

# **Appendix 21**

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**Santa Clara River  
Low-Flow Inundation Analysis,  
Summary of Hydraulic Model  
Input/Output Data for  
Long Canyon Bridge,  
Pace, March 17, 2017**



March 17, 2017

Sam Rojas  
Director of Environmental Resources  
**FivePoint**  
25124 Springfield Court, Suite 300  
Valencia, CA 91355  
Phone (661) 255-4283

**Re: Santa Clara River Low-Flow Inundation Analysis**  
**Summary of Hydraulic Model Input/Output Data for Long Canyon Bridge** # 8238E

Dear Sam,

The attached items (listed below) provide input and output data for the HEC-RAS hydraulic model created for the Santa Clara River (River) in the vicinity of the proposed Long Canyon Bridge for a dry-season flow of 500 cubic feet per second (cfs). Results of the HEC-RAS model were used to estimate the limits of inundation within the study reach, as shown on Figure 1.

- Figure 1 – Long Canyon Bridge Manning’s “n” Values and Cross Section Station Locations Exhibit – presents the 2014 aerial photograph used to develop the distribution of Manning’s “n” values within the River, the hydraulic model cross-section locations, and a graphical representation of the inundation limits based on the dry-season flow. This figure is the key map to the subsequent HEC-RAS model output summary table, profile section, and station by station cross-sections that follow.
- Table 1 – HEC-RAS Model Output Summary Table – presents HEC-RAS hydraulic model results based on the dry-season flow for hydraulic parameters including water surface elevation, flow velocity, top width, etc.
- Figure 2 – Profile Section – presents a profile section of the minimum channel elevation (labeled as ground) and water surface elevation along the River for all station cross-sections in the study reach.
- Exhibits (54 pages): Station by Station Cross-Sections – presents the surface topography and corresponding water surface elevation for the dry-season flow of 500 cfs along each cross-section location included in the HEC-RAS model. The distribution of Manning’s “n” values along each cross-section is also provided (shown along the top of the grid for each exhibit).

Sincerely,

A handwritten signature in blue ink, appearing to read "Mark Krebs", is written over a white background.

Mark Krebs, PE  
President

MEK/jc

*Enclosures: Figure 1, Table 1, Figure 2, Cross-Section Exhibits*

*P:\8238E\5-Administrative\Letters\Out\2017-03-17\_Sam Rojas (Low Flow Model Data and Summary)\2017-03-17\_Long Canyon Low Flow Analysis Model Data and Summary.doc*







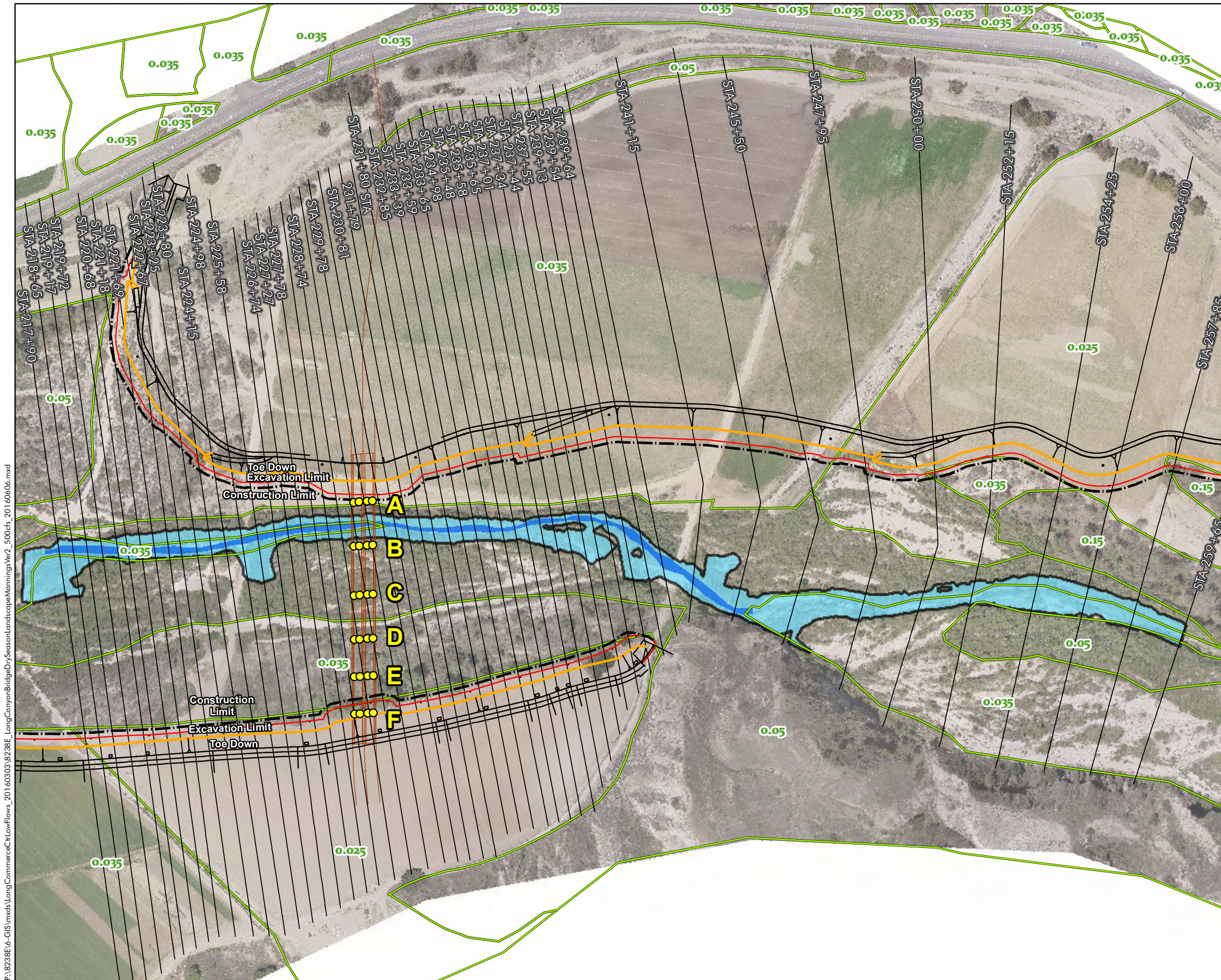
# NEWHALL RANCH

LA County

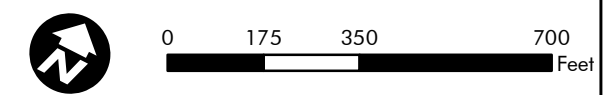
CA

## Legend

-  Bridge Pile Locations
-  Highest Estimated Dry-Season Flow (500 cfs)
-  Low Flow Channel
-  Mannings n



Aerial Imagery collected in 2014



Date: 3/17/2017  
 Job Number: 8238  
 Drawn By: thowze

Figure 1  
**LONG CANYON BRIDGE  
 MANNING'S "N" VALUES AND  
 CROSS SECTION  
 STATION LOCATIONS**

P:\8238E\6-GIS\mxd\LongCommercedrLowFlows\_2016030318238E\_LongCanyonBridgeDrySeasonLandscapeManningsVer2\_500cfs\_20160606.mxd



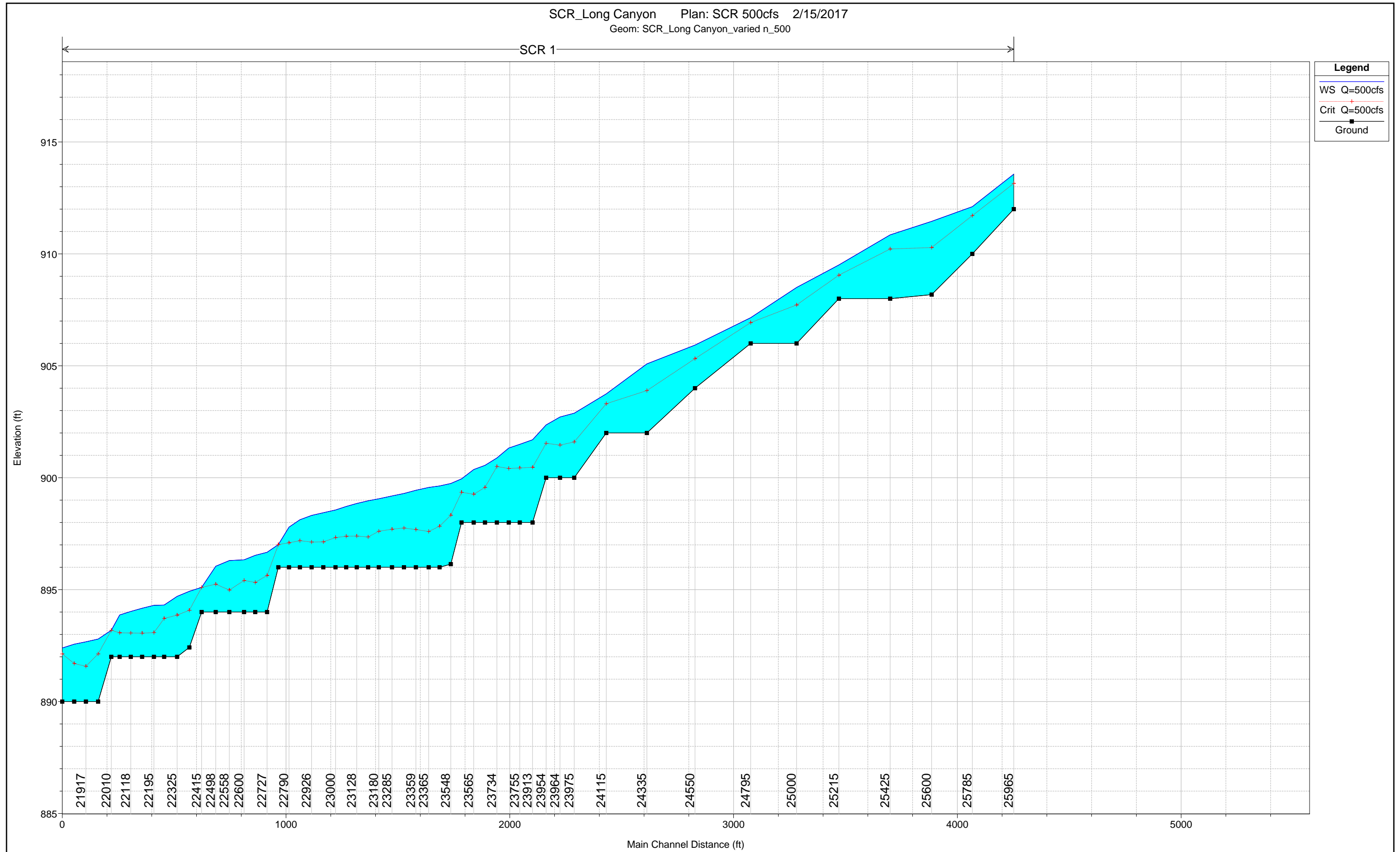
## Table 1 - HEC-RAS Model Output Summary

