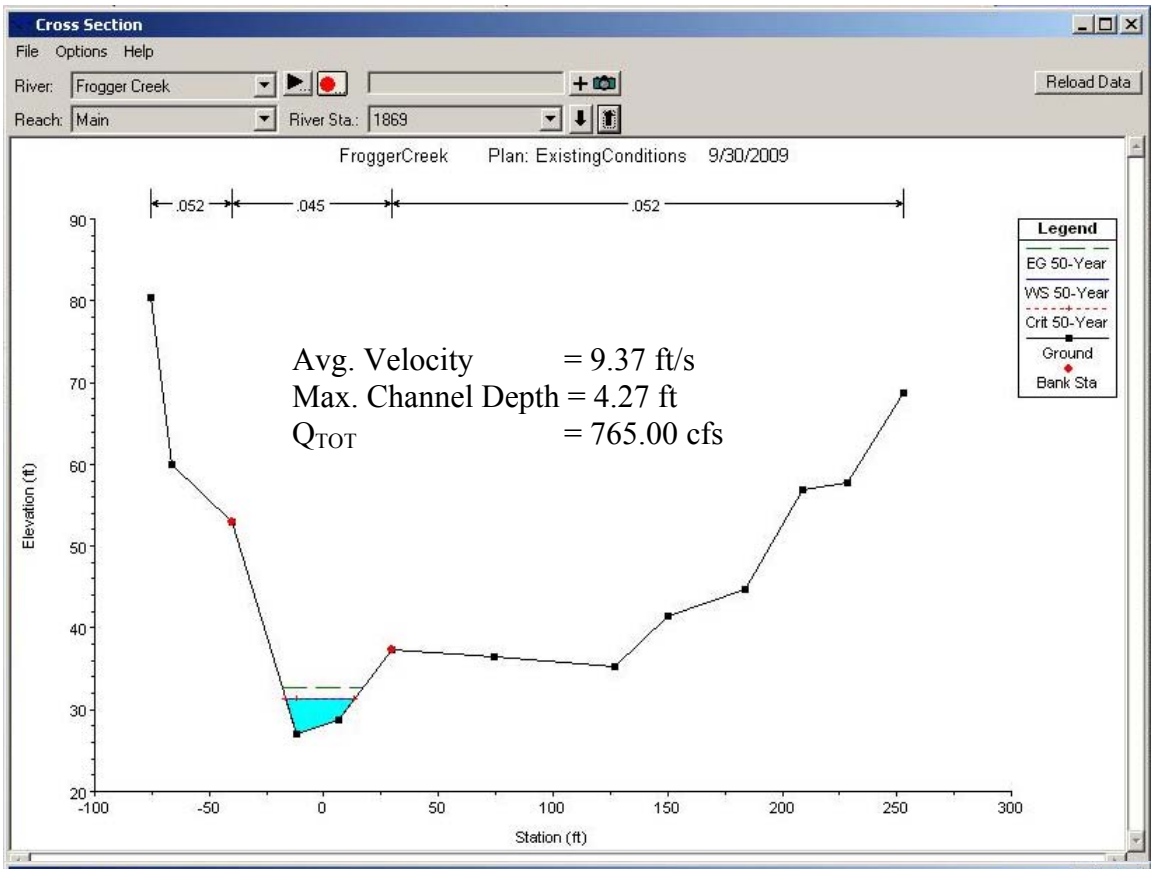

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
215.21, 52.60
River Sta.: 1807
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 4.80 ft/s
Max. Channel Depth = 5.61 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

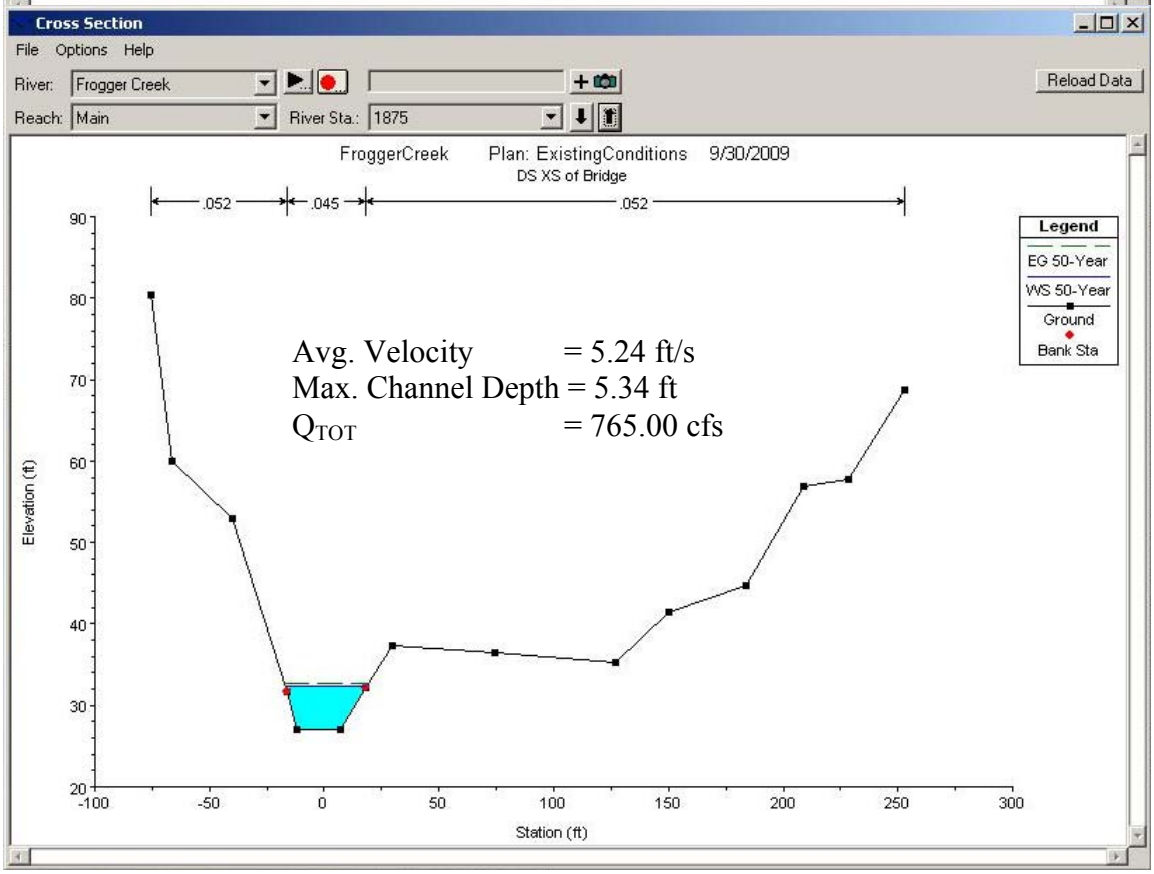

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 10.27 ft/s
Max. Channel Depth = 5.12 ft
Q_{TOT} = 765.00 cfs

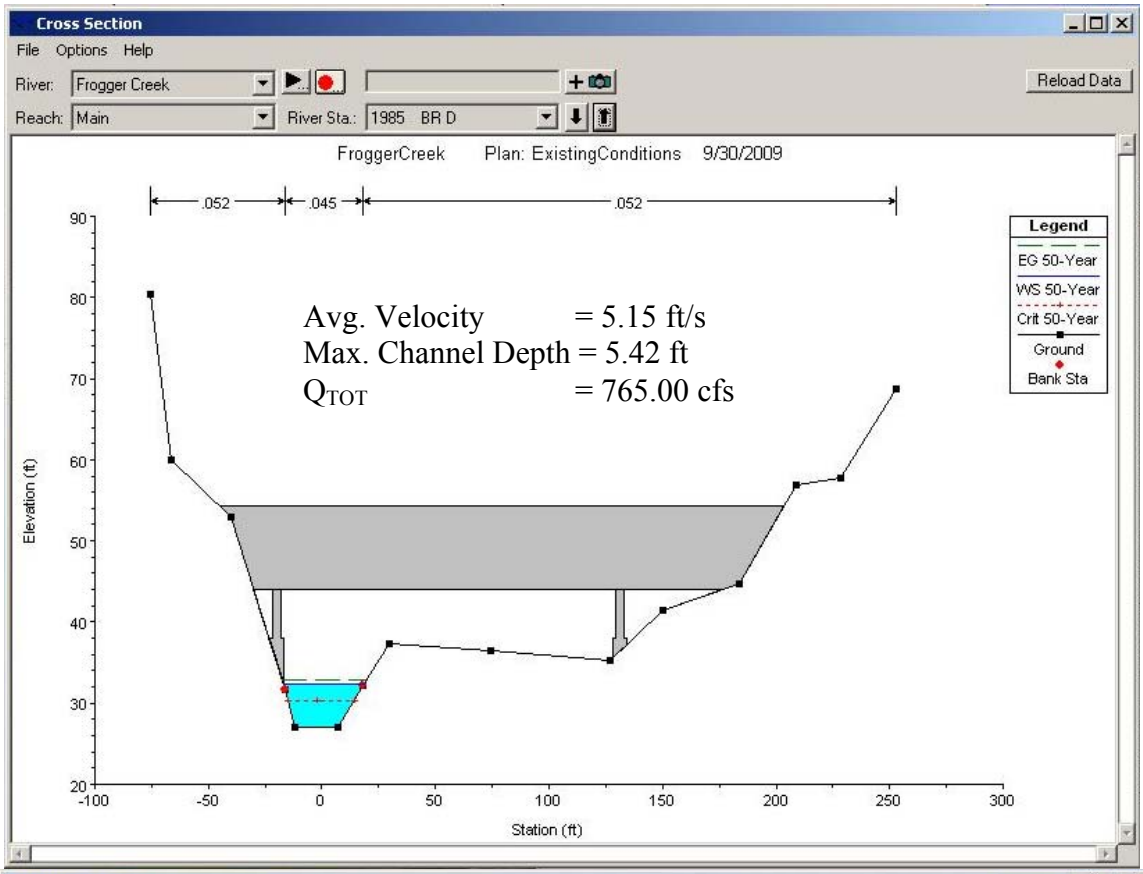

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 7.94 ft/s
Max. Channel Depth = 6.03 ft
Q_{TOT} = 765.00 cfs

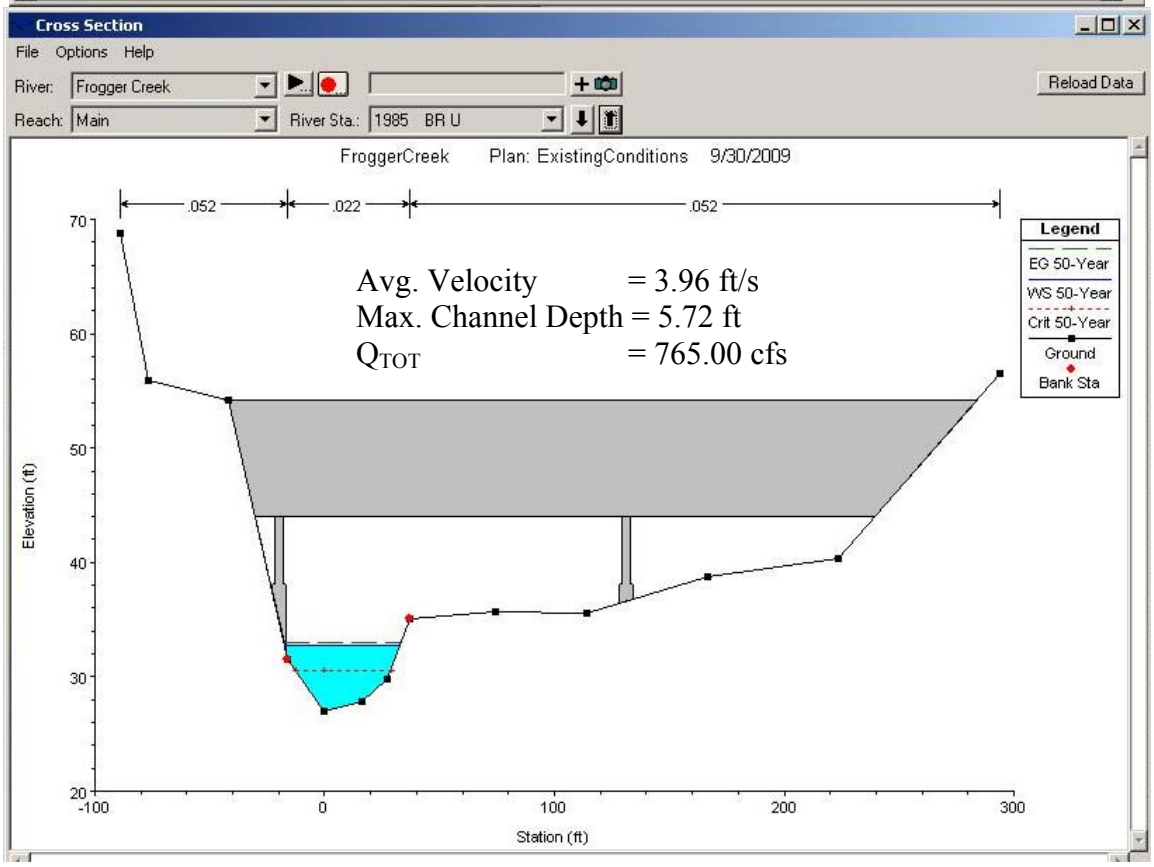

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 3.45 ft/s
Max. Channel Depth = 6.93 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

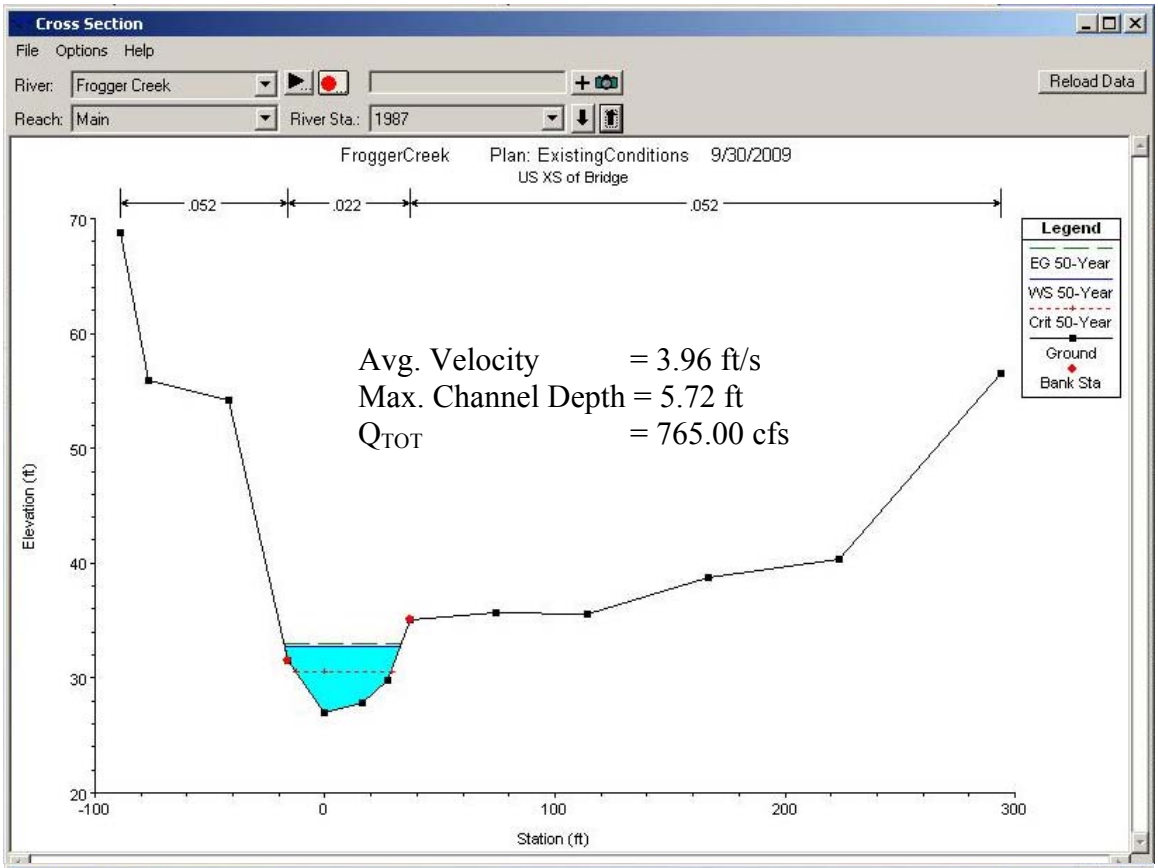

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 13.50 ft/s
Max. Channel Depth = 3.18 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

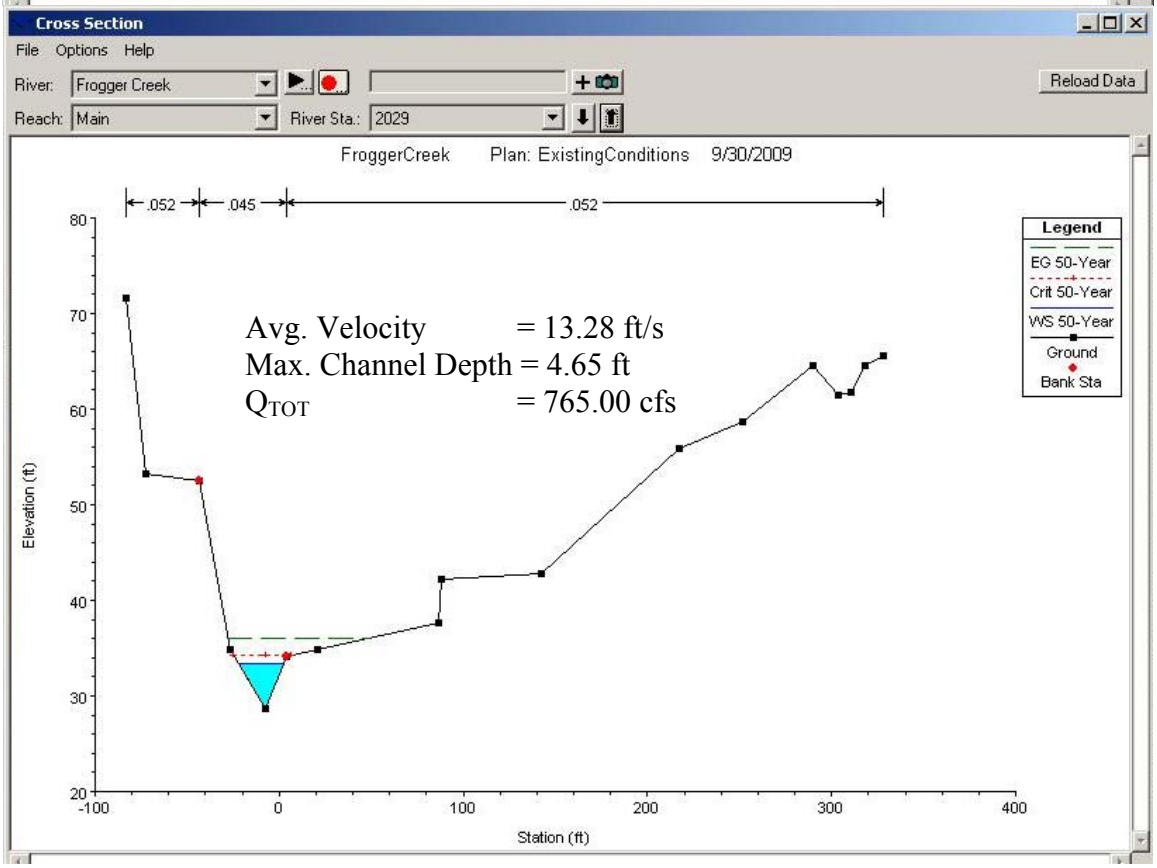

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1869
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 9.37 ft/s
Max. Channel Depth = 4.27 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

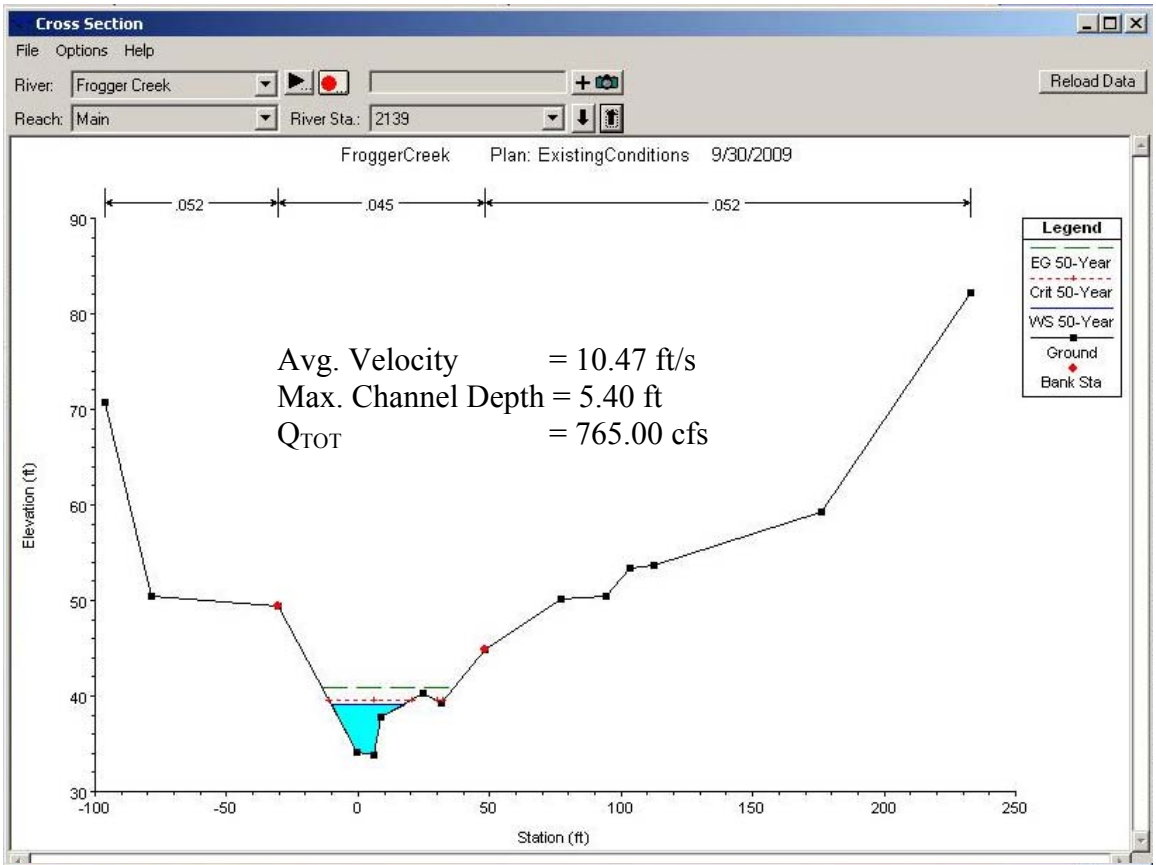

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
DS XS of Bridge
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.24 ft/s
Max. Channel Depth = 5.34 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

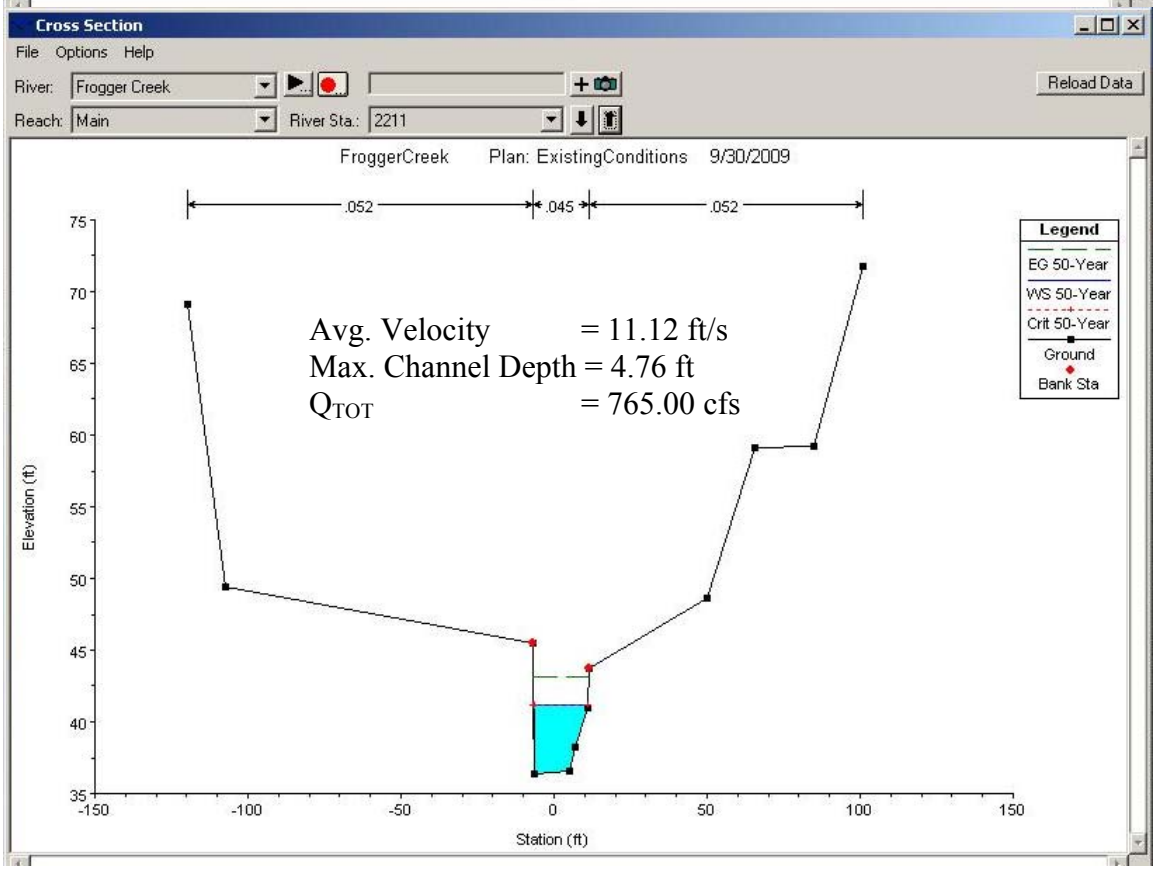

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 5.15 ft/s
Max. Channel Depth = 5.42 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

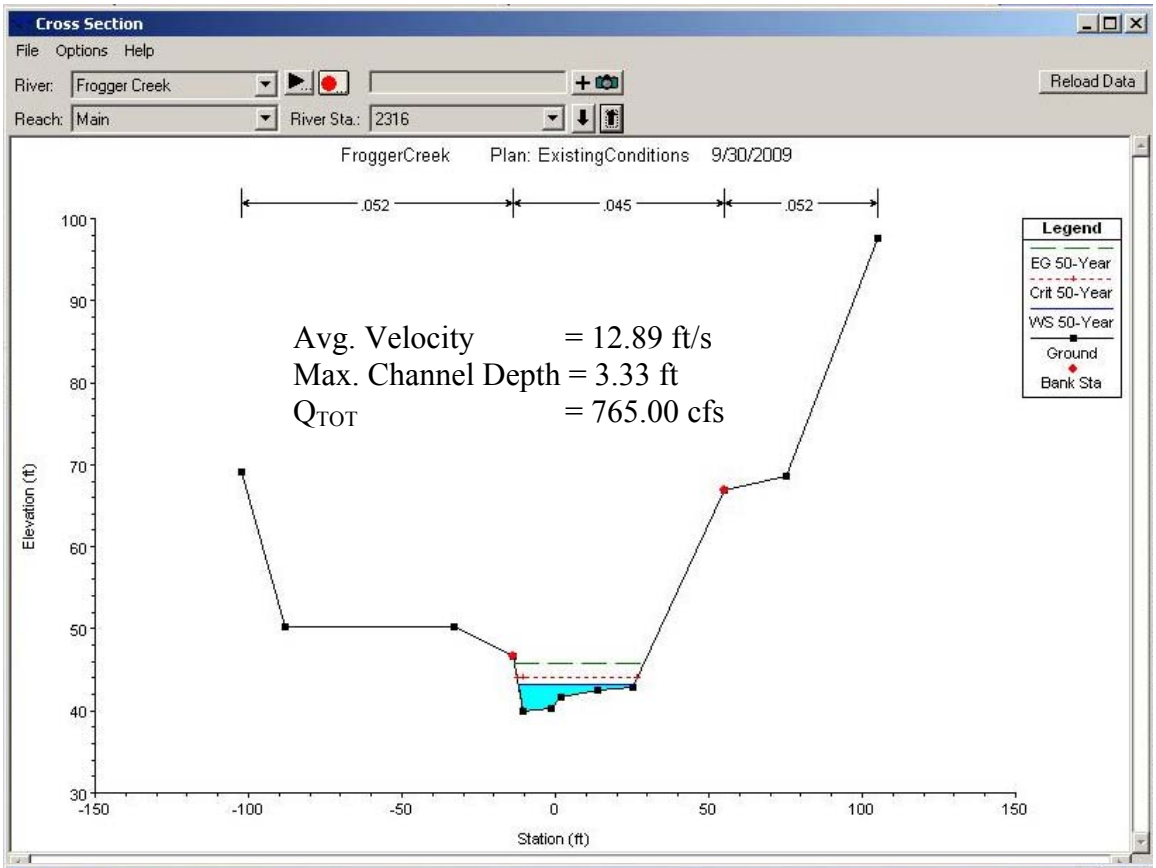

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.022
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 3.96 ft/s
Max. Channel Depth = 5.72 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

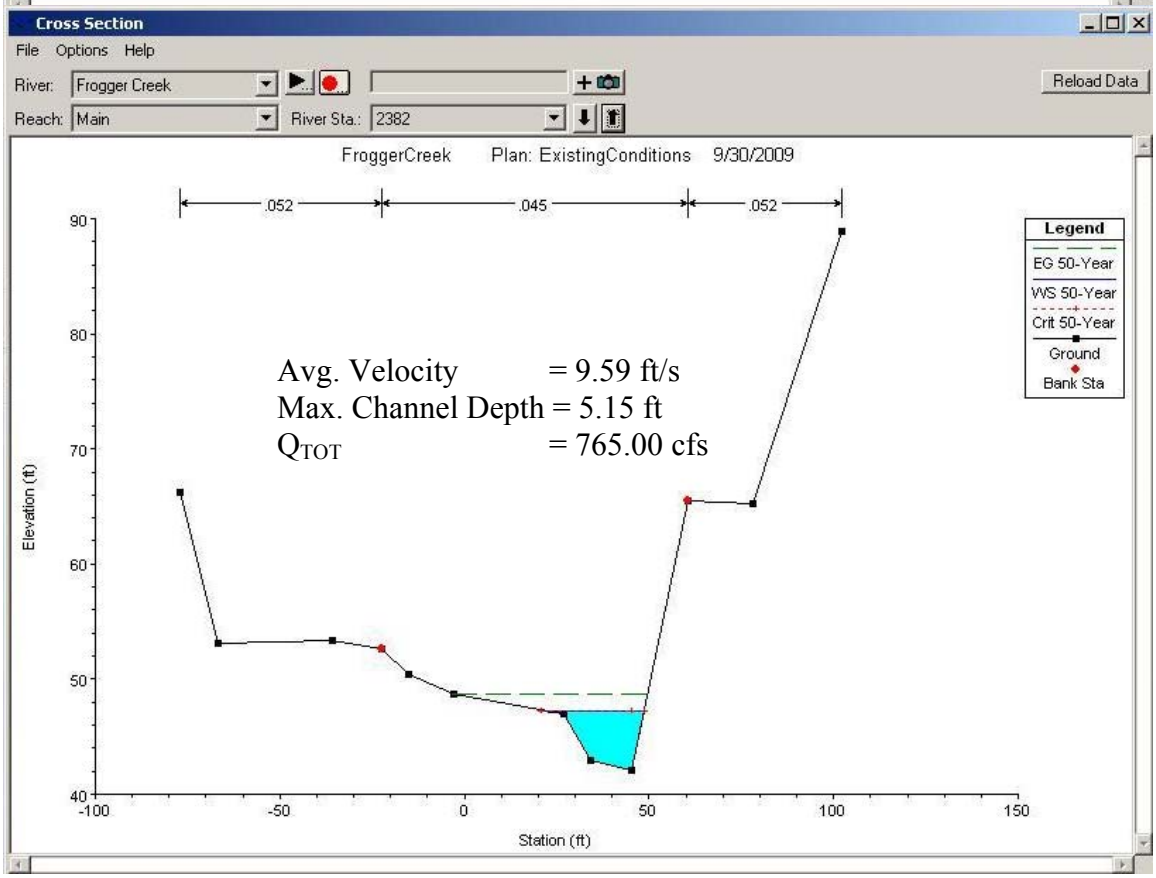

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
US XS of Bridge
.052
.022
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 3.96 ft/s
Max. Channel Depth = 5.72 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

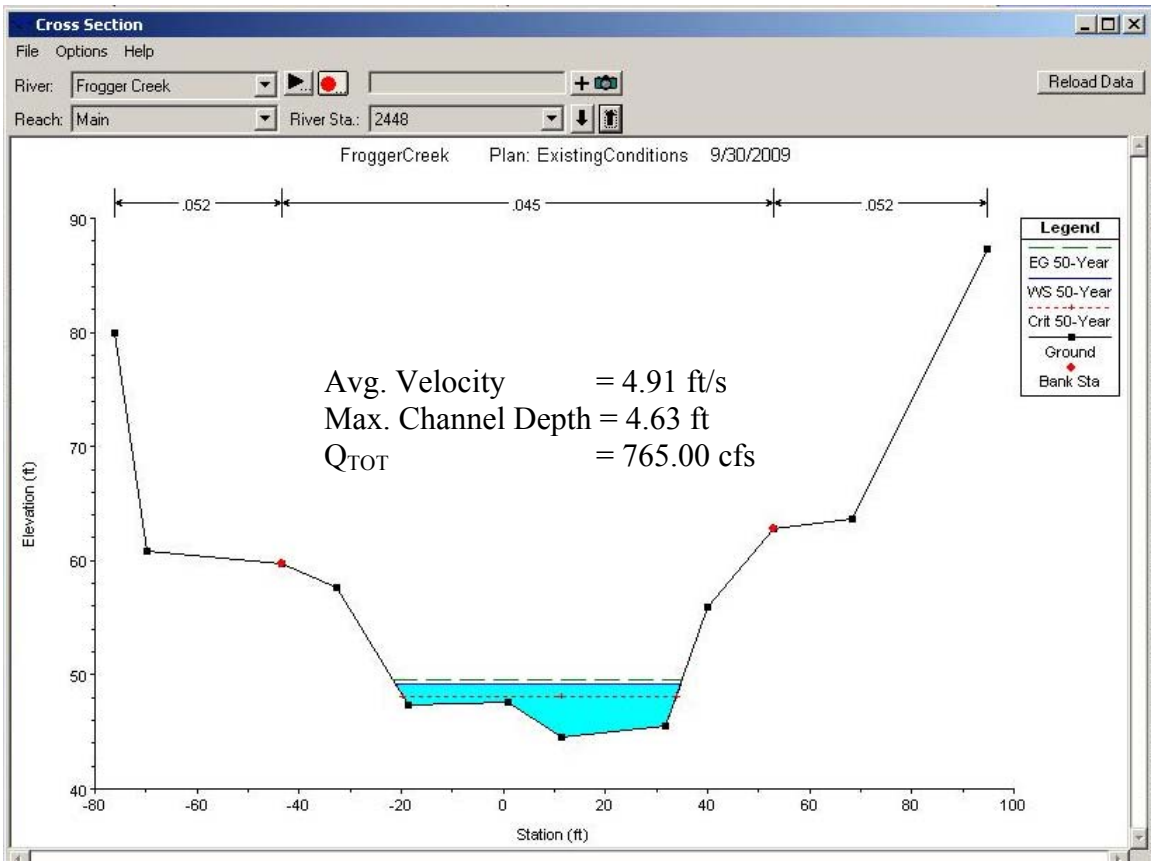

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2029
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 13.28 ft/s
Max. Channel Depth = 4.65 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2139
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 10.47 ft/s
Max. Channel Depth = 5.40 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2211
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 11.12 ft/s
Max. Channel Depth = 4.76 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

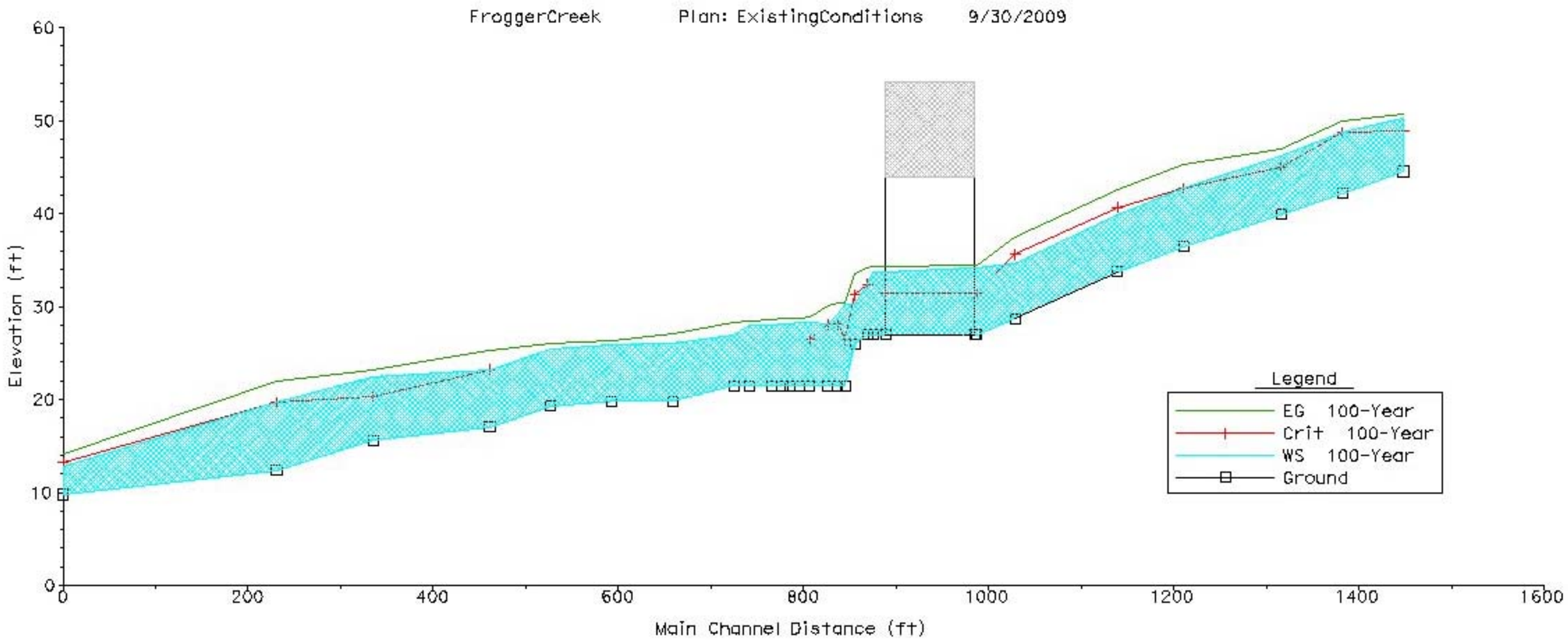

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2316
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 12.89 ft/s
Max. Channel Depth = 3.33 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

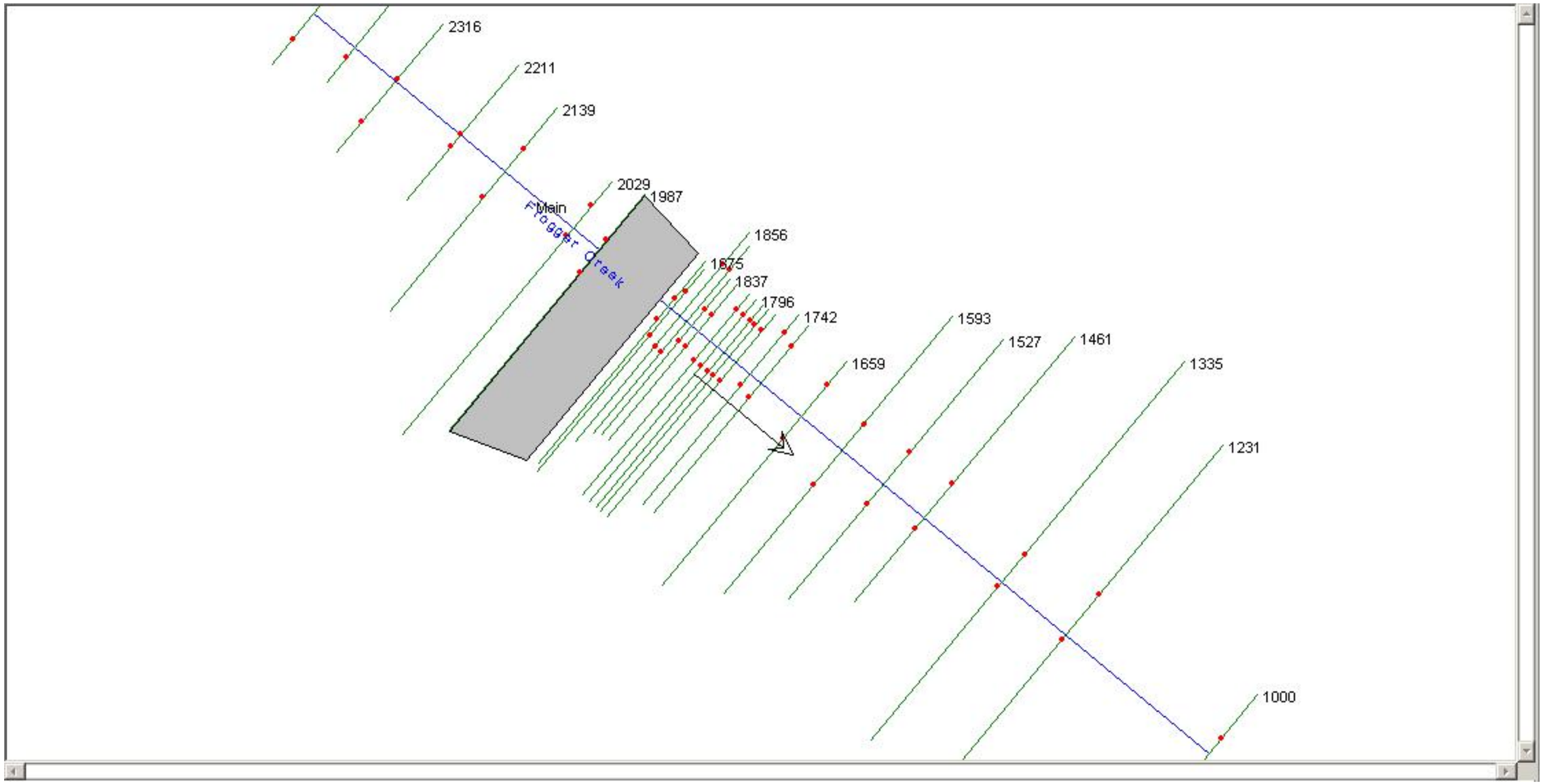

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2382
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 9.59 ft/s
Max. Channel Depth = 5.15 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

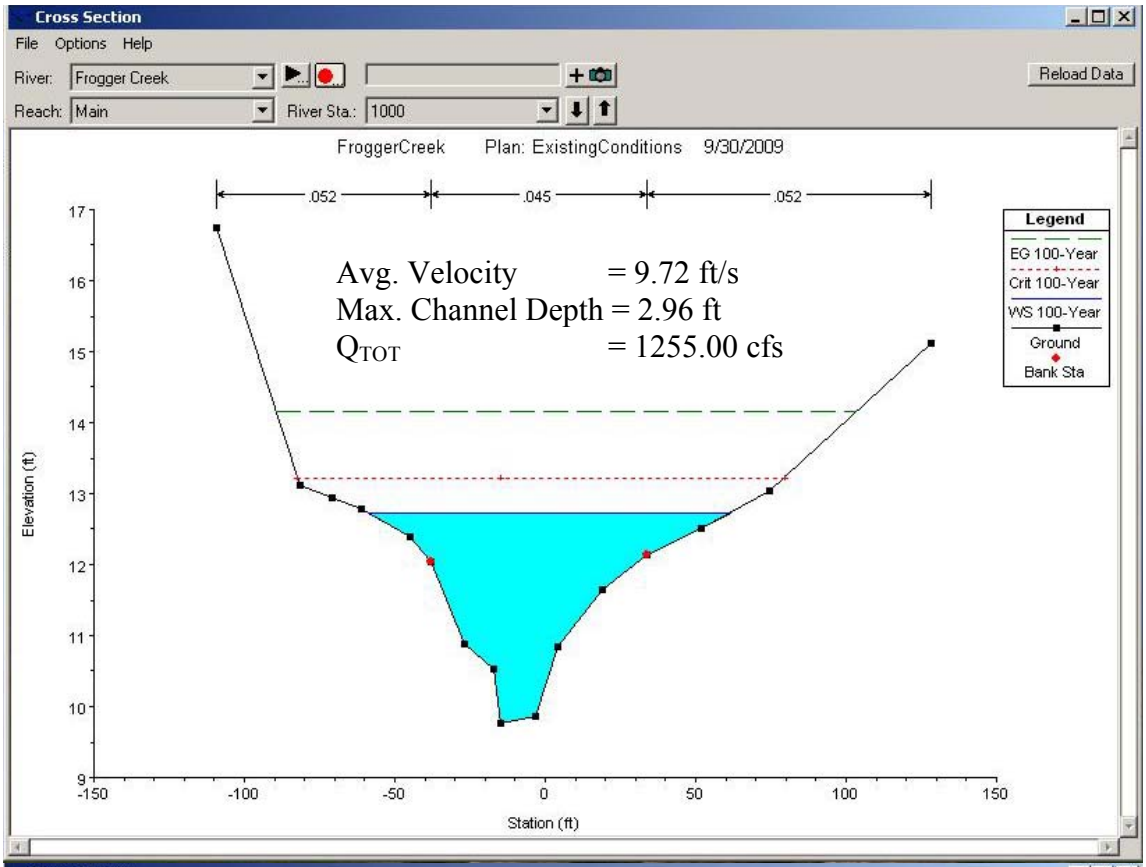

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2448
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 4.91 ft/s
Max. Channel Depth = 4.63 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)
90
80
70
60
50
40
-80
-60
-40
-20
0
20
40
60
80
100

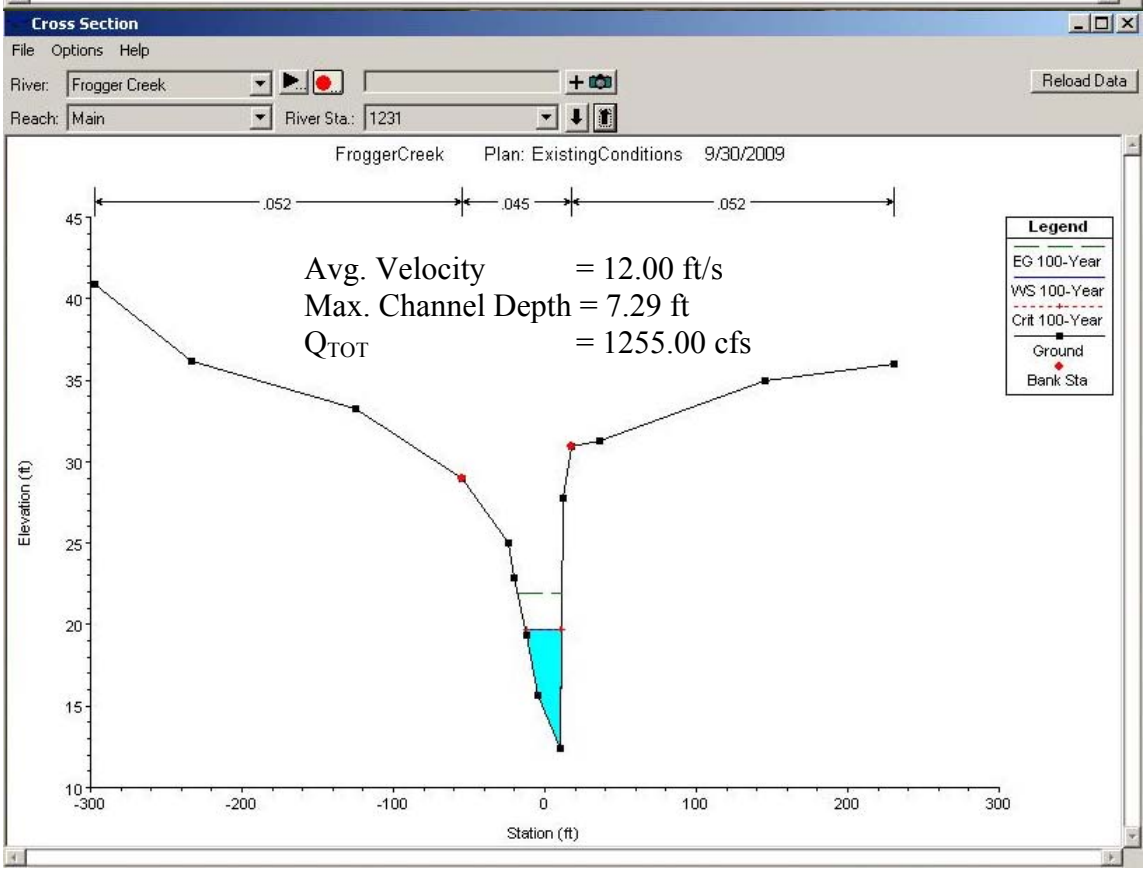
EXISTING CONDITIONS

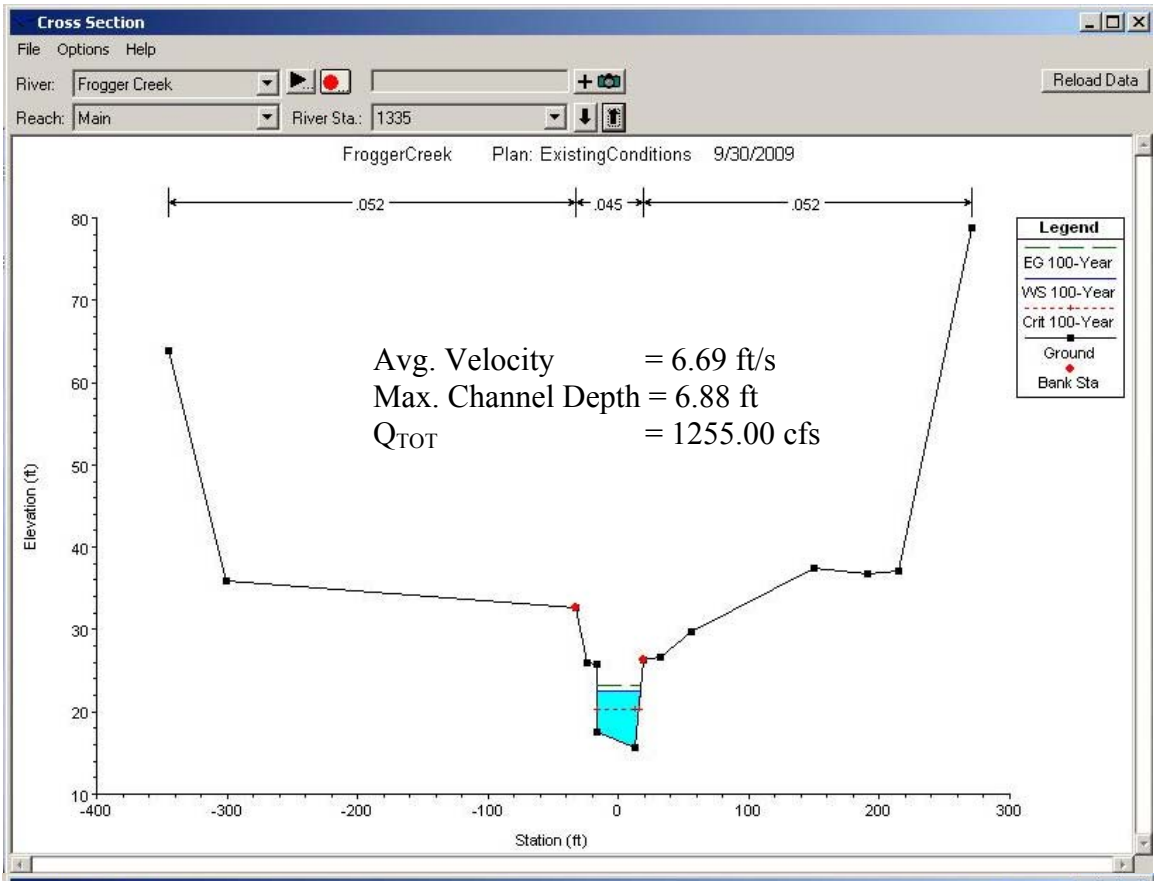
100 YEAR FLOW

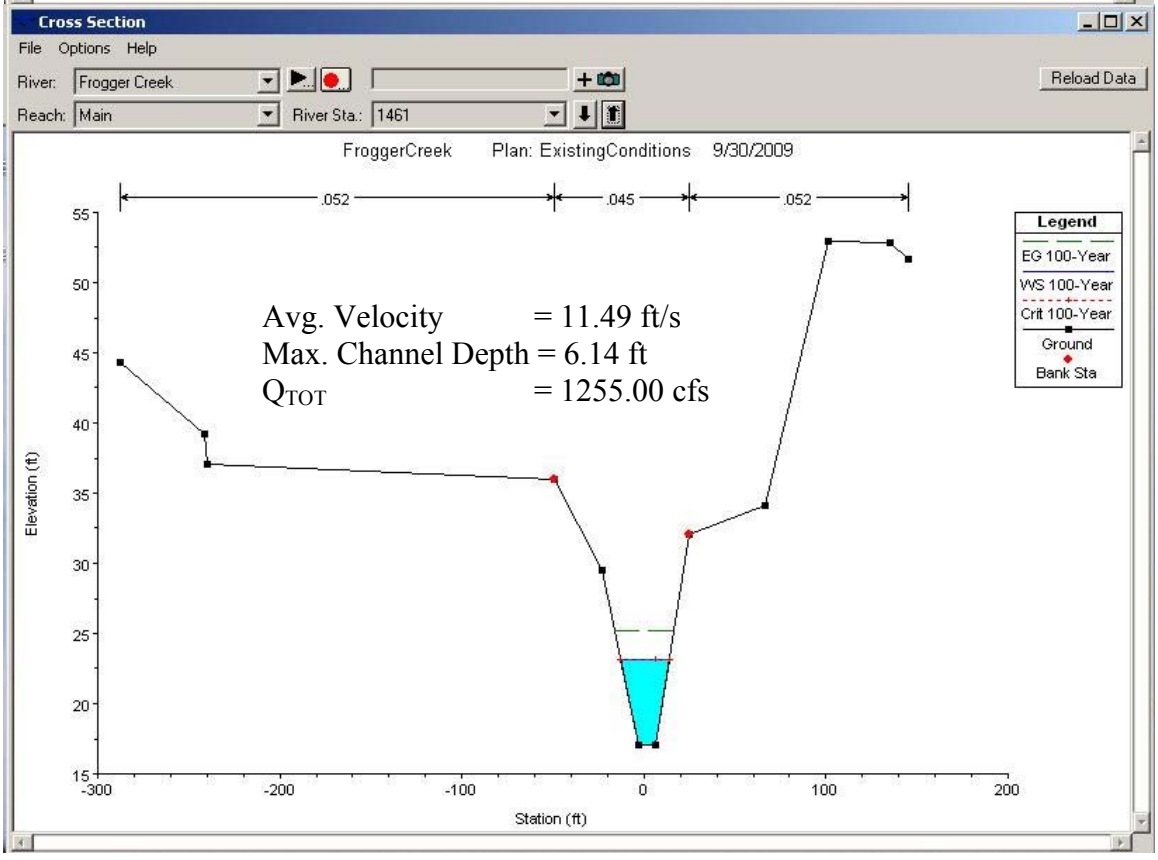

FroggerCreek Plan: ExistingConditions 9/30/2009
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground

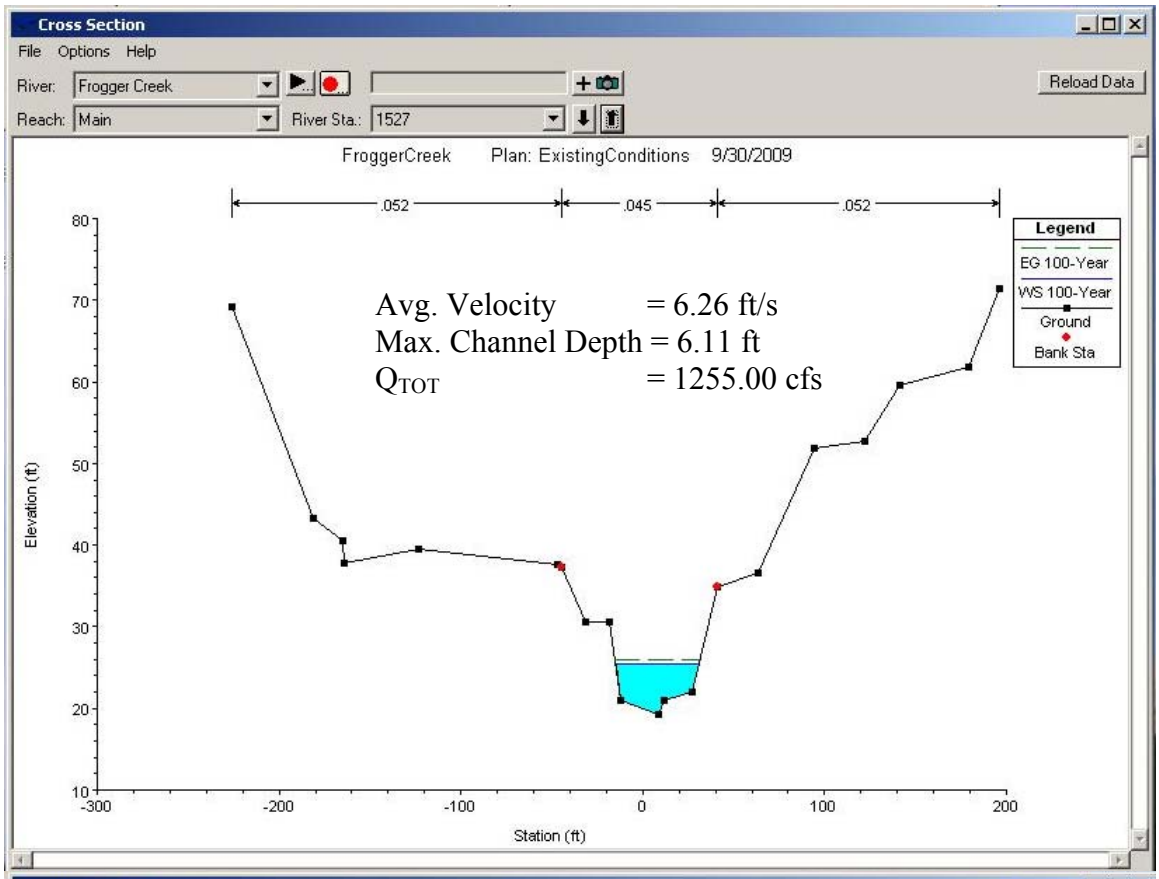

2316
2211
2139
2029
1987
Main
Flagger Creek
1856
1875
1837
1796
1742
1659
1593
1527
1461
1335
1231
1000

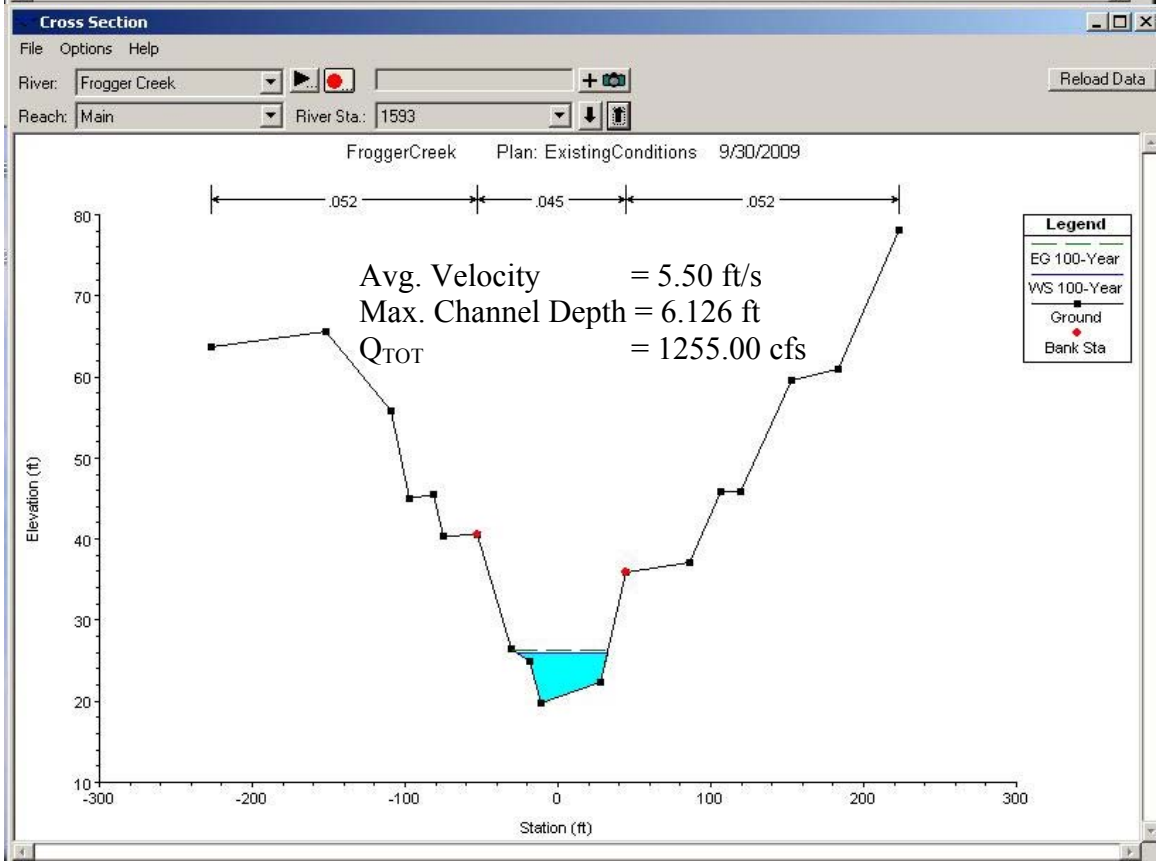

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1000
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 9.72 ft/s
Max. Channel Depth = 2.96 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

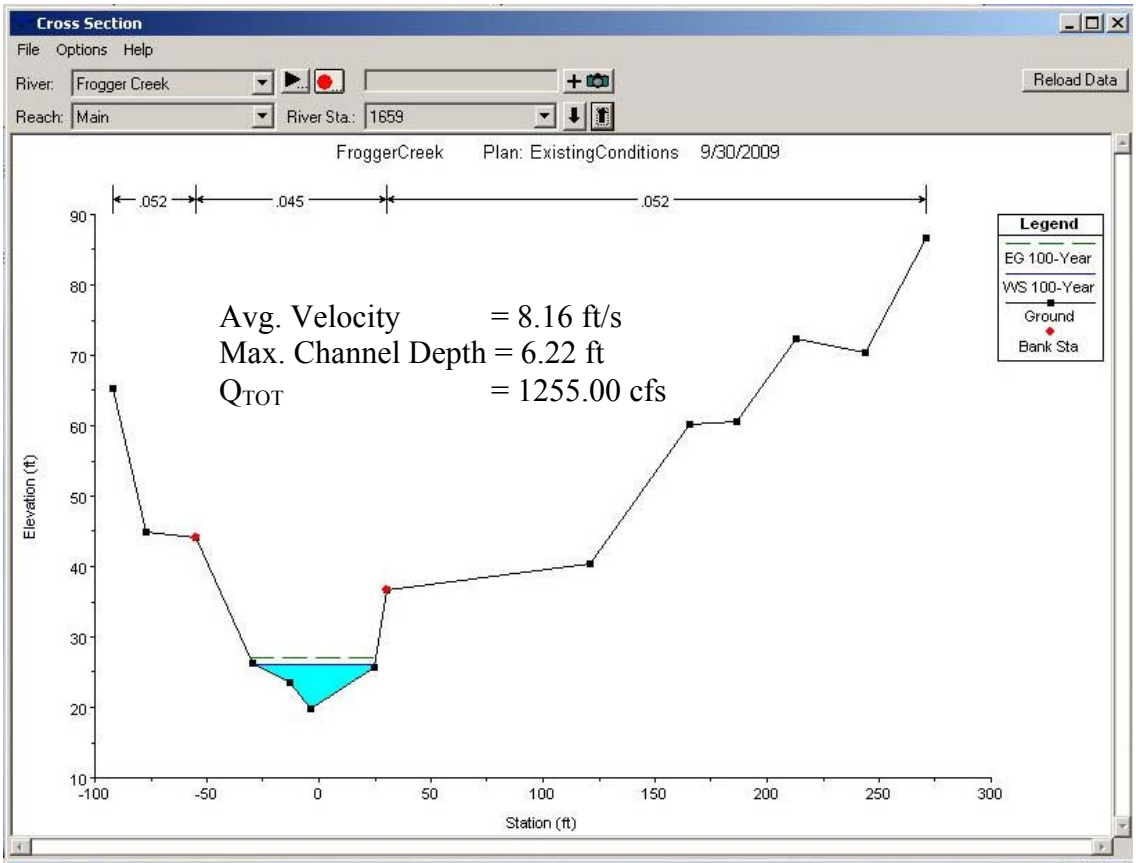

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1231
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Avg. Velocity = 12.00 ft/s
Max. Channel Depth = 7.29 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

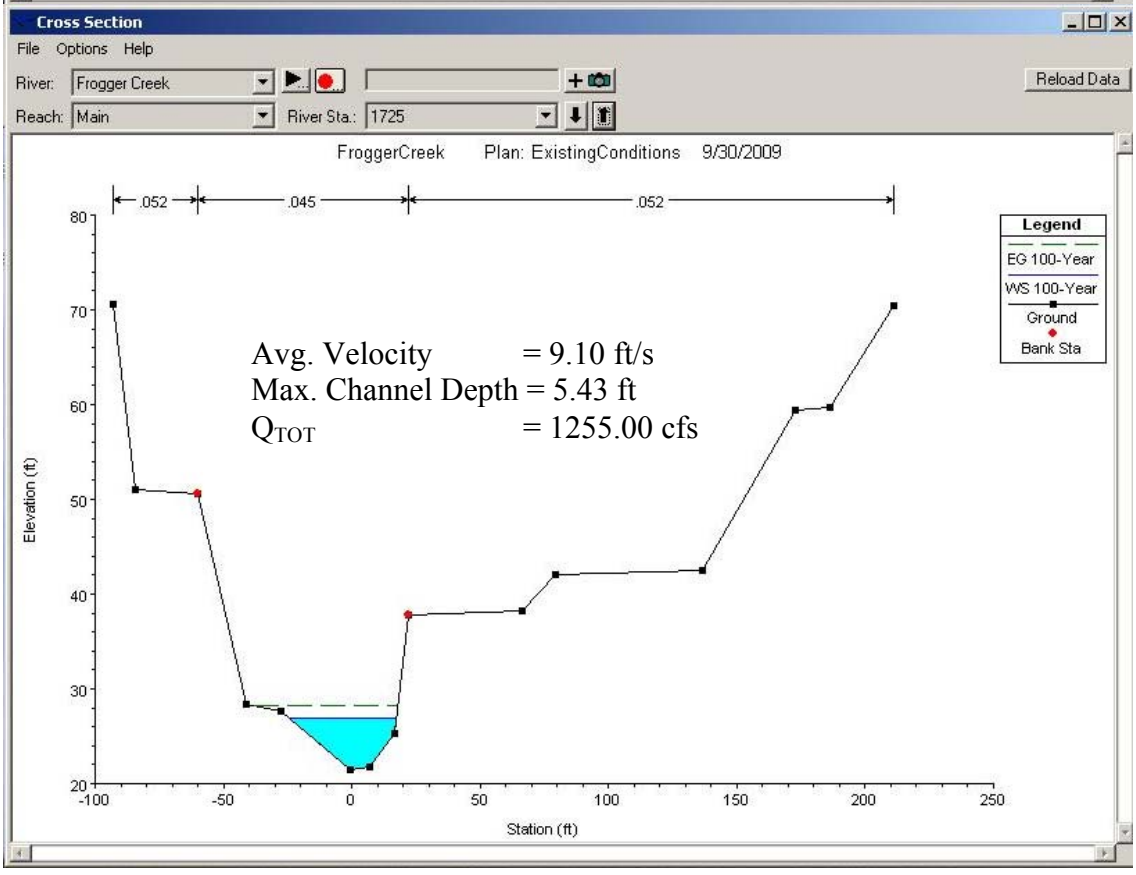

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1335
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 6.69 ft/s
Max. Channel Depth = 6.88 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

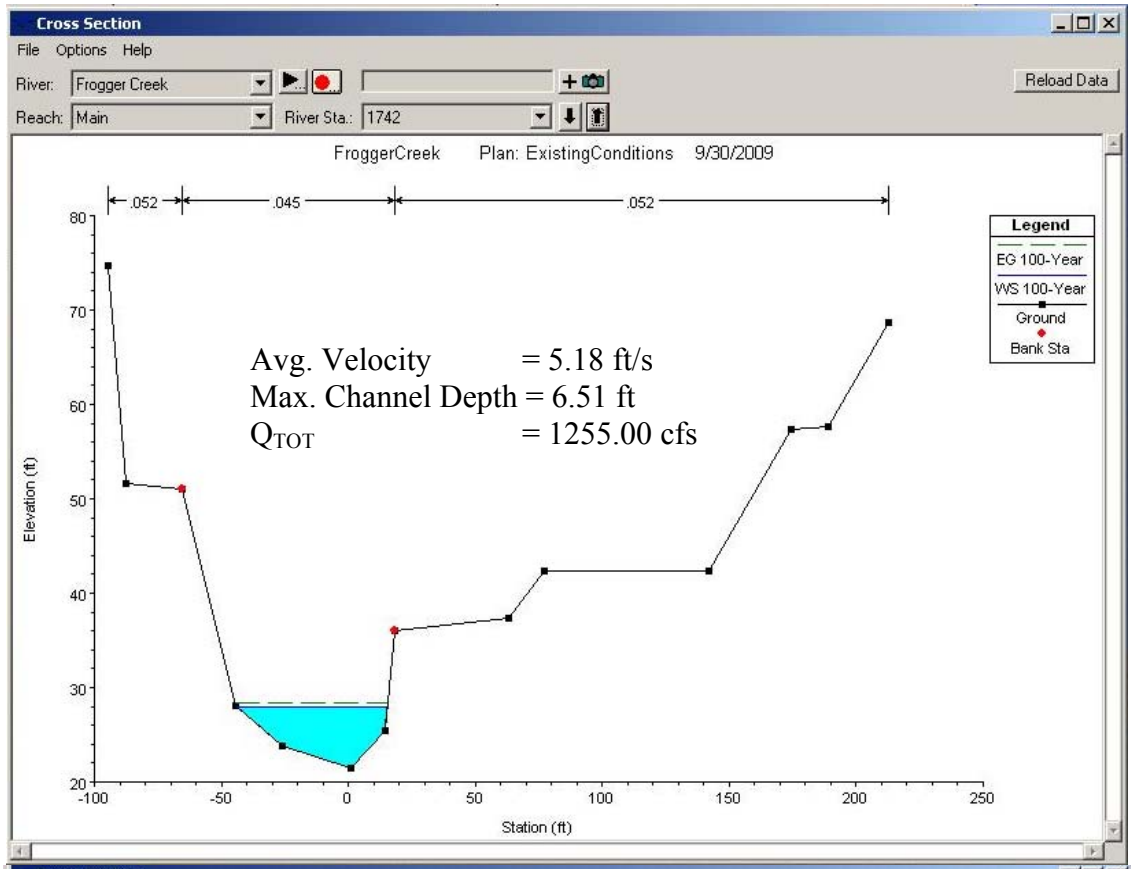

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1461
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 11.49 ft/s
Max. Channel Depth = 6.14 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

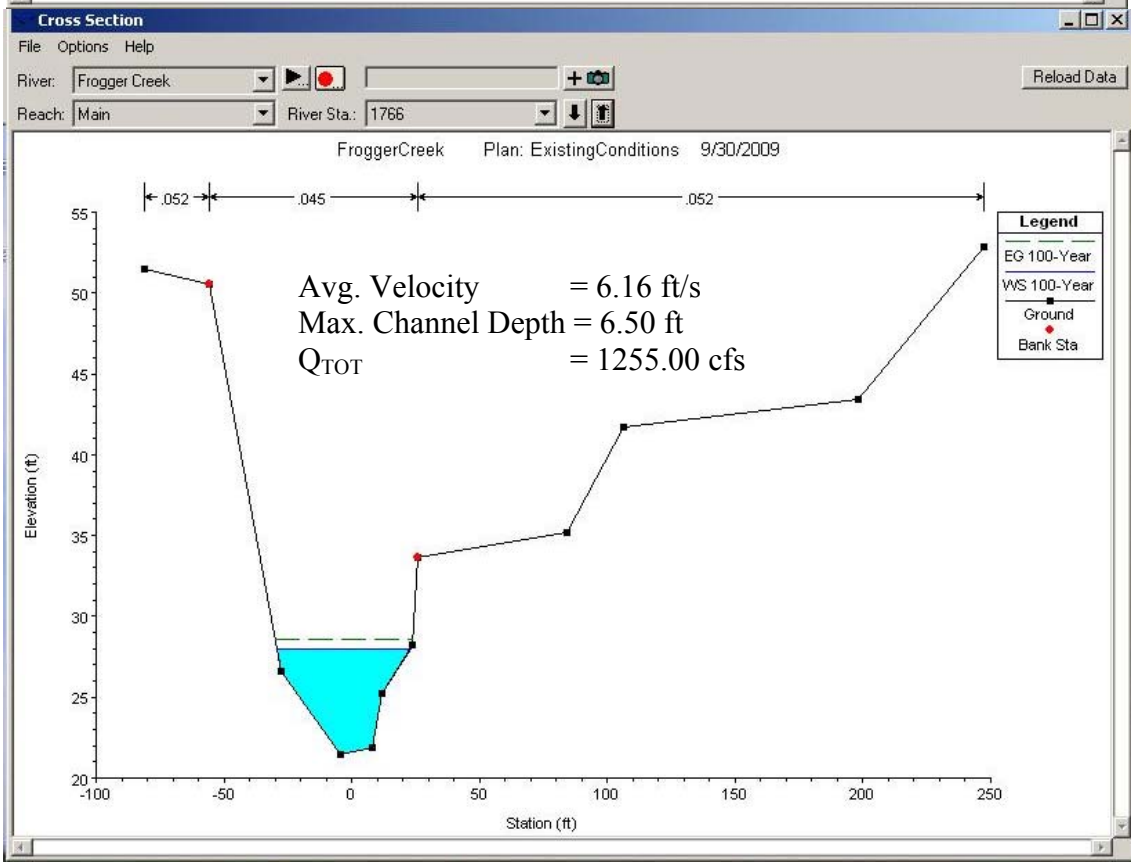

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1527
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.26 ft/s
Max. Channel Depth = 6.11 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

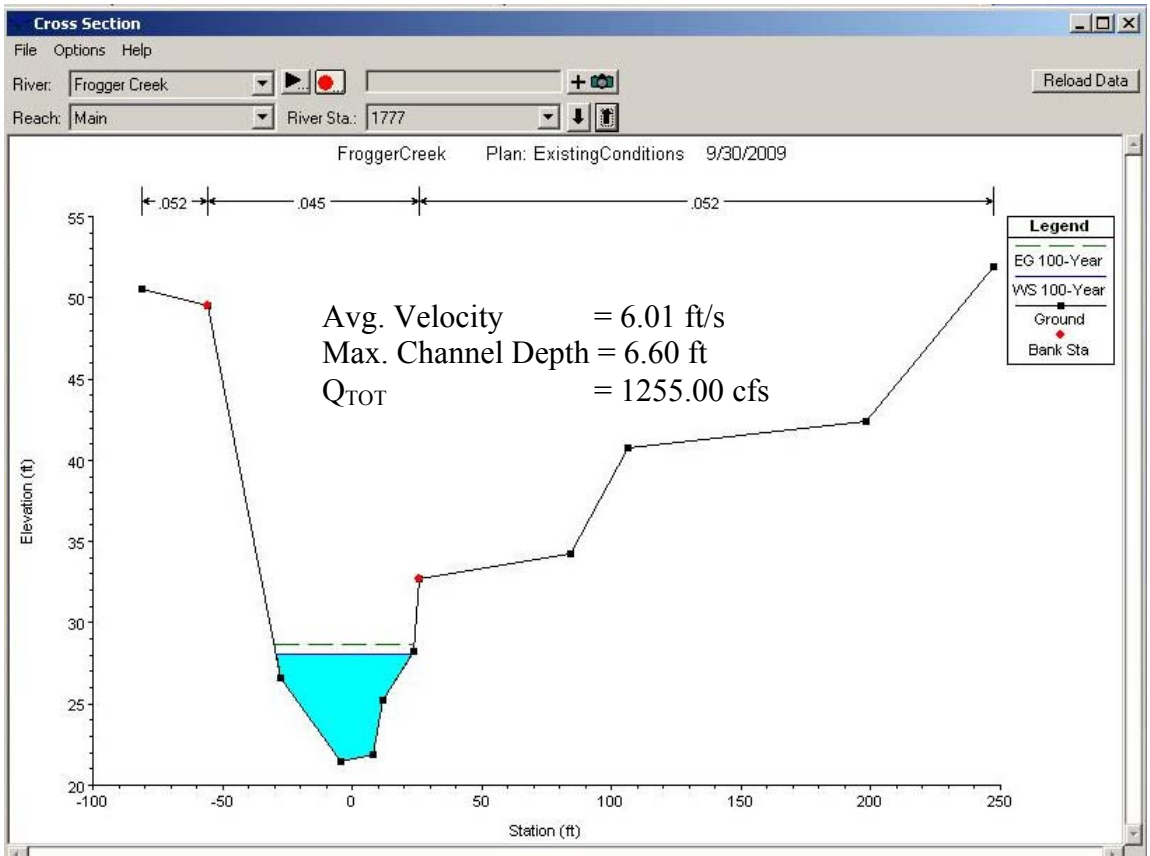

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1593
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.50 ft/s
Max. Channel Depth = 6.126 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

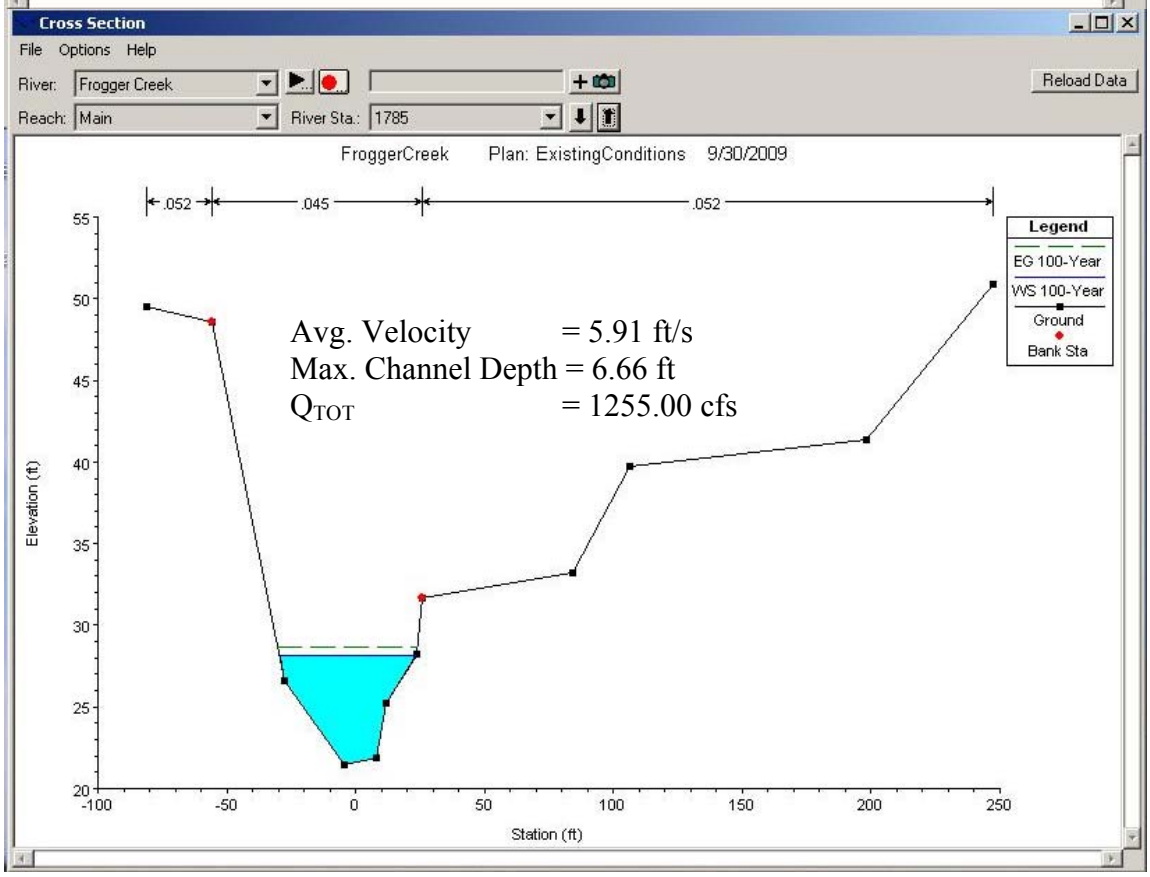

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1659
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 8.16 ft/s
Max. Channel Depth = 6.22 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

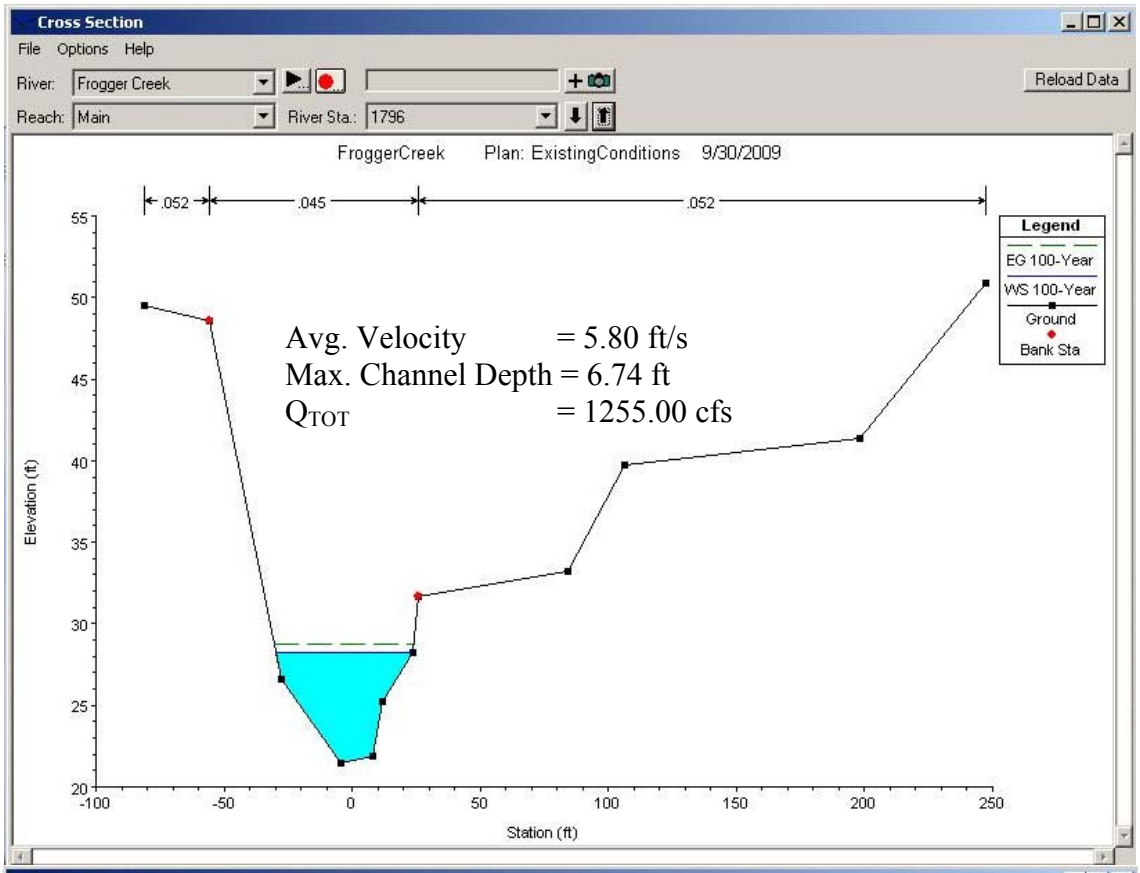

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1725
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 9.10 ft/s
Max. Channel Depth = 5.43 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

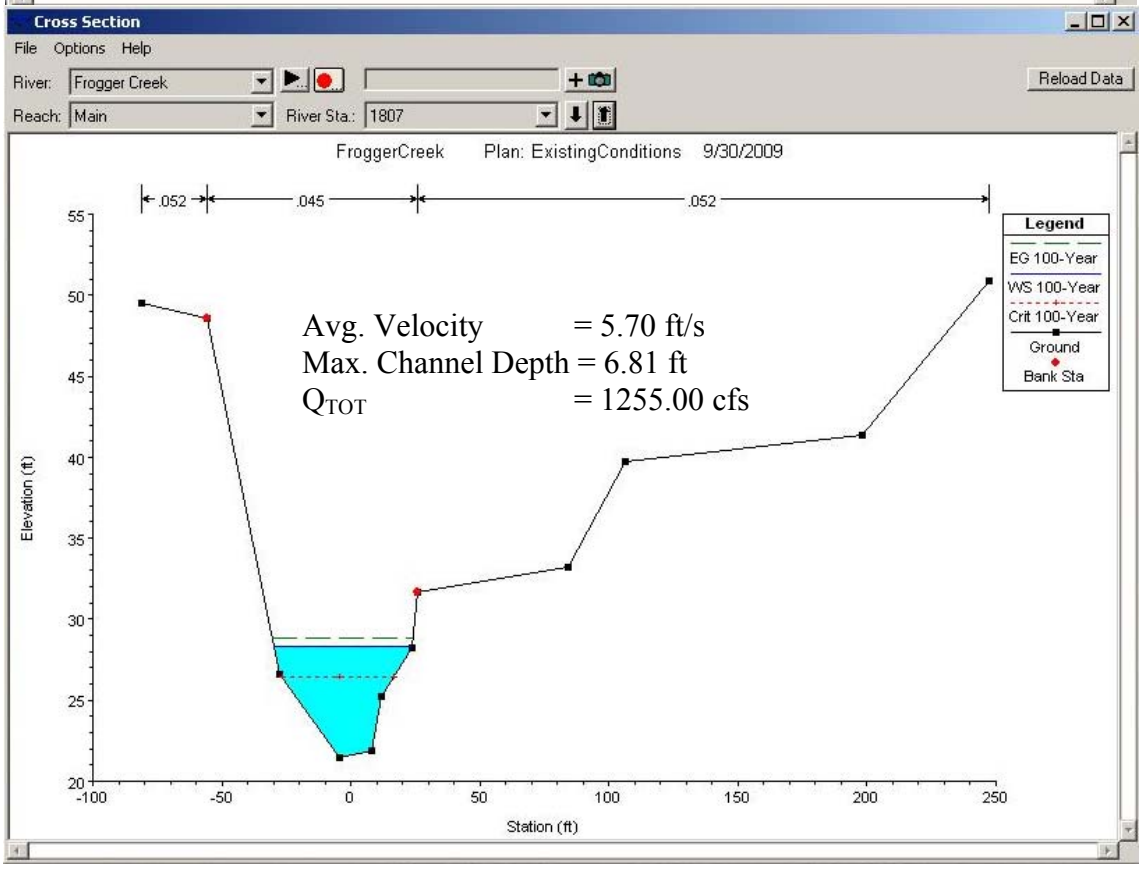

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.18 ft/s
Max. Channel Depth = 6.51 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

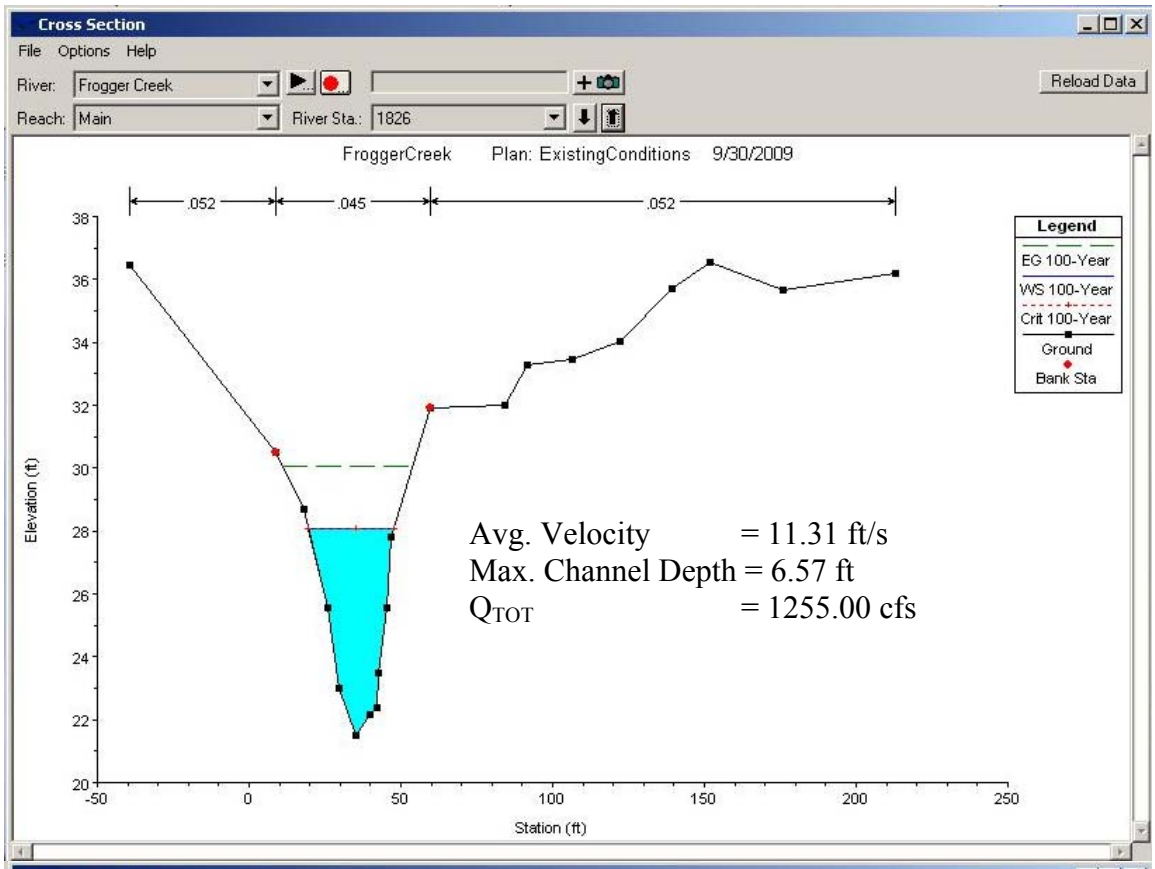

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.16 ft/s
Max. Channel Depth = 6.50 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

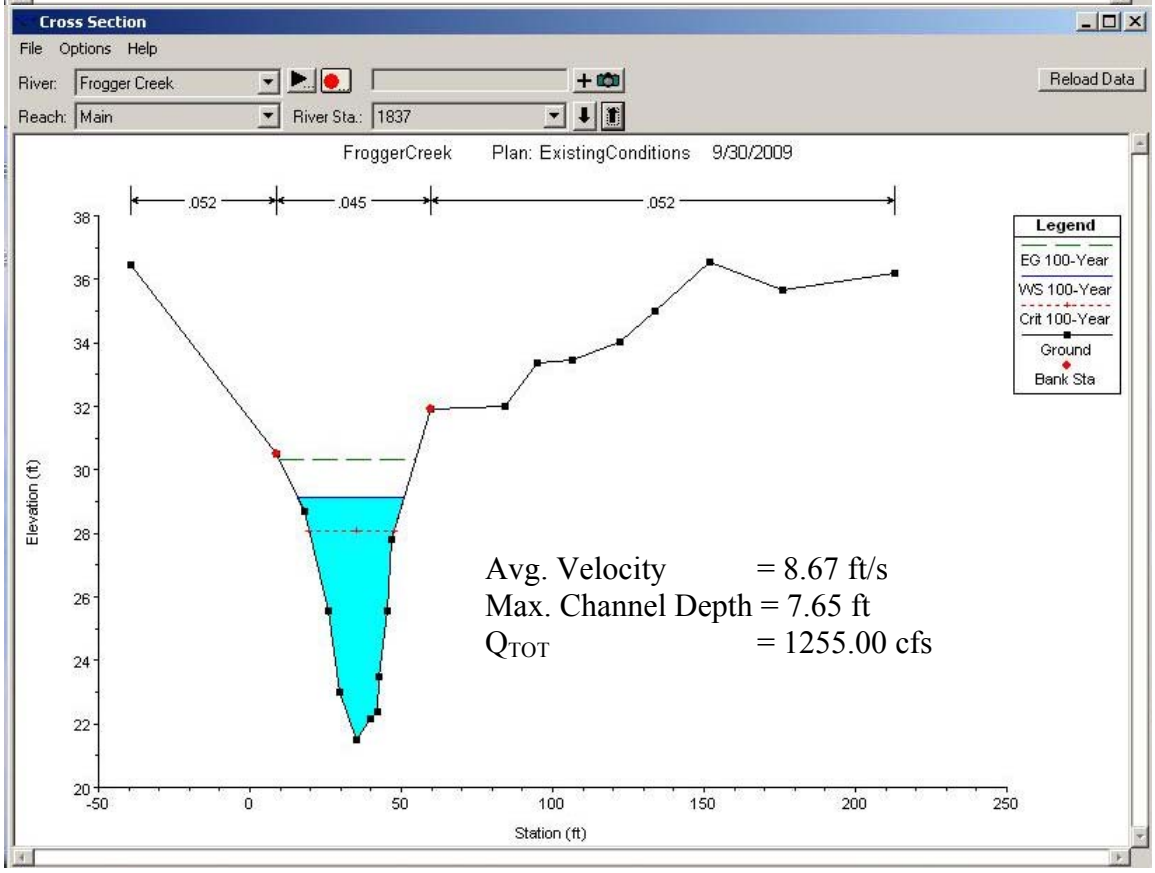

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.01 ft/s
Max. Channel Depth = 6.60 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

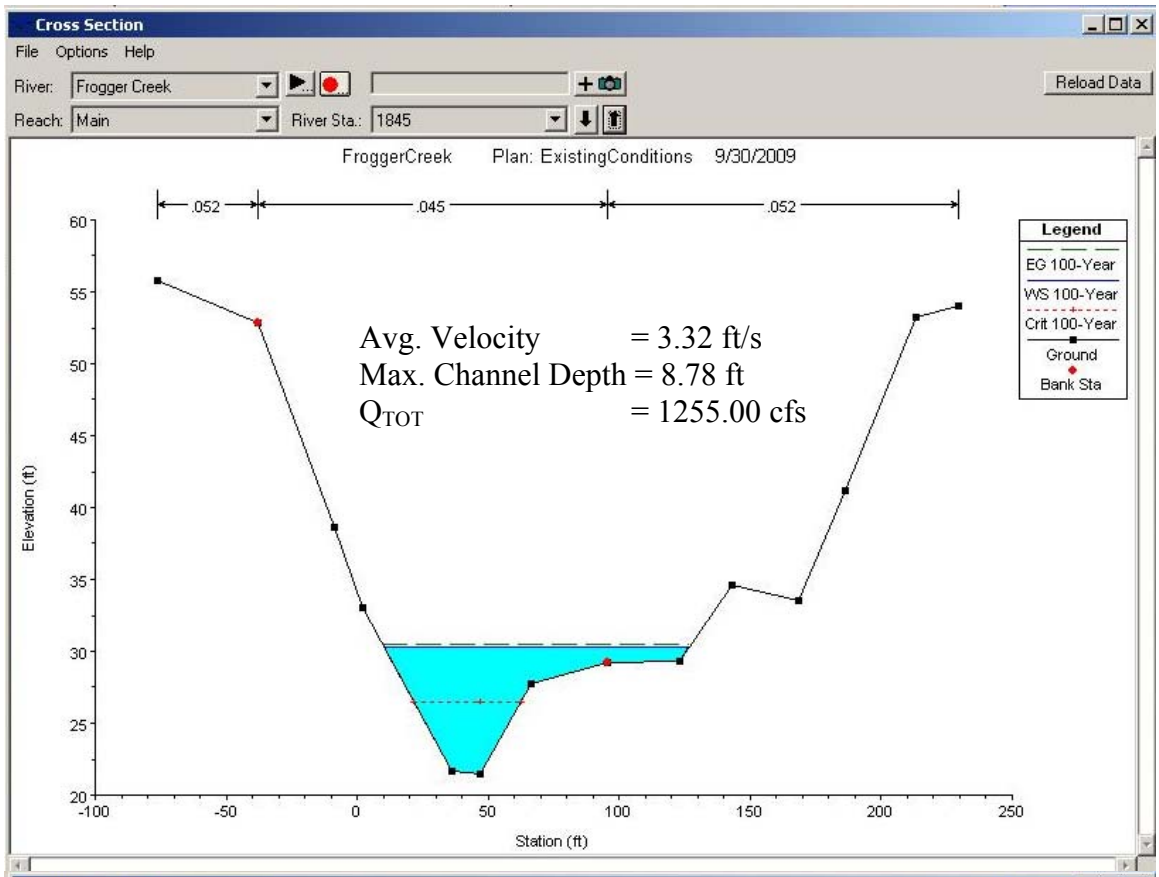

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.91 ft/s
Max. Channel Depth = 6.66 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

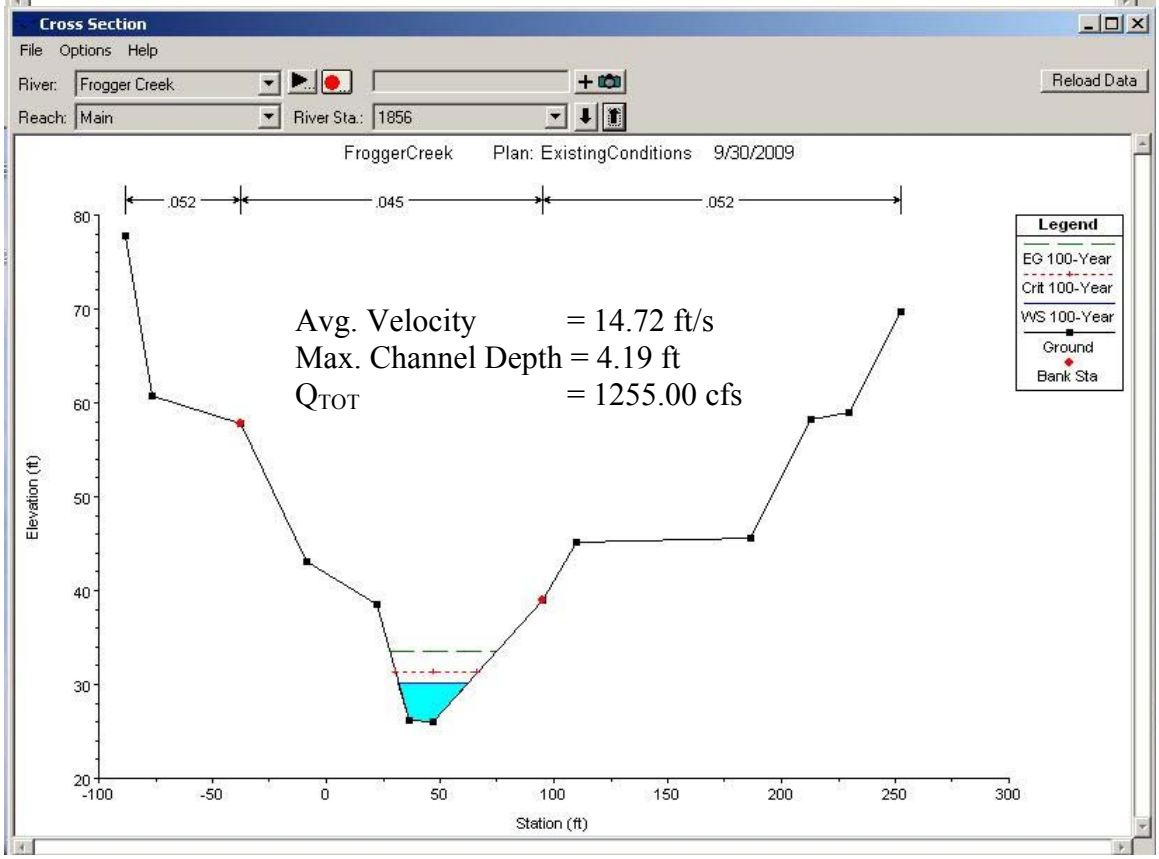

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.80 ft/s
Max. Channel Depth = 6.74 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