HEC-RAS Plan: Plan500 River: SCR Reach: 1 Profile: Q=500cfs

Reach	River Sta	Profile	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
1	25965	Q=500cfs	500.0	912.0	913.6	913.2	913.8	0.0085	4.2	119.4	84.8	0.62
1	25785	Q=500cfs	500.0	910.0	912.1	911.7	912.4	0.0073	4.1	121.1	104.8	0.68
1	25600	Q=500cfs	500.0	908.2	911.5	910.3	911.6	0.0027	2.7	186.4	108.4	0.36
1	25425	Q=500cfs	500.0	908.0	910.9	910.2	911.0	0.0038	2.8	180.5	137.8	0.43
1	25215	Q=500cfs	500.0	908.0	909.5	909.1	909.7	0.0079	3.9	129.8	92.9	0.57
1	25000	Q=500cfs	500.0	906.0	908.5	907.7	908.7	0.0039	3.8	132.5	77.0	0.51
1	24795	Q=500cfs	500.0	906.0	907.2	906.9	907.4	0.0112	4.3	115.6	104.5	0.72
1	24550	Q=500cfs	500.0	904.0	905.9	905.3	906.0	0.0032	2.6	194.4	162.4	0.41
1	24335	Q=500cfs	500.0	902.0	905.1	903.9	905.2	0.0046	2.9	175.1	101.9	0.38
1	24115	Q=500cfs	500.0	902.0	903.7	903.3	904.0	0.0115	3.6	138.3	114.3	0.58
1	23975	Q=500cfs	500.0	900.0	902.9	901.6	903.0	0.0042	2.6	190.1	118.6	0.37
1	23964	Q=500cfs	500.0	900.0	902.7	901.5	902.8	0.0025	1.9	263.6	184.9	0.28
1	23954	Q=500cfs	500.0	900.0	902.4	901.5	902.5	0.0113	2.7	185.3	234.2	0.53
1	23913	Q=500cfs	500.0	898.0	901.7	900.5	901.9	0.0088	3.4	148.6	111.6	0.51
1	23755	Q=500cfs	500.0	898.0	901.5	900.4	901.6	0.0031	2.1	242.7	175.5	0.31
1	23744	Q=500cfs	500.0	898.0	901.3	900.4	901.4	0.0034	2.2	230.6	163.4	0.32
1	23734	Q=500cfs	500.0	898.0	900.9	900.5	901.1	0.0123	3.5	142.3	128.6	0.59
1	23701	Q=500cfs	500.0	898.0	900.6	899.6	900.7	0.0047	2.7	186.2	122.3	0.38
1	23565	Q=500cfs	500.0	898.0	900.4	899.3	900.5	0.0033	2.5	199.5	112.5	0.33
1	23558	Q=500cfs	500.0	898.0	900.0	899.4	900.2	0.0092	3.8	133.3	87.7	0.54
1	23548	Q=500cfs	500.0	896.1	899.7	898.3	899.9	0.0036	3.0	168.2	78.1	0.36
1	23498	Q=500cfs	500.0	896.0	899.6	897.8	899.7	0.0022	2.5	198.1	80.4	0.28
1	23365	Q=500cfs	500.0	896.0	899.6	897.6	899.6	0.0014	2.2	230.9	83.2	0.23
1	23359	Q=500cfs	500.0	896.0	899.4	897.7	899.5	0.0023	2.5	201.7	87.2	0.29
1	23339	Q=500cfs	500.0	896.0	899.3	897.8	899.4	0.0027	2.6	192.6	88.7	0.31
1	23285	Q=500cfs	500.0	896.0	899.2	897.7	899.3	0.0021	2.3	219.0	101.9	0.27
1	23180	Q=500cfs	500.0	896.0	899.1	897.6	899.1	0.0021	2.3	217.2	99.2	0.27
1	23179	Q=500cfs	500.0	896.0	899.0	897.4	899.0	0.0018	2.2	223.7	93.2	0.25
1	23128	Q=500cfs	500.0	896.0	898.9	897.4	898.9	0.0023	2.4	204.4	90.4	0.29
1	23081	Q=500cfs	500.0	896.0	898.7	897.4	898.8	0.0027	2.6	191.5	87.4	0.31
1	23000	Q=500cfs	500.0	896.0	898.6	897.3	898.7	0.0033	2.8	180.8	86.6	0.34
1	22978	Q=500cfs	500.0	896.0	898.4	897.1	898.5	0.0020	2.5	196.7	91.5	0.31
1	22926	Q=500cfs	500.0	896.0	898.3	897.1	898.4	0.0018	2.8	179.2	82.6	0.33
1	22874	Q=500cfs	500.0	896.0	898.1	897.2	898.3	0.0072	3.0	166.0	127.2	0.46
1	22790	Q=500cfs	500.0	896.0	897.8	897.1	898.0	0.0048	3.4	145.4	87.4	0.47
1	22778	Q=500cfs	500.0	896.0	897.0	897.0	897.5	0.0270	5.6	89.7	94.0	1.01
1	22727	Q=500cfs	500.0	894.0	896.7	895.6	896.8	0.0027	2.7	181.8	102.4	0.36
1	22674	Q=500cfs	500.0	894.0	896.5	895.3	896.7	0.0025	2.7	184.3	88.8	0.33
1	22600	Q=500cfs	500.0	894.0	896.3	895.4	896.5	0.0036	3.2	154.0	88.6	0.43
1	22558	Q=500cfs	500.0	894.0	896.3	895.0	896.3	0.0011	1.6	322.4	214.5	0.22
1	22498	Q=500cfs	500.0	894.0	896.0	895.2	896.2	0.0042	3.2	155.9	202.8	0.64
1	22415	Q=500cfs	500.0	894.0	895.1	895.1	895.6	0.0241	5.9	85.3	113.0	1.00
1	22380	Q=500cfs	500.0	892.4	894.9	894.1	895.1	0.0029	3.1	161.0	153.8	0.41
1	22325	Q=500cfs	500.0	892.0	894.7	893.9	894.9	0.0052	3.3	153.8	105.3	0.47
1	22267	Q=500cfs	500.0	892.0	894.3	893.7	894.6	0.0046	4.1	122.7	99.9	0.65
1	22195	Q=500cfs	500.0	892.0	894.3	893.1	894.4	0.0019	2.4	208.8	105.2	0.30
1	22169	Q=500cfs	500.0	892.0	894.2	893.1	894.3	0.0022	2.7	188.4	96.6	0.33
1	22118	Q=500cfs	500.0	892.0	894.0	893.1	894.2	0.0029	2.8	176.5	99.0	0.37
1	22068	Q=500cfs	500.0	892.0	893.9	893.1	894.0	0.0032	2.9	173.1	110.5	0.41
1	22010	Q=500cfs	500.0	892.0	893.2	893.2	893.7	0.0213	5.8	86.0	81.2	1.00
1	21972	Q=500cfs	500.0	890.0	892.8	892.1	893.0	0.0049	4.0	124.6	75.1	0.55
1	21917	Q=500cfs	500.0	890.0	892.7	891.6	892.8	0.0025	3.2	157.2	94.6	0.43
1	21865	Q=500cfs	500.0	890.0	892.6	891.7	892.7	0.0024	2.8	177.8	174.7	0.44
1	21790	Q=500cfs	500.0	890.0	892.4	892.1	892.5	0.0040	2.9	174.6	220.4	0.57



Figure 2 - Profile Section

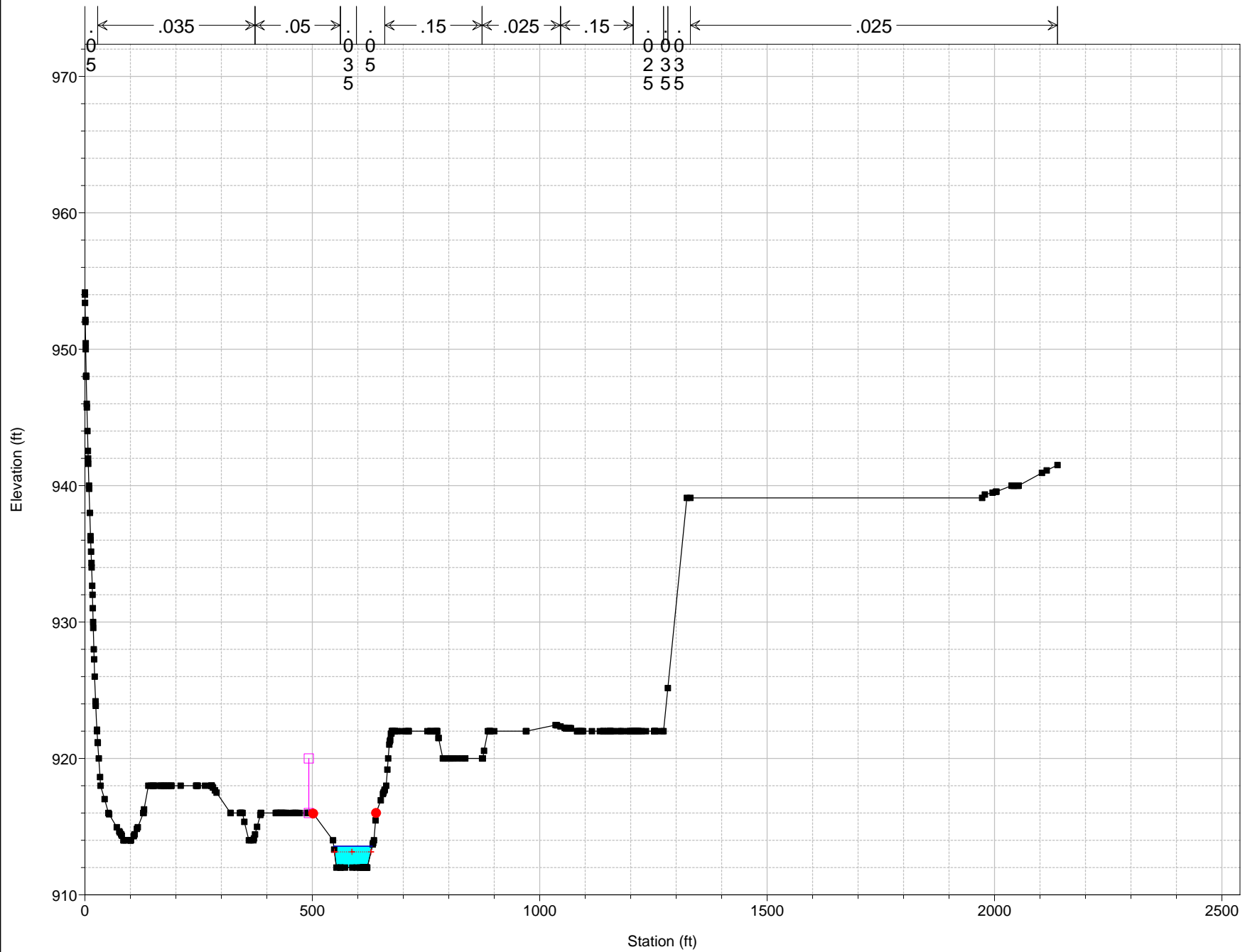


1 in Horiz. = 400 ft    1 in Vert. = 4 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25965



**Legend**

- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft



SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25785



**Legend**

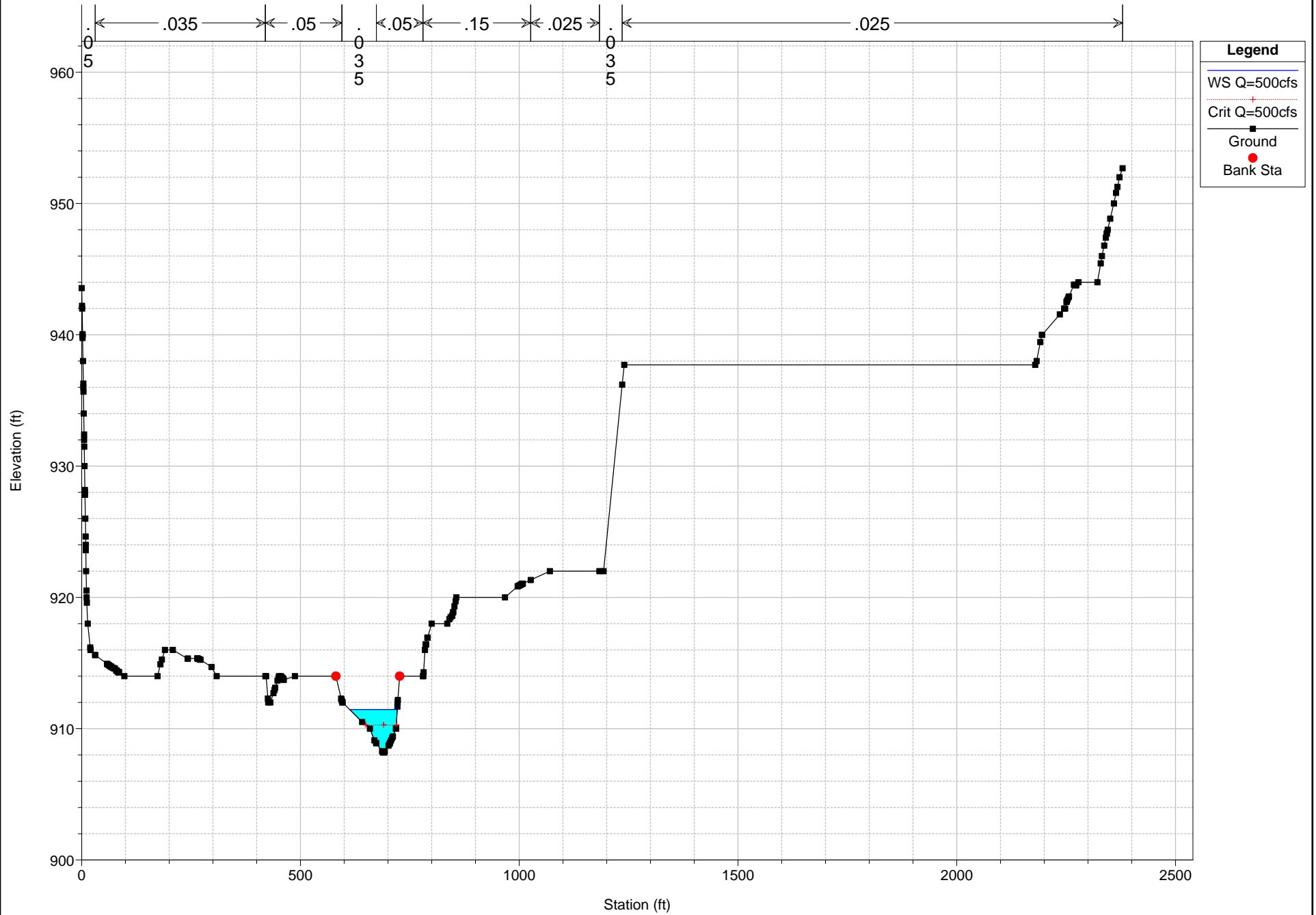
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25600