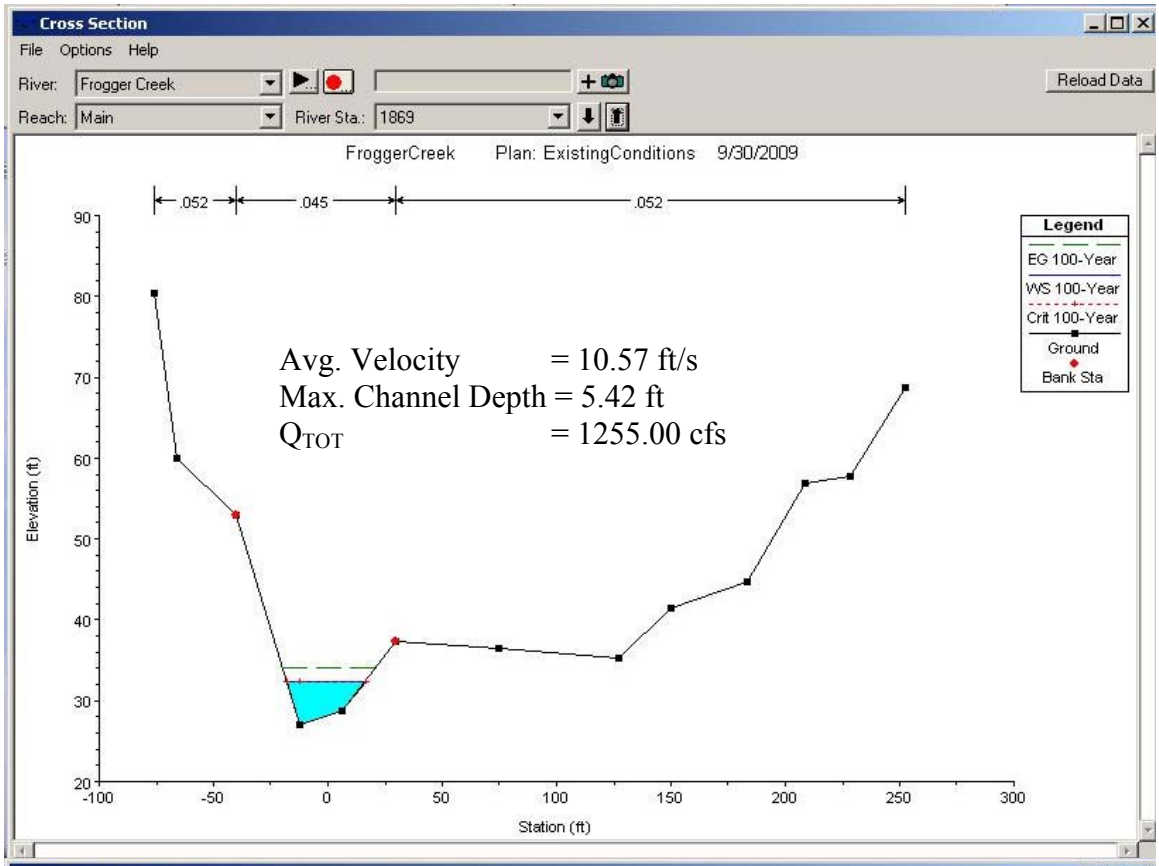

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 5.70 ft/s
Max. Channel Depth = 6.81 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

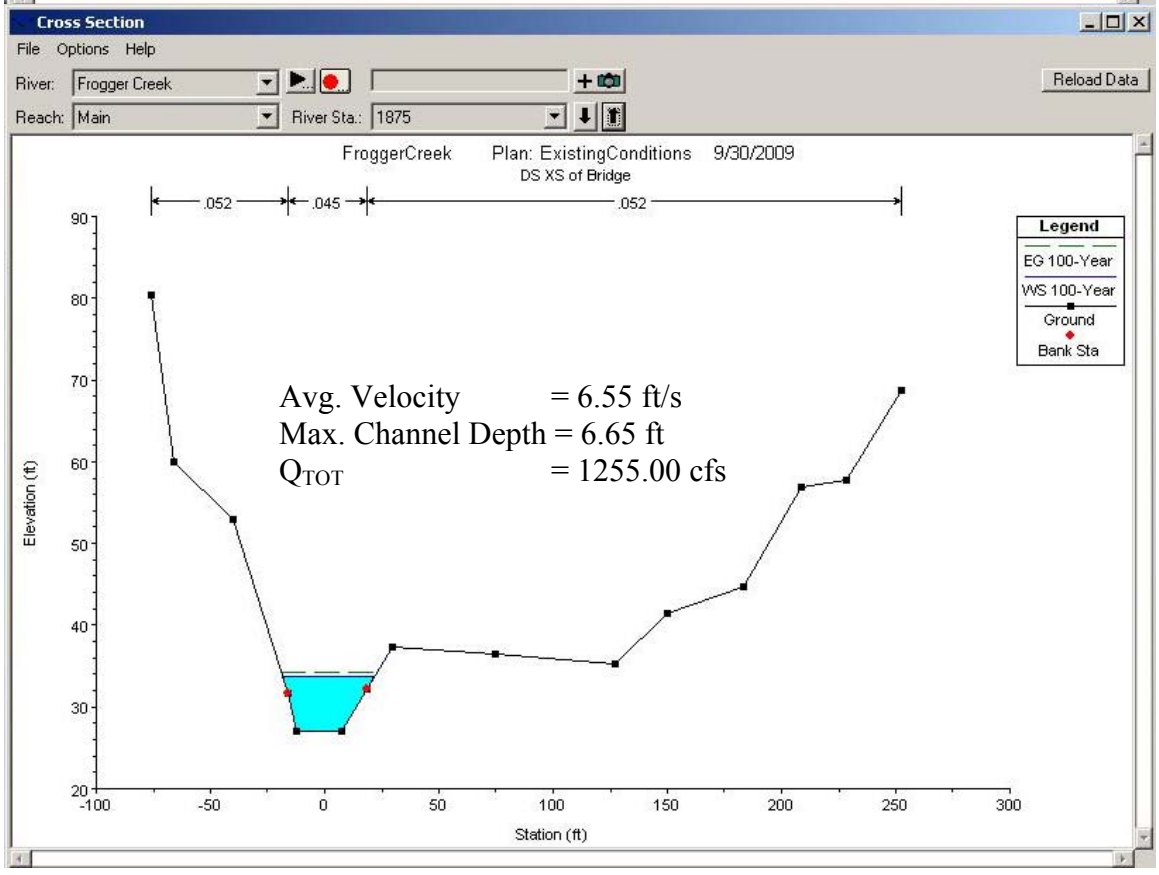

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 11.31 ft/s
Max. Channel Depth = 6.57 ft
Q_TOT = 1255.00 cfs

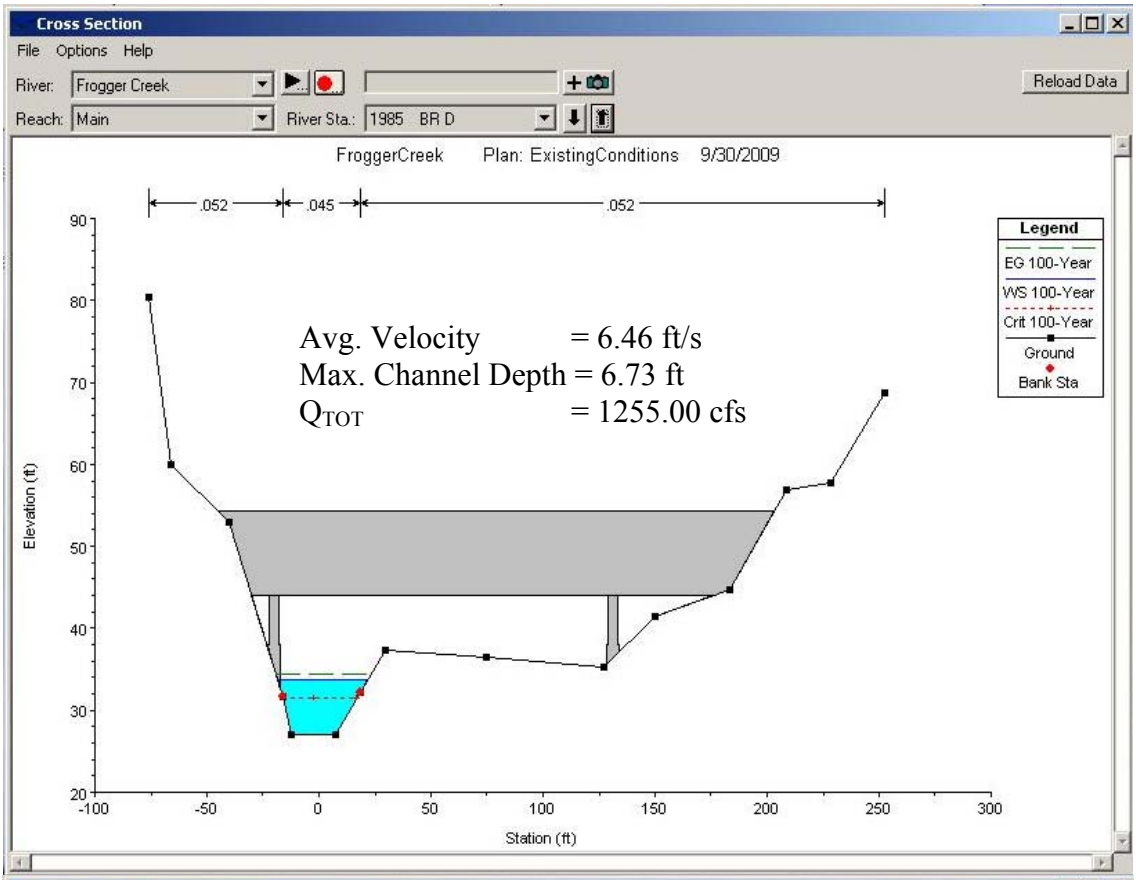

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 8.67 ft/s
Max. Channel Depth = 7.65 ft
Q_TOT = 1255.00 cfs

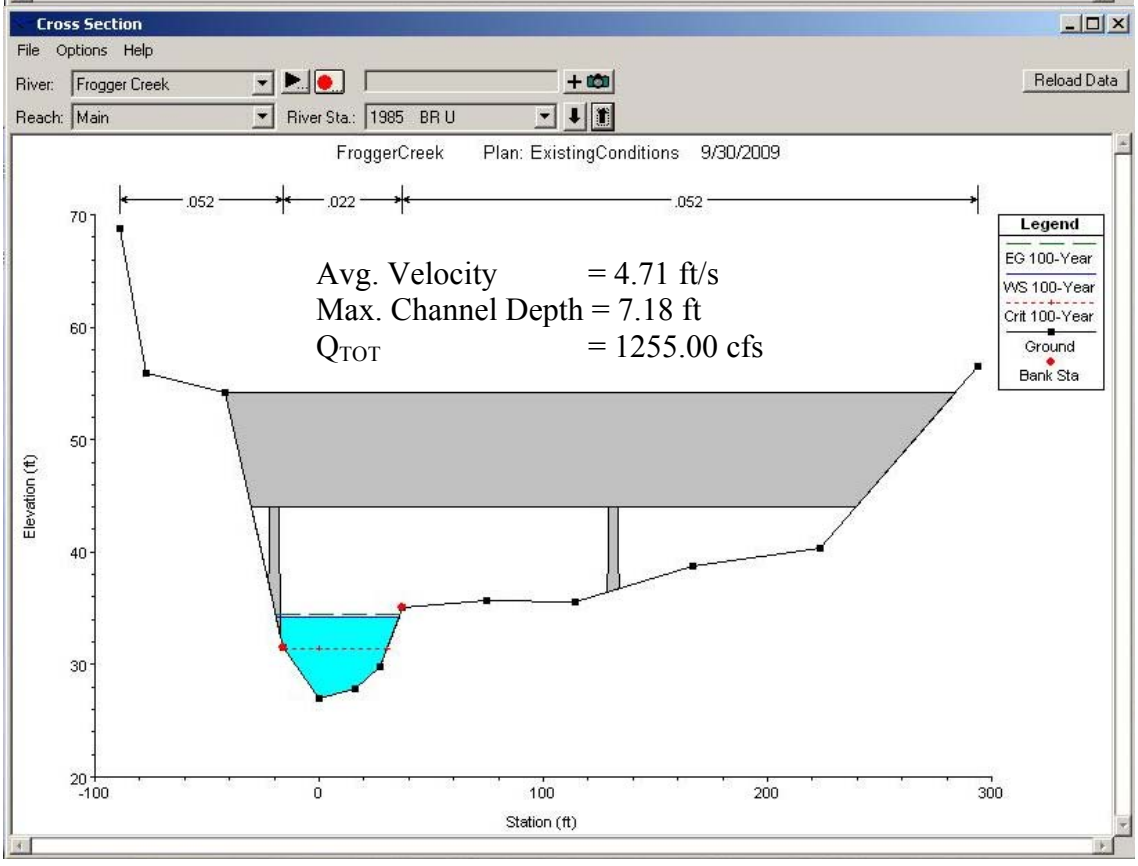

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 3.32 ft/s
Max. Channel Depth = 8.78 ft
Q_TOT = 1255.00 cfs
Elevation (ft)
Station (ft)

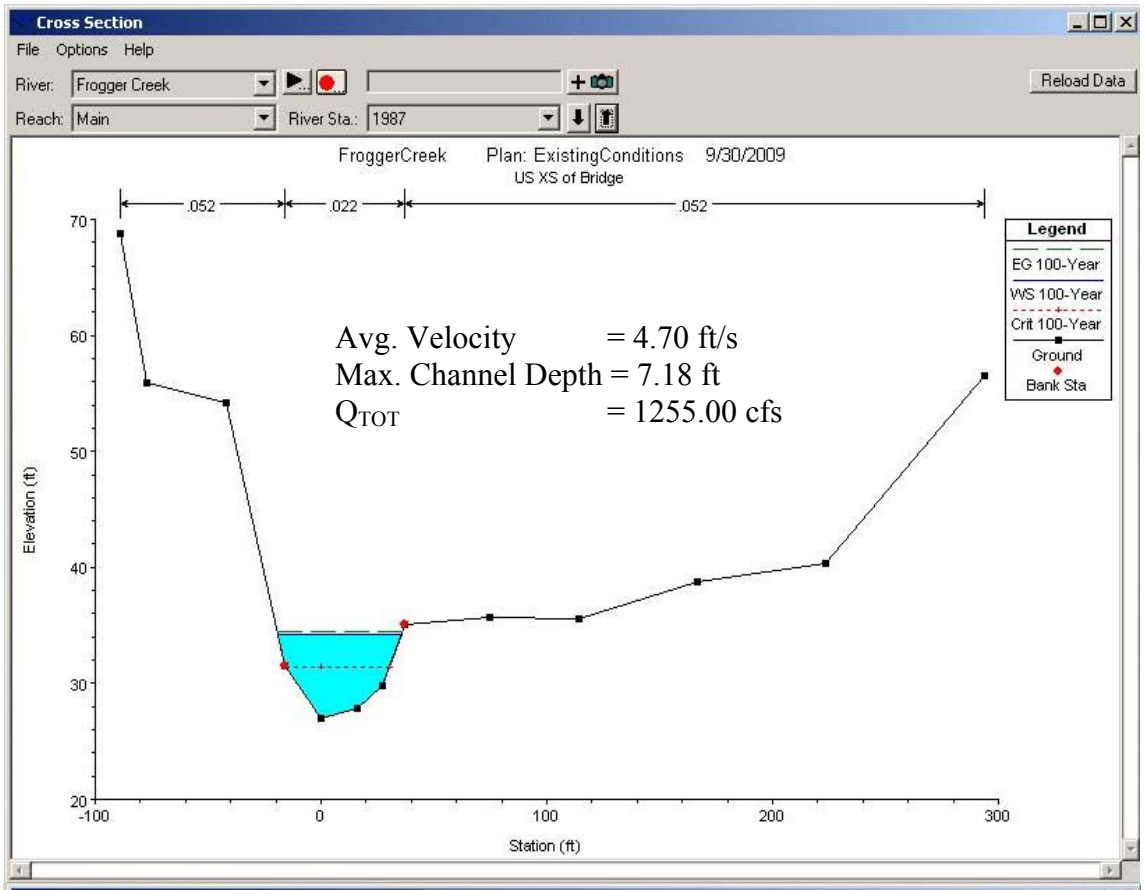

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 14.72 ft/s
Max. Channel Depth = 4.19 ft
Q_TOT = 1255.00 cfs
Elevation (ft)
Station (ft)

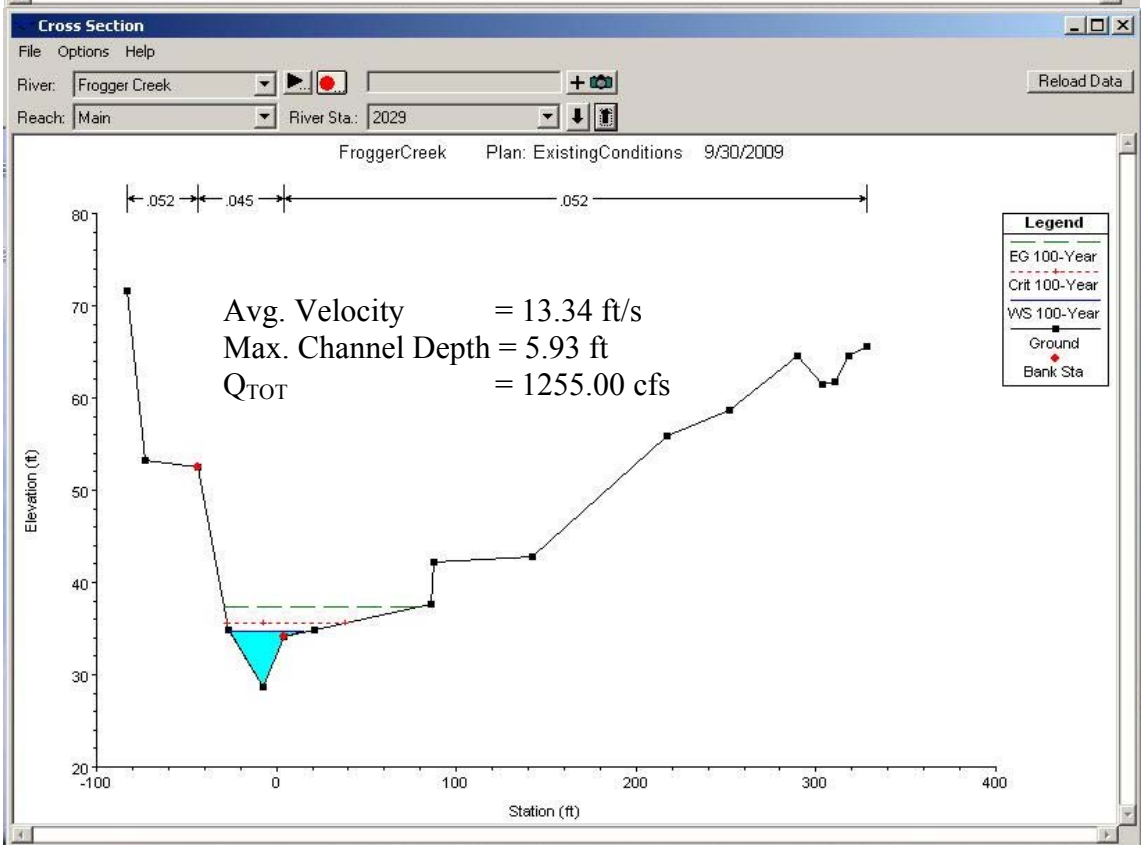

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1869
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 10.57 ft/s
Max. Channel Depth = 5.42 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

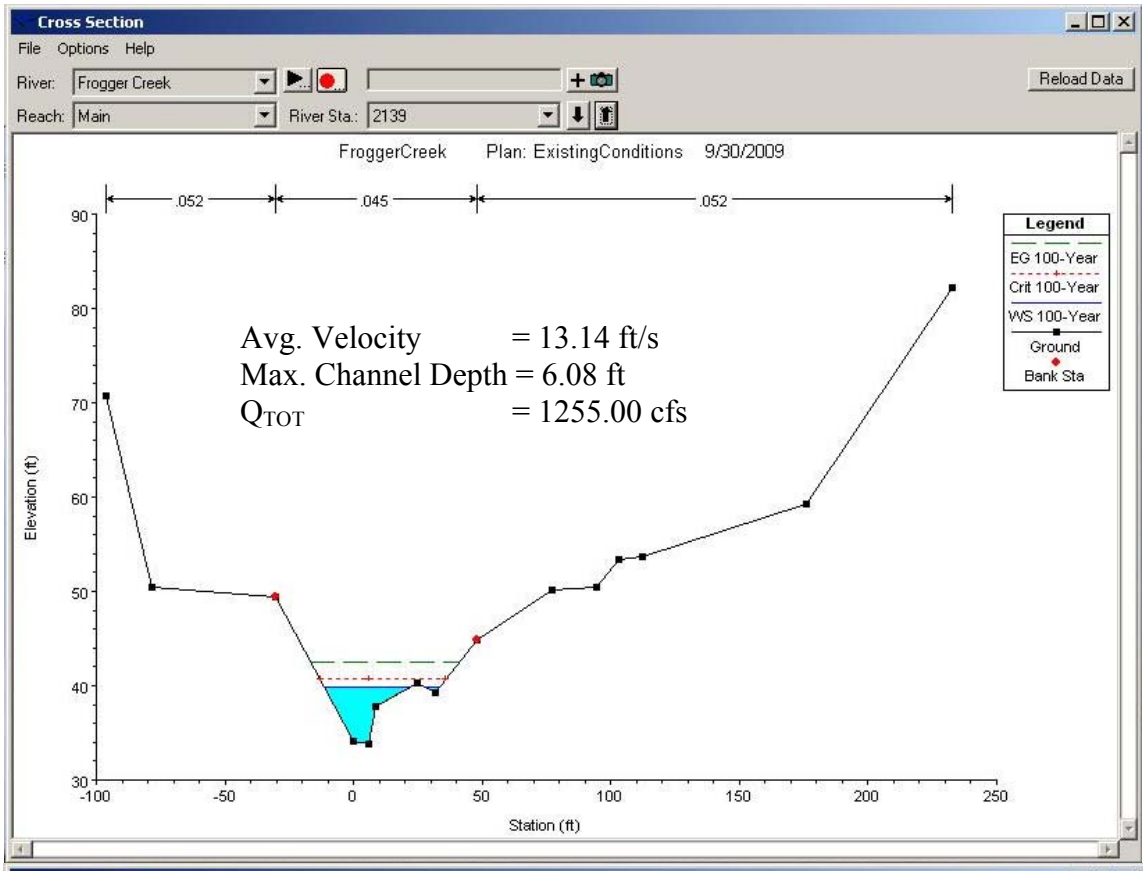

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
DS XS of Bridge
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.55 ft/s
Max. Channel Depth = 6.65 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

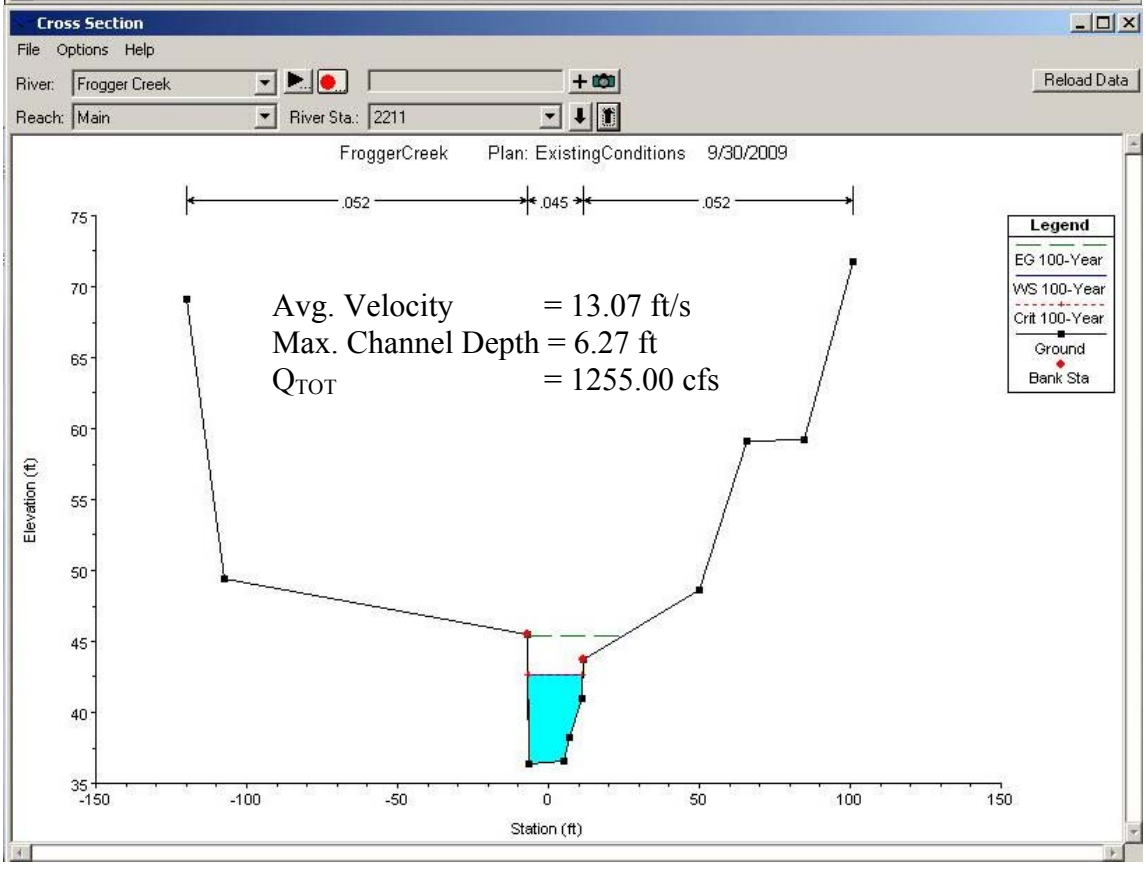

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 6.46 ft/s
Max. Channel Depth = 6.73 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

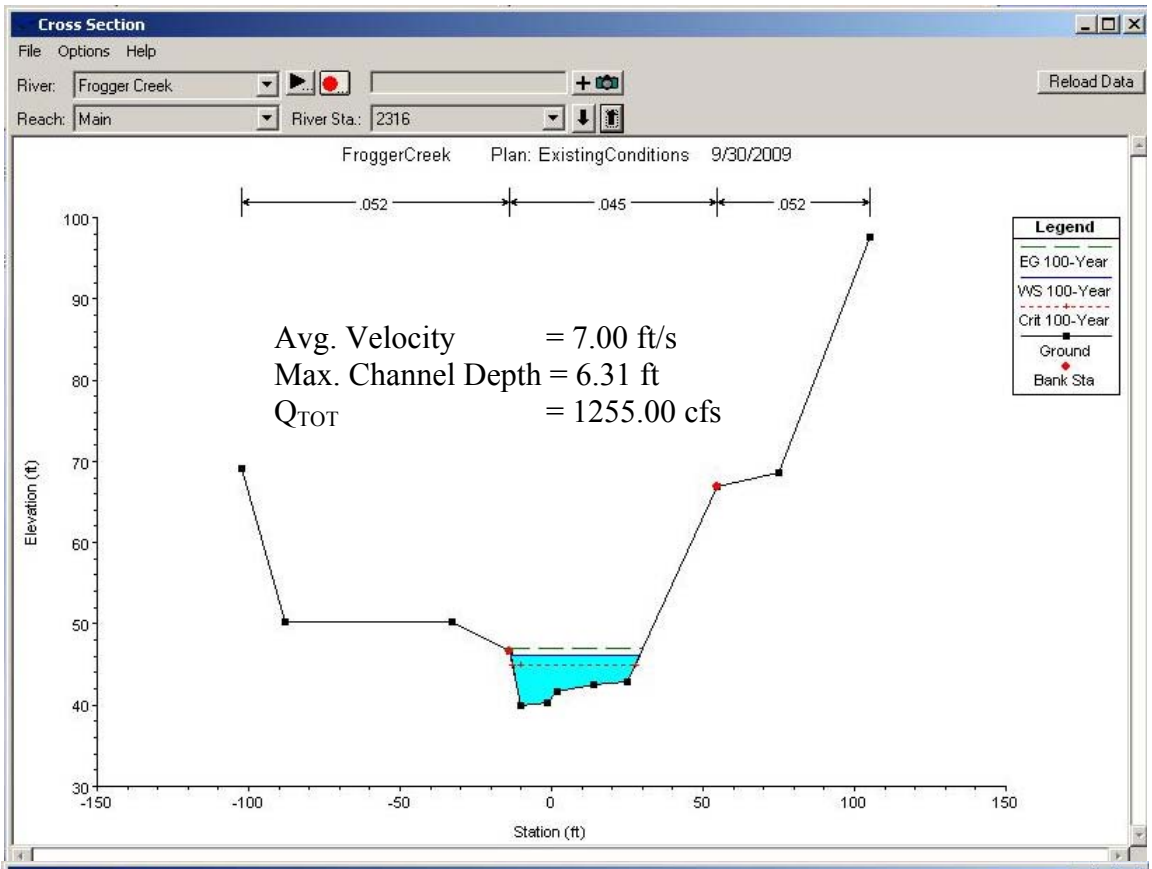

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.022
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 4.71 ft/s
Max. Channel Depth = 7.18 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

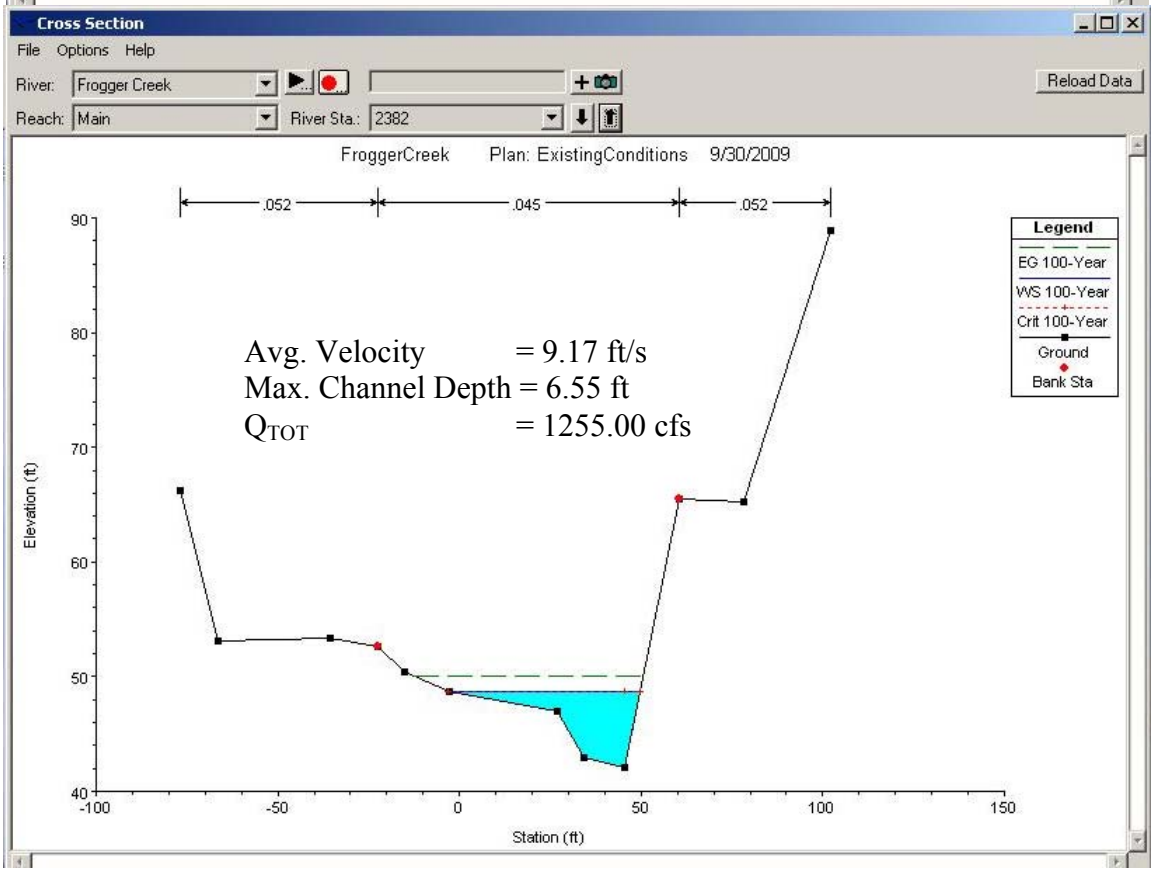

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
US XS of Bridge
.052
.022
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 4.70 ft/s
Max. Channel Depth = 7.18 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

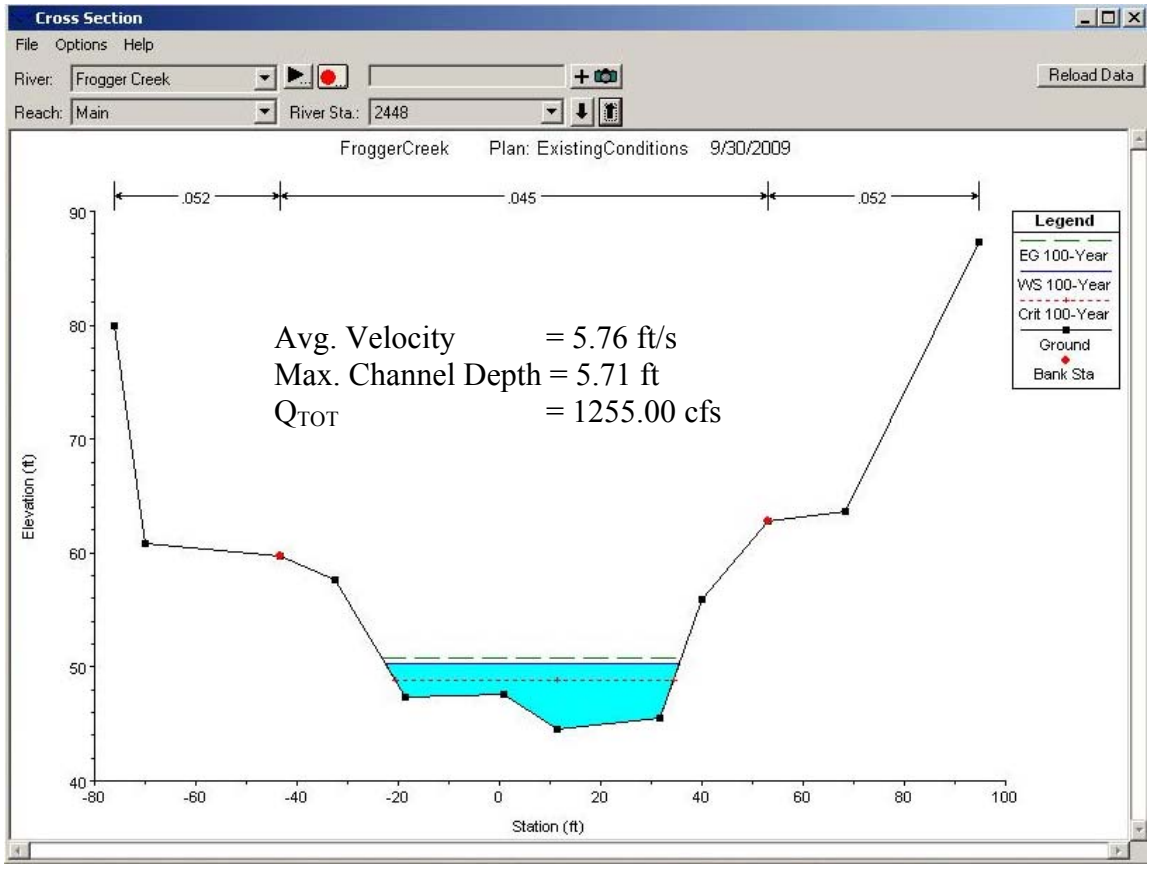

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2029
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 13.34 ft/s
Max. Channel Depth = 5.93 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2139
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 13.14 ft/s
Max. Channel Depth = 6.08 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2211
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 13.07 ft/s
Max. Channel Depth = 6.27 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2316
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 7.00 ft/s
Max. Channel Depth = 6.31 ft
Q_TOT = 1255.00 cfs
Elevation (ft)
Station (ft)

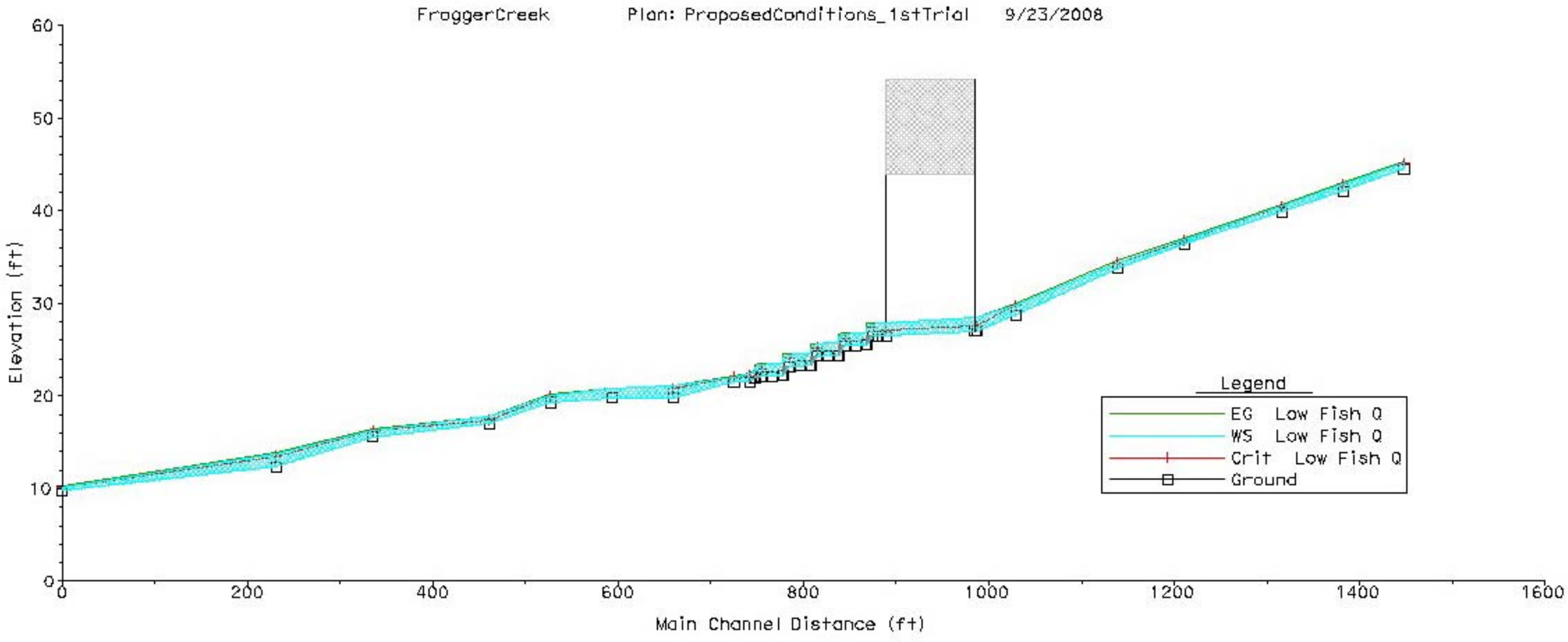

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2382
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 9.17 ft/s
Max. Channel Depth = 6.55 ft
Q_TOT = 1255.00 cfs
Elevation (ft)
Station (ft)

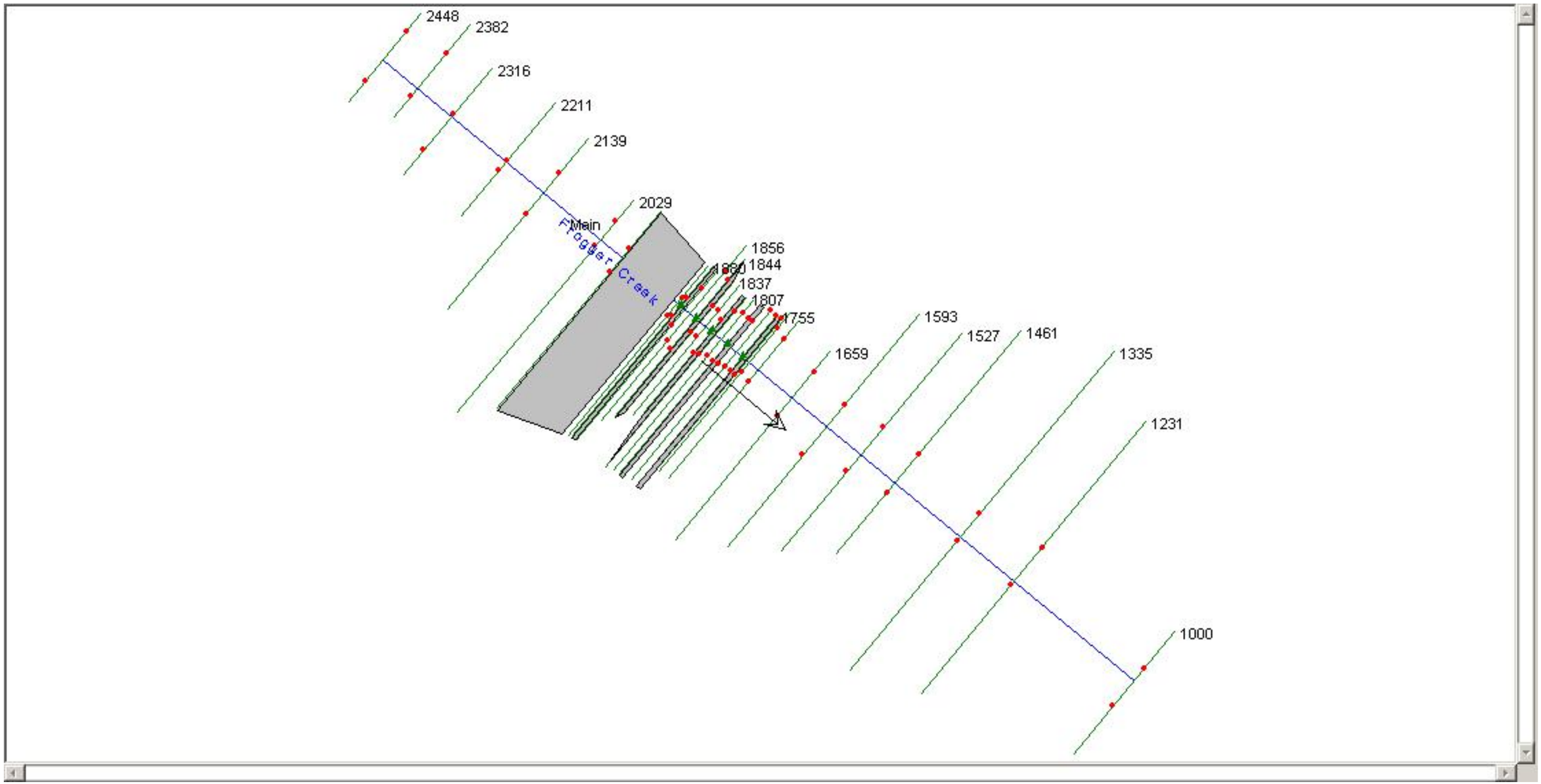

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 2448
Reload Data
FroggerCreek Plan: ExistingConditions 9/30/2009
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 5.76 ft/s
Max. Channel Depth = 5.71 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)
90
80
70
60
50
40
-80
-60
-40
-20
0
20
40
60
80
100

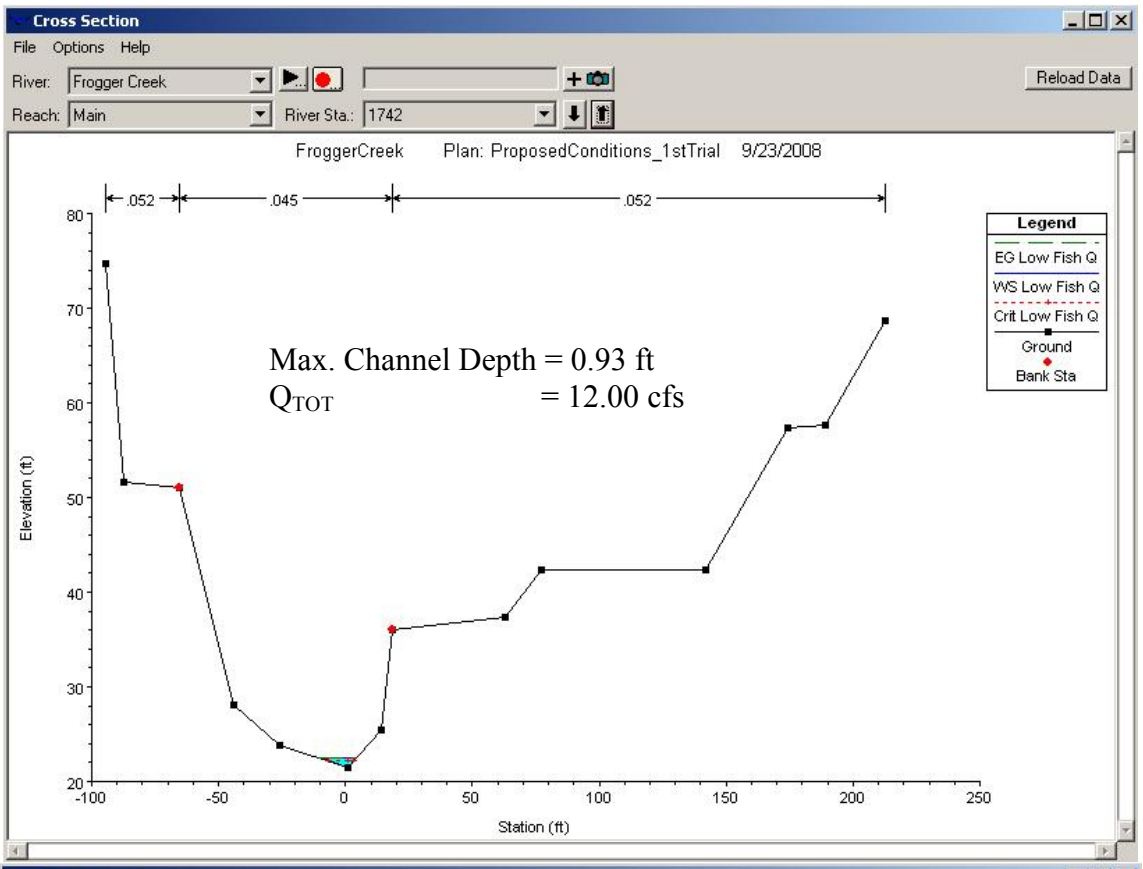
PROPOSED DESIGN (1ST TRIAL)

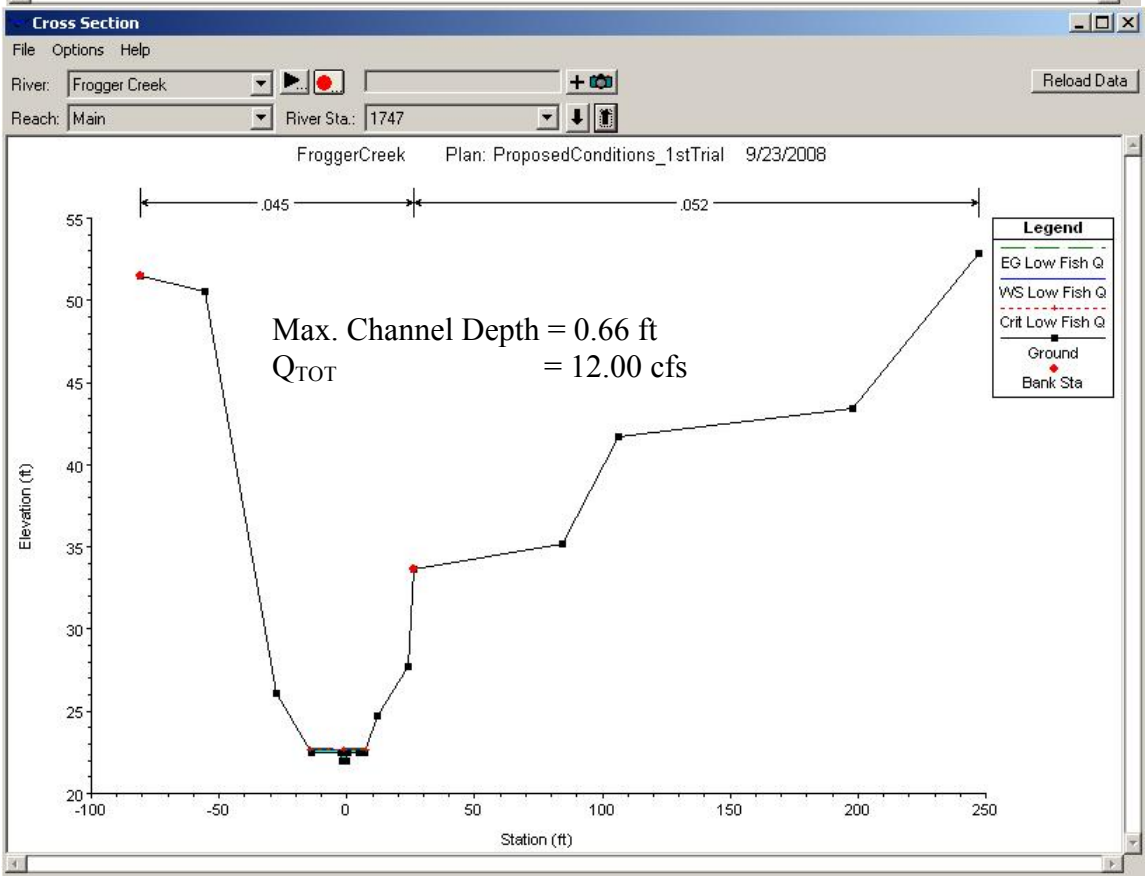
PROPOSED DESIGN (1ST TRIAL)

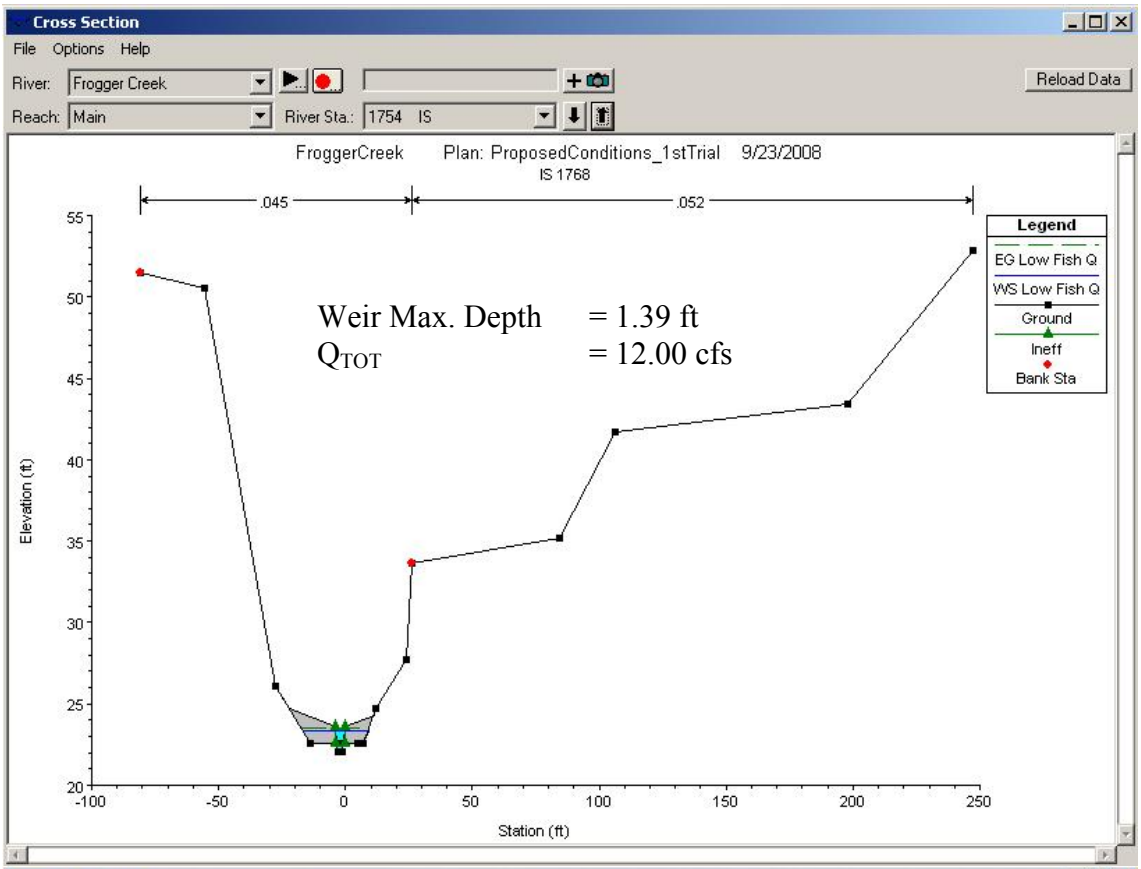
LOW FLOW FISH PASSAGE RESULTS

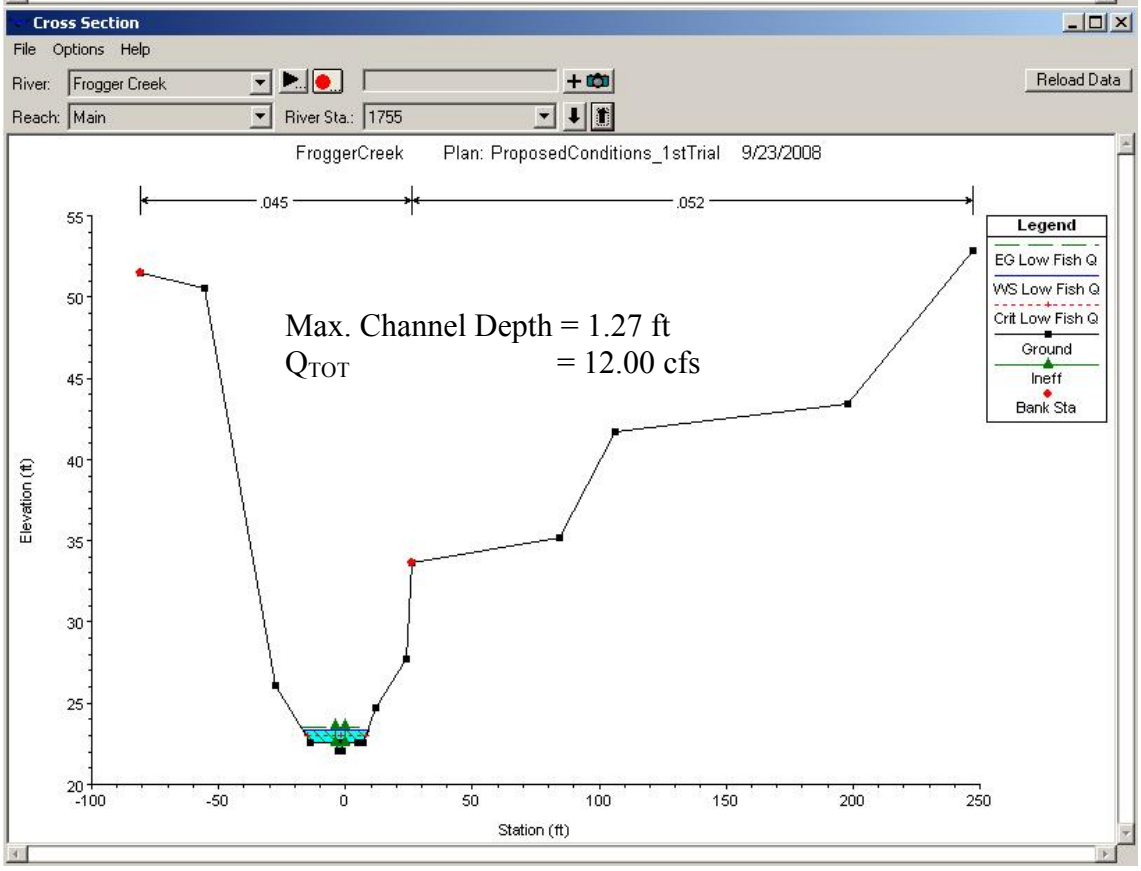

FroggerCreek
Plan: ProposedConditions_1stTrial
9/23/2008
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
0
200
400
600
800
1000
1200
1400
1600
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground

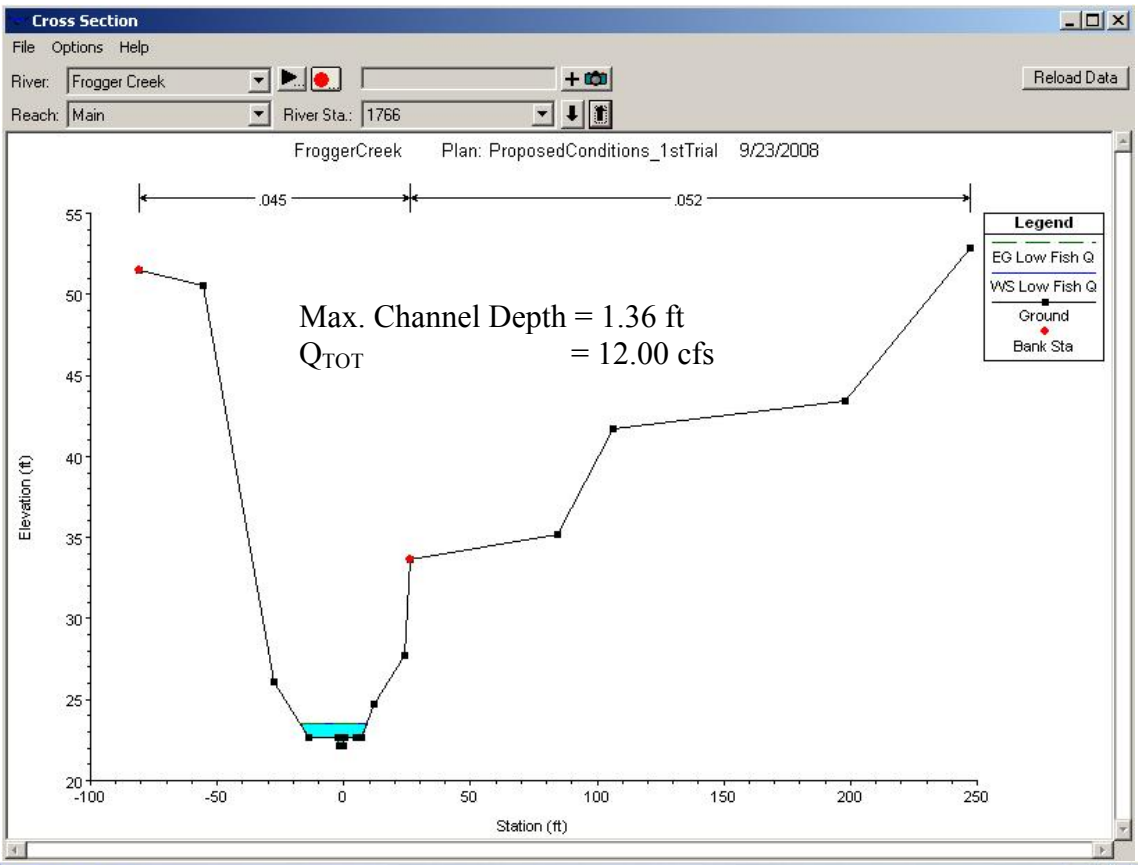

2448
2382
2316
2211
2139
2029
Main
Flooglar Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

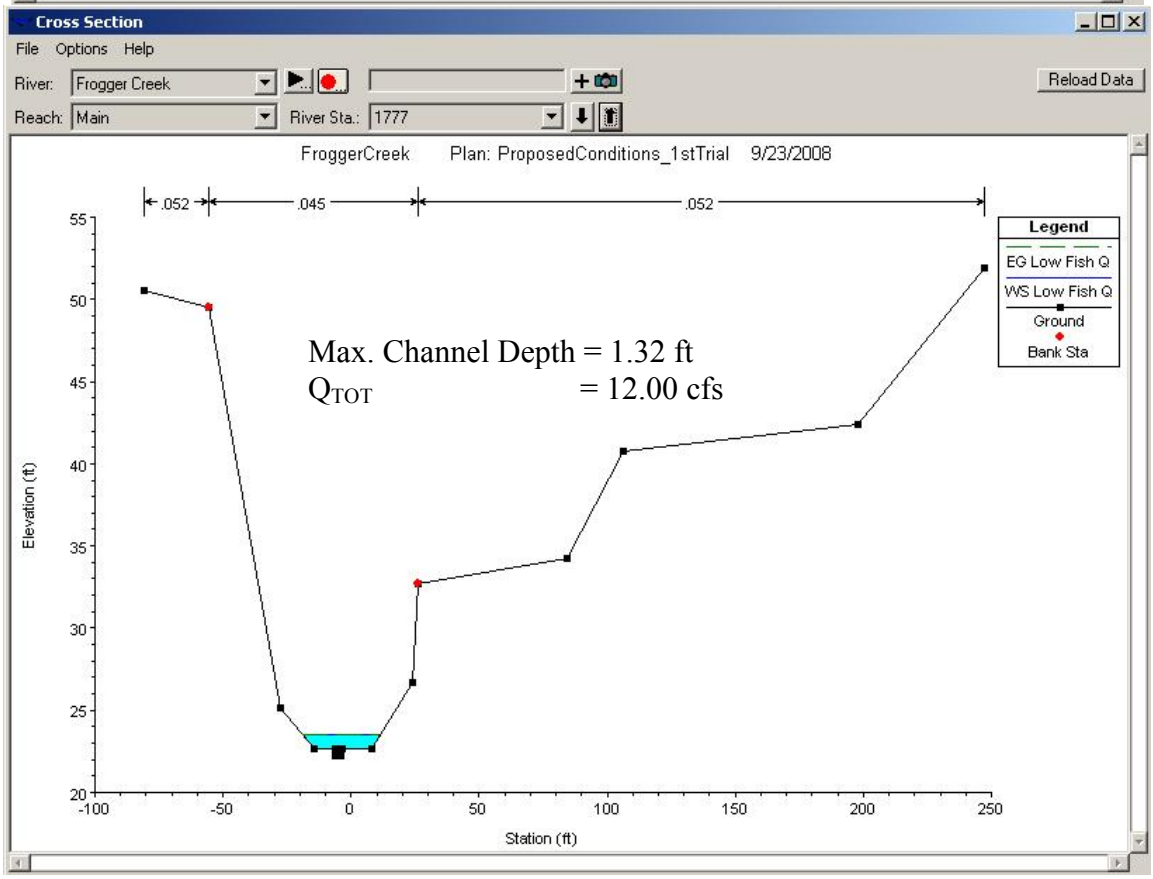

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.93 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

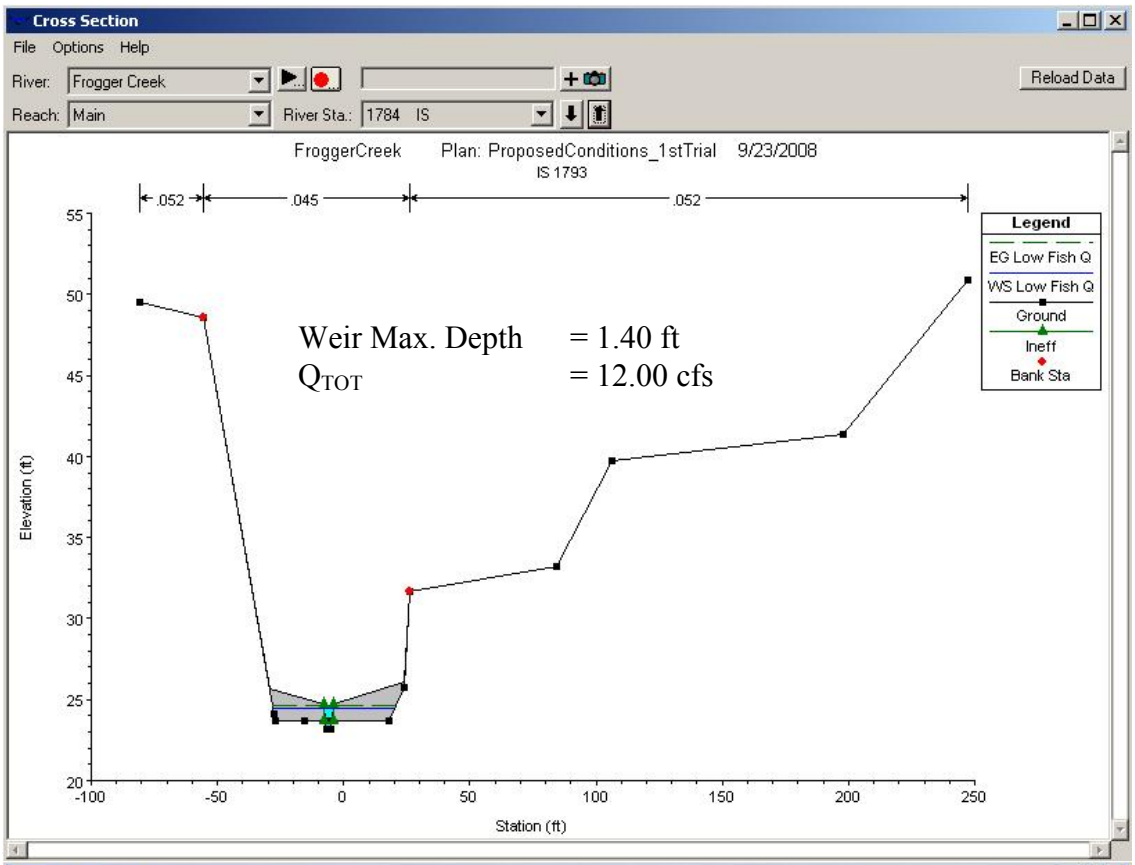

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.66 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

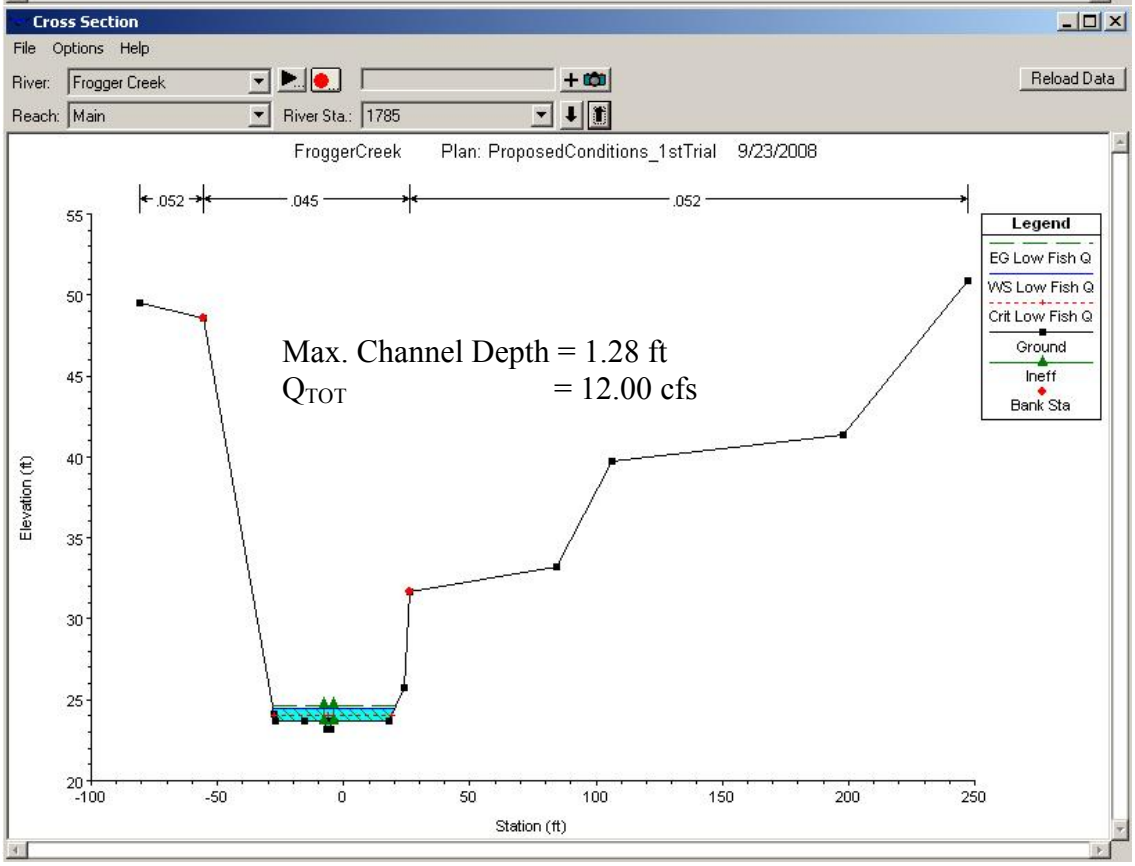

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1768
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.39 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

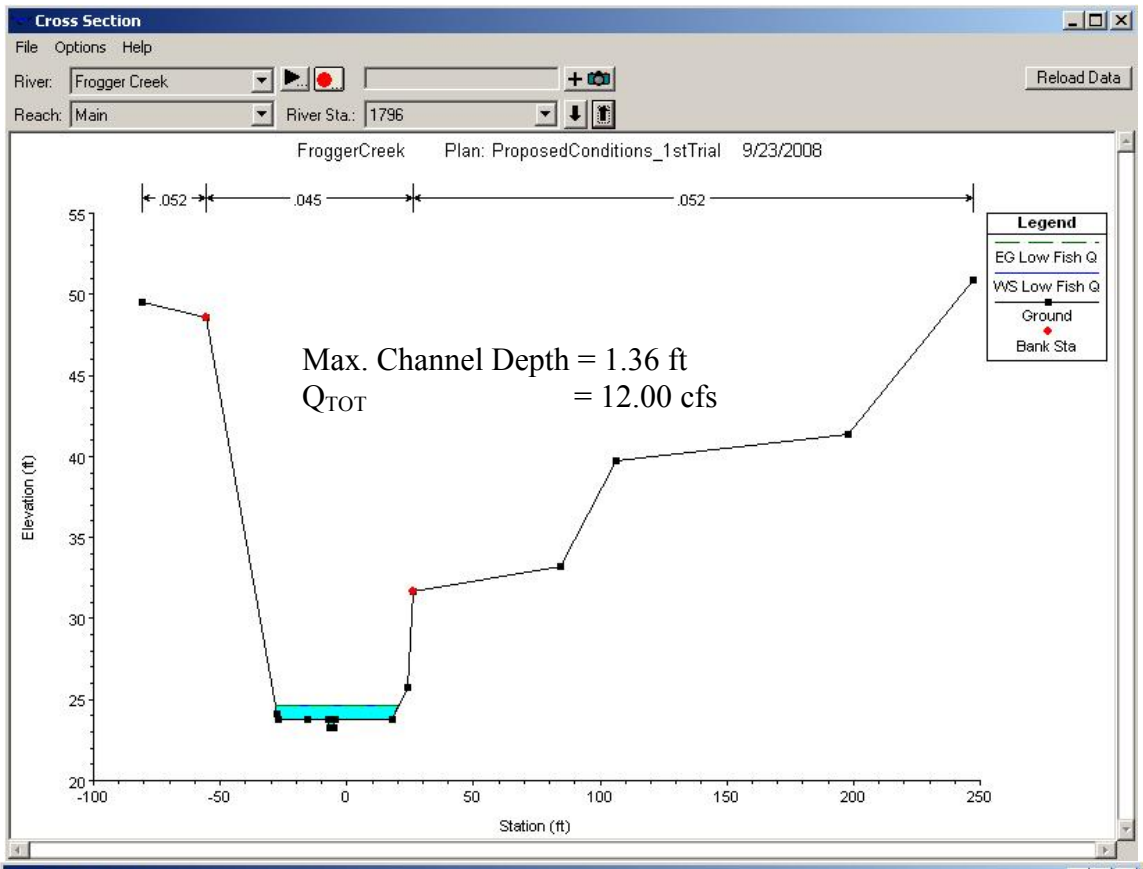

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 1.27 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

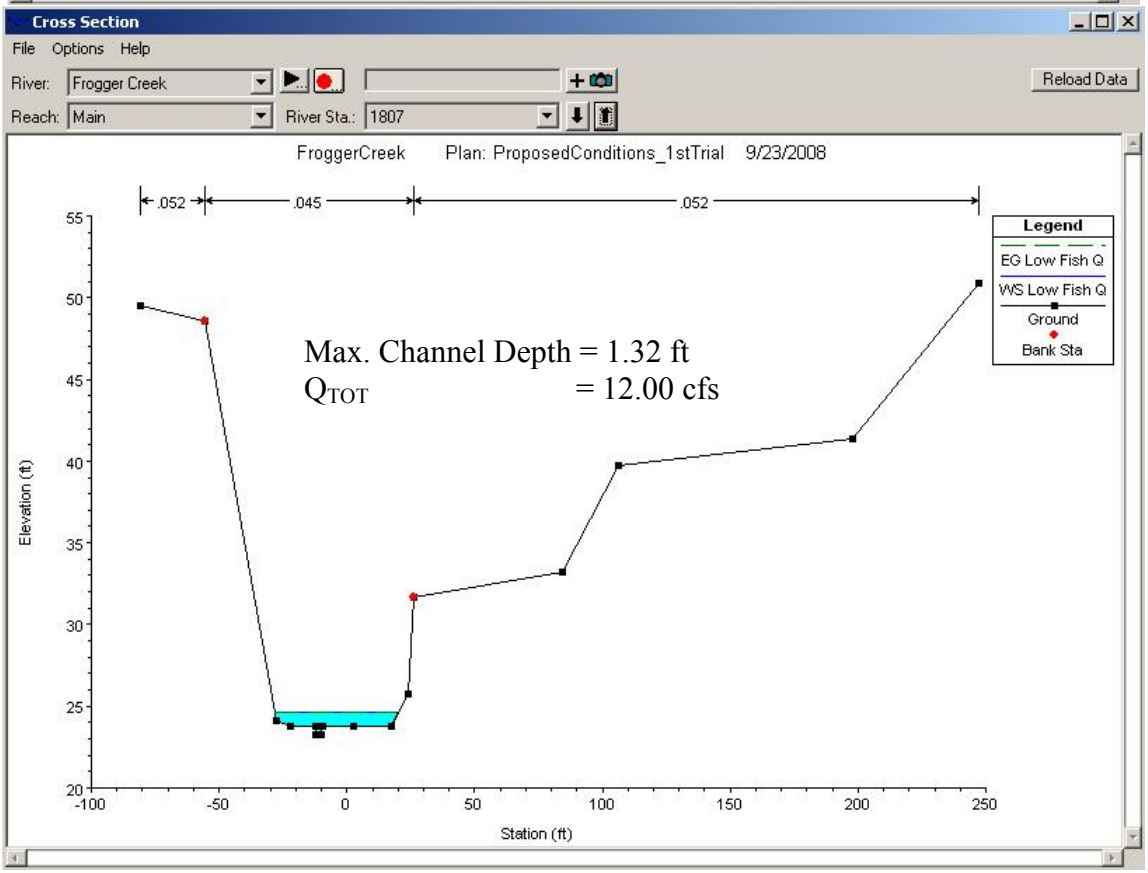

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.36 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

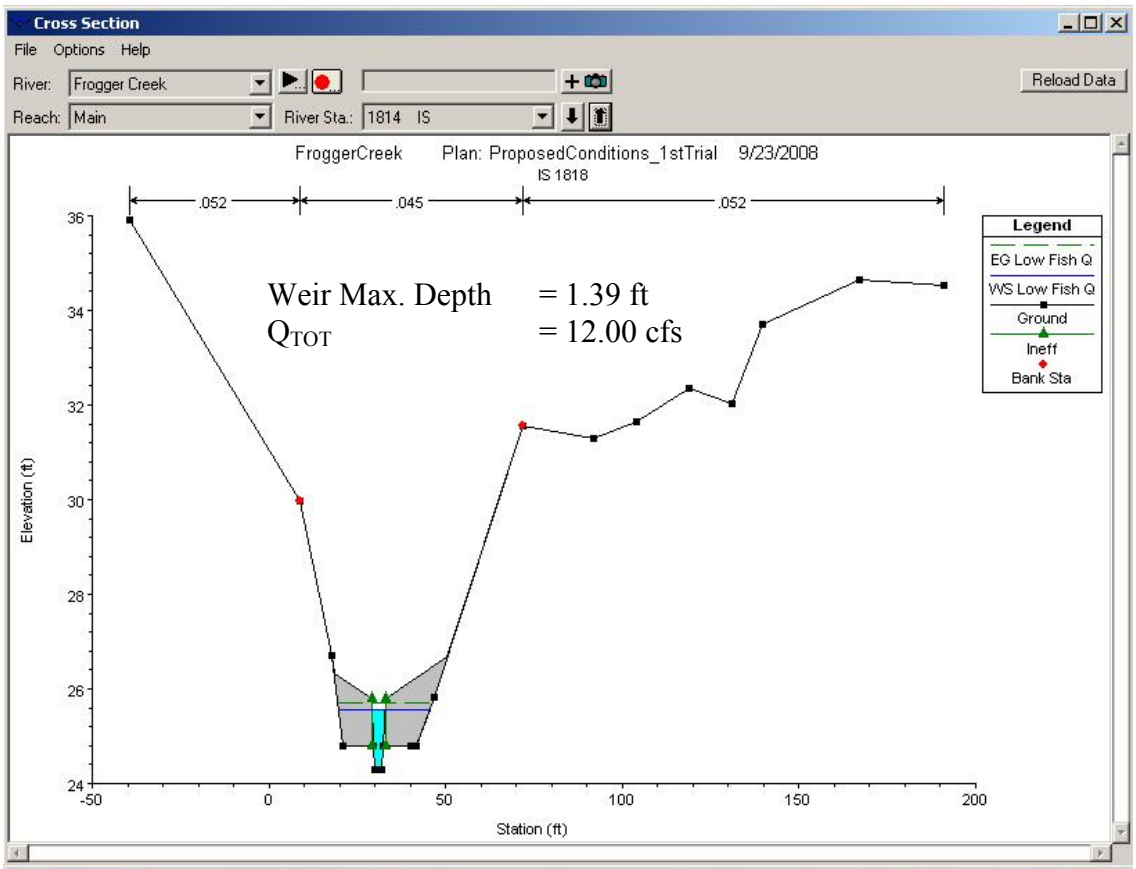

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.32 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

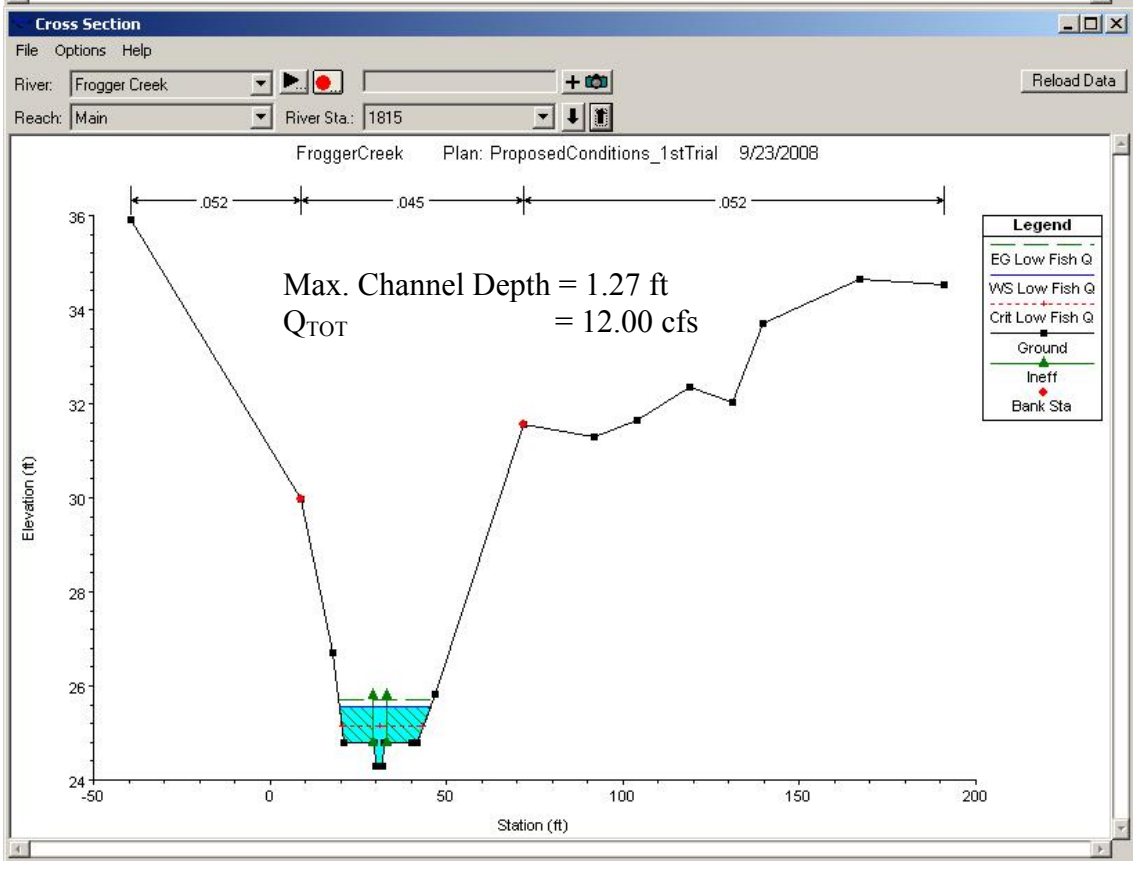

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1793
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.40 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

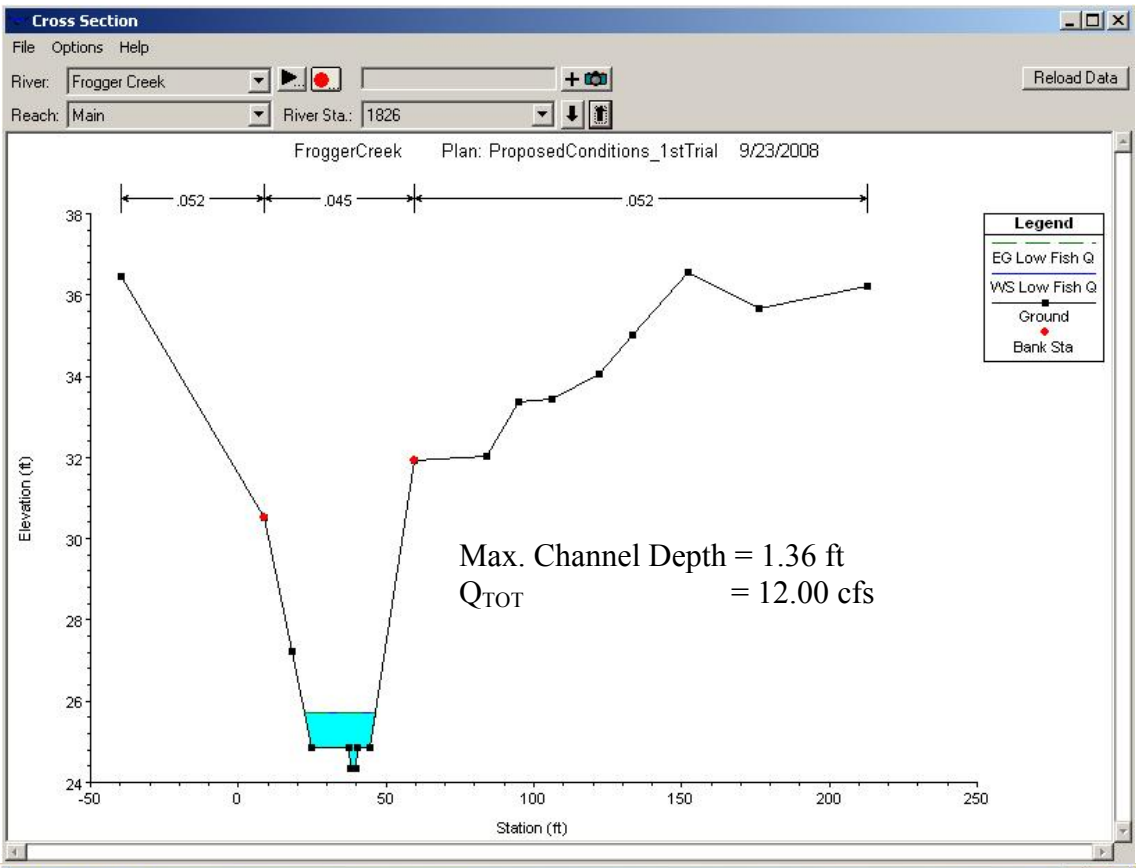

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 1.28 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

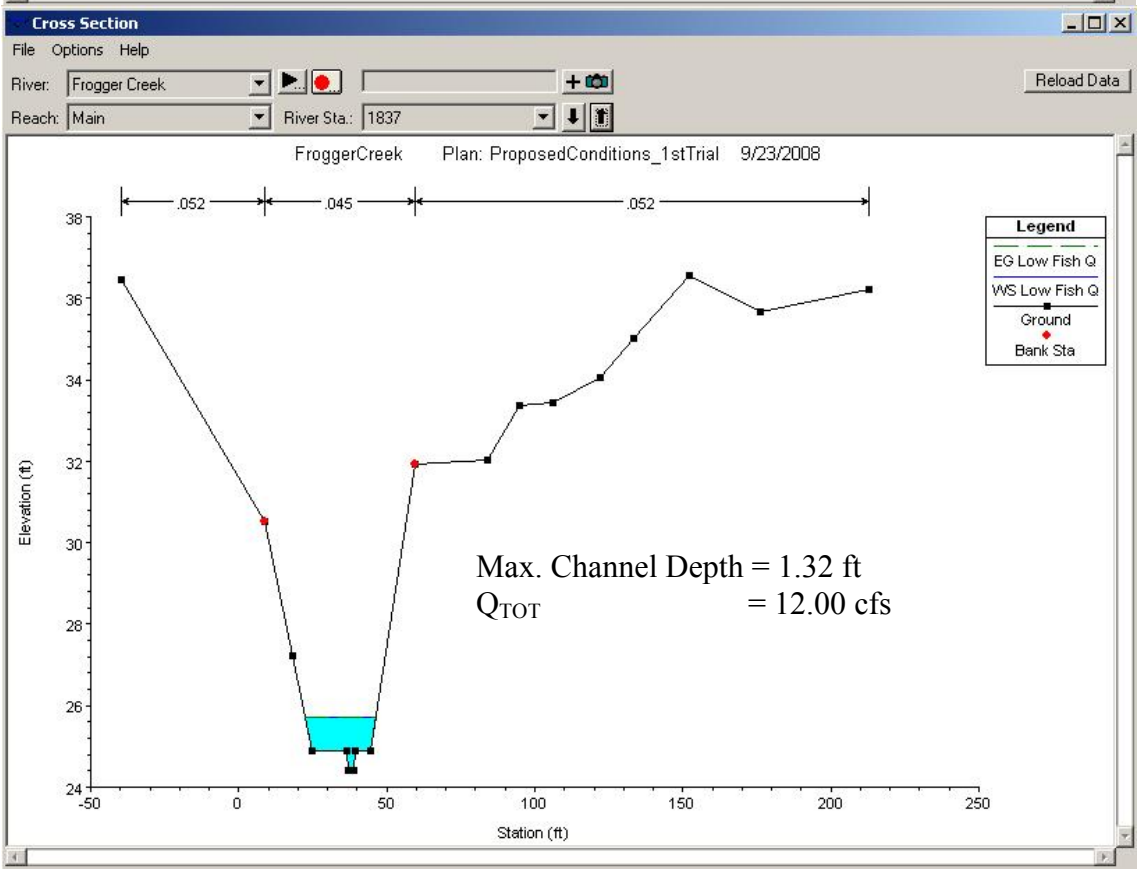

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.36 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

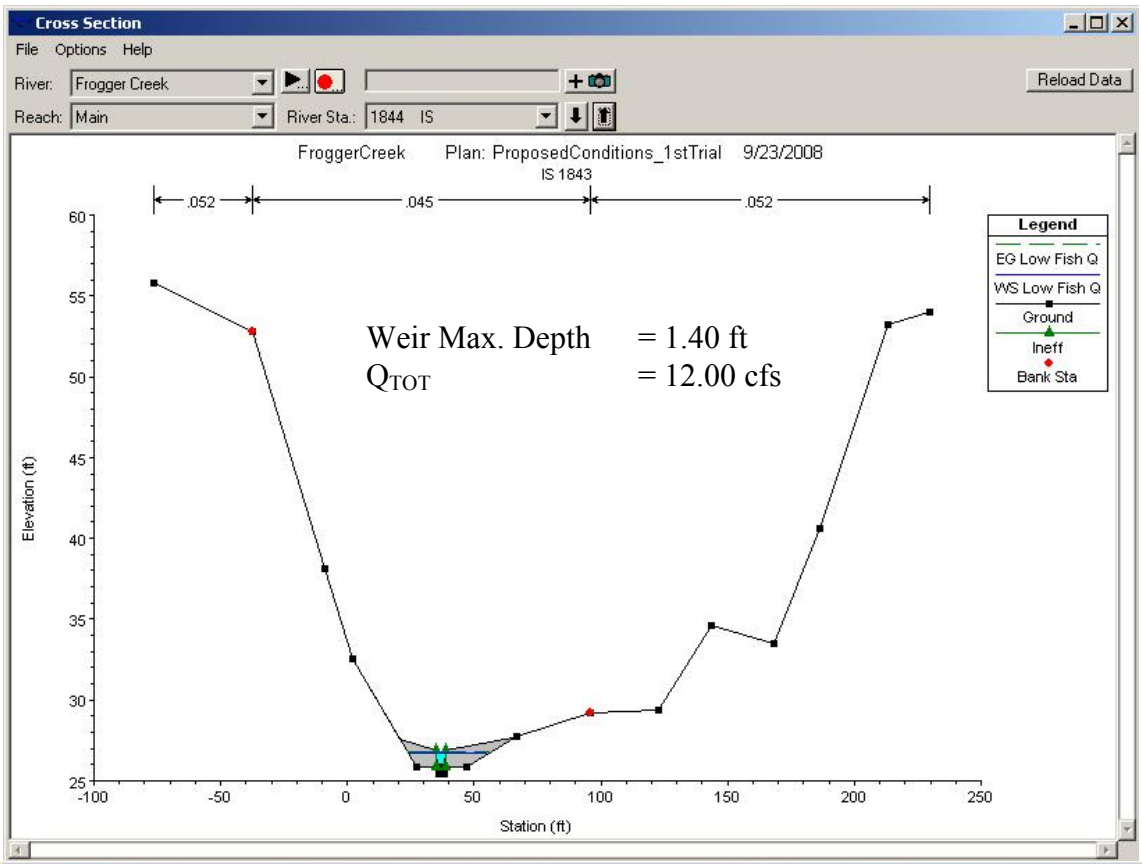

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.32 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

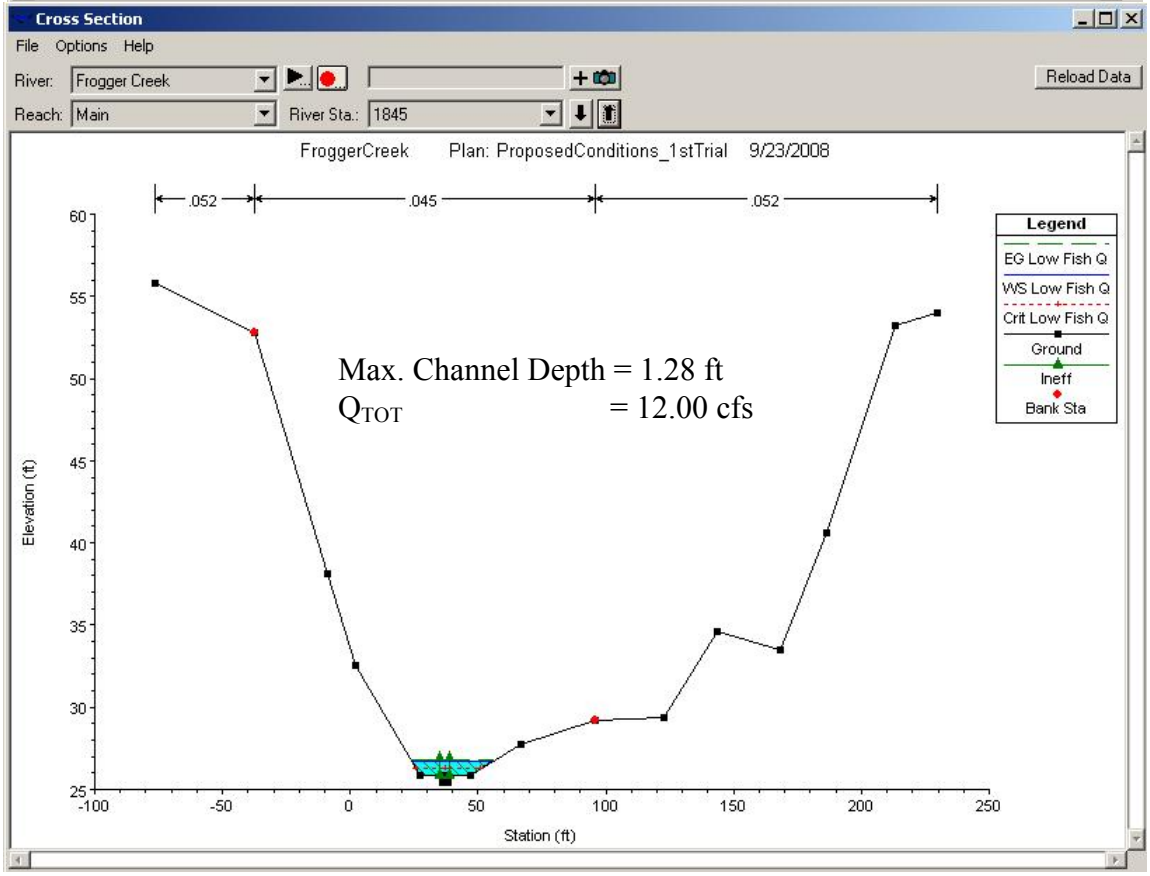

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 1.39 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

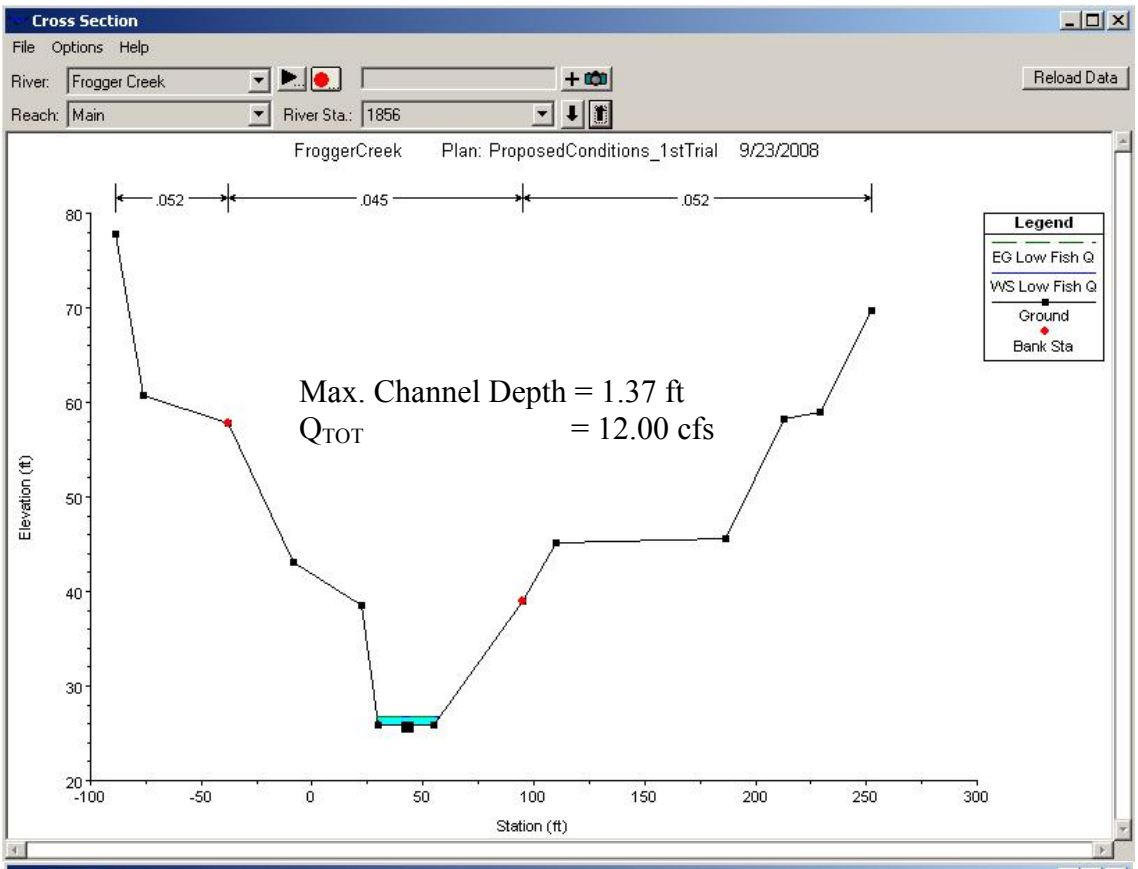

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Max. Channel Depth = 1.27 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

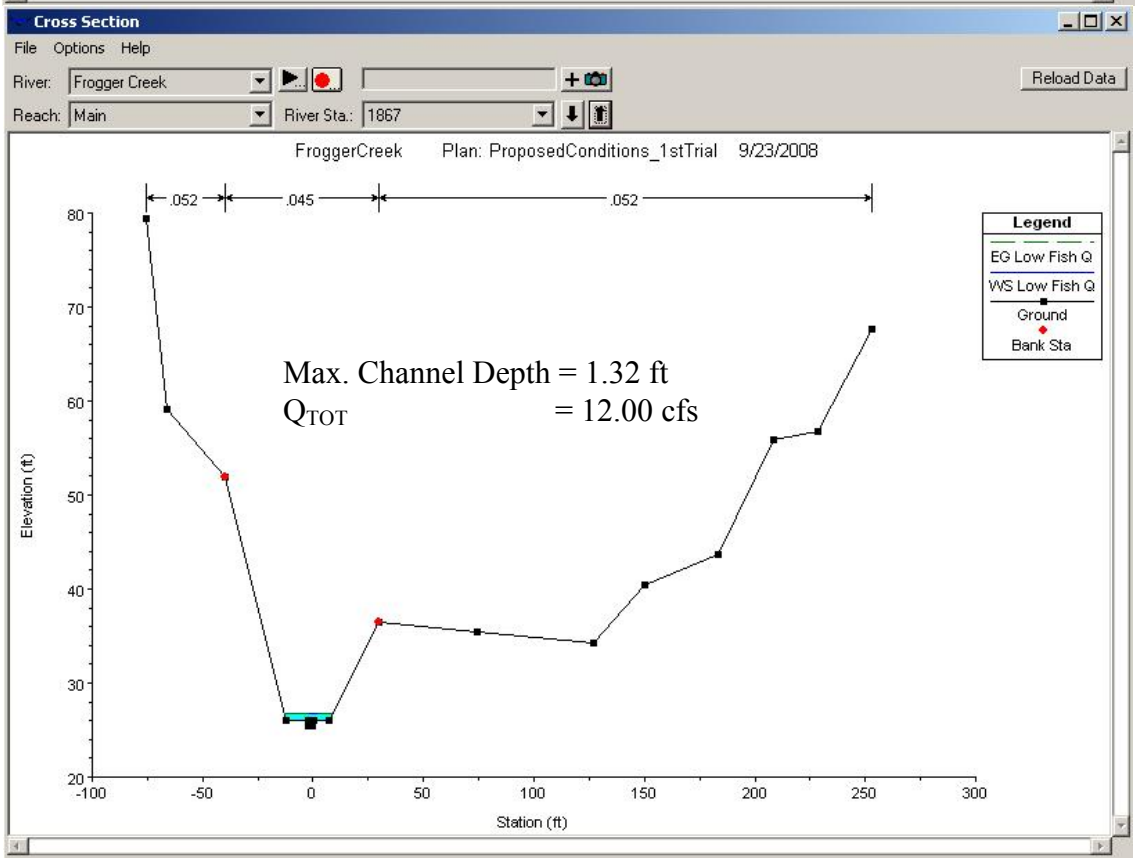

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Max. Channel Depth = 1.36 ft
QTOT = 12.00 cfs

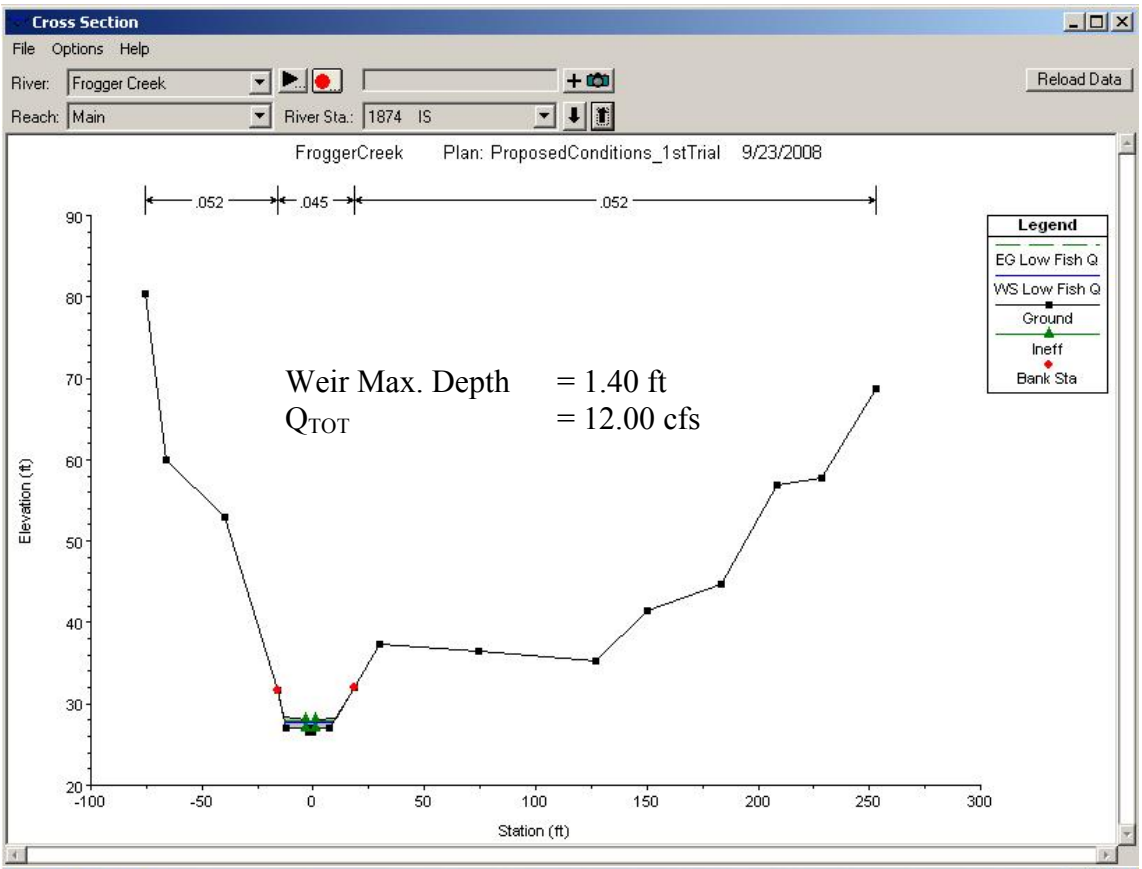

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Max. Channel Depth = 1.32 ft
QTOT = 12.00 cfs

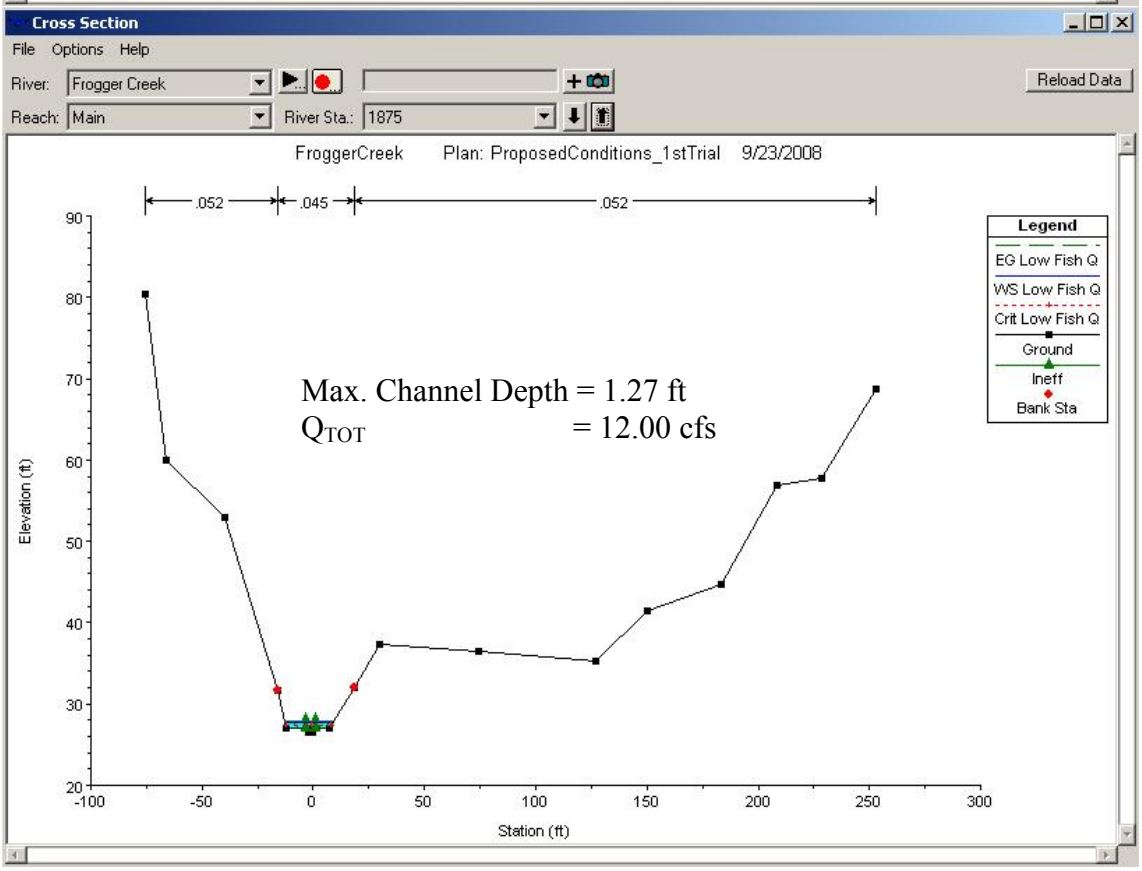

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1843
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.40 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

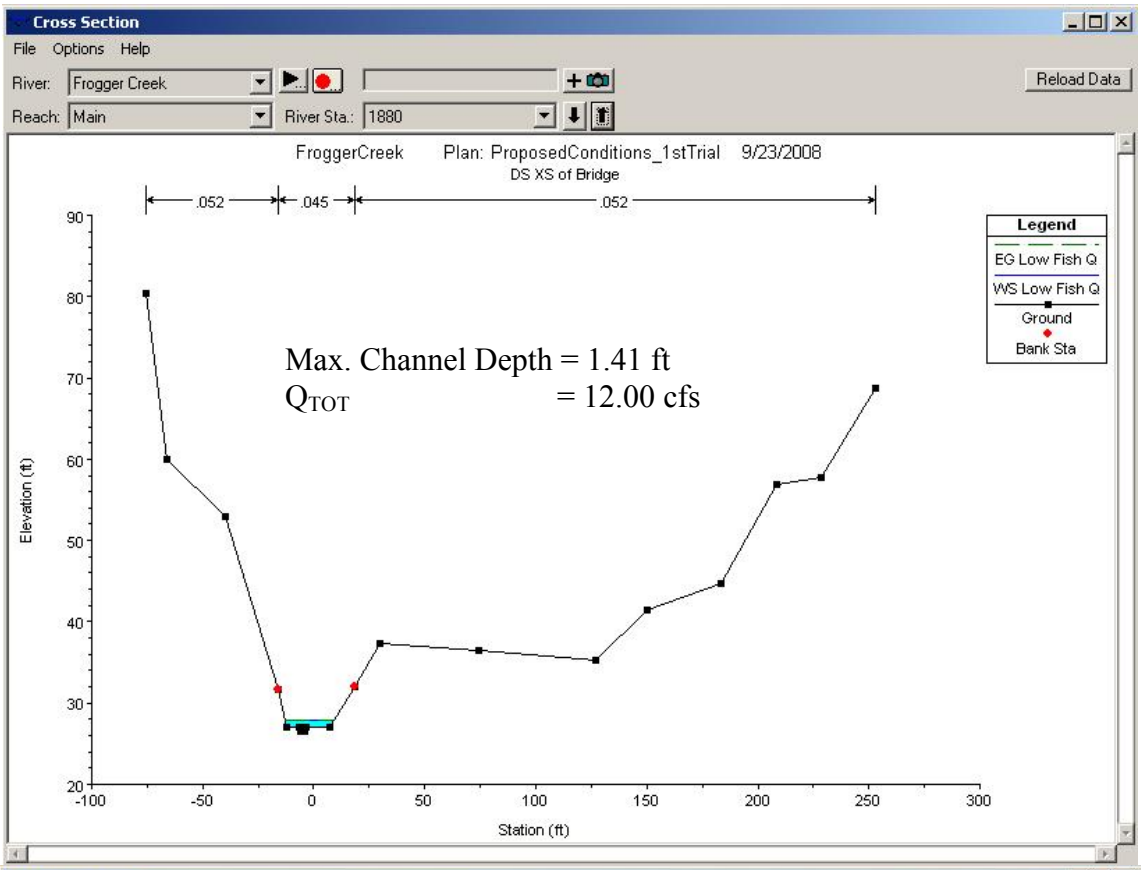

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 1.28 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

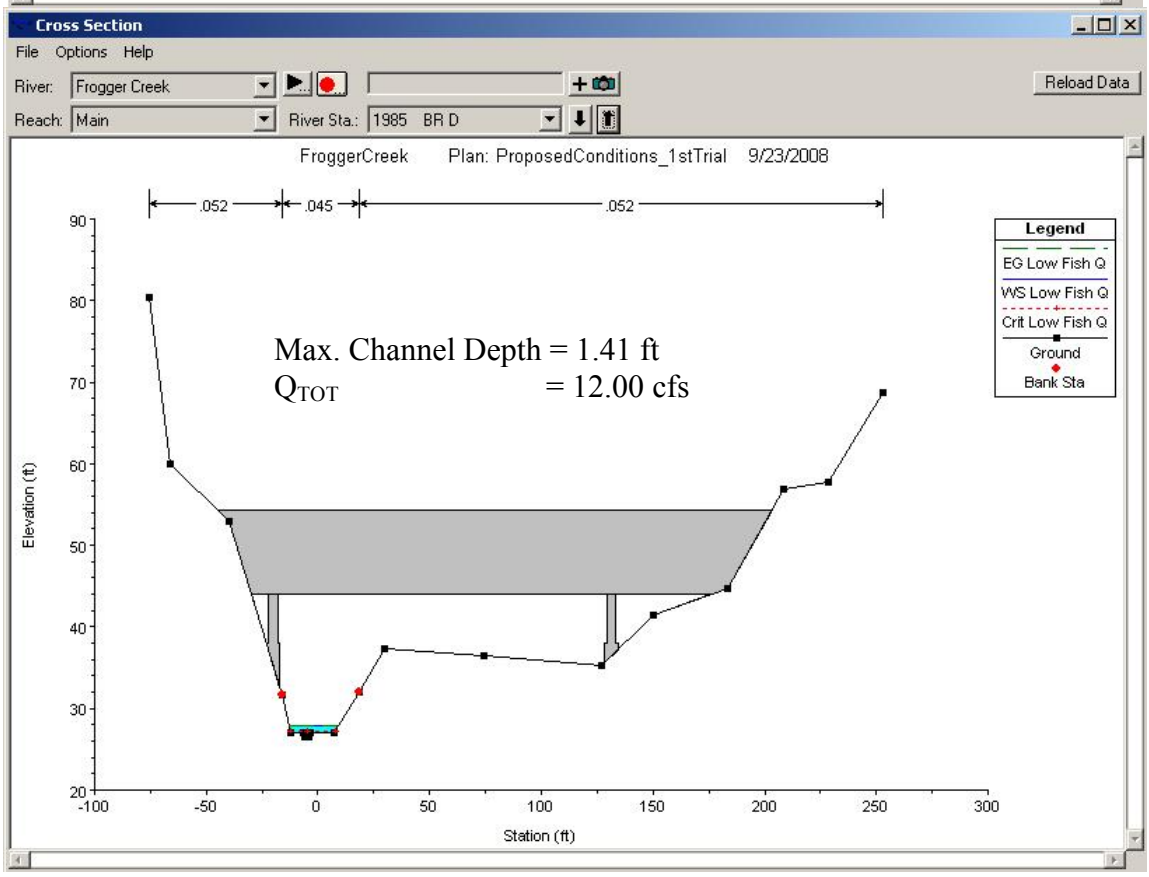

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.37 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

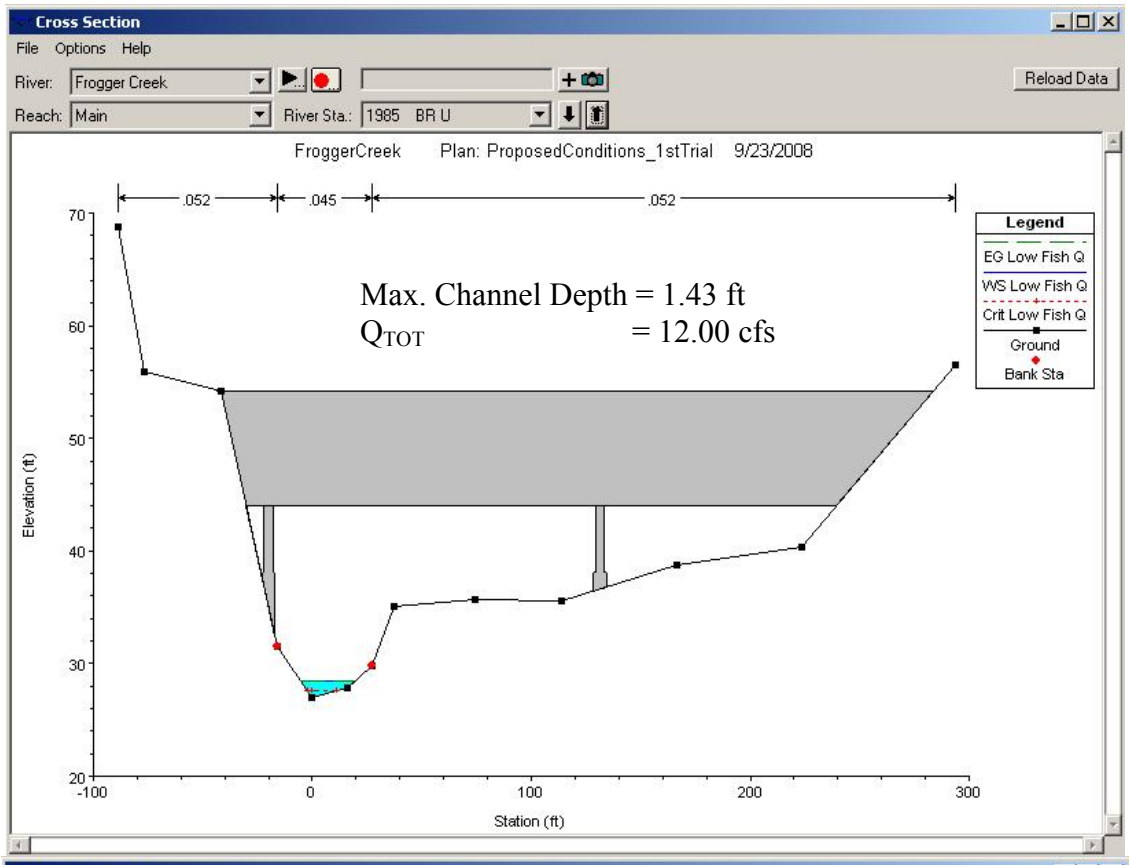

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.32 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

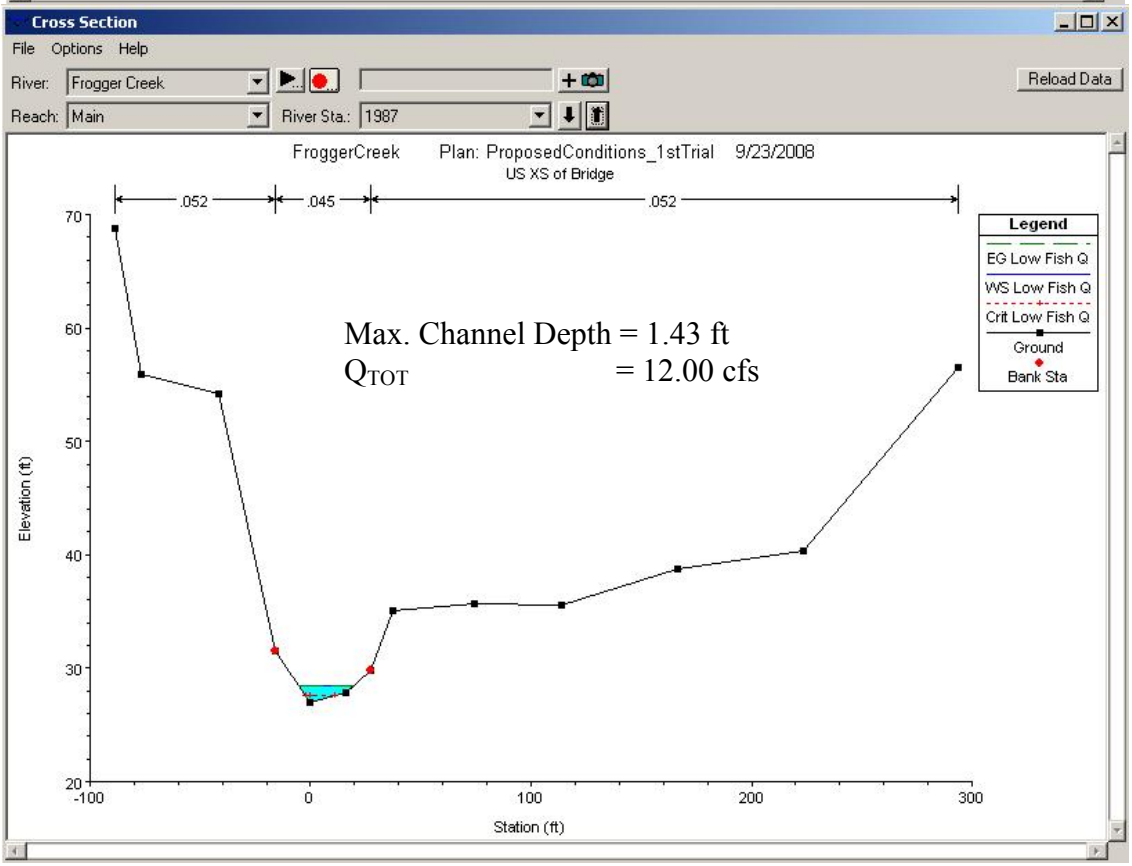

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.40 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 1.27 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
DS XS of Bridge
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.41 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

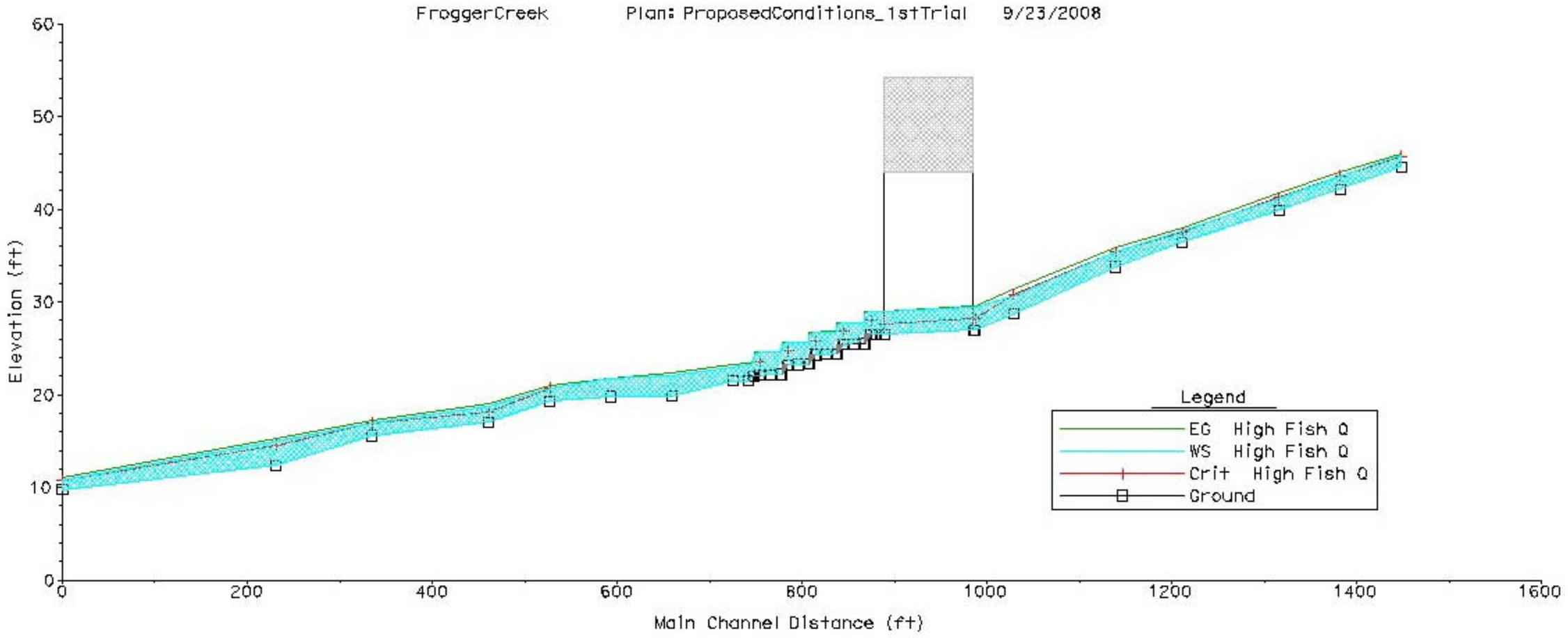

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.41 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

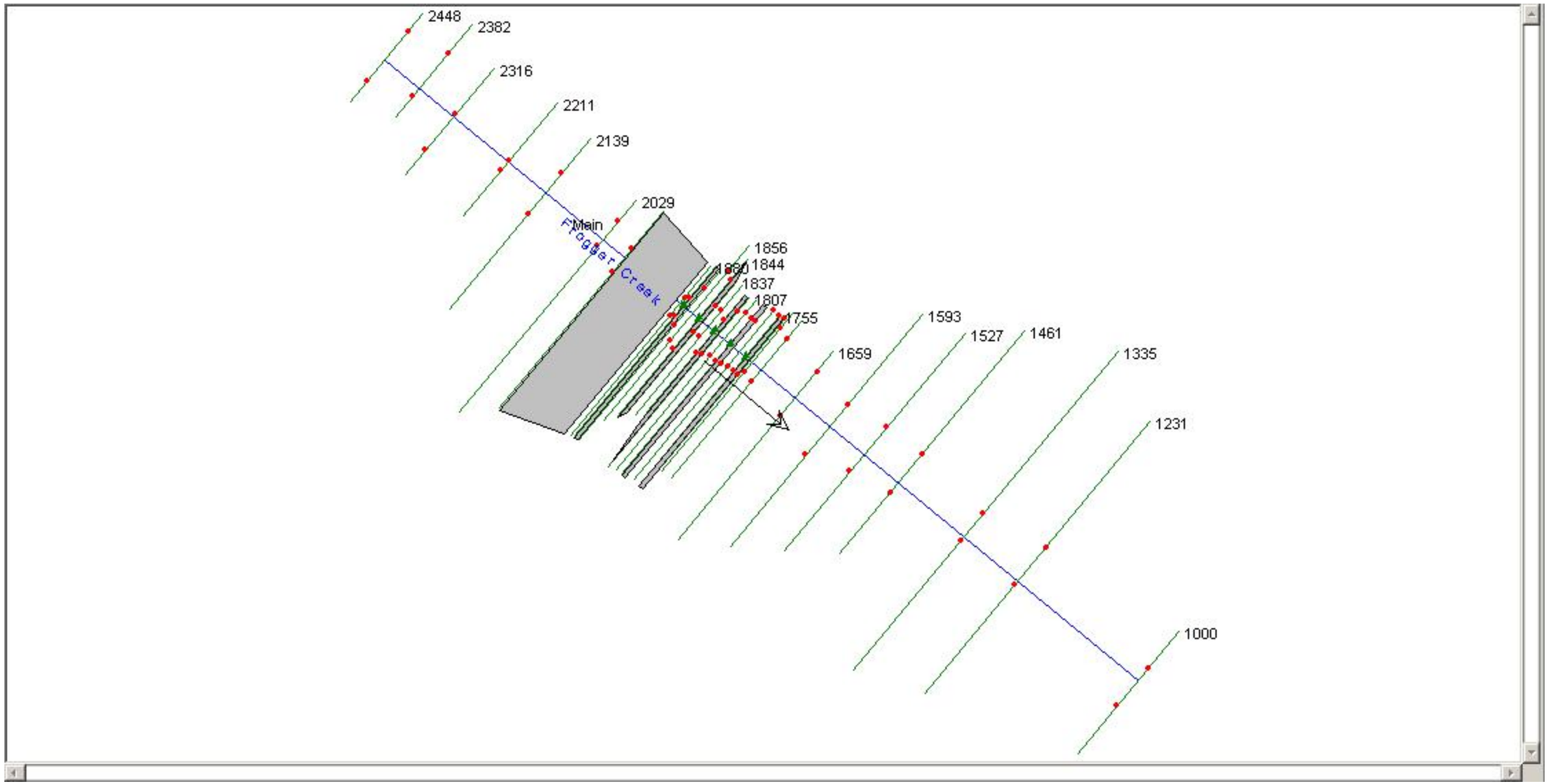

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Max. Channel Depth = 1.43 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

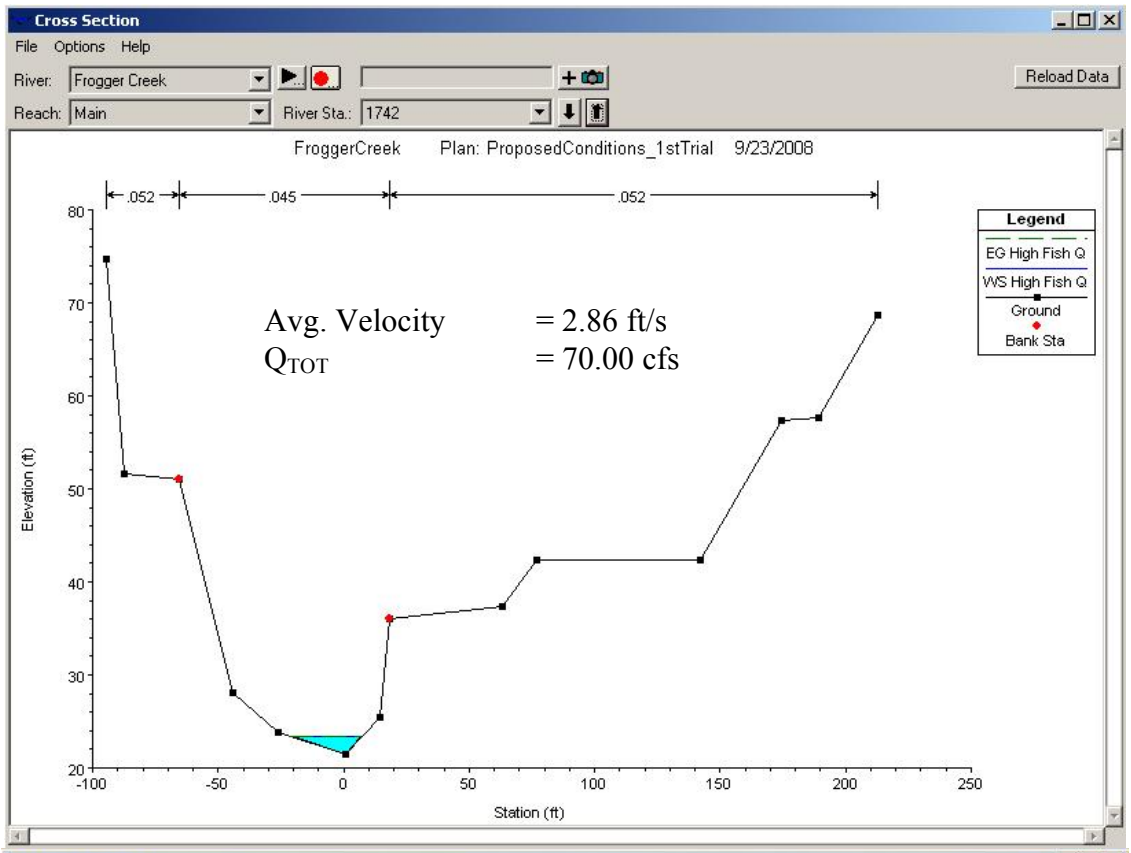

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
US XS of Bridge
.052
.045
.052
Max. Channel Depth = 1.43 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

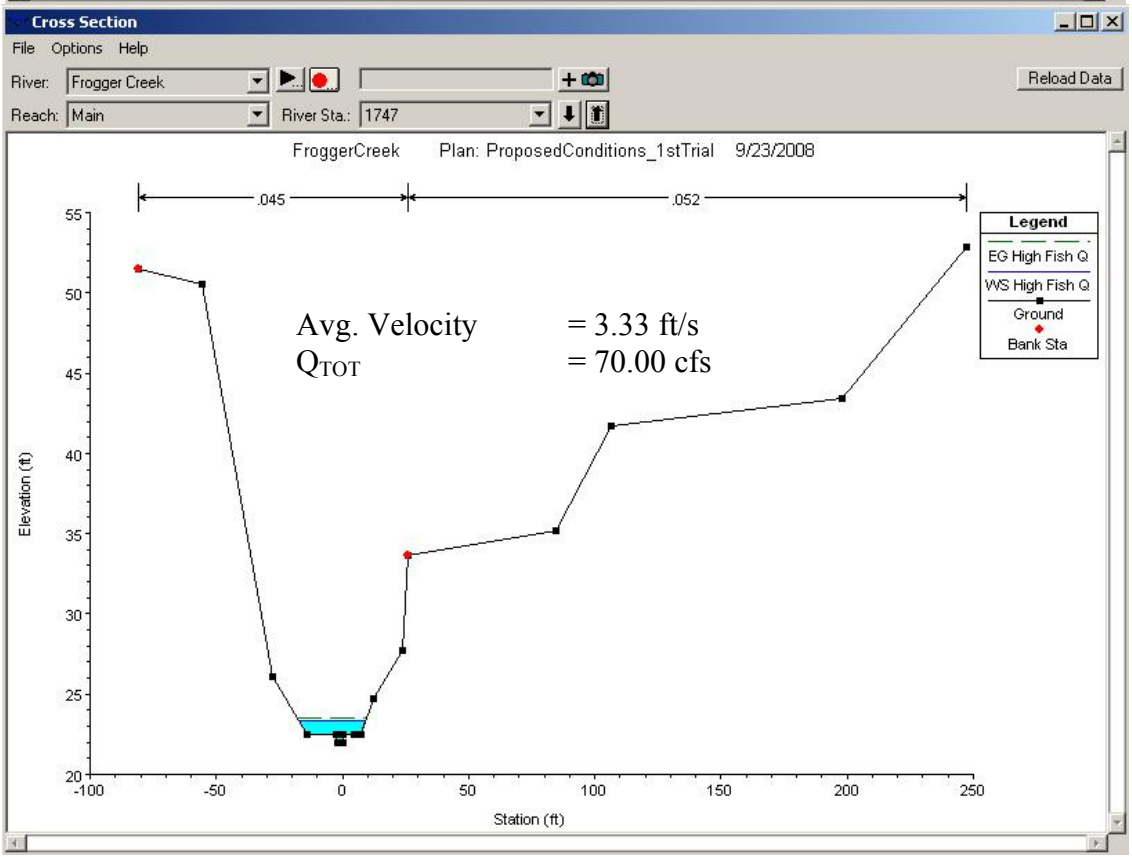
PROPOSED DESIGN (1ST TRIAL)

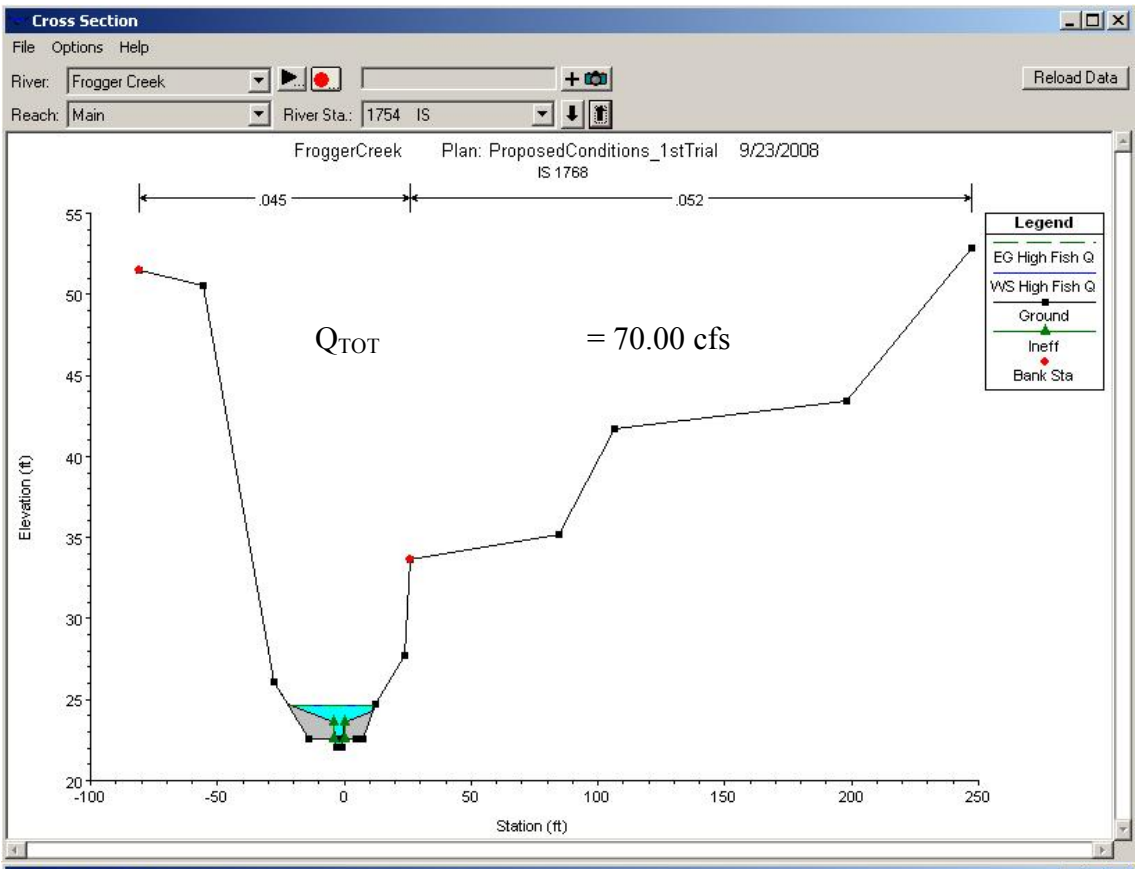
HIGH FLOW FISH PASSAGE RESULTS

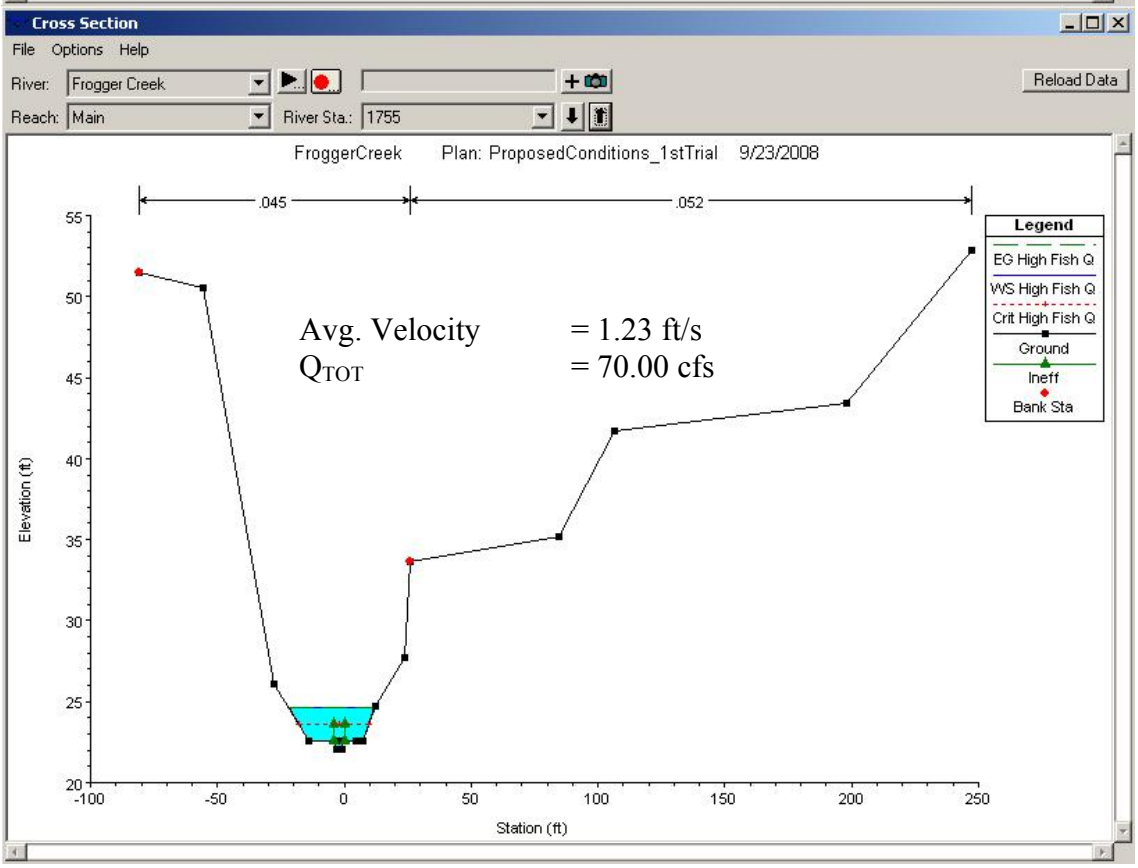

FroggerCreek
Plan: ProposedConditions_1stTrial
9/23/2008
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
0
200
400
600
800
1000
1200
1400
1600
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground

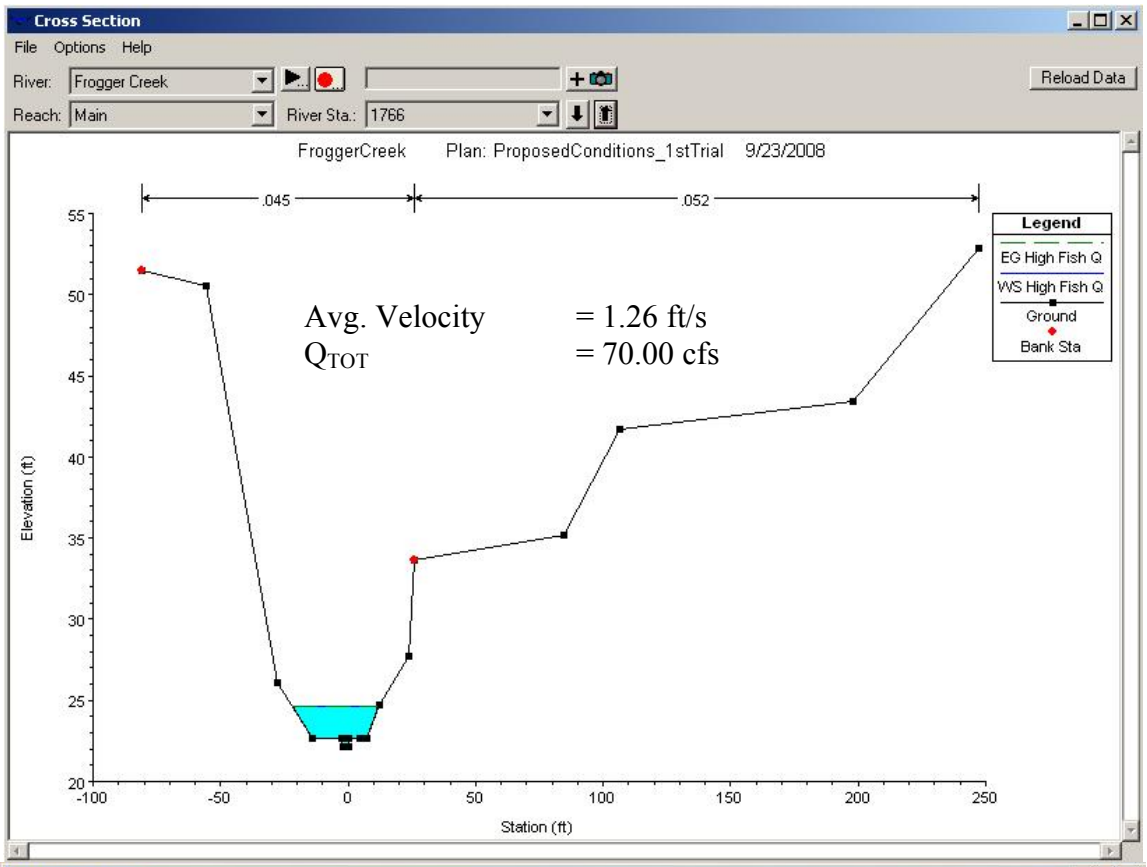

2448
2382
2316
2211
2139
2029
Main
Frogger Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

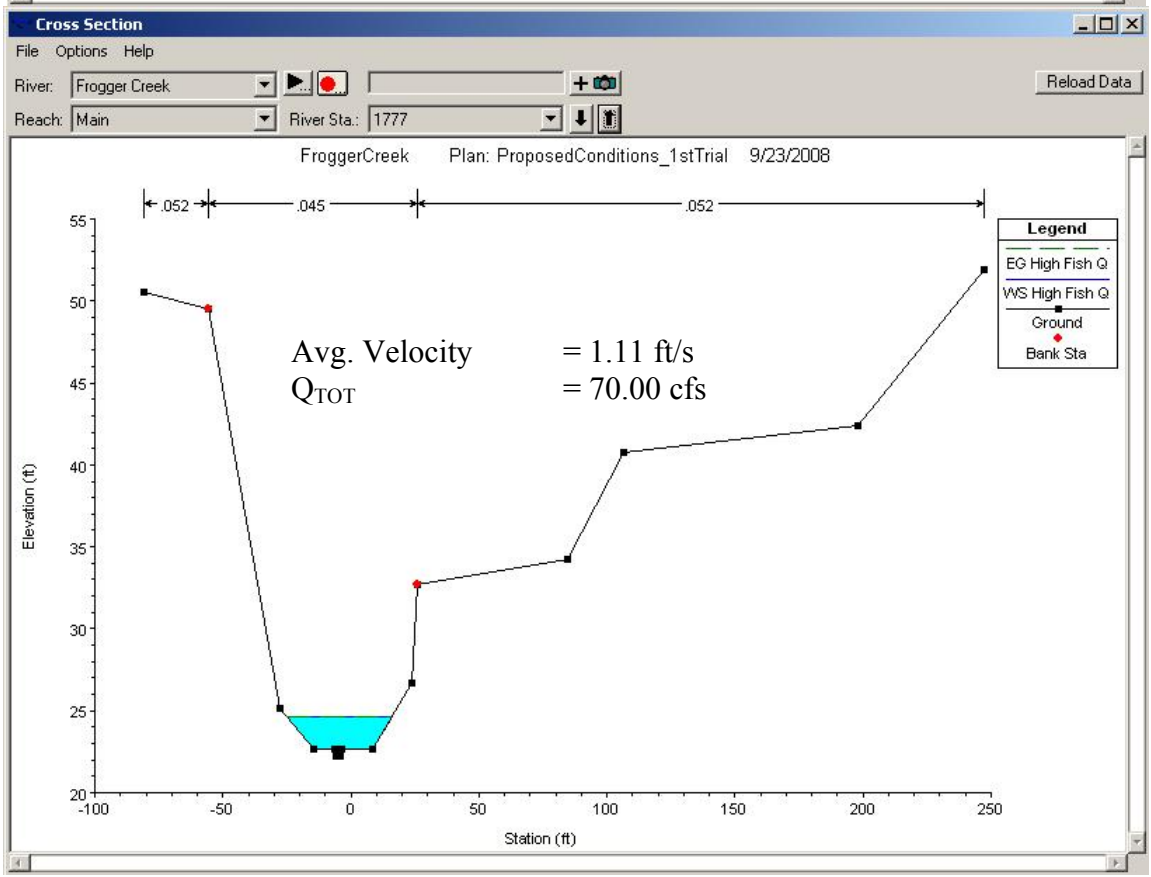

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.86 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

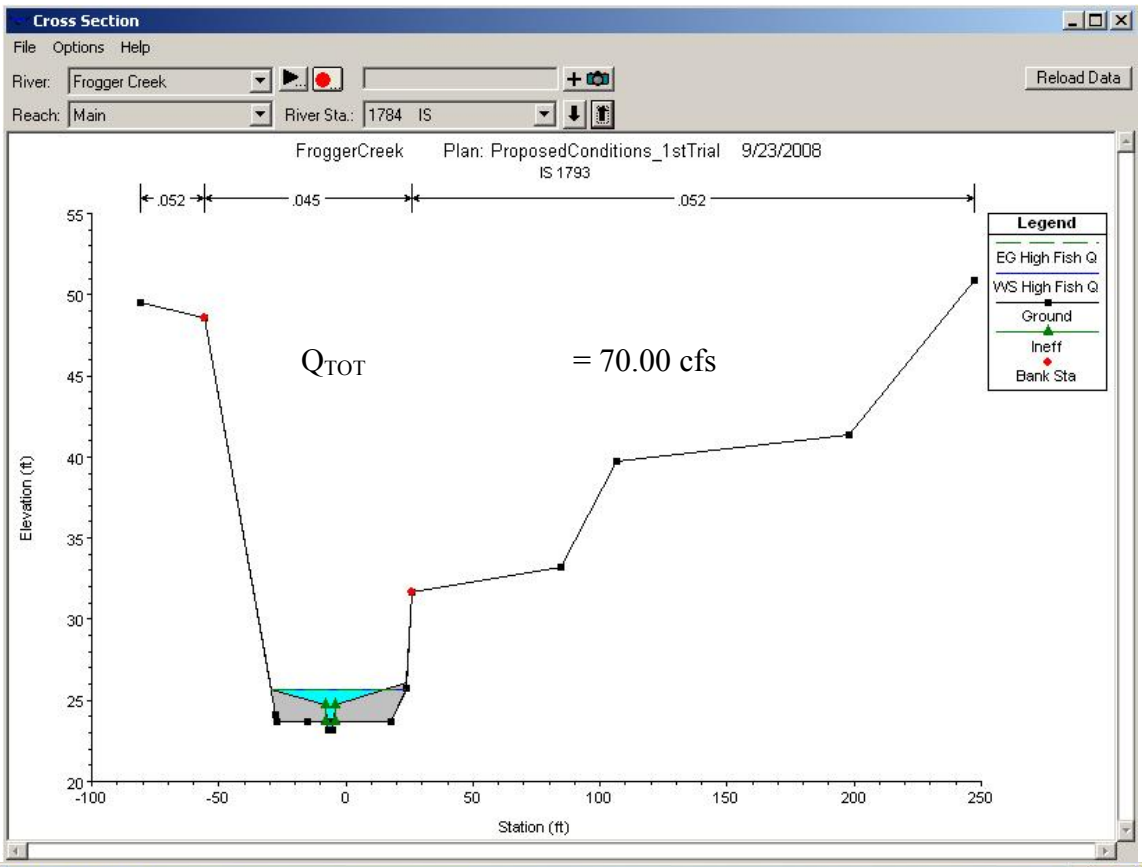

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 3.33 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

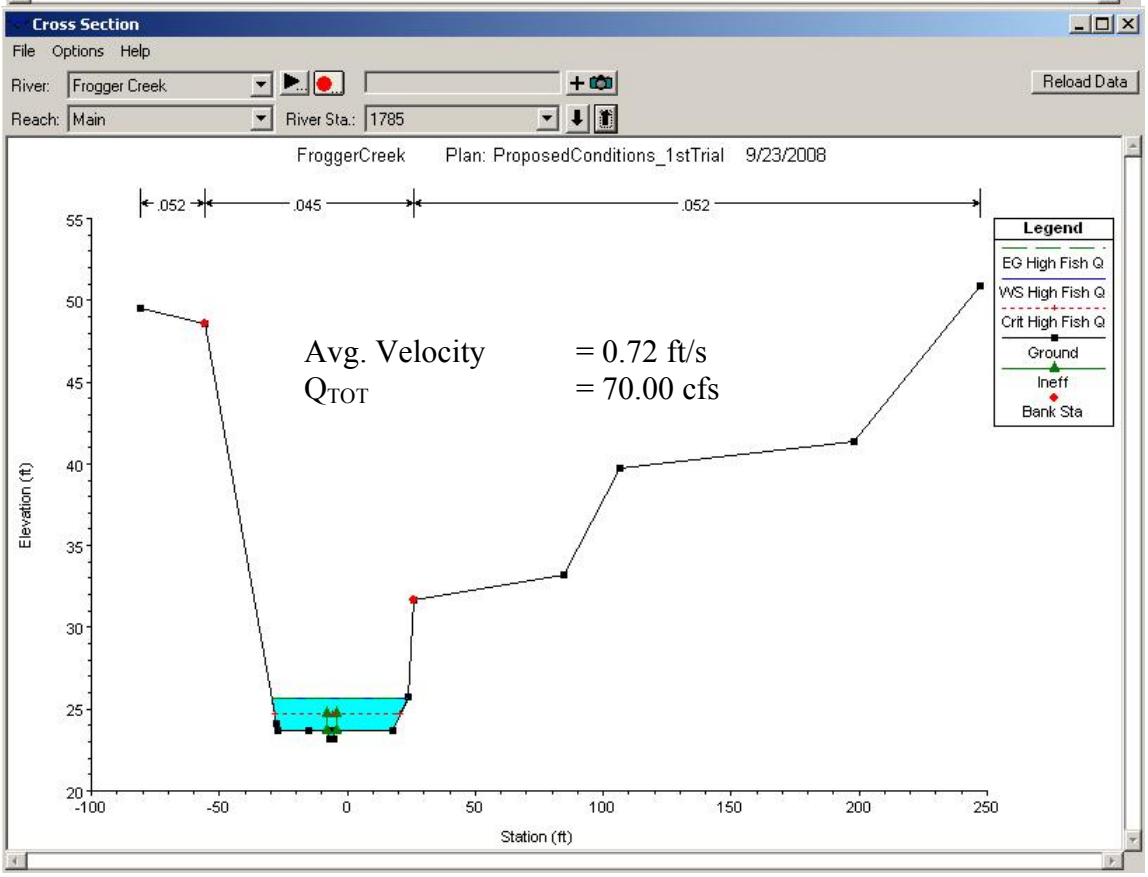

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1768
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

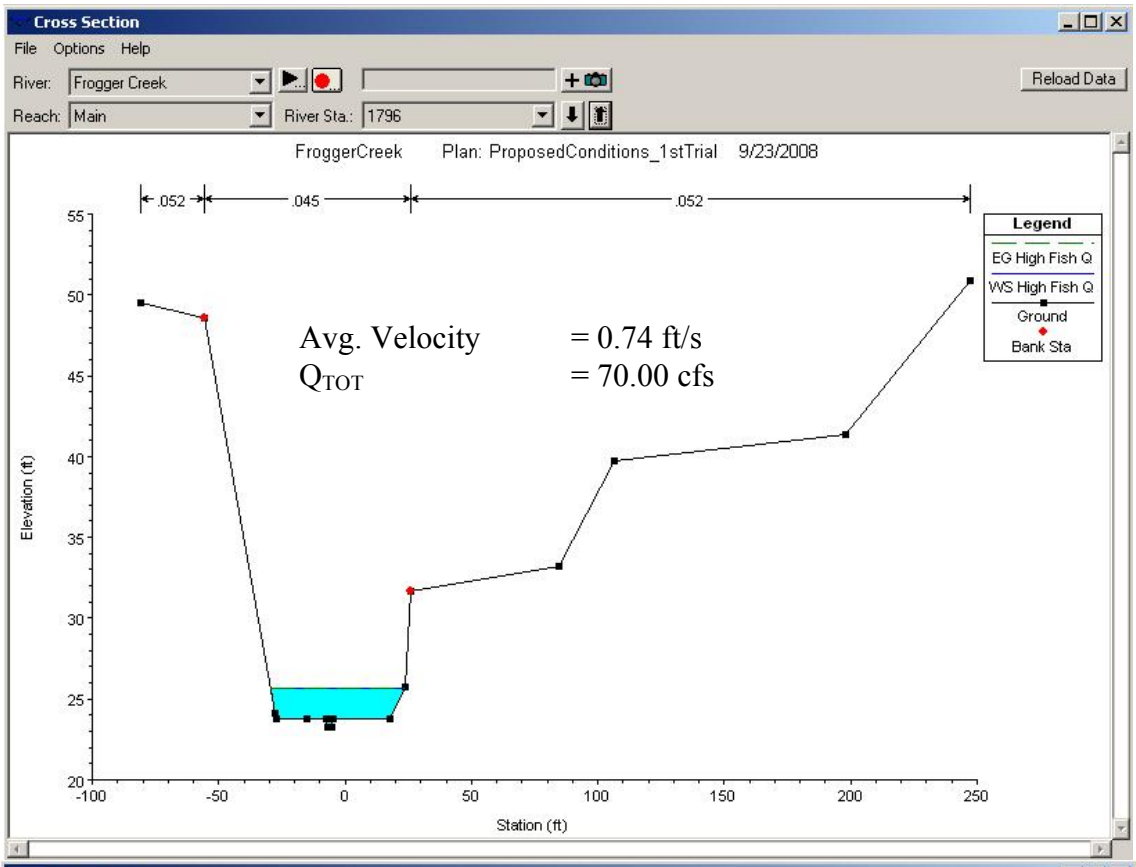

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.23 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

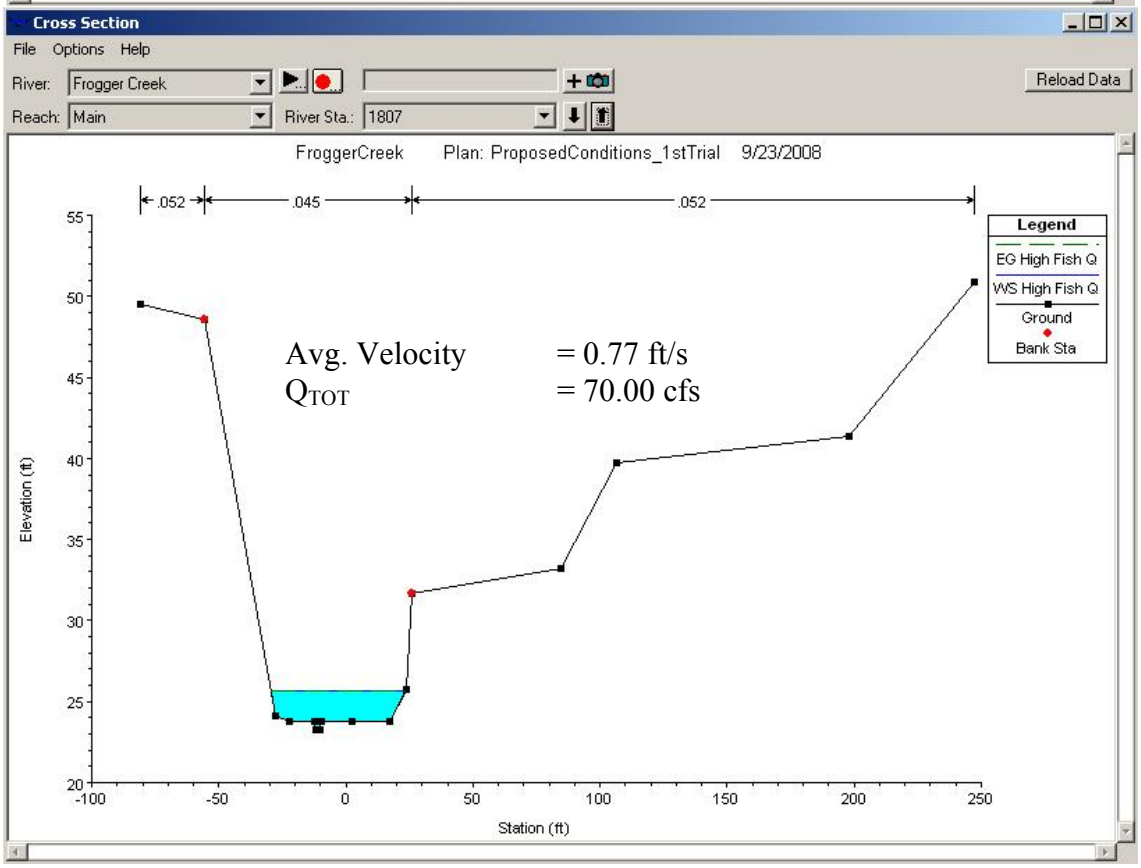

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.26 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

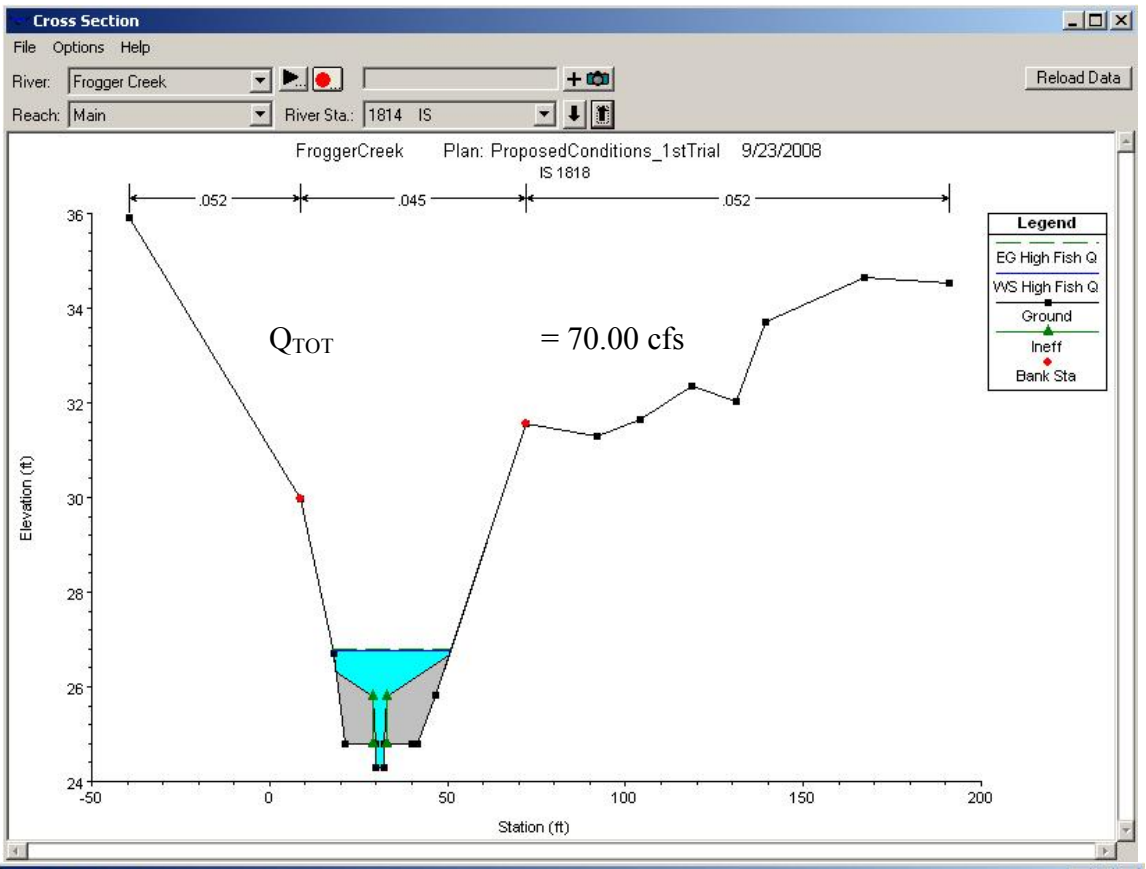

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.11 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

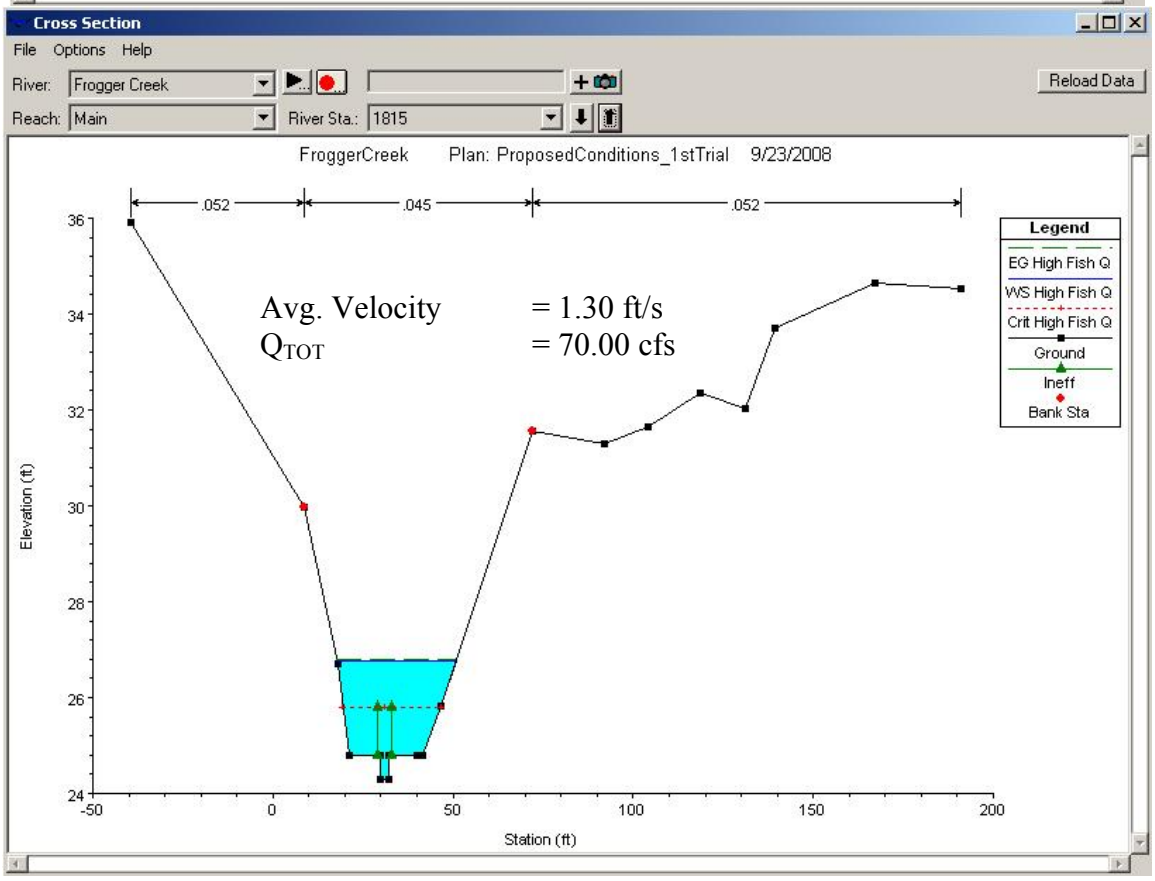

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1793
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

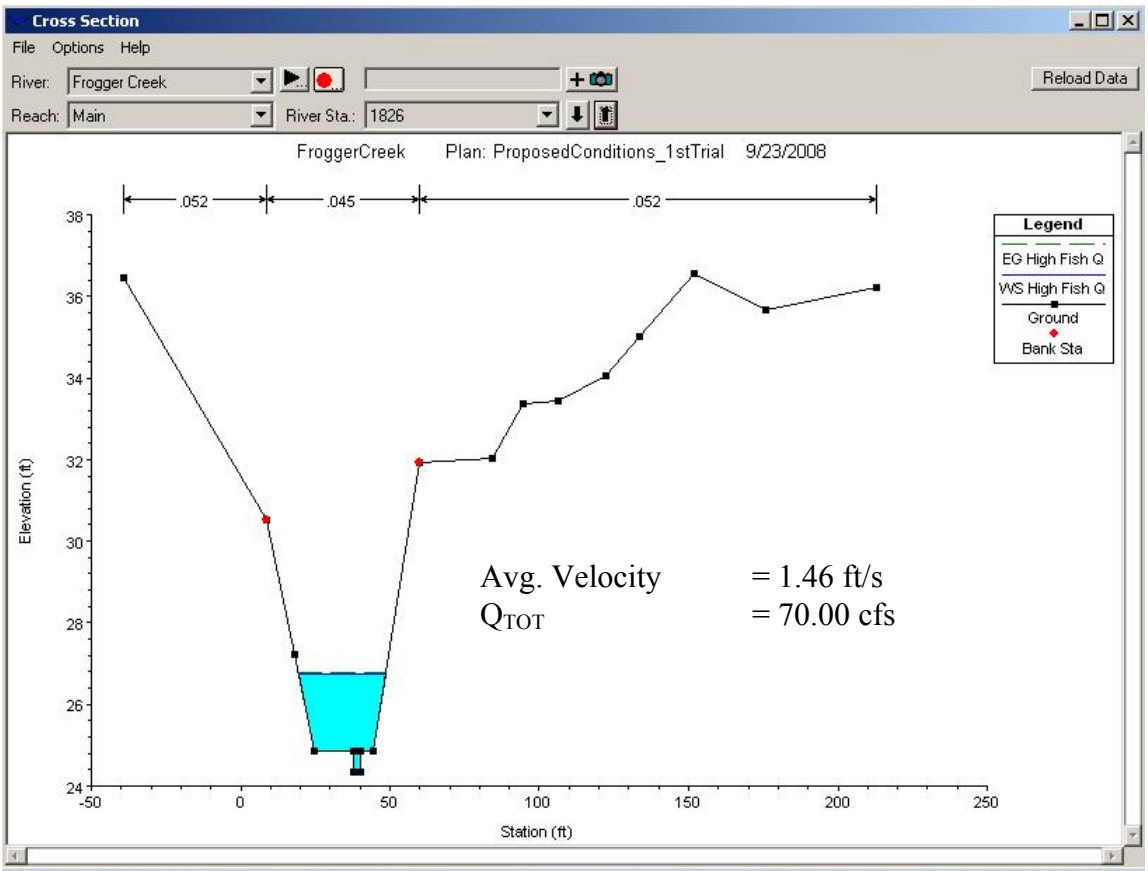

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 0.72 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

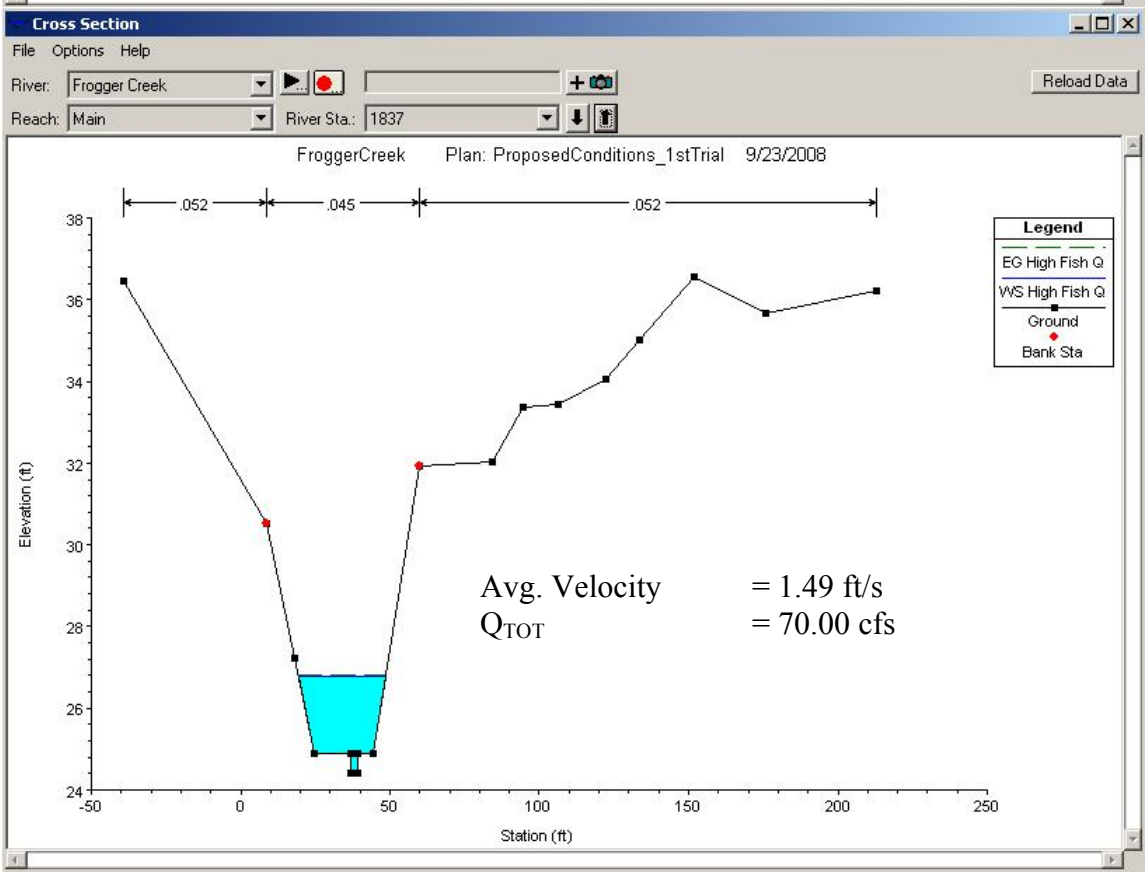

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 0.74 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

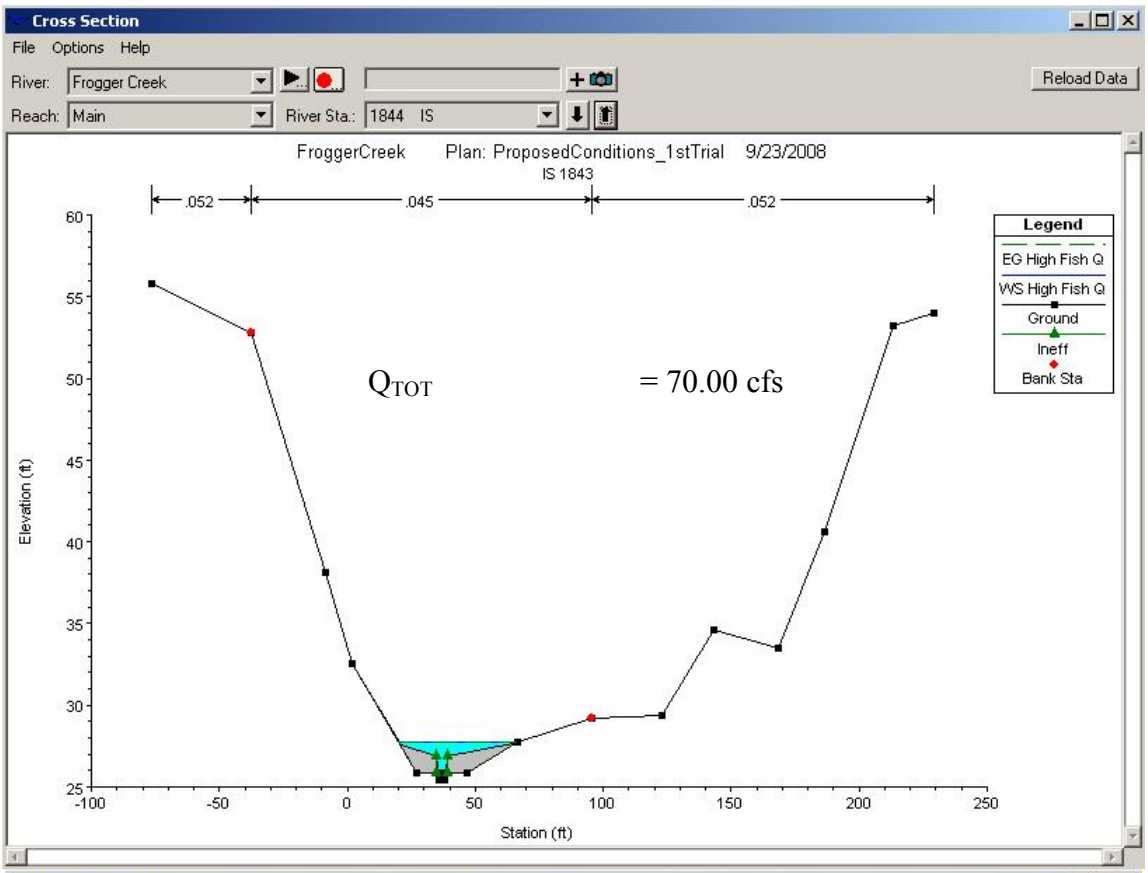

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 0.77 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

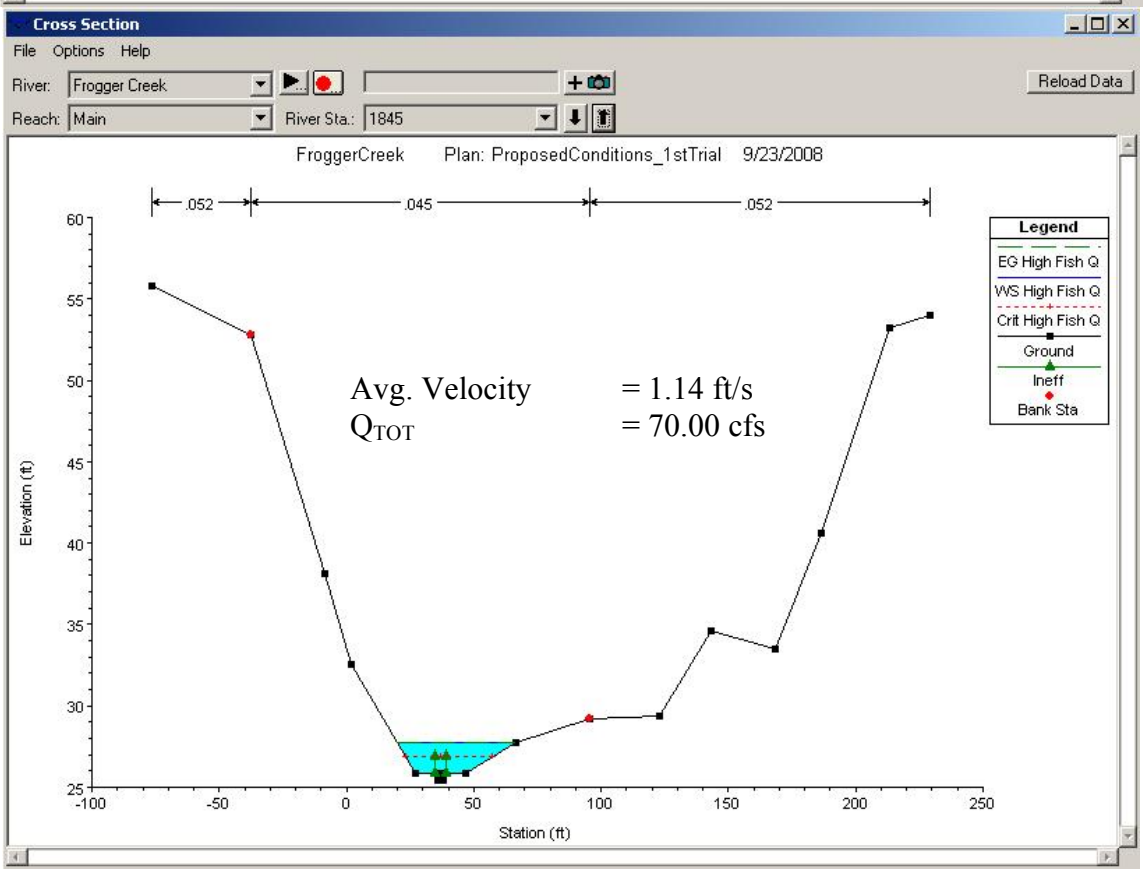

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1818
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

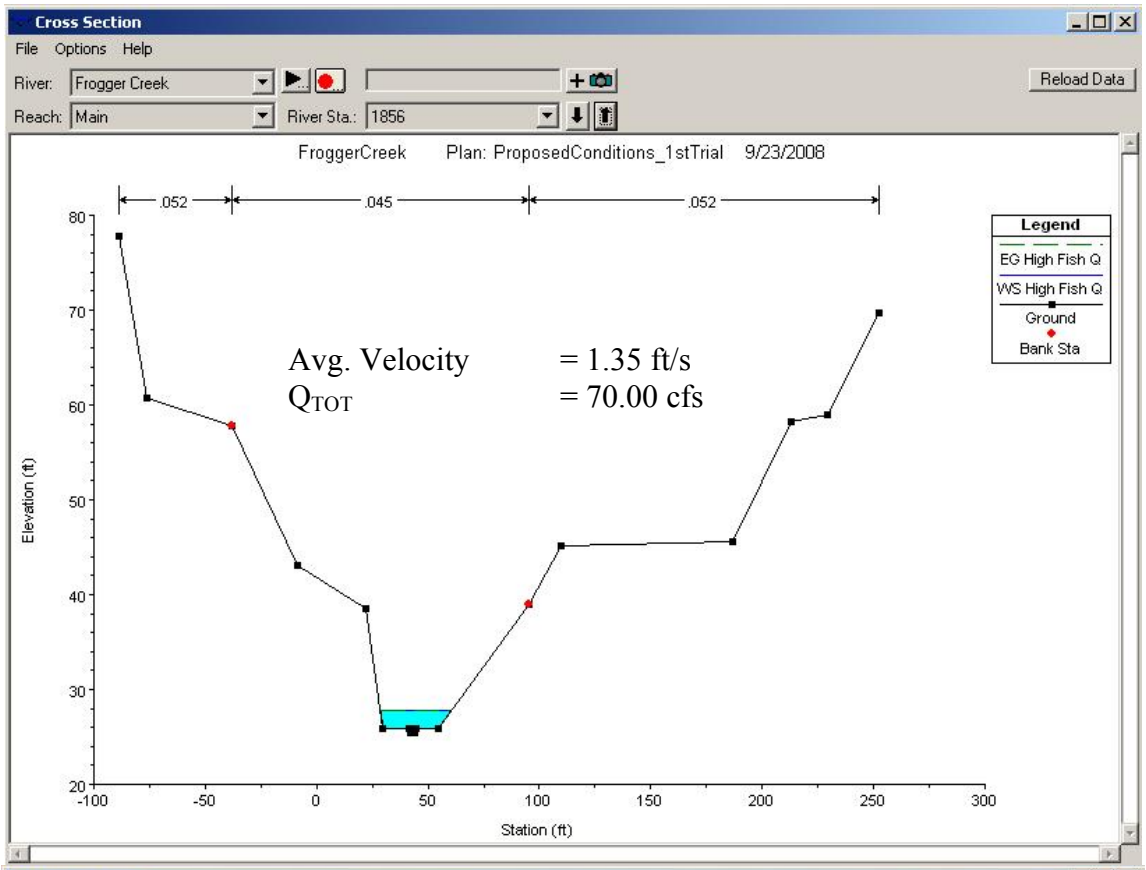

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.30 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

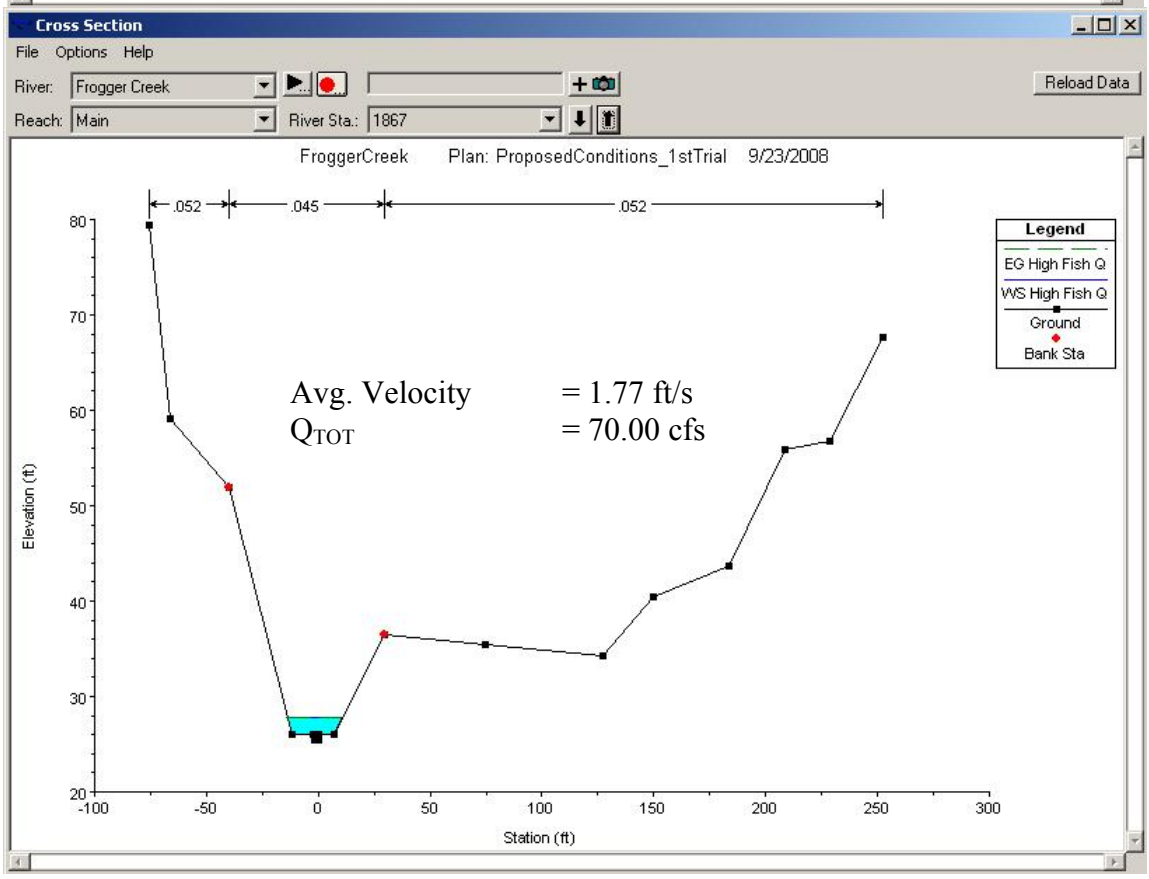

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 1.46 ft/s
Q_{TOT} = 70.00 cfs

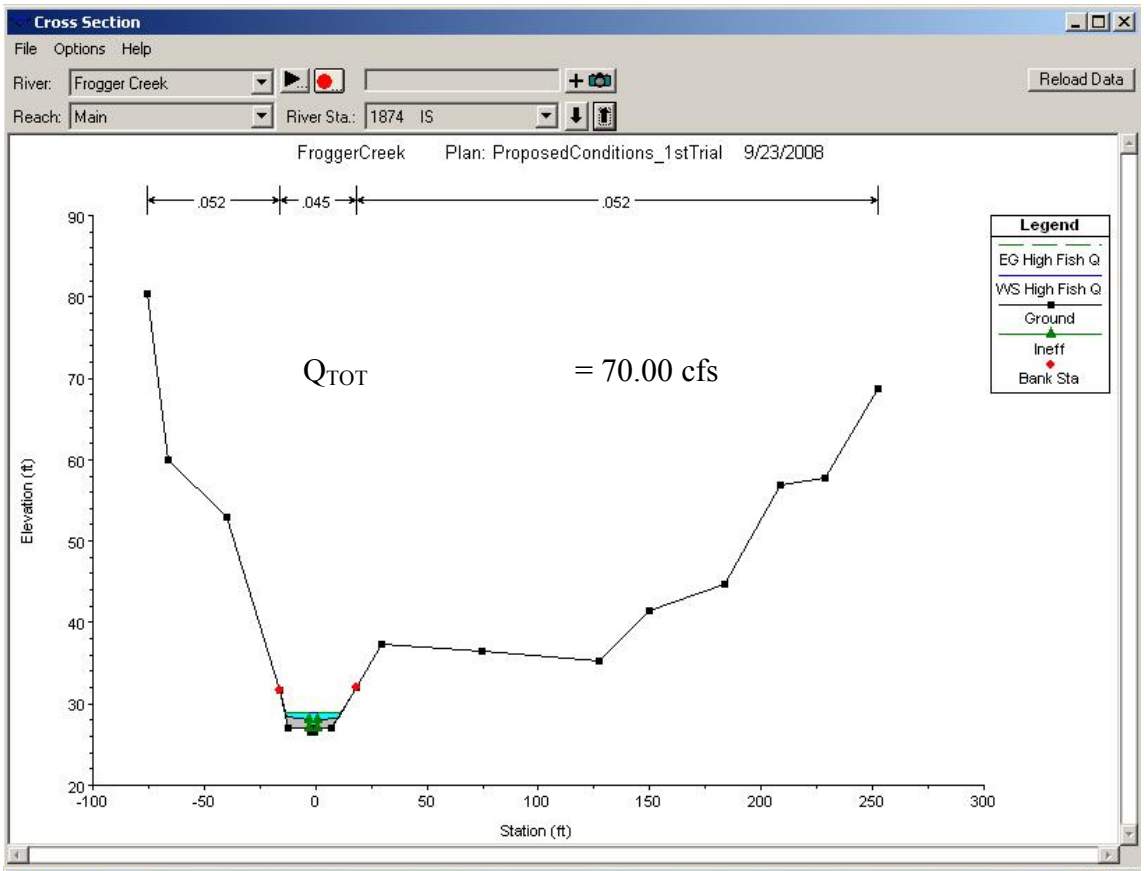

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 1.49 ft/s
Q_{TOT} = 70.00 cfs

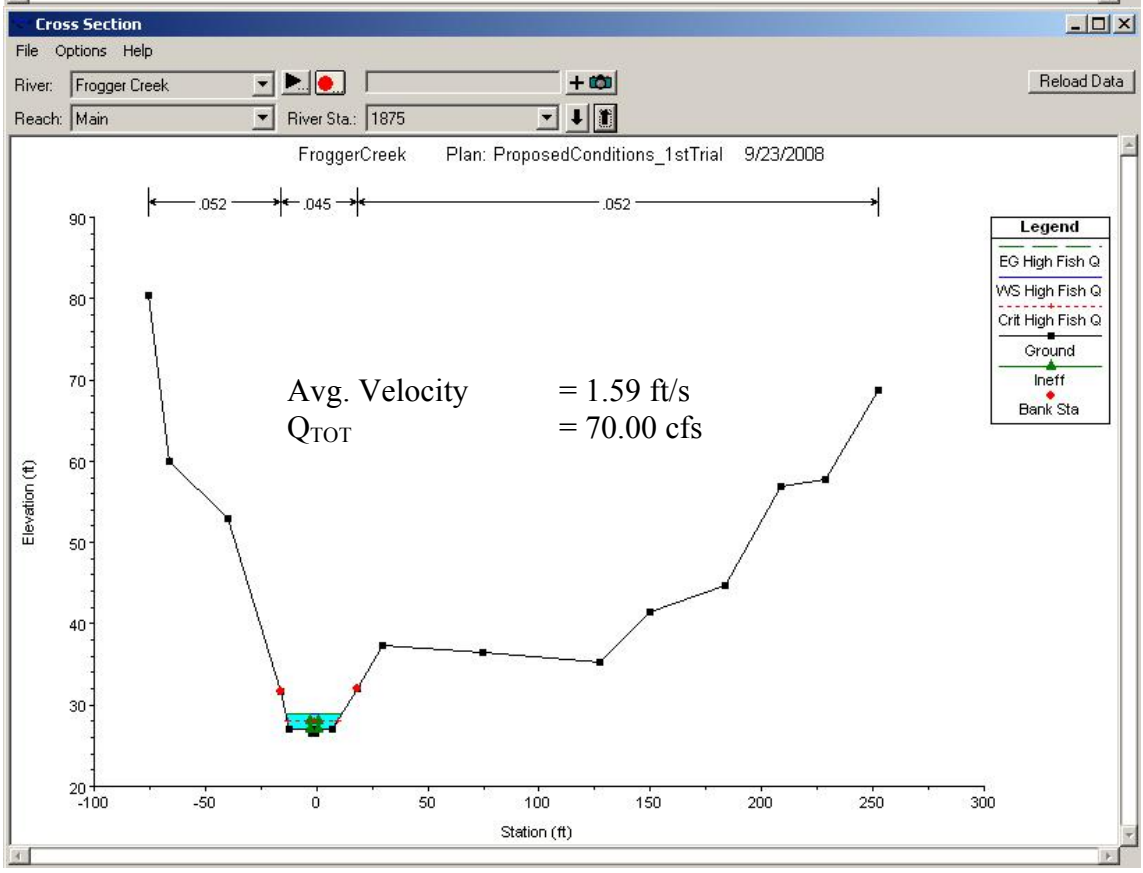

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1843
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

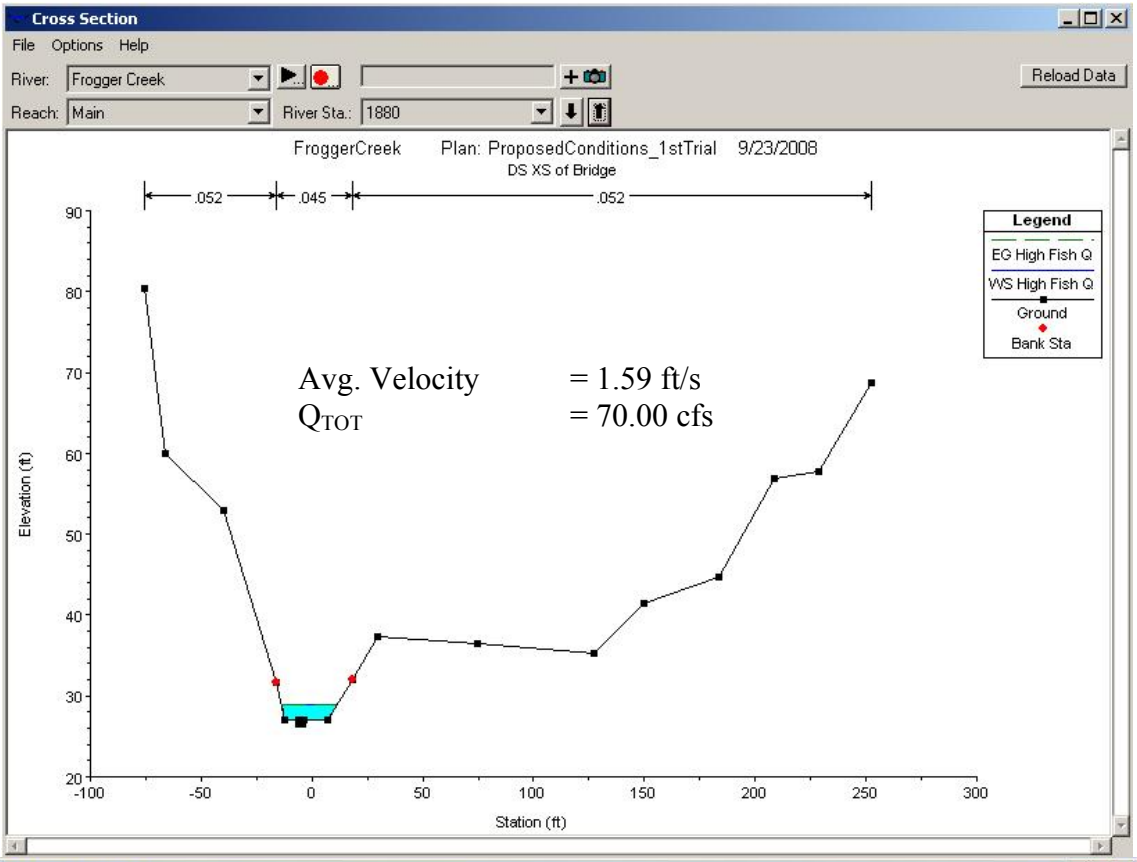

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.14 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

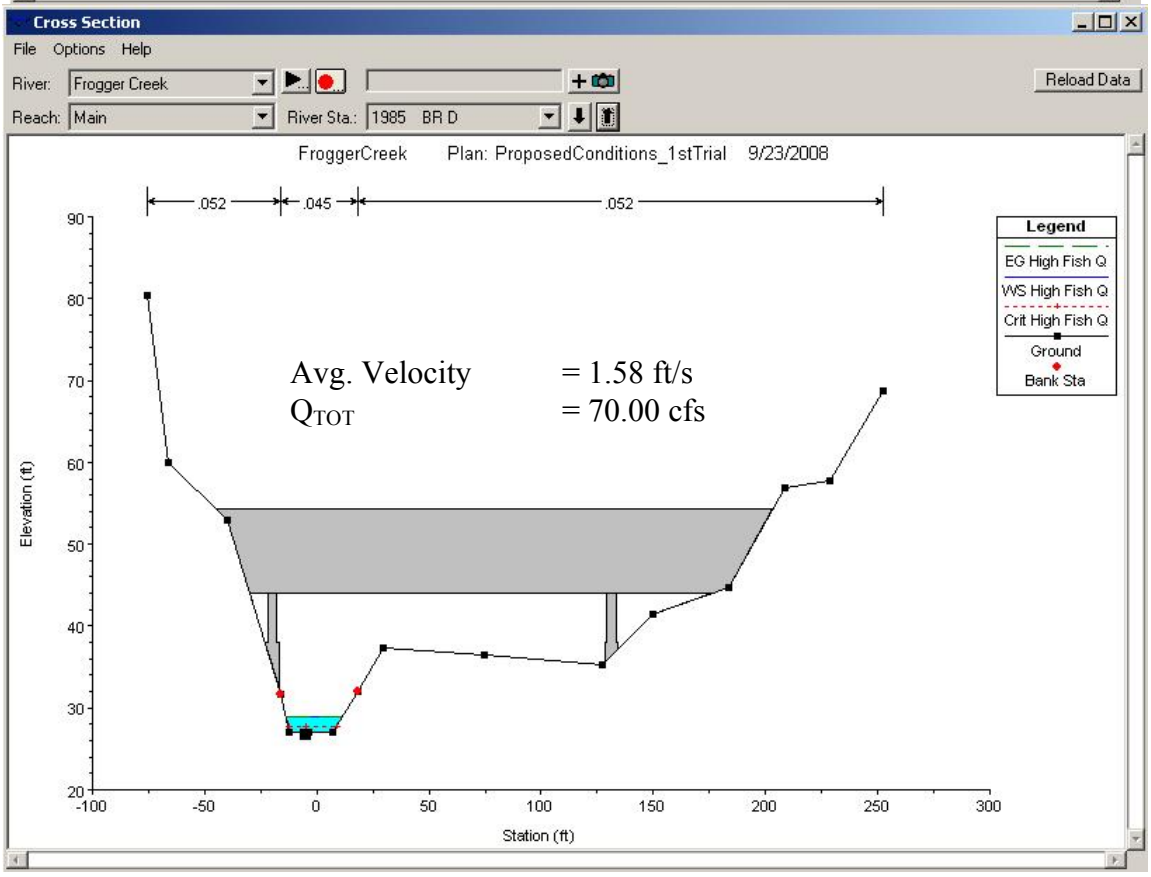

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.35 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

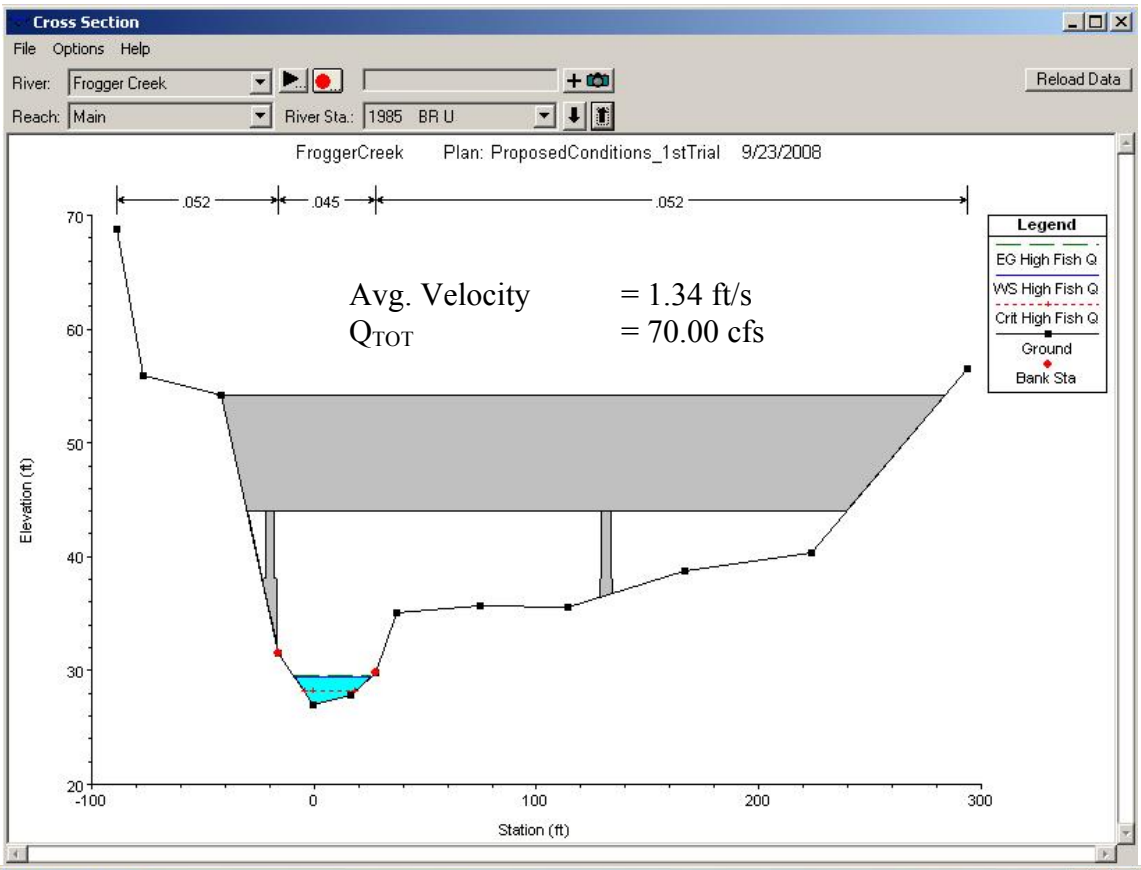

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.77 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