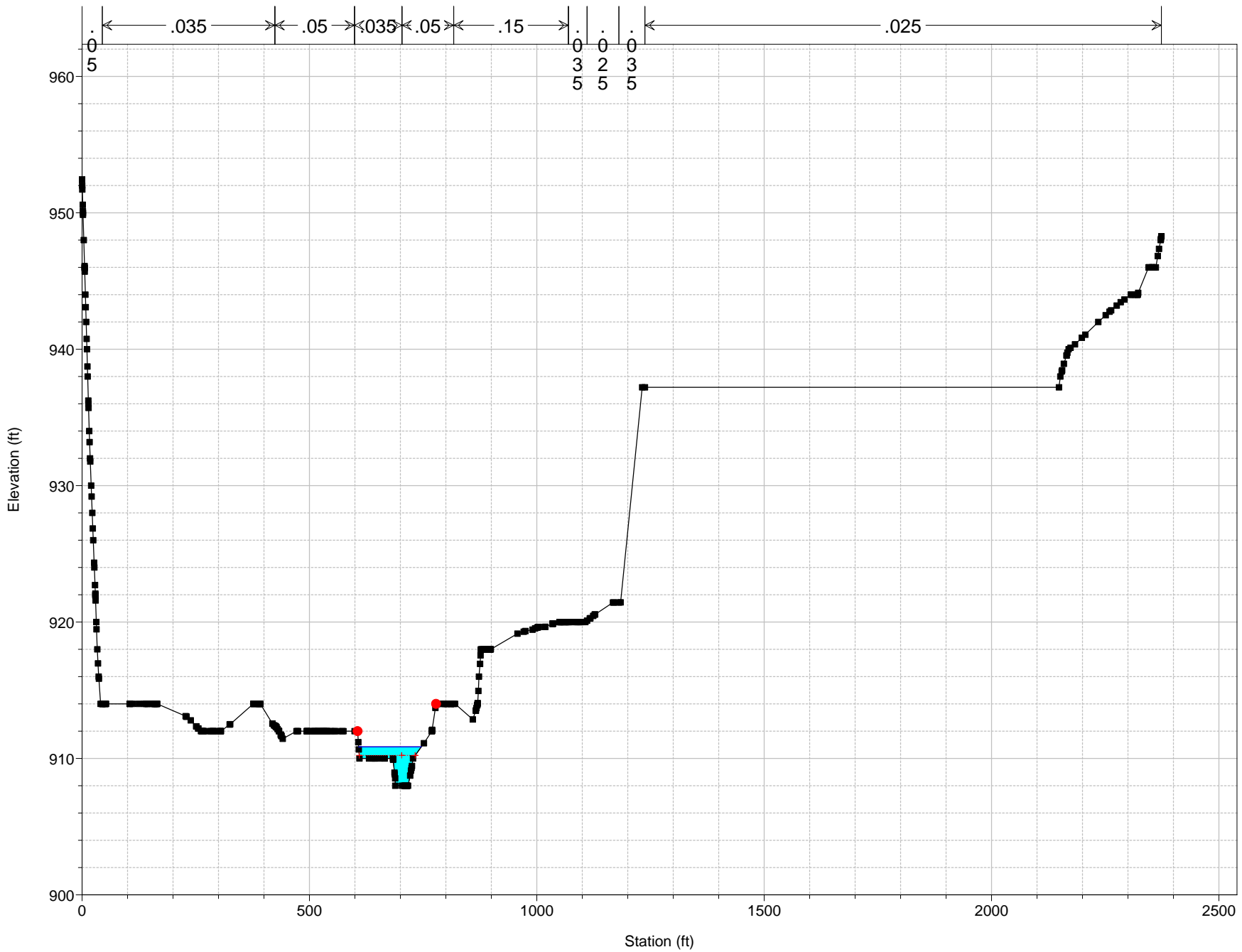




SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25425



**Legend**

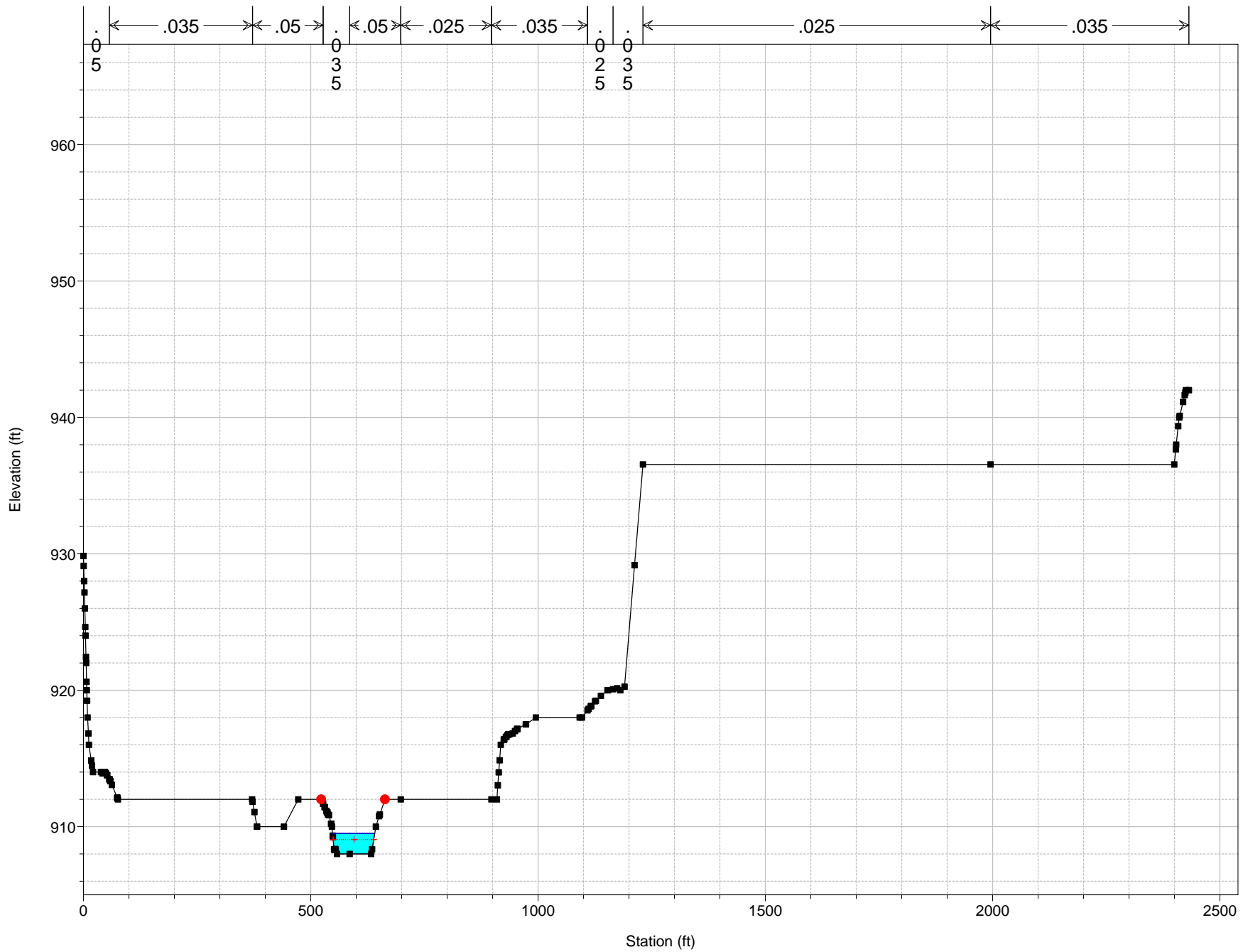
- WS Q=500cfs
- - - Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25215



**Legend**

- WS Q=500cfs
- - - Crit Q=500cfs
- Ground
- Bank Sta

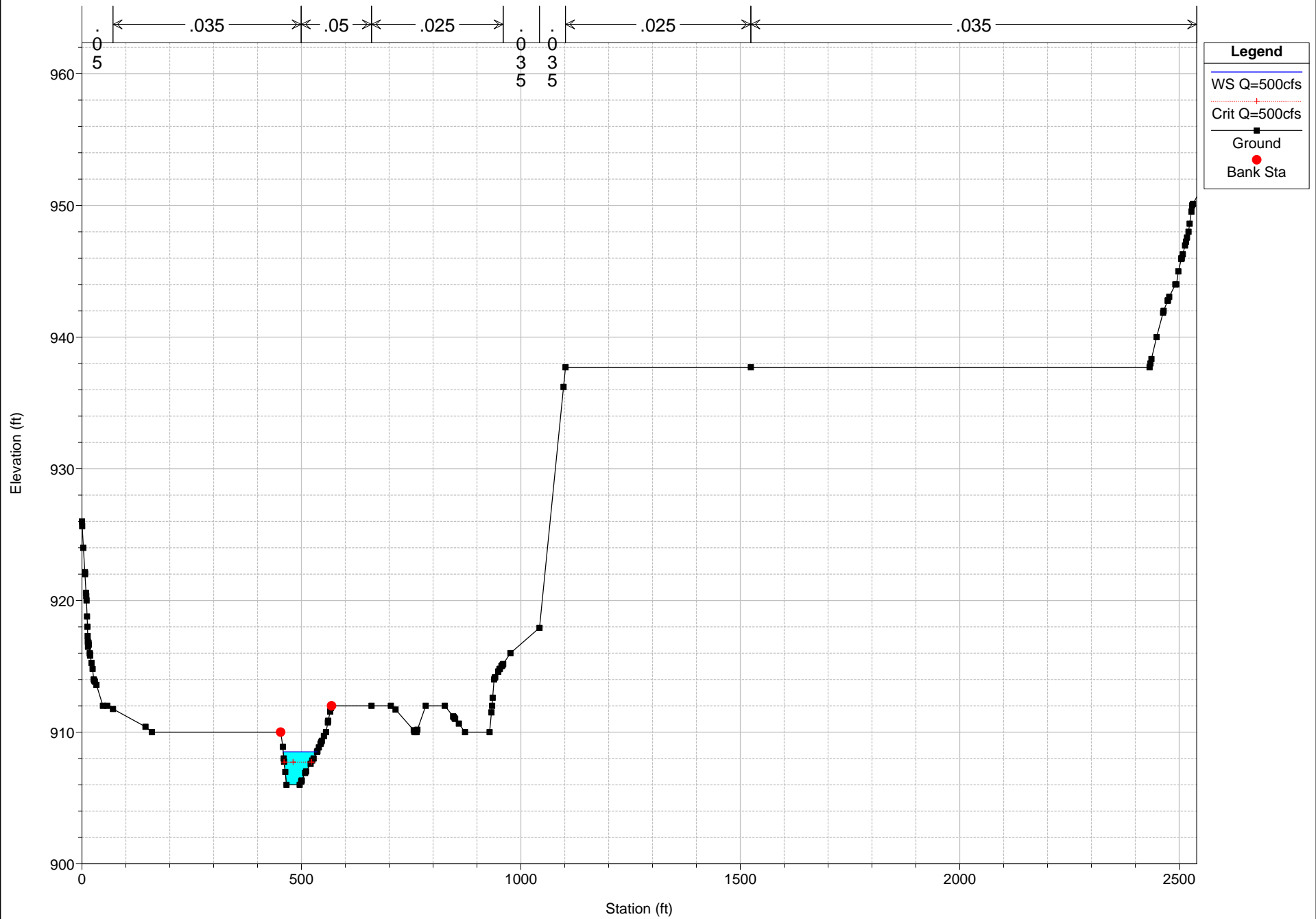
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 25000

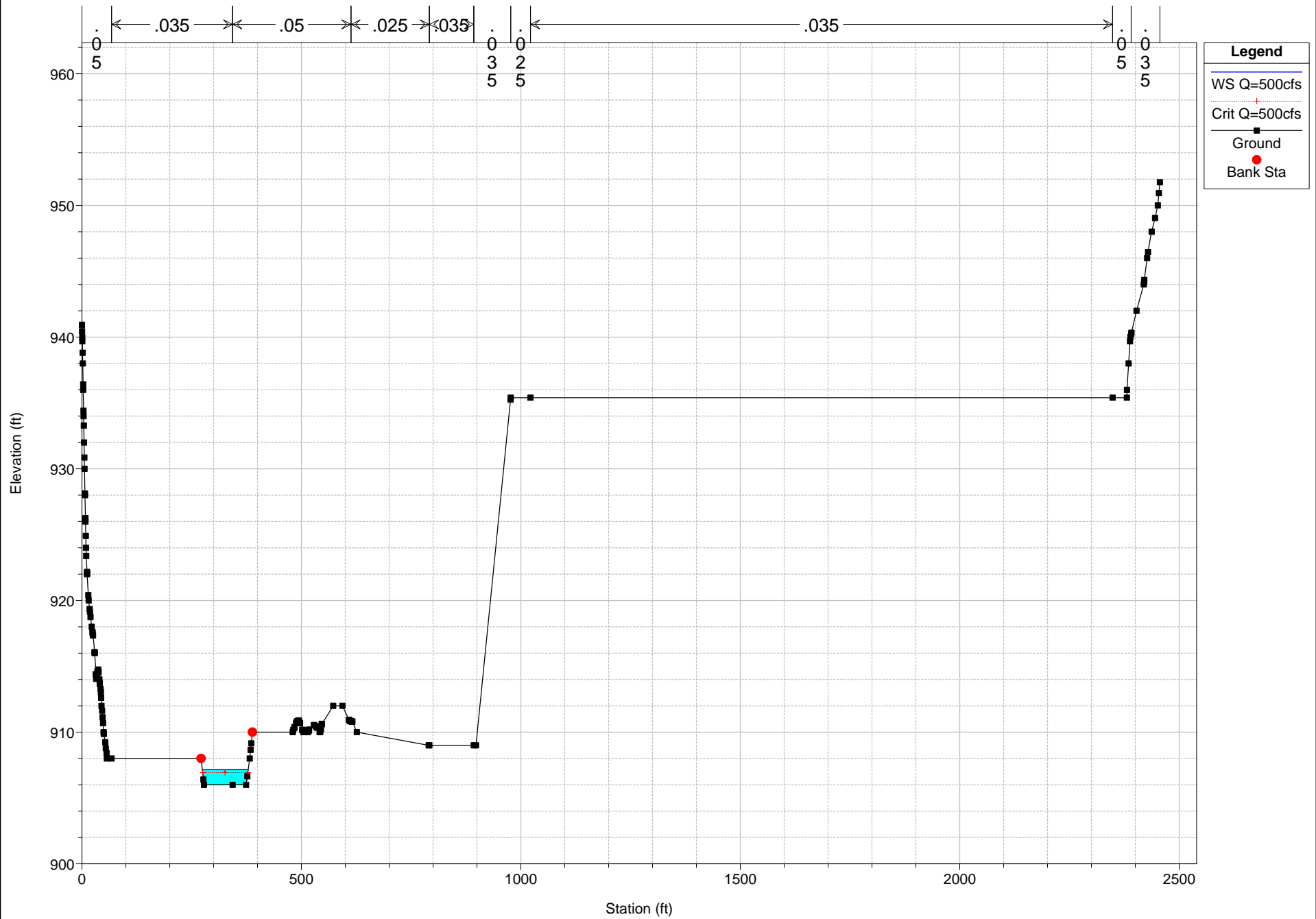


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 24795

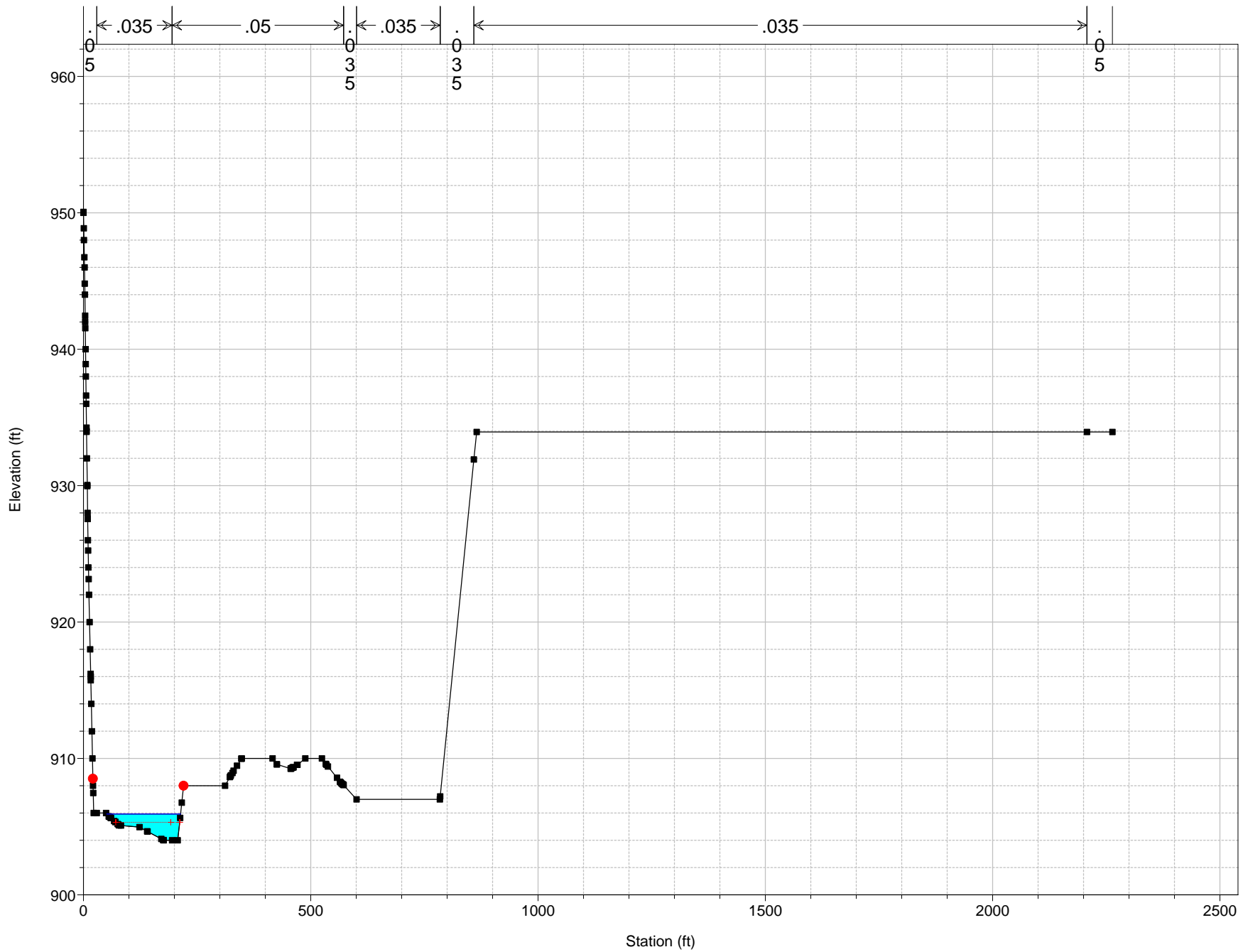


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 24550



**Legend**

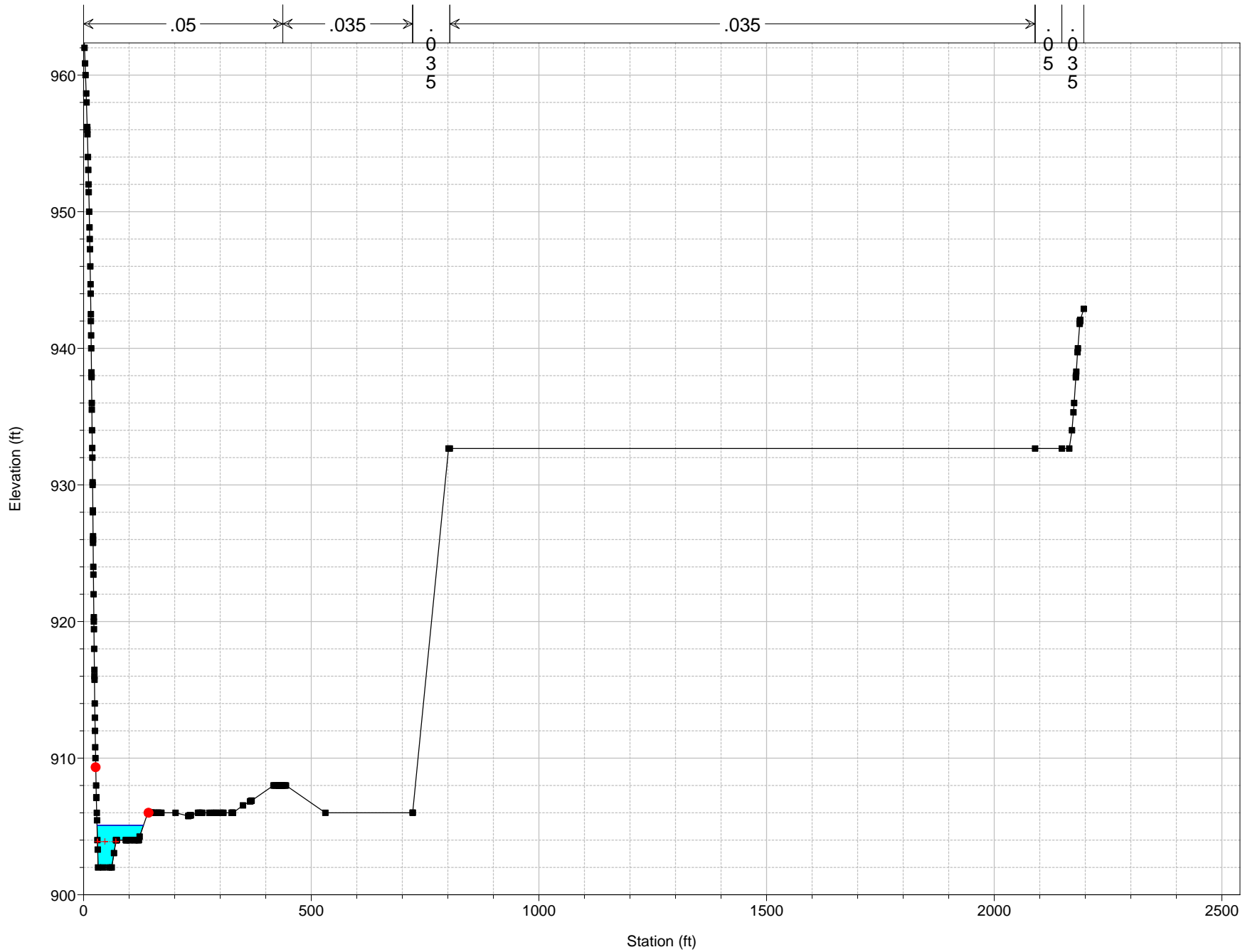
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- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 24335



**Legend**

- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Bank Sta

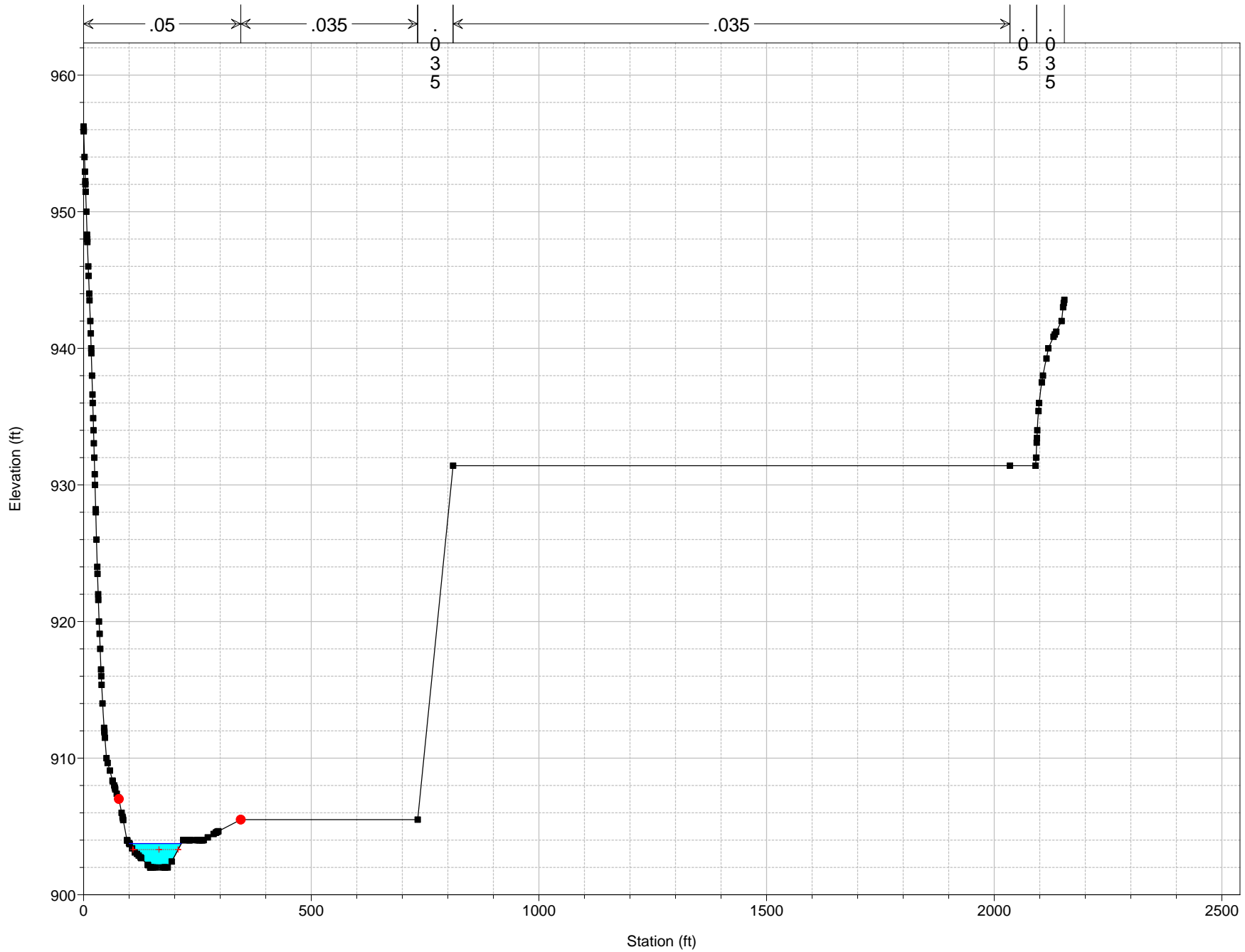
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 24115



**Legend**

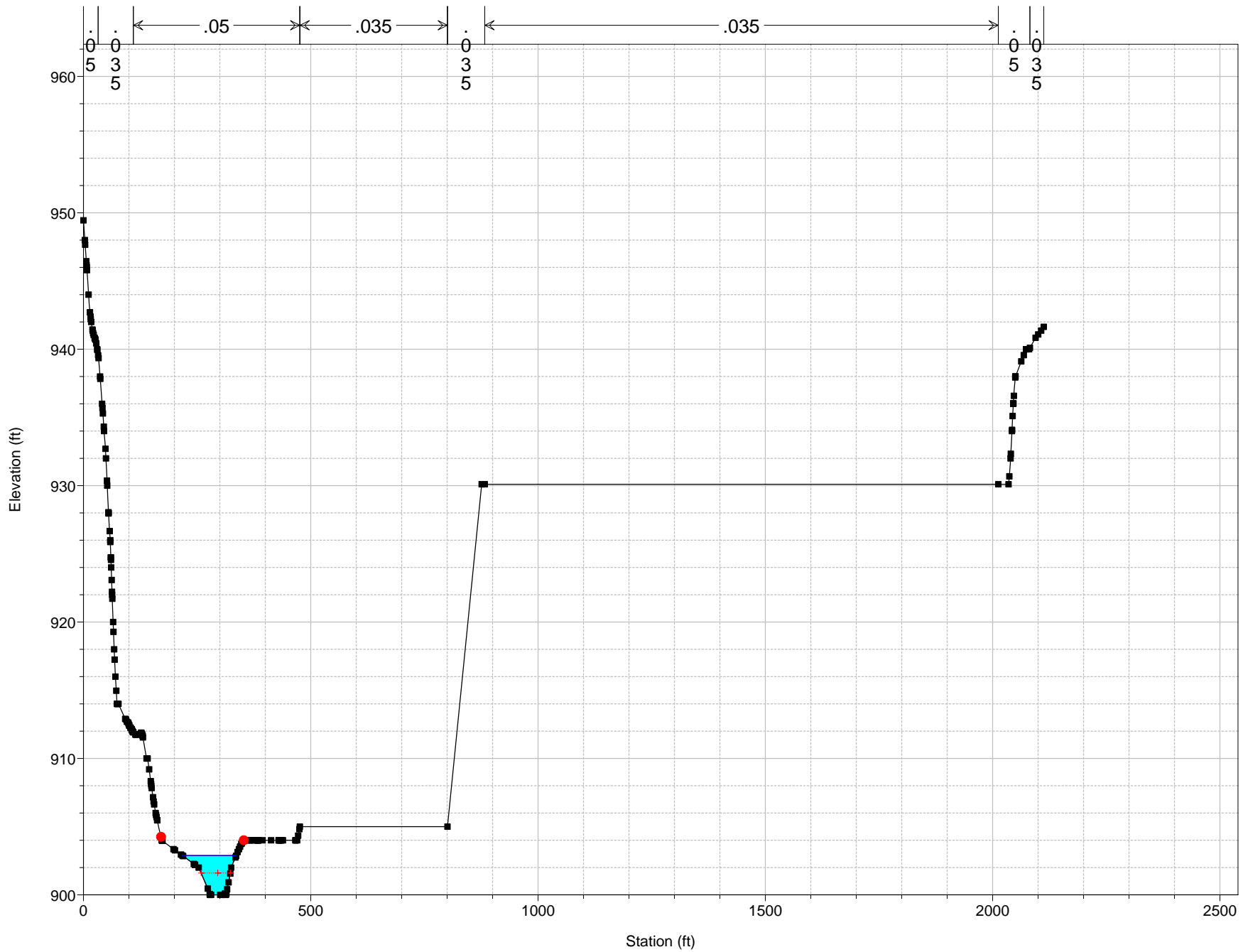
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- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23975