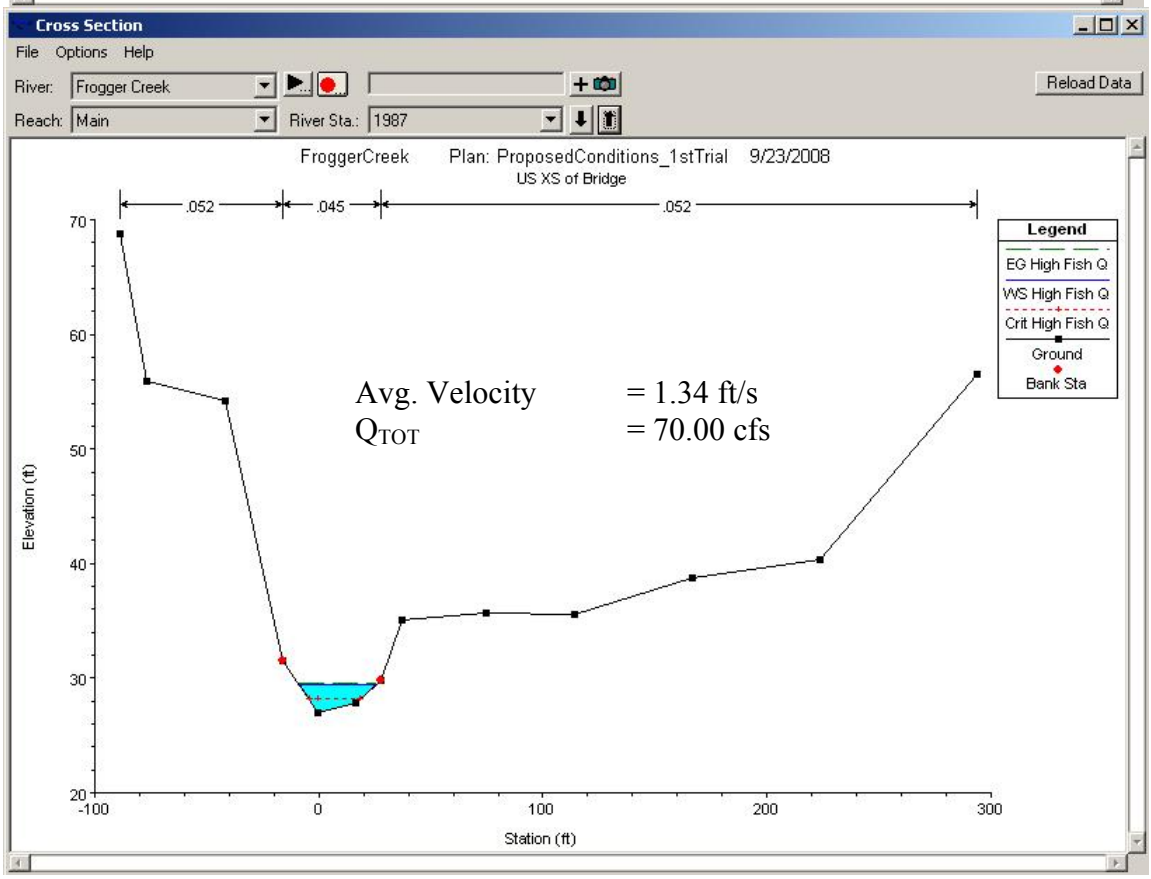

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.59 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
DS XS of Bridge
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.59 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

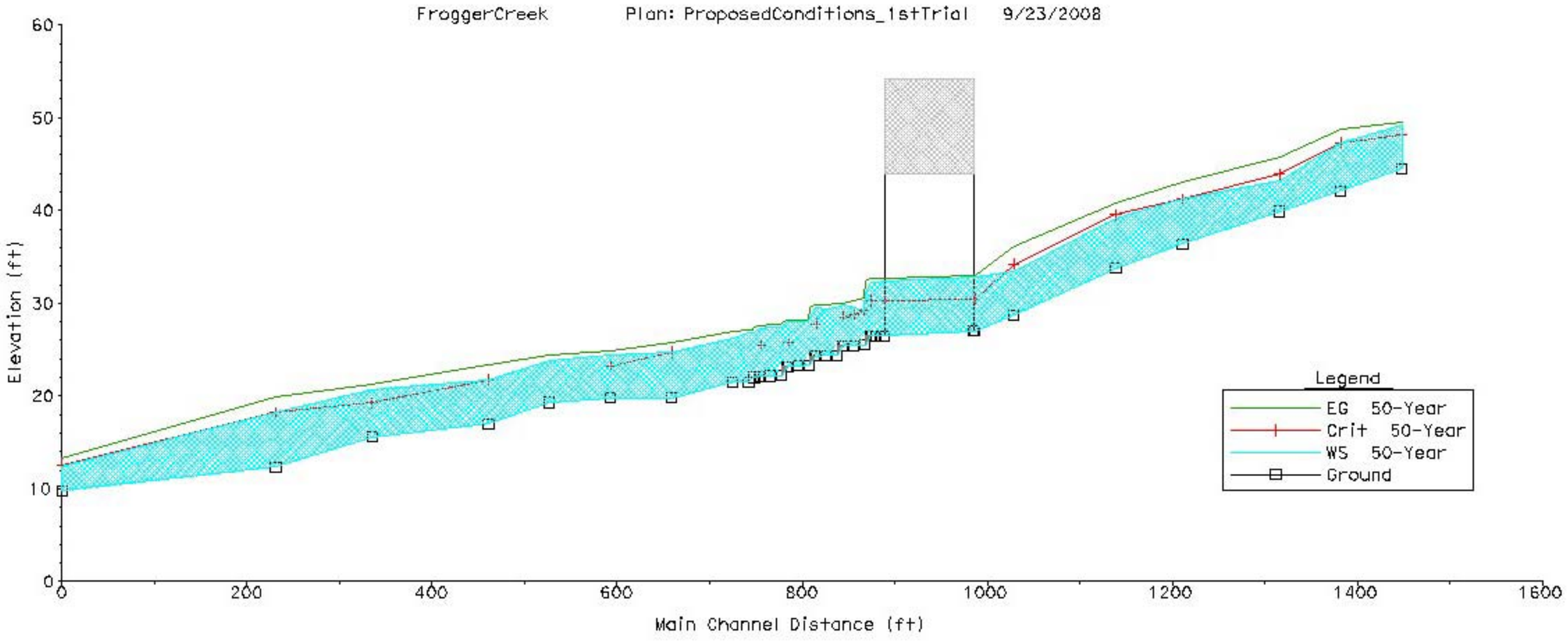

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.58 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

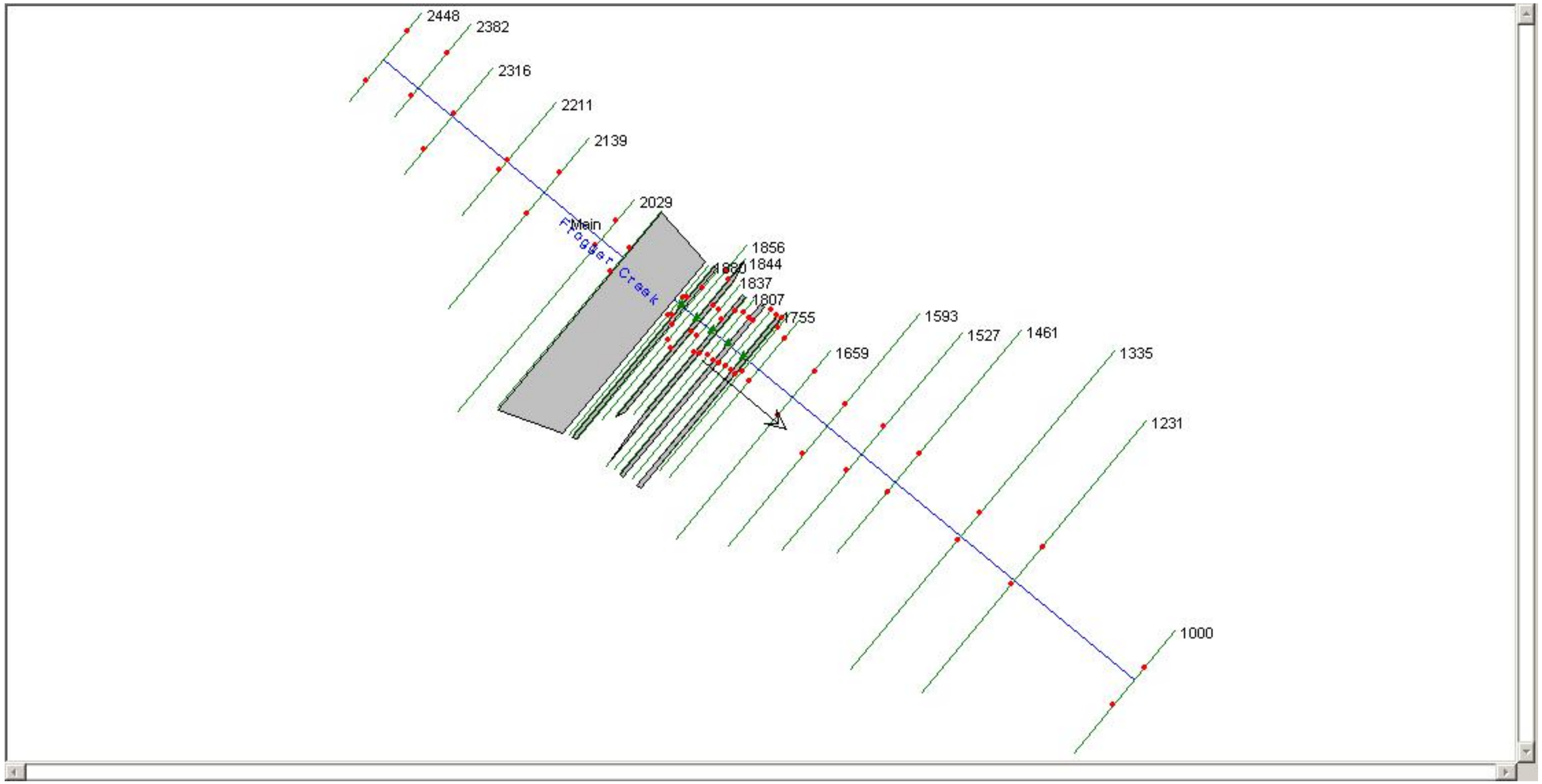

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Avg. Velocity = 1.34 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

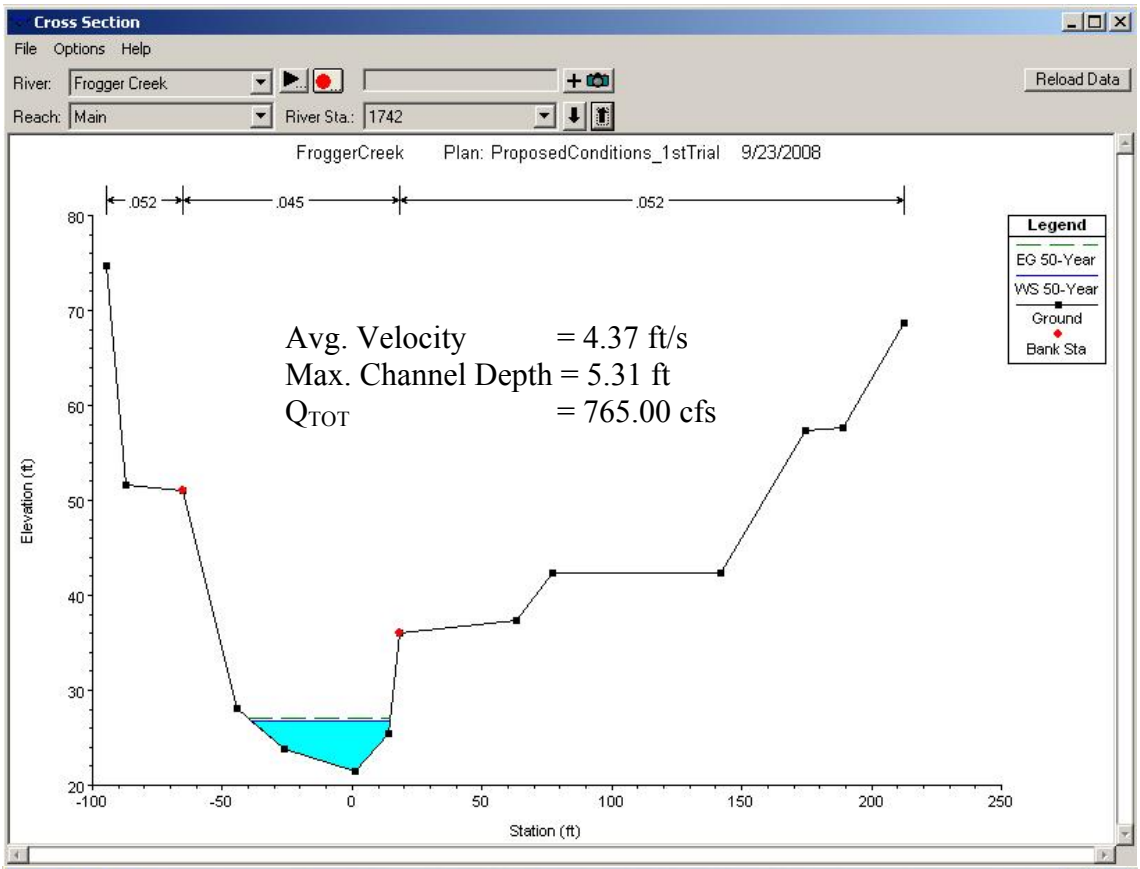

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 1.34 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

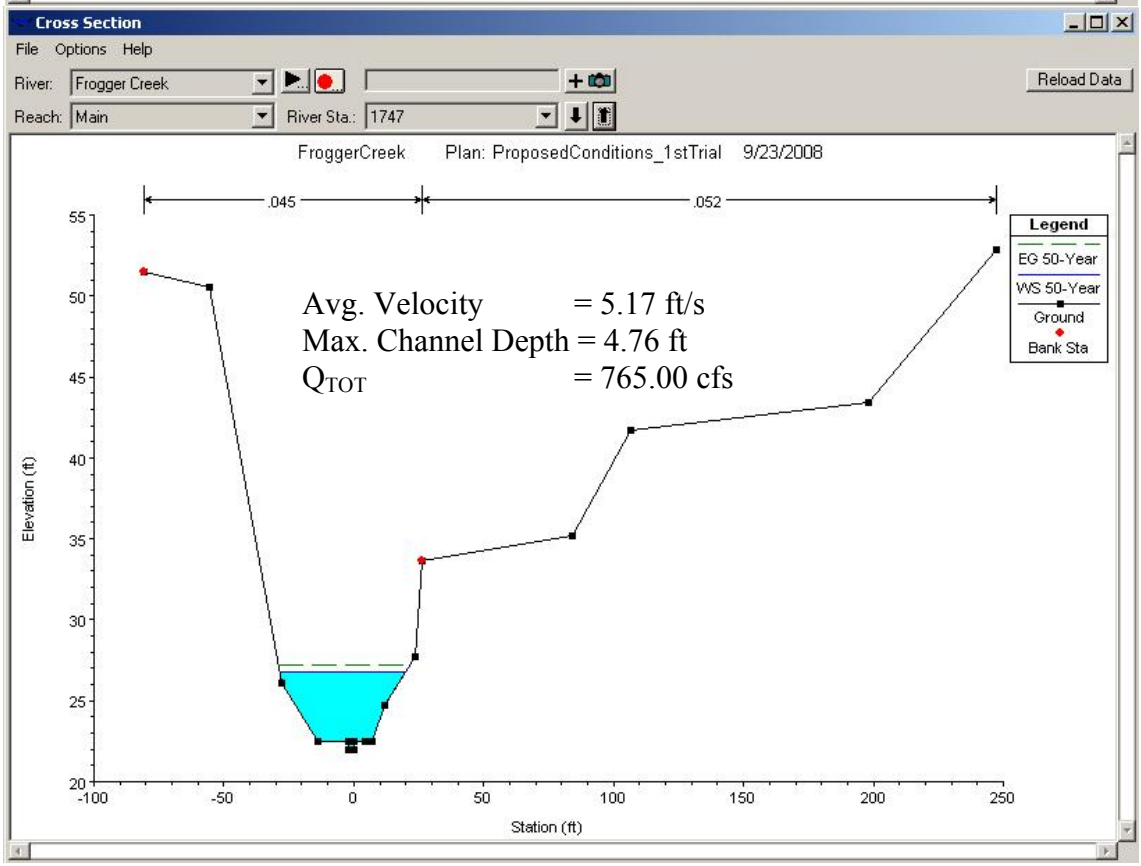
PROPOSED DESIGN (1ST TRIAL)

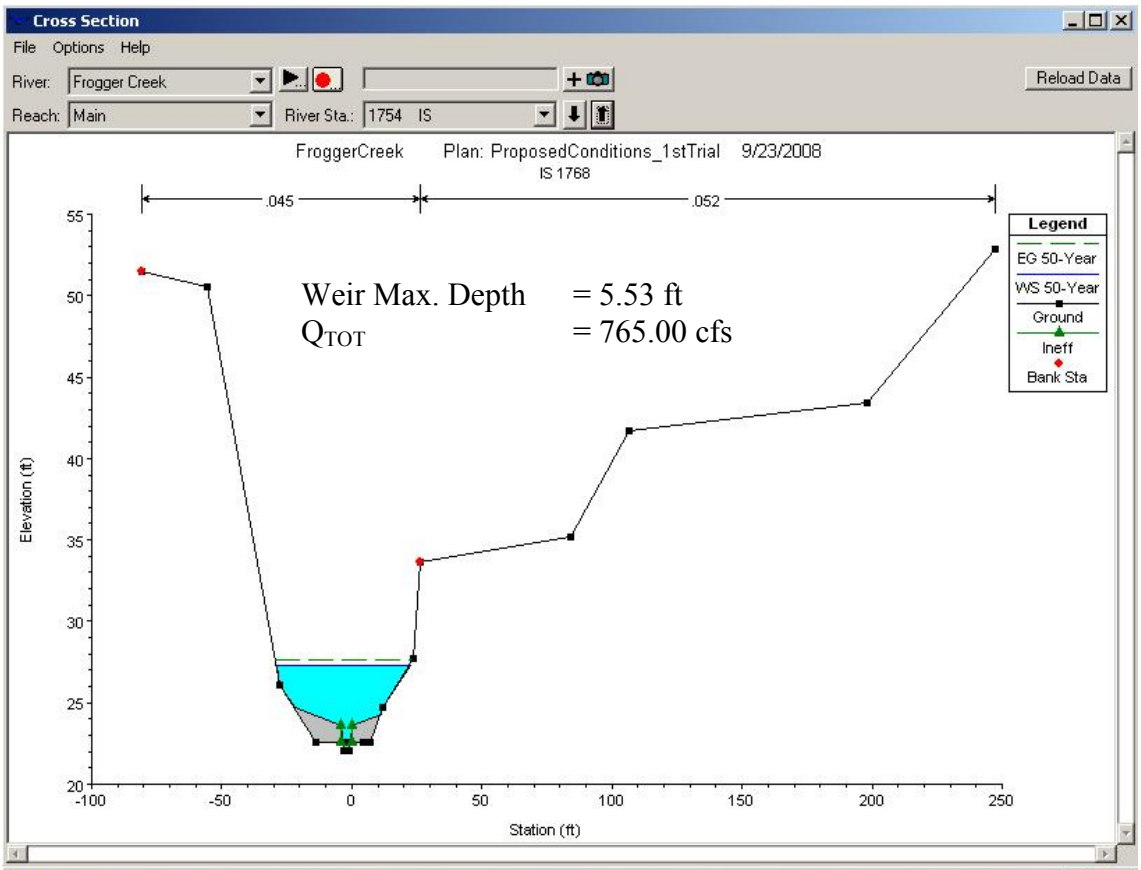
50 YEAR FLOW

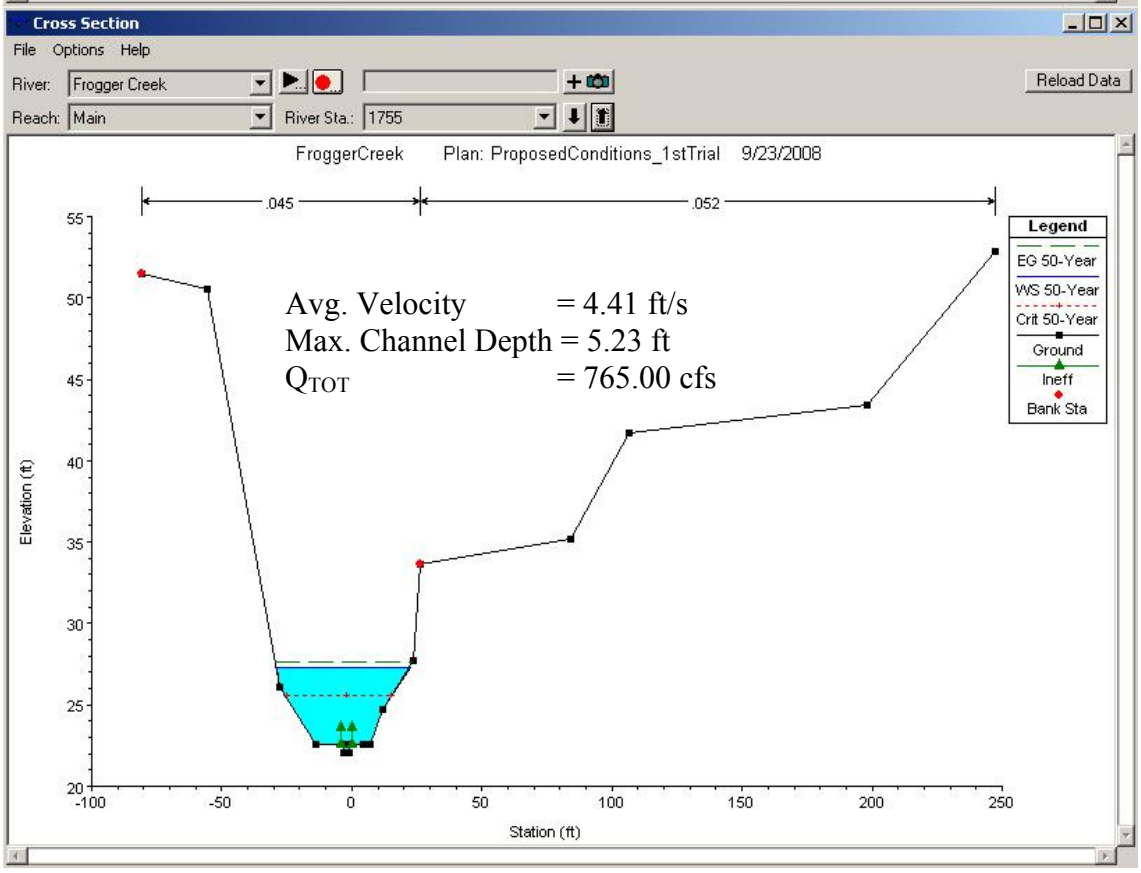

FroggerCreek
Plan: ProposedConditions_1stTrial
9/23/2008
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground

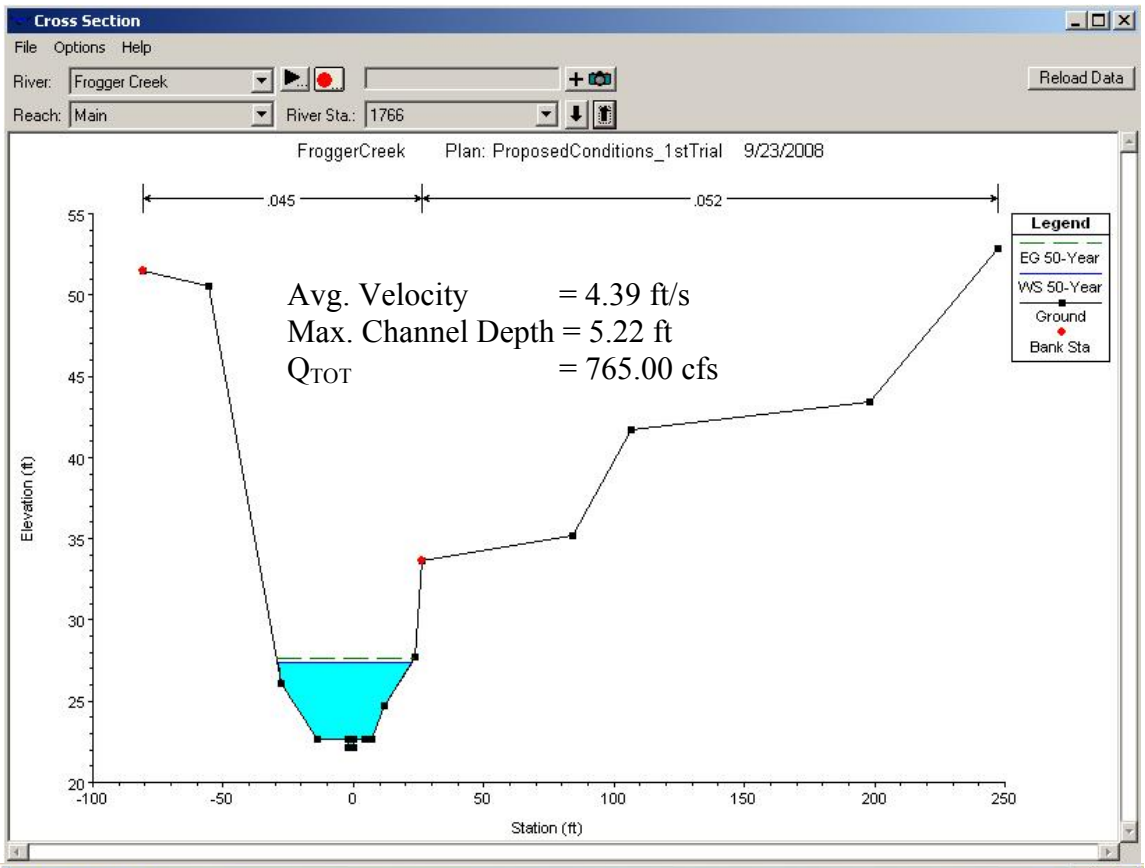

2448
2382
2316
2211
2139
2029
Main
Flogger Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

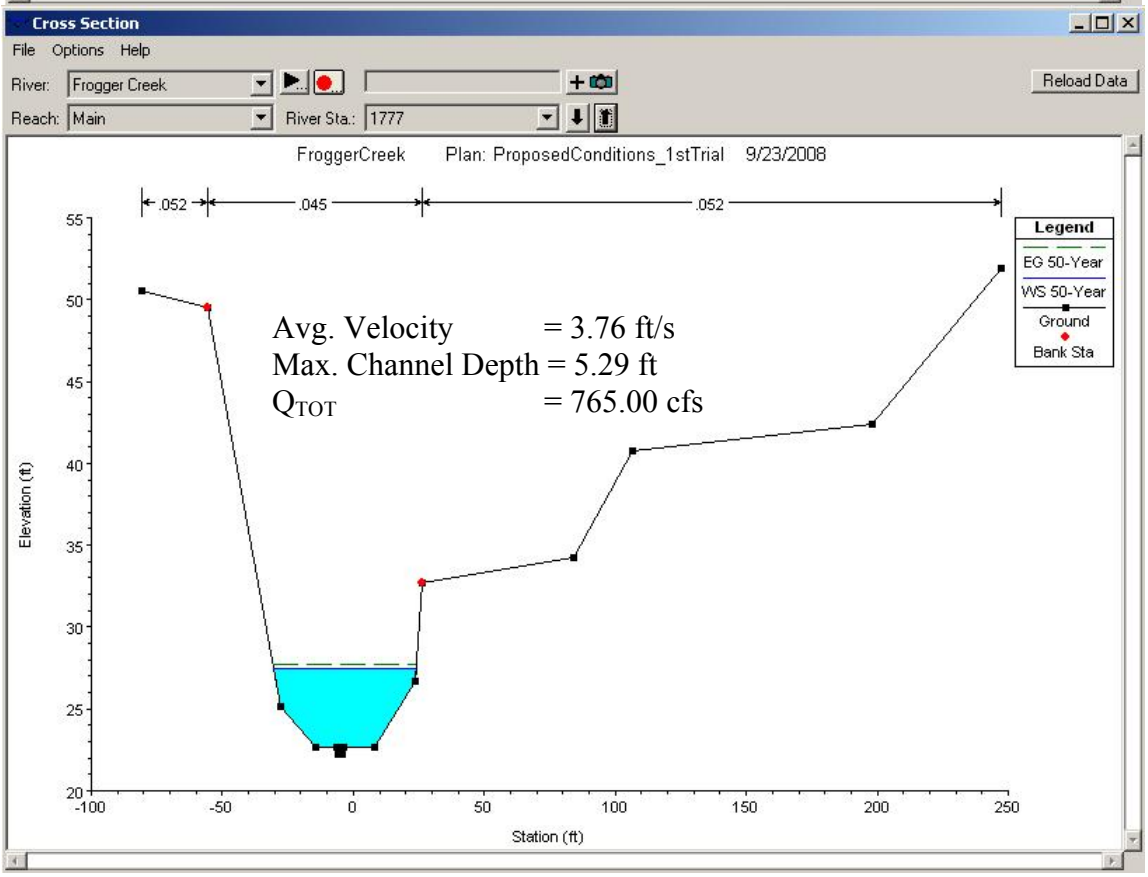

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.37 ft/s
Max. Channel Depth = 5.31 ft
Q TOT = 765.00 cfs
Elevation (ft)
Station (ft)

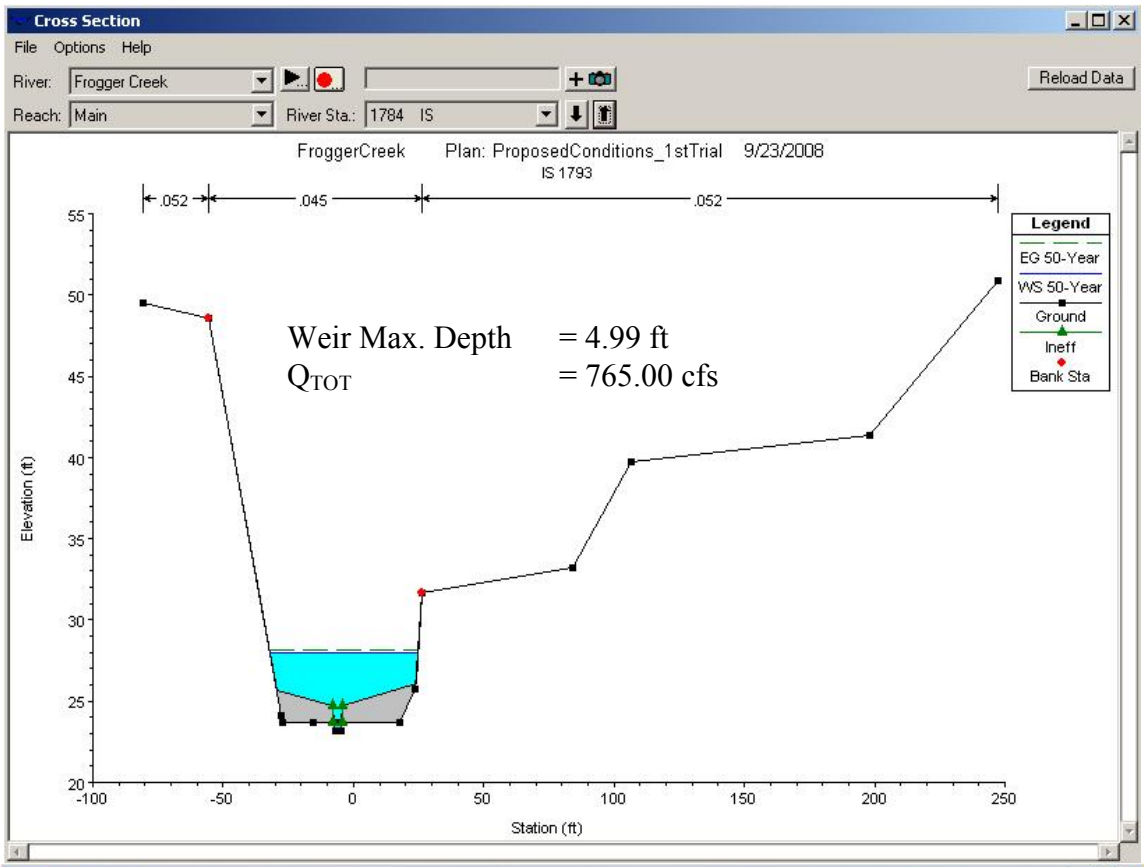

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.17 ft/s
Max. Channel Depth = 4.76 ft
Q TOT = 765.00 cfs
Elevation (ft)
Station (ft)

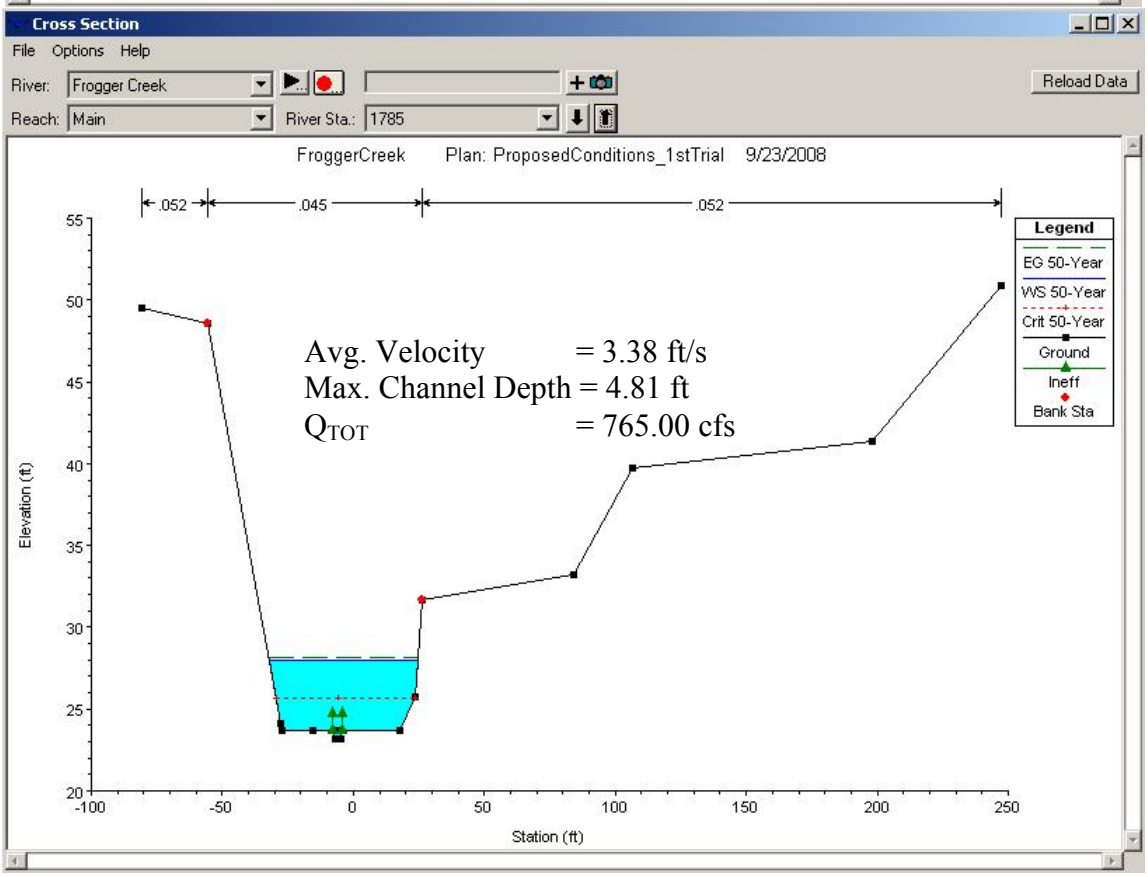

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1768
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 5.53 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

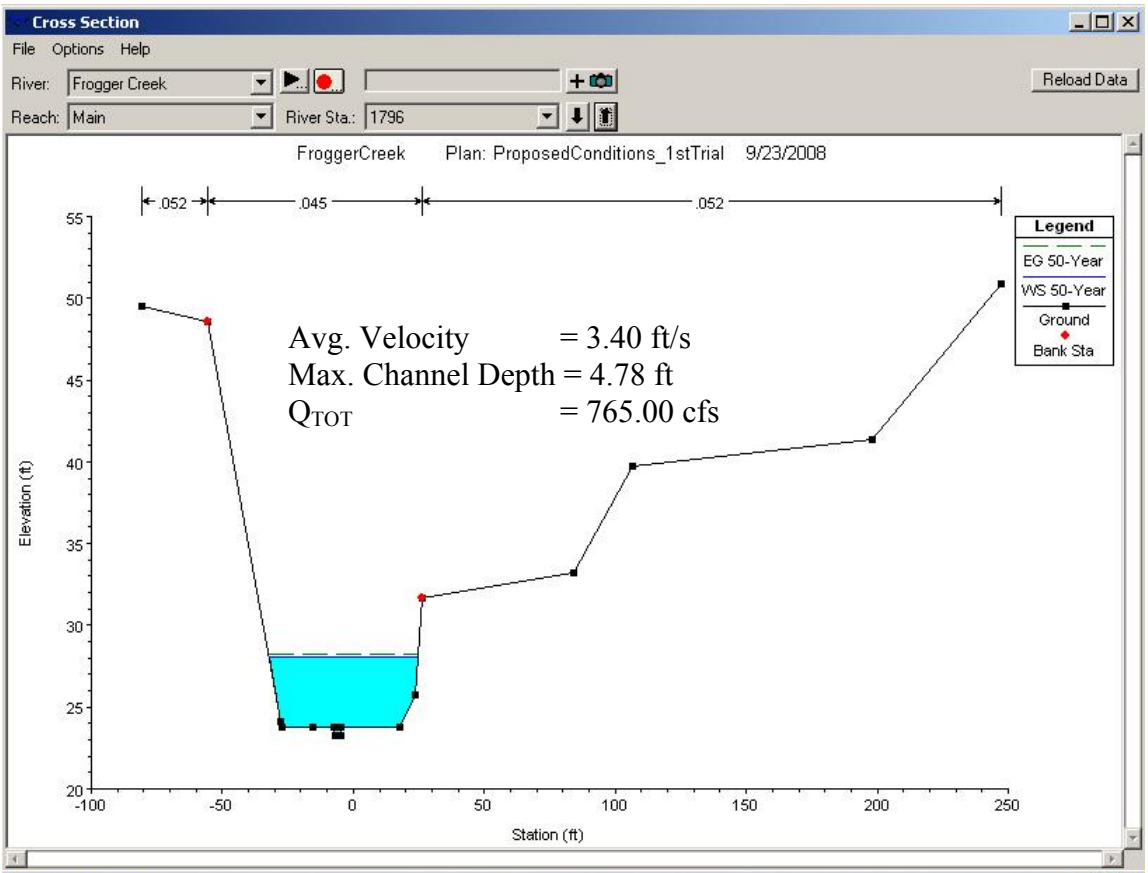

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 4.41 ft/s
Max. Channel Depth = 5.23 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

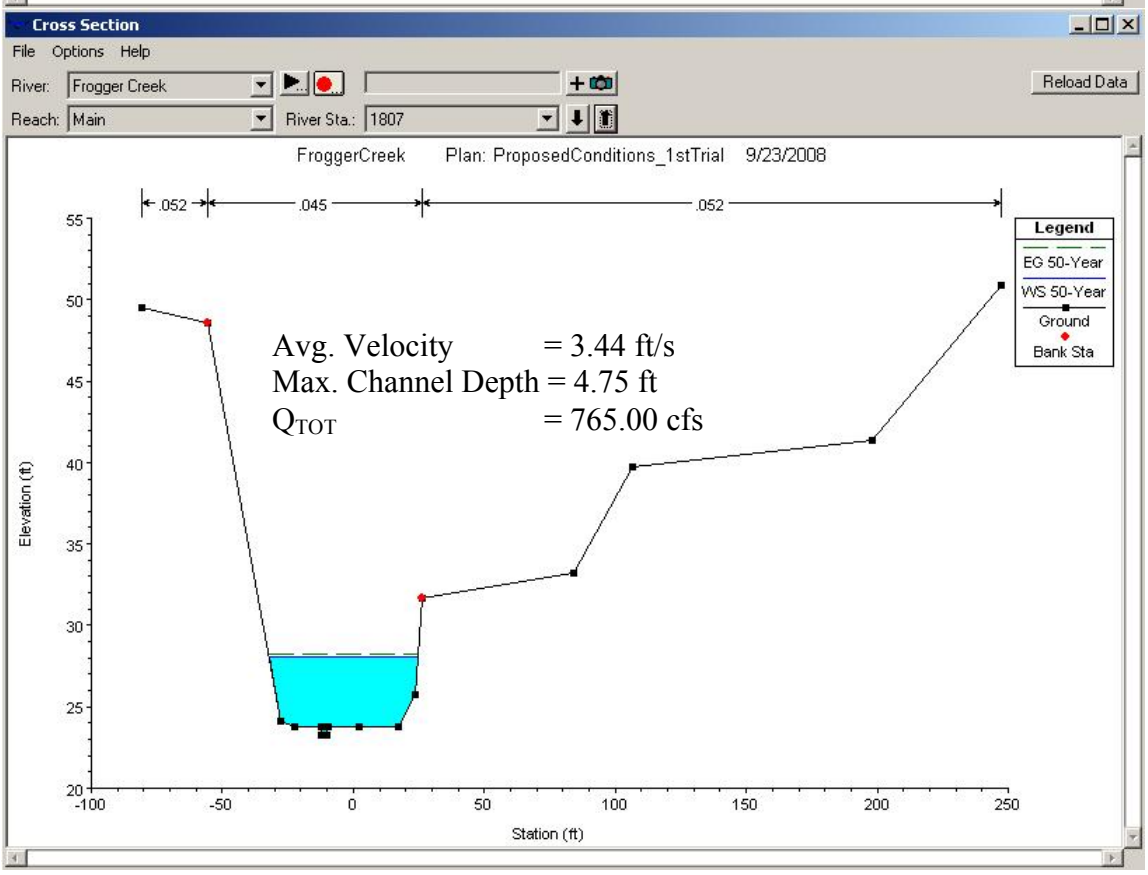

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.39 ft/s
Max. Channel Depth = 5.22 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

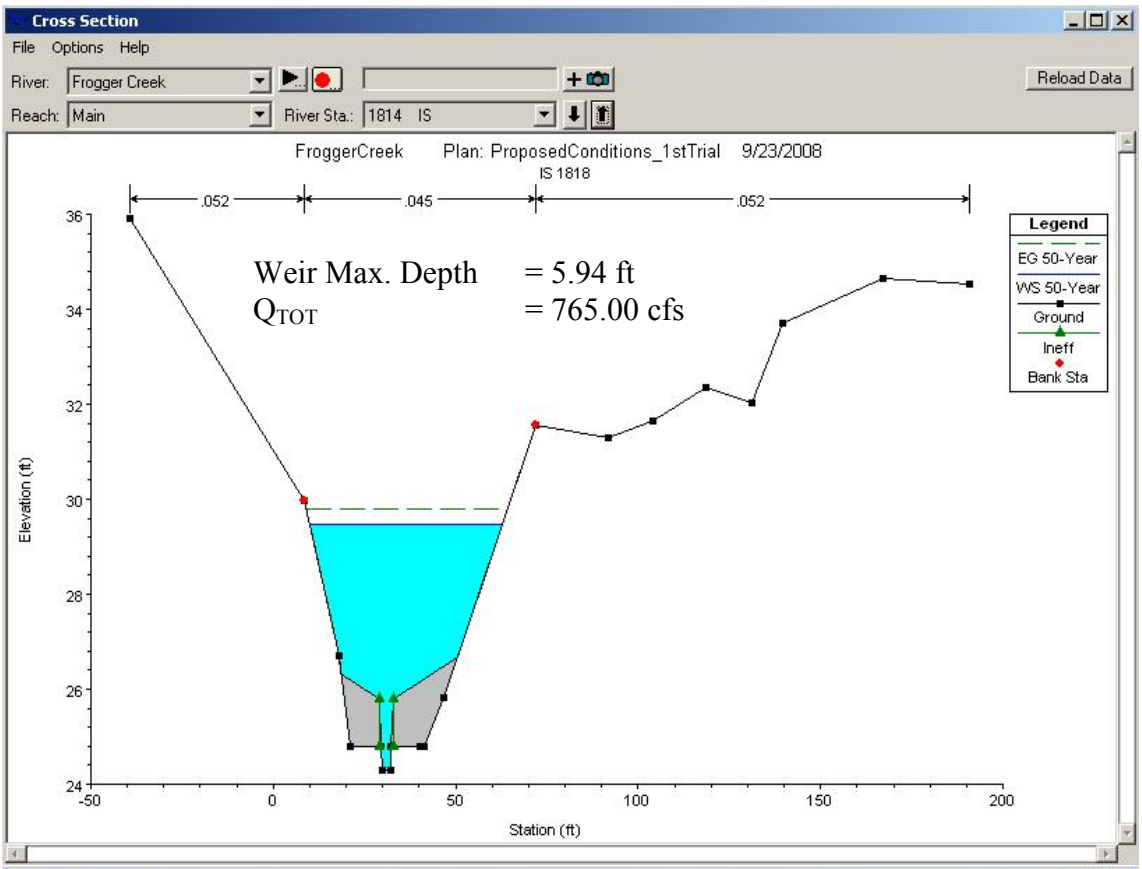

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.76 ft/s
Max. Channel Depth = 5.29 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

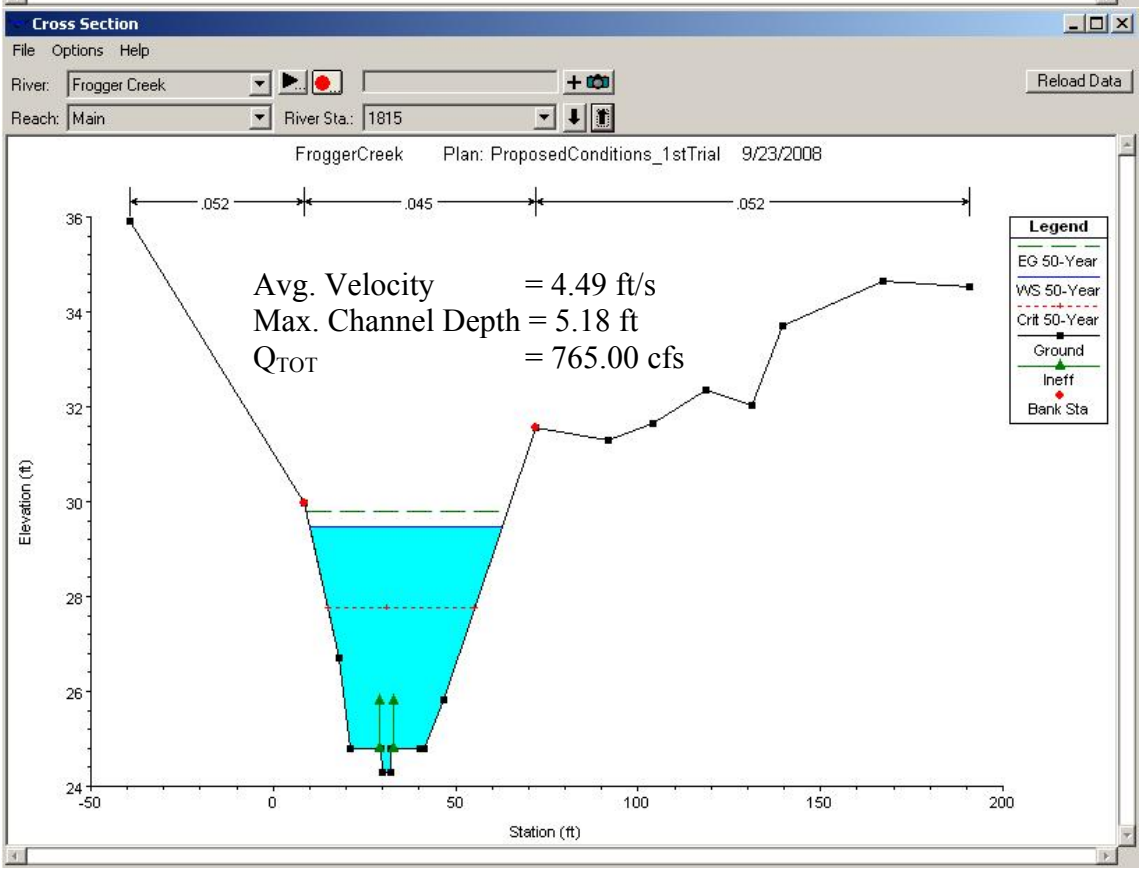

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1793
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 4.99 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

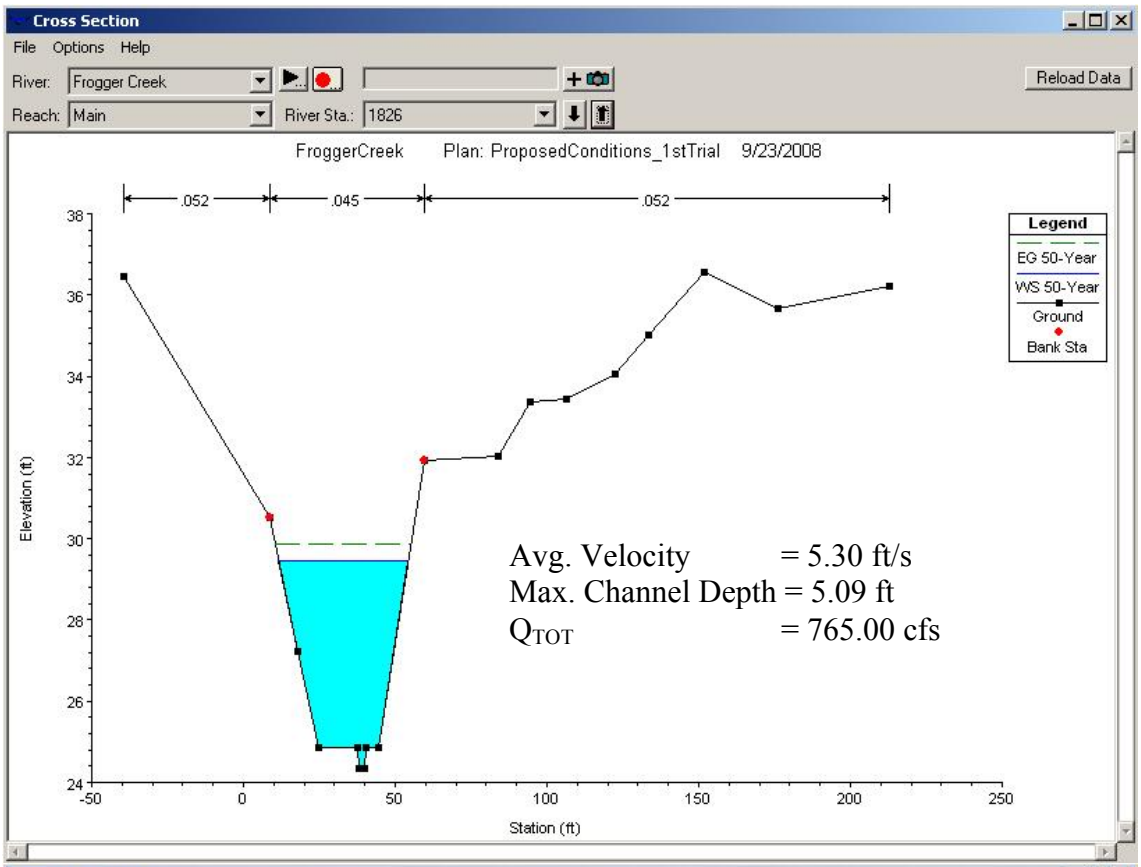

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.38 ft/s
Max. Channel Depth = 4.81 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

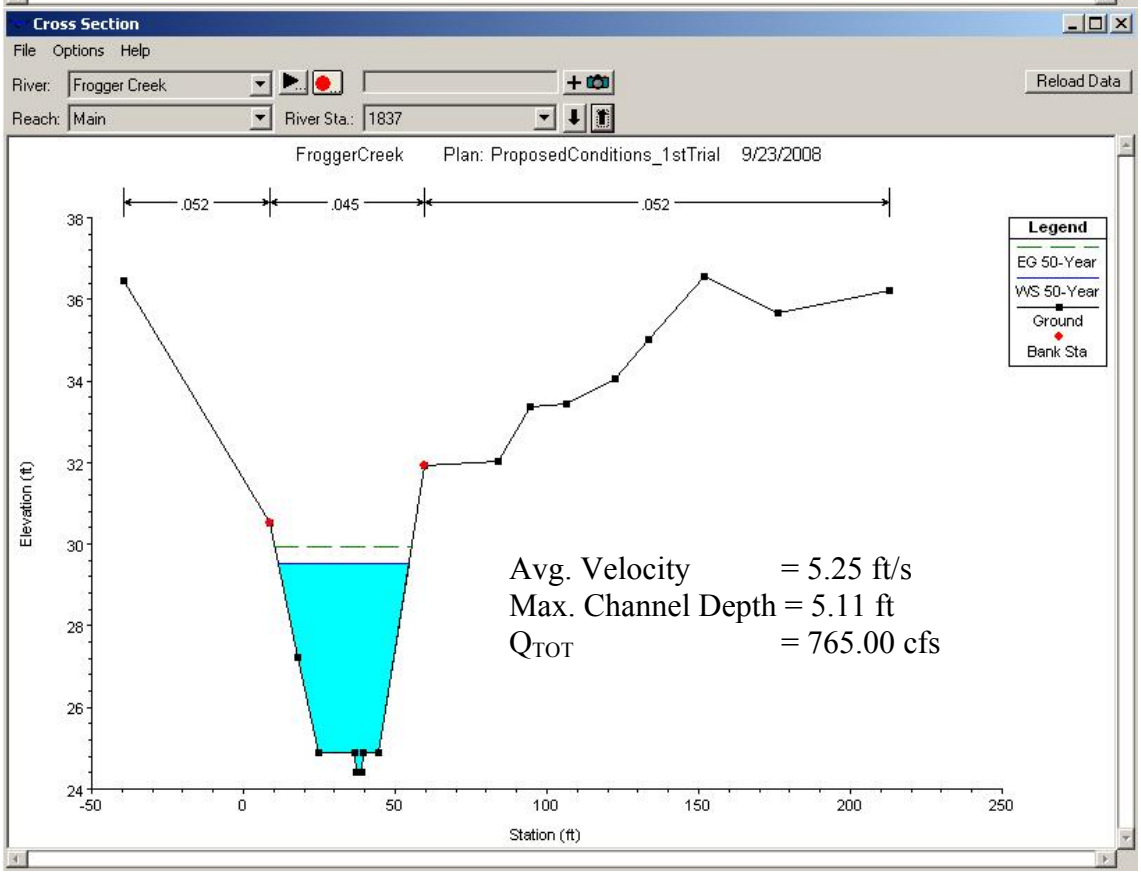

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.40 ft/s
Max. Channel Depth = 4.78 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

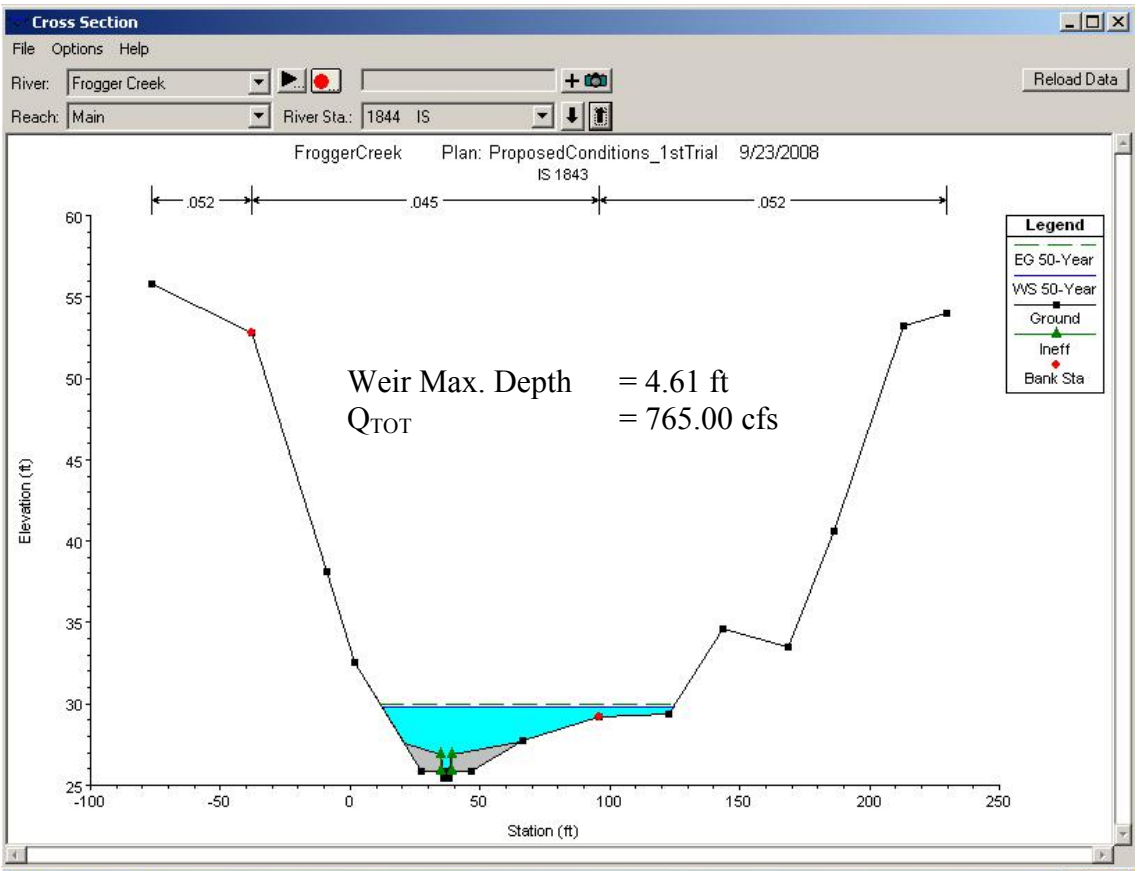

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.44 ft/s
Max. Channel Depth = 4.75 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

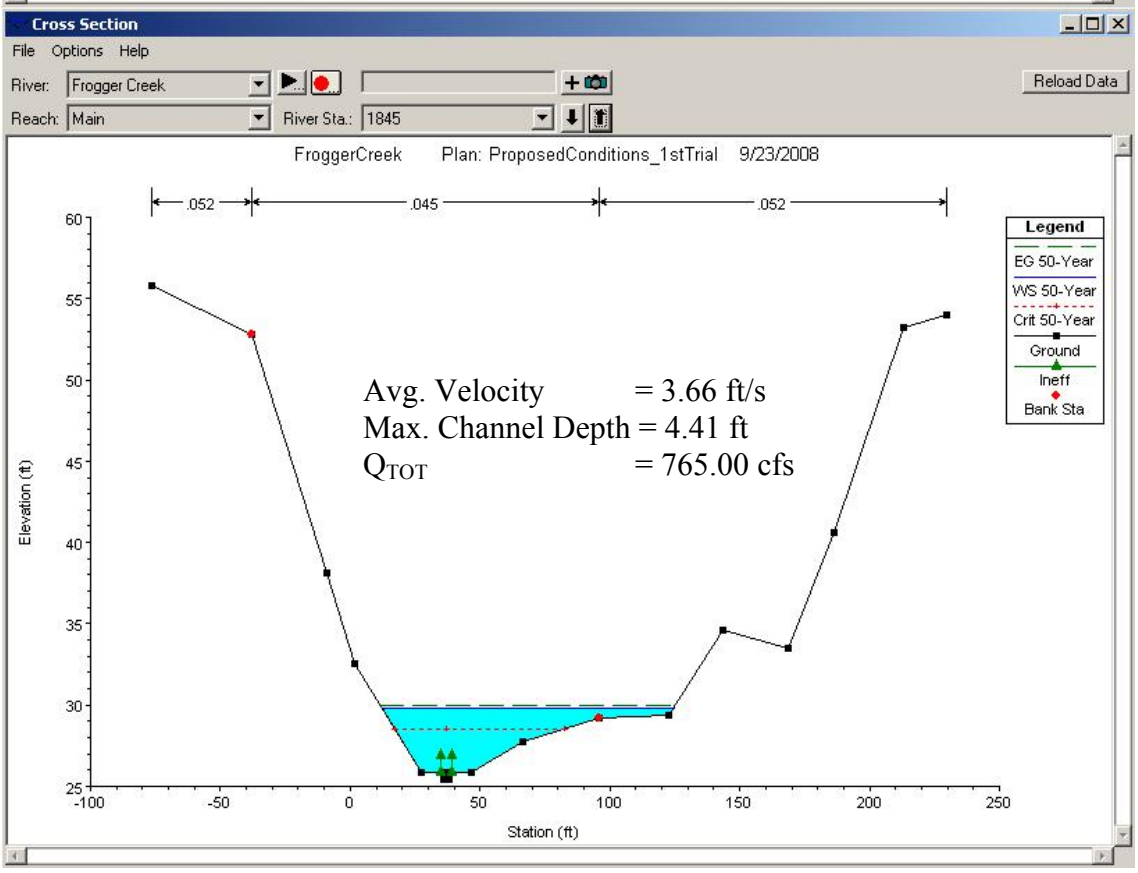

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 5.94 ft
Q_{TOT} = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

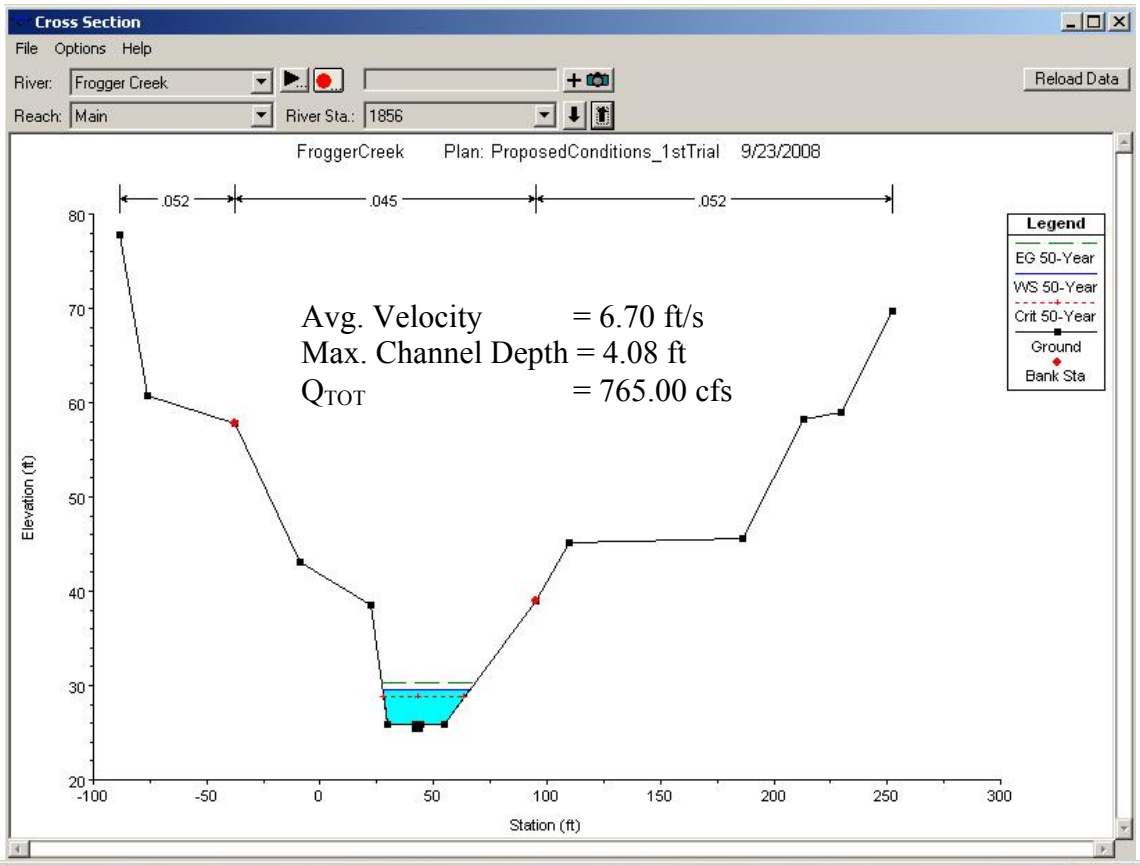

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Avg. Velocity = 4.49 ft/s
Max. Channel Depth = 5.18 ft
Q_{TOT} = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

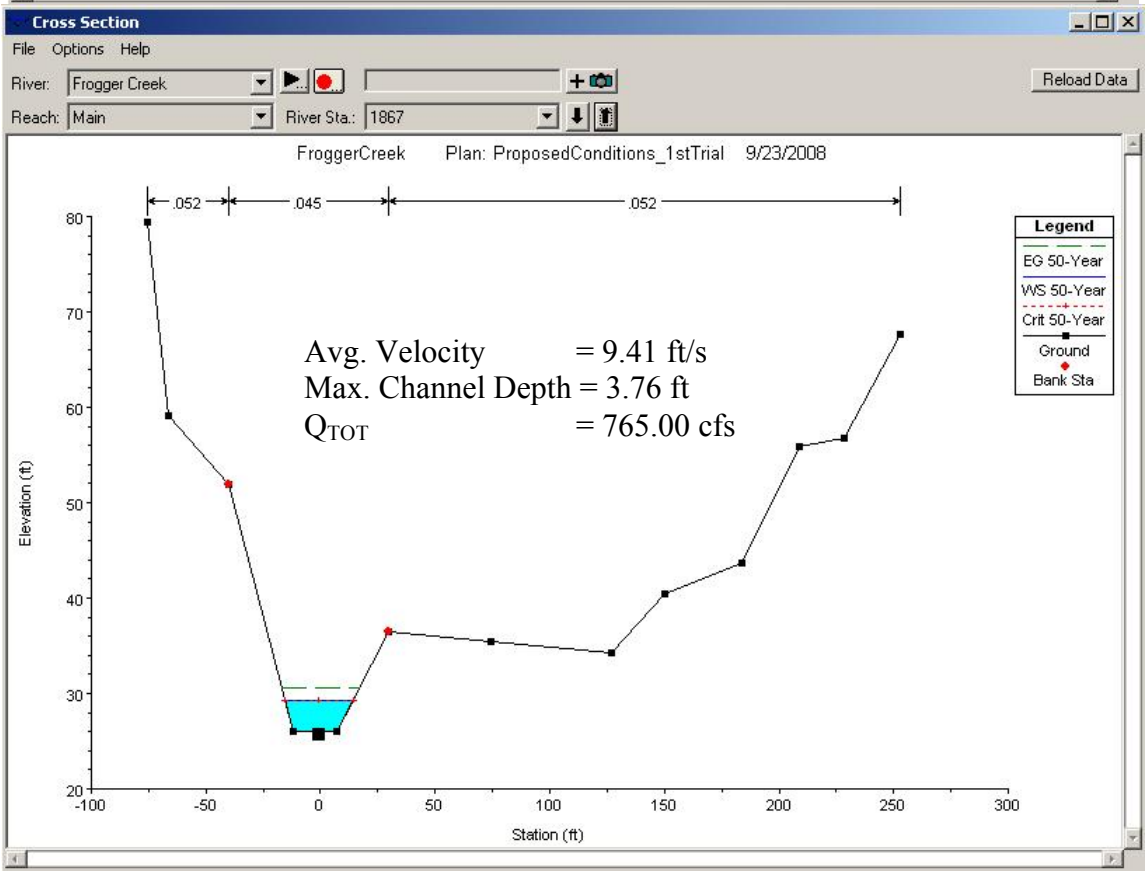

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 5.30 ft/s
Max. Channel Depth = 5.09 ft
Q_{TOT} = 765.00 cfs

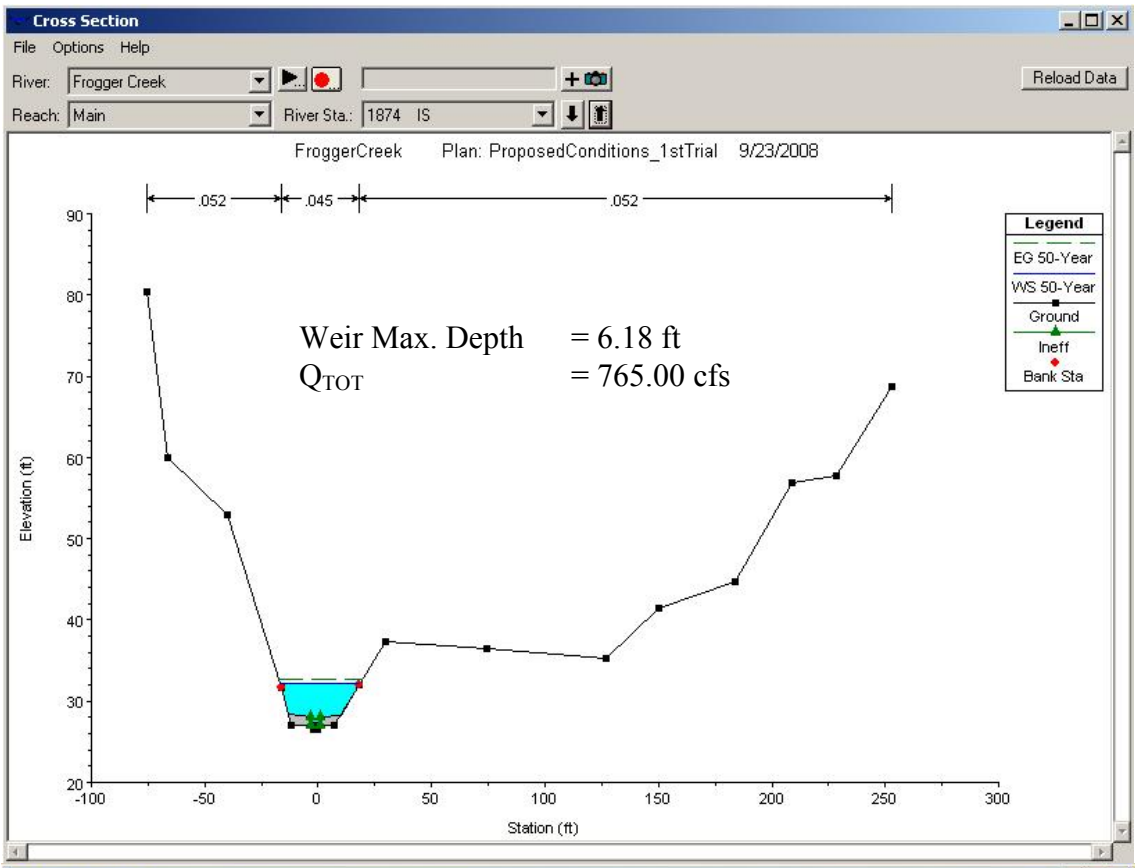

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 5.25 ft/s
Max. Channel Depth = 5.11 ft
Q_{TOT} = 765.00 cfs

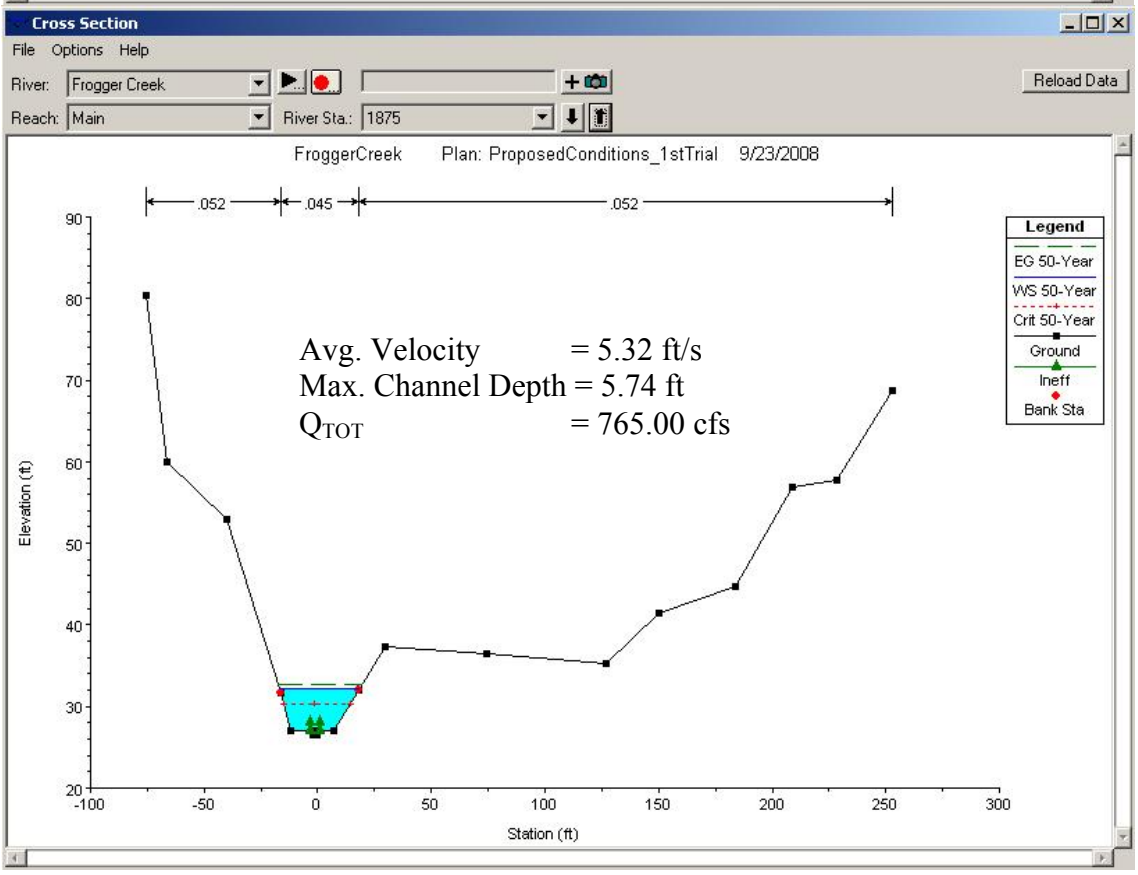

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1843
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 4.61 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

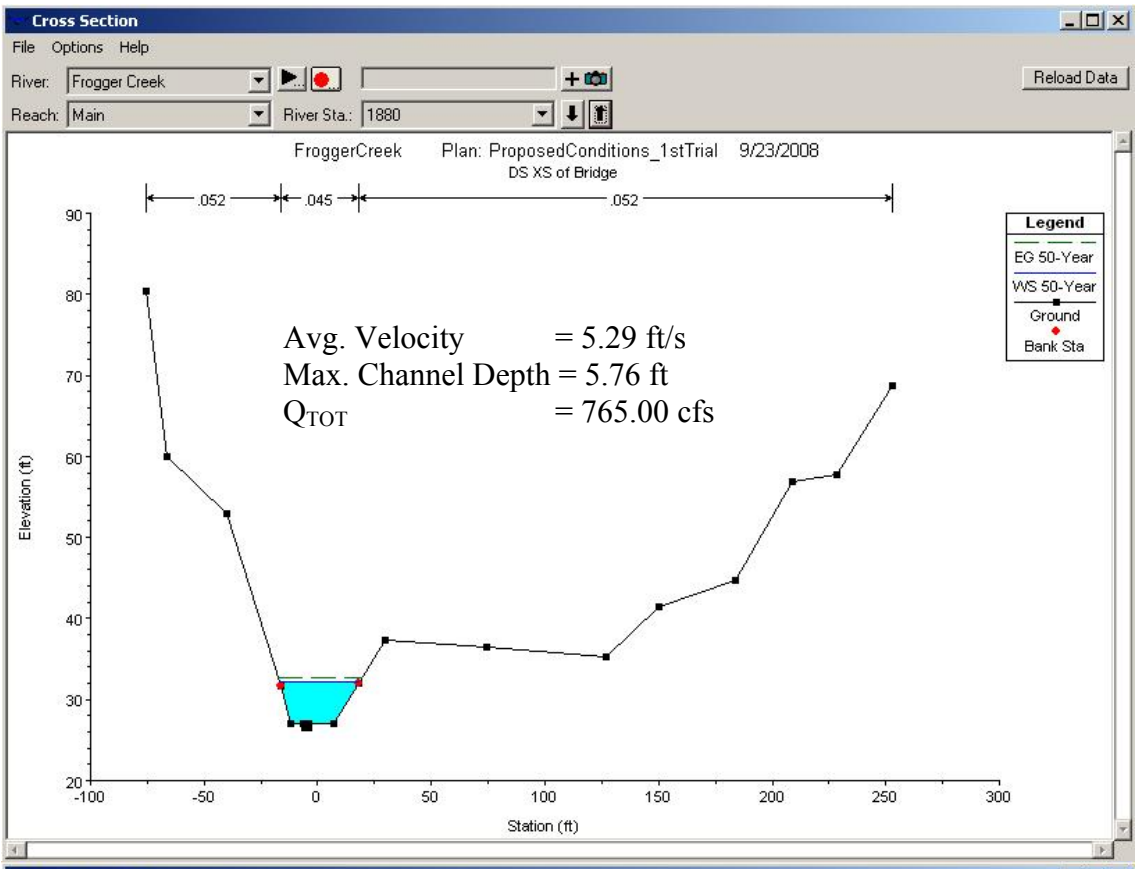

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.66 ft/s
Max. Channel Depth = 4.41 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

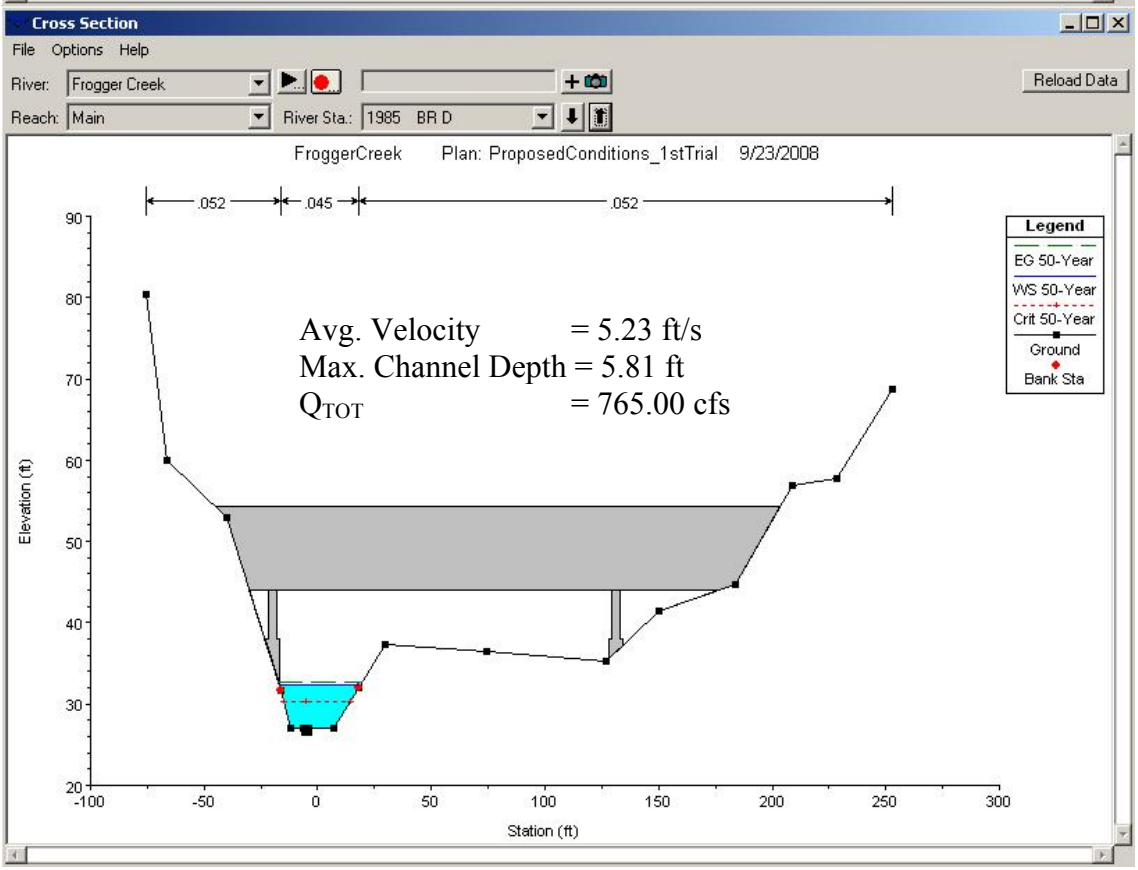

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 6.70 ft/s
Max. Channel Depth = 4.08 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

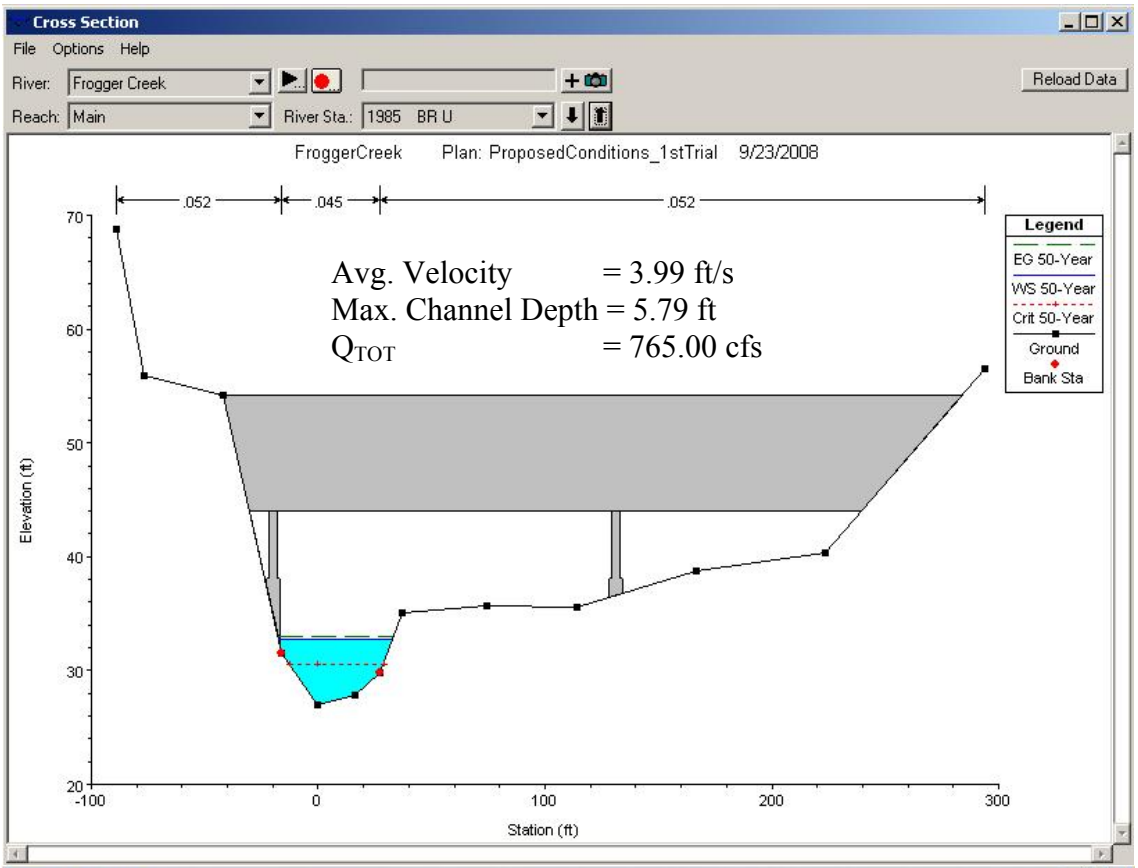

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 9.41 ft/s
Max. Channel Depth = 3.76 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

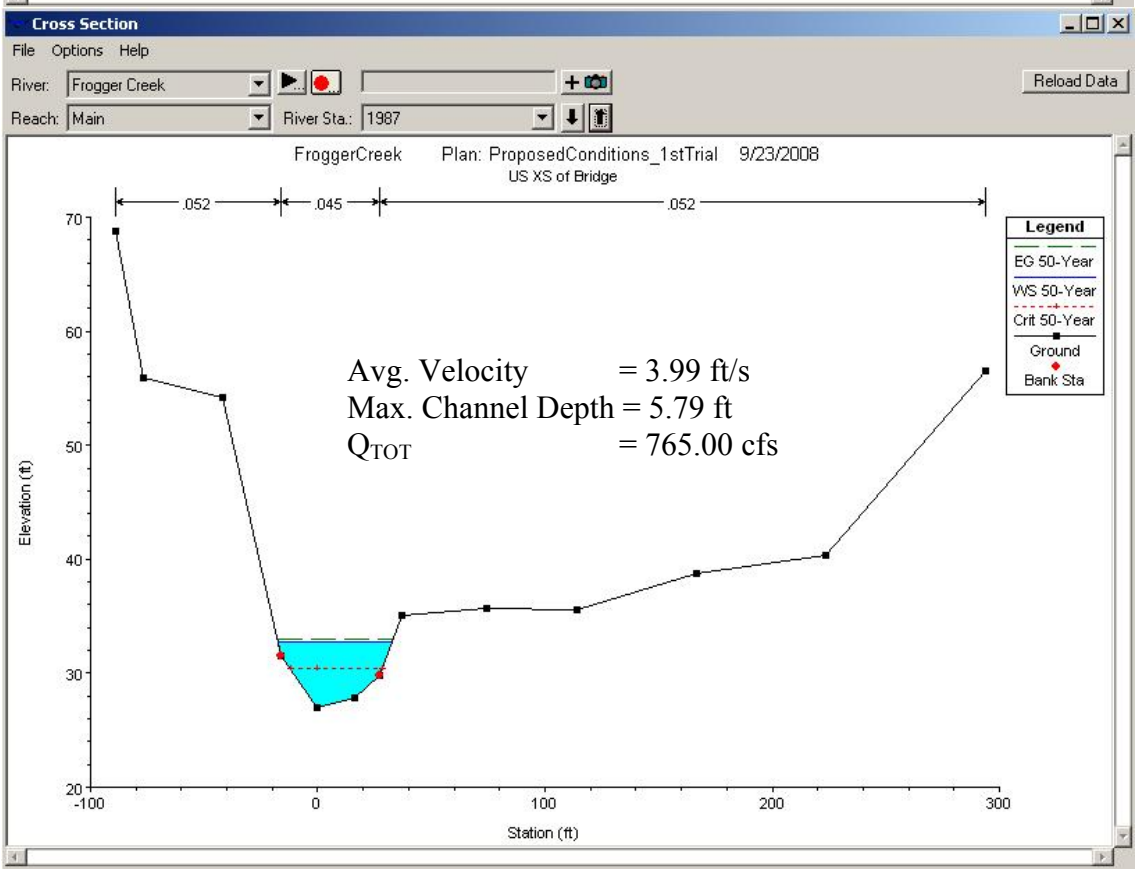

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 6.18 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 5.32 ft/s
Max. Channel Depth = 5.74 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
DS XS of Bridge
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.29 ft/s
Max. Channel Depth = 5.76 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

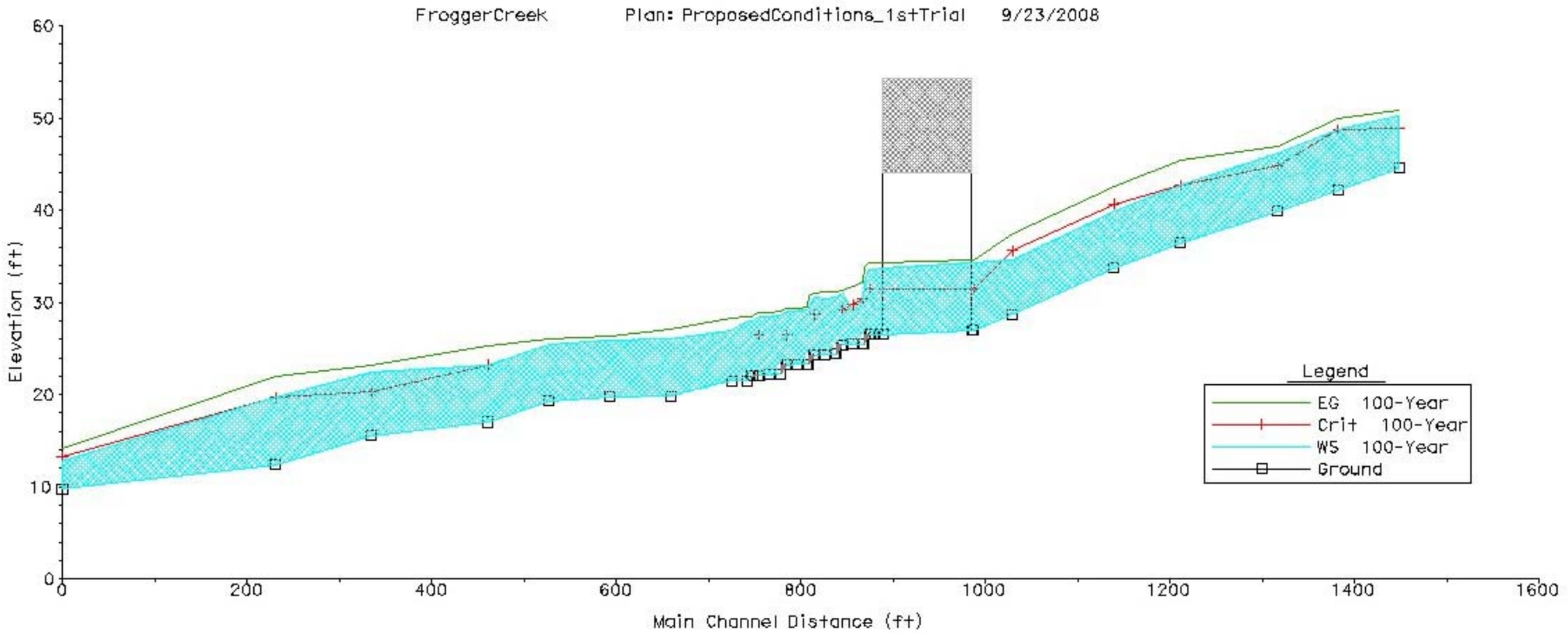

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 5.23 ft/s
Max. Channel Depth = 5.81 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

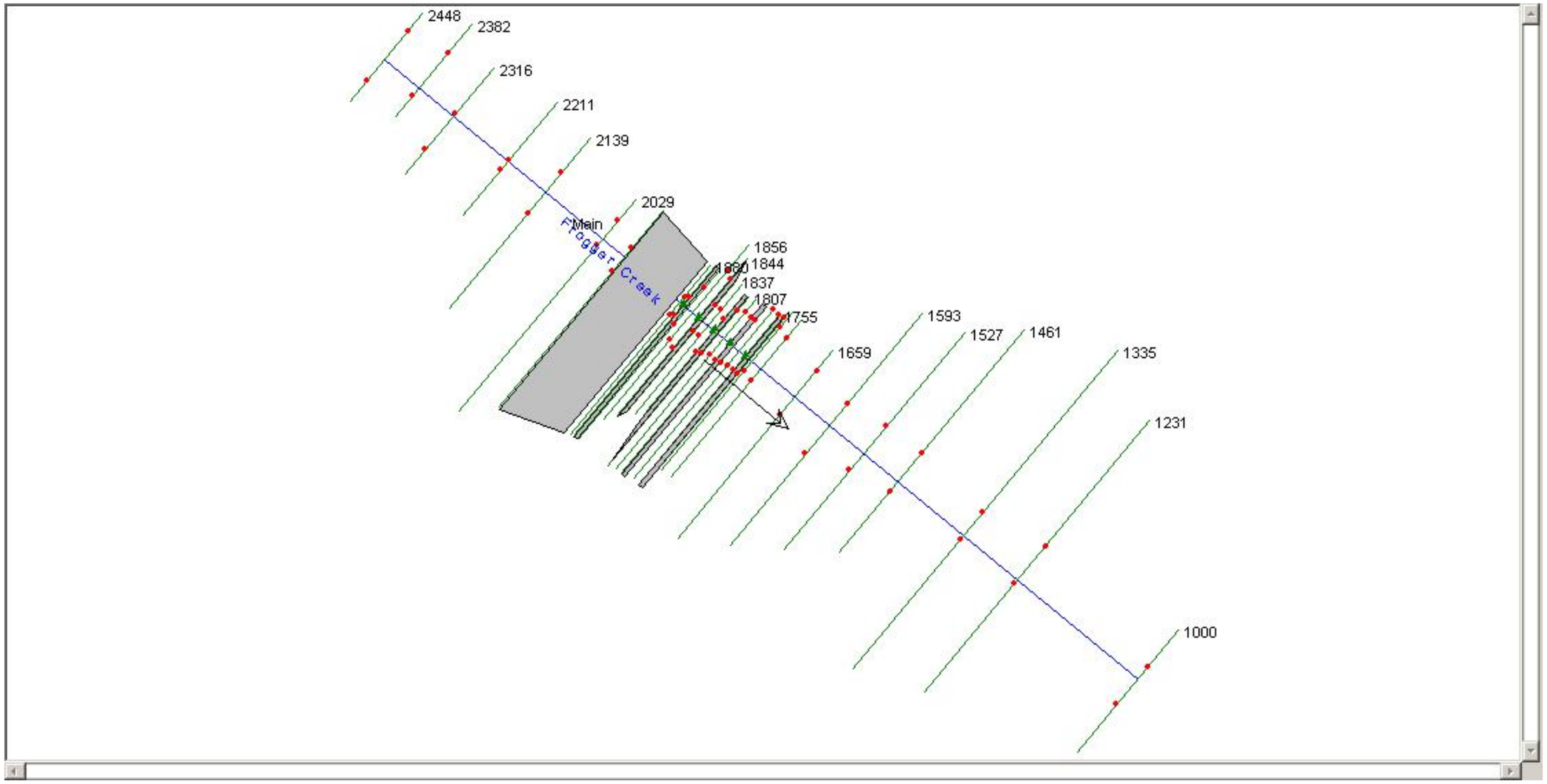

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Avg. Velocity = 3.99 ft/s
Max. Channel Depth = 5.79 ft
Q_TOT = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

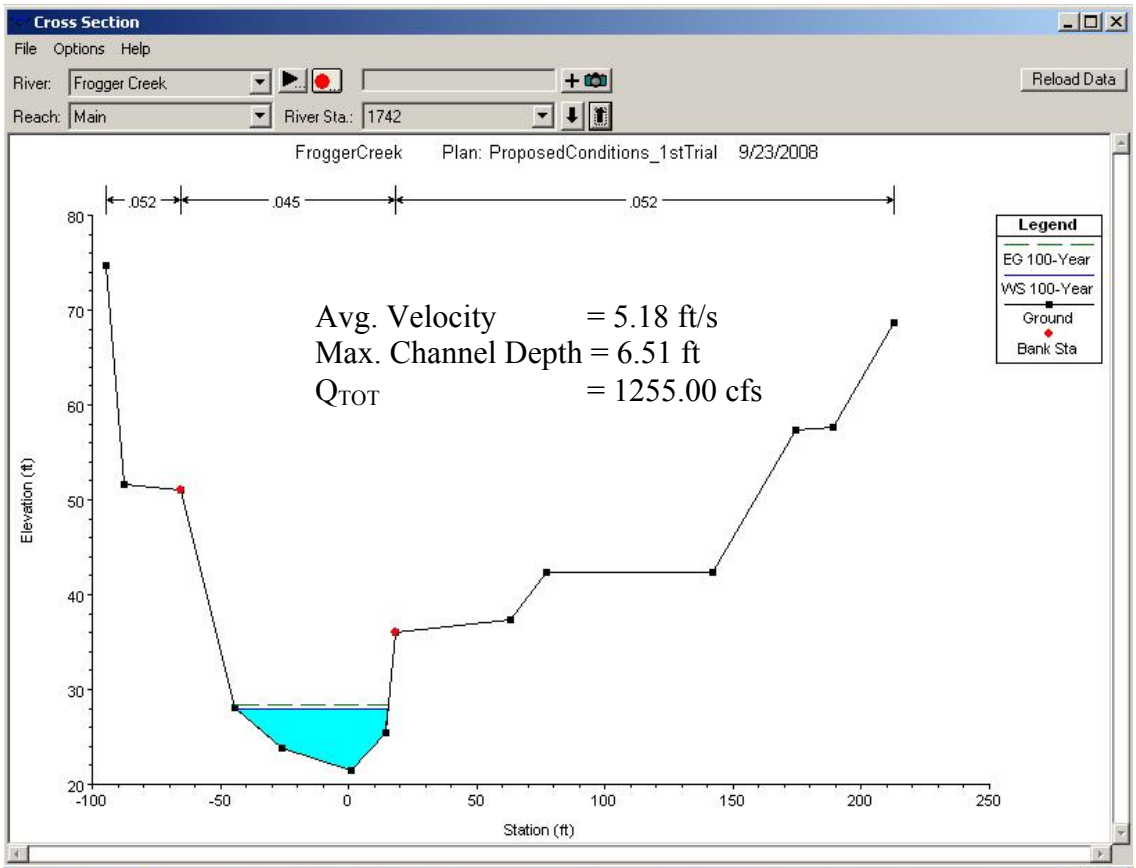

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 3.99 ft/s
Max. Channel Depth = 5.79 ft
Q_TOT = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

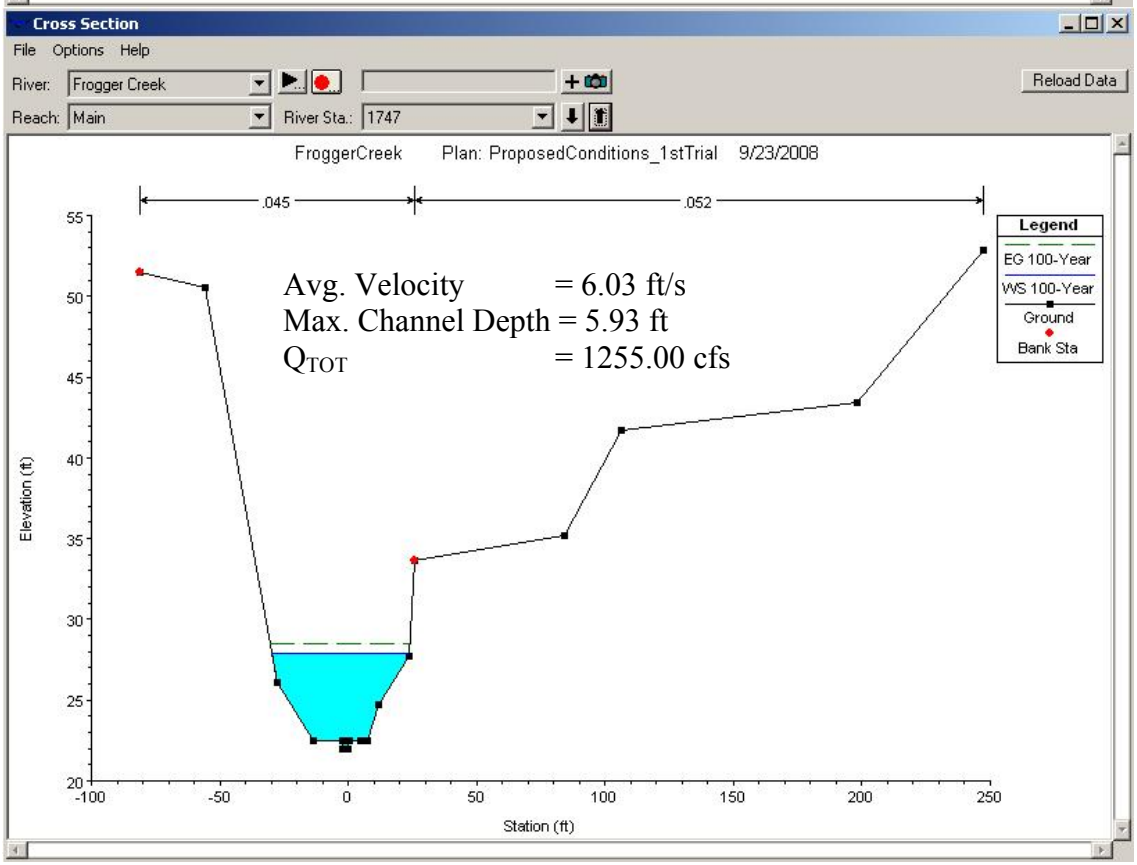
PROPOSED DESIGN (1ST TRIAL)