**Legend**

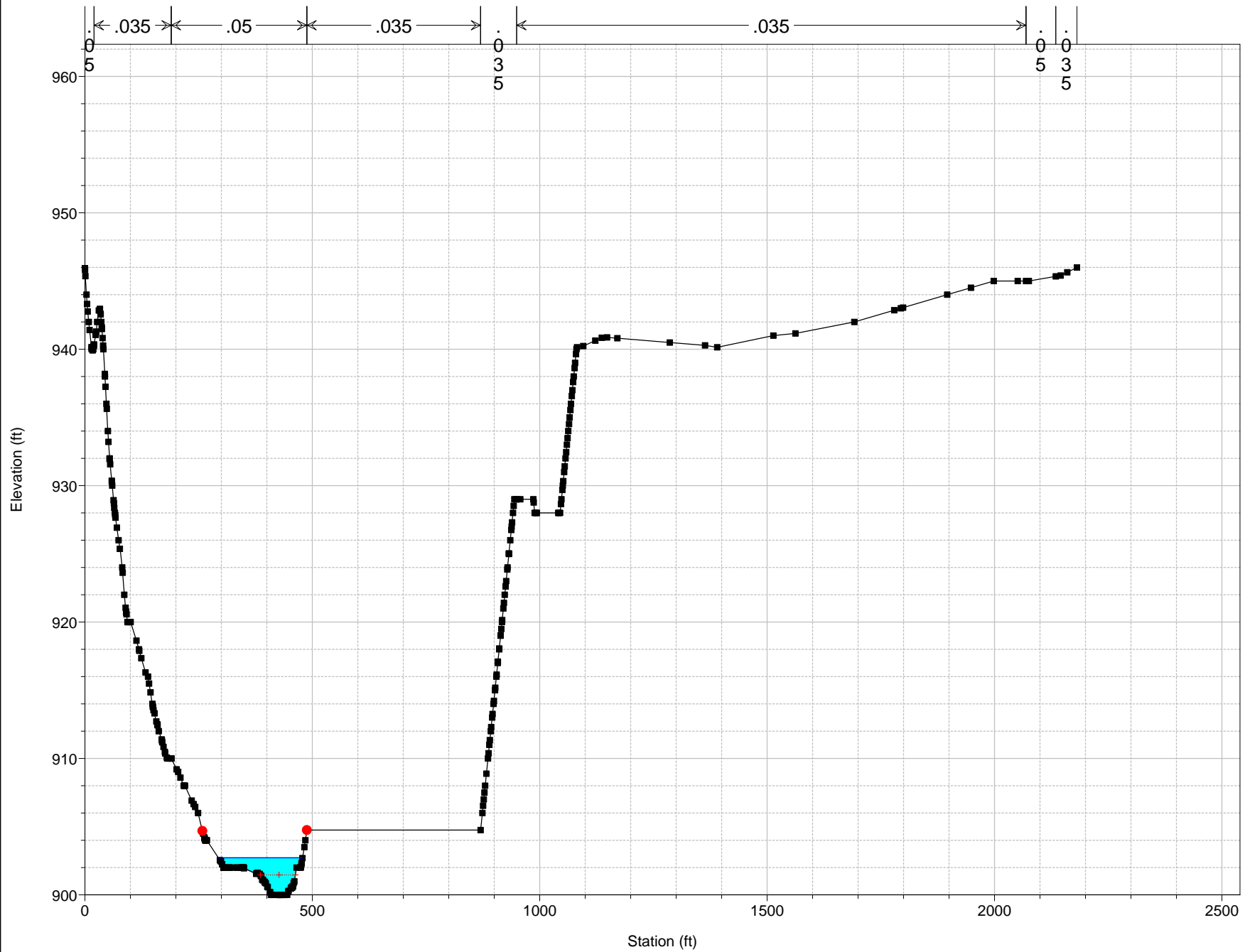
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23964

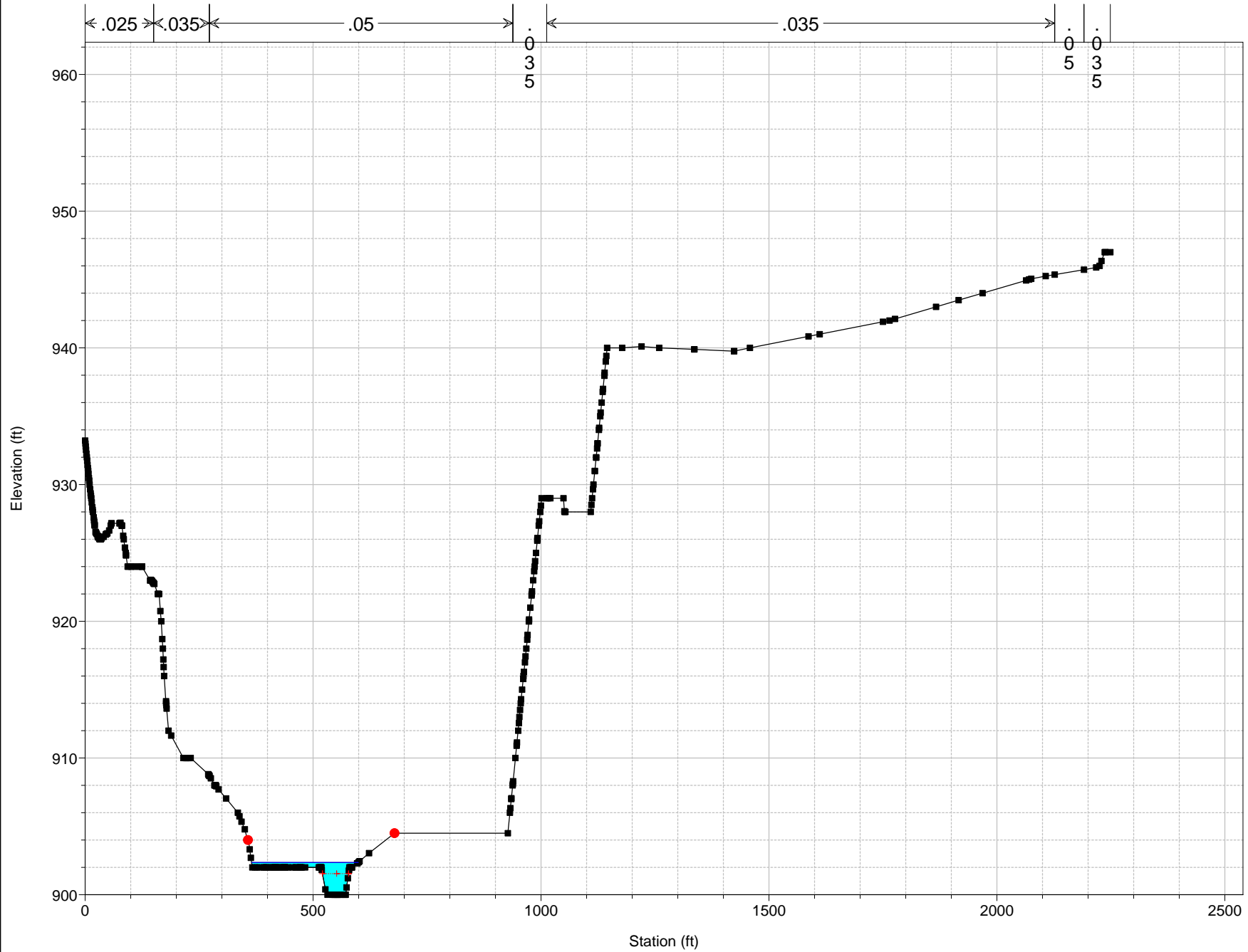


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23954

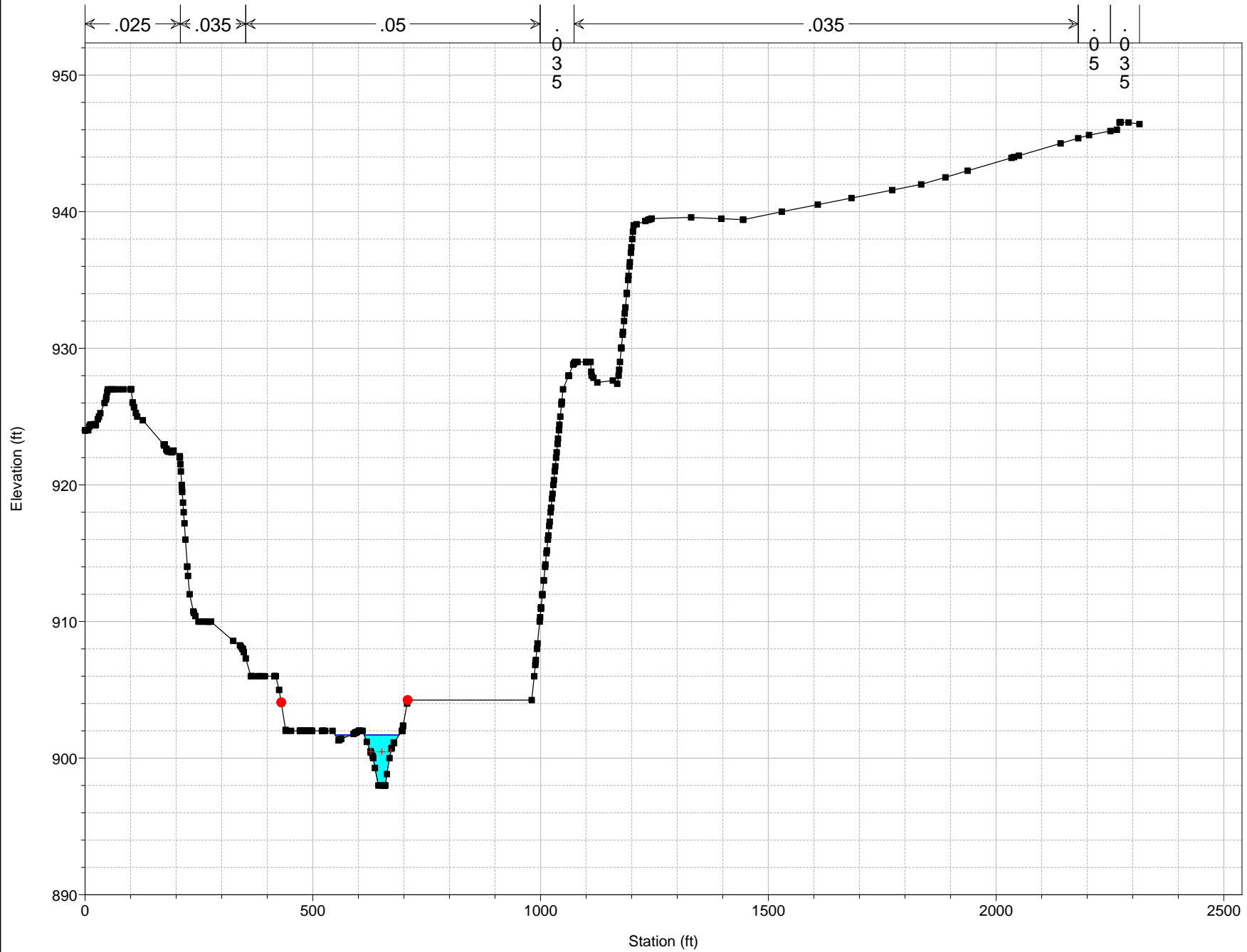




SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23913



**Legend**

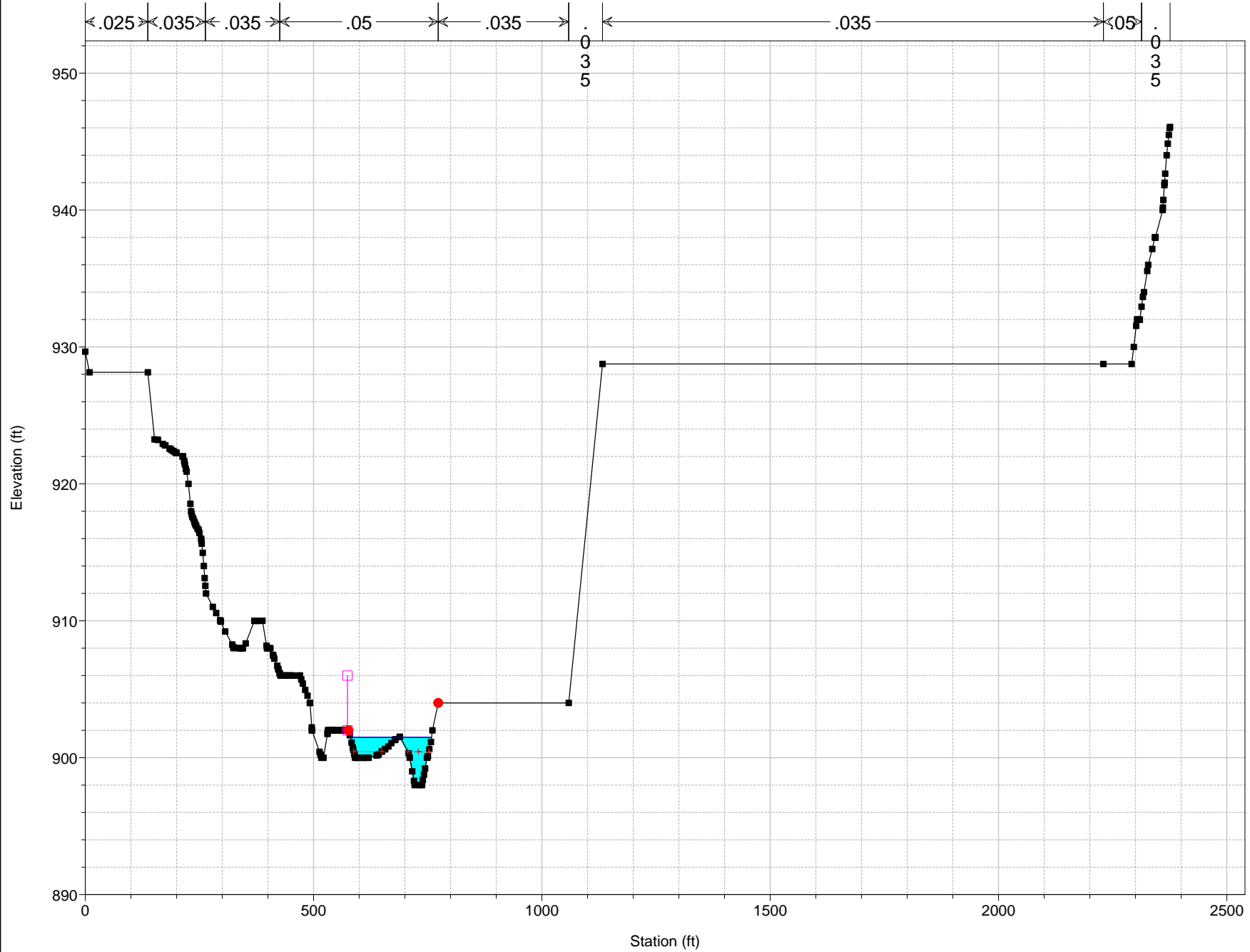
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23755