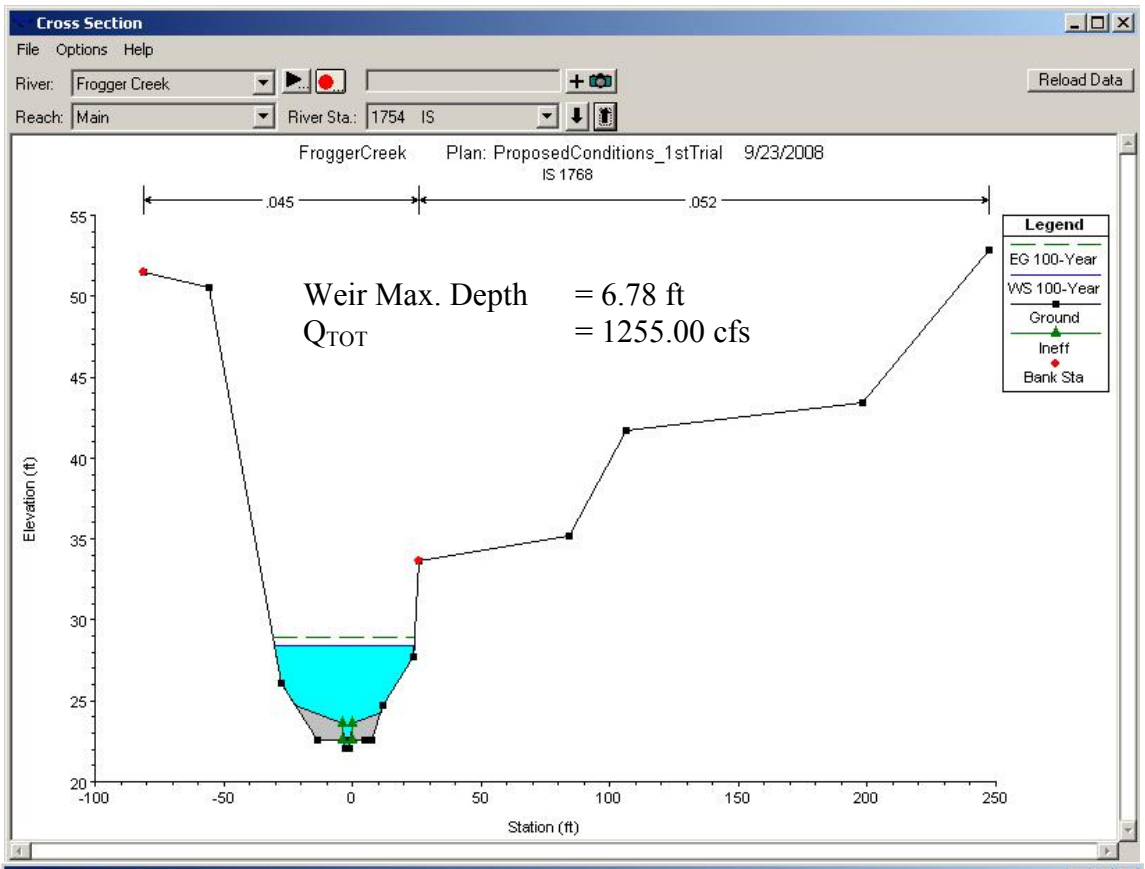
100 YEAR FLOW

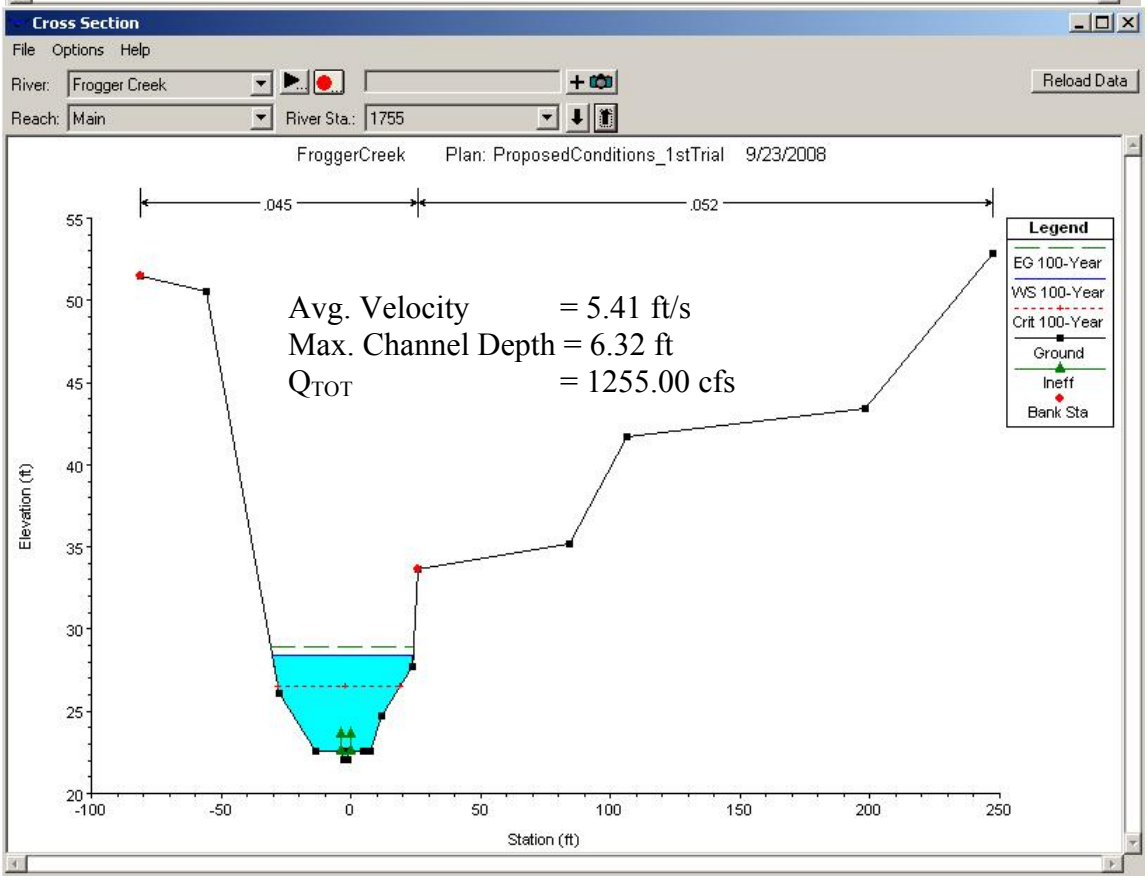

FroggerCreek
Plan: ProposedConditions_1stTrial
9/23/2008
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground

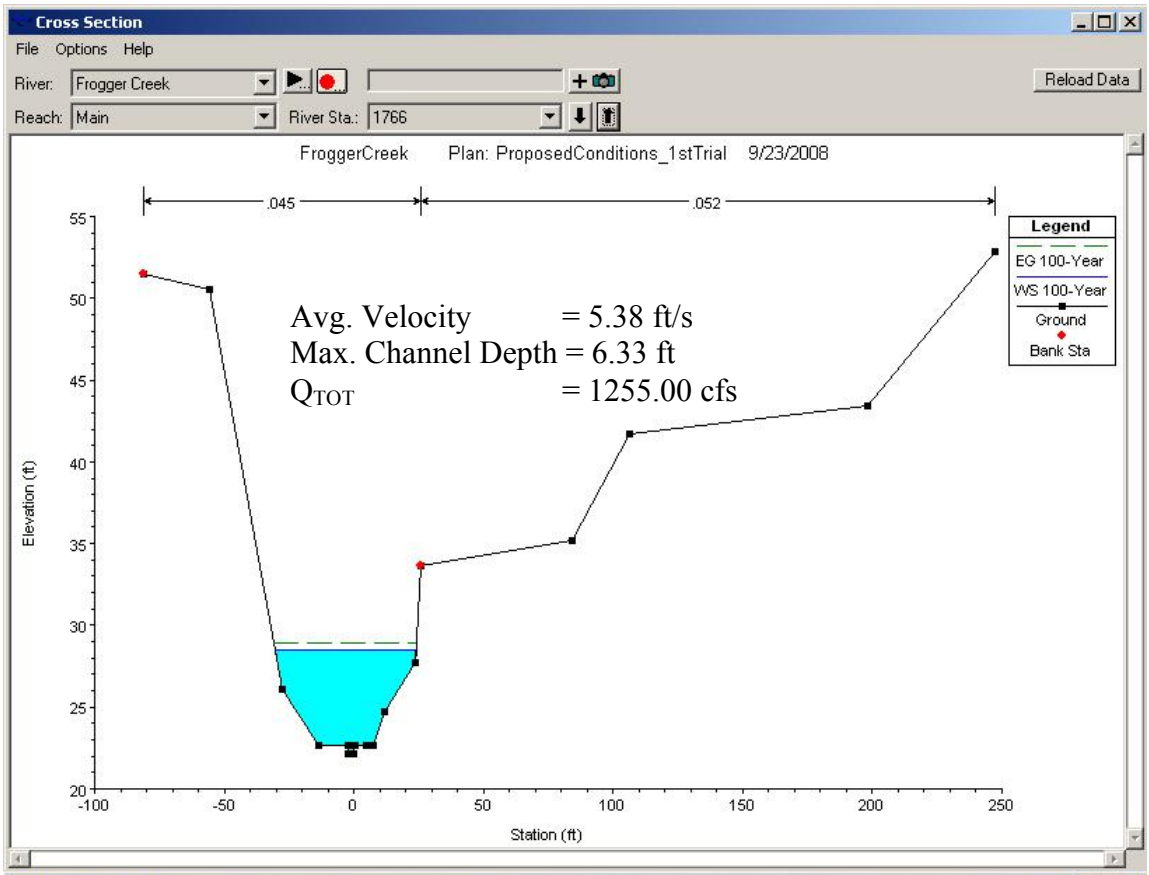

2448
2382
2316
2211
2139
2029
Main
Frogger Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

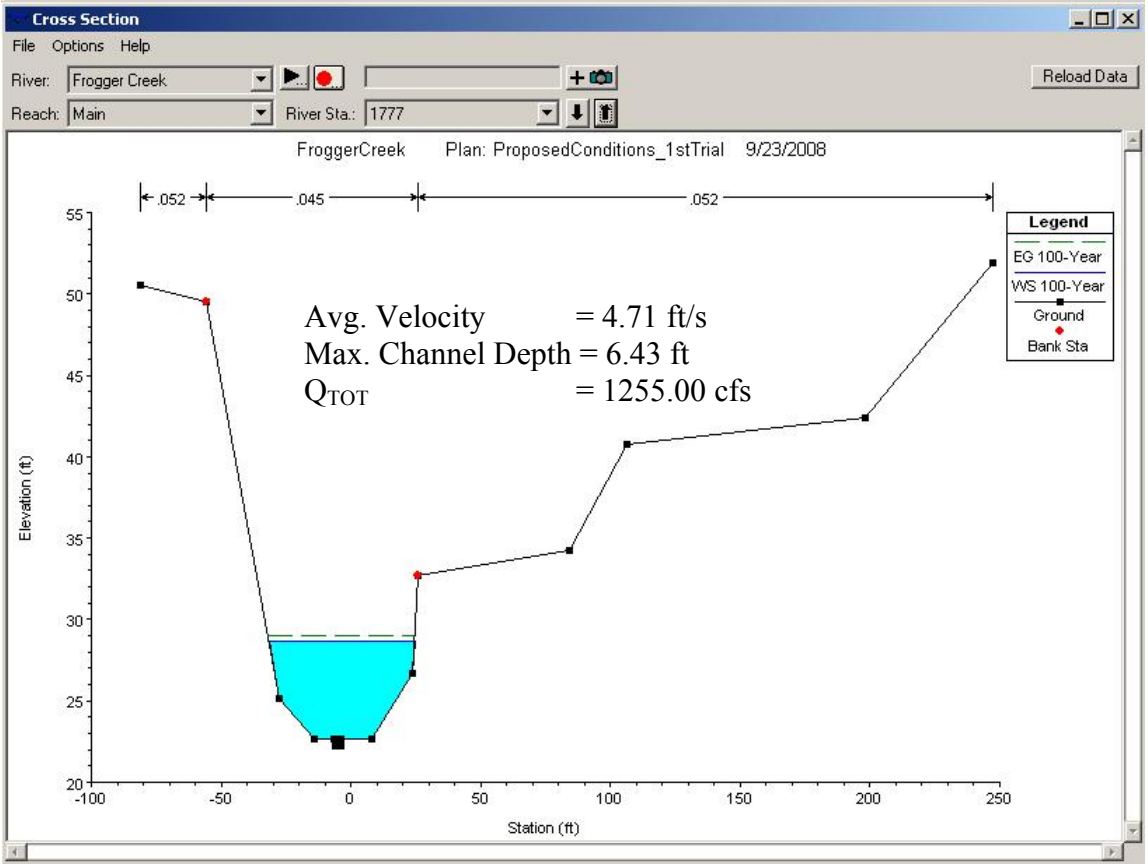

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.18 ft/s
Max. Channel Depth = 6.51 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

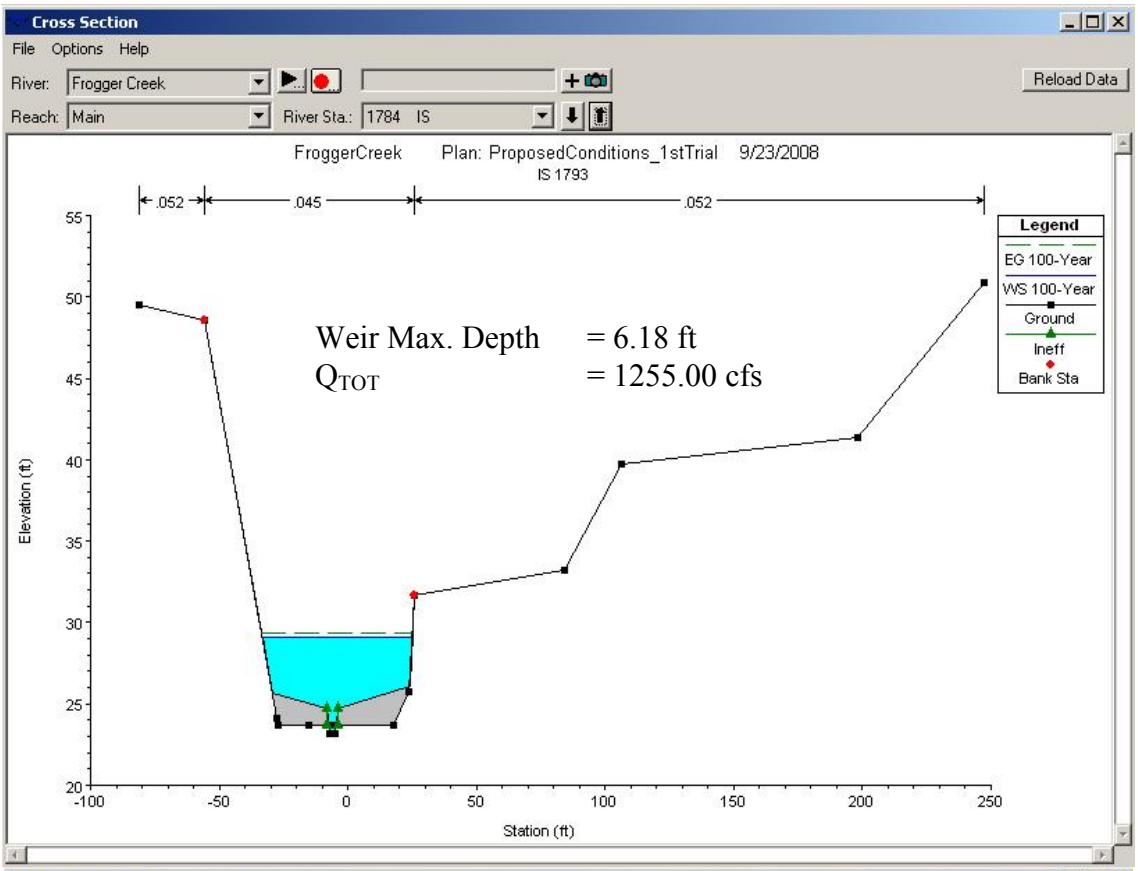

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.03 ft/s
Max. Channel Depth = 5.93 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

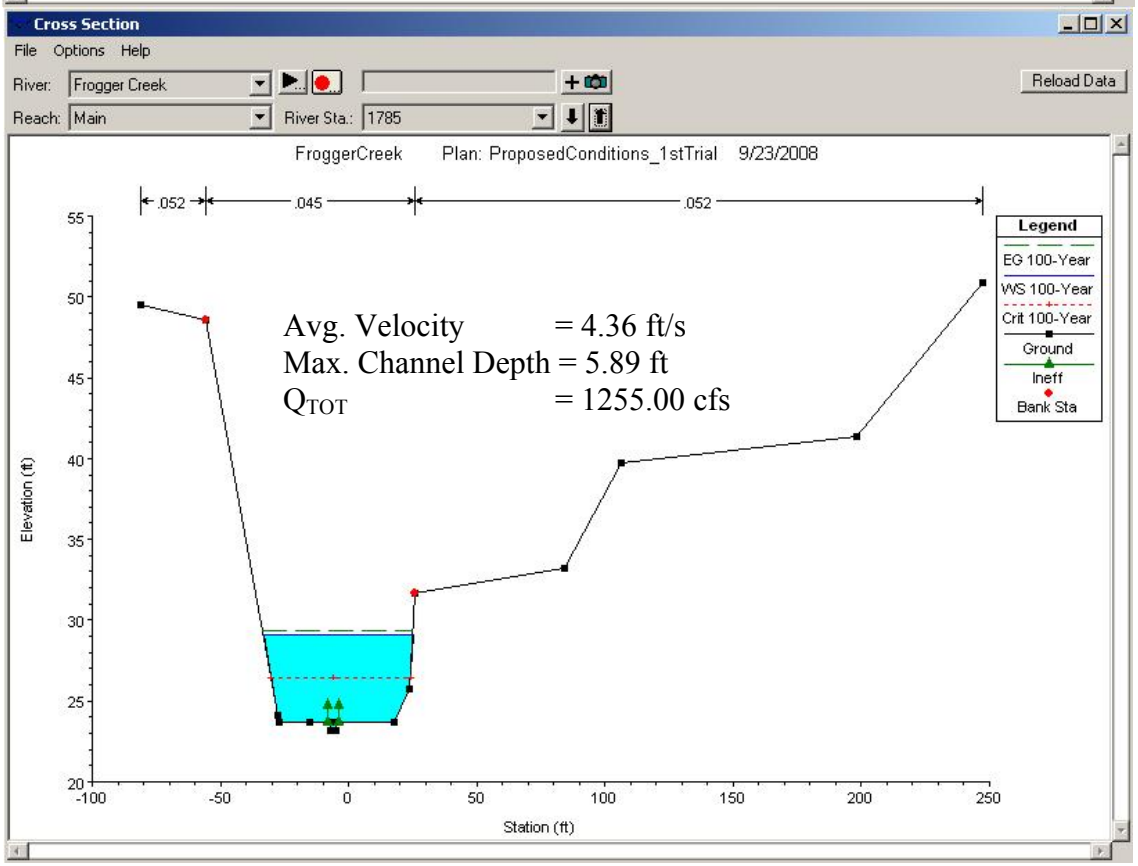

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1768
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 6.78 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

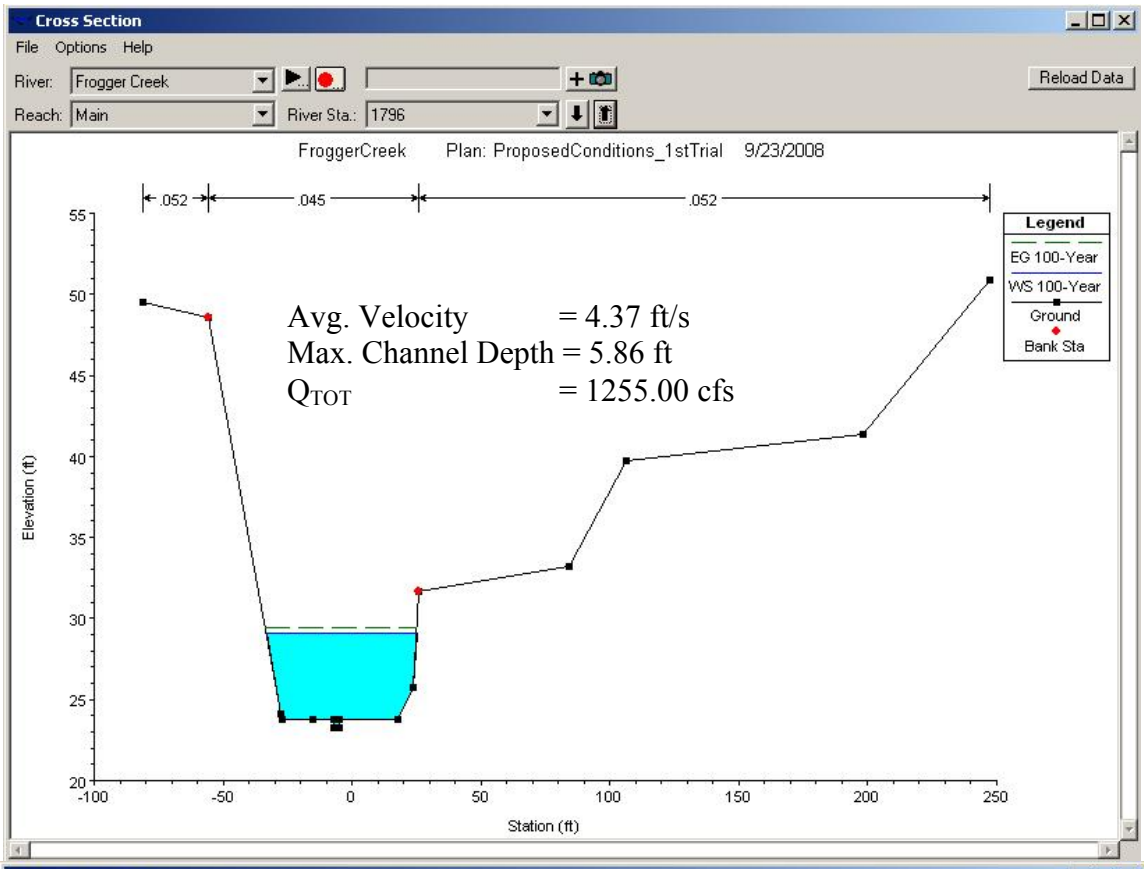

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 5.41 ft/s
Max. Channel Depth = 6.32 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

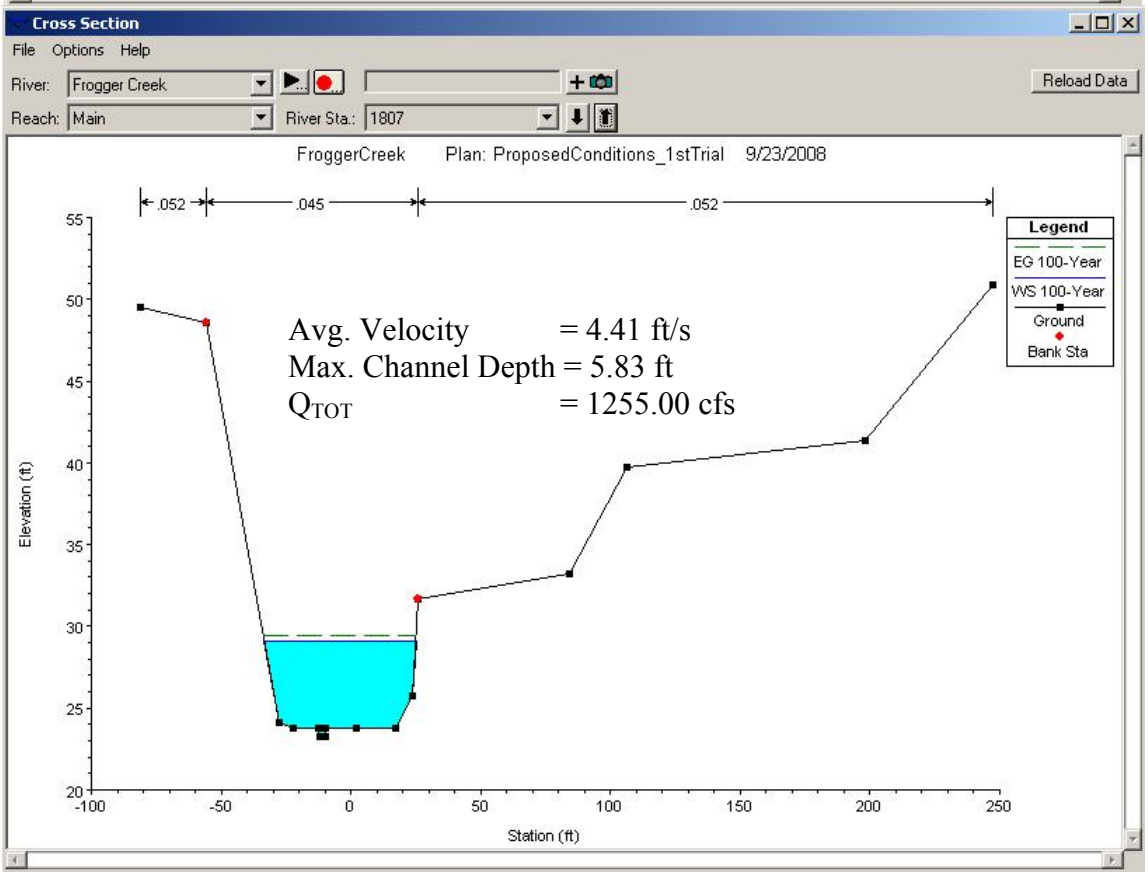

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.38 ft/s
Max. Channel Depth = 6.33 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

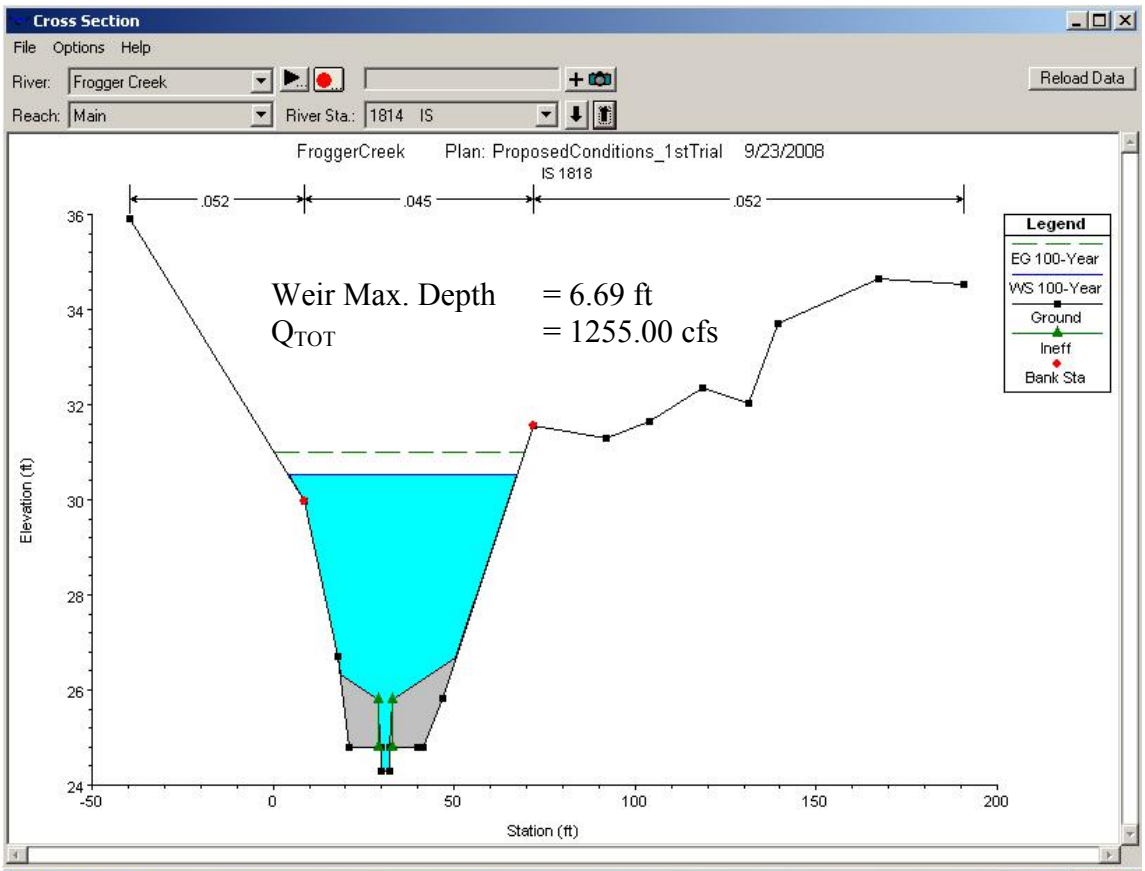

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.71 ft/s
Max. Channel Depth = 6.43 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

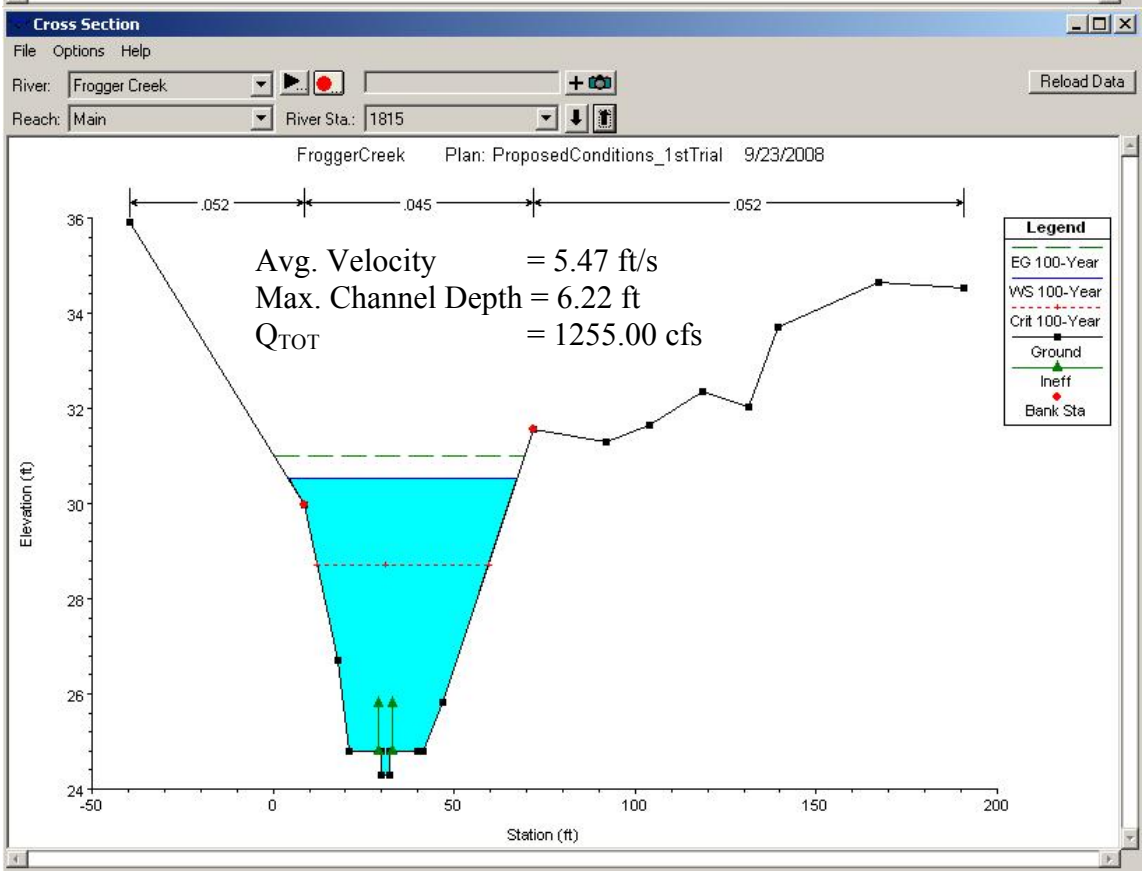

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1793
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 6.18 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

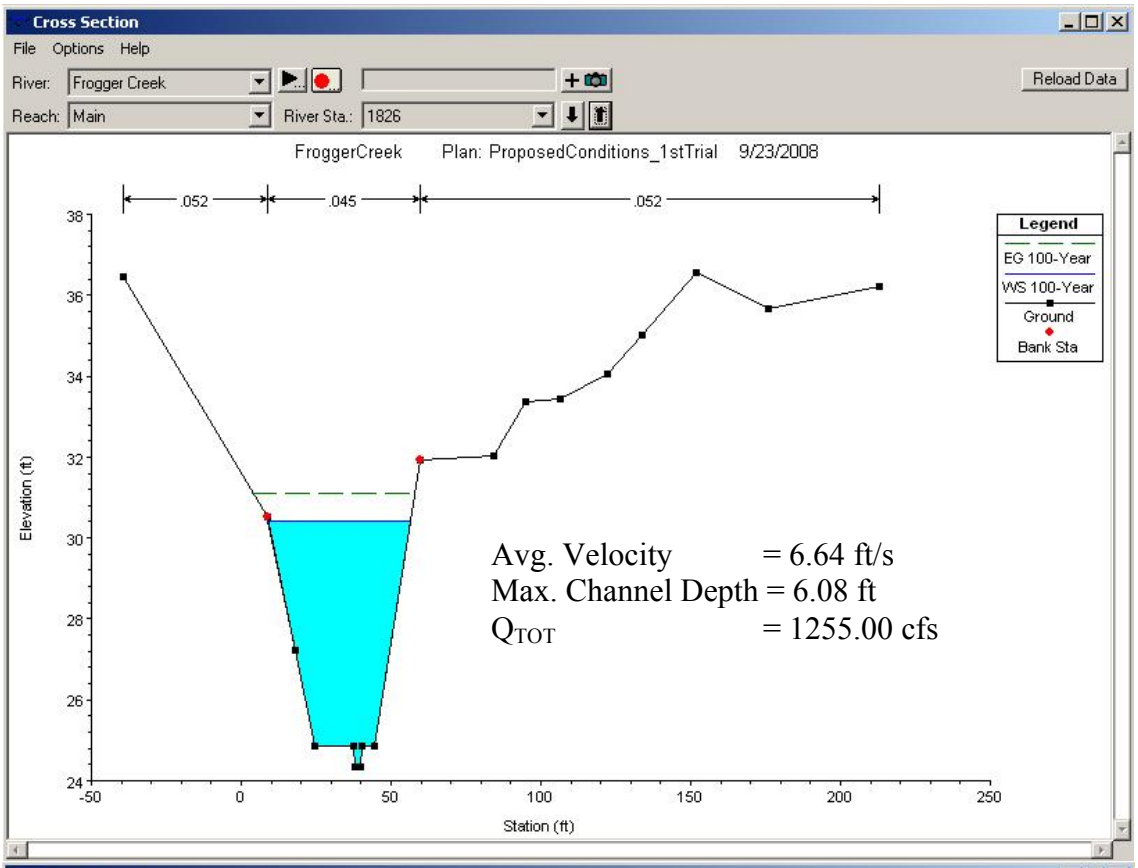

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 4.36 ft/s
Max. Channel Depth = 5.89 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

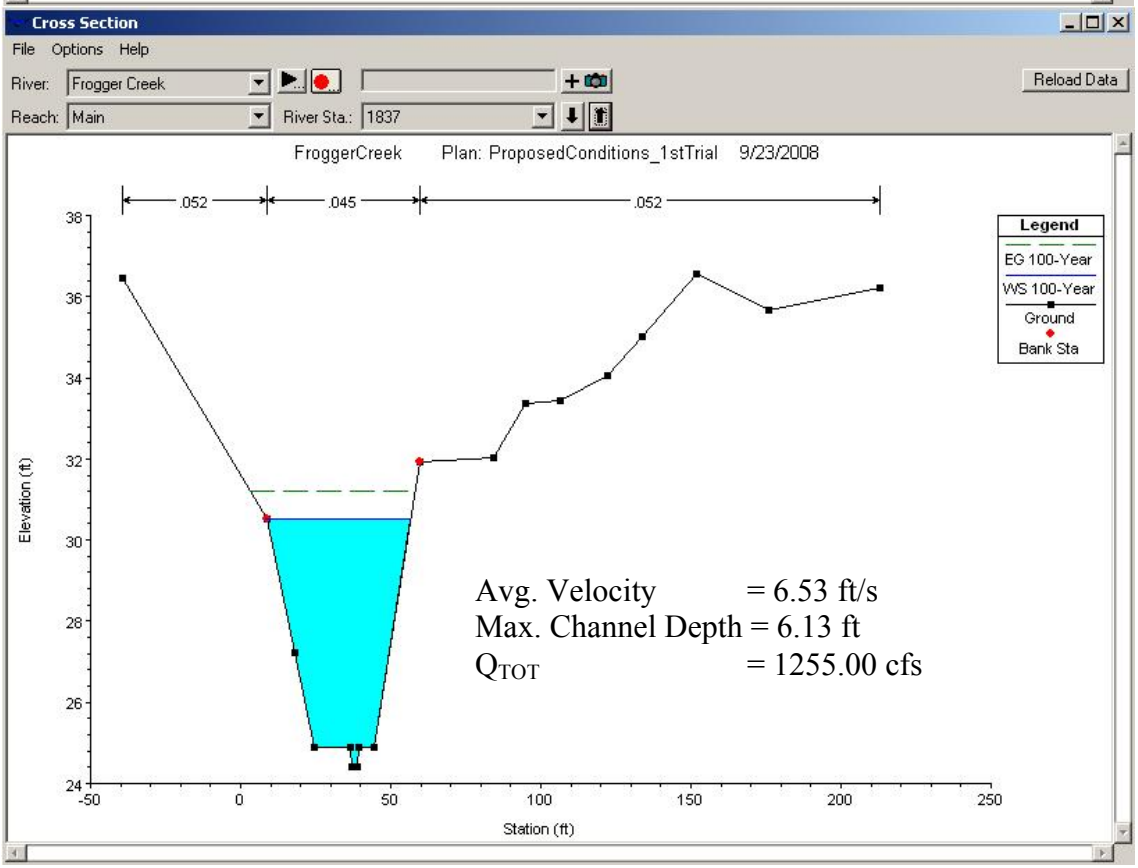

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.37 ft/s
Max. Channel Depth = 5.86 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

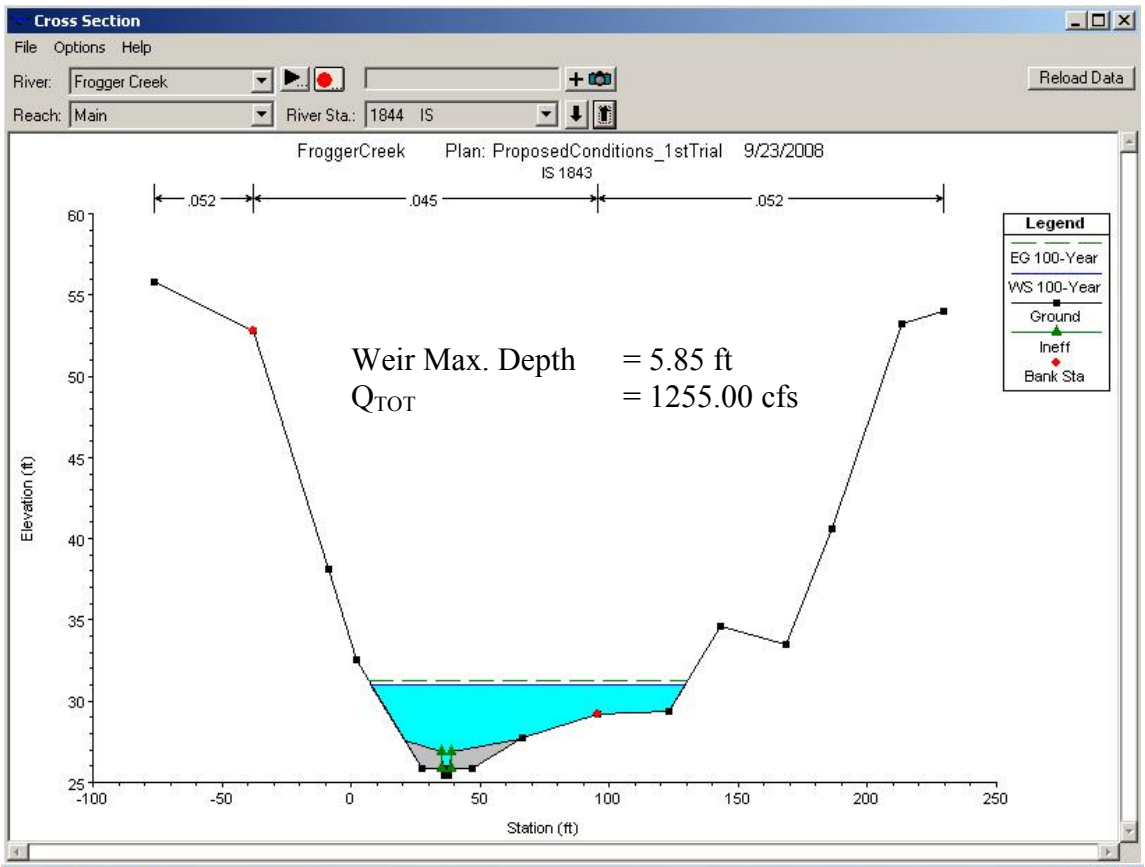

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.41 ft/s
Max. Channel Depth = 5.83 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

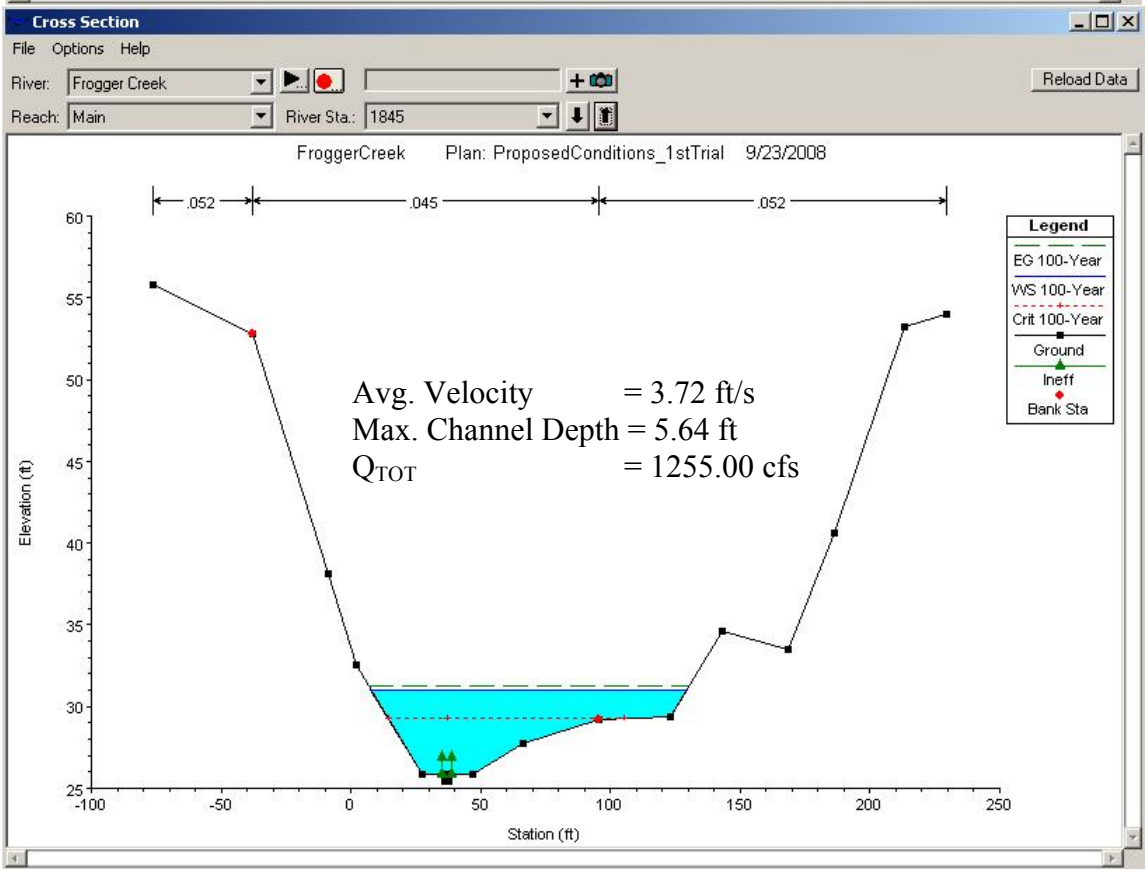

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 6.69 ft
Q_{TOT} = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

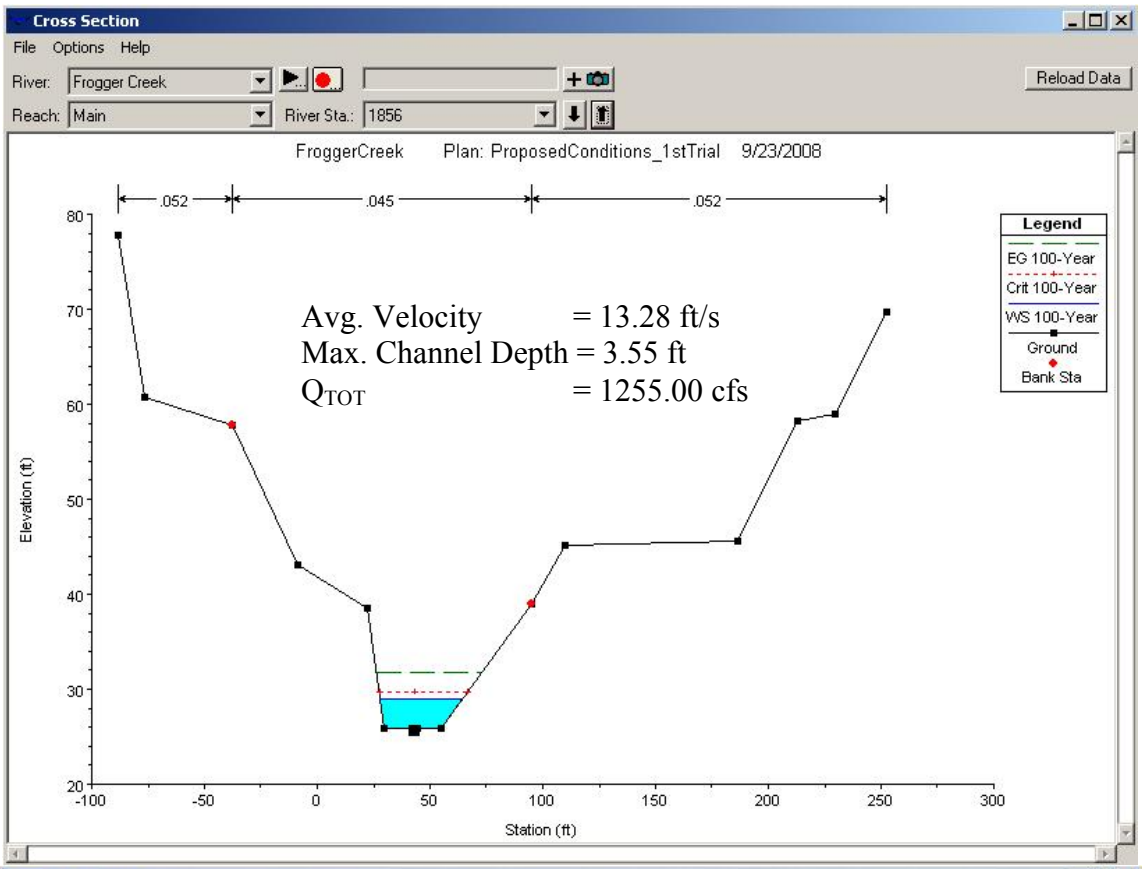

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Avg. Velocity = 5.47 ft/s
Max. Channel Depth = 6.22 ft
Q_{TOT} = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

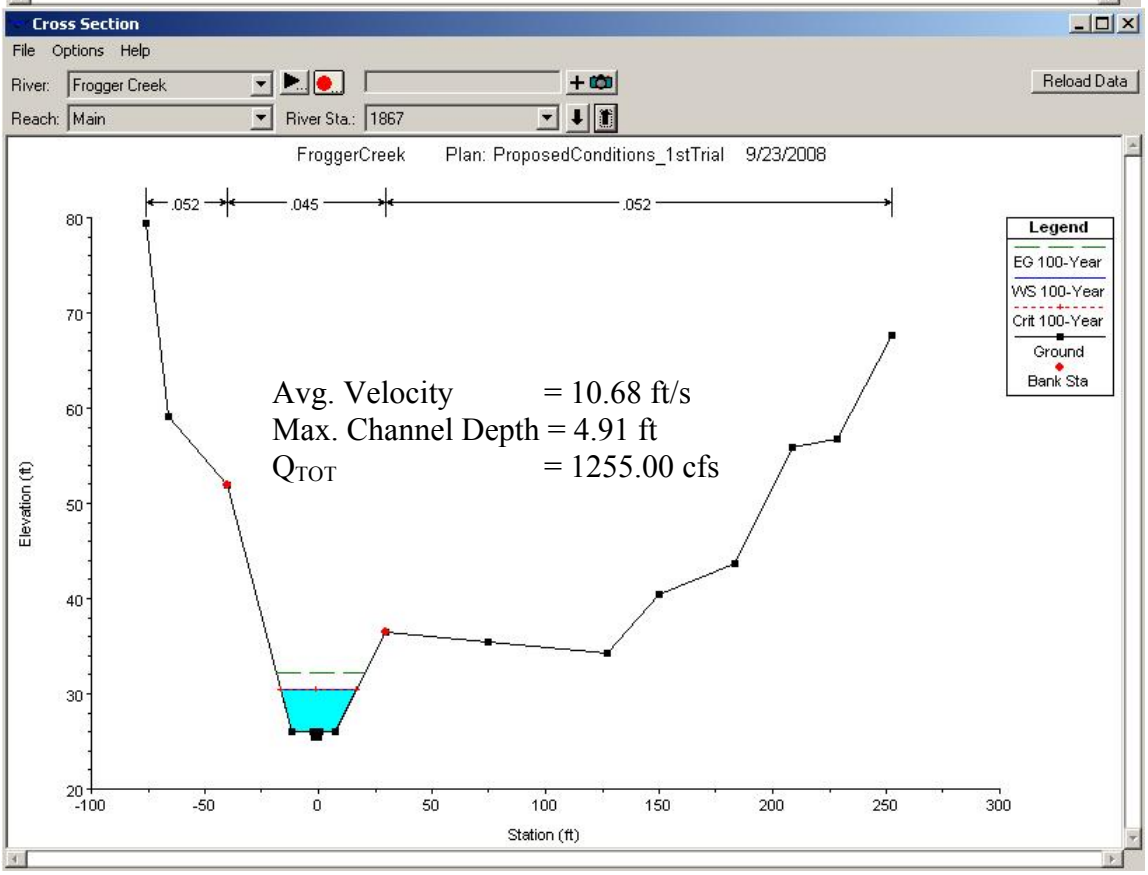

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 6.64 ft/s
Max. Channel Depth = 6.08 ft
Q_{TOT} = 1255.00 cfs

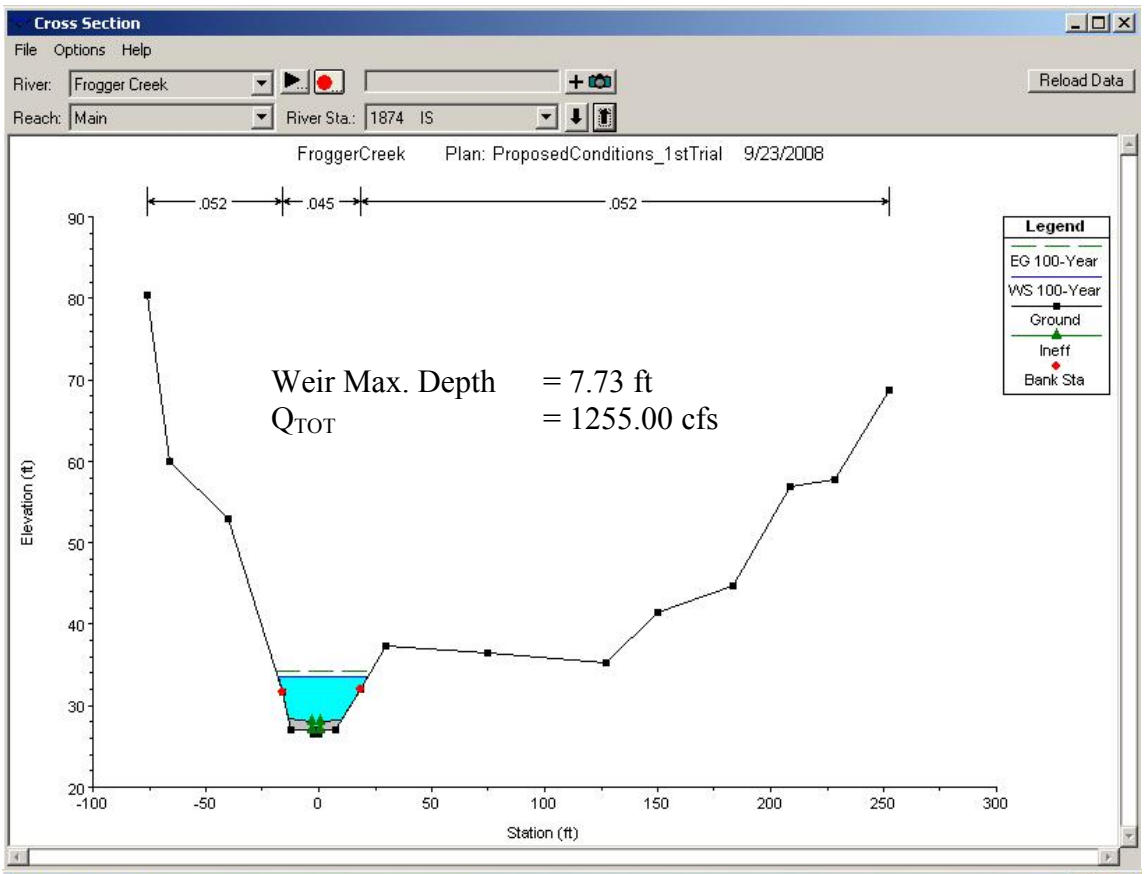

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 6.53 ft/s
Max. Channel Depth = 6.13 ft
Q_{TOT} = 1255.00 cfs

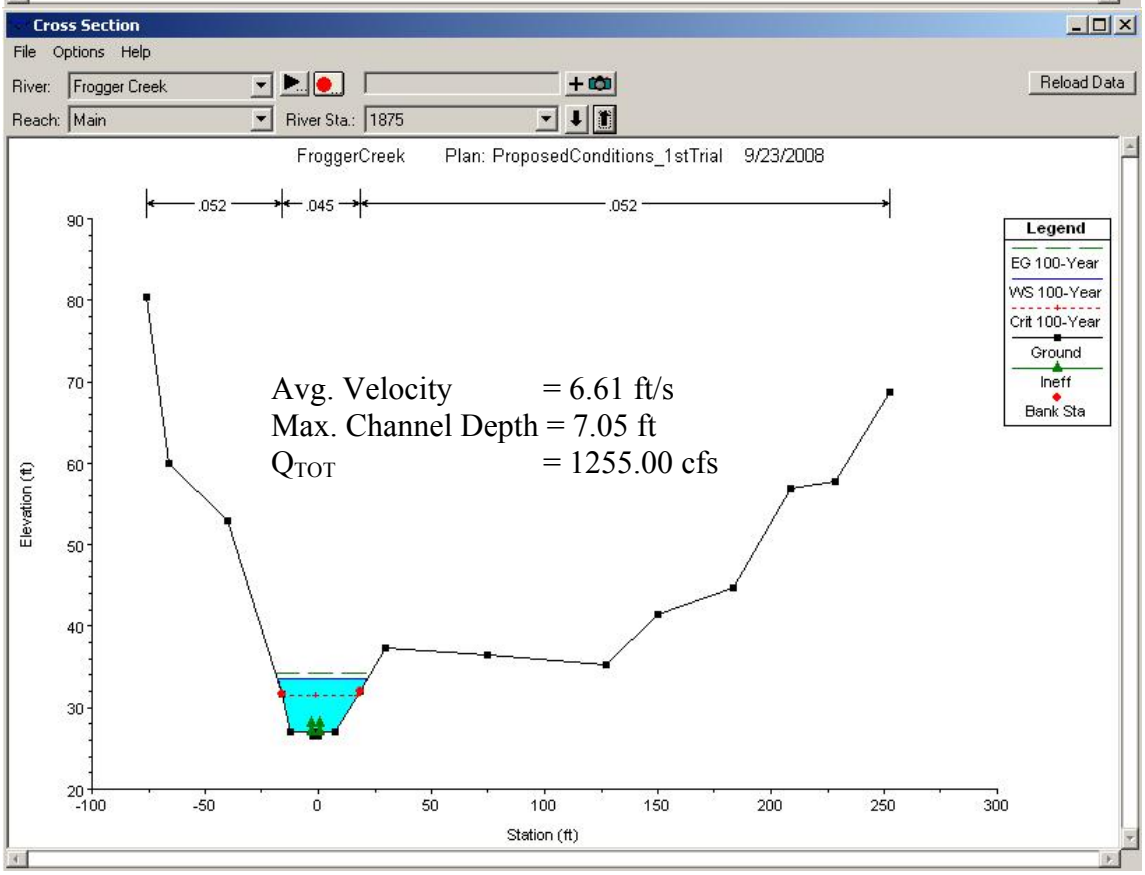

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
IS 1843
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 5.85 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

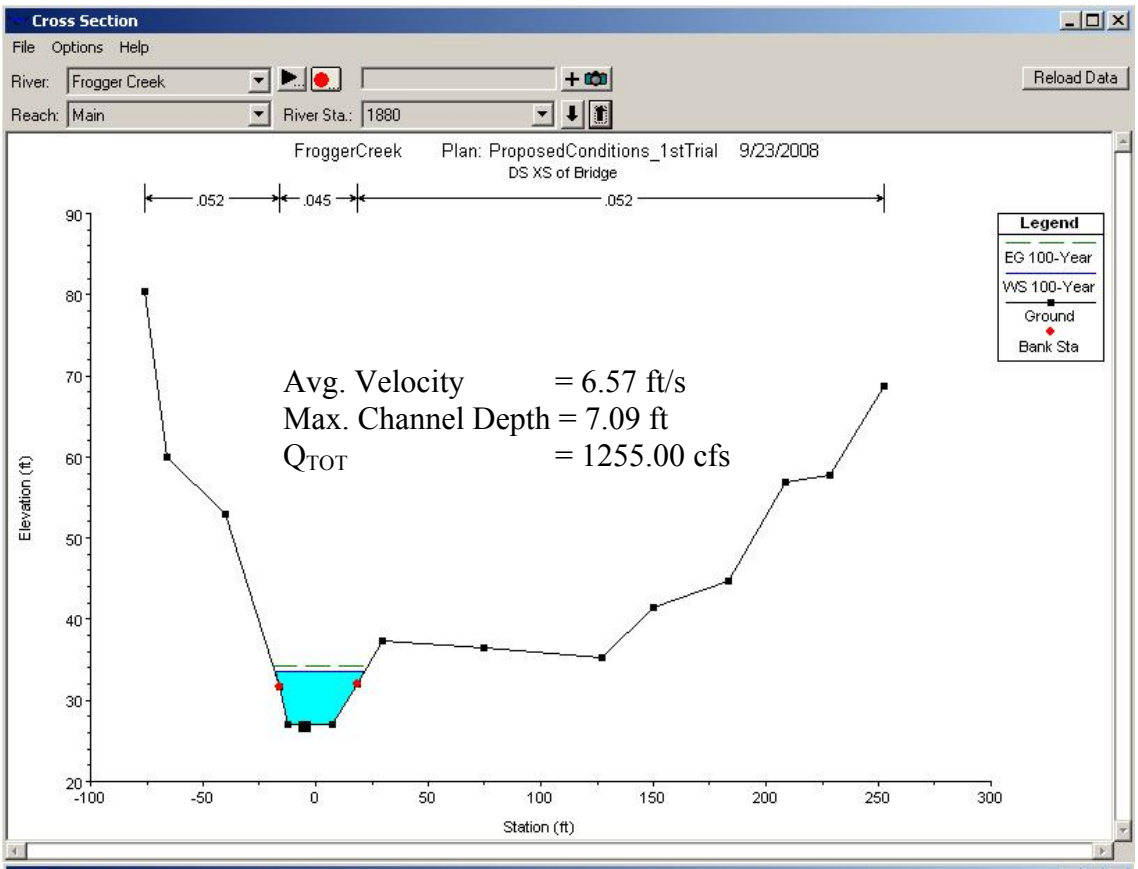

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.72 ft/s
Max. Channel Depth = 5.64 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

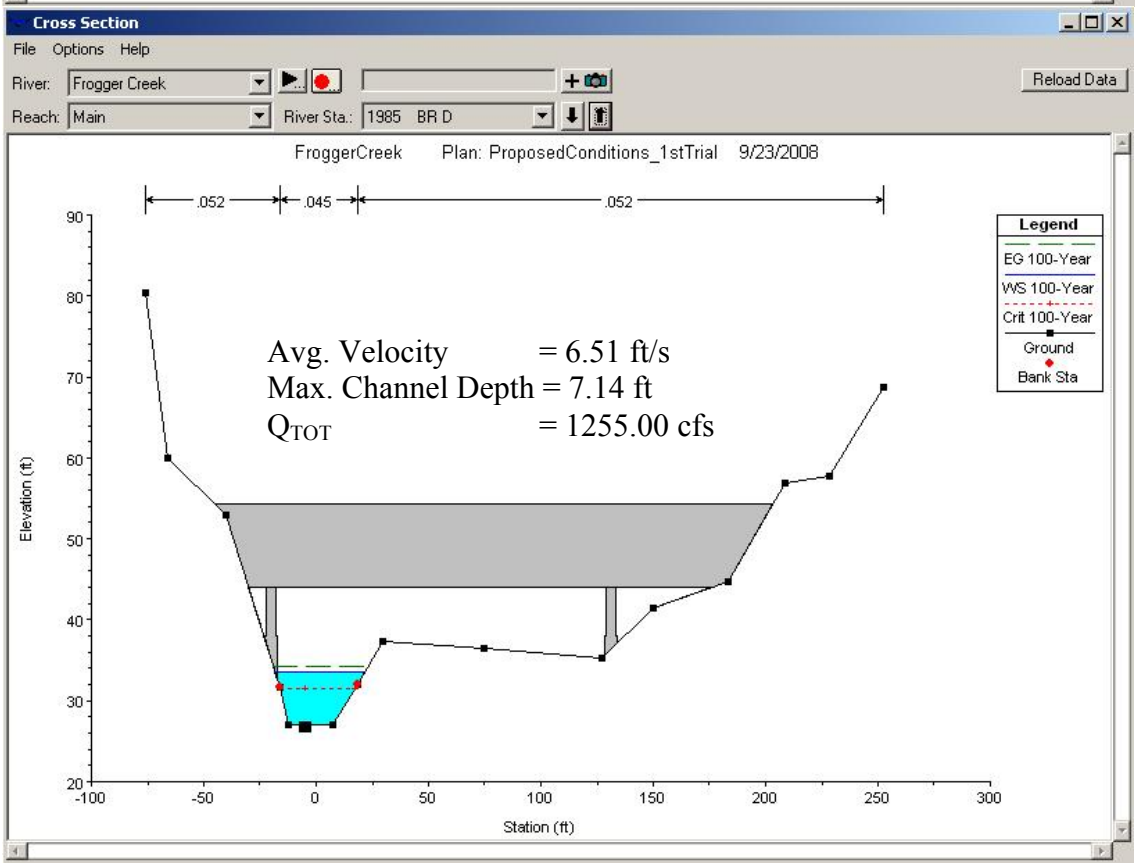

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 13.28 ft/s
Max. Channel Depth = 3.55 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

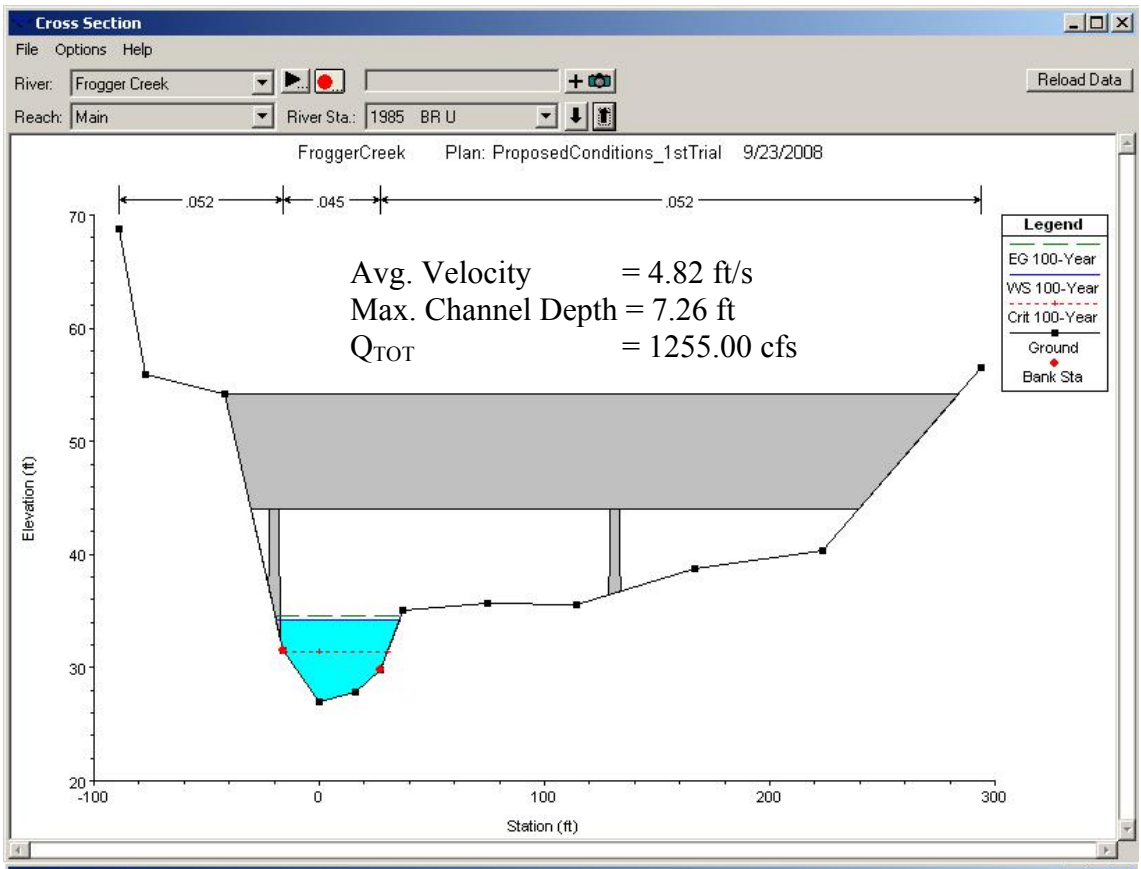

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 10.68 ft/s
Max. Channel Depth = 4.91 ft
QTOT = 1255.00 cfs
Elevation (ft)
Station (ft)

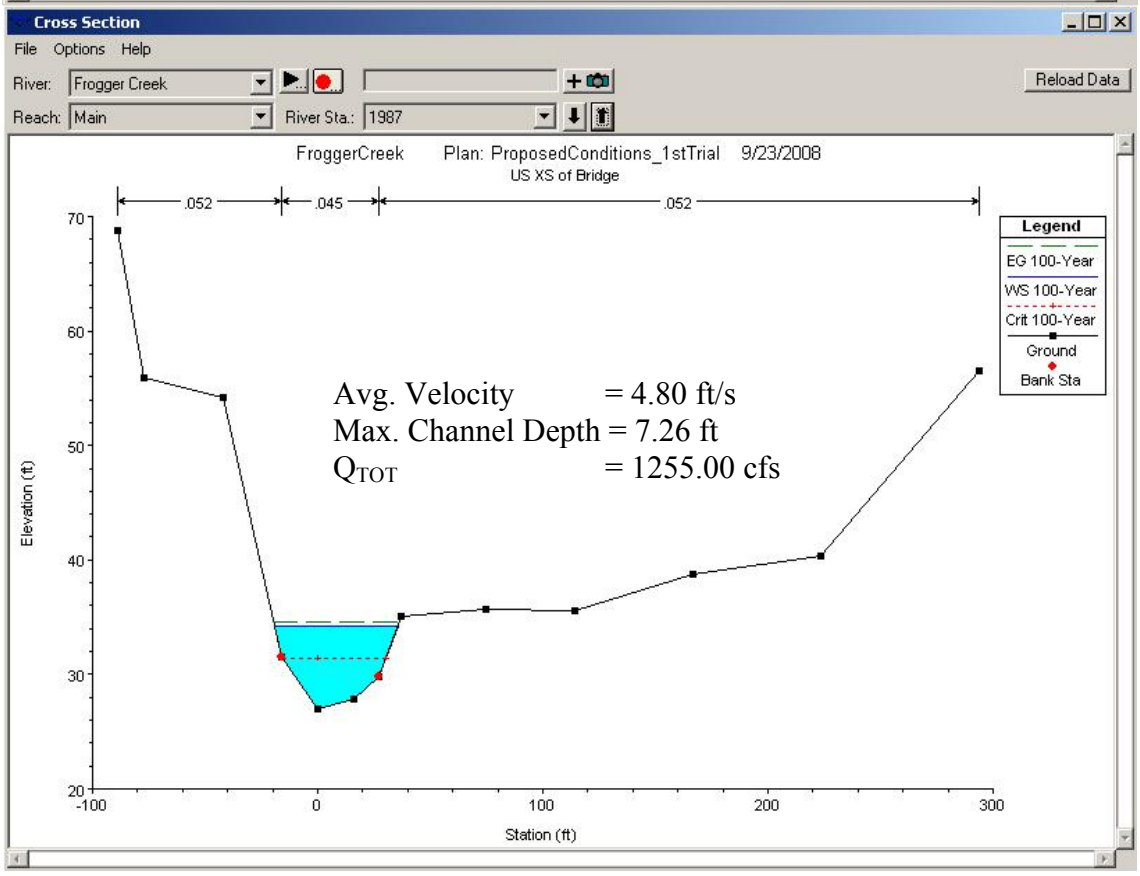

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 7.73 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 6.61 ft/s
Max. Channel Depth = 7.05 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
DS XS of Bridge
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.57 ft/s
Max. Channel Depth = 7.09 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 6.51 ft/s
Max. Channel Depth = 7.14 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

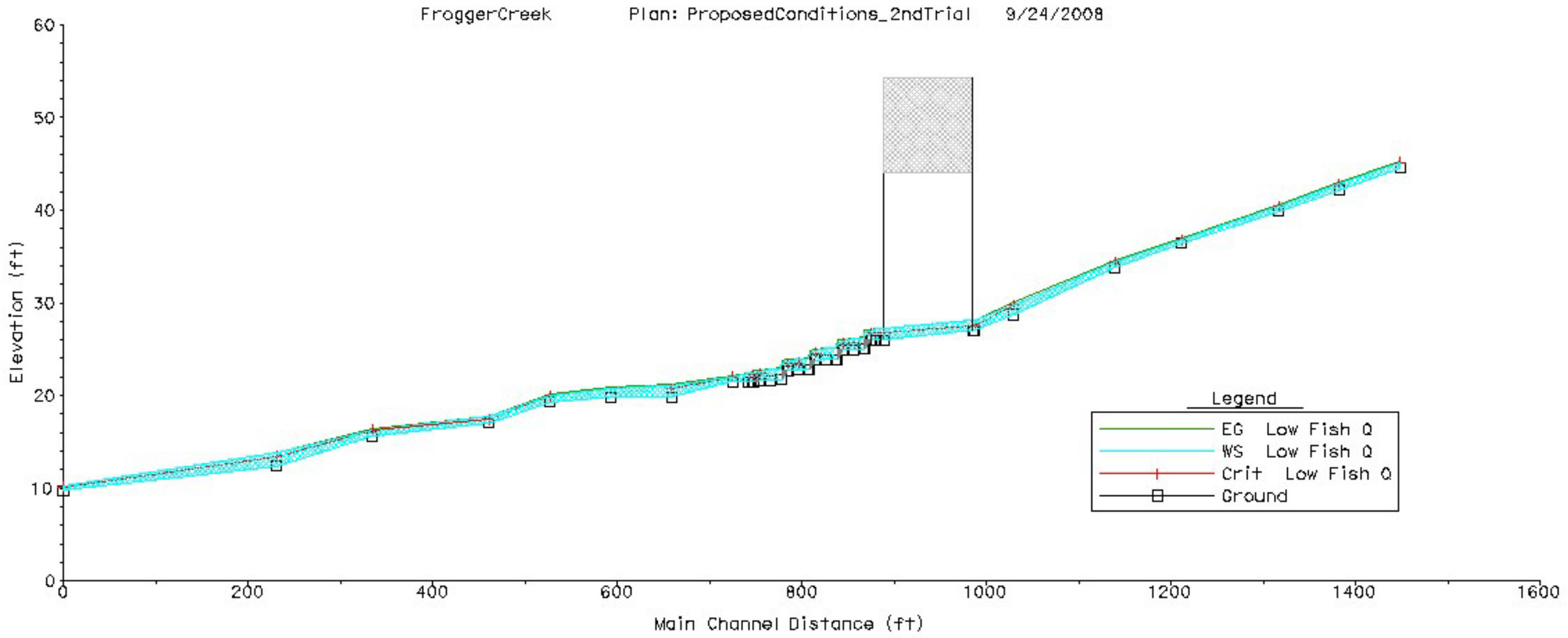

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
.052
.045
.052
Avg. Velocity = 4.82 ft/s
Max. Channel Depth = 7.26 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

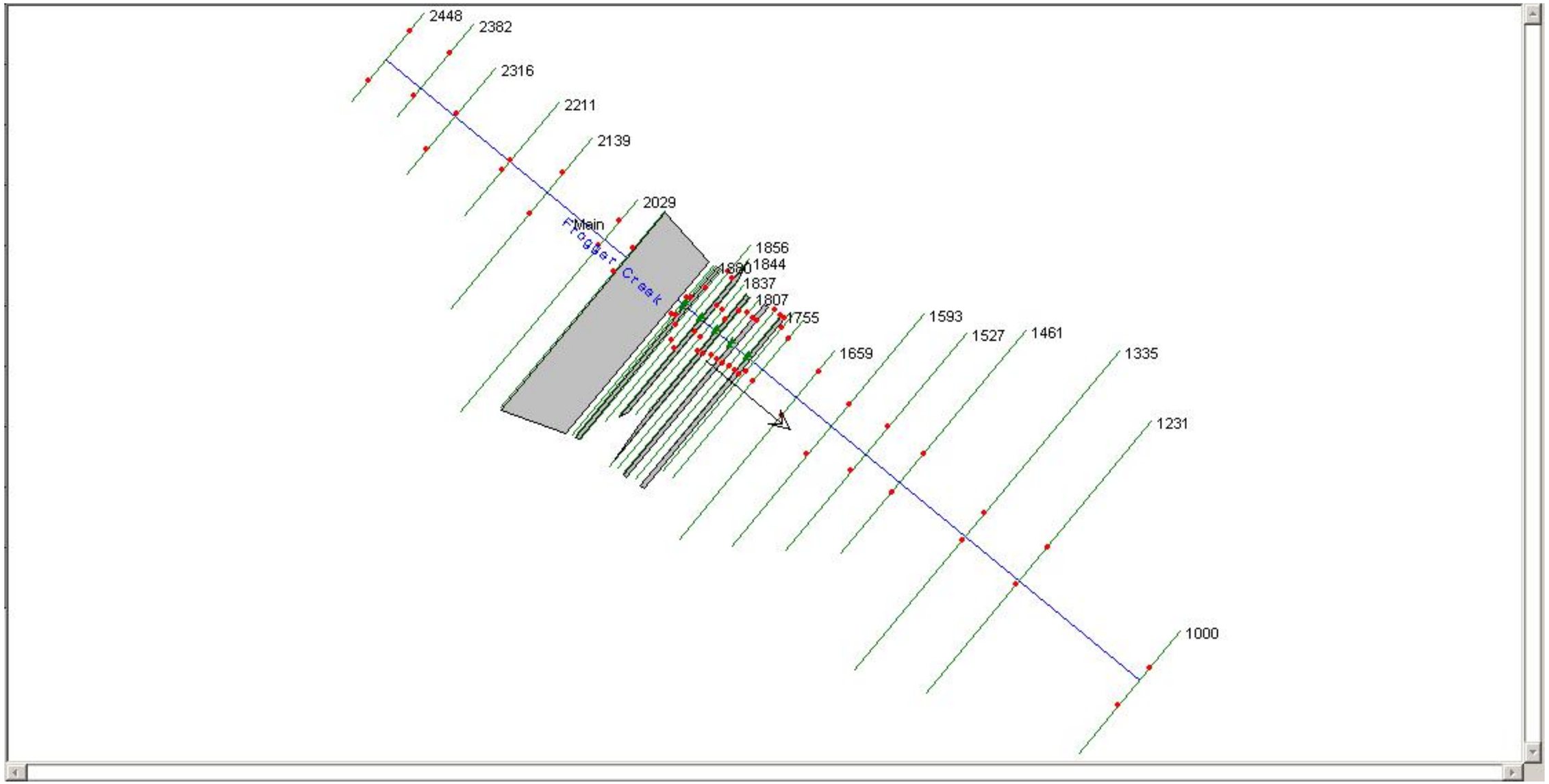

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_1stTrial 9/23/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 4.80 ft/s
Max. Channel Depth = 7.26 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

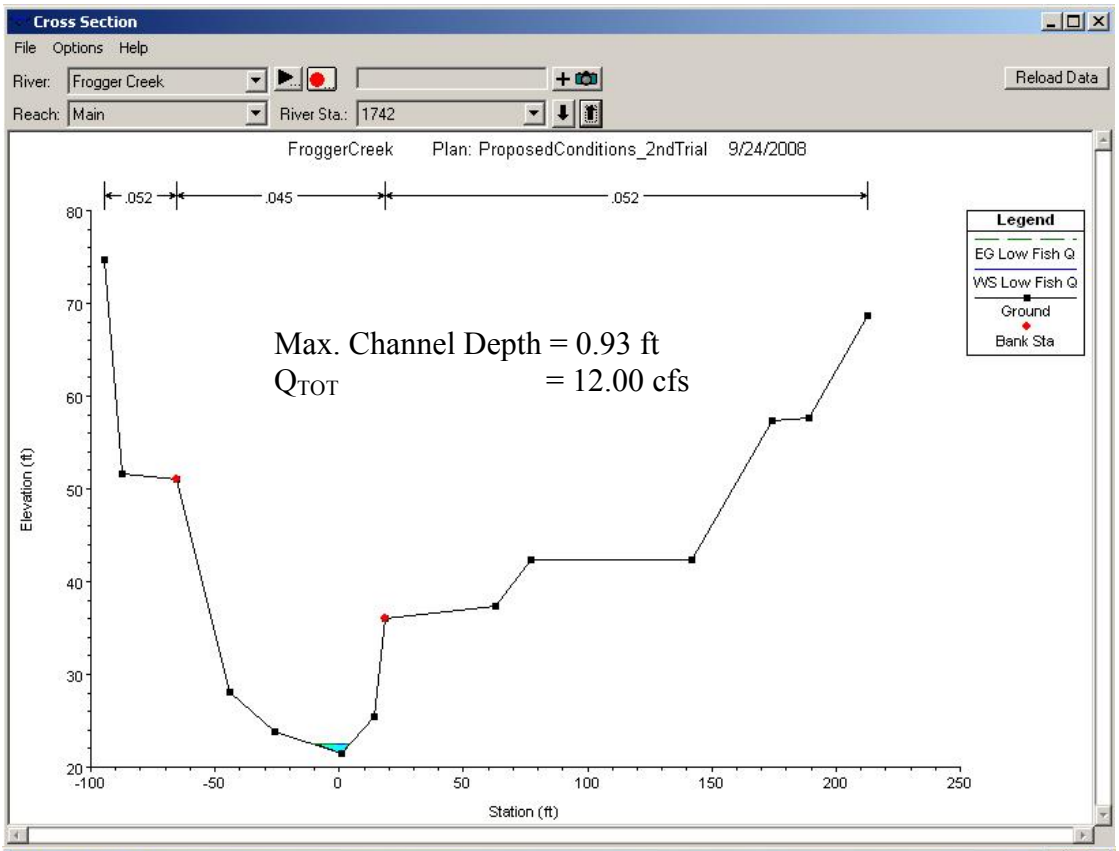
PROPOSED DESIGN (2ND TRIAL)

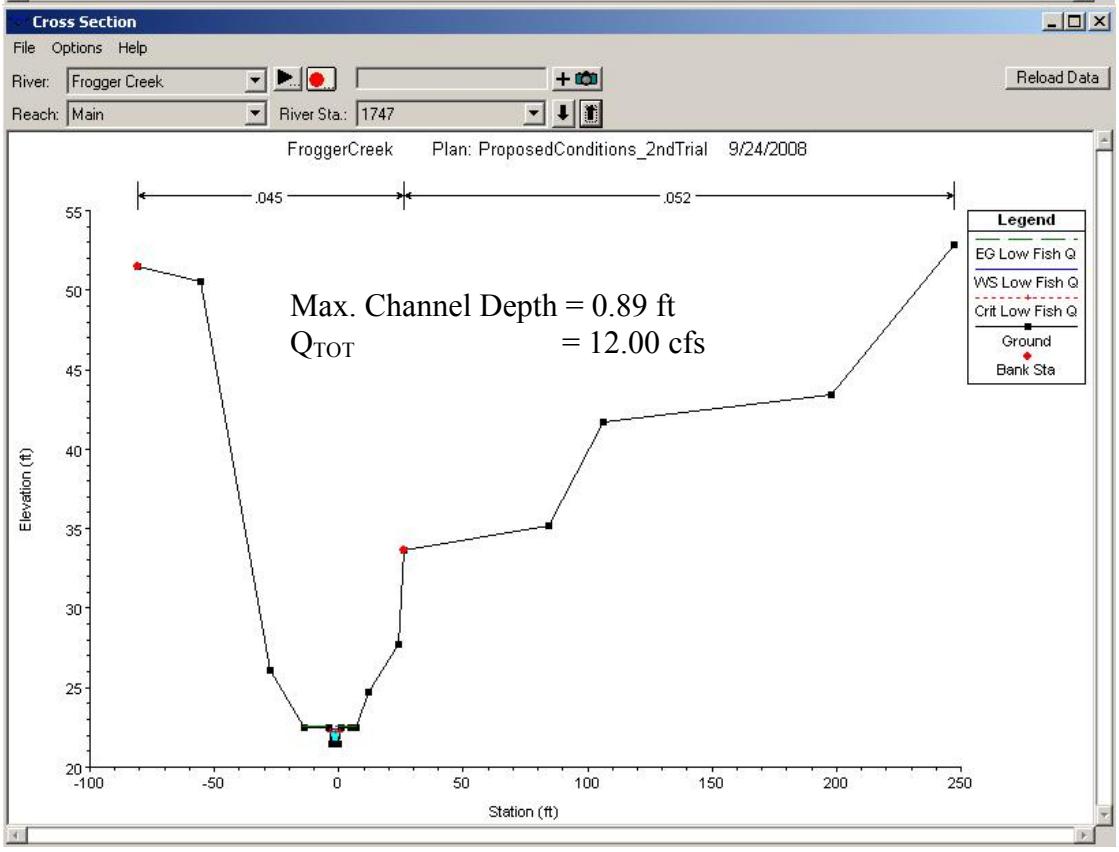
PROPOSED DESIGN (2ND TRIAL)

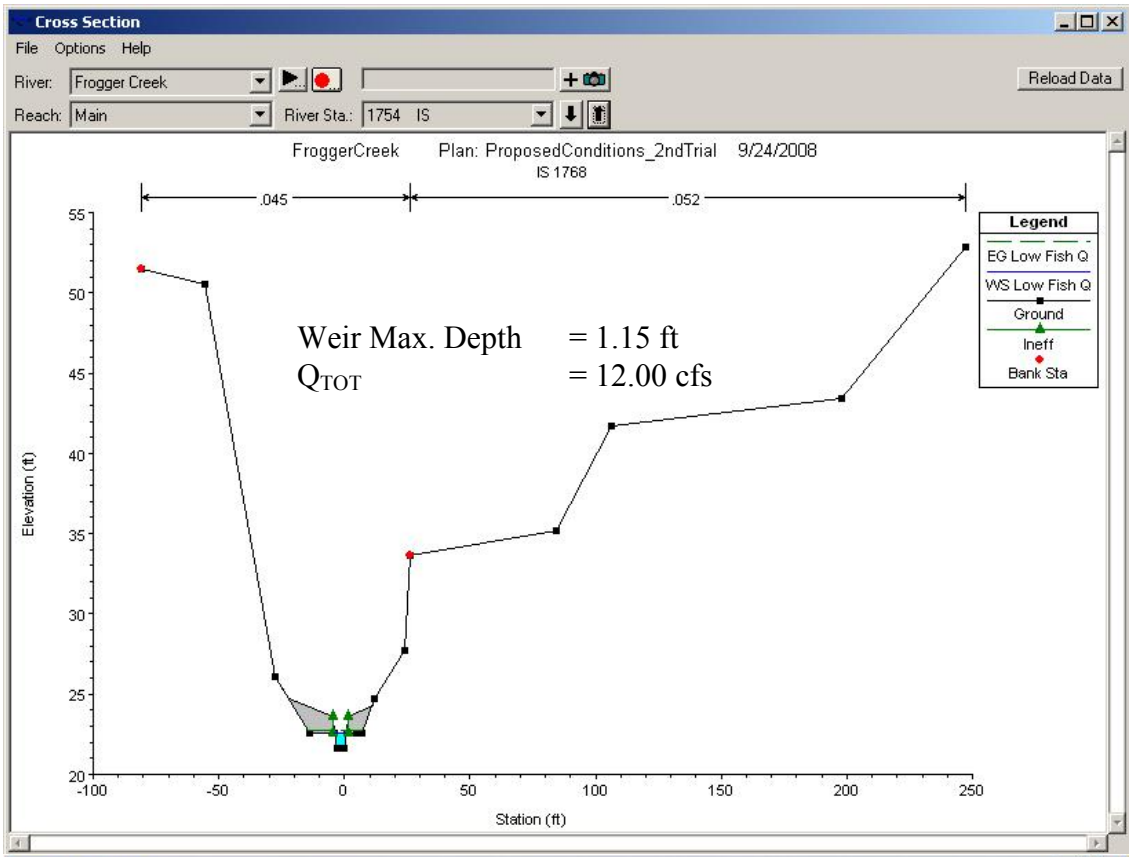
LOW FLOW FISH PASSAGE RESULTS

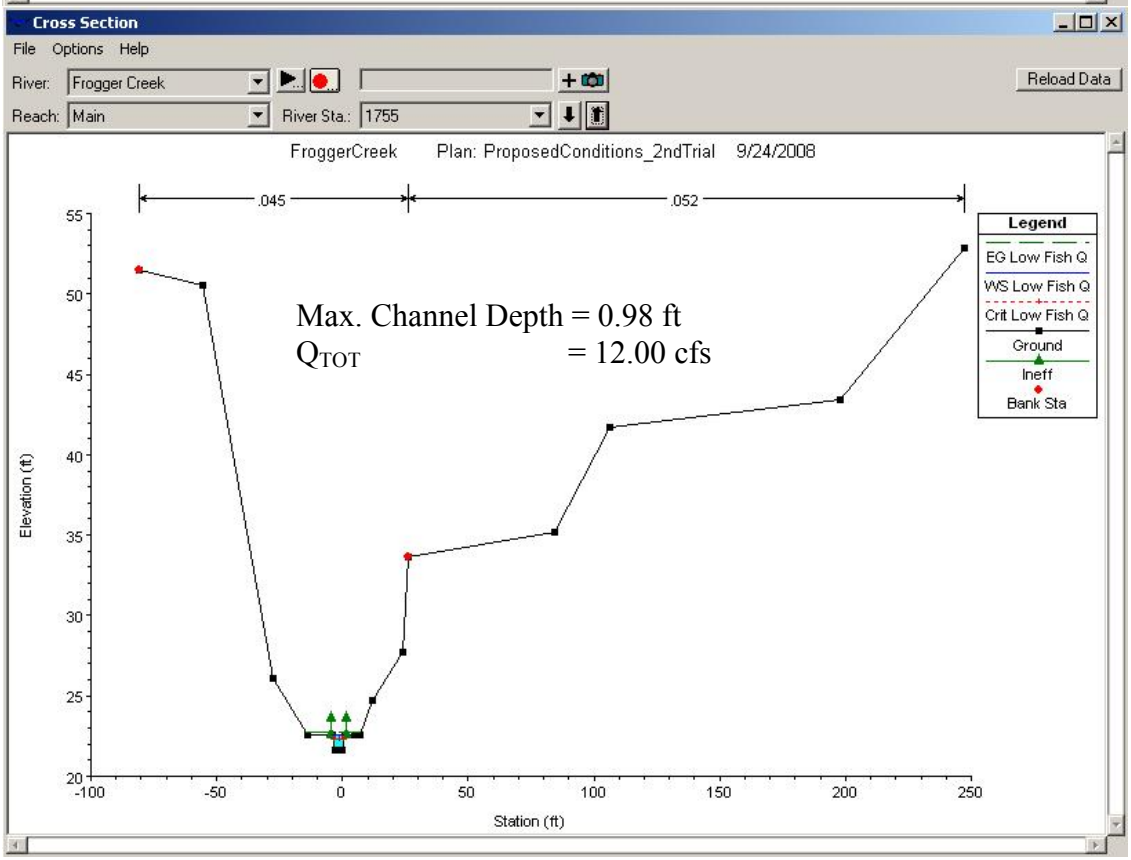

FroggerCreek
Plan: ProposedConditions_2ndTrial
9/24/2008
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
0
200
400
600
800
1000
1200
1400
1600
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground

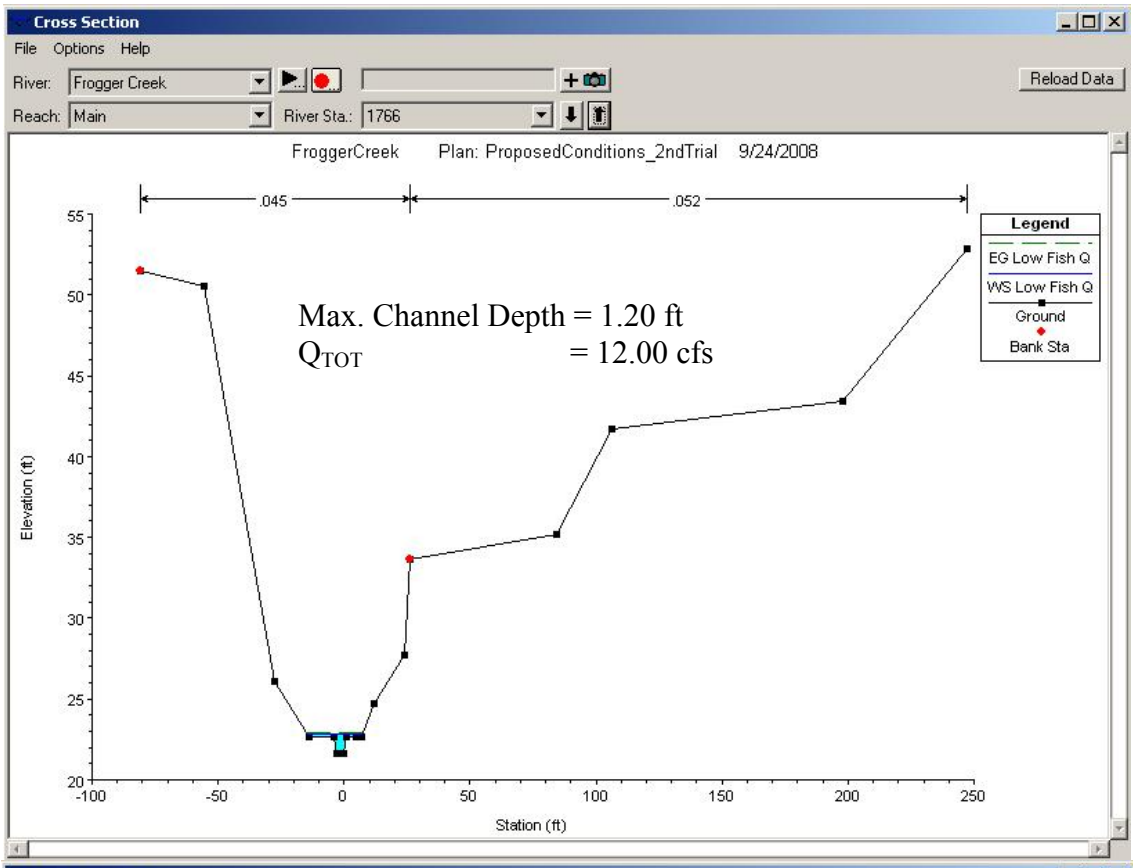

2448
2382
2316
2211
2139
2029
Main
Flagger Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

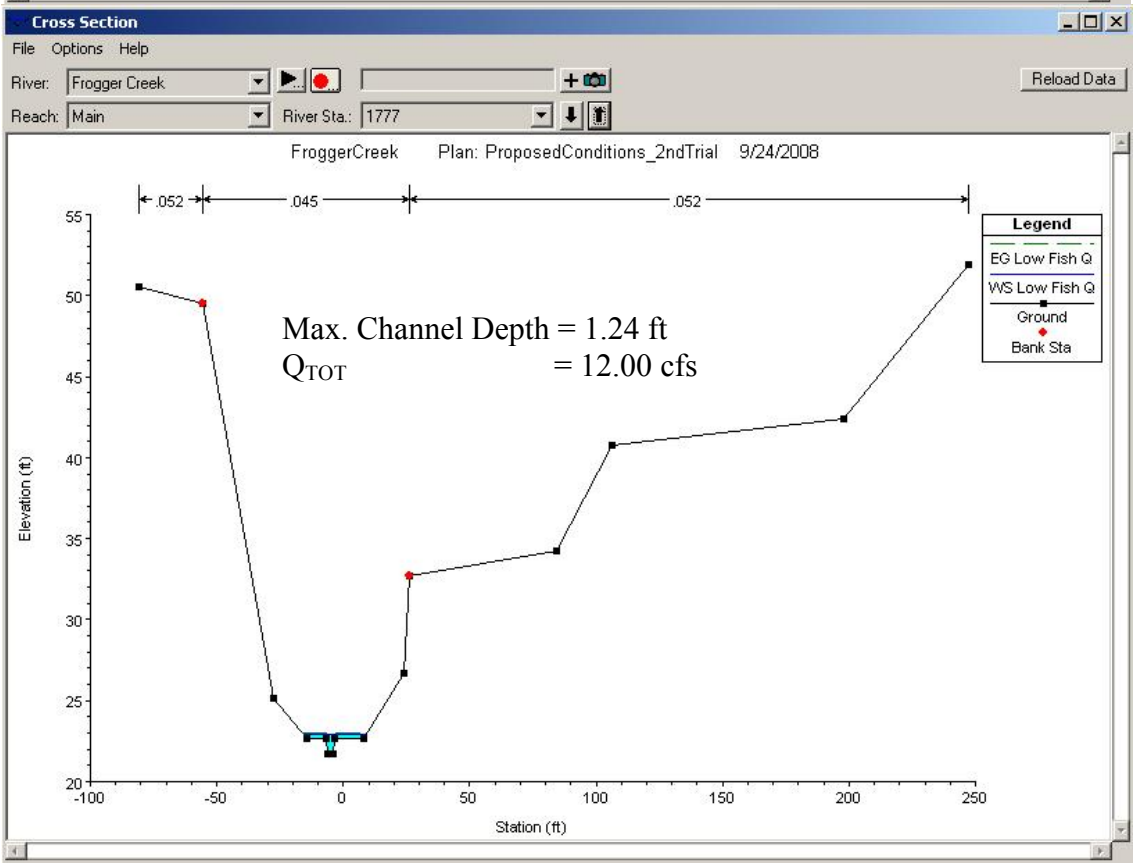

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.93 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

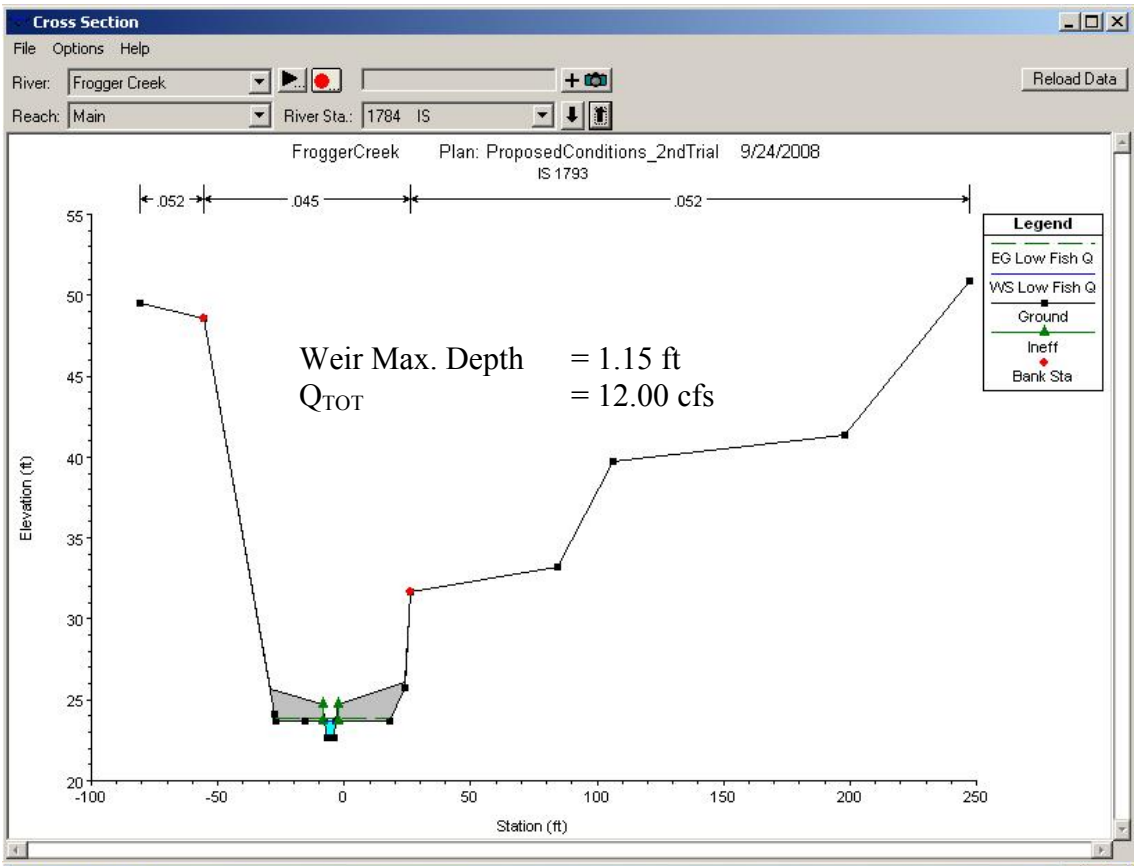

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 0.89 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

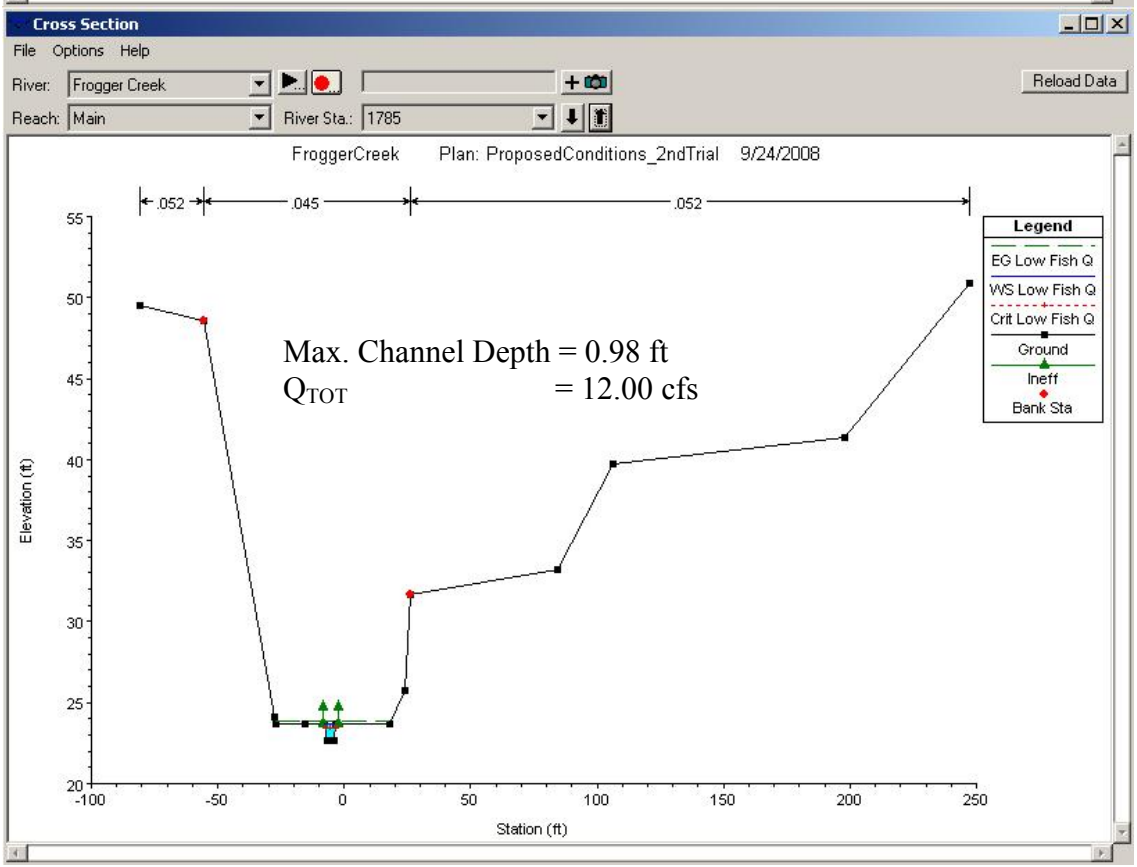

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1768
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.15 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