**Legend**

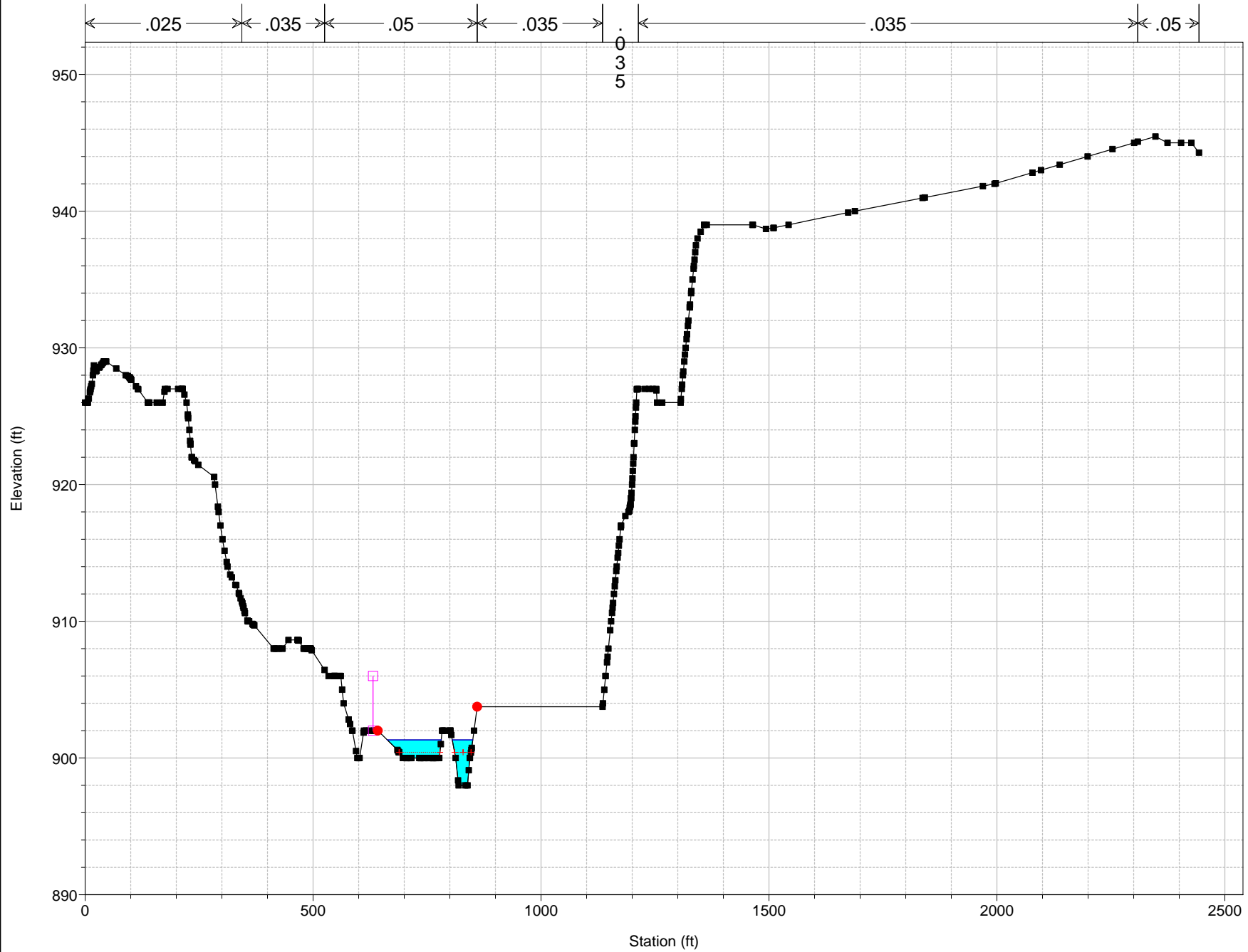
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23744



**Legend**

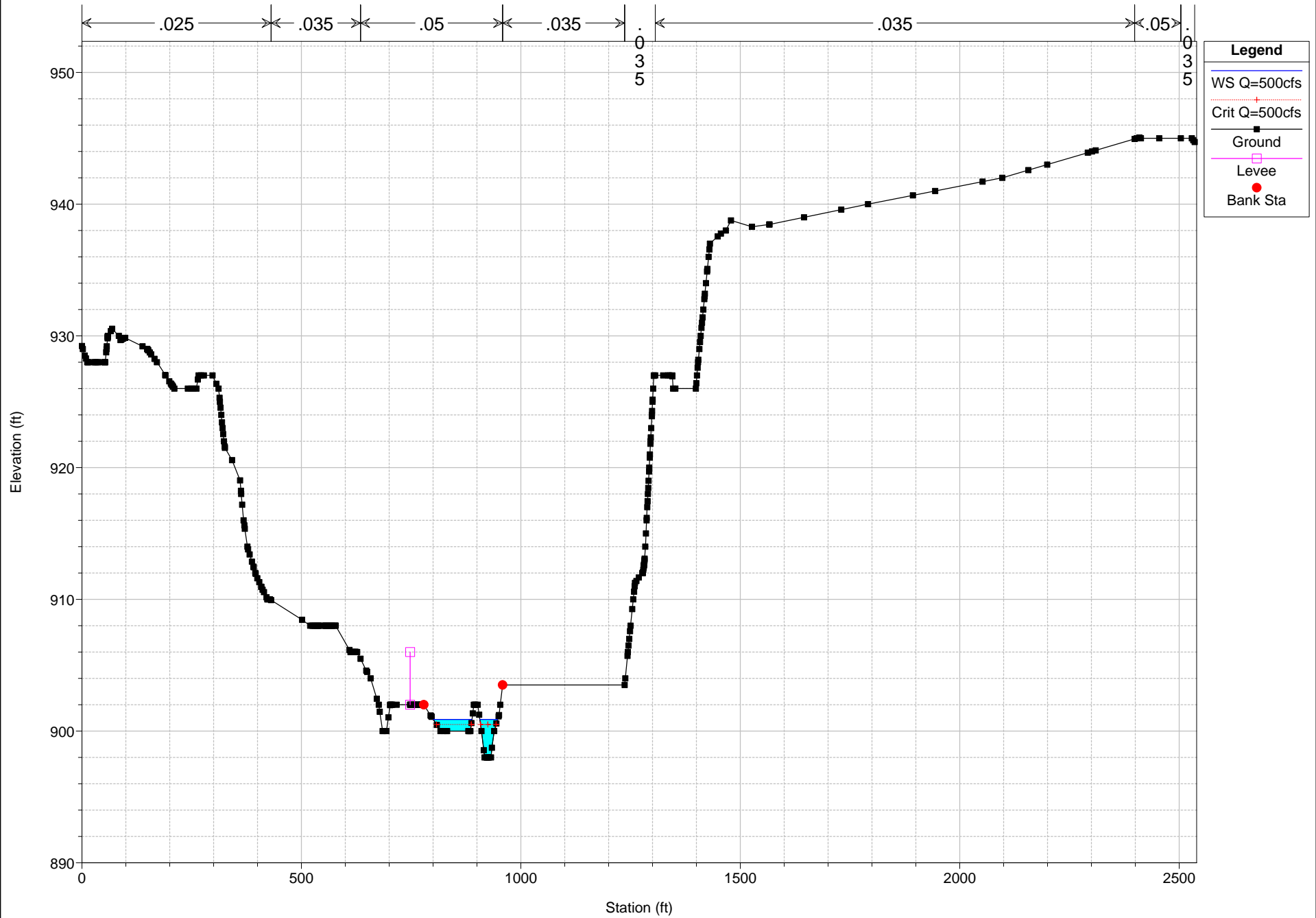
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23734



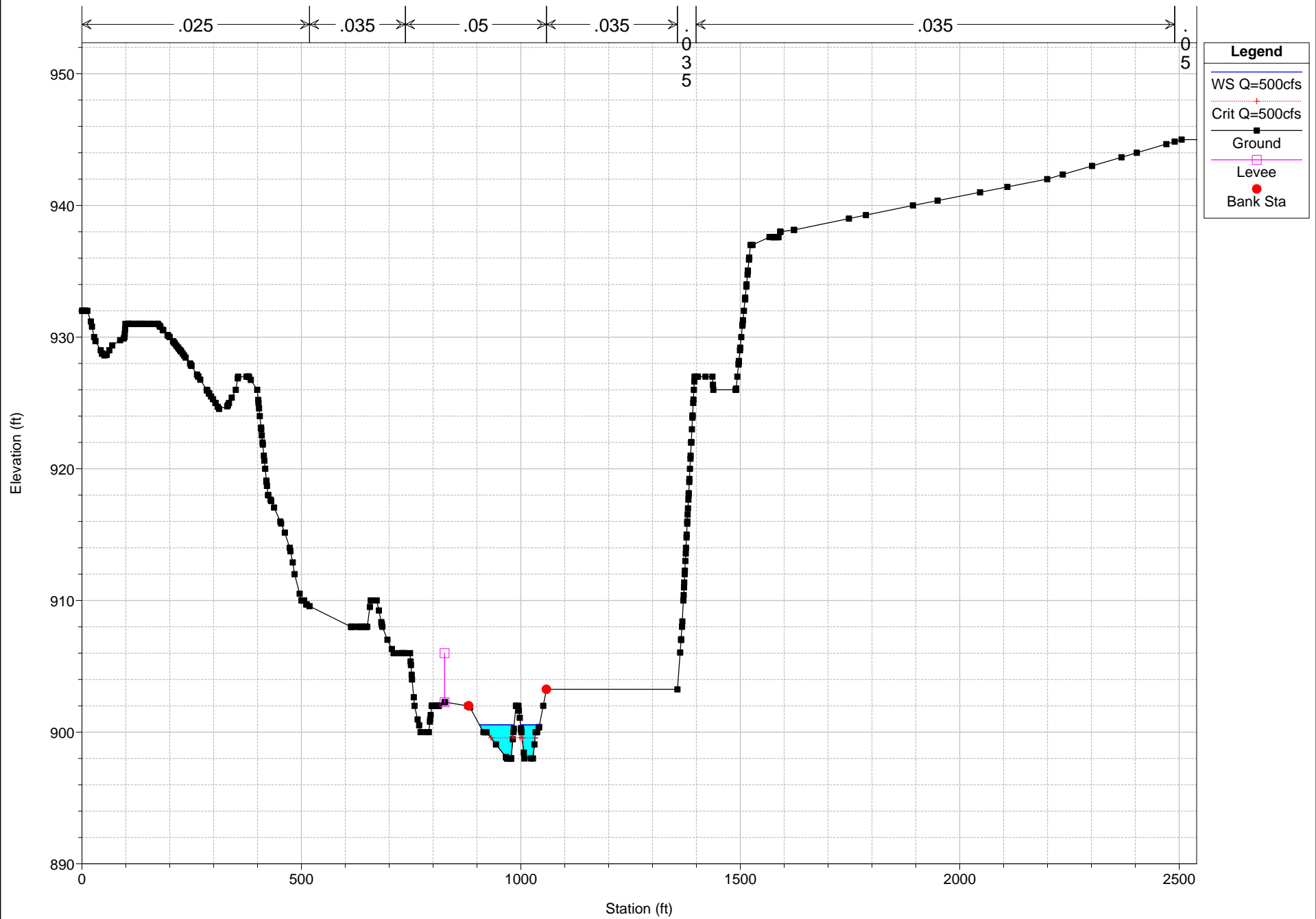
1 in Horiz. = 300 ft 1 in Vert. = 10 ft



SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23701

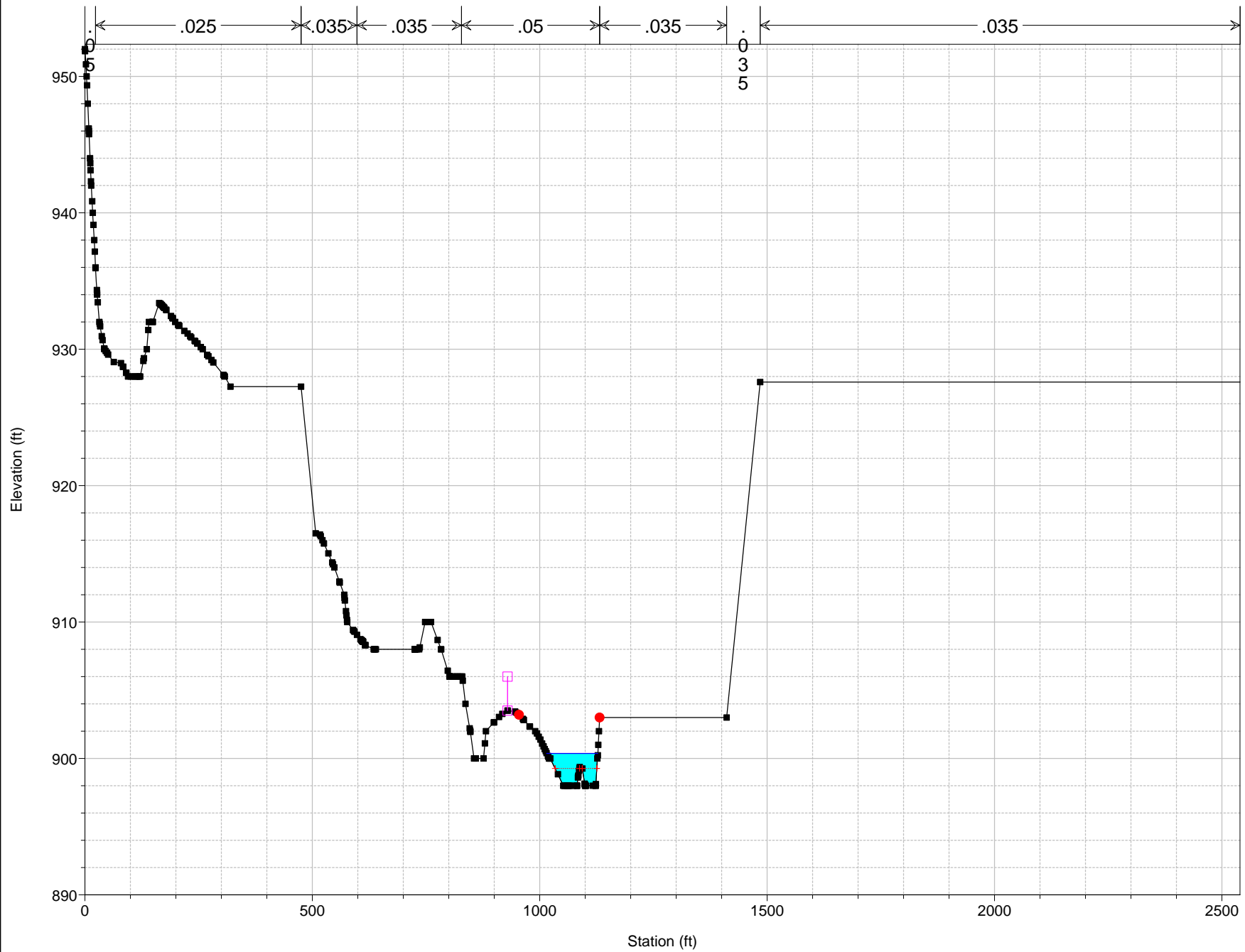


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23565



**Legend**

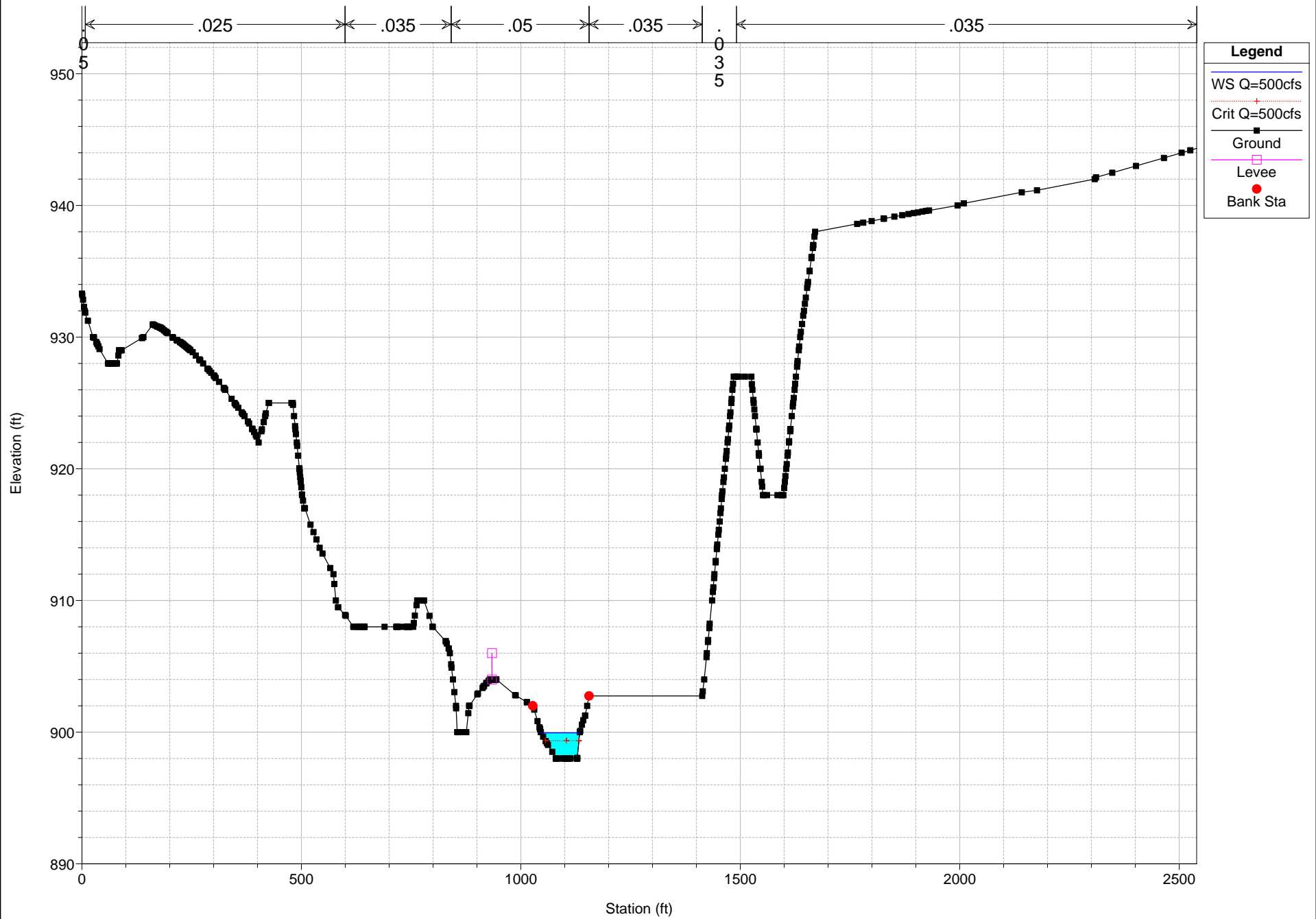
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23558