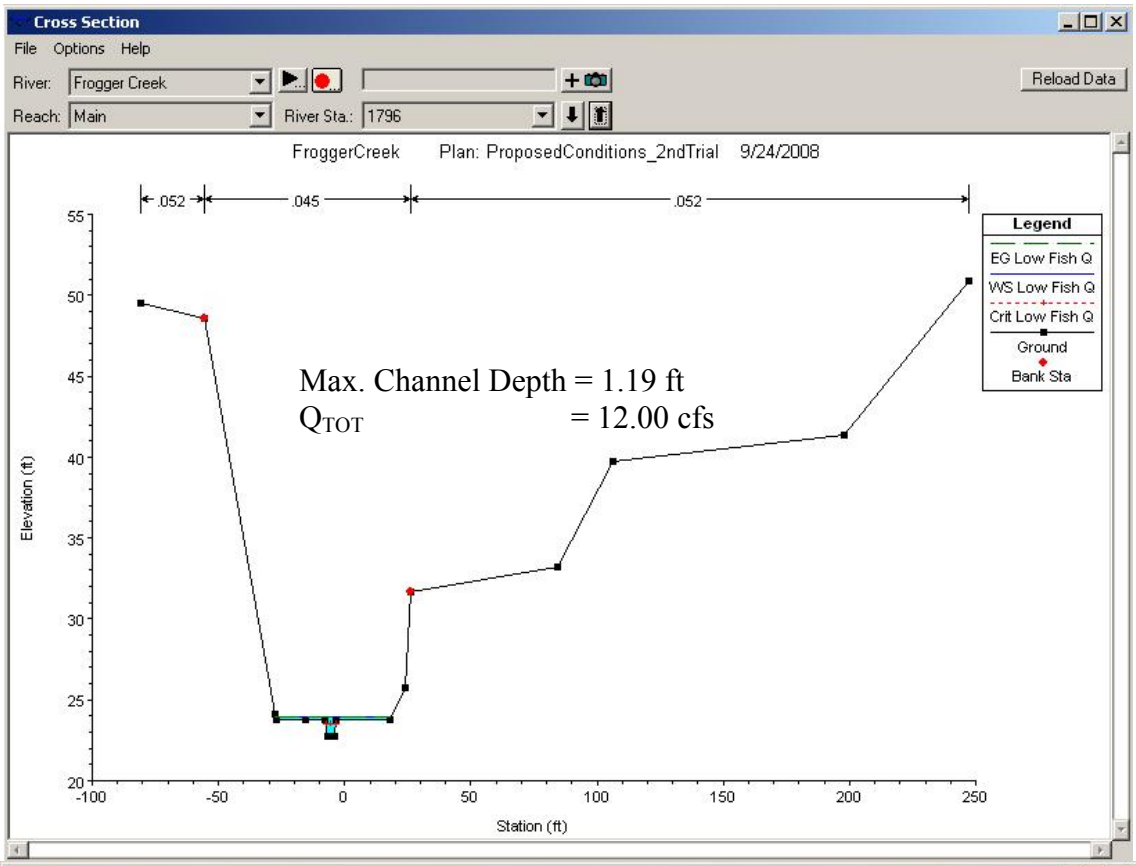

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 0.98 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

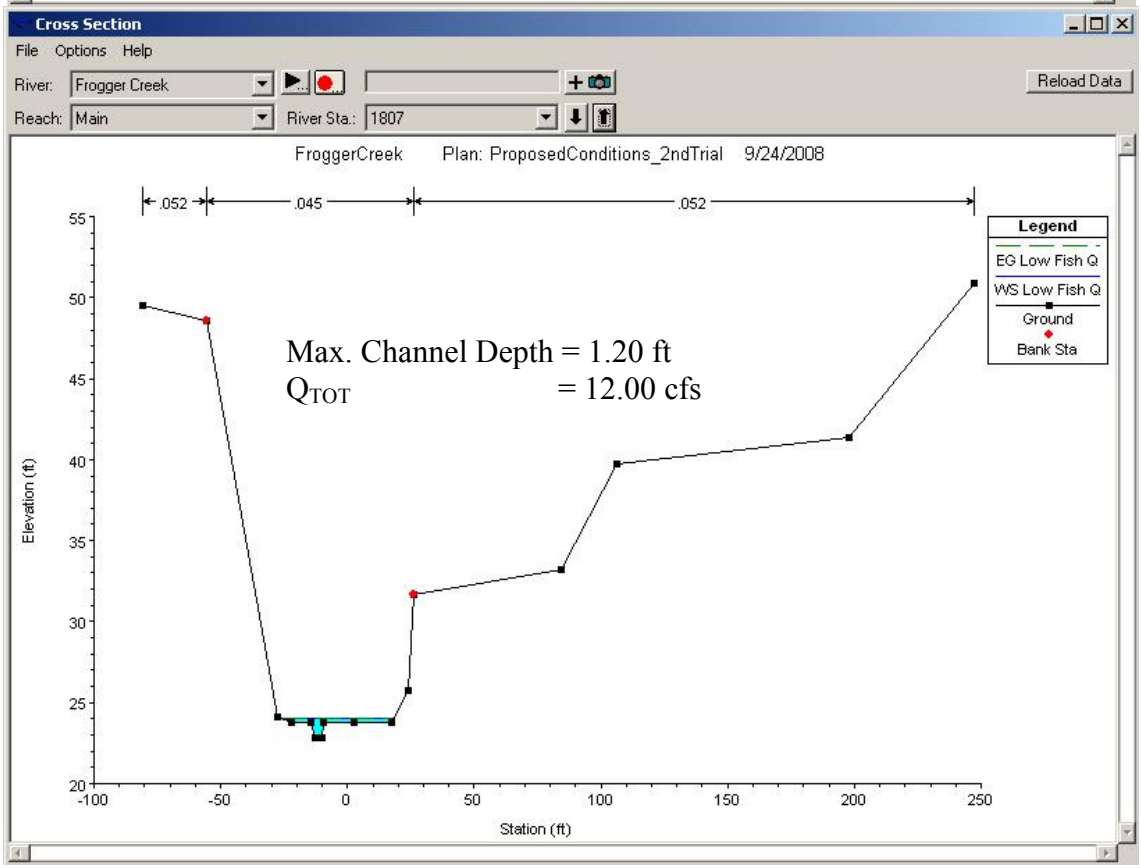

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.20 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

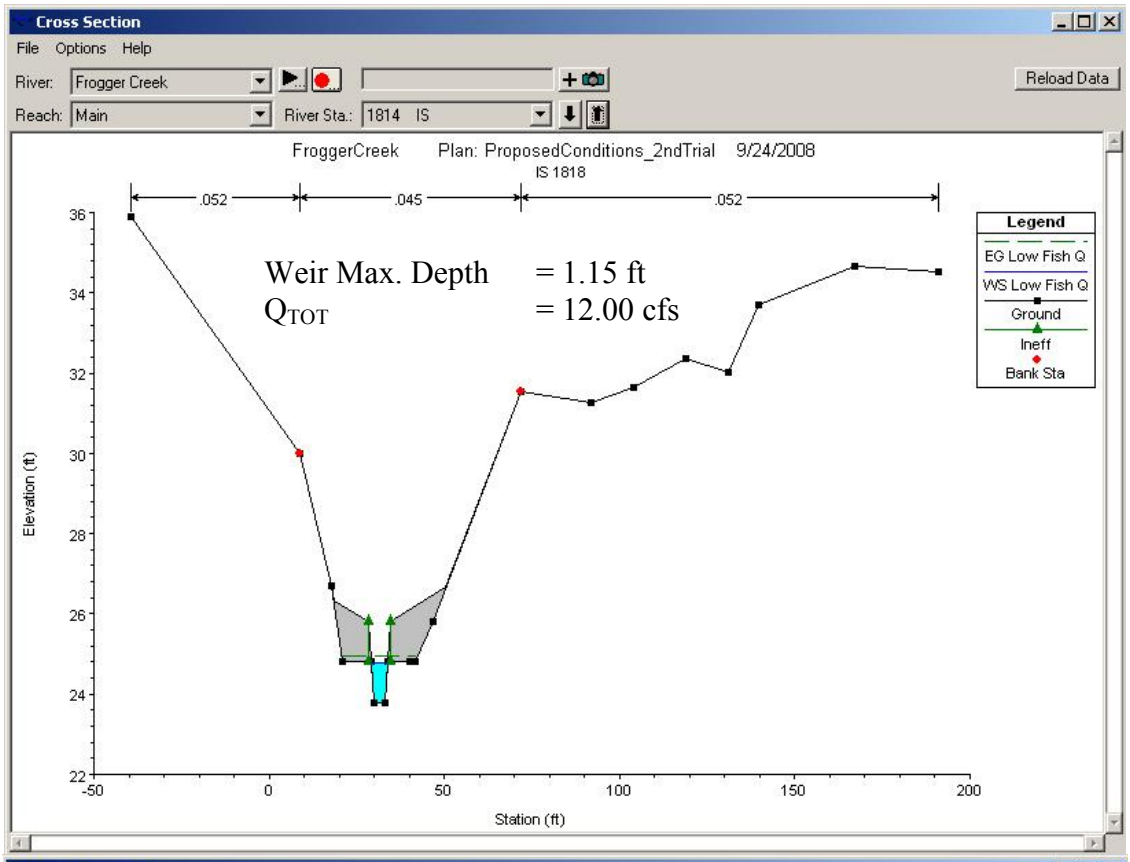

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.24 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

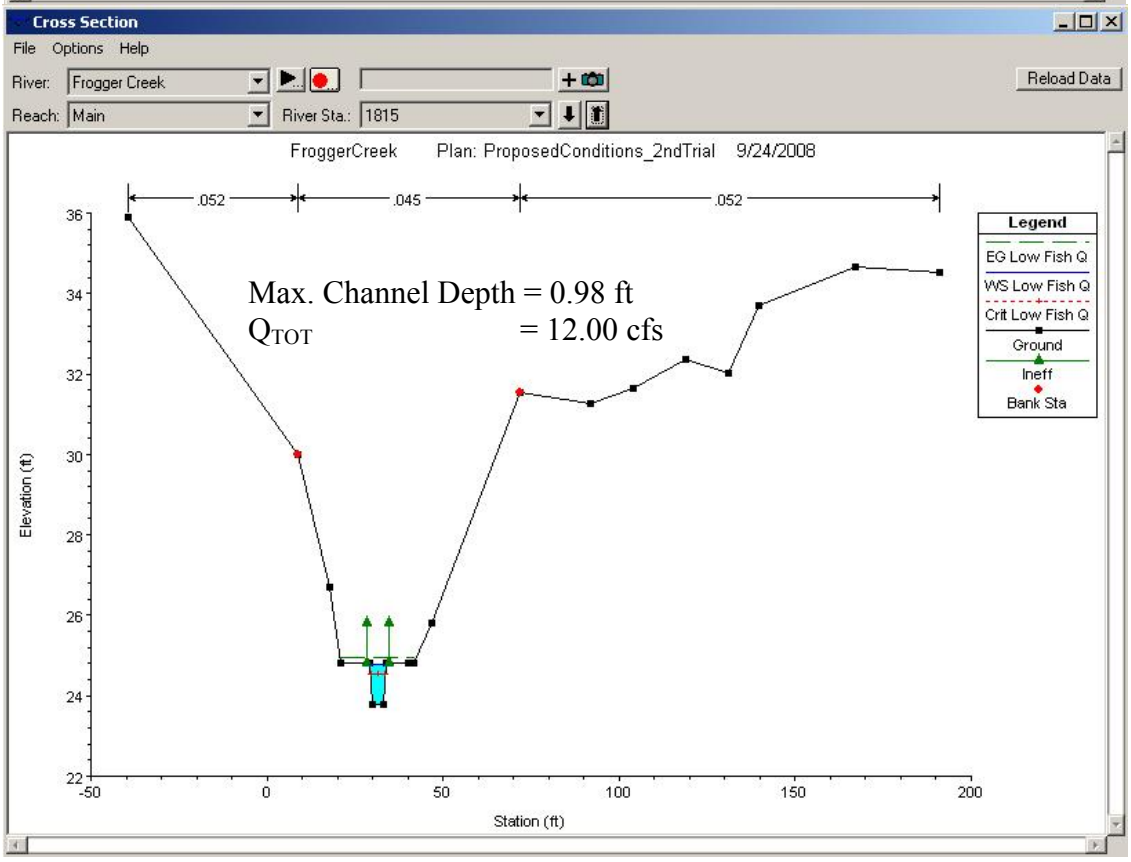

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1793
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.15 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

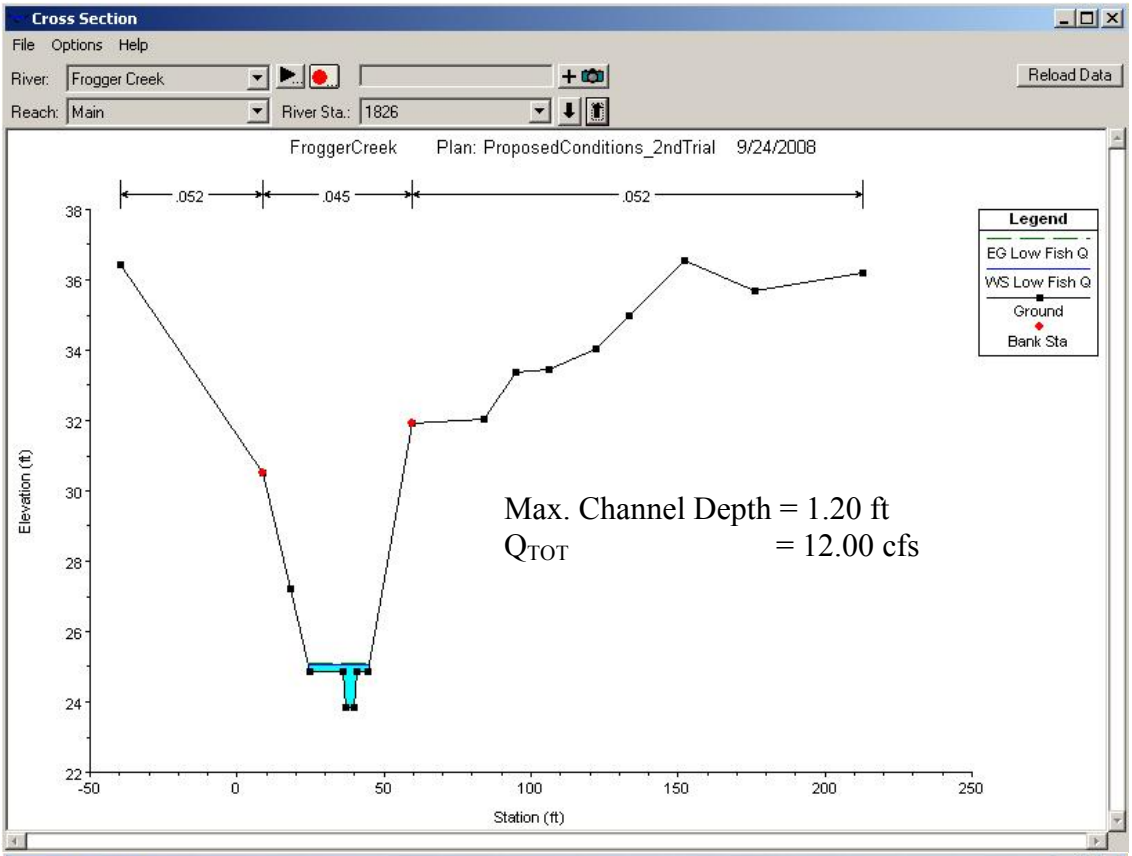

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 0.98 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

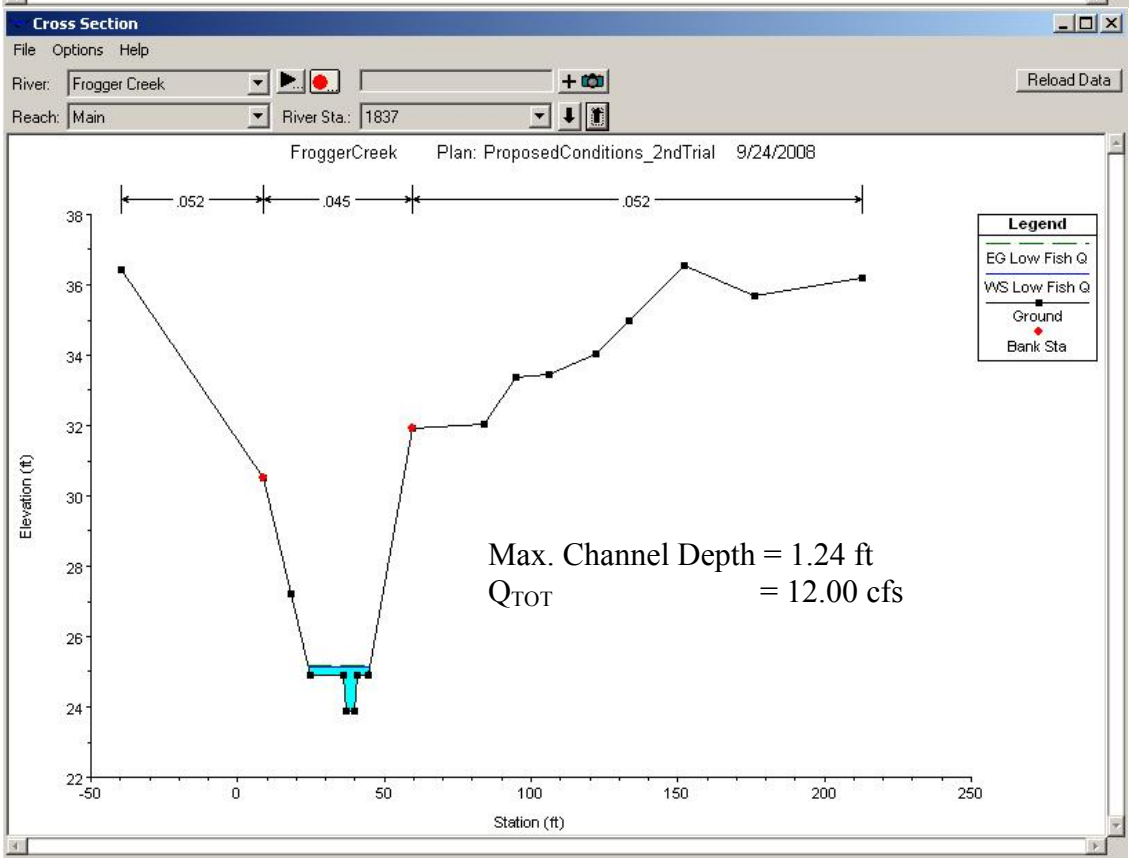

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.19 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

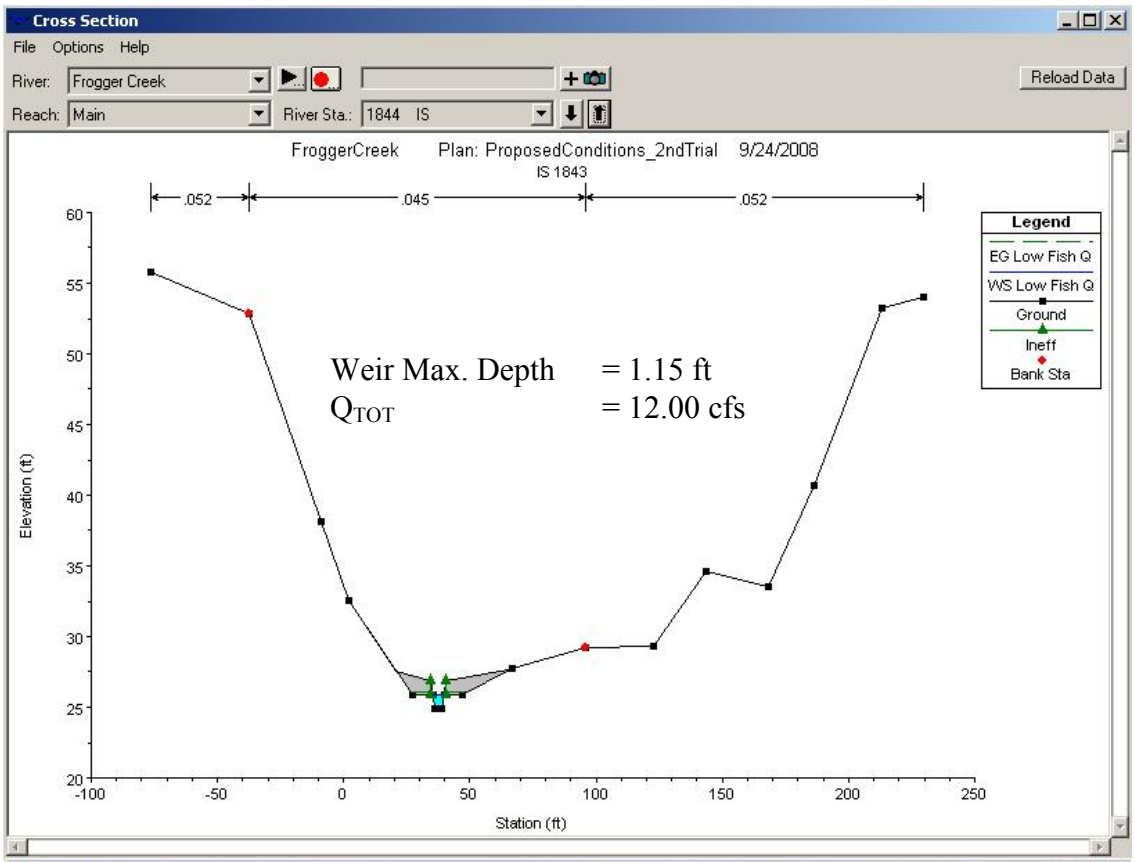

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.20 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

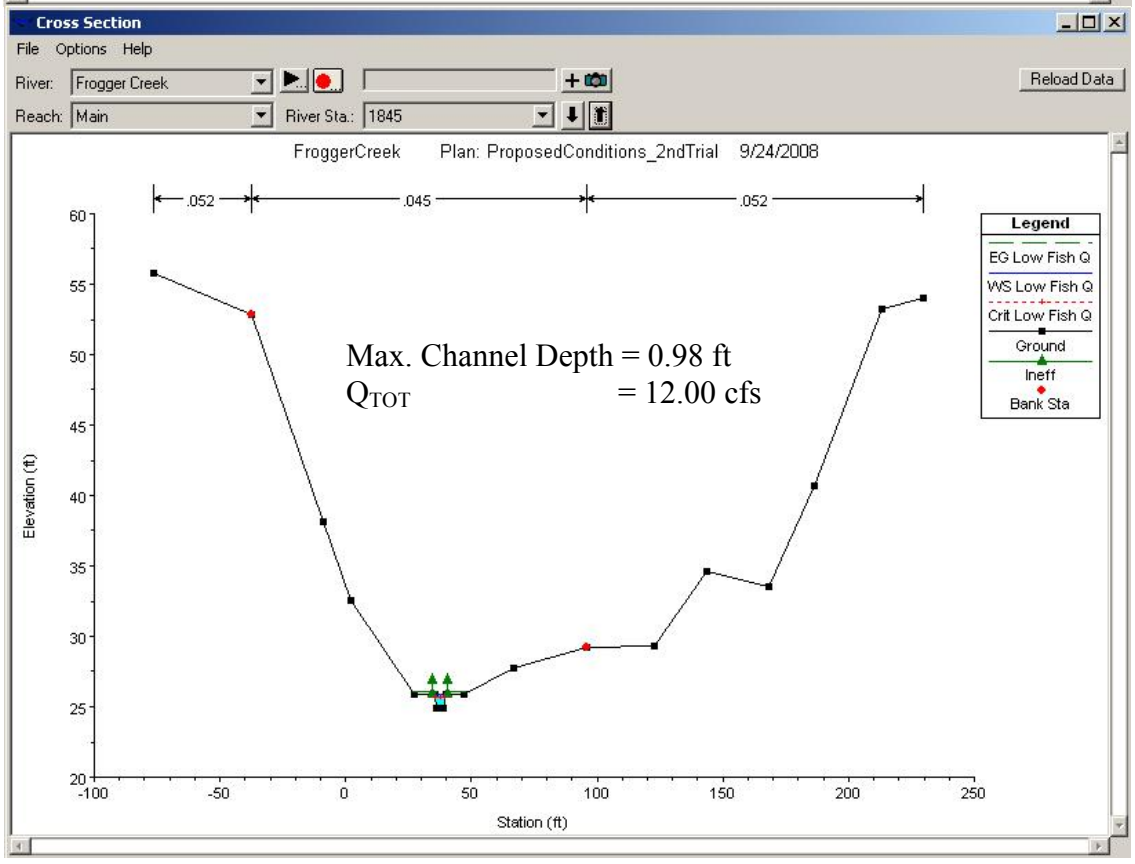

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 1.15 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

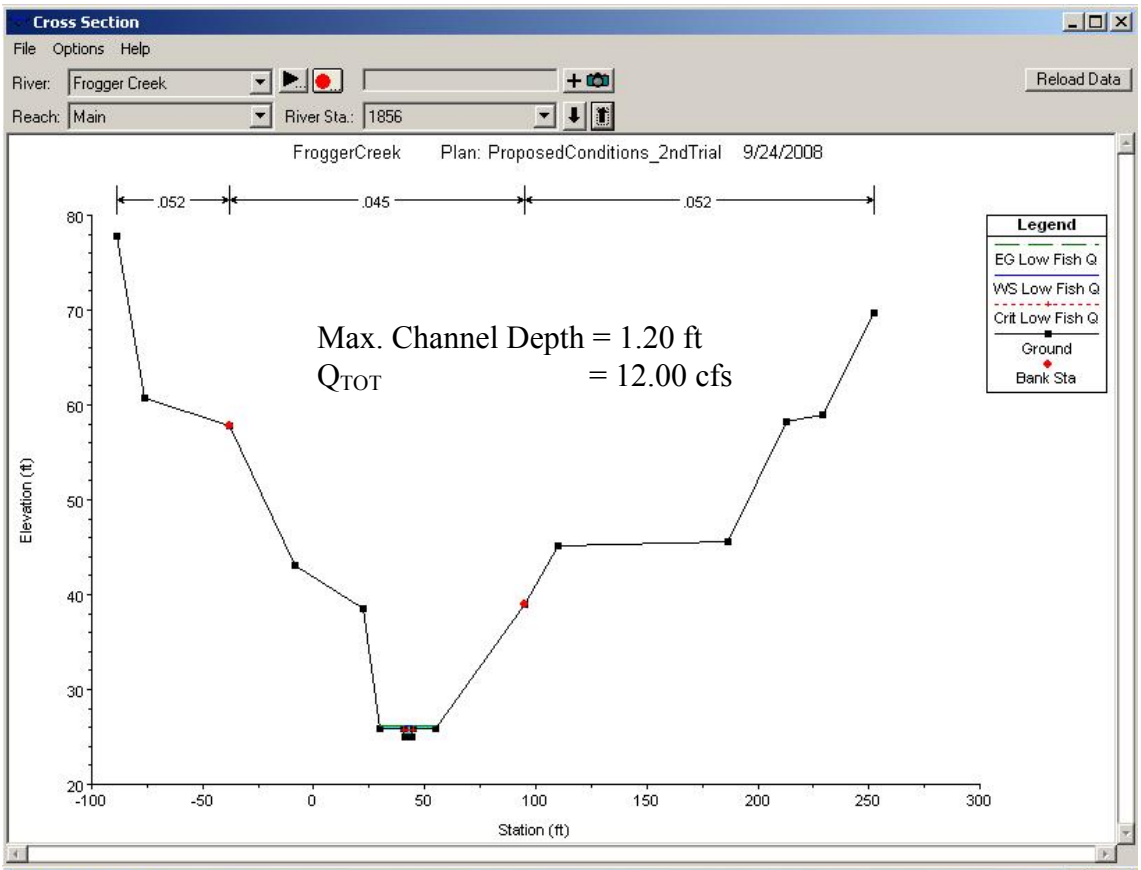

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Max. Channel Depth = 0.98 ft
Q_{TOT} = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

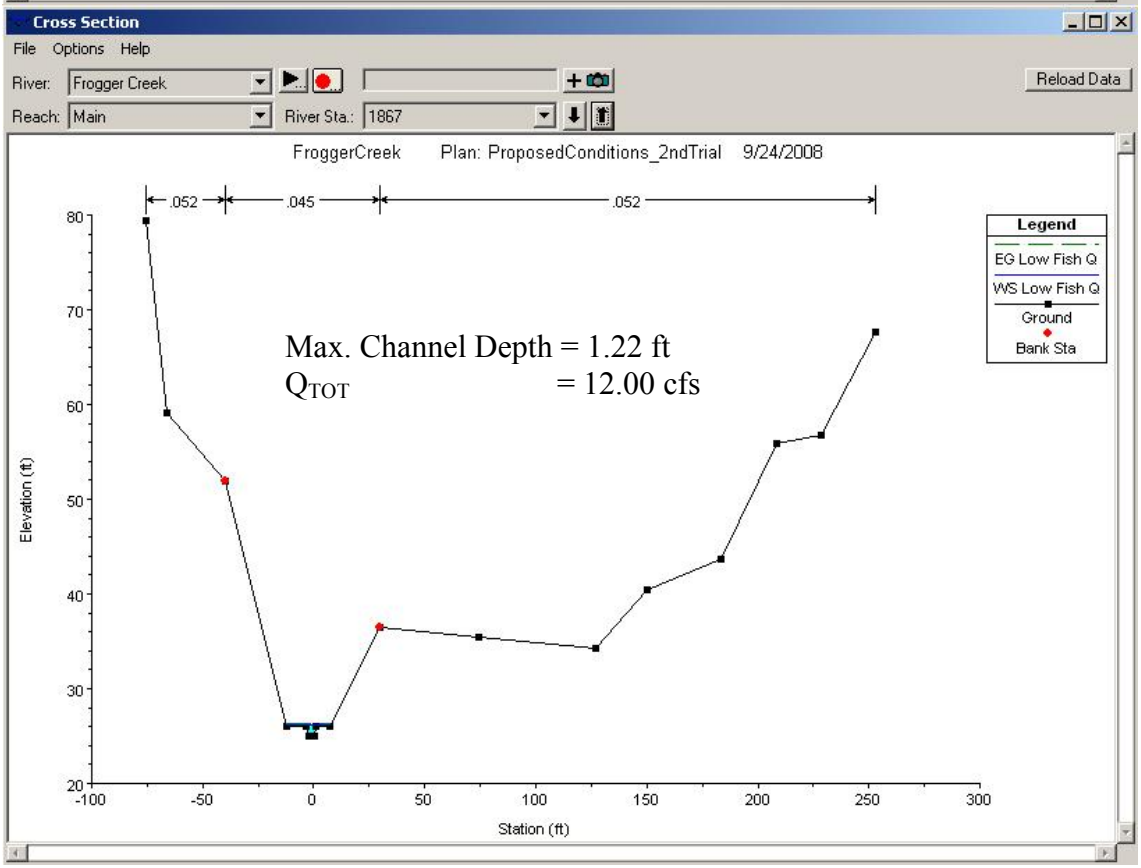

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.20 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

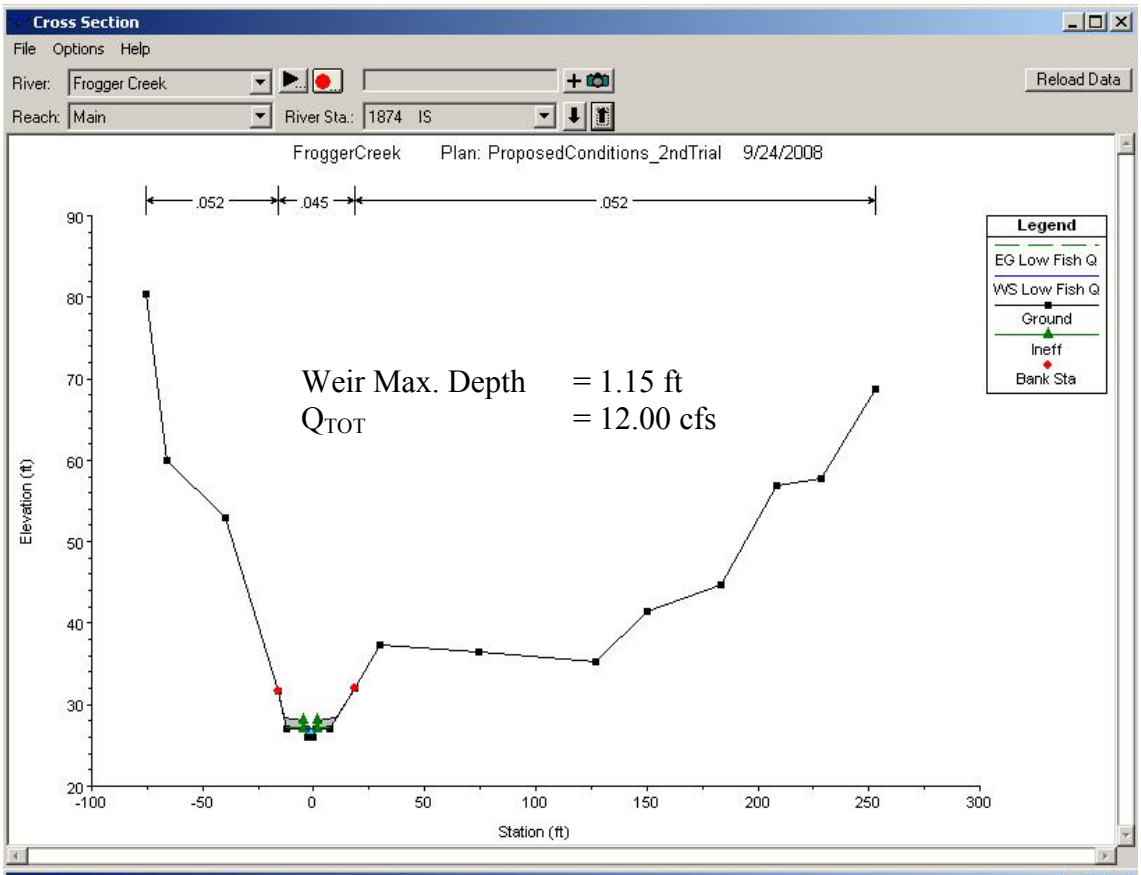

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.24 ft
Q_{TOT} = 12.00 cfs
Elevation (ft)
Station (ft)

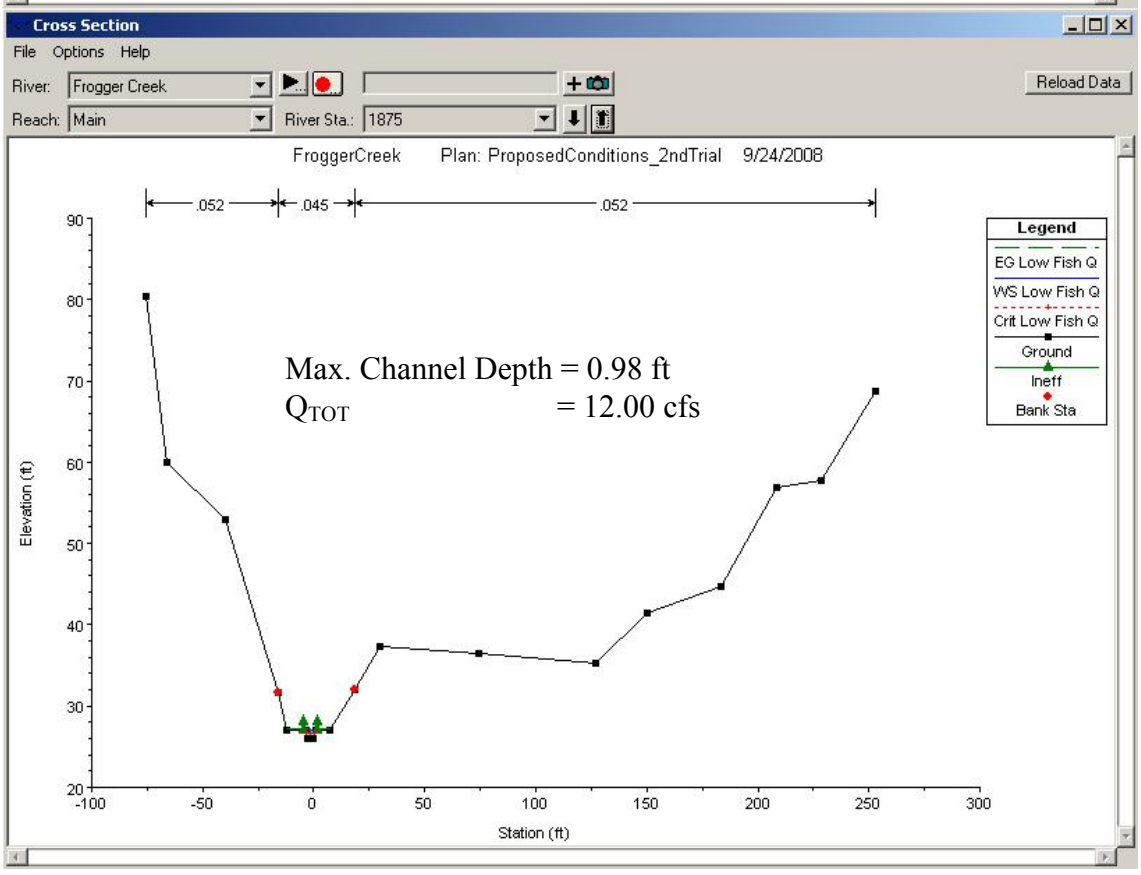

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1843
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.15 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

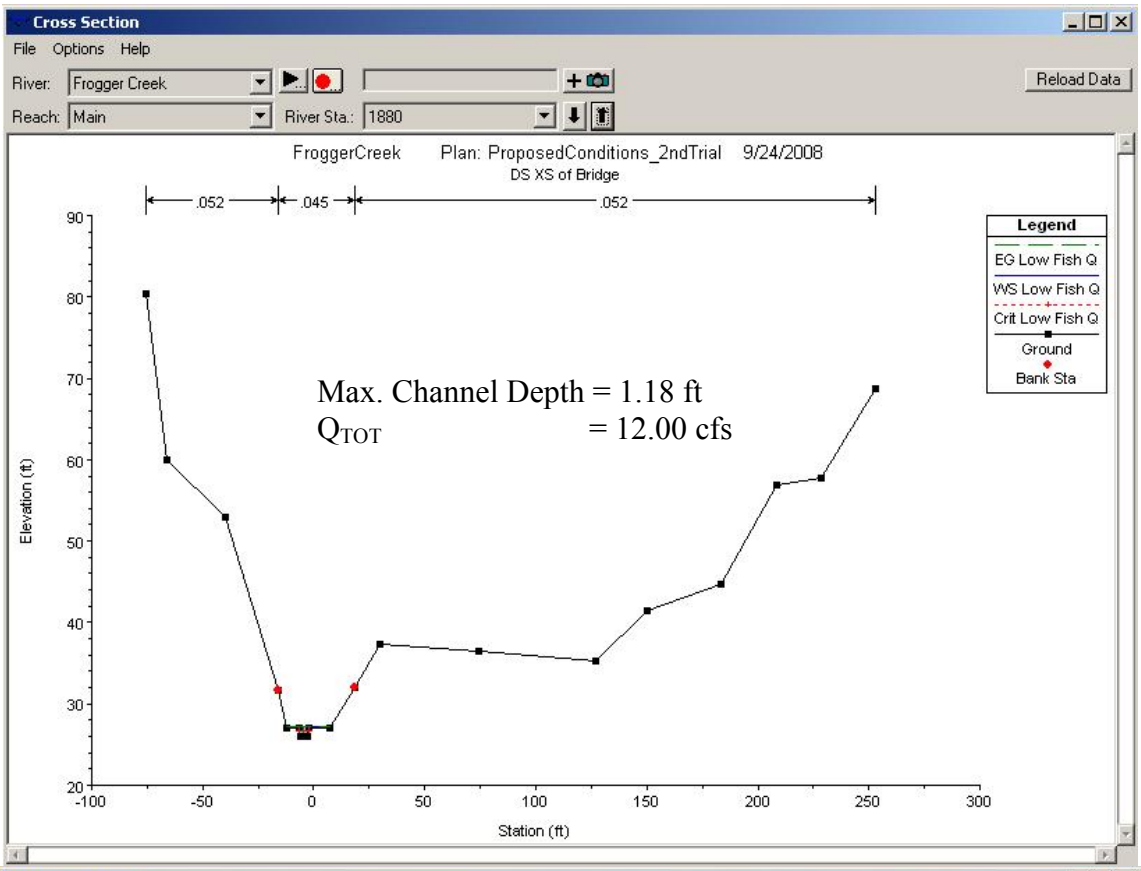

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 0.98 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

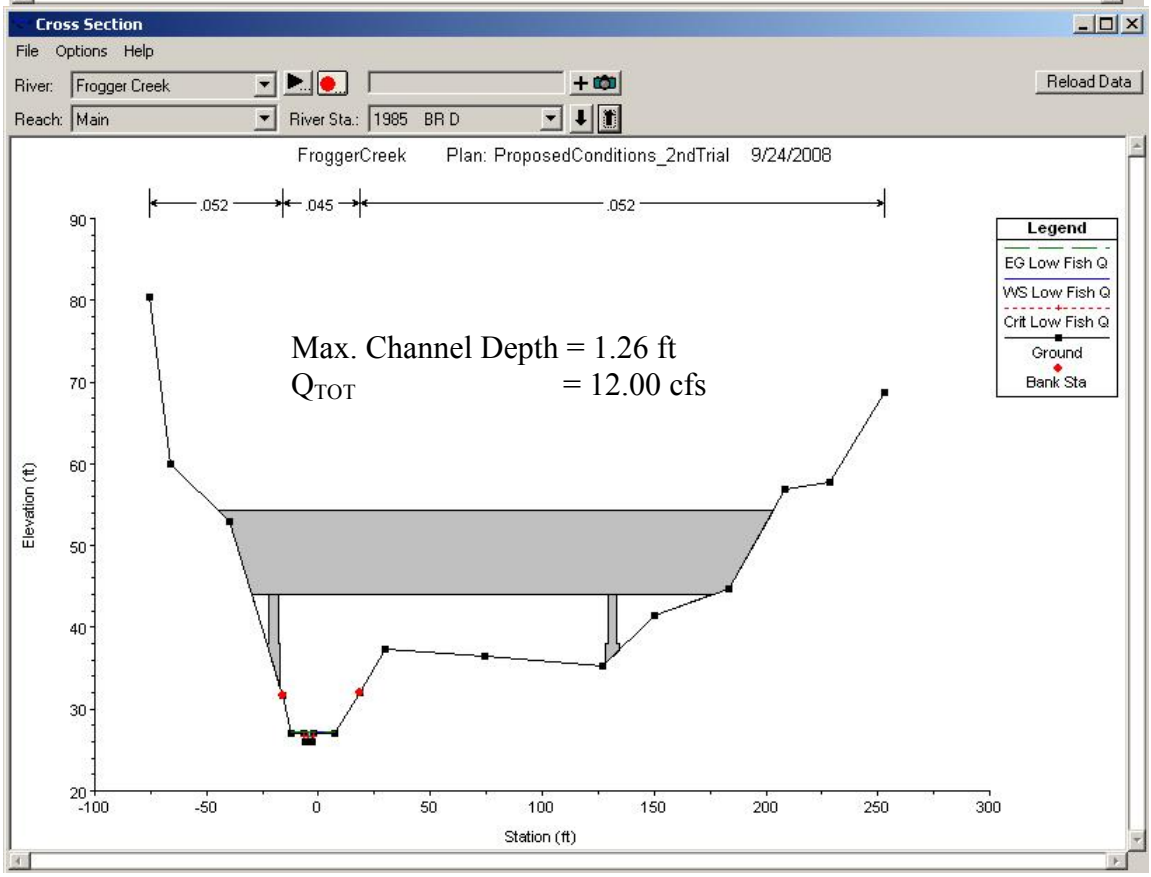

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.20 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

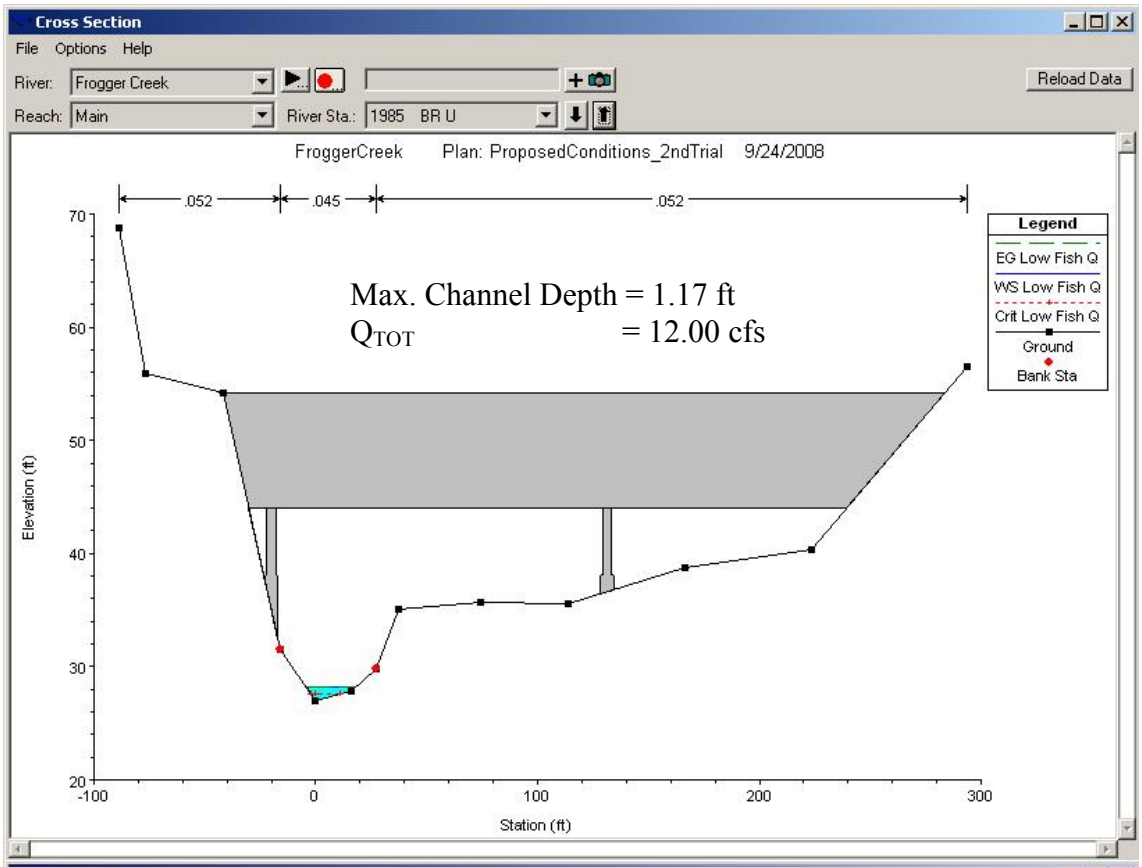

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.22 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

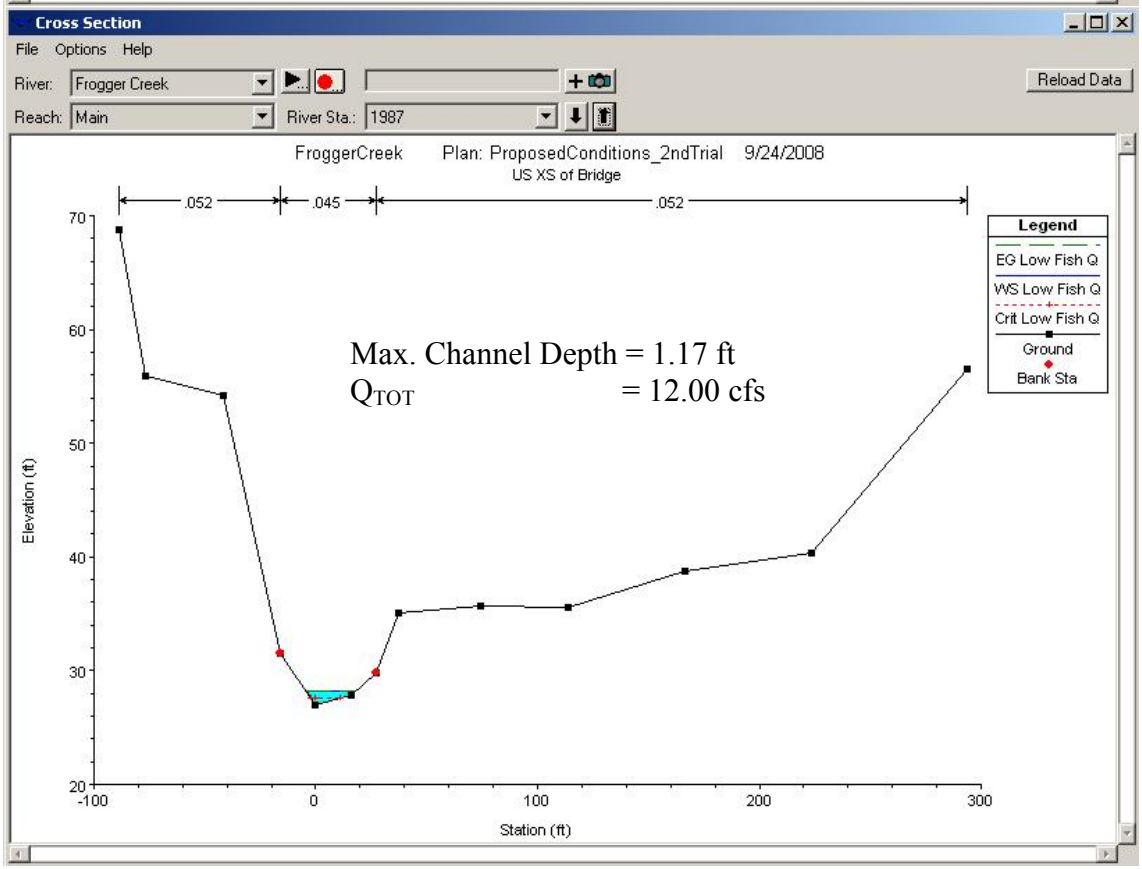

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 1.15 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Ineff
Bank Sta
Max. Channel Depth = 0.98 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
DS XS of Bridge
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.18 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

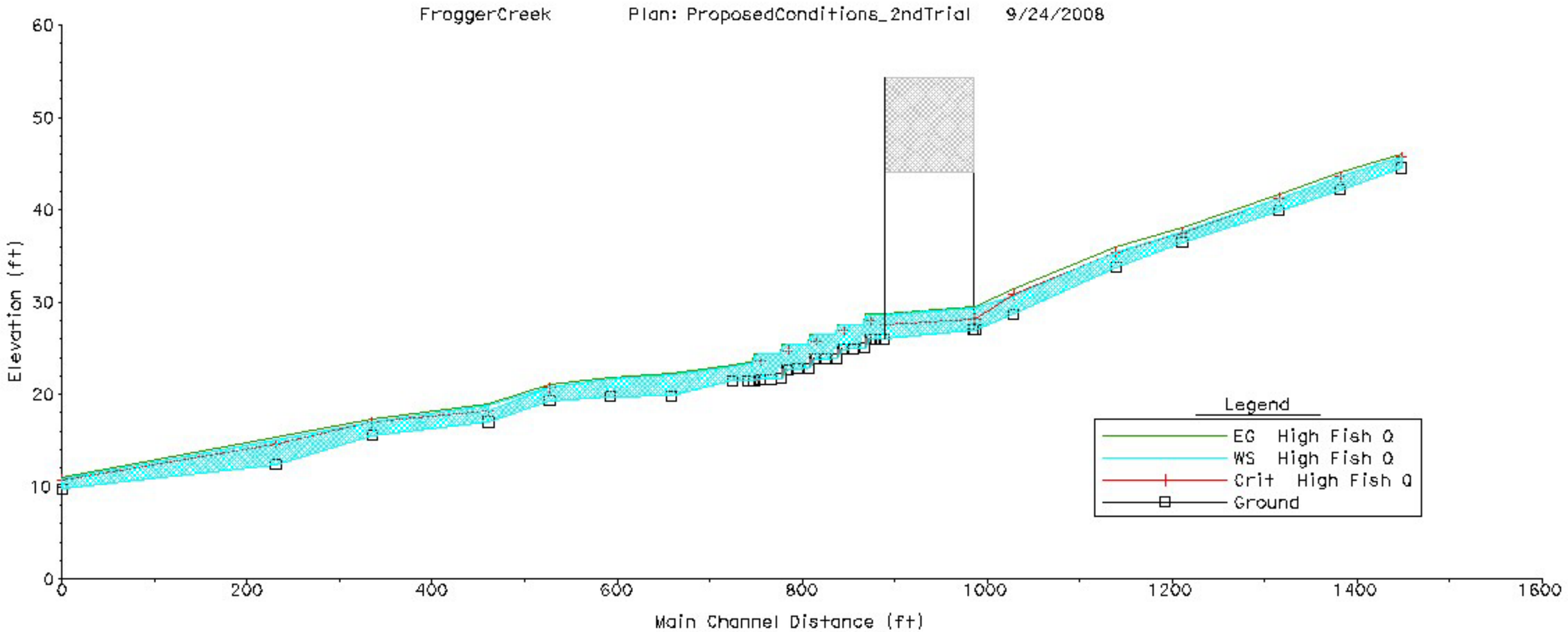

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Max. Channel Depth = 1.26 ft
QTOT = 12.00 cfs
Elevation (ft)
Station (ft)

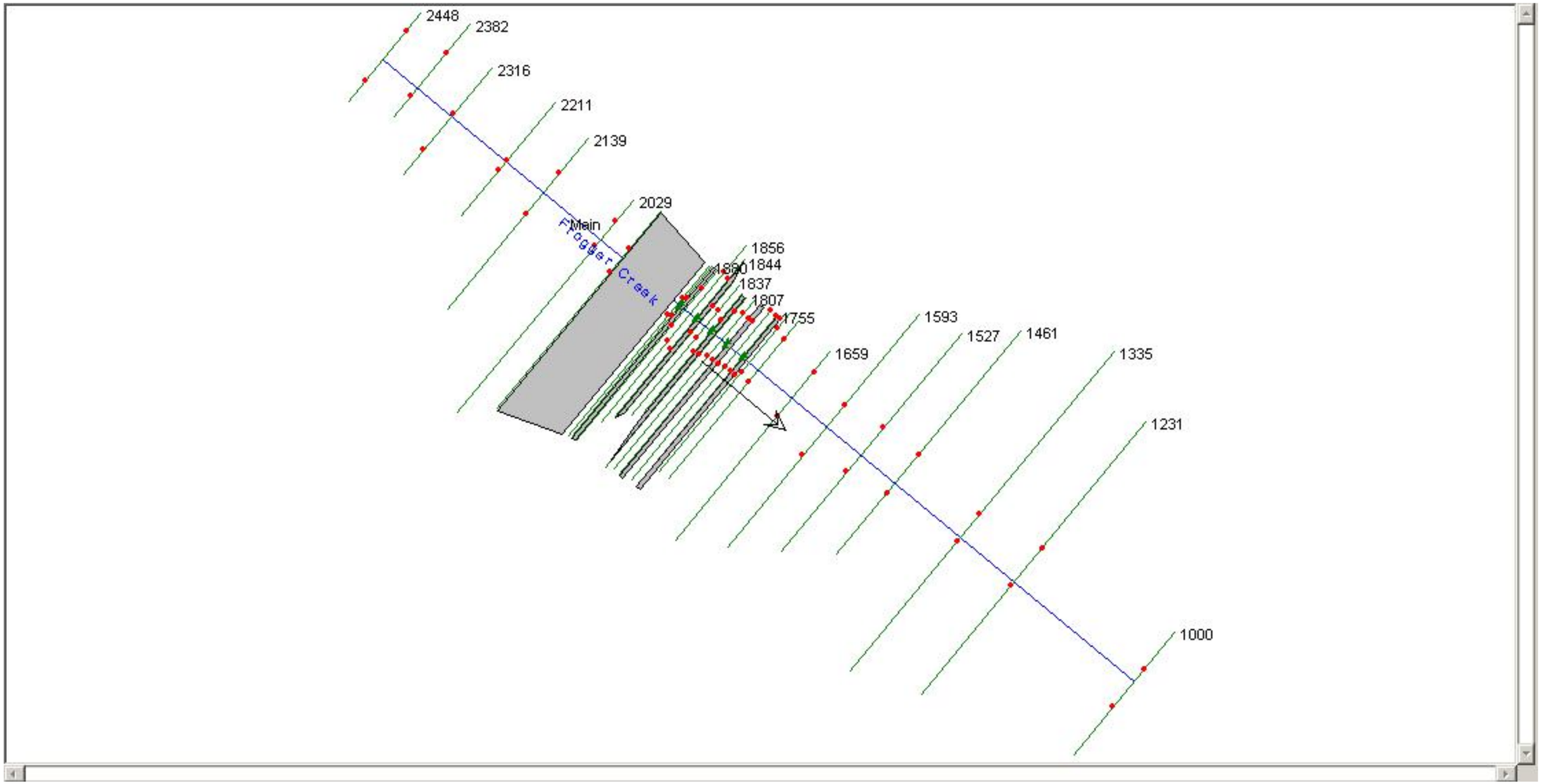

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Max. Channel Depth = 1.17 ft
QTOT = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
70
60
50
40
30
20
-100
0
100
200
300

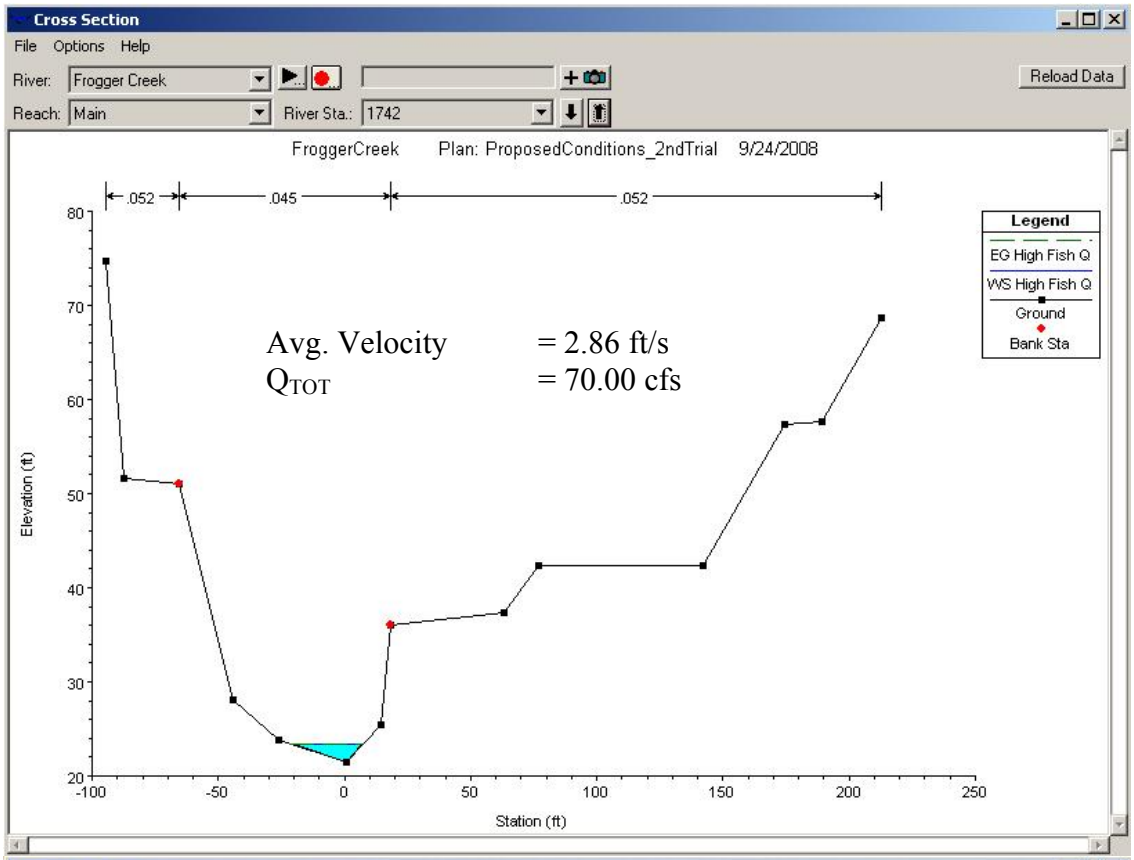

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
US XS of Bridge
.052
.045
.052
Max. Channel Depth = 1.17 ft
QTOT = 12.00 cfs
Legend
EG Low Fish Q
WS Low Fish Q
Crit Low Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
70
60
50
40
30
20
-100
0
100
200
300

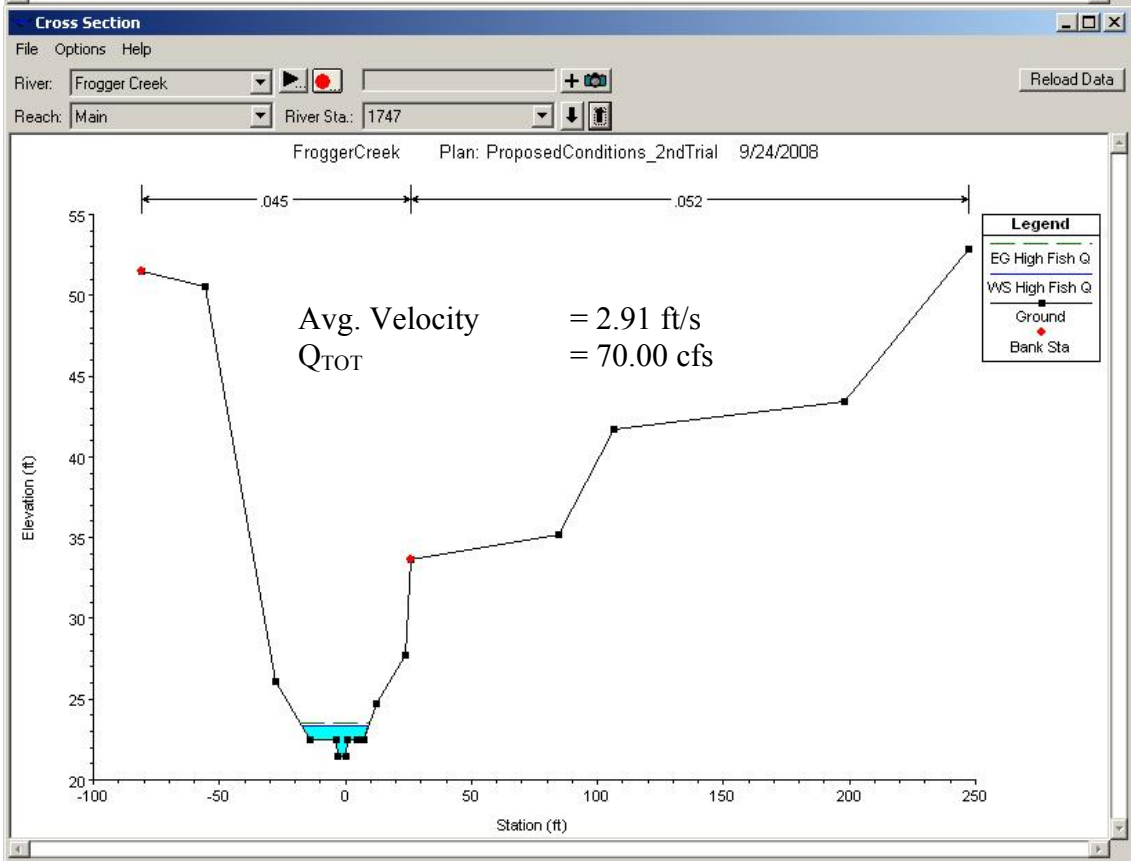
PROPOSED DESIGN (2ND TRIAL)

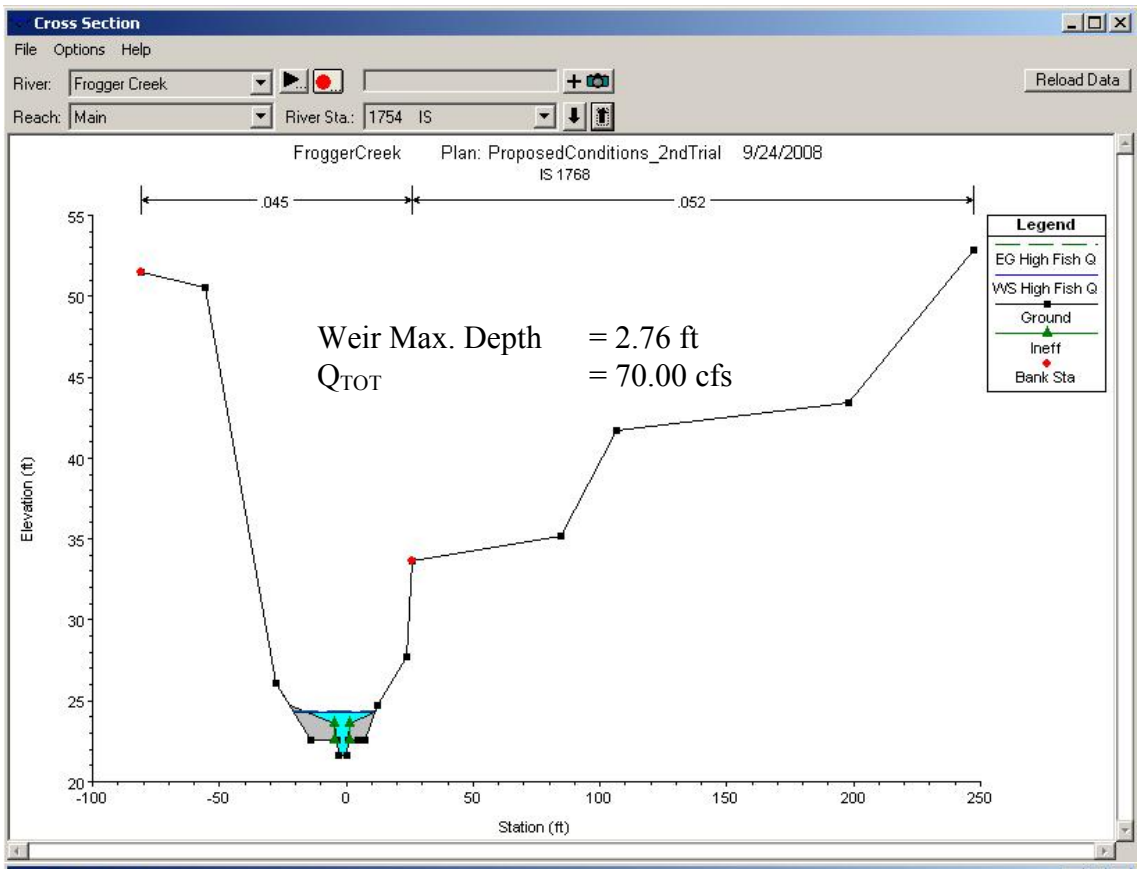
HIGH FLOW FISH PASSAGE RESULTS

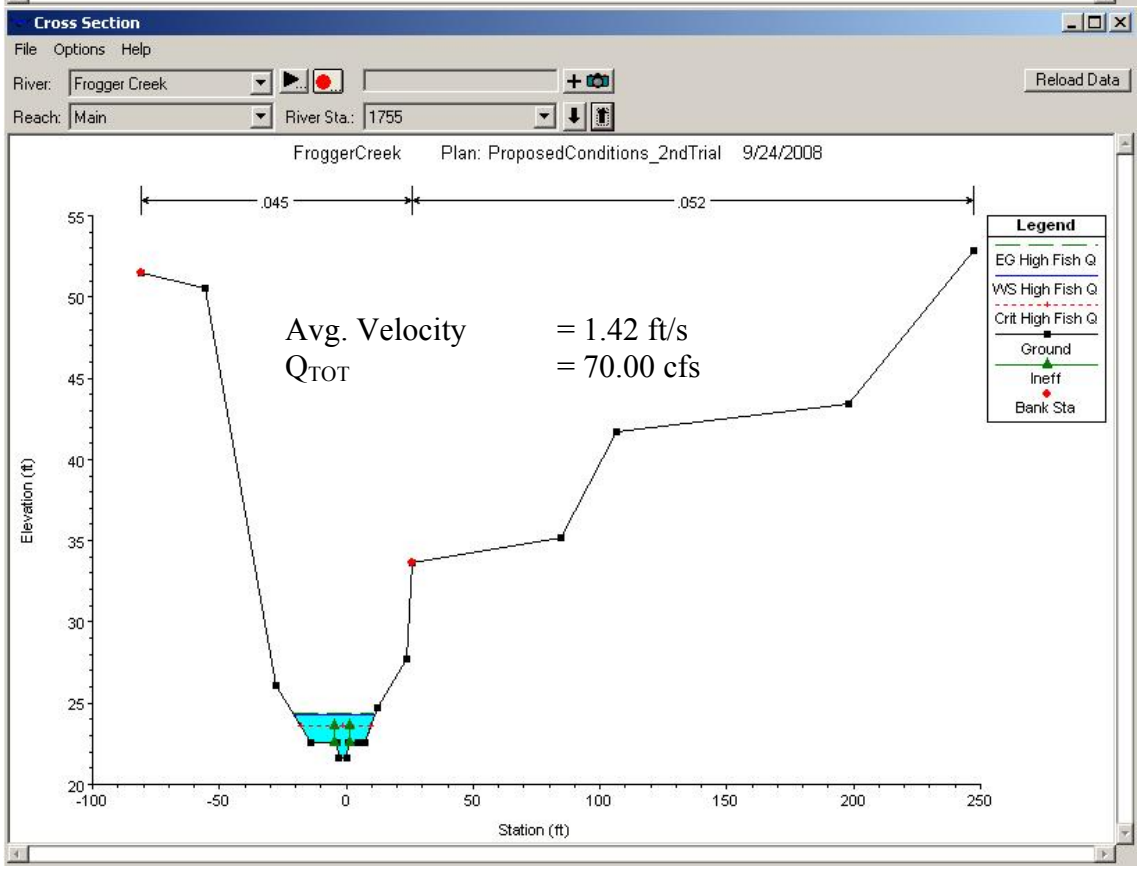

FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground

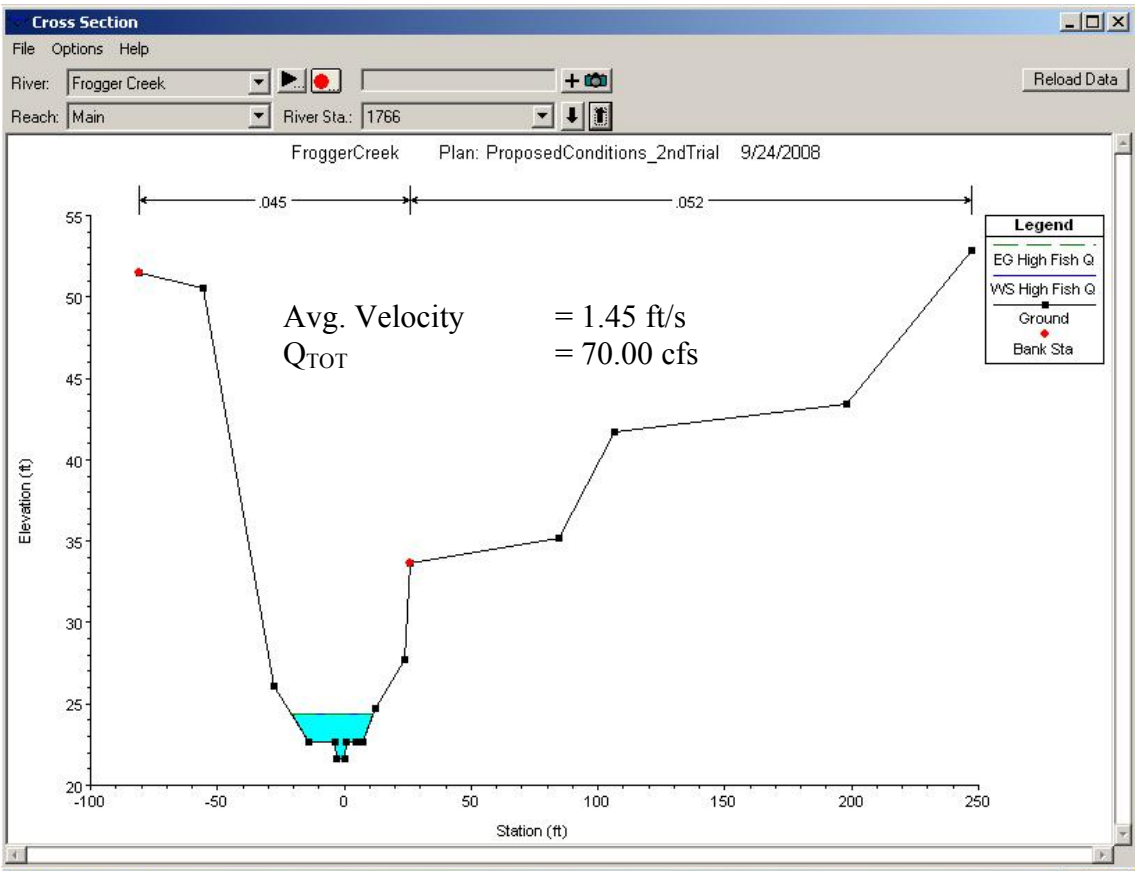

2448
2382
2316
2211
2139
2029
Main
Flogger Creek
1856
1890
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

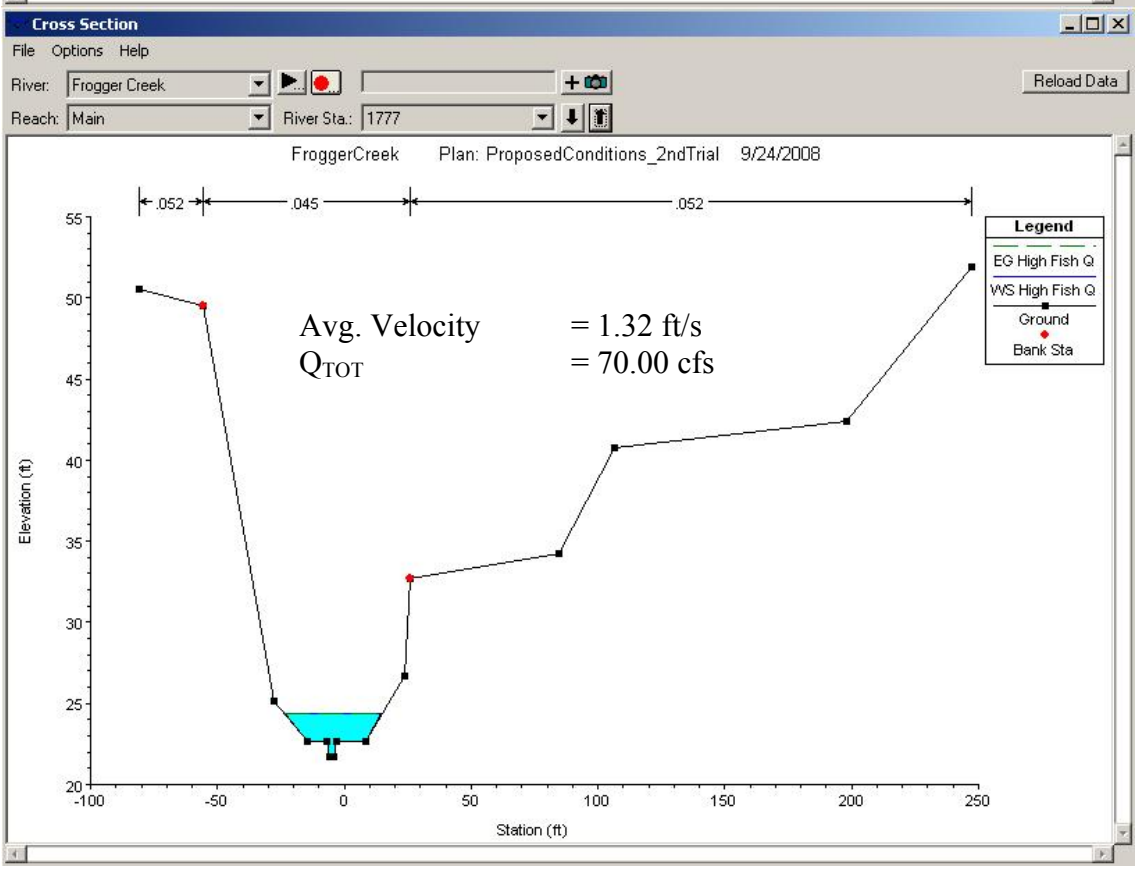

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.86 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

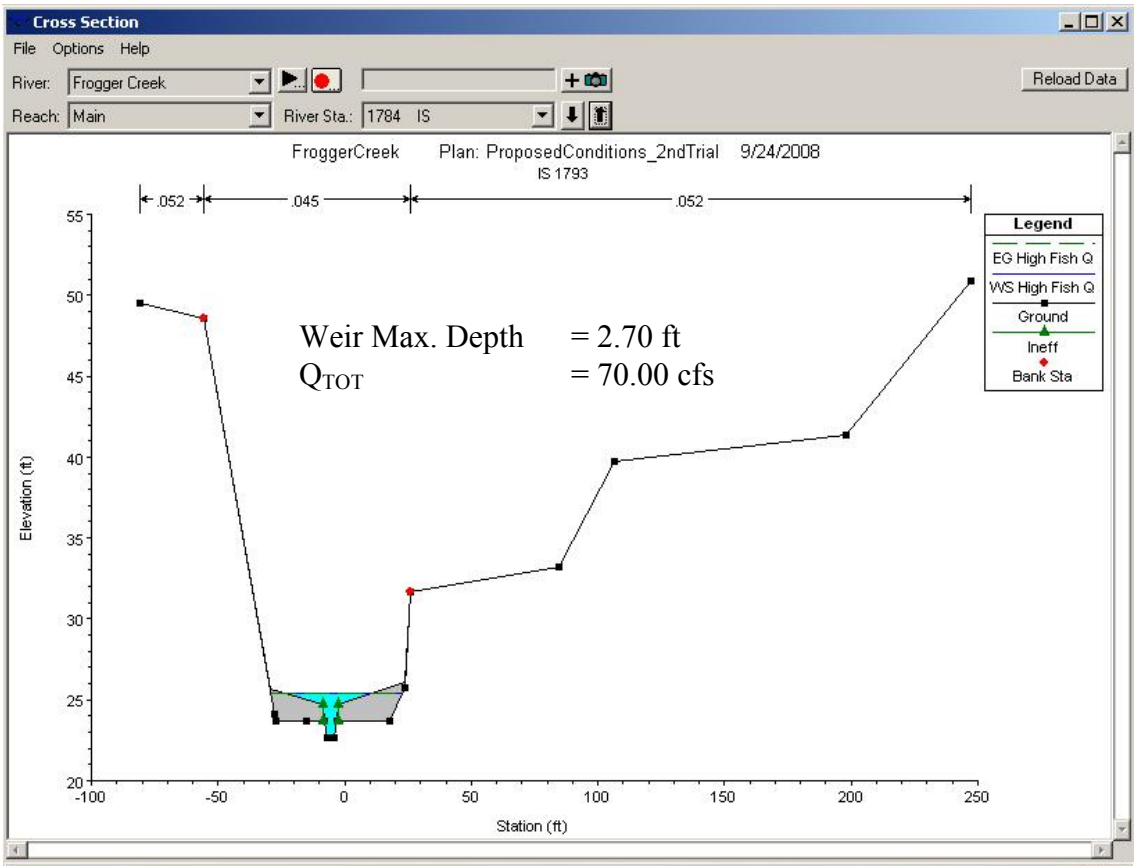

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 2.91 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

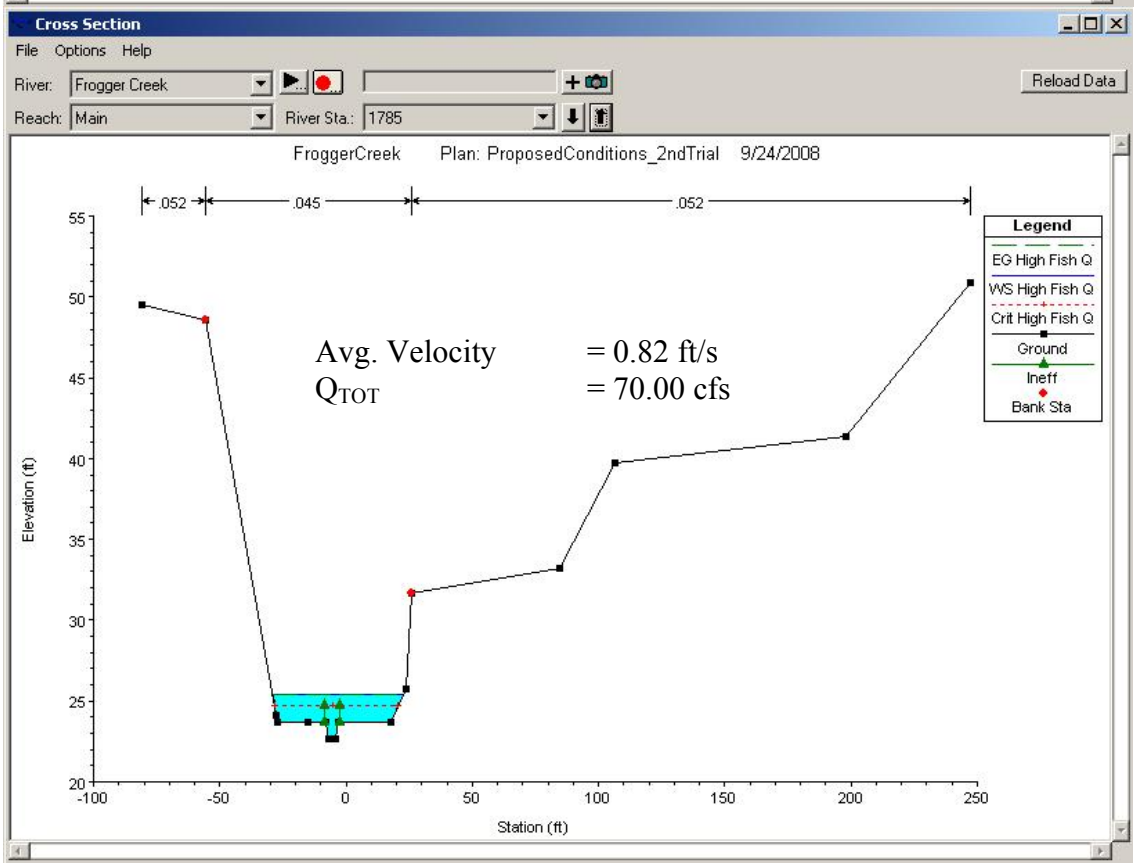

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1768
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 2.76 ft
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

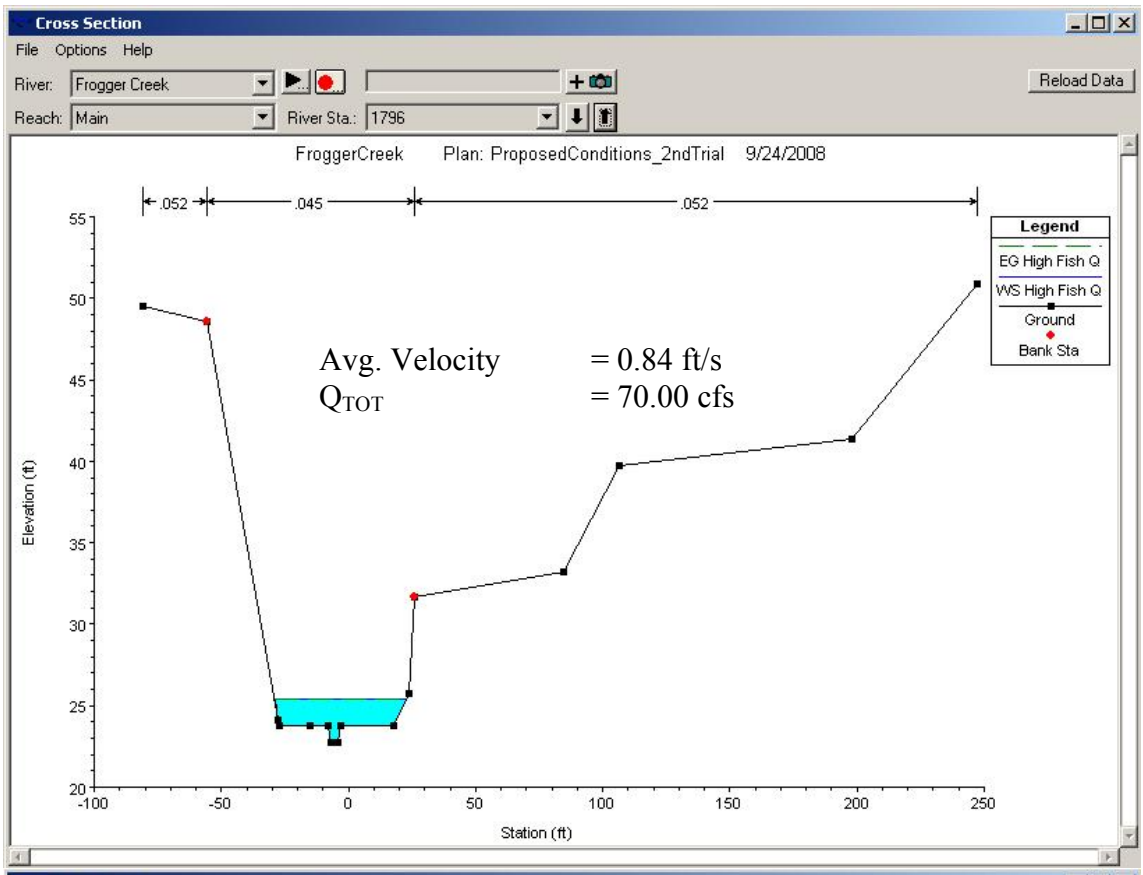

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.42 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

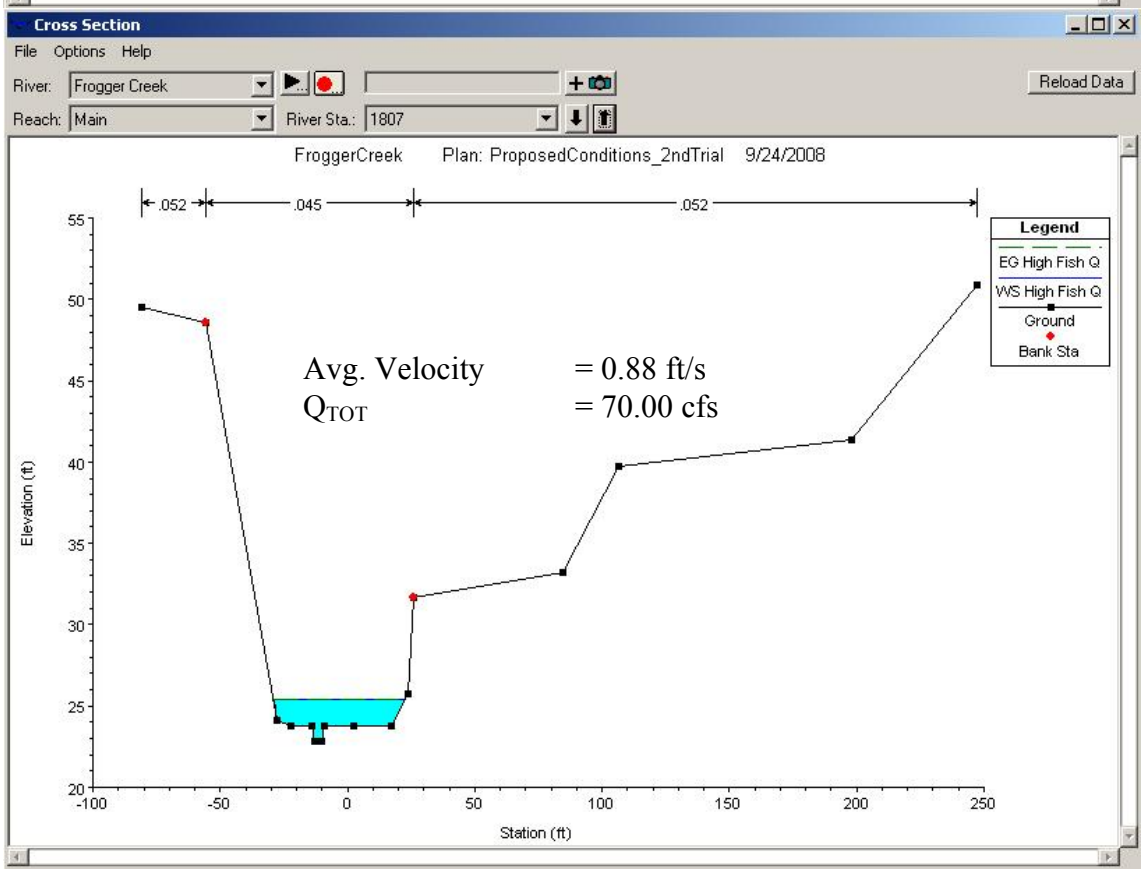

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.45 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

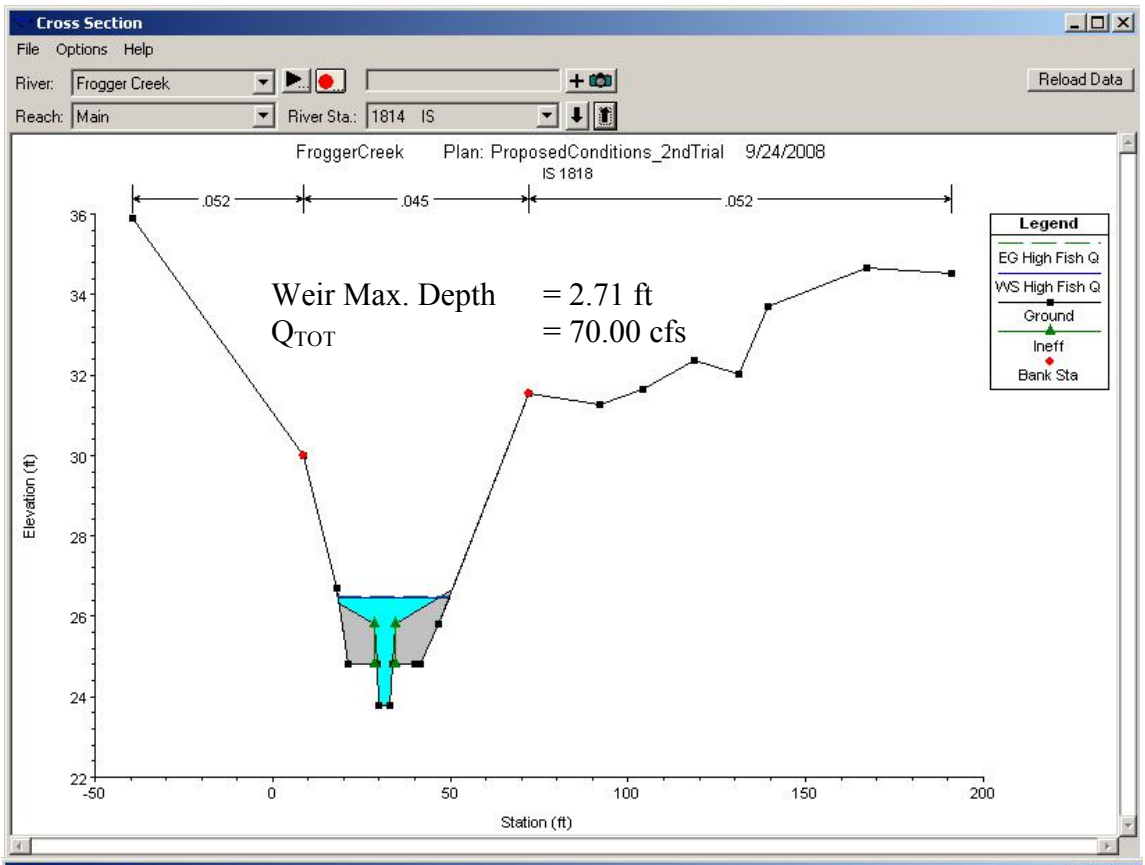

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.32 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

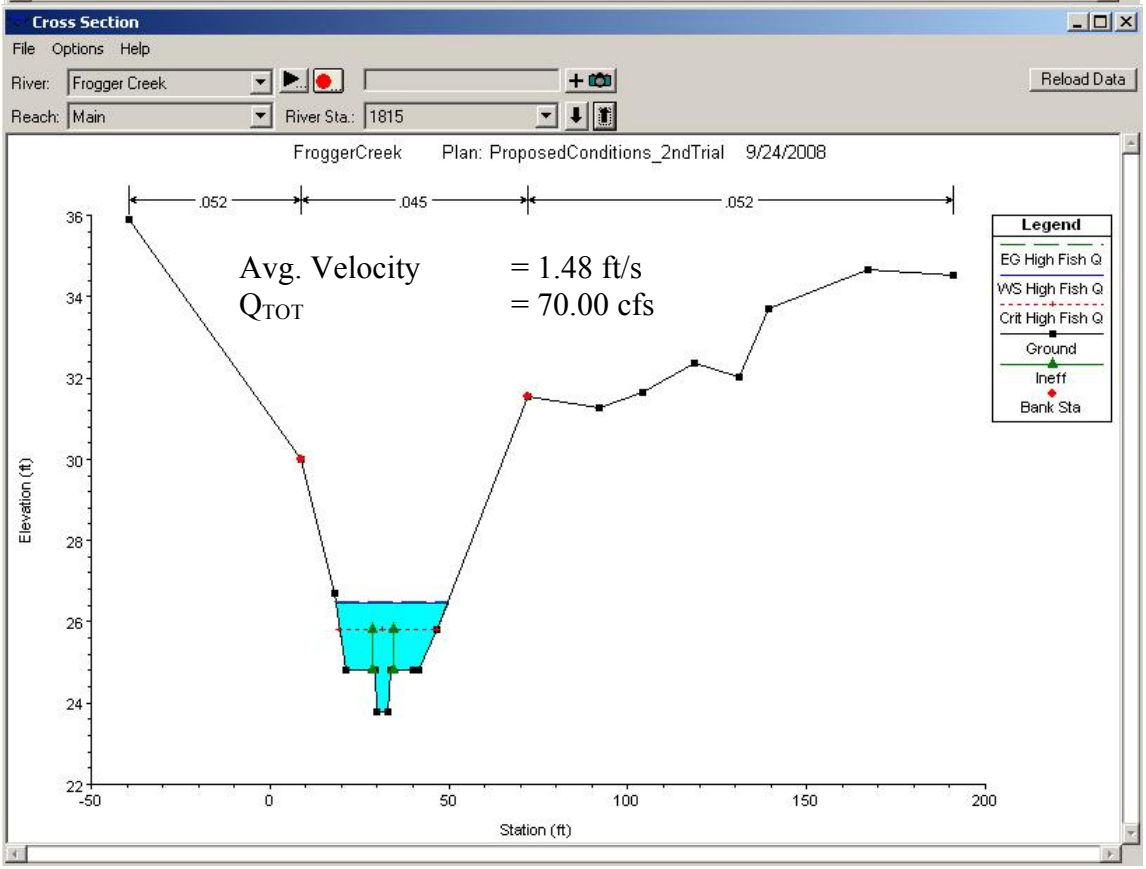

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1793
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 2.70 ft
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

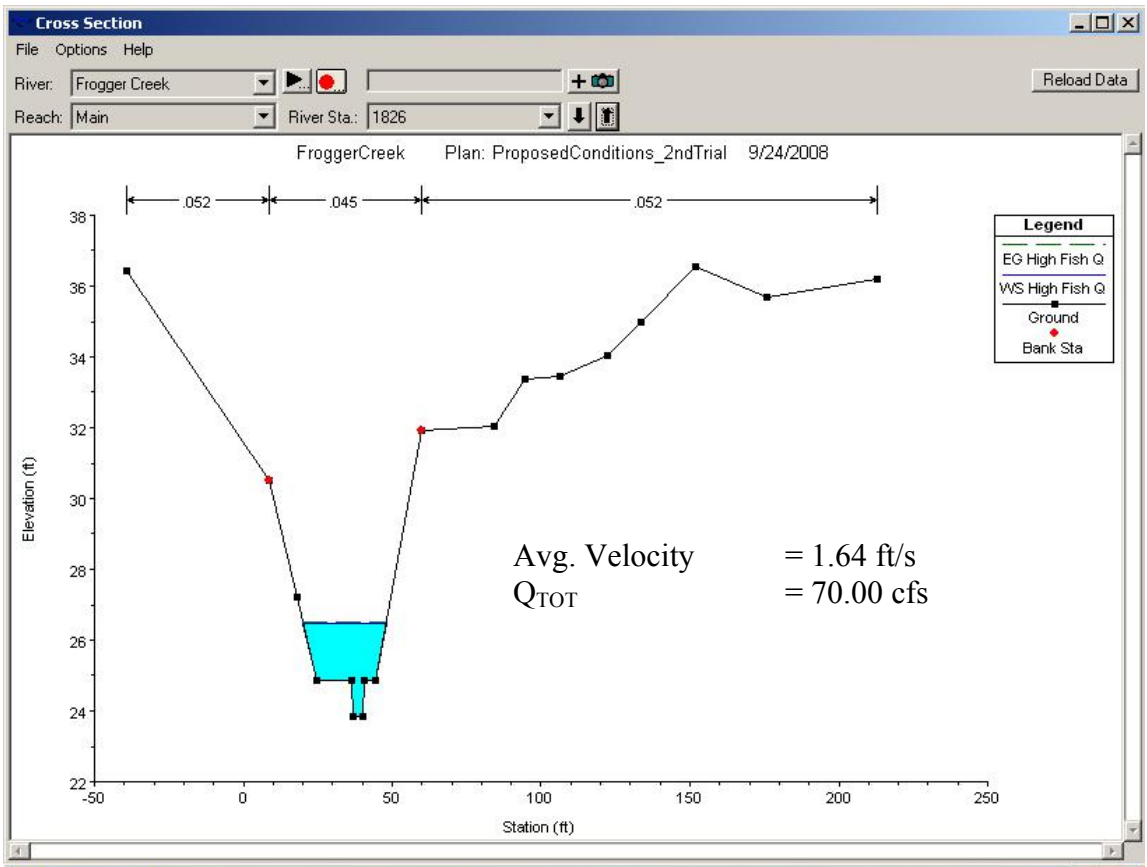

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 0.82 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

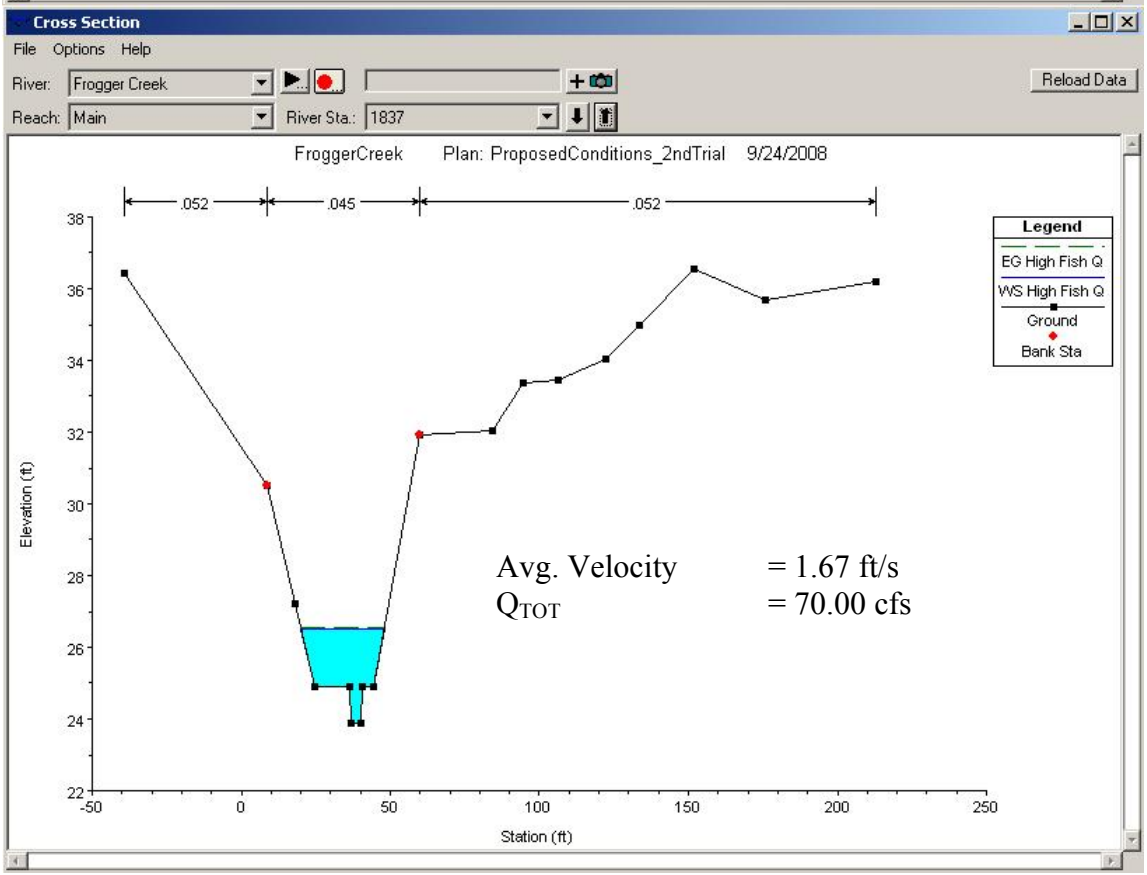

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 0.84 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

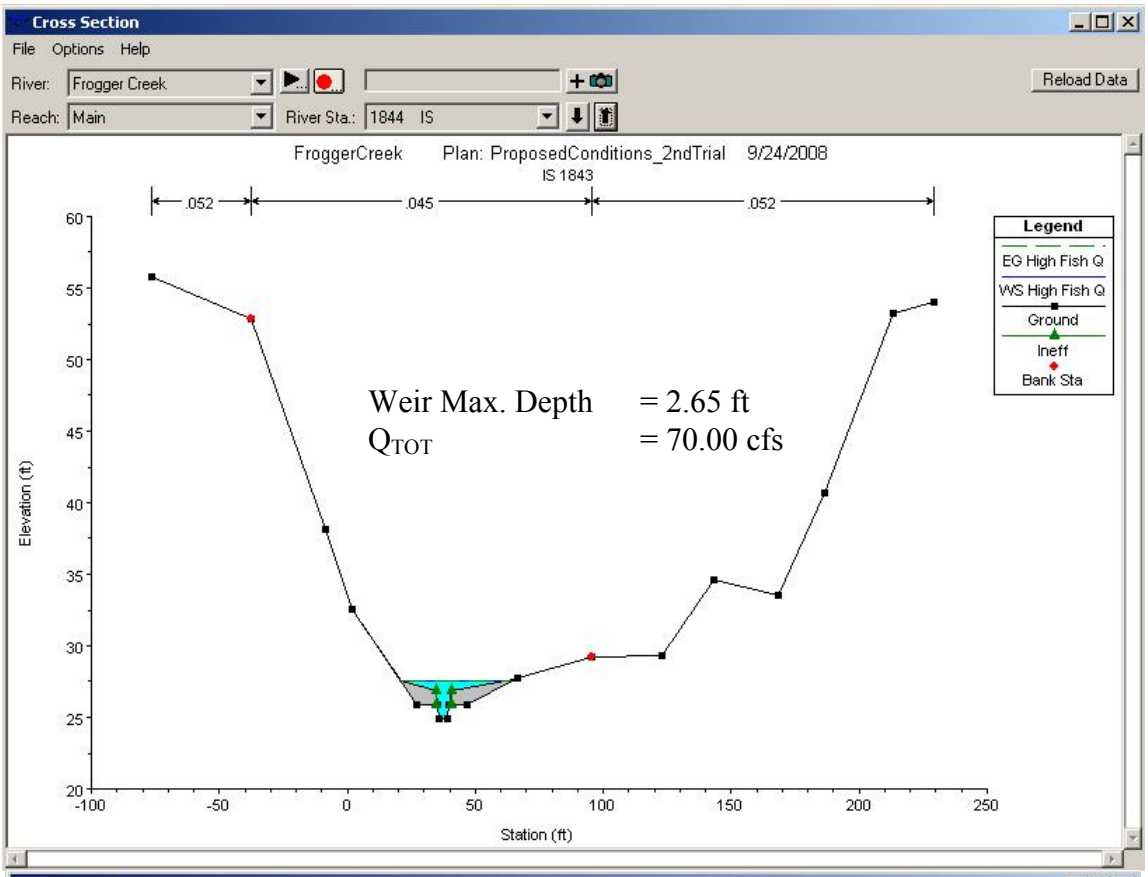

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 0.88 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)

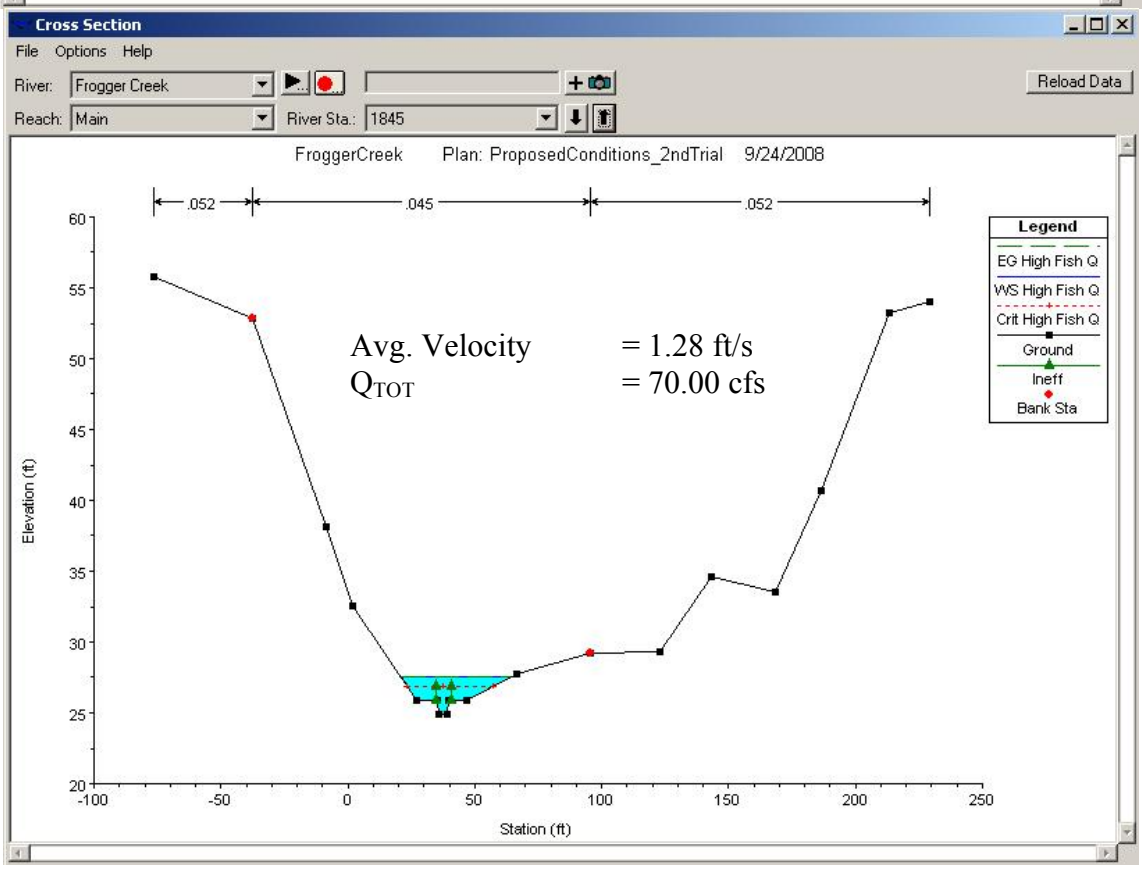

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 2.71 ft
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

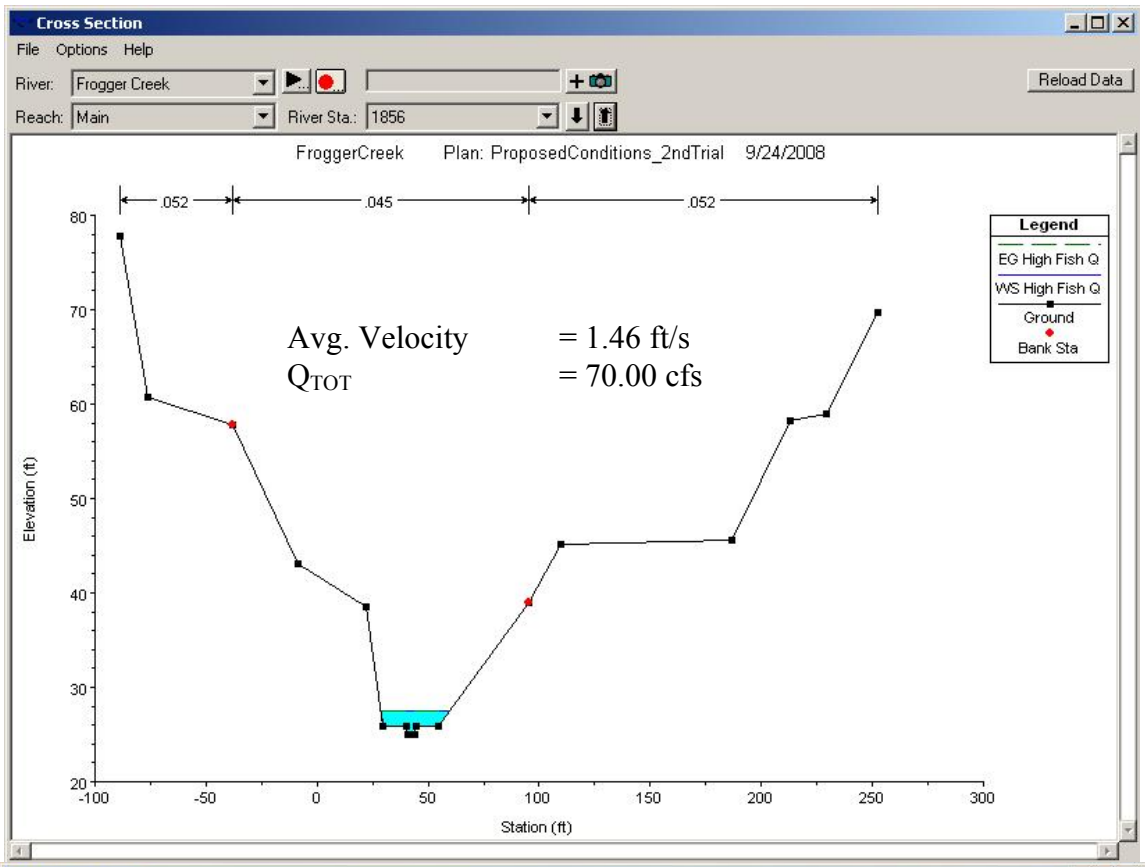

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 1.48 ft/s
Q_{TOT} = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

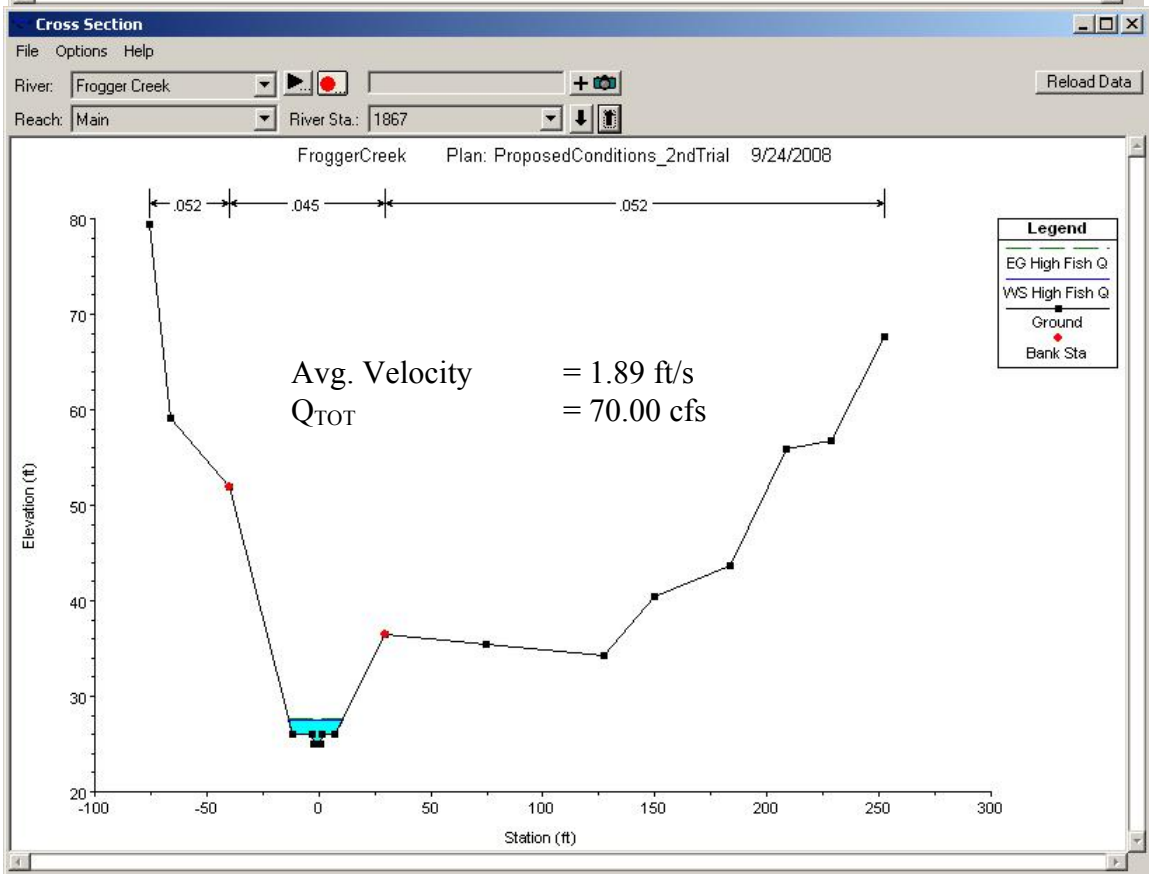

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 1.64 ft/s
Q_{TOT} = 70.00 cfs

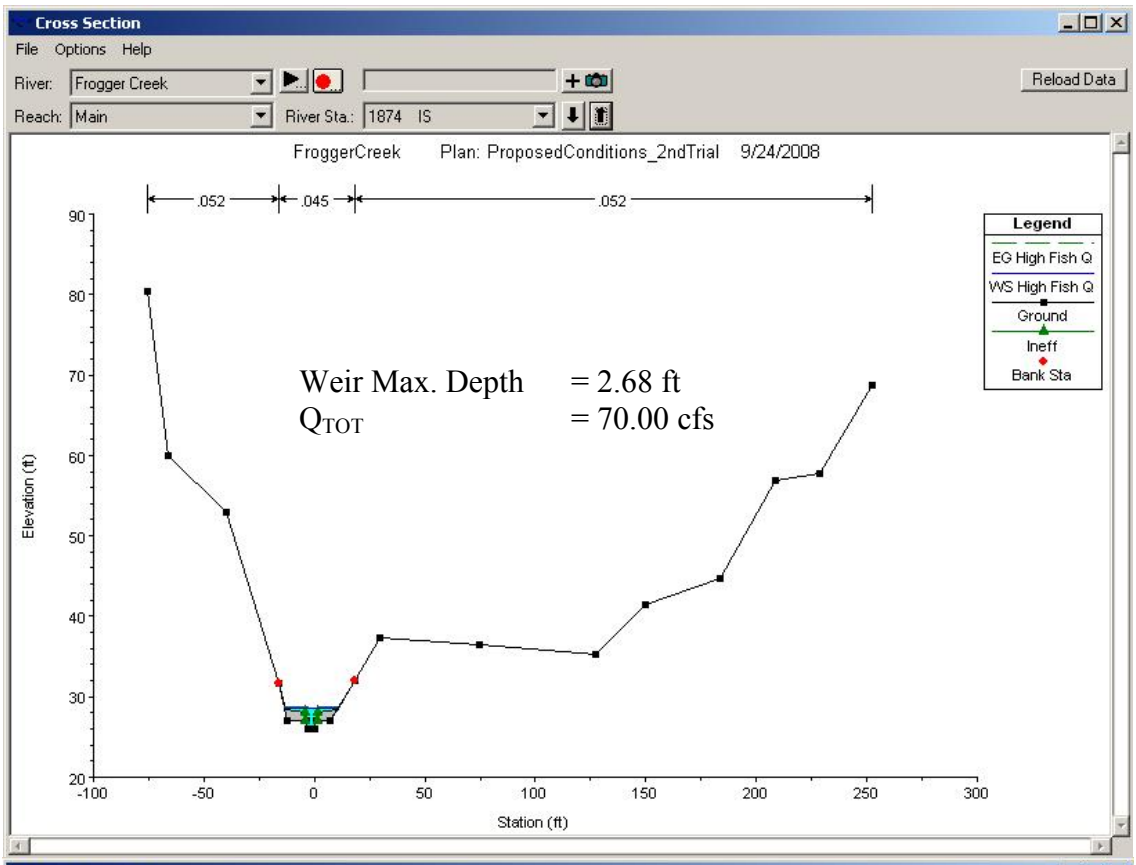

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 1.67 ft/s
Q_{TOT} = 70.00 cfs

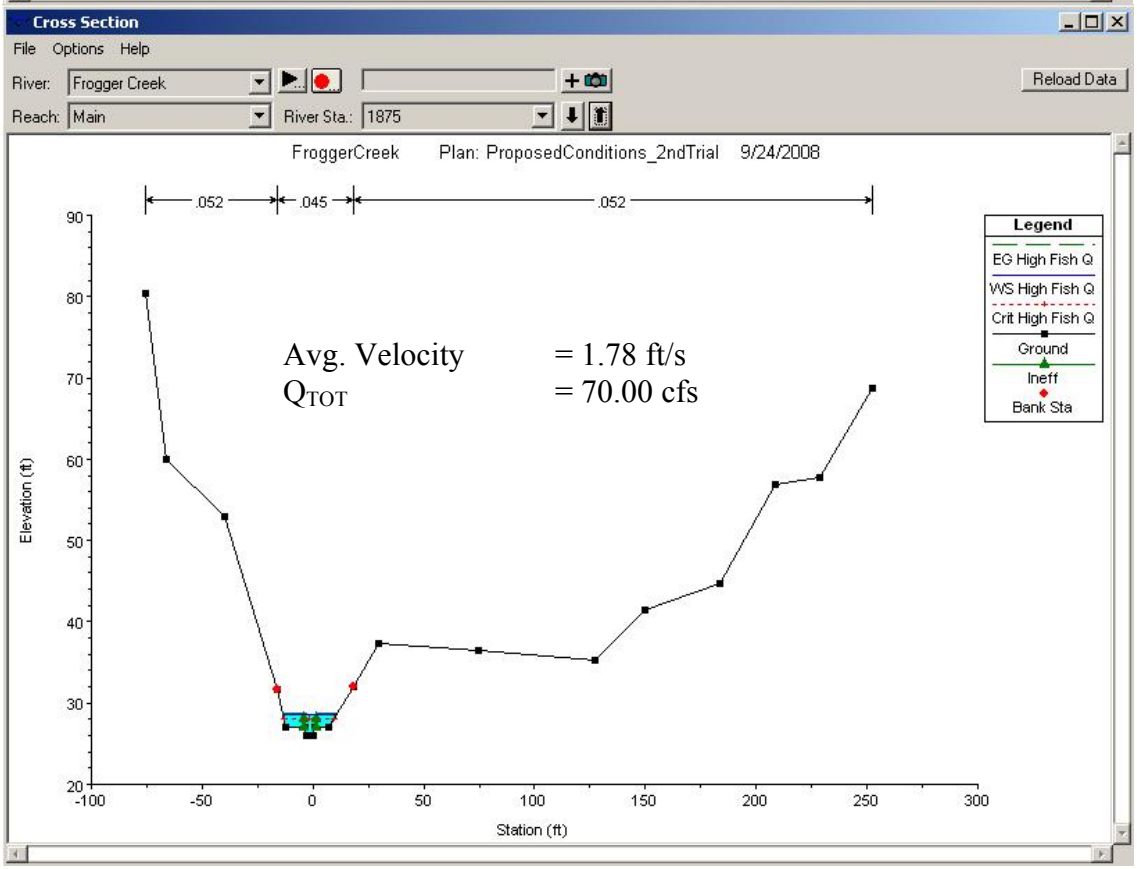

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1843
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 2.65 ft
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

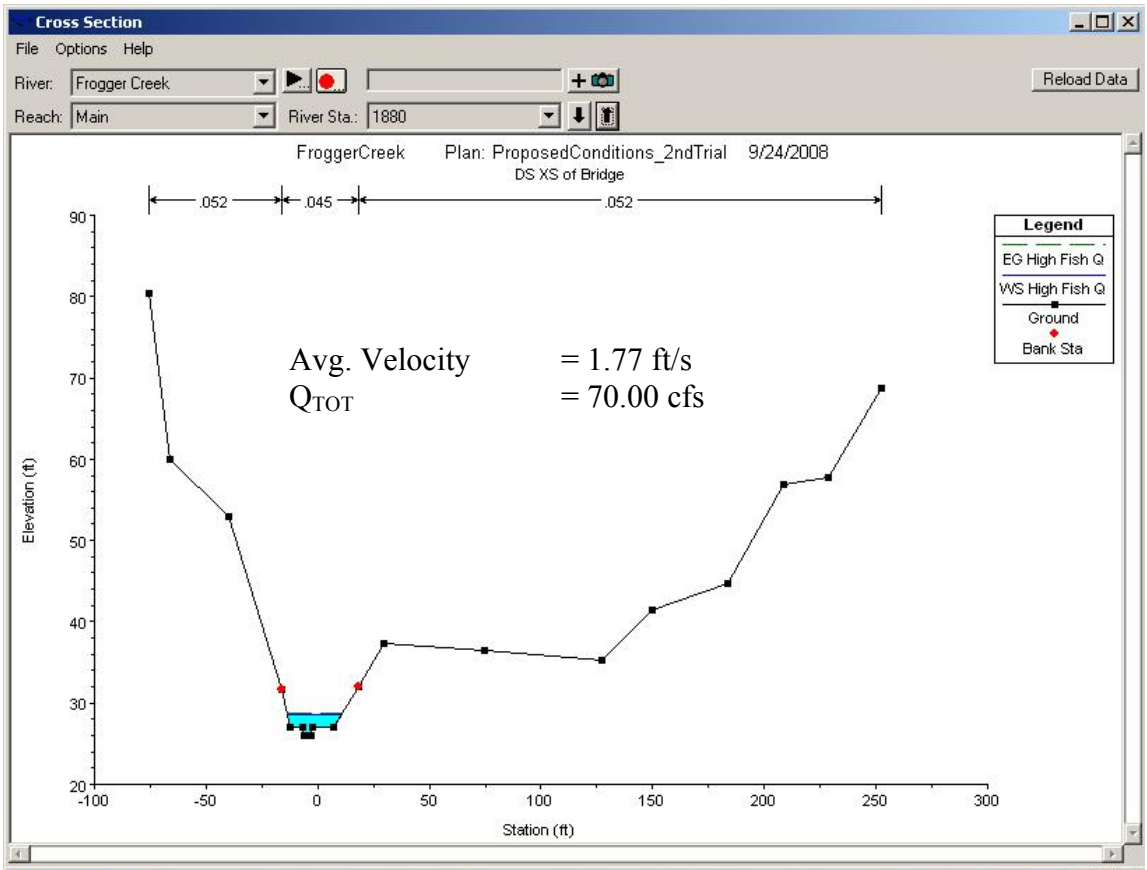

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.28 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

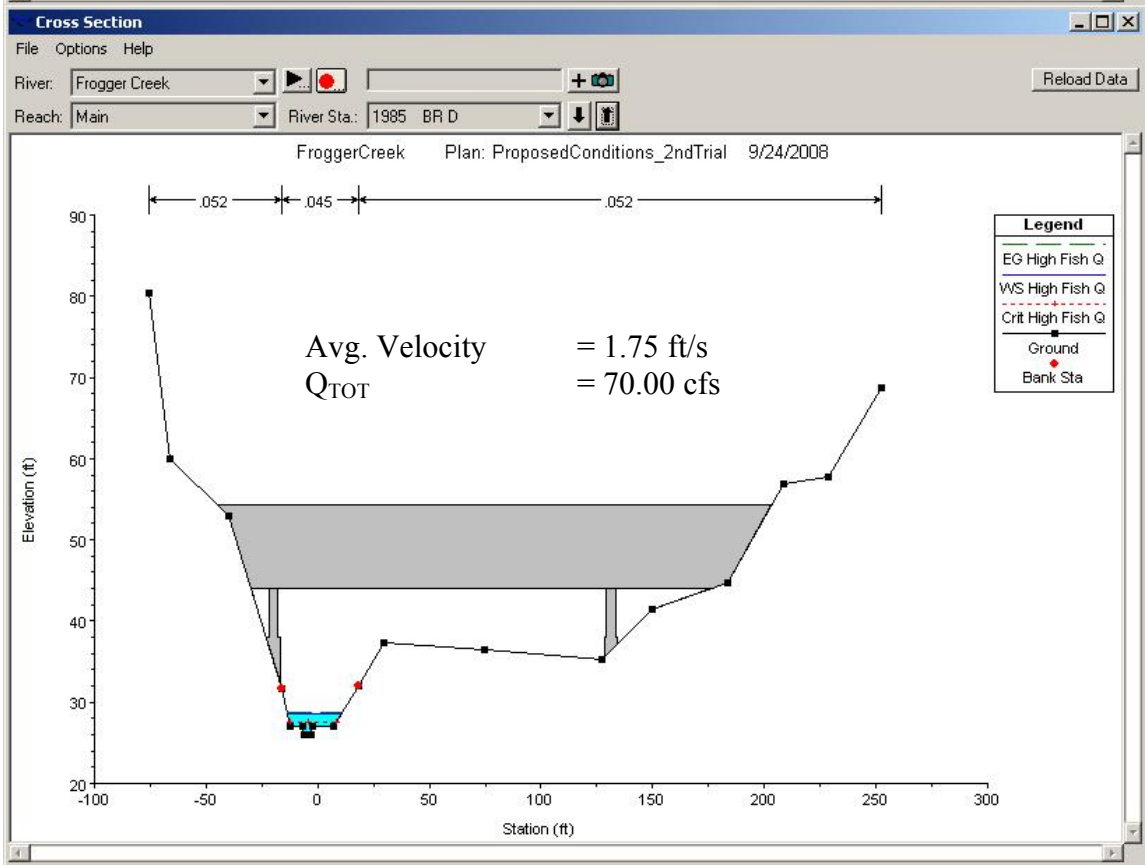

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.46 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

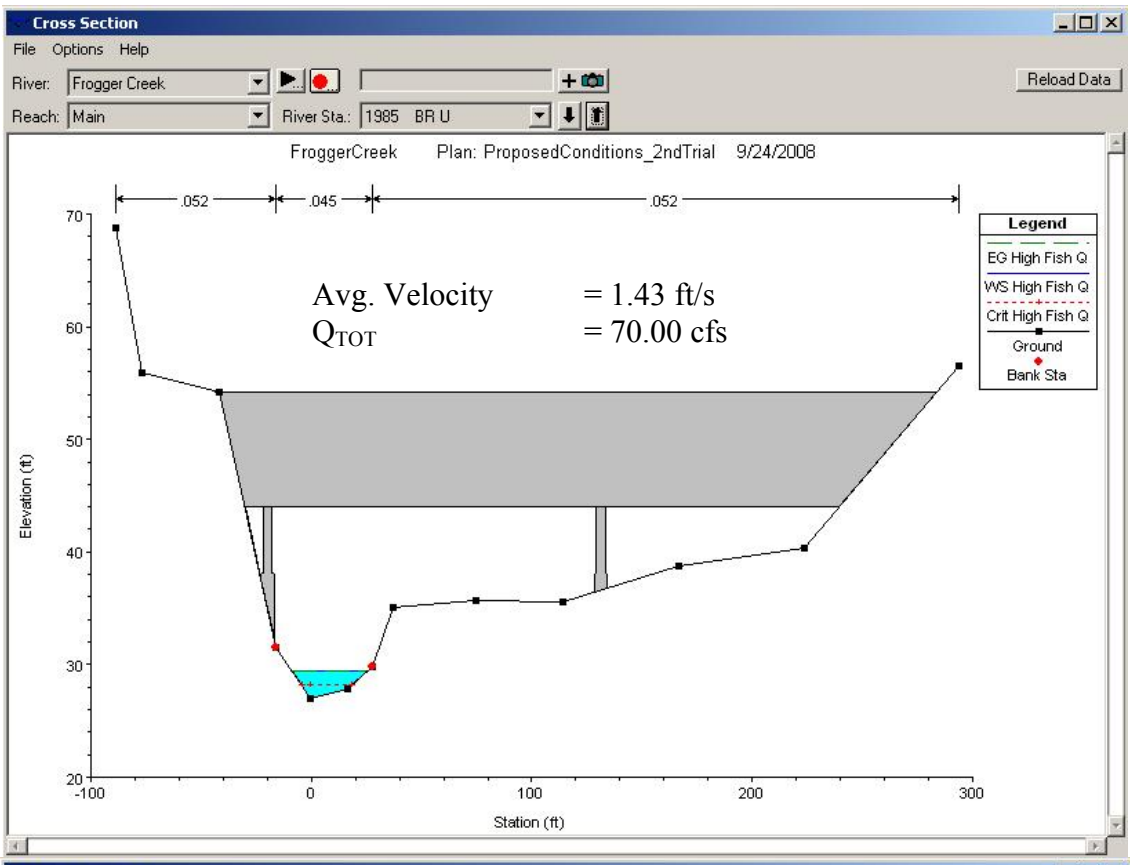

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.89 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

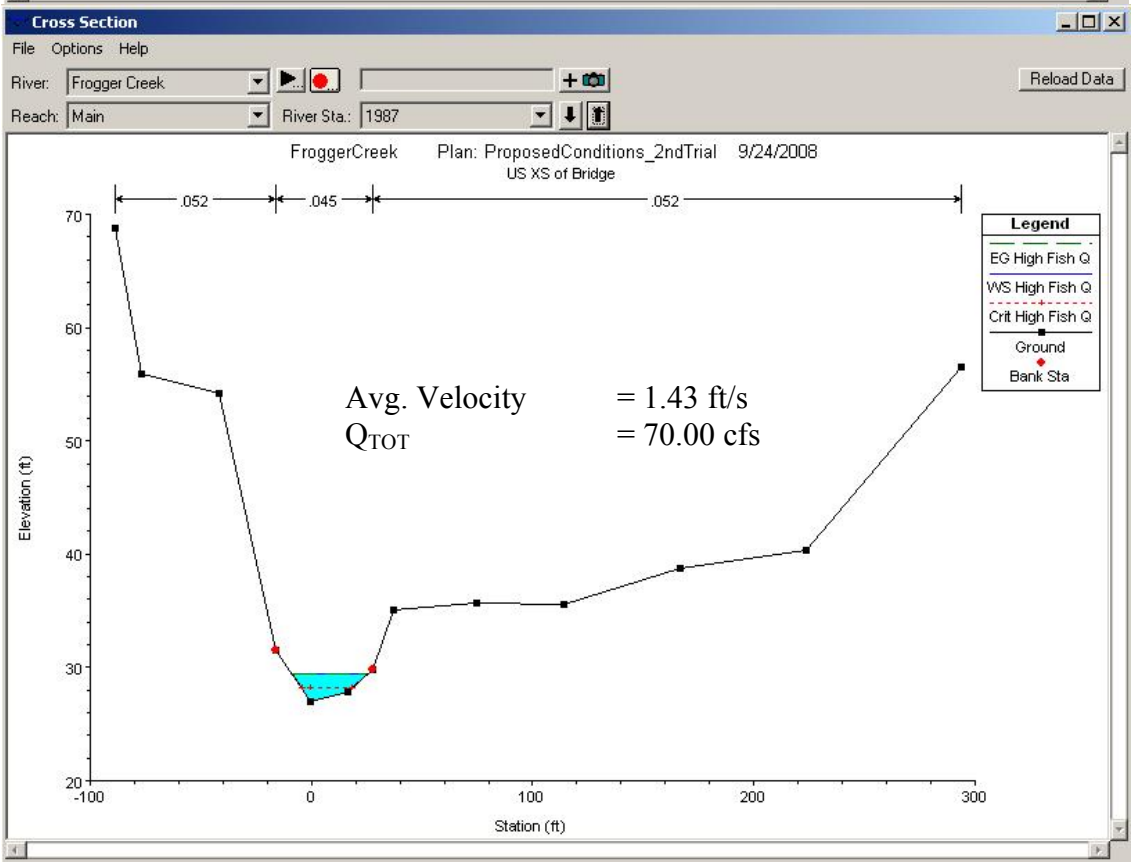

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Ineff
Bank Sta
Weir Max. Depth = 2.68 ft
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Ineff
Bank Sta
Avg. Velocity = 1.78 ft/s
QTOT = 70.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
DS XS of Bridge
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.77 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

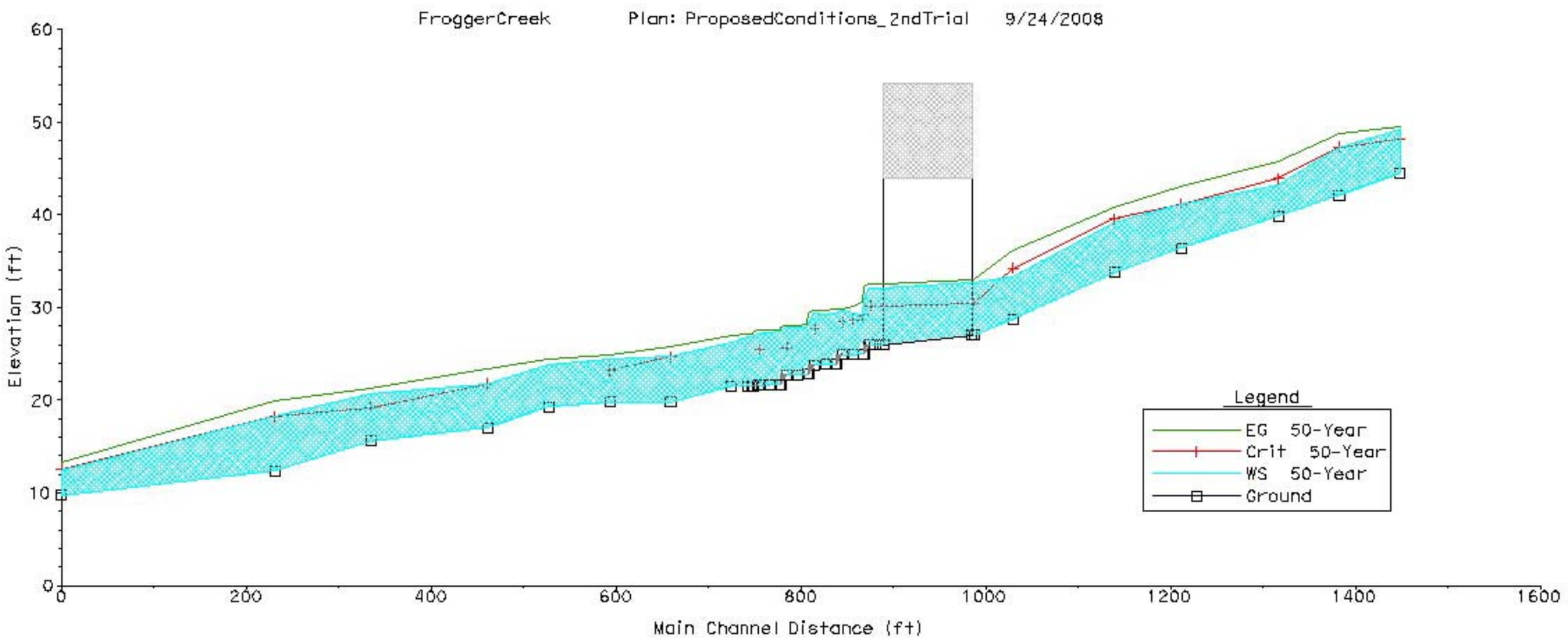

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Avg. Velocity = 1.75 ft/s
Q_{TOT} = 70.00 cfs
Elevation (ft)
Station (ft)

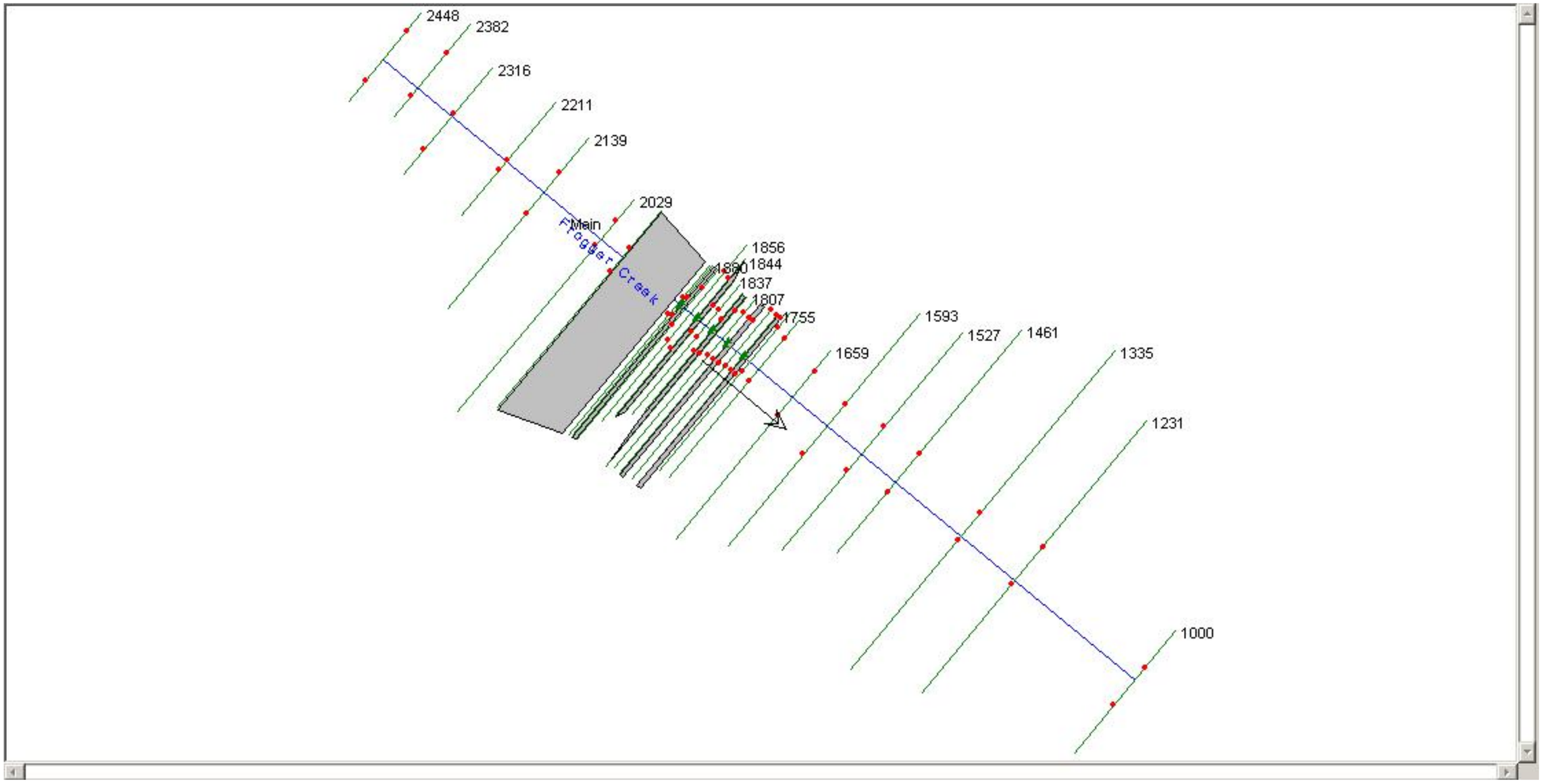

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 1.43 ft/s
QTOT = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

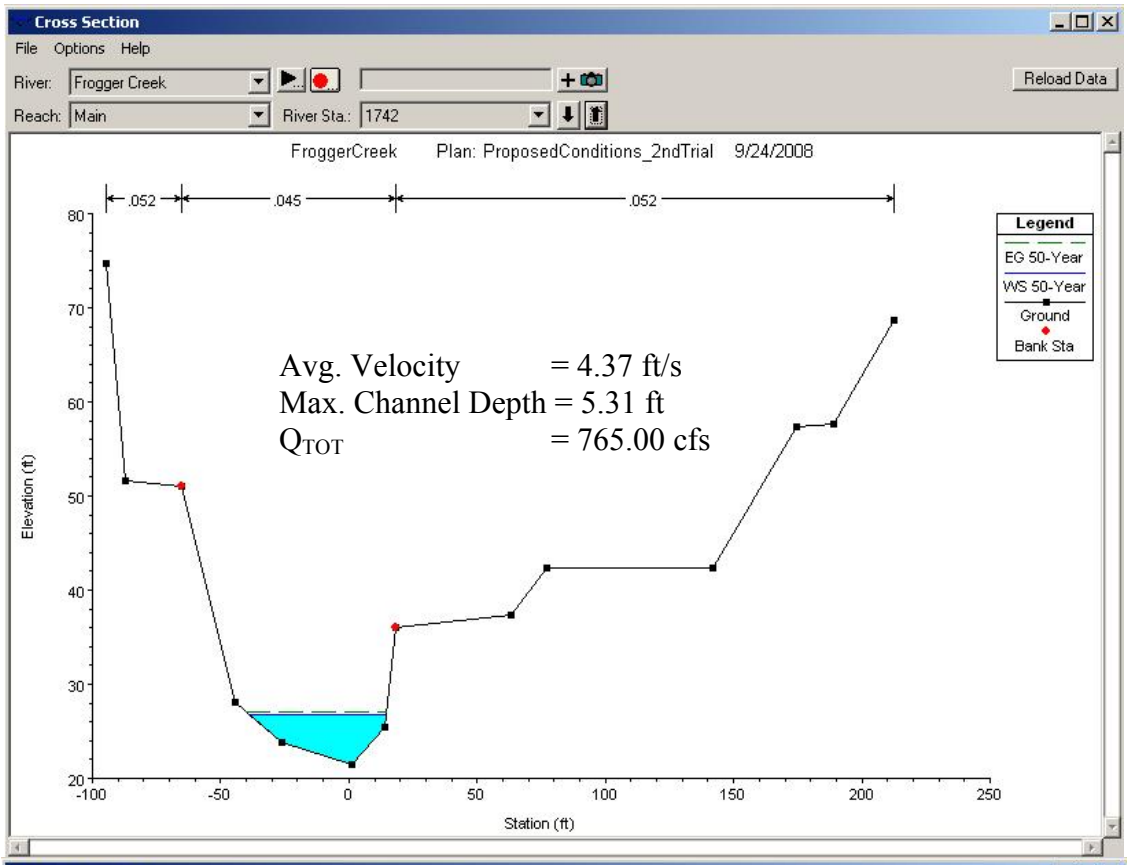

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 1.43 ft/s
QTOT = 70.00 cfs
Legend
EG High Fish Q
WS High Fish Q
Crit High Fish Q
Ground
Bank Sta
Elevation (ft)
Station (ft)

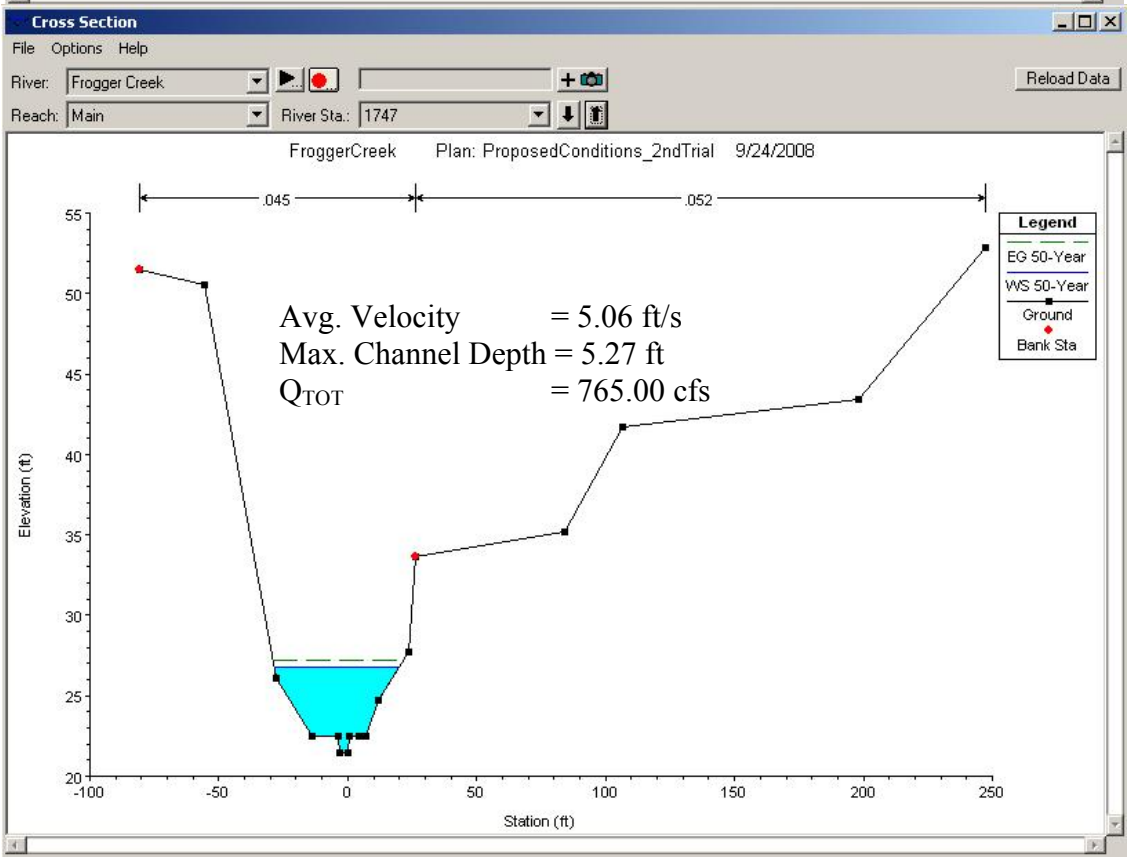
PROPOSED DESIGN (2ND TRIAL)

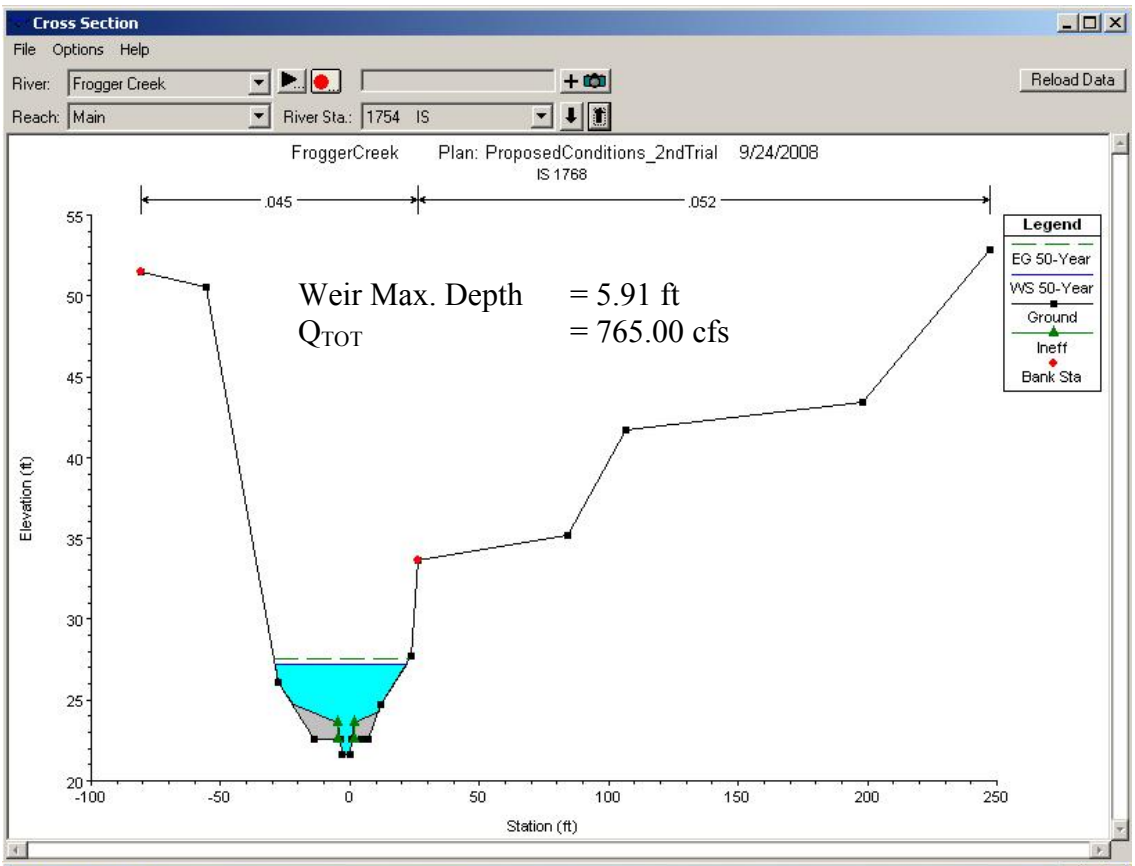
50-YEAR FLOW

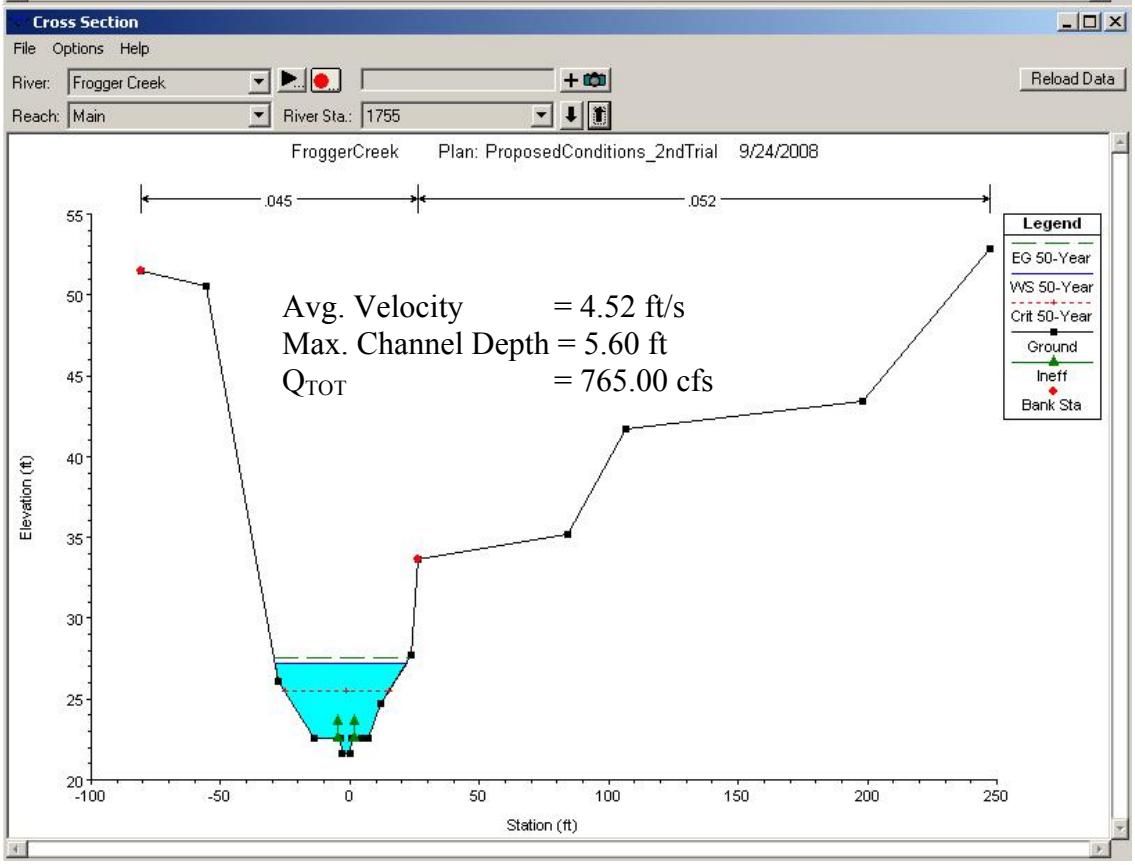

FroggerCreek
Plan: ProposedConditions_2ndTrial
9/24/2008
Elevation (ft)
Main Channel Distance (ft)
0
10
20
30
40
50
60
0
200
400
600
800
1000
1200
1400
1600
Legend
EG 50-Year
Crit 50-Year
WS 50-Year
Ground

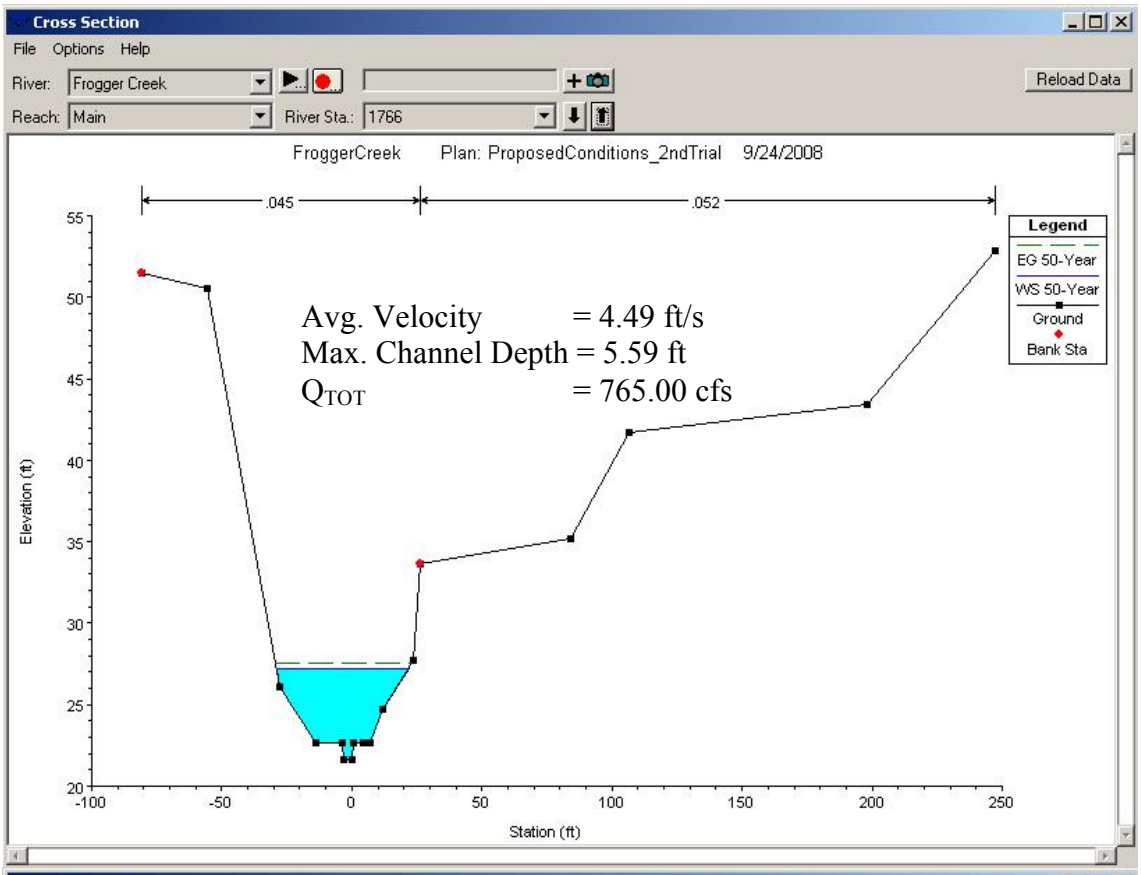

2448
2382
2316
2211
2139
2029
Main
Flogger Creek
1856
1844
1837
1807
1755
1659
1593
1527
1461
1335
1231
1000

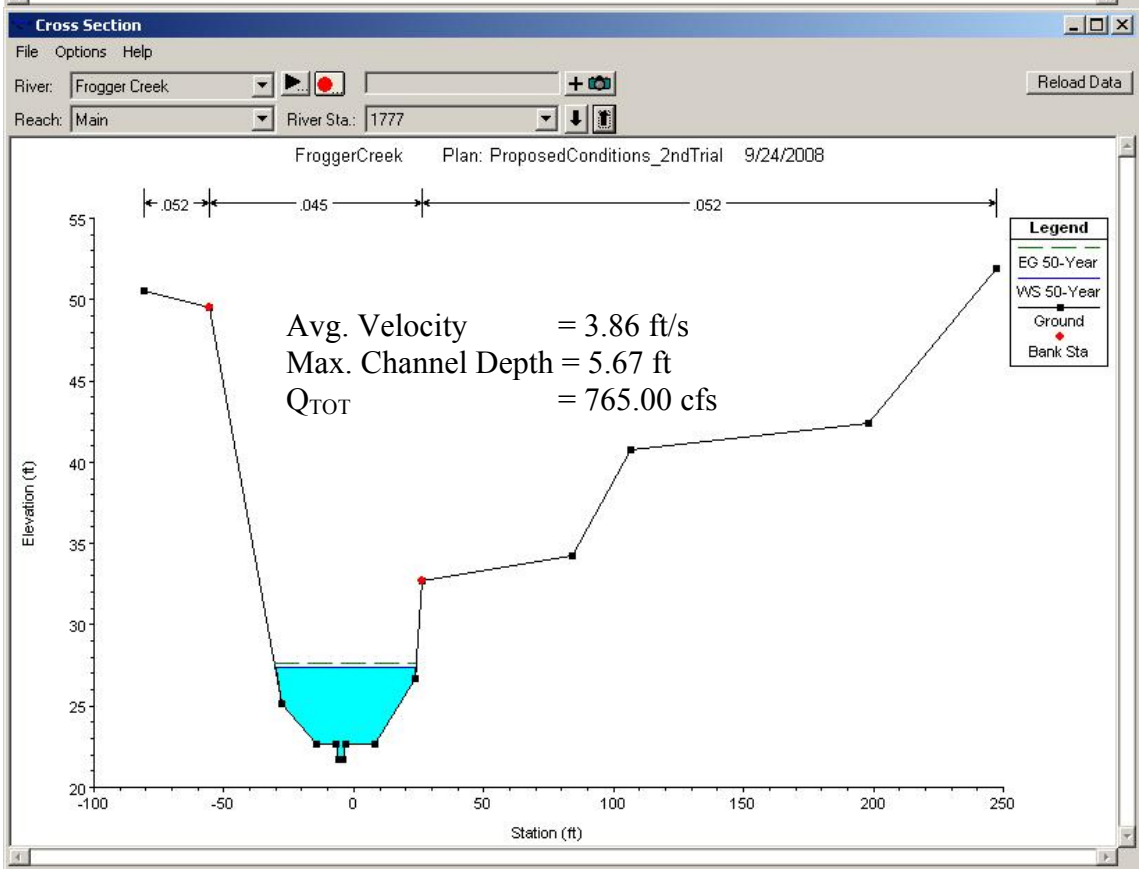

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.37 ft/s
Max. Channel Depth = 5.31 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

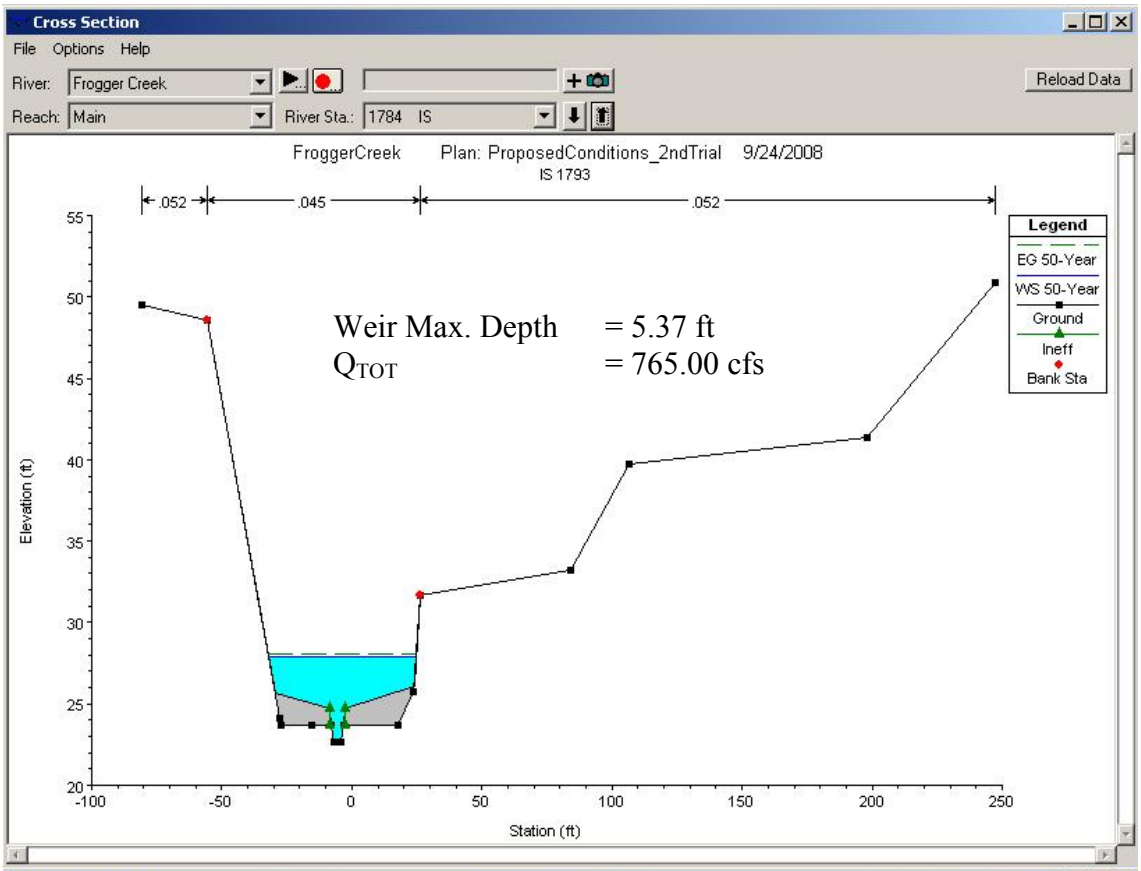

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.06 ft/s
Max. Channel Depth = 5.27 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

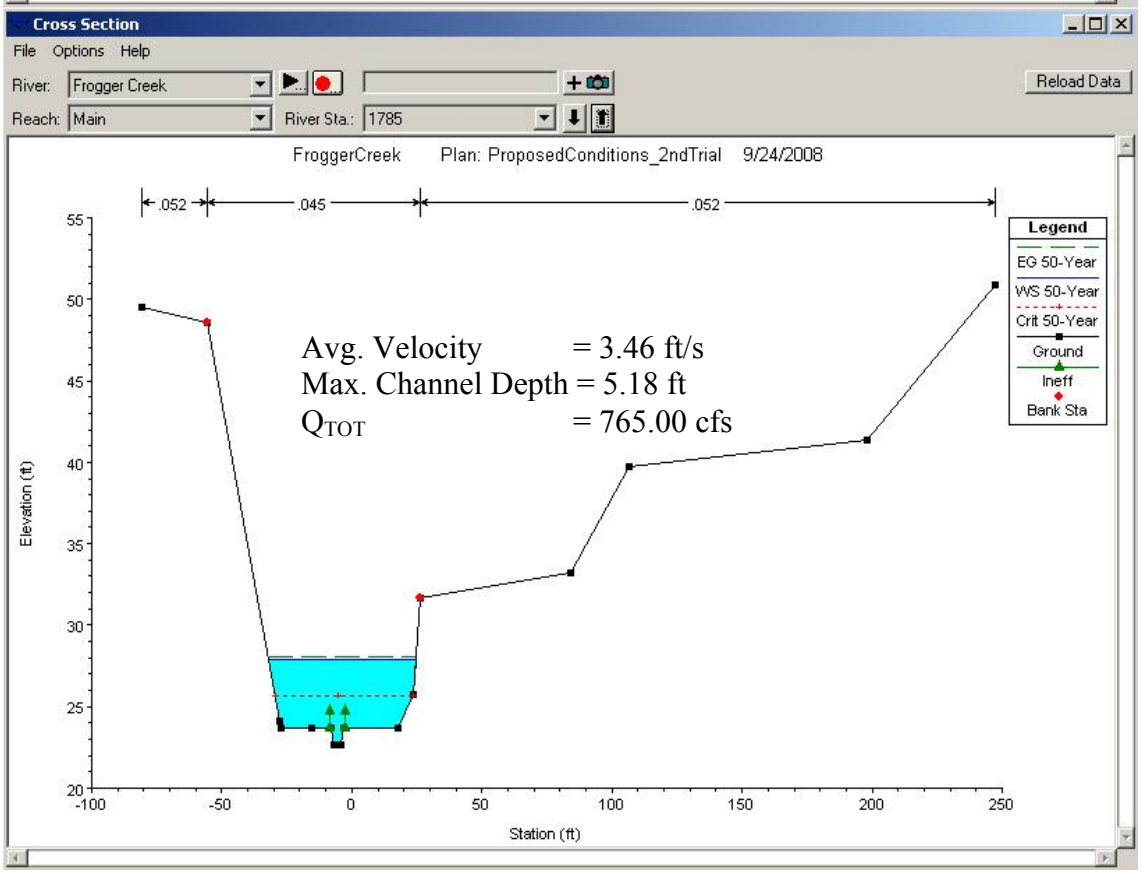

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1768
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 5.91 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

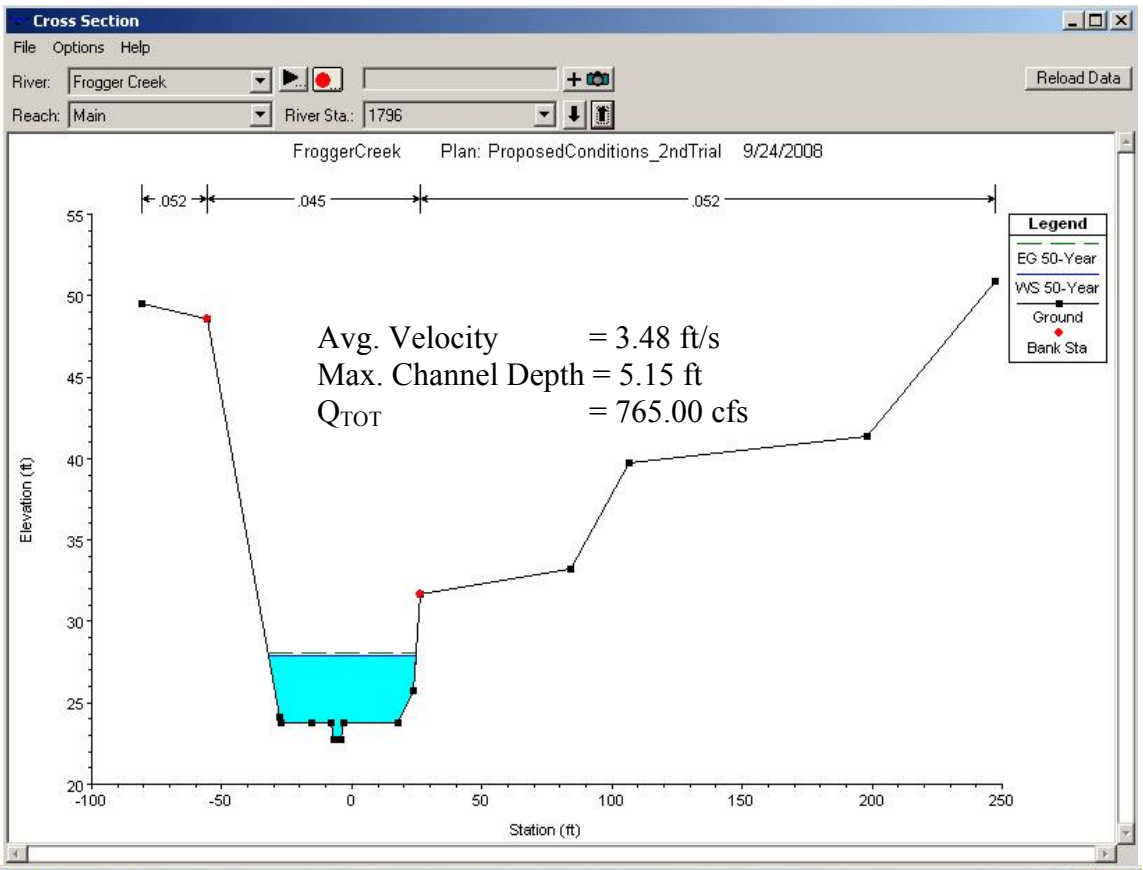

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 4.52 ft/s
Max. Channel Depth = 5.60 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

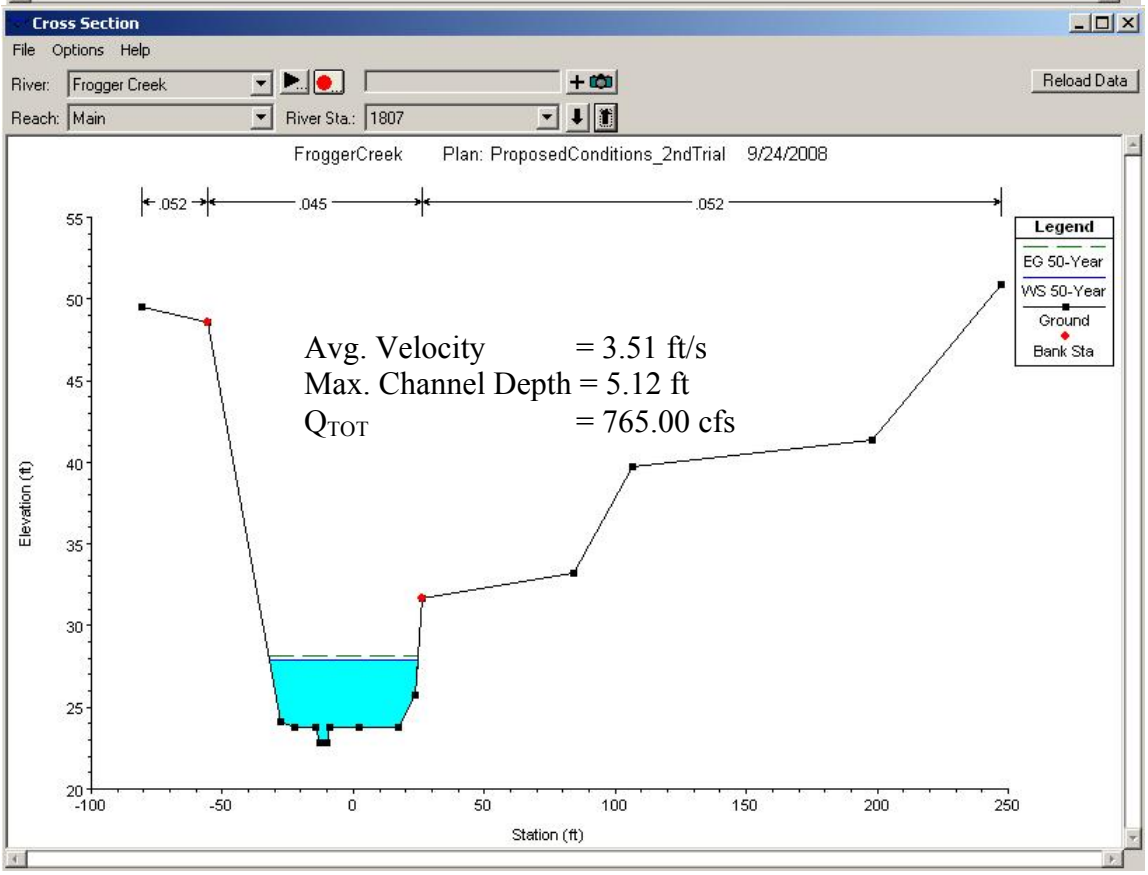

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 4.49 ft/s
Max. Channel Depth = 5.59 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

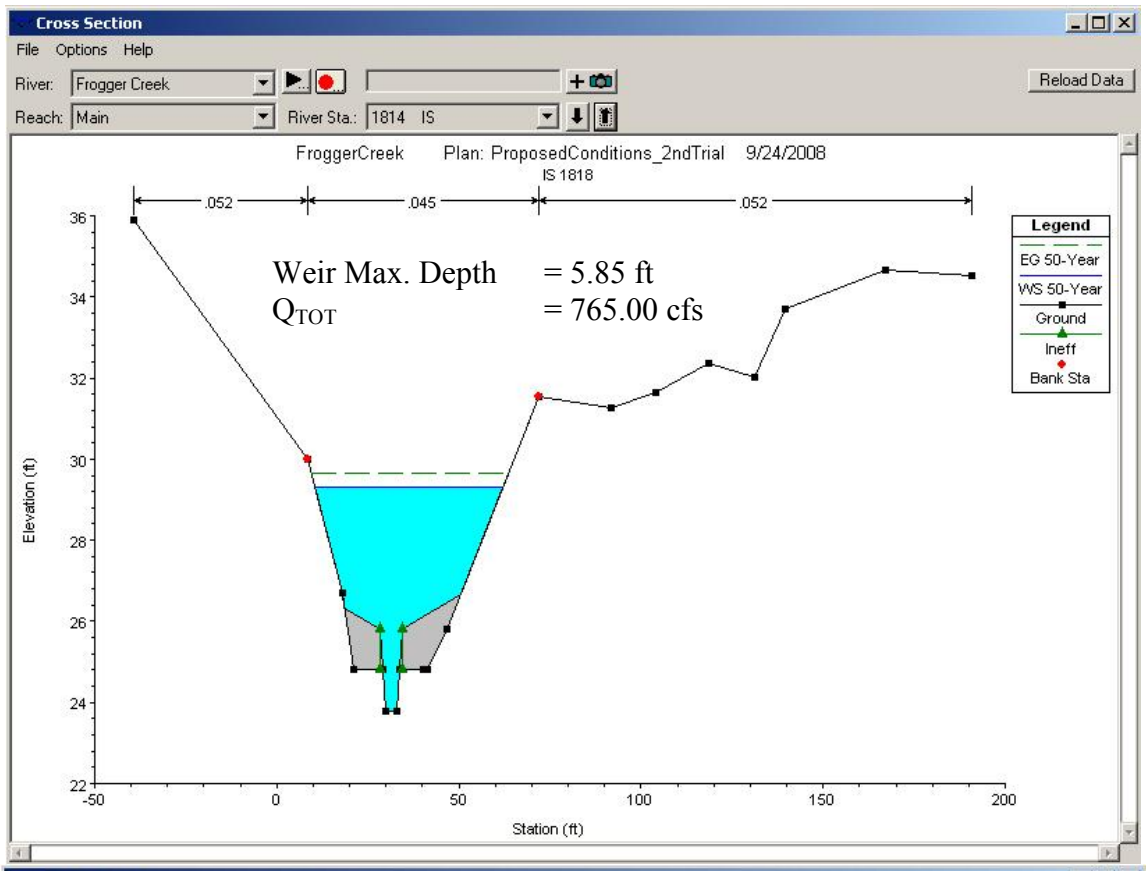

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.86 ft/s
Max. Channel Depth = 5.67 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

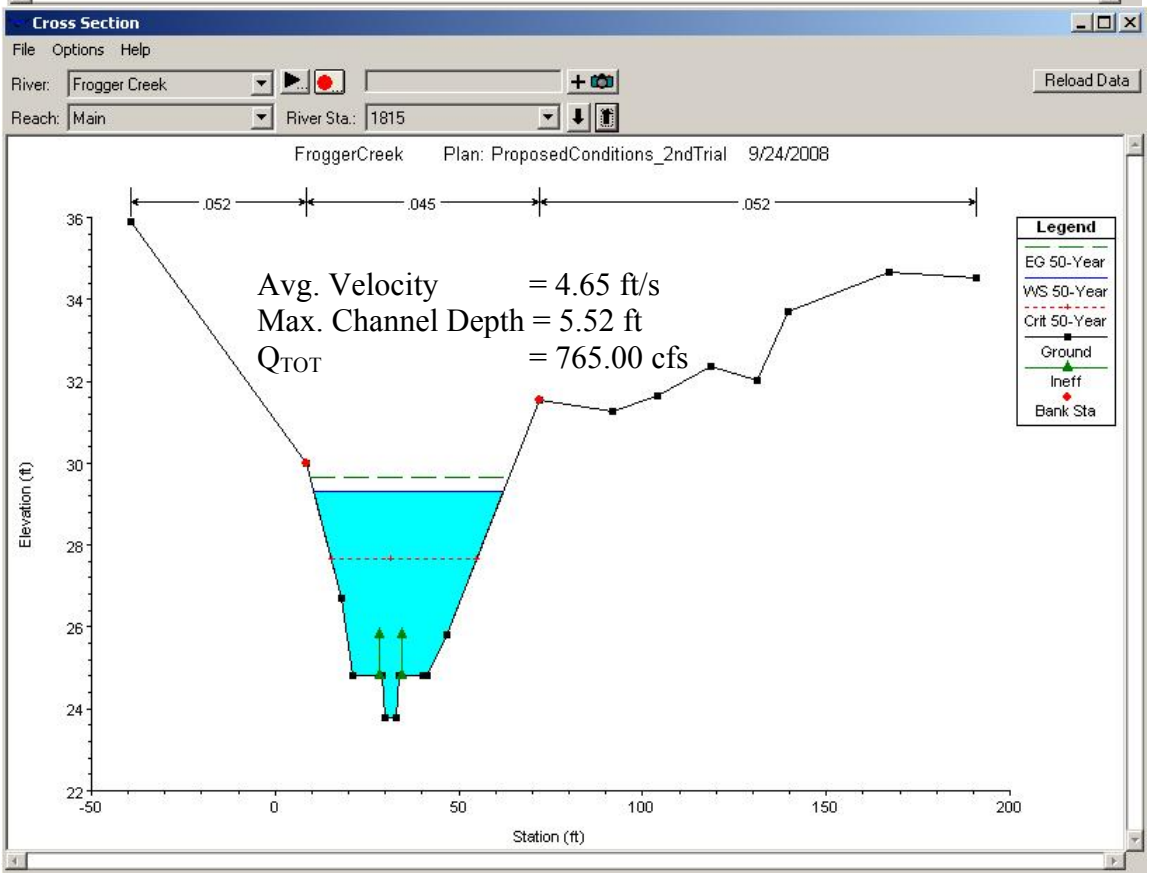

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1793
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 5.37 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

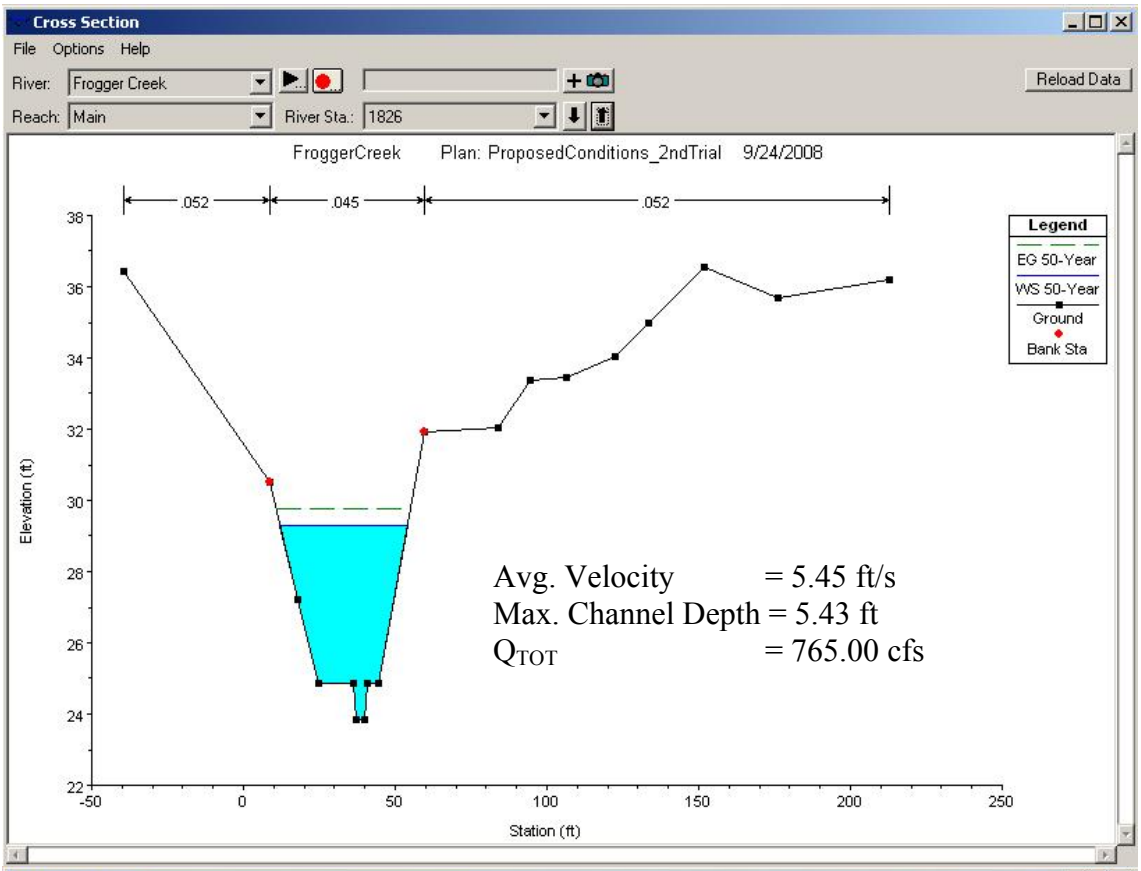

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.46 ft/s
Max. Channel Depth = 5.18 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

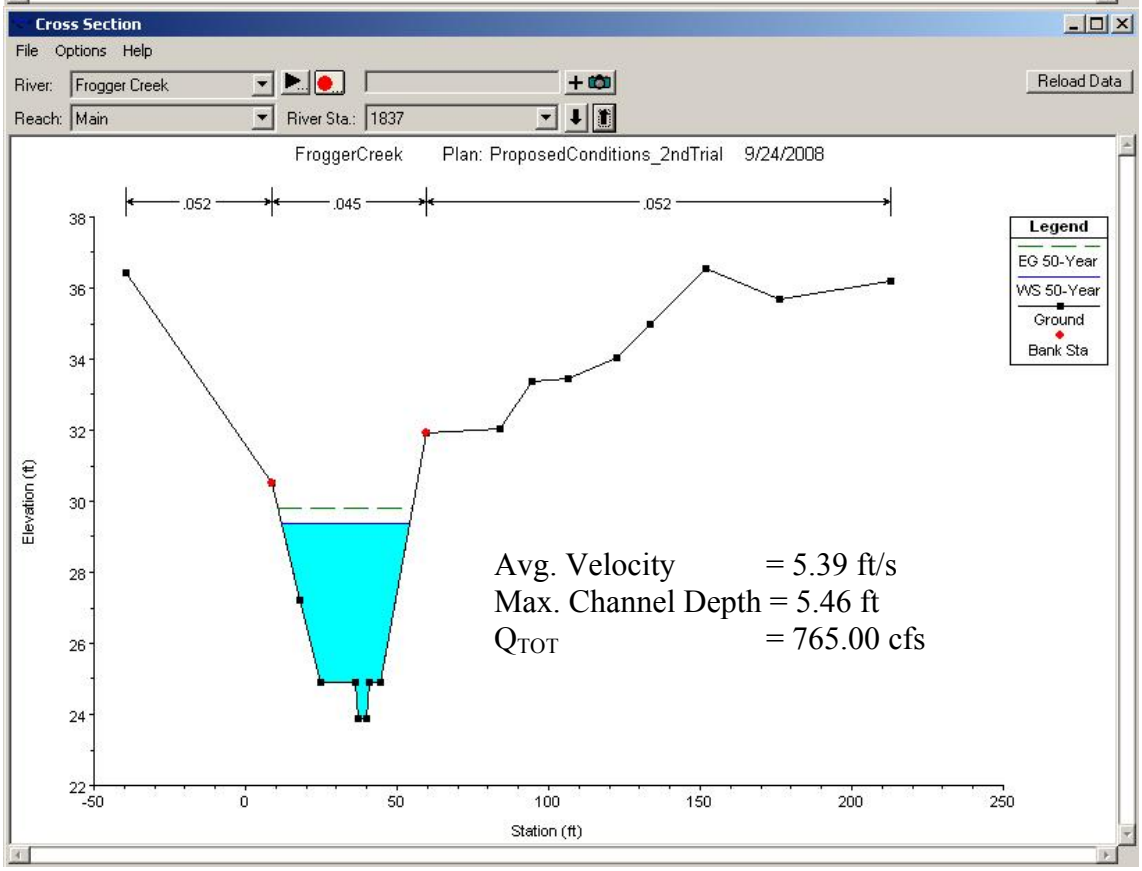

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.48 ft/s
Max. Channel Depth = 5.15 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

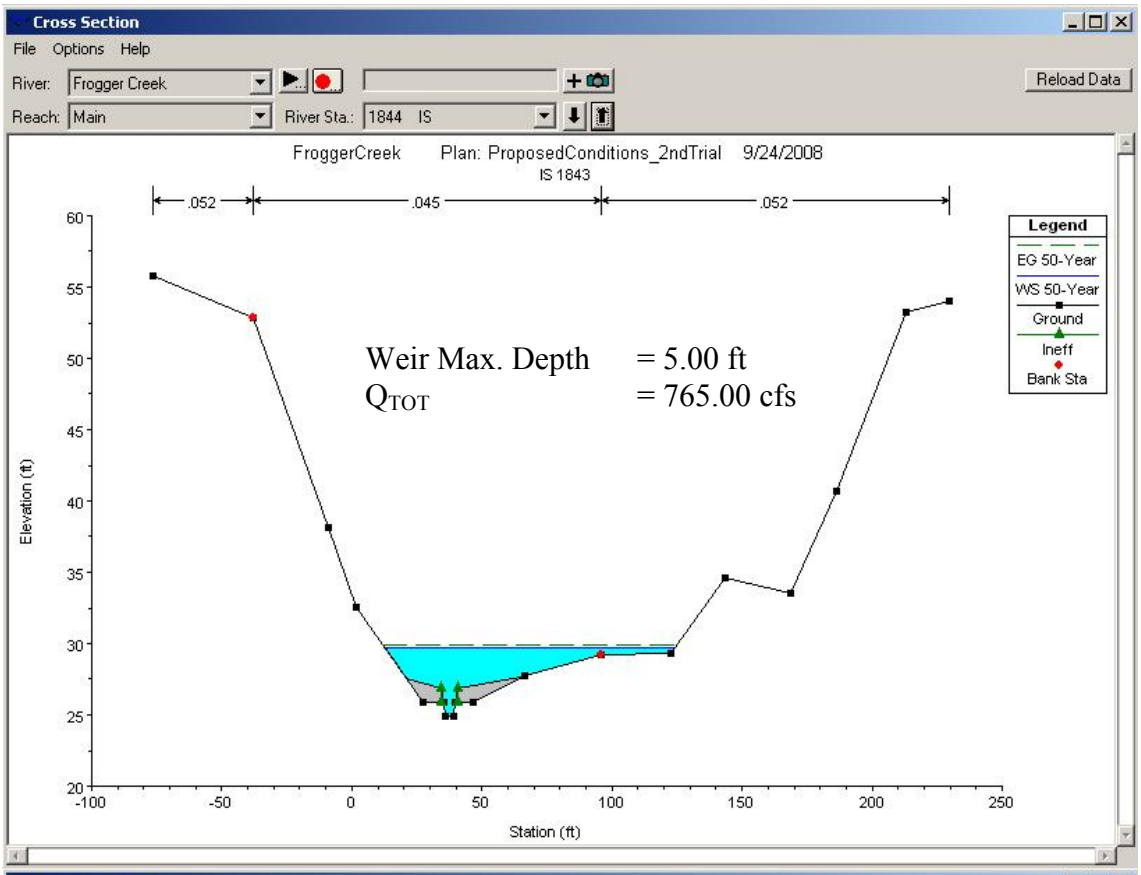

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 3.51 ft/s
Max. Channel Depth = 5.12 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

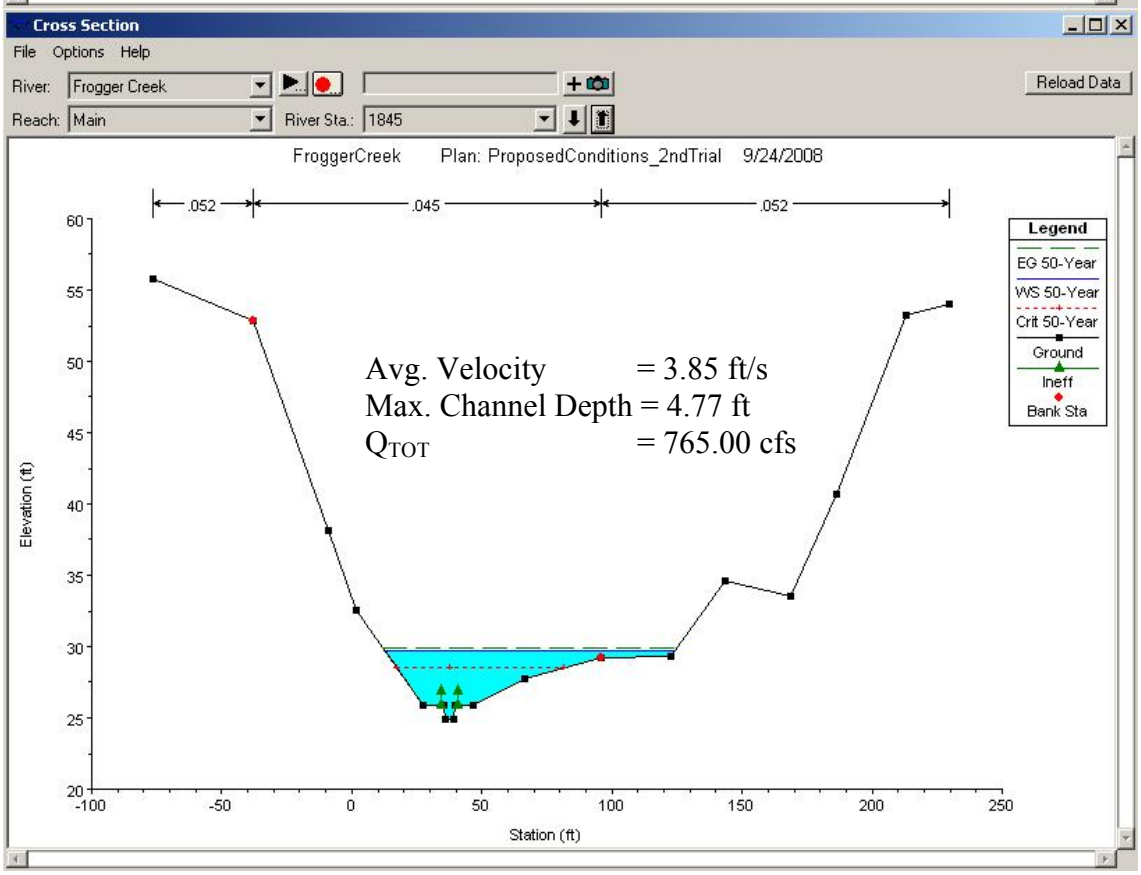

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1818
.052
.045
.052
Weir Max. Depth = 5.85 ft
Q_{TOT} = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

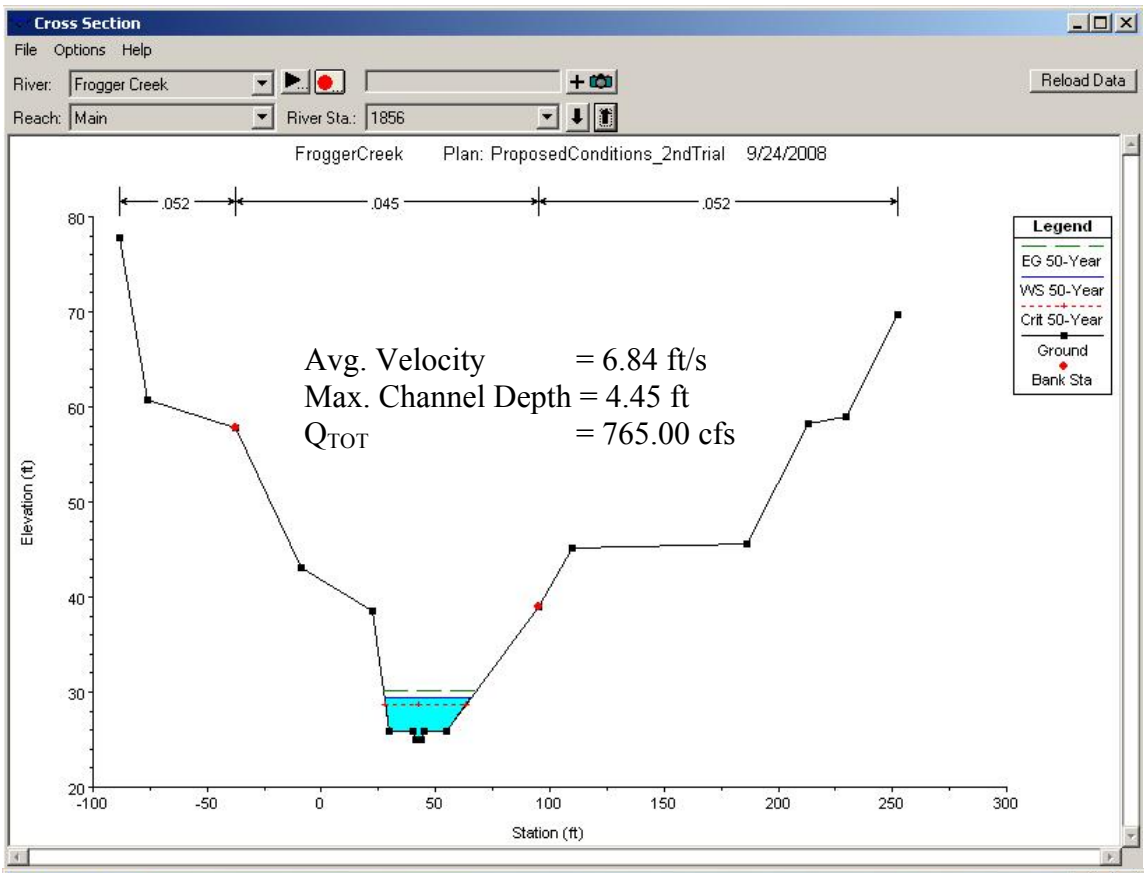

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 4.65 ft/s
Max. Channel Depth = 5.52 ft
Q_{TOT} = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

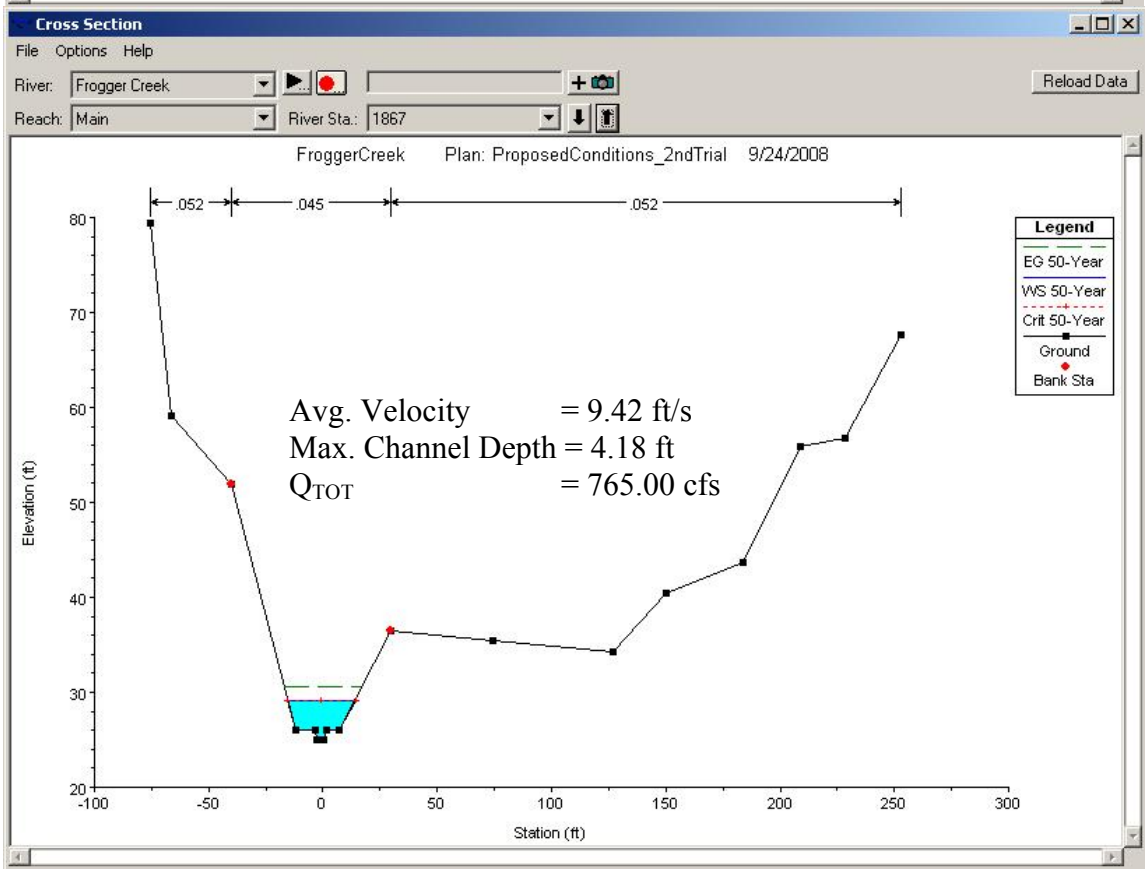

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 5.45 ft/s
Max. Channel Depth = 5.43 ft
Q_{TOT} = 765.00 cfs

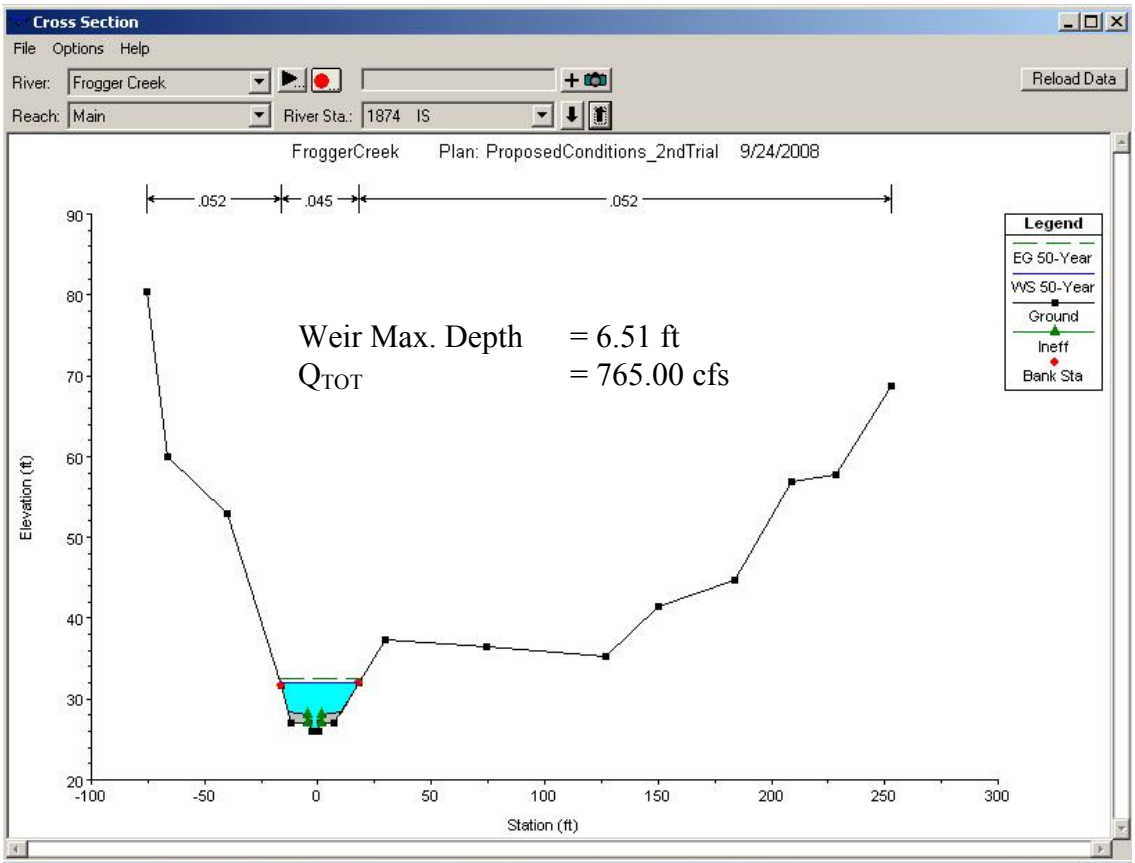

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 5.39 ft/s
Max. Channel Depth = 5.46 ft
Q_{TOT} = 765.00 cfs

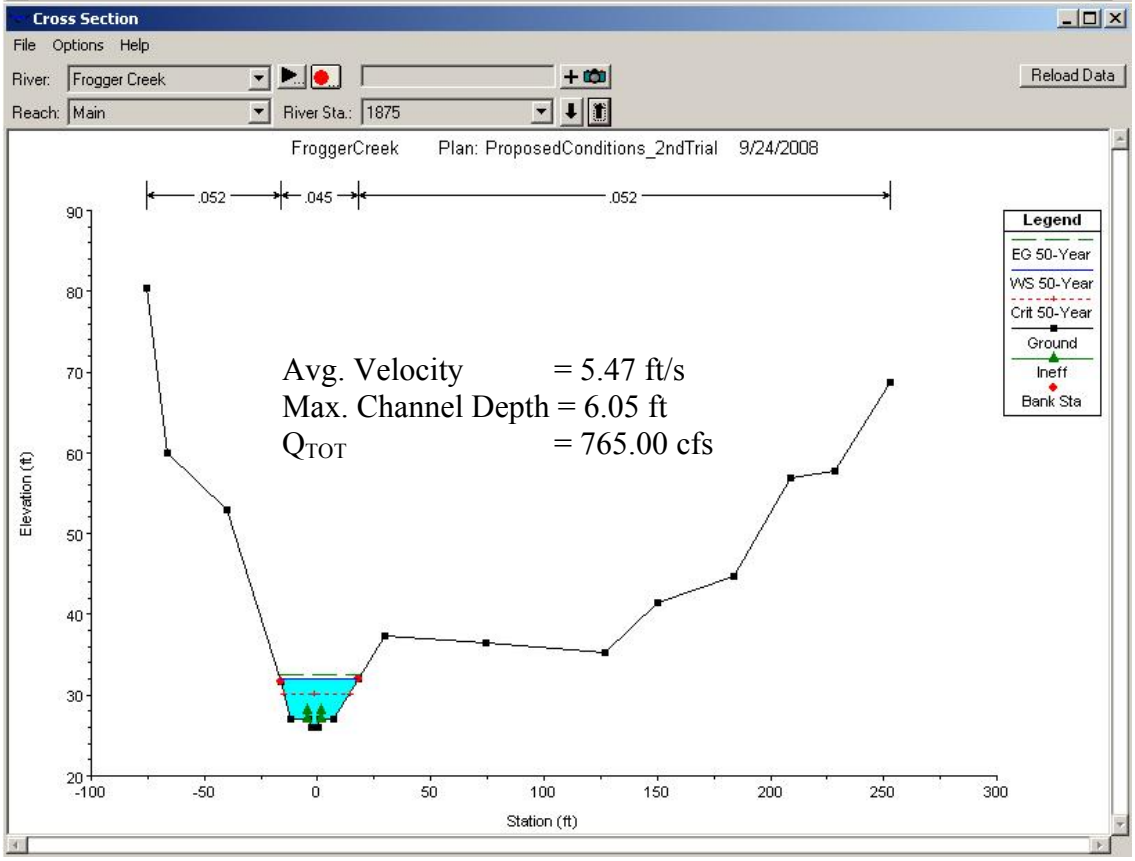

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1843
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 5.00 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

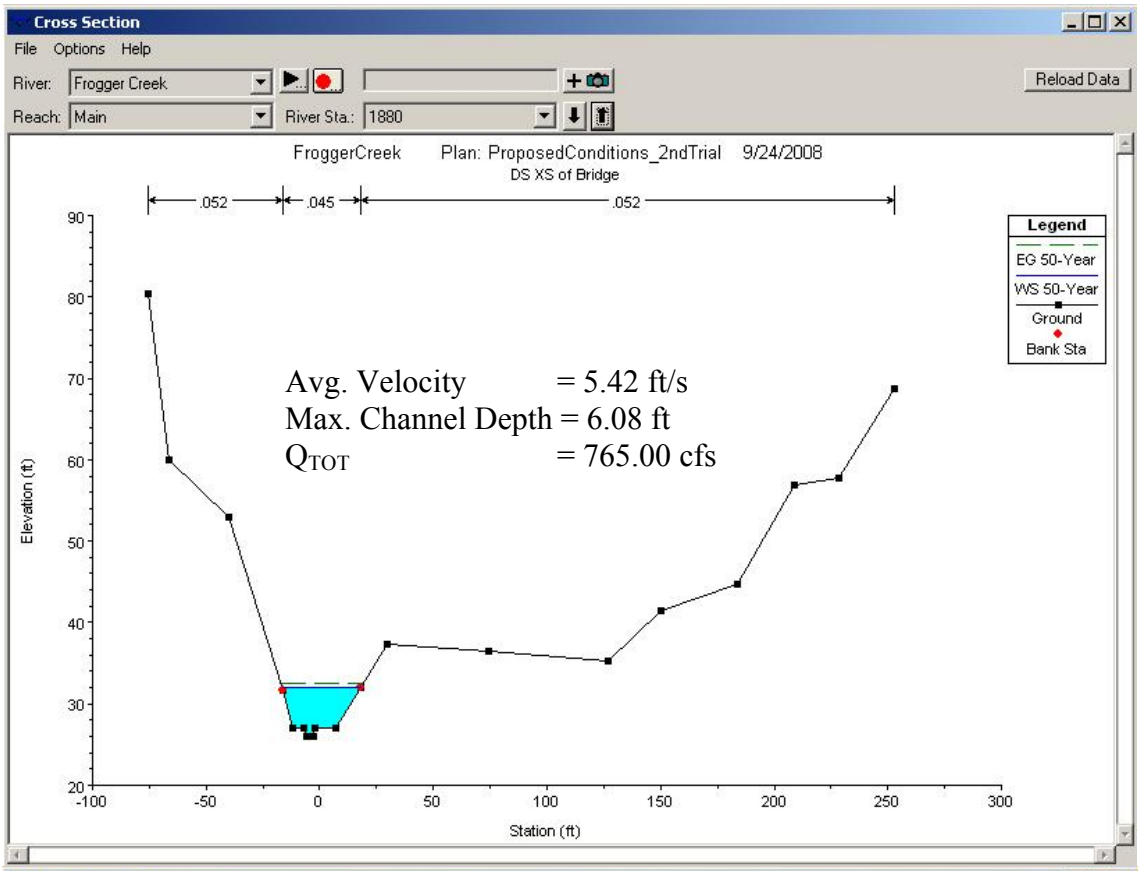

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.85 ft/s
Max. Channel Depth = 4.77 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)

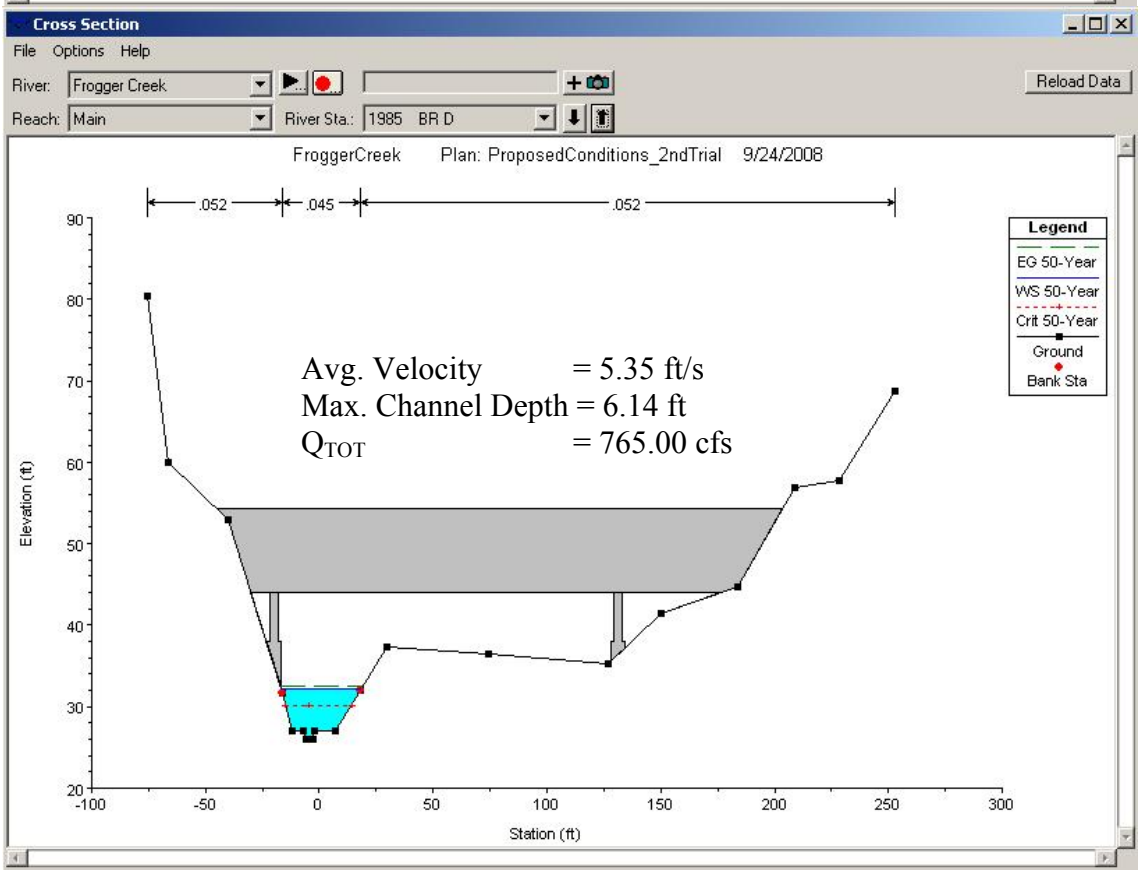

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 6.84 ft/s
Max. Channel Depth = 4.45 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

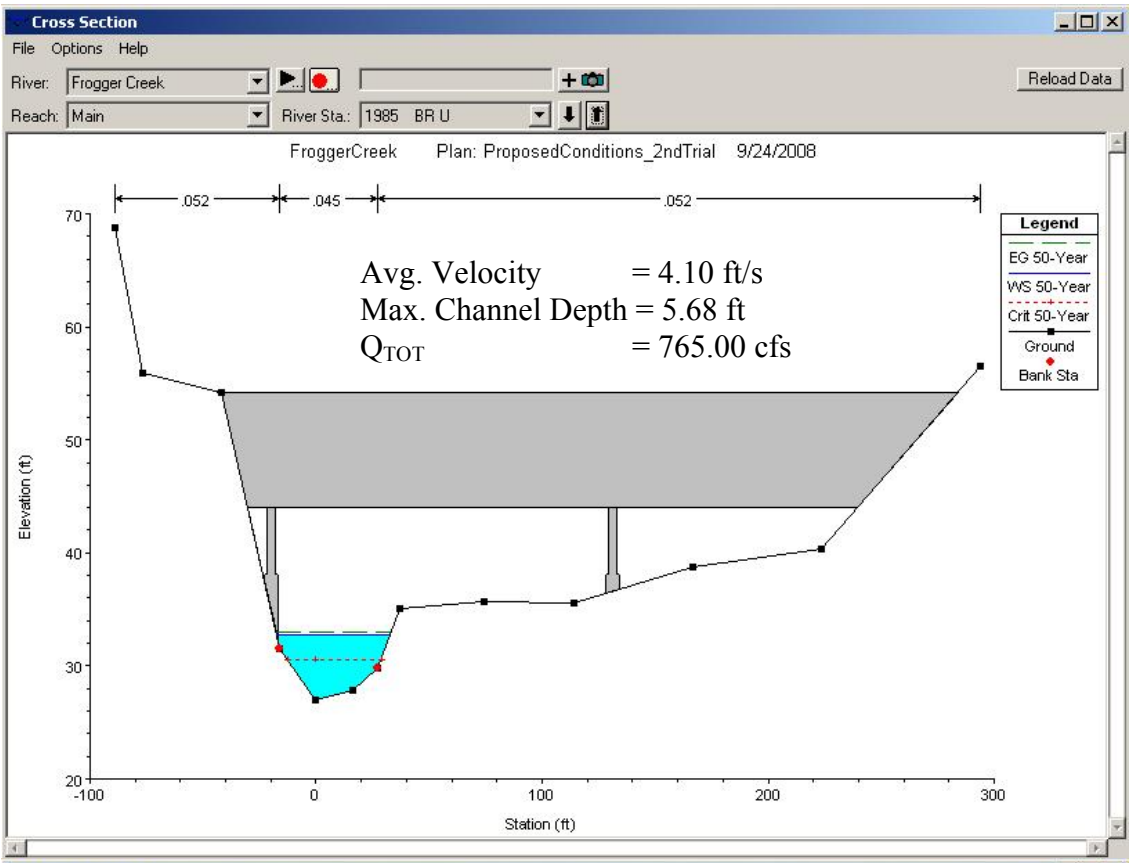

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 9.42 ft/s
Max. Channel Depth = 4.18 ft
Q_TOT = 765.00 cfs
Elevation (ft)
Station (ft)

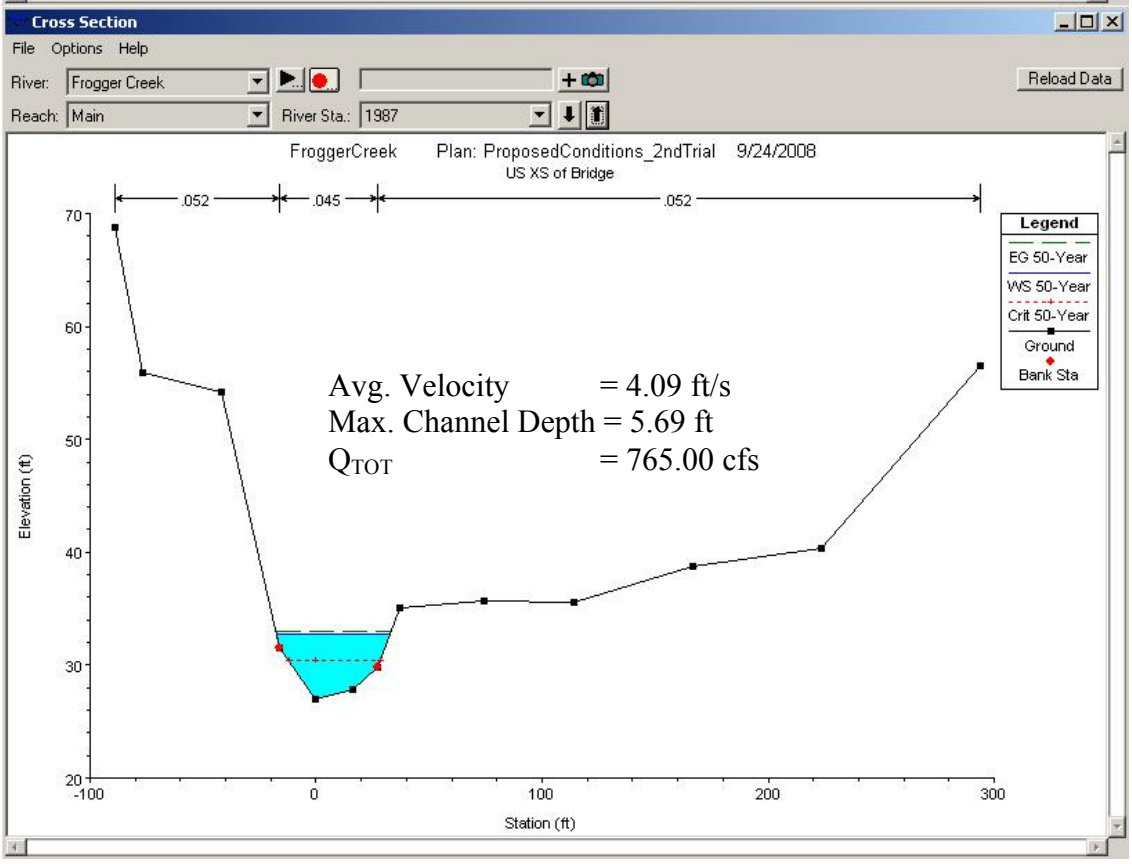

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Ineff
Bank Sta
Weir Max. Depth = 6.51 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 5.47 ft/s
Max. Channel Depth = 6.05 ft
QTOT = 765.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
DS XS of Bridge
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Ground
Bank Sta
Avg. Velocity = 5.42 ft/s
Max. Channel Depth = 6.08 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

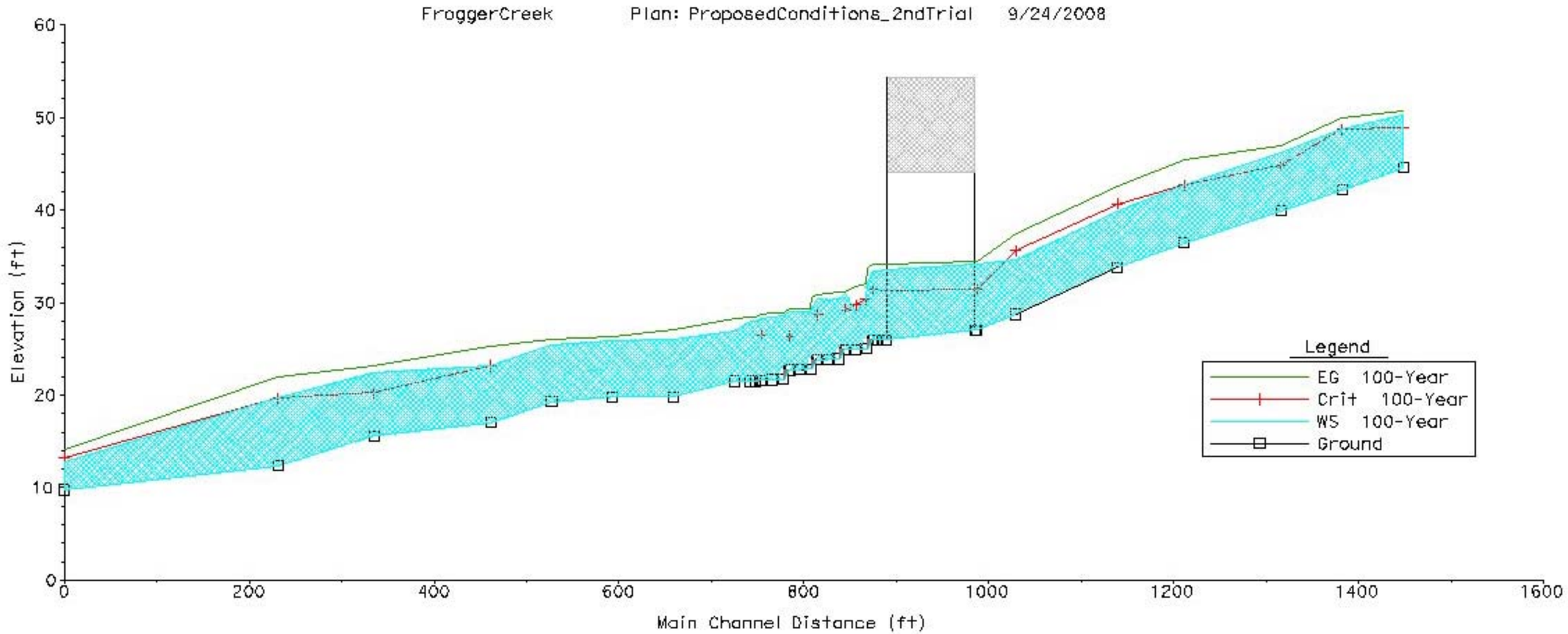

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Avg. Velocity = 5.35 ft/s
Max. Channel Depth = 6.14 ft
Q_{TOT} = 765.00 cfs
Elevation (ft)
Station (ft)

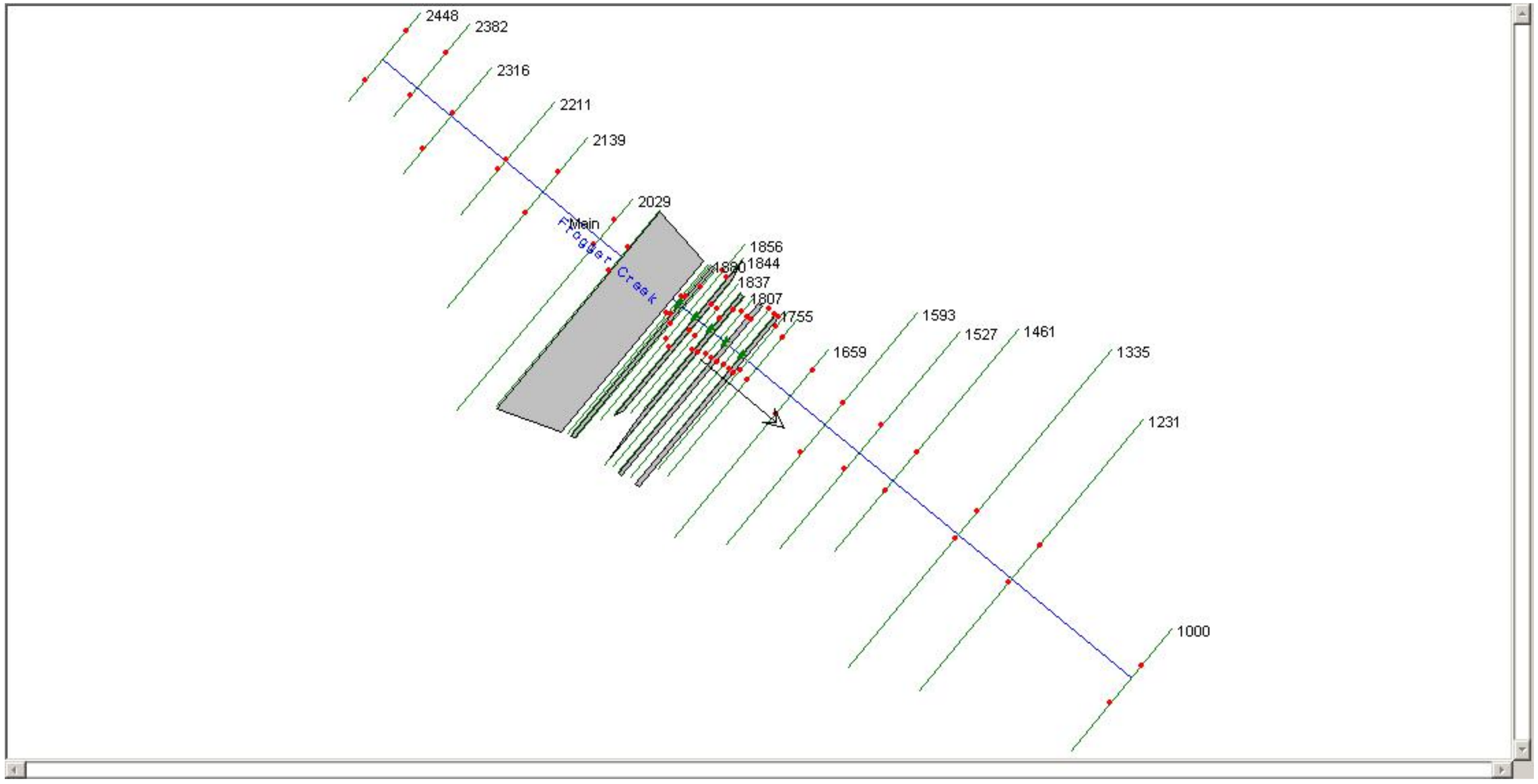

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 4.10 ft/s
Max. Channel Depth = 5.68 ft
QTOT = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

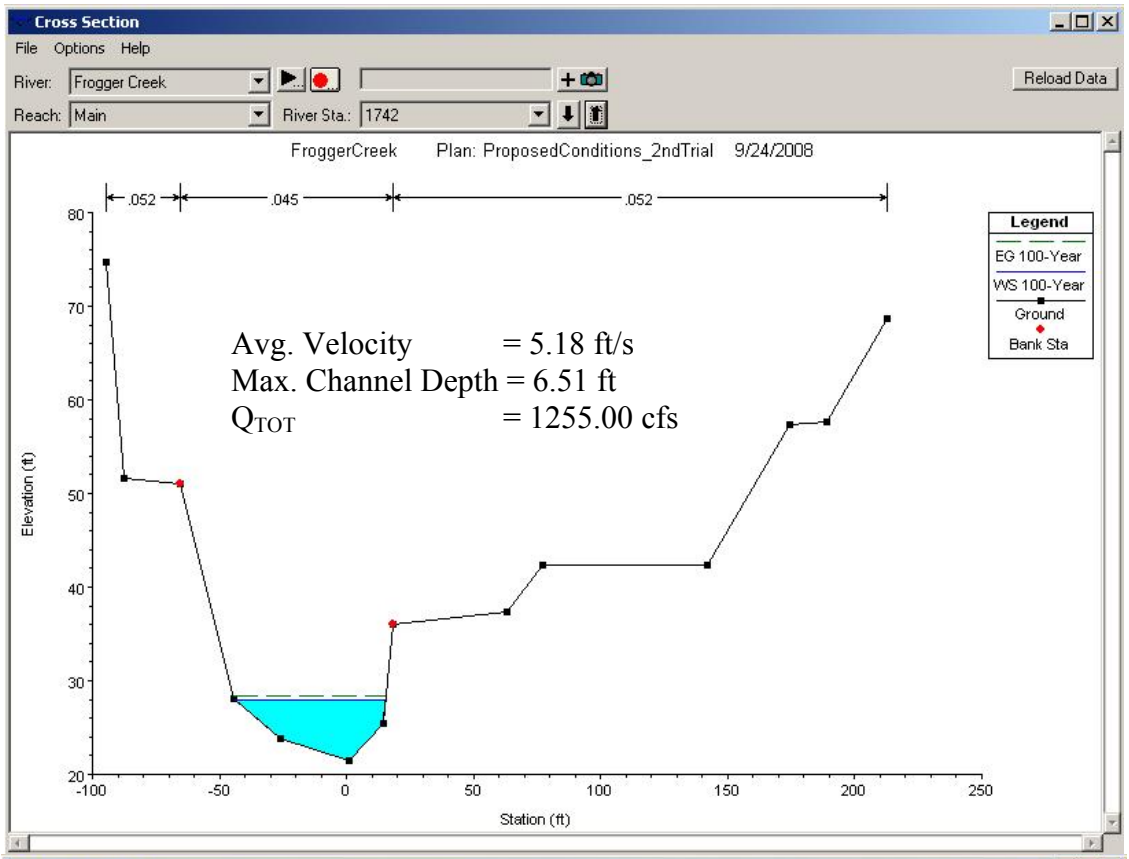

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 4.09 ft/s
Max. Channel Depth = 5.69 ft
QTOT = 765.00 cfs
Legend
EG 50-Year
WS 50-Year
Crit 50-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)

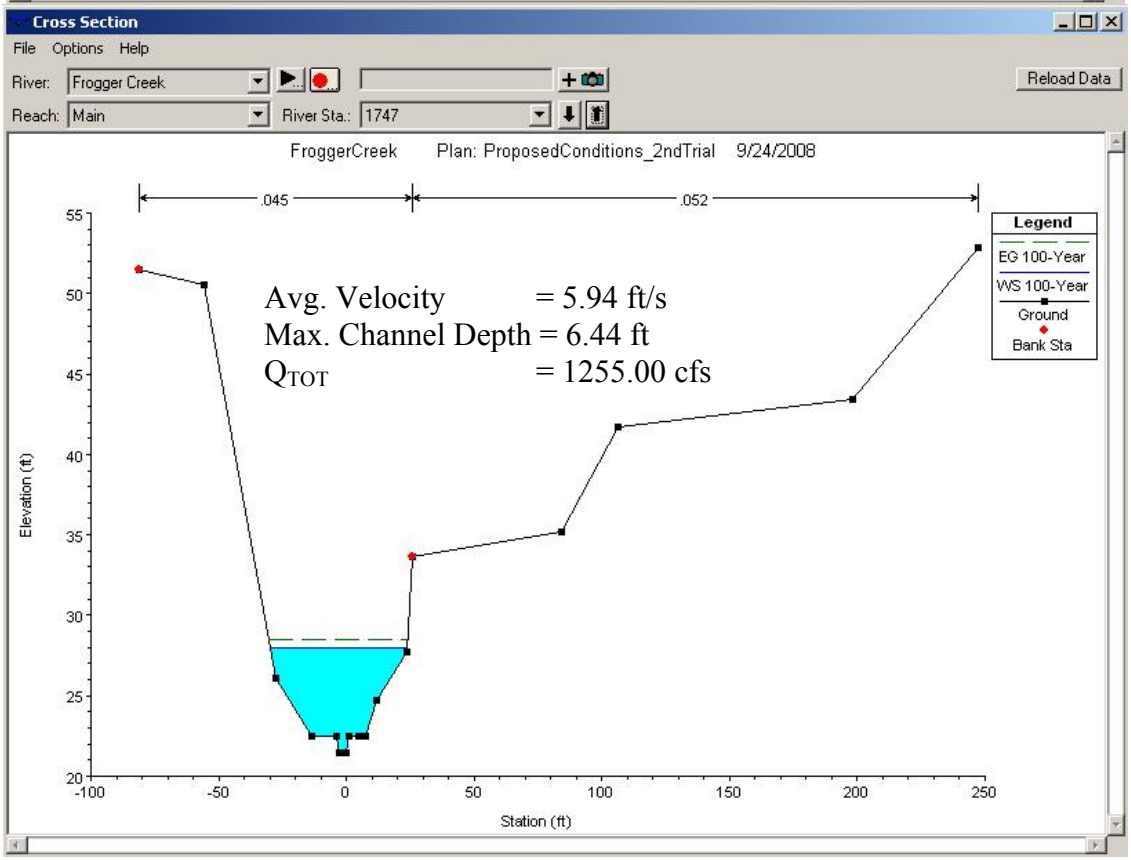
PROPOSED DESIGN (2ND TRIAL)

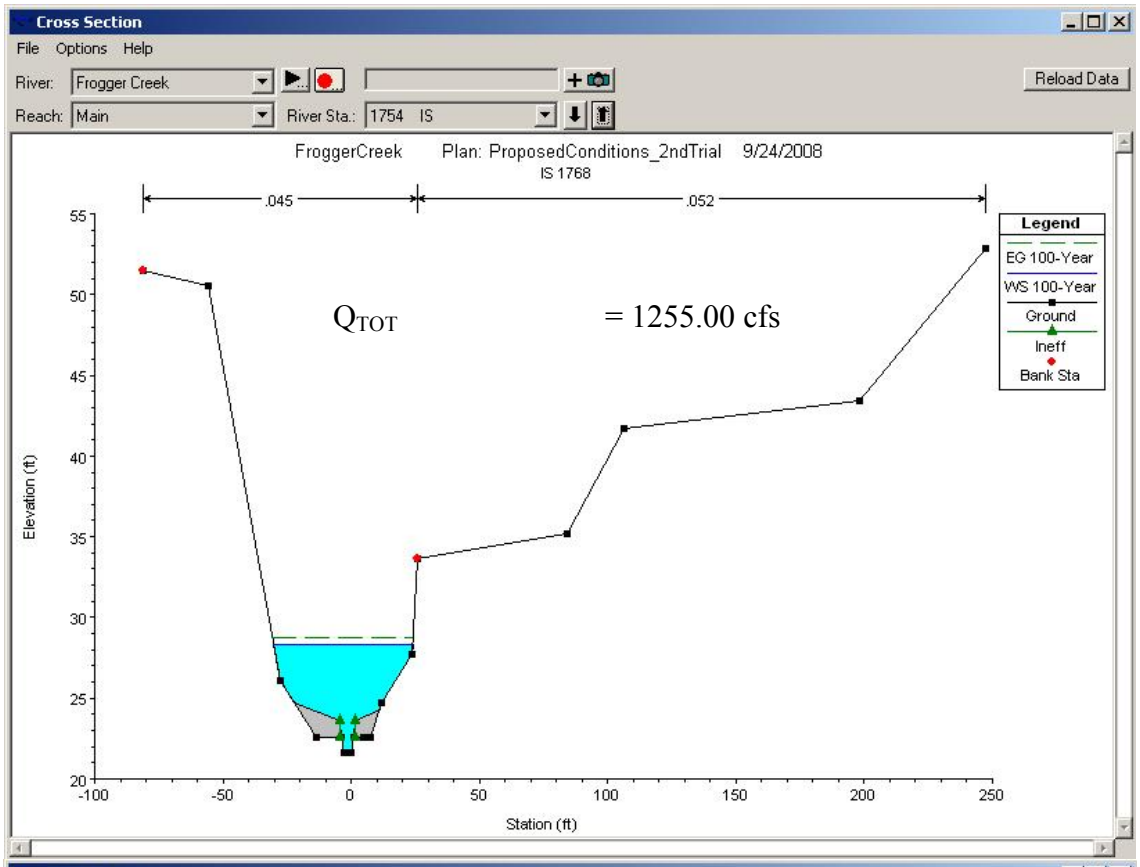
100-YEAR FLOW

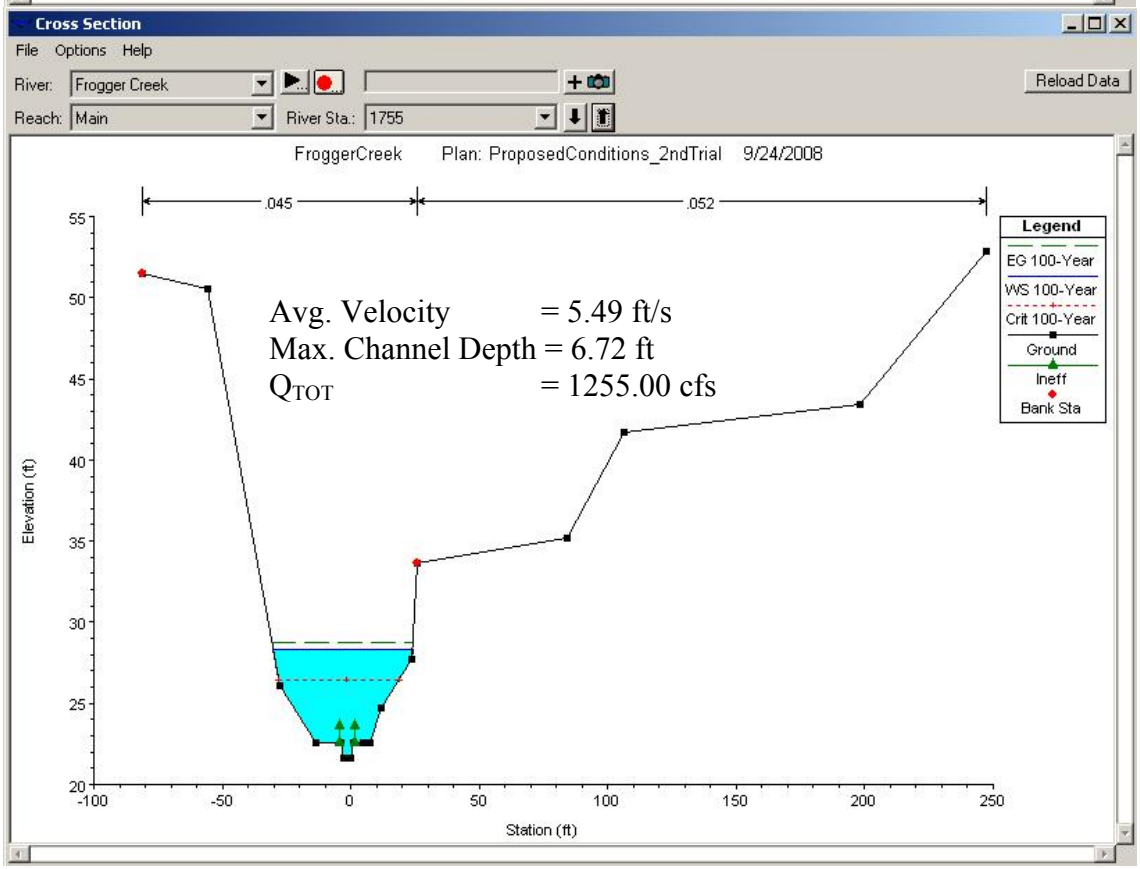

FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
Elevation (ft)
60
50
40
30
20
10
0
0
200
400
600
800
1000
1200
1400
1600
Main Channel Distance (ft)
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground

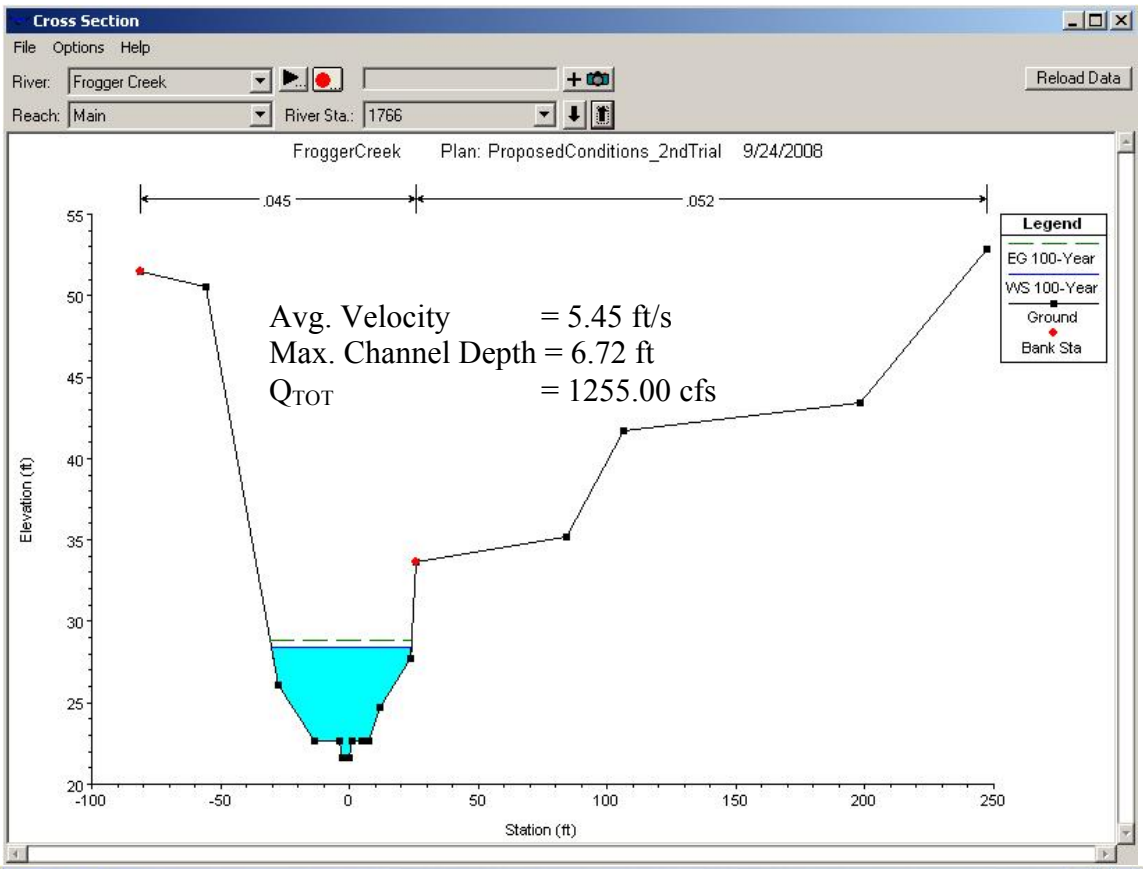

2448
2382
2316
2211
2139
2029
Main
Flogger Creek
1856
1844
1837
1807
1755
1593
1527
1461
1659
1335
1231
1000

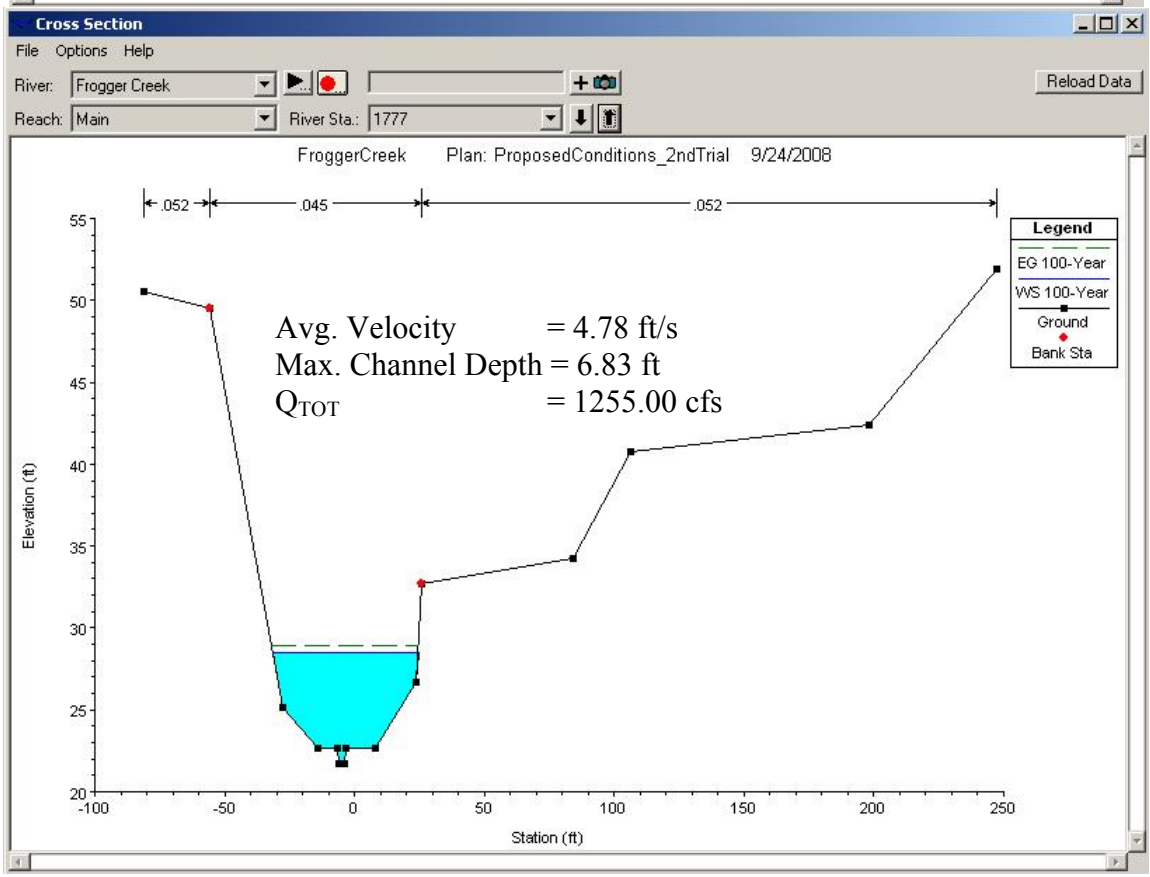

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1742
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.18 ft/s
Max. Channel Depth = 6.51 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

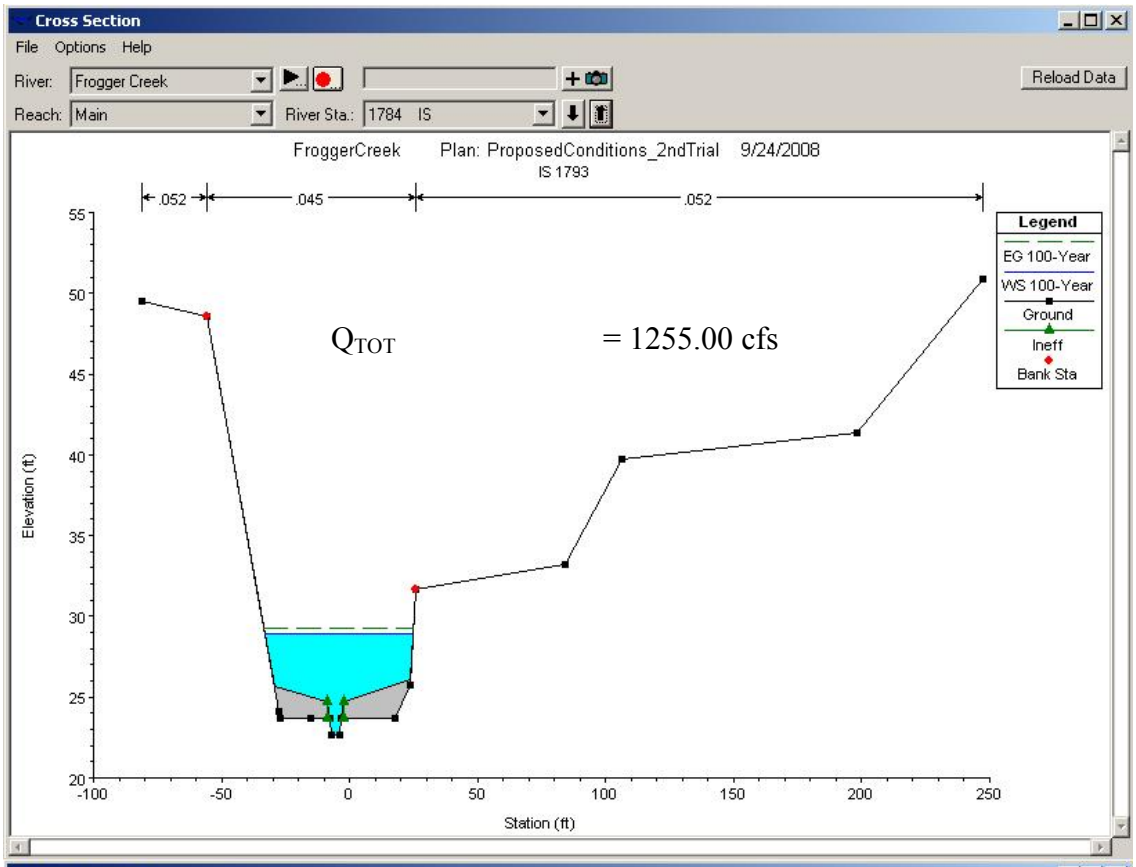

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1747
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.94 ft/s
Max. Channel Depth = 6.44 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

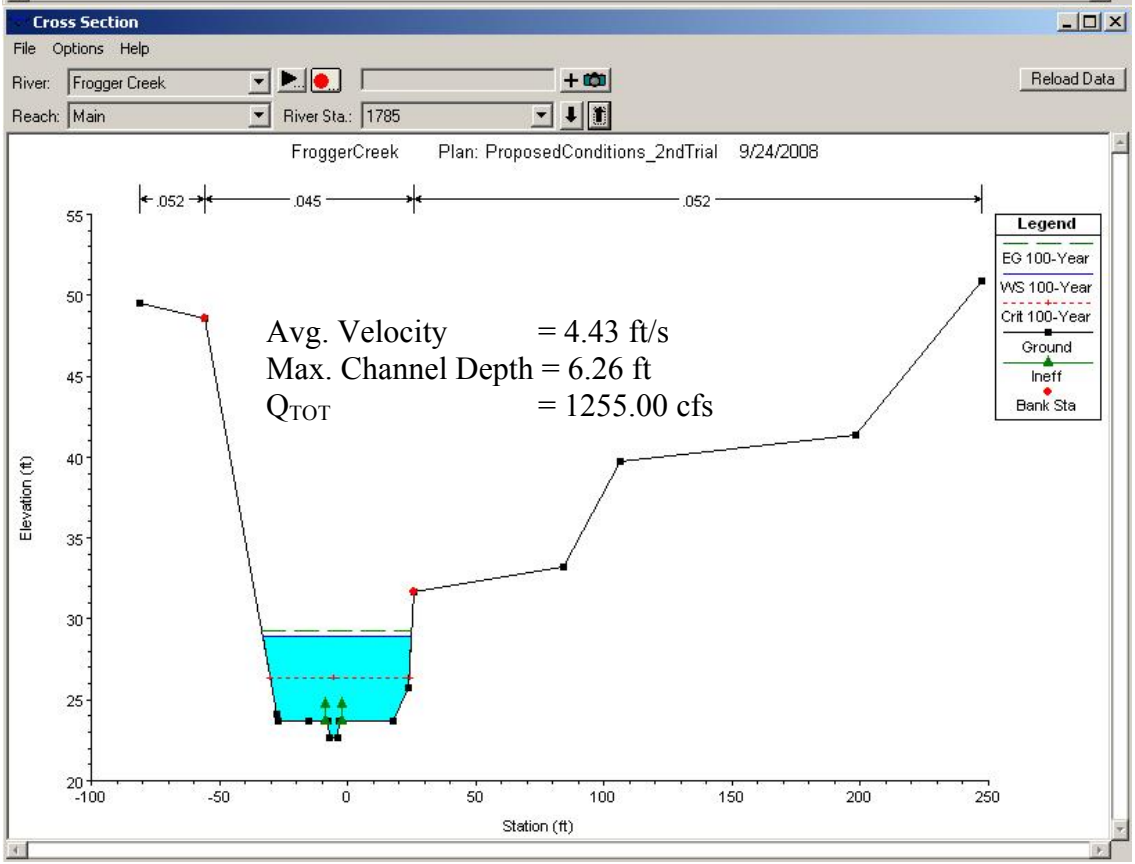

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1754 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1768
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

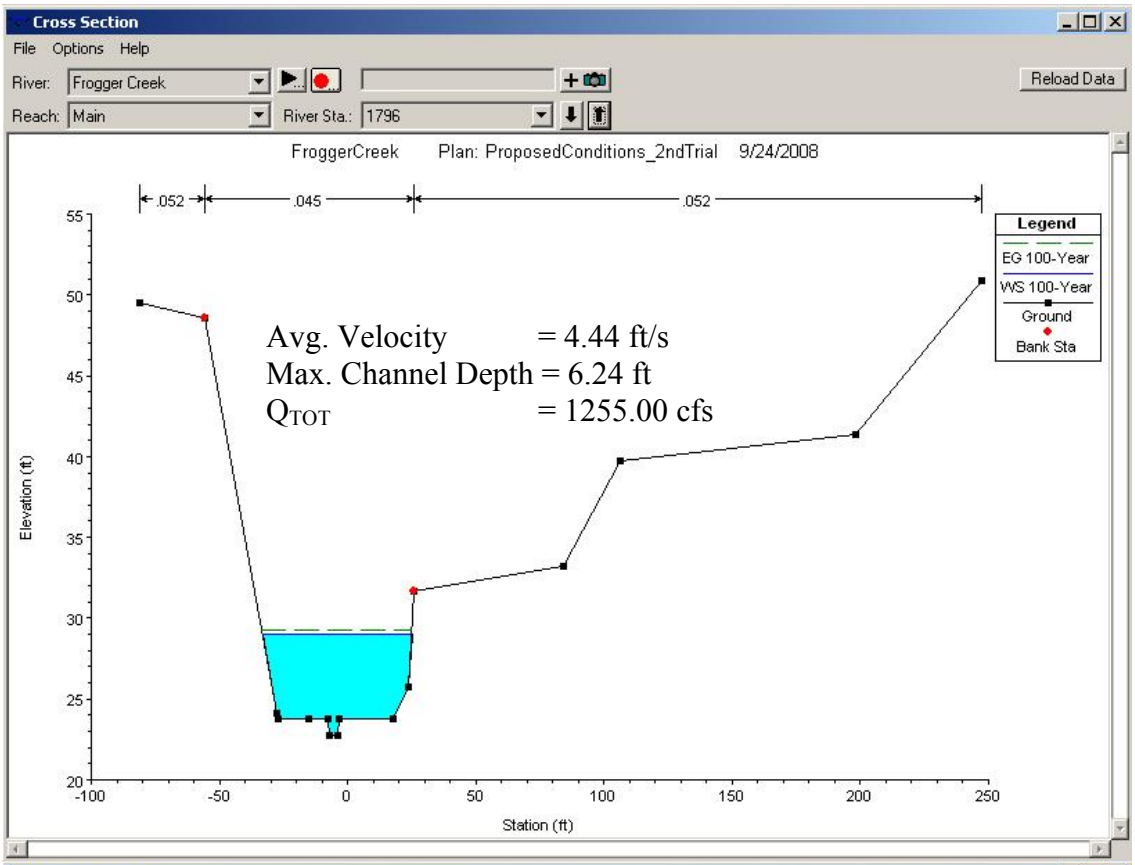

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1755
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 5.49 ft/s
Max. Channel Depth = 6.72 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

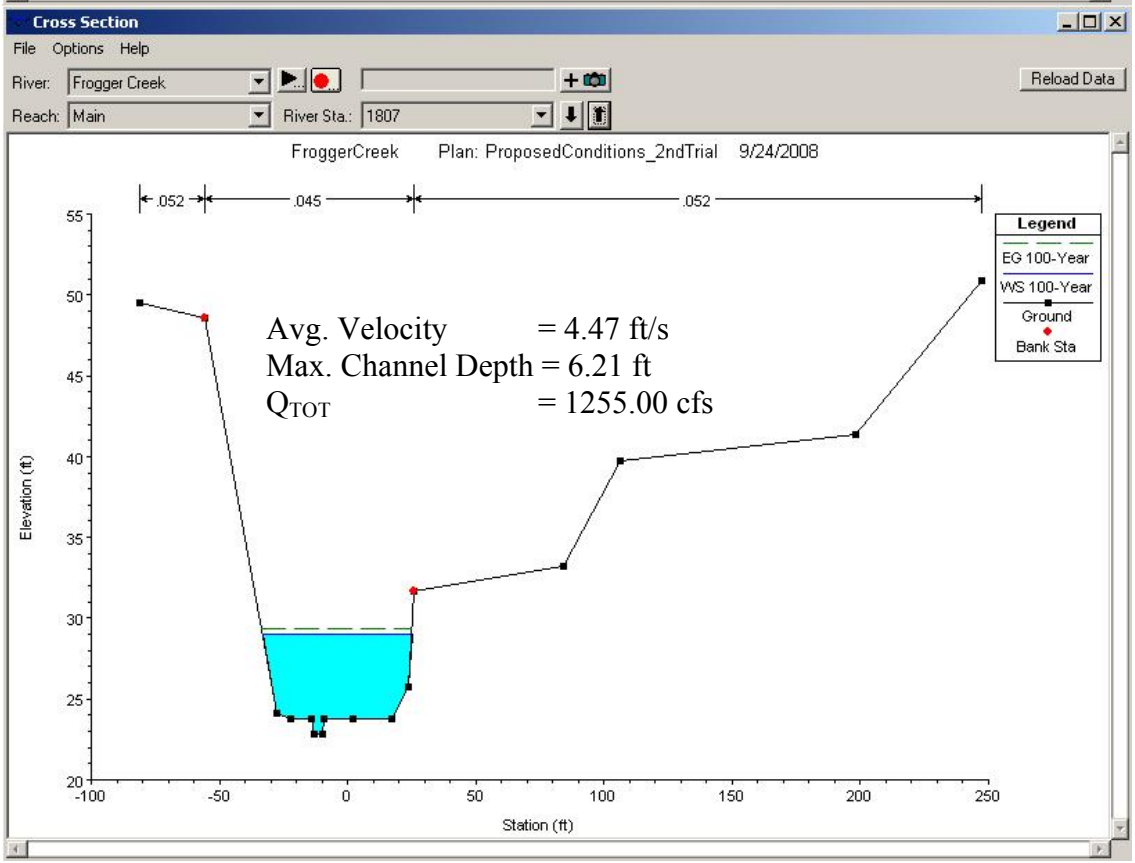

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1766
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 5.45 ft/s
Max. Channel Depth = 6.72 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

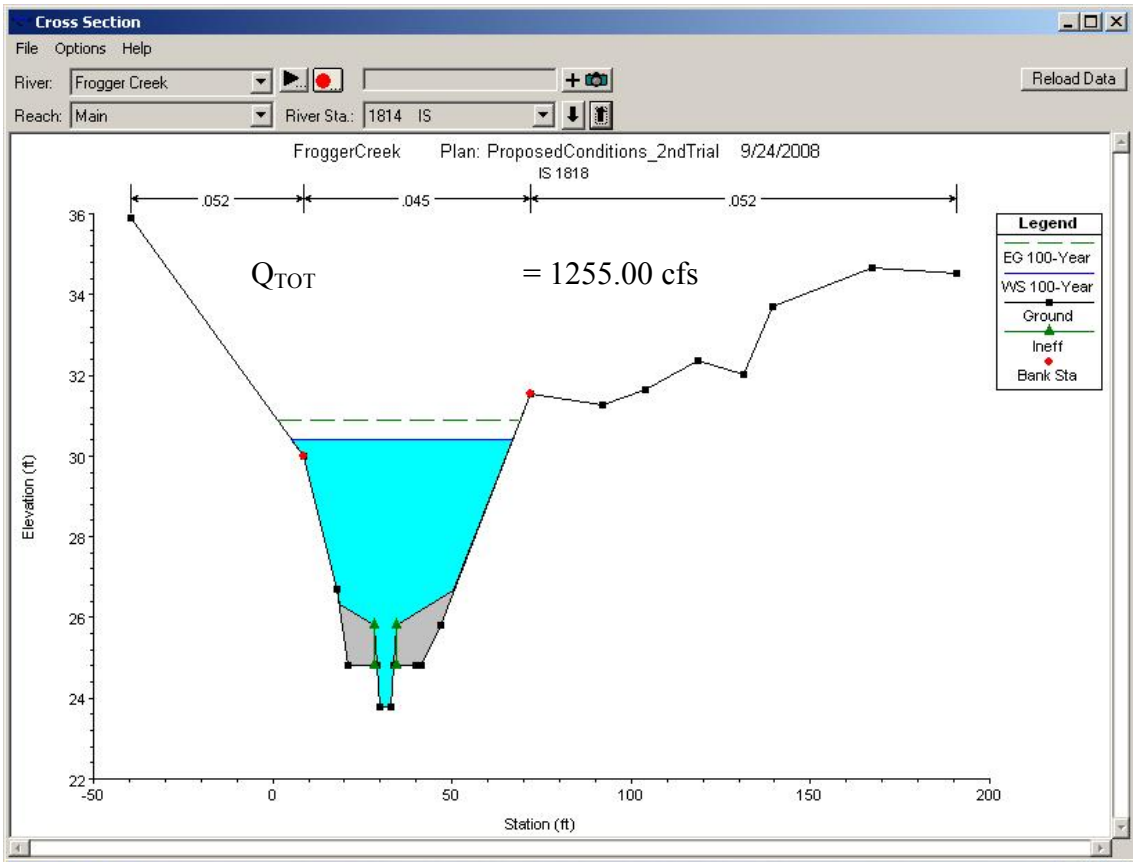

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1777
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.78 ft/s
Max. Channel Depth = 6.83 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

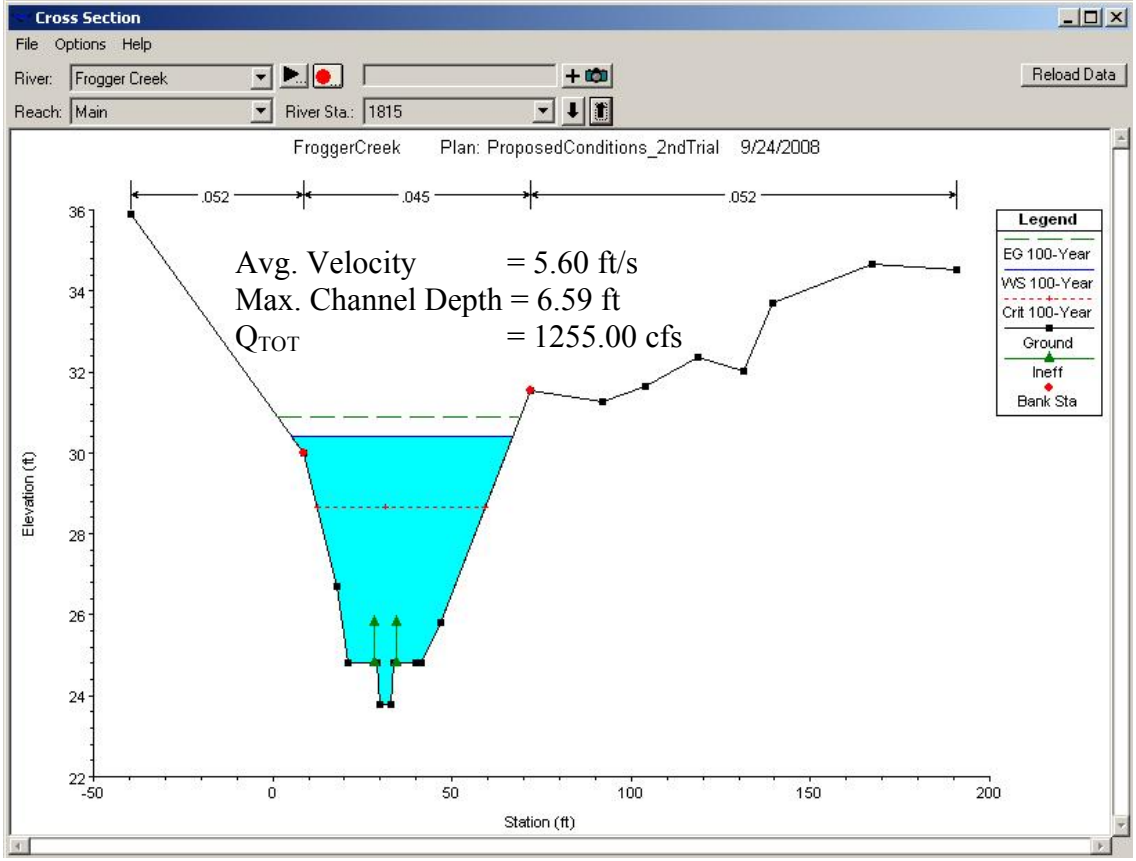

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1784 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1793
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

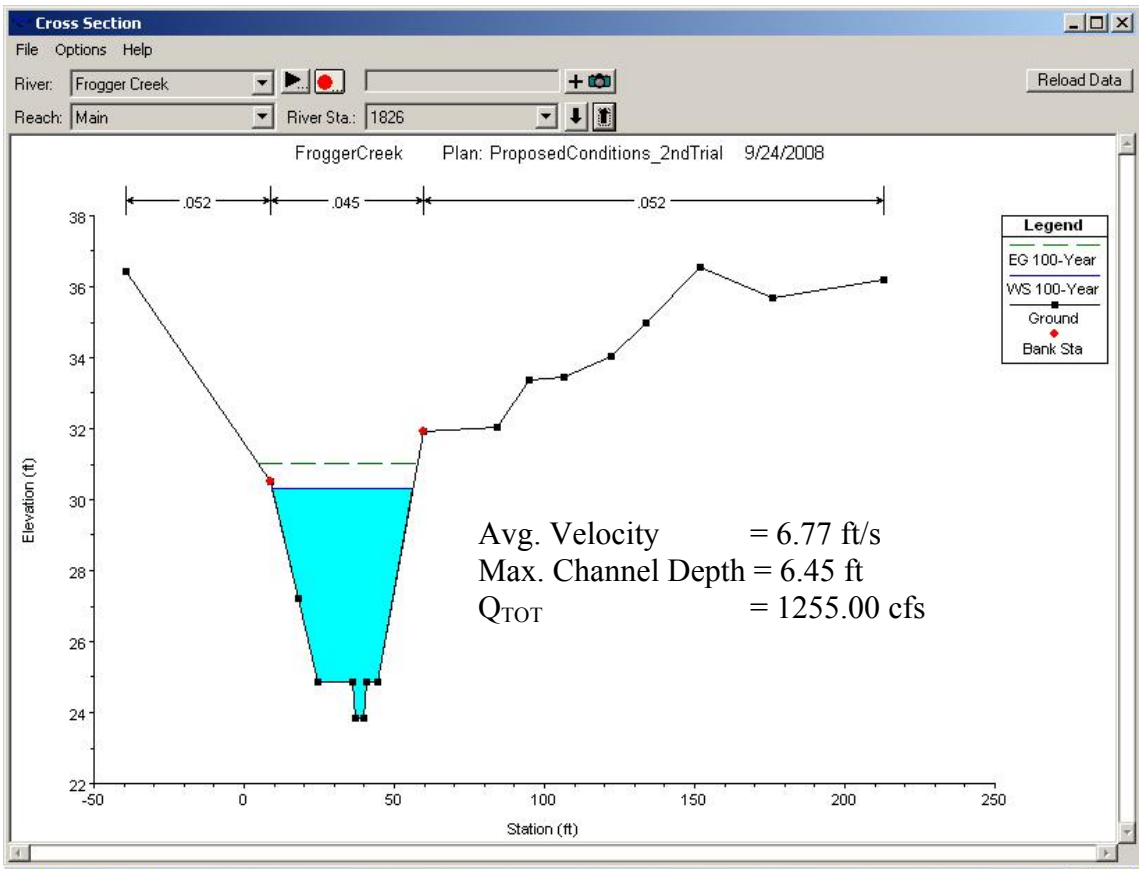

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1785
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 4.43 ft/s
Max. Channel Depth = 6.26 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

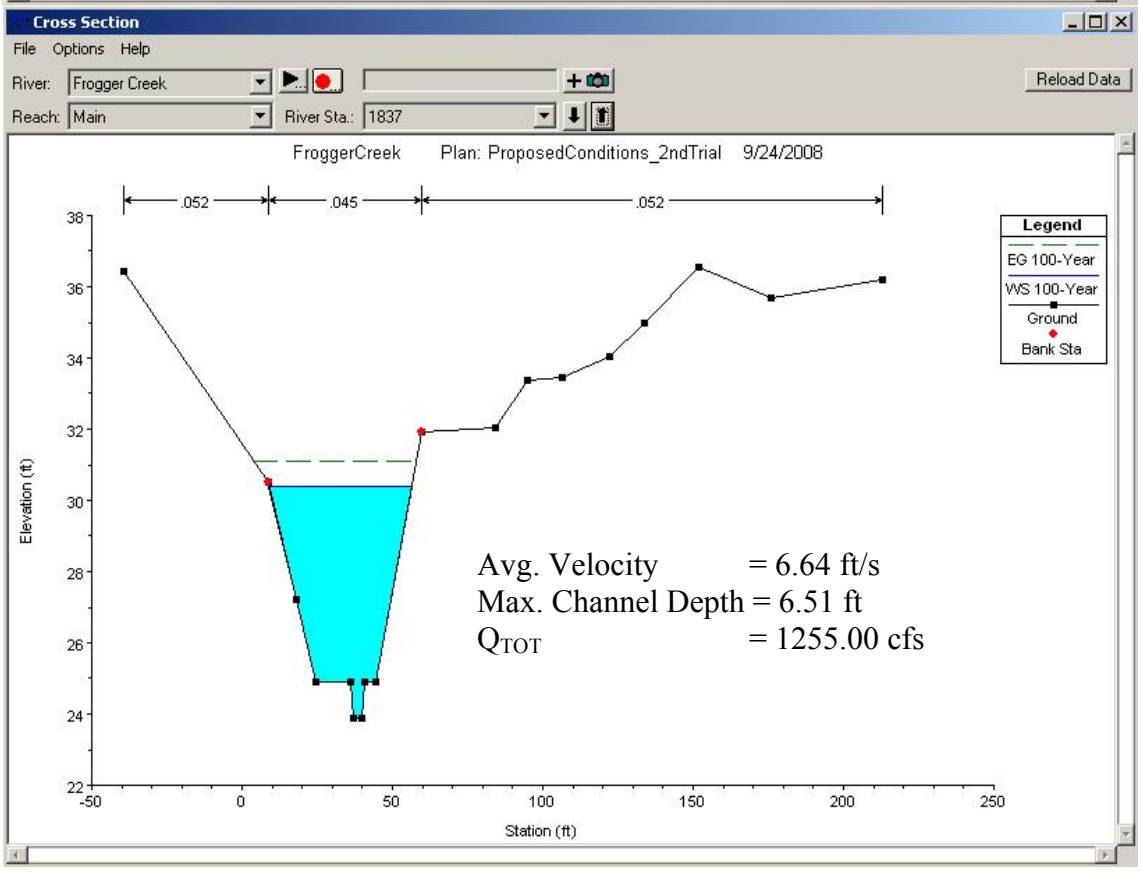

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1796
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.44 ft/s
Max. Channel Depth = 6.24 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

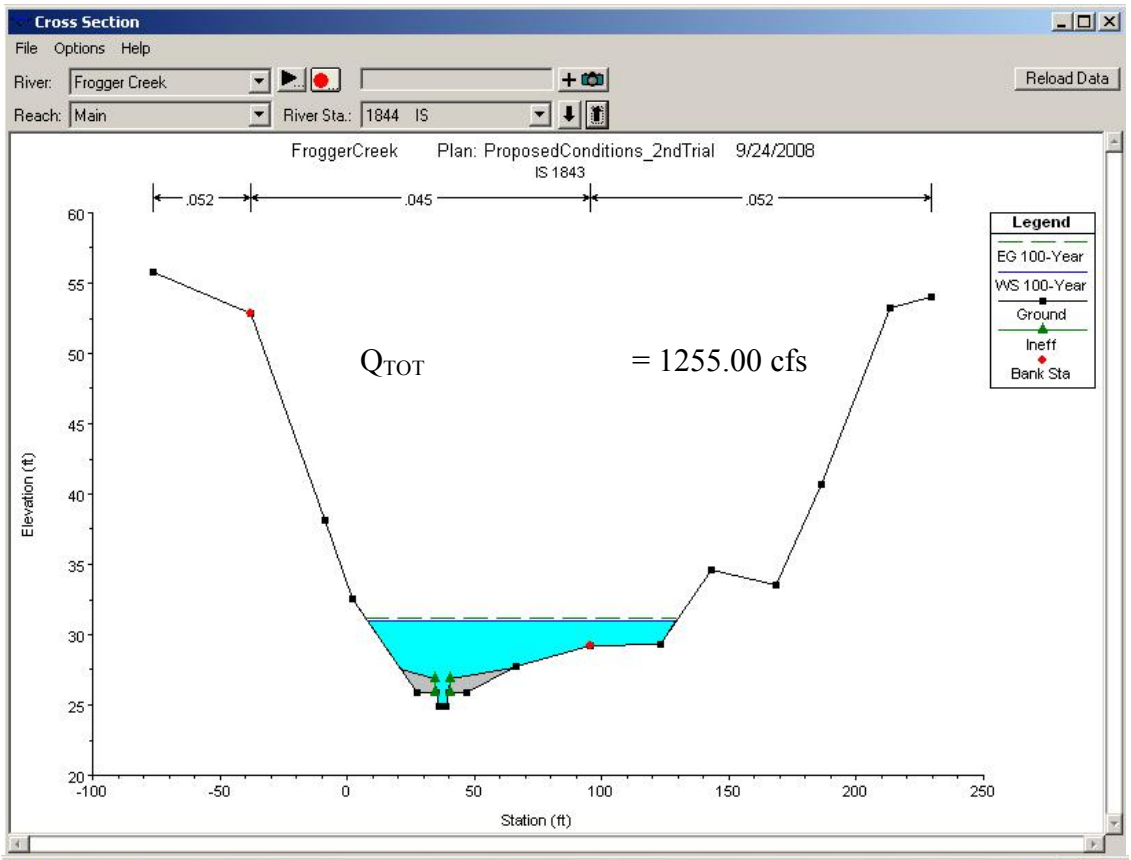

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1807
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 4.47 ft/s
Max. Channel Depth = 6.21 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

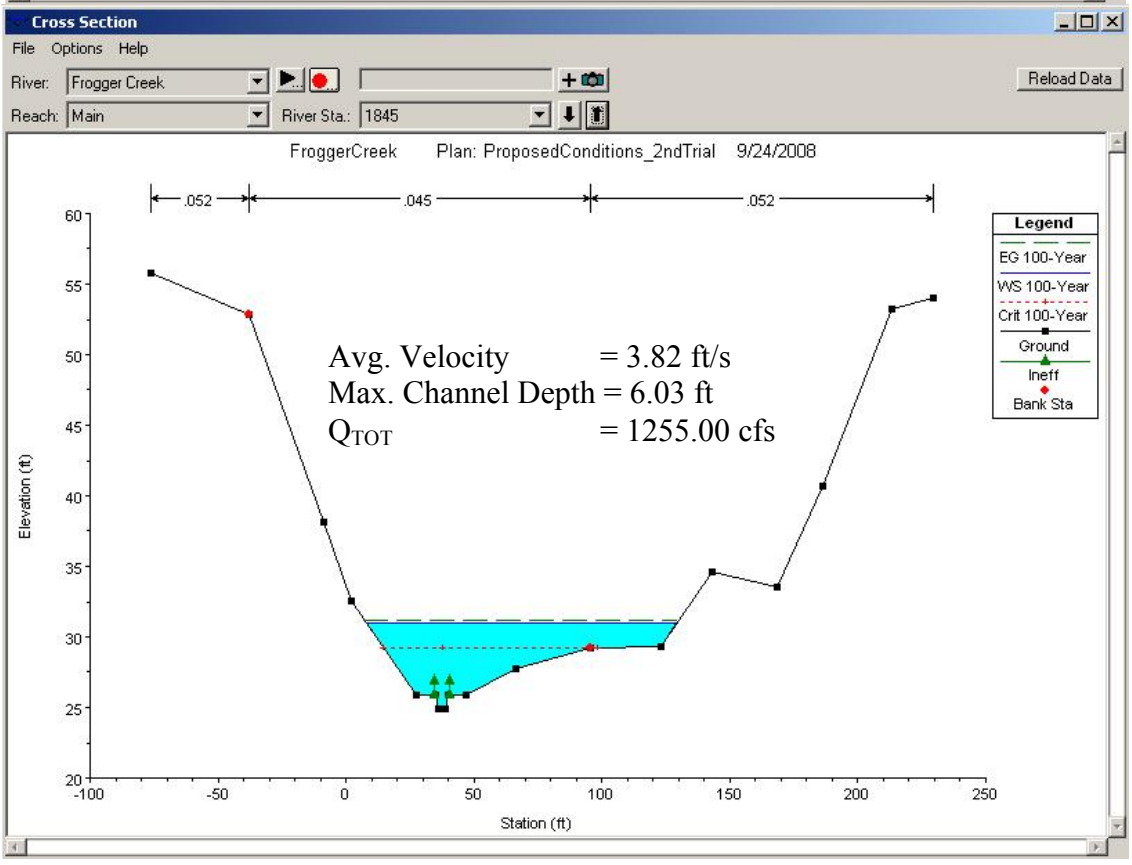

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1814 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1818
.052
.045
.052
Q_{TOT} = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

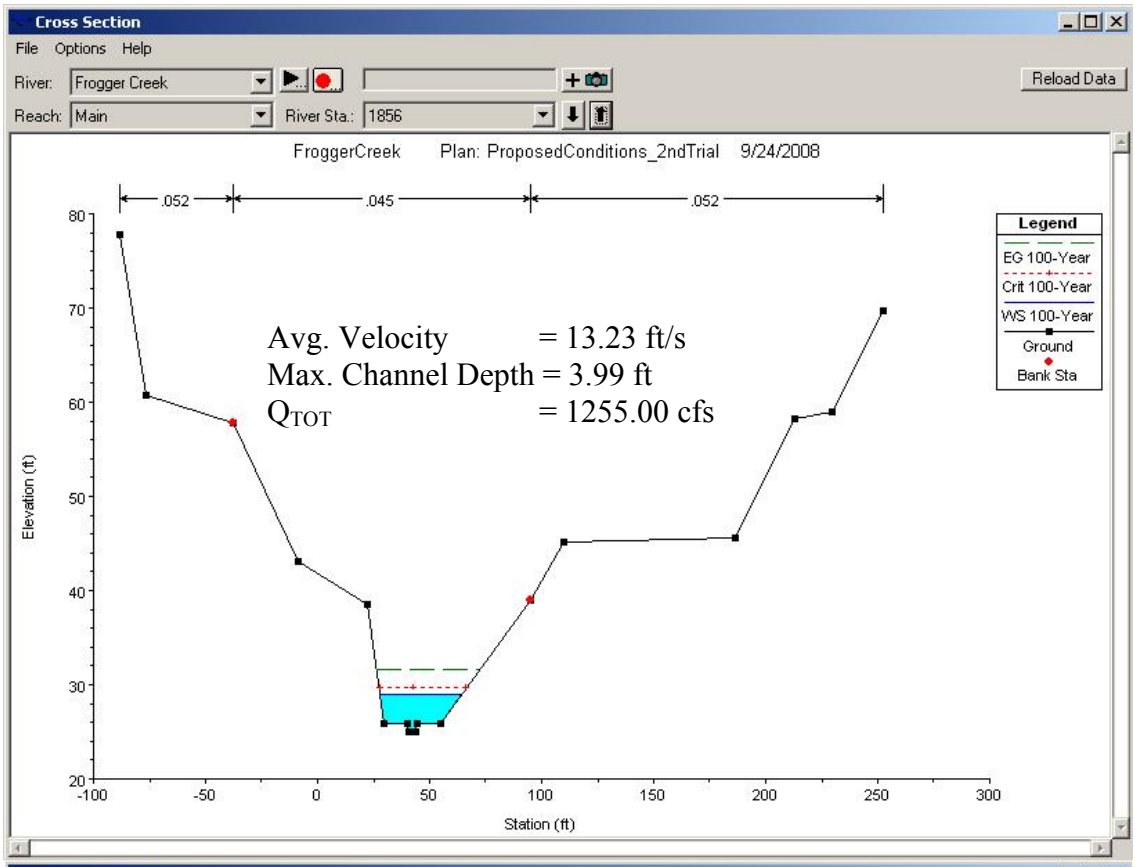

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1815
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 5.60 ft/s
Max. Channel Depth = 6.59 ft
Q_{TOT} = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Elevation (ft)
Station (ft)

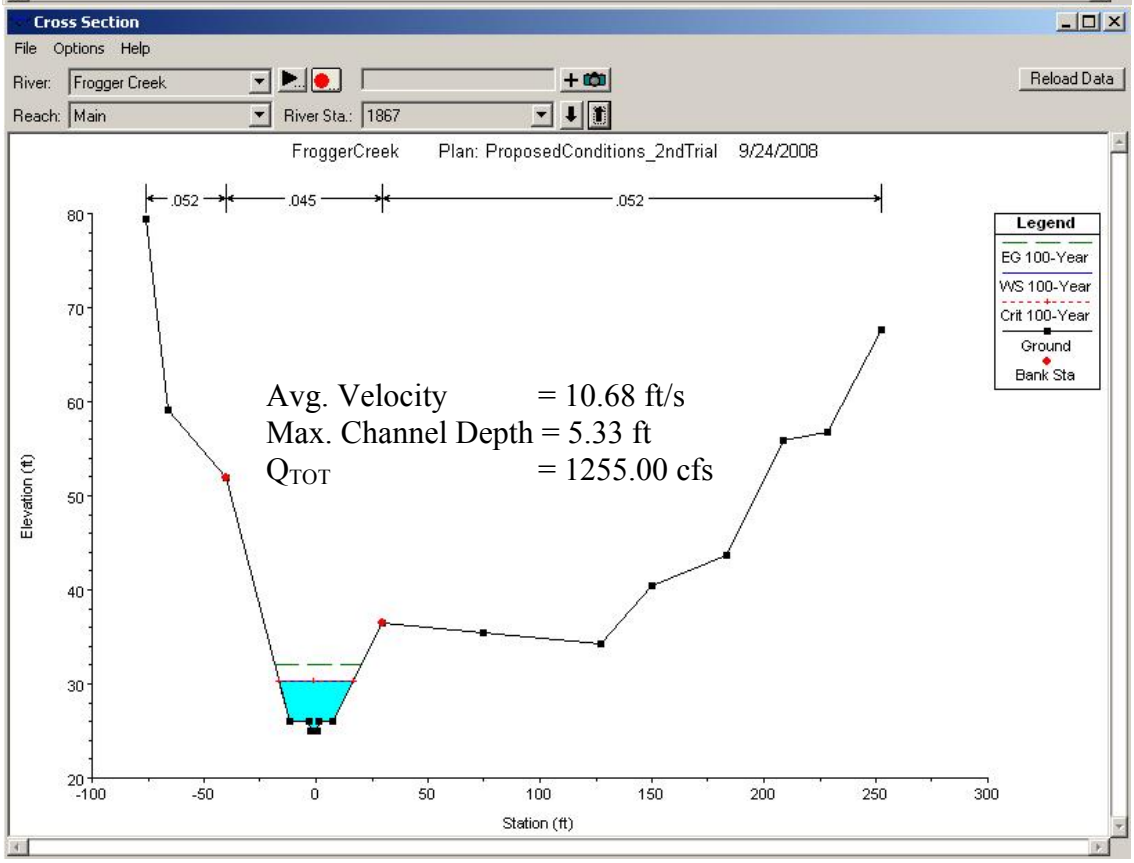

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1826
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 6.77 ft/s
Max. Channel Depth = 6.45 ft
Q_{TOT} = 1255.00 cfs

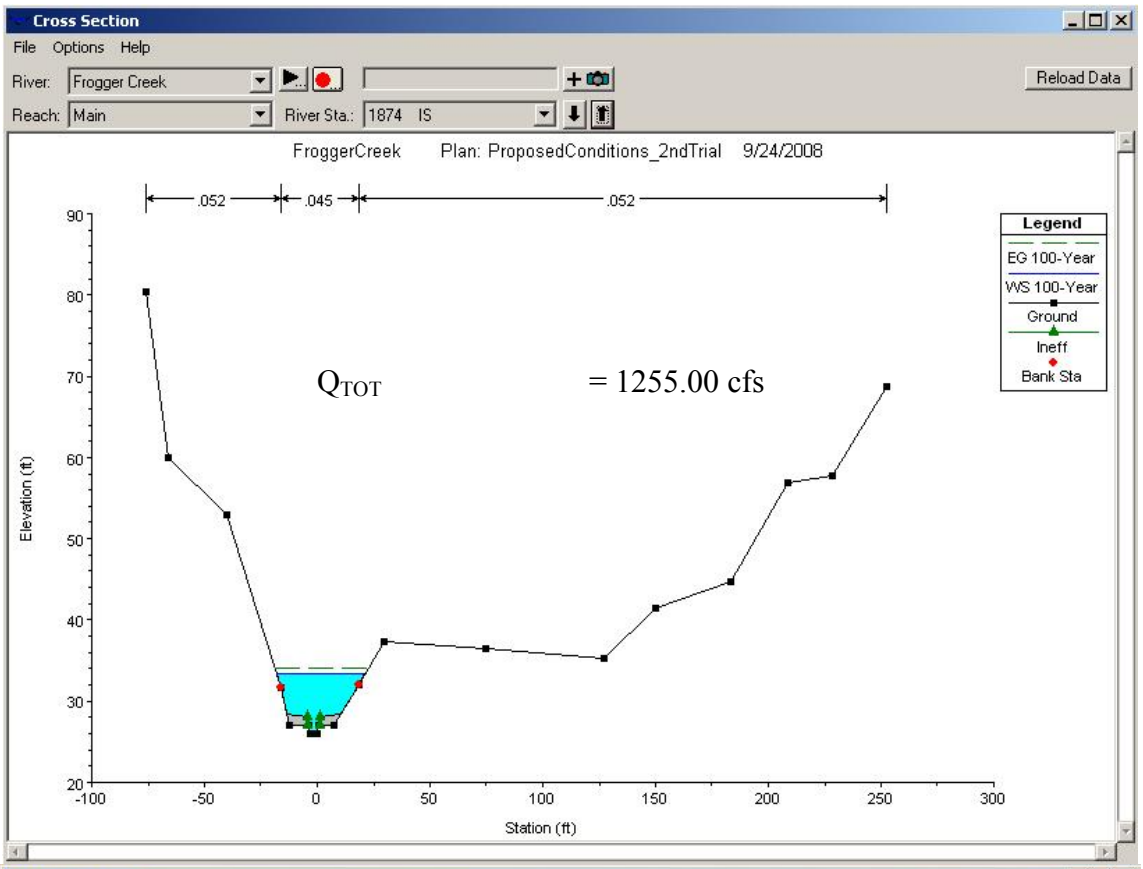

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1837
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)
Avg. Velocity = 6.64 ft/s
Max. Channel Depth = 6.51 ft
Q_{TOT} = 1255.00 cfs

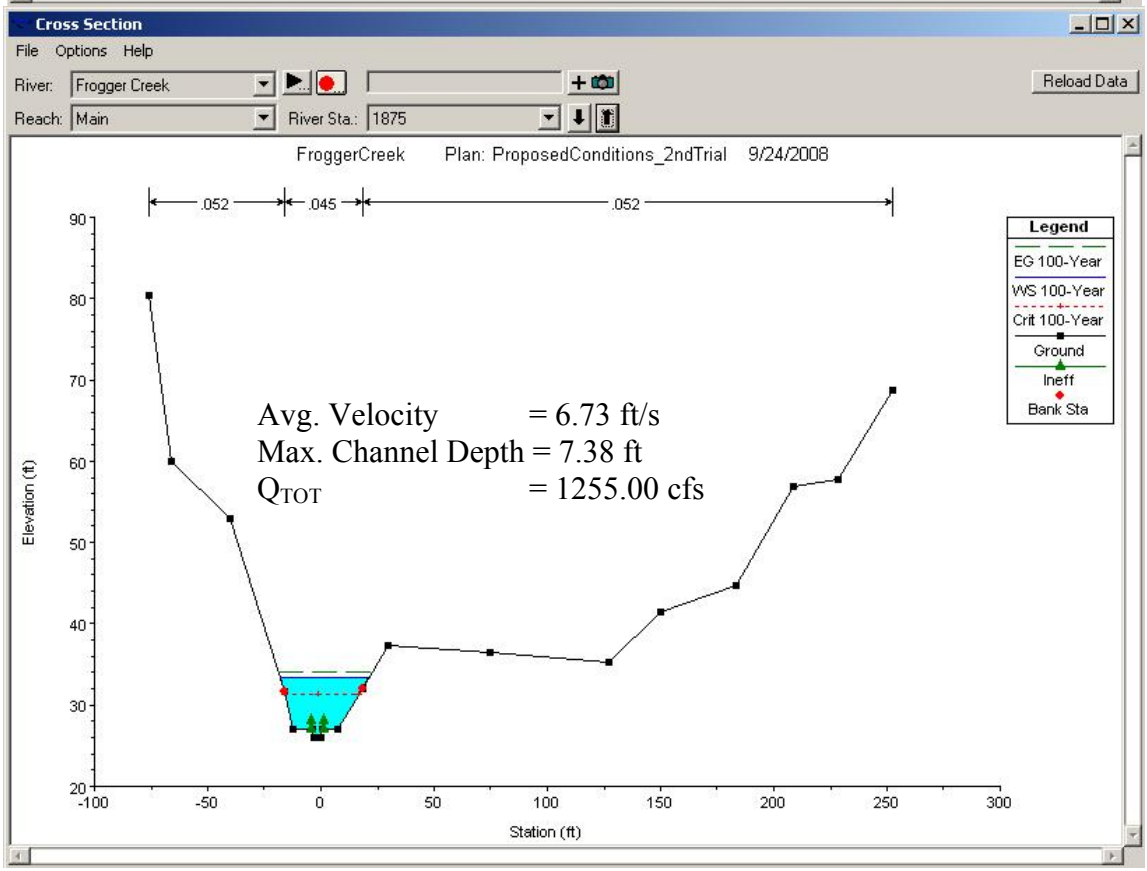

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1844 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
IS 1843
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

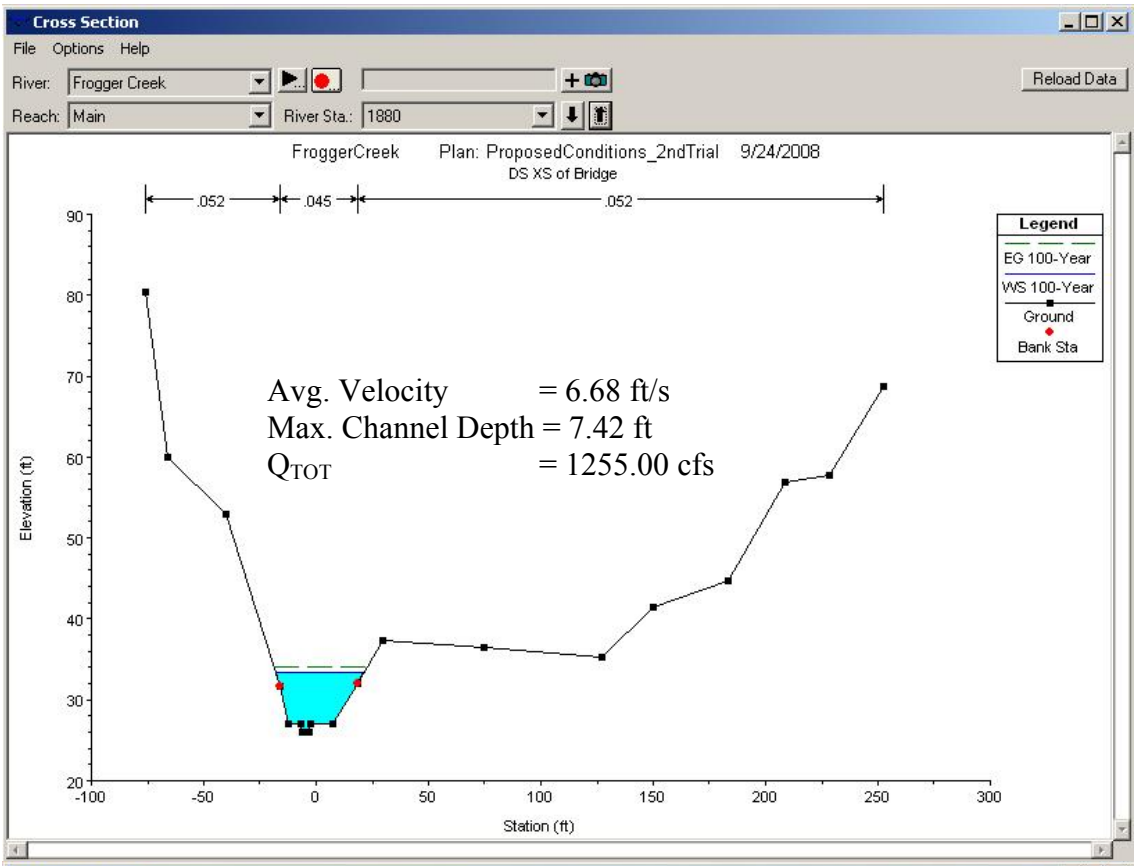

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1845
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 3.82 ft/s
Max. Channel Depth = 6.03 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

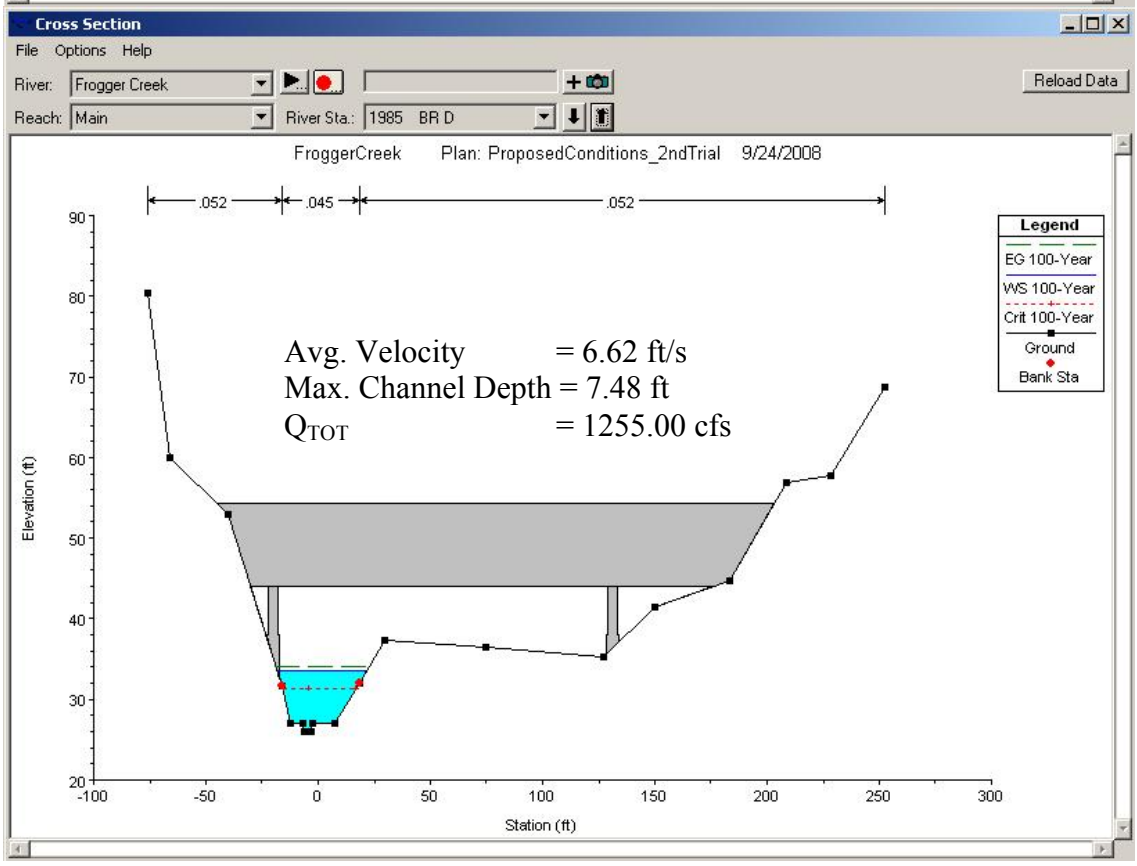

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1856
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
Crit 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 13.23 ft/s
Max. Channel Depth = 3.99 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

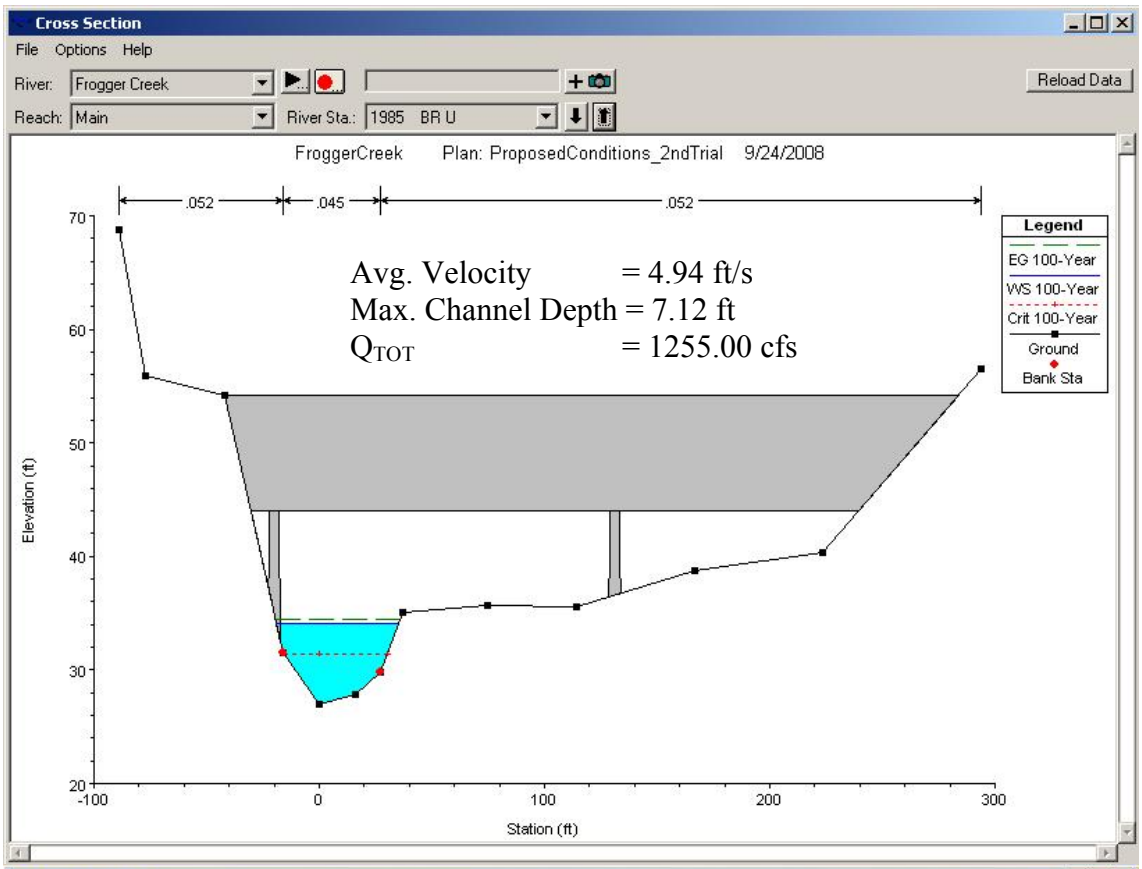

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1867
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 10.68 ft/s
Max. Channel Depth = 5.33 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)

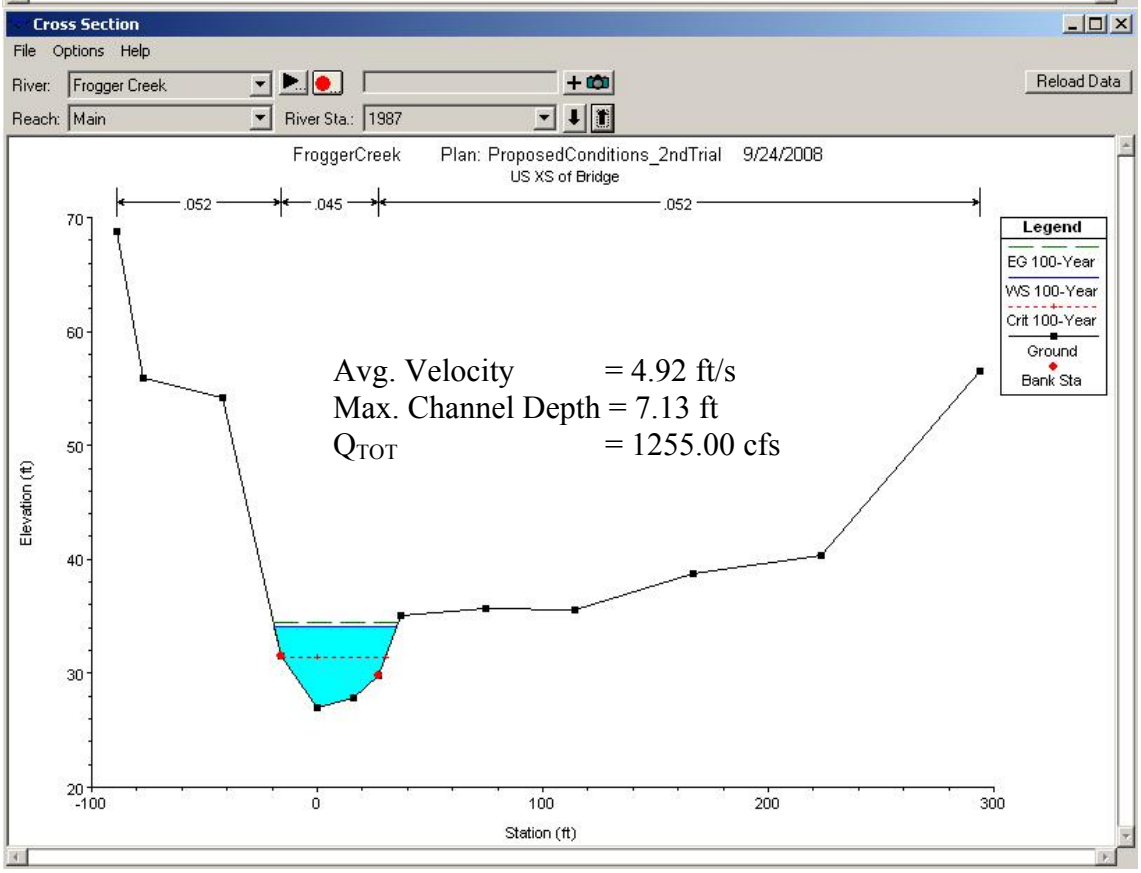

Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1874 IS
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Ineff
Bank Sta
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1875
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Ineff
Bank Sta
Avg. Velocity = 6.73 ft/s
Max. Channel Depth = 7.38 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1880
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
DS XS of Bridge
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Ground
Bank Sta
Avg. Velocity = 6.68 ft/s
Max. Channel Depth = 7.42 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR D
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Avg. Velocity = 6.62 ft/s
Max. Channel Depth = 7.48 ft
Q_{TOT} = 1255.00 cfs
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1985 BR U
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
.052
.045
.052
Avg. Velocity = 4.94 ft/s
Max. Channel Depth = 7.12 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)


Cross Section
File Options Help
River: Frogger Creek
Reach: Main
River Sta.: 1987
Reload Data
FroggerCreek Plan: ProposedConditions_2ndTrial 9/24/2008
US XS of Bridge
.052
.045
.052
Avg. Velocity = 4.92 ft/s
Max. Channel Depth = 7.13 ft
QTOT = 1255.00 cfs
Legend
EG 100-Year
WS 100-Year
Crit 100-Year
Ground
Bank Sta
Elevation (ft)
Station (ft)