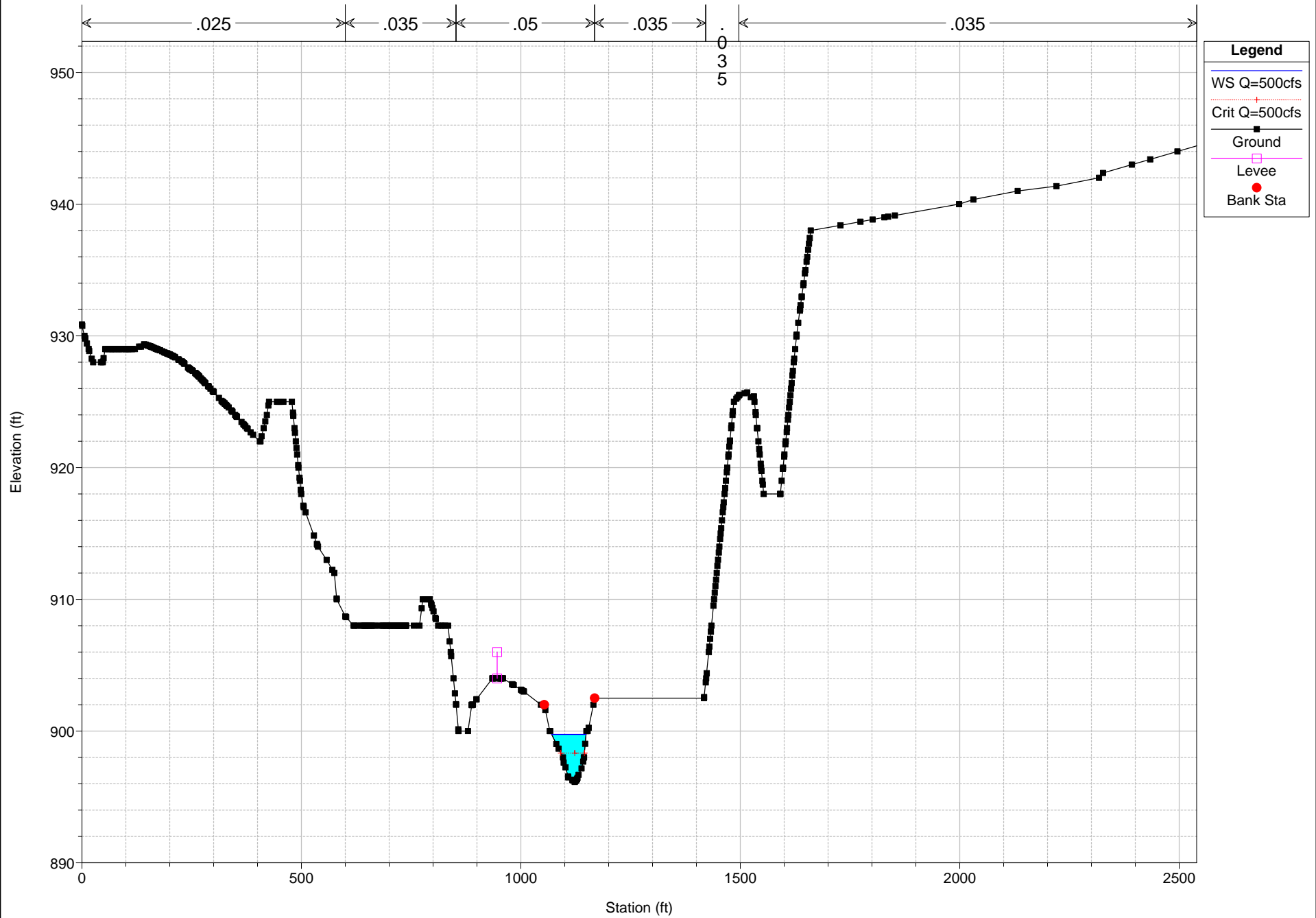


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23548



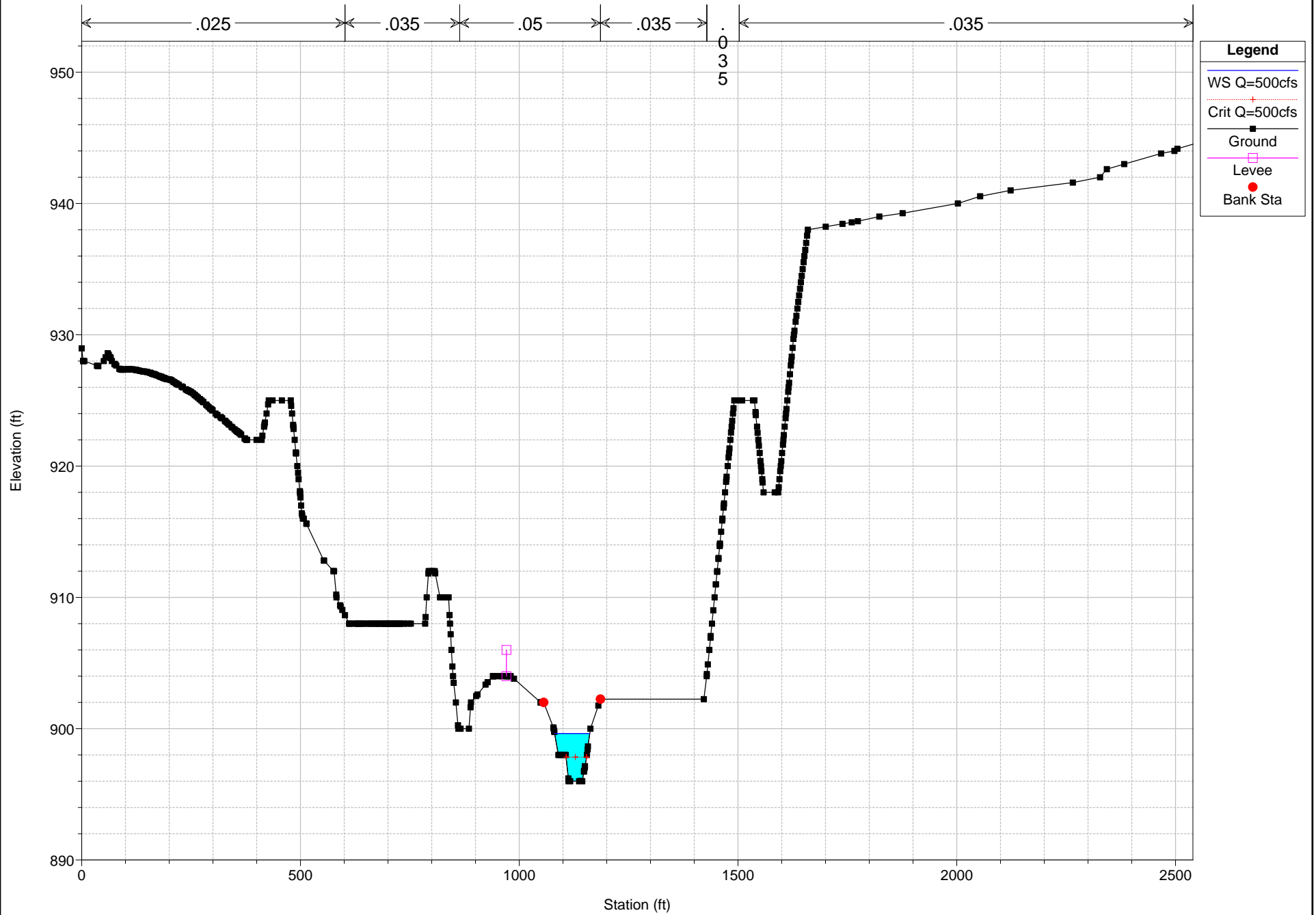
1 in Horiz. = 300 ft 1 in Vert. = 10 ft



SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23498



**Legend**

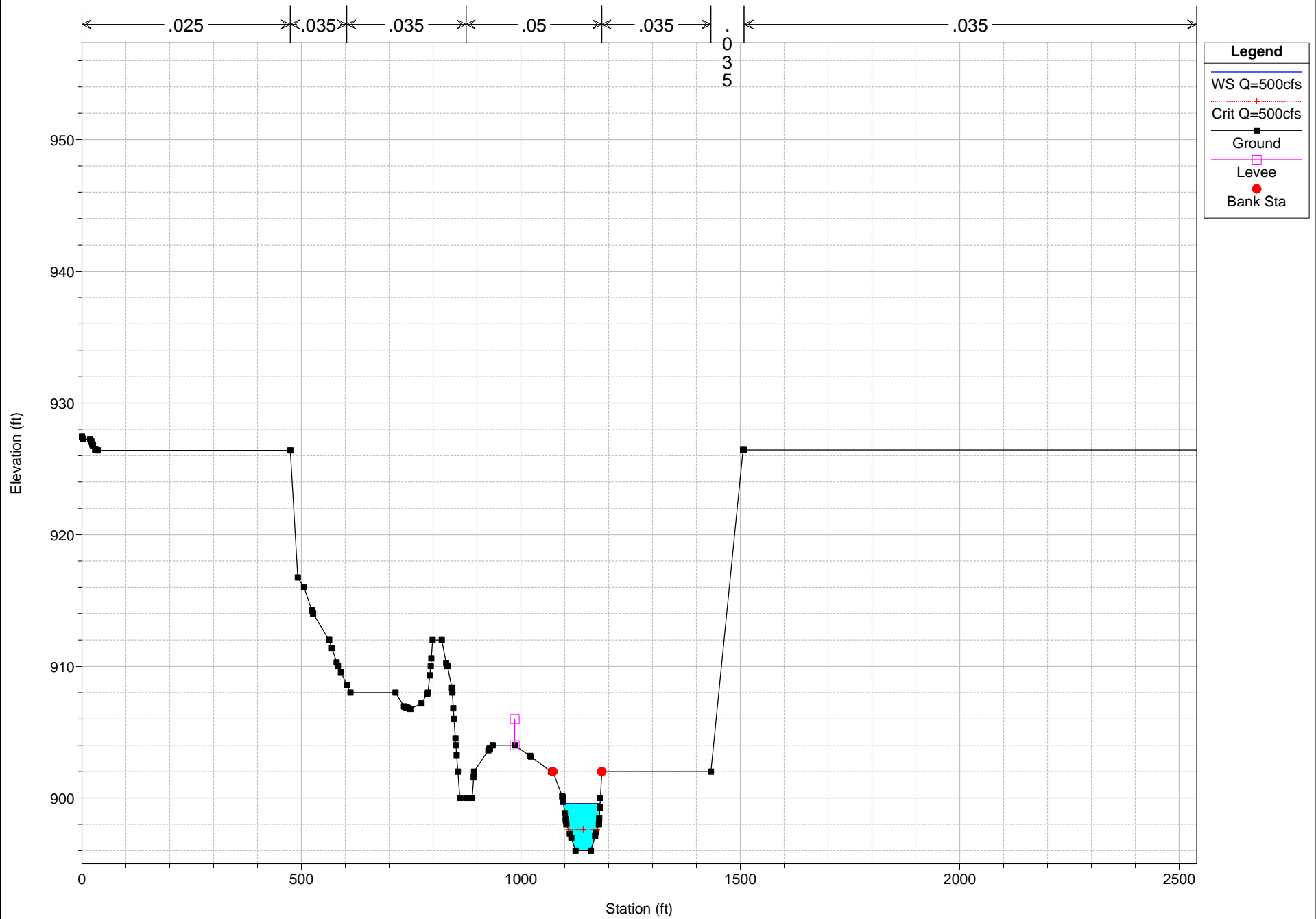
- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23365

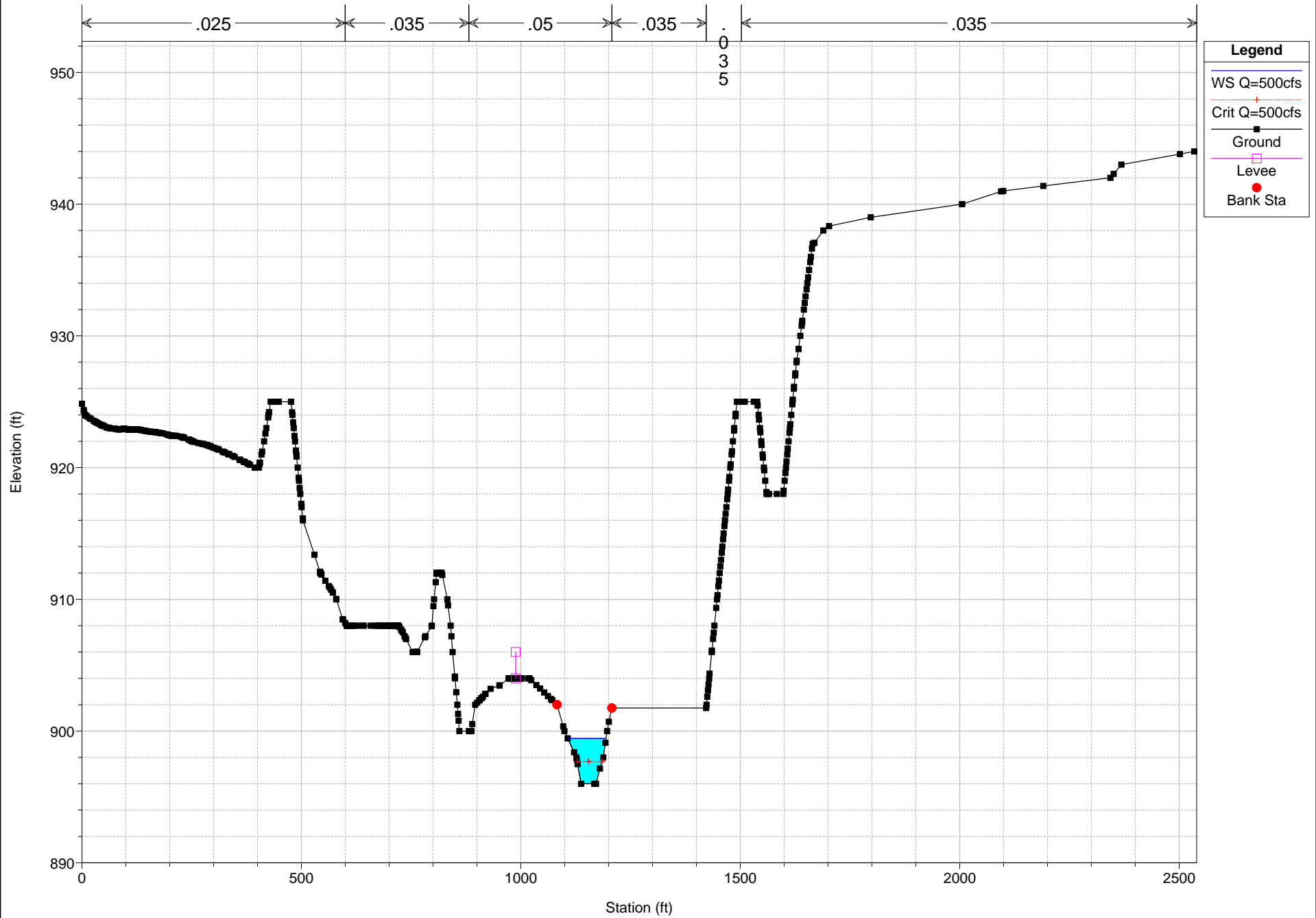


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23359

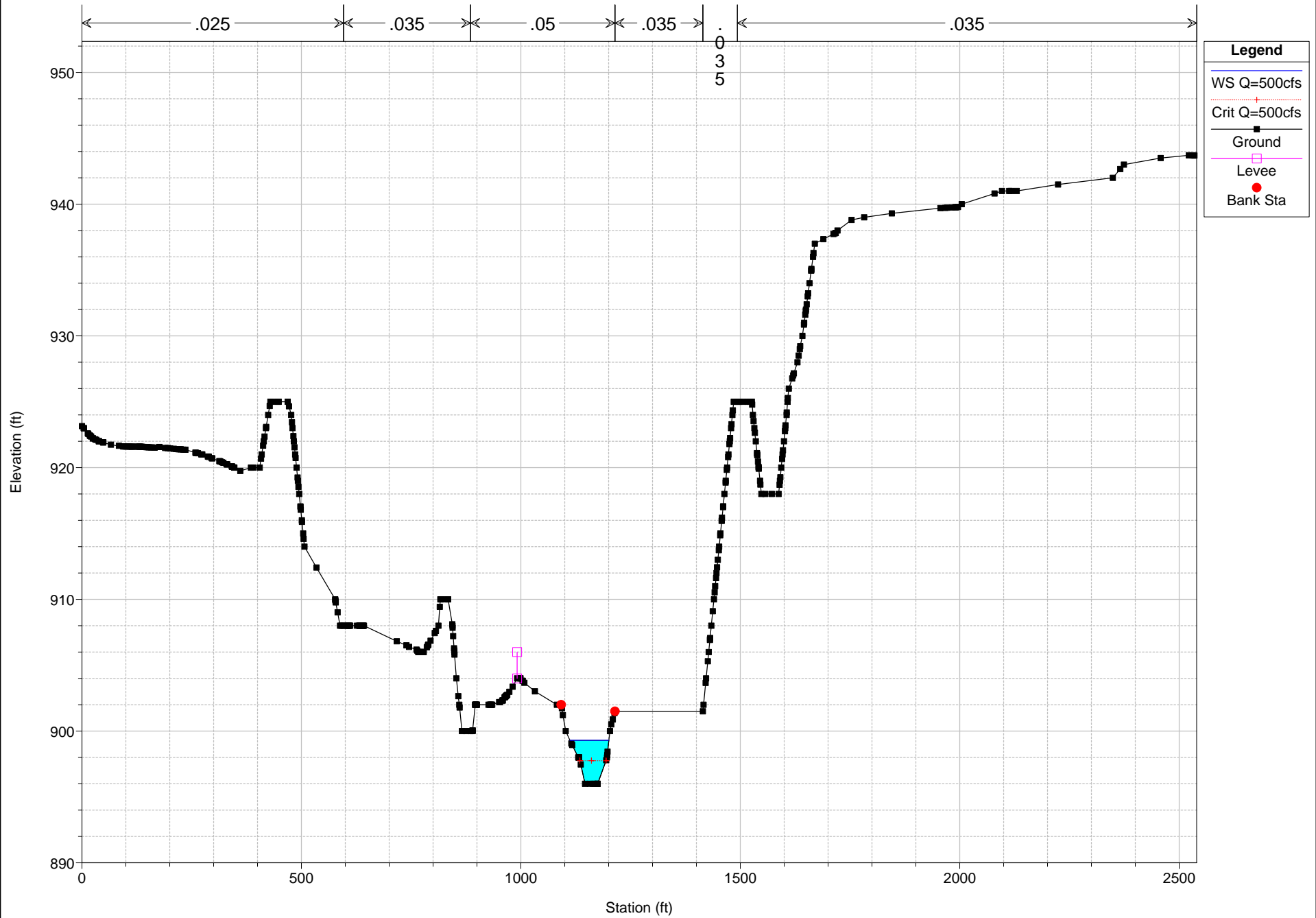


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23339



1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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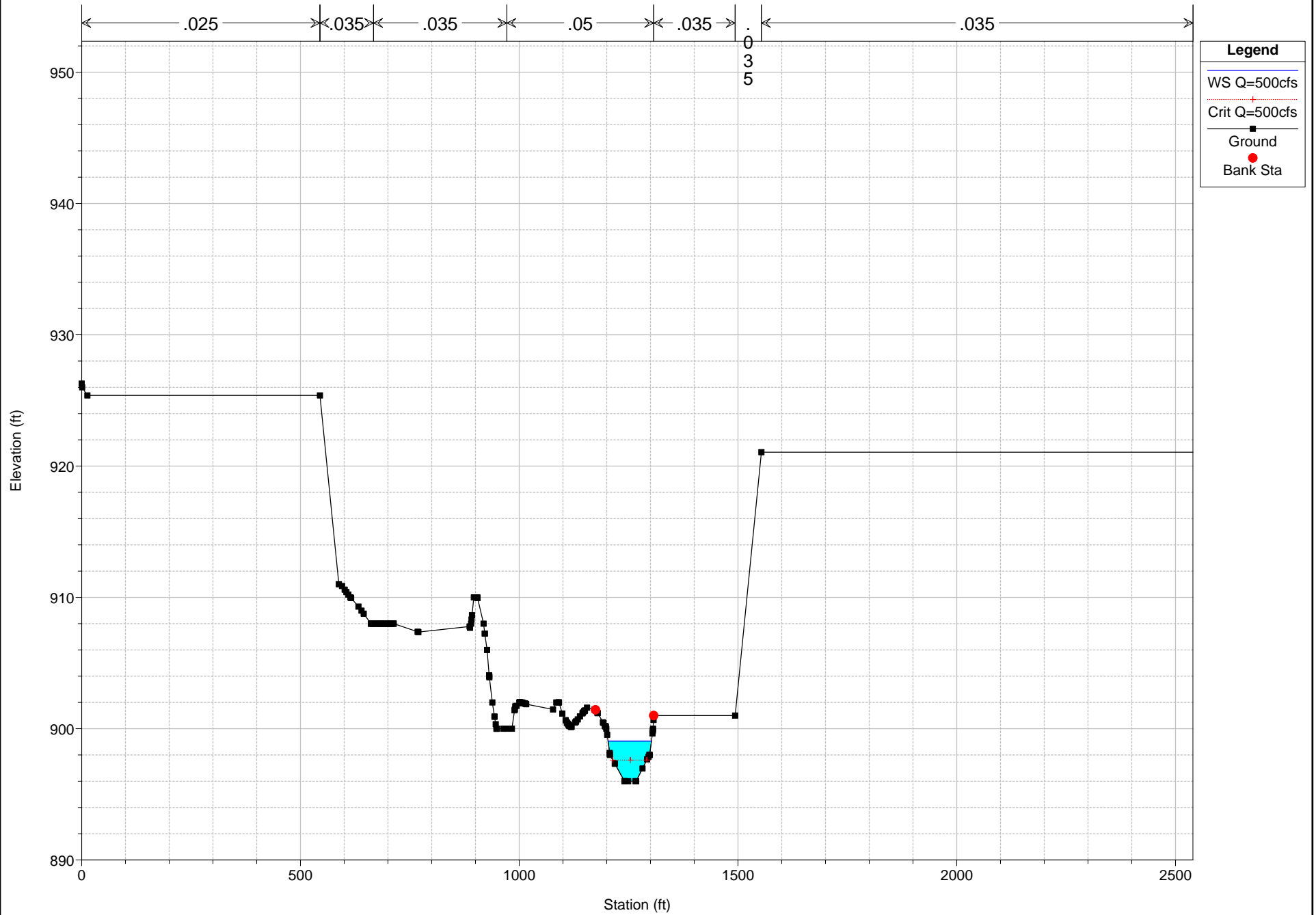


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23180



**Legend**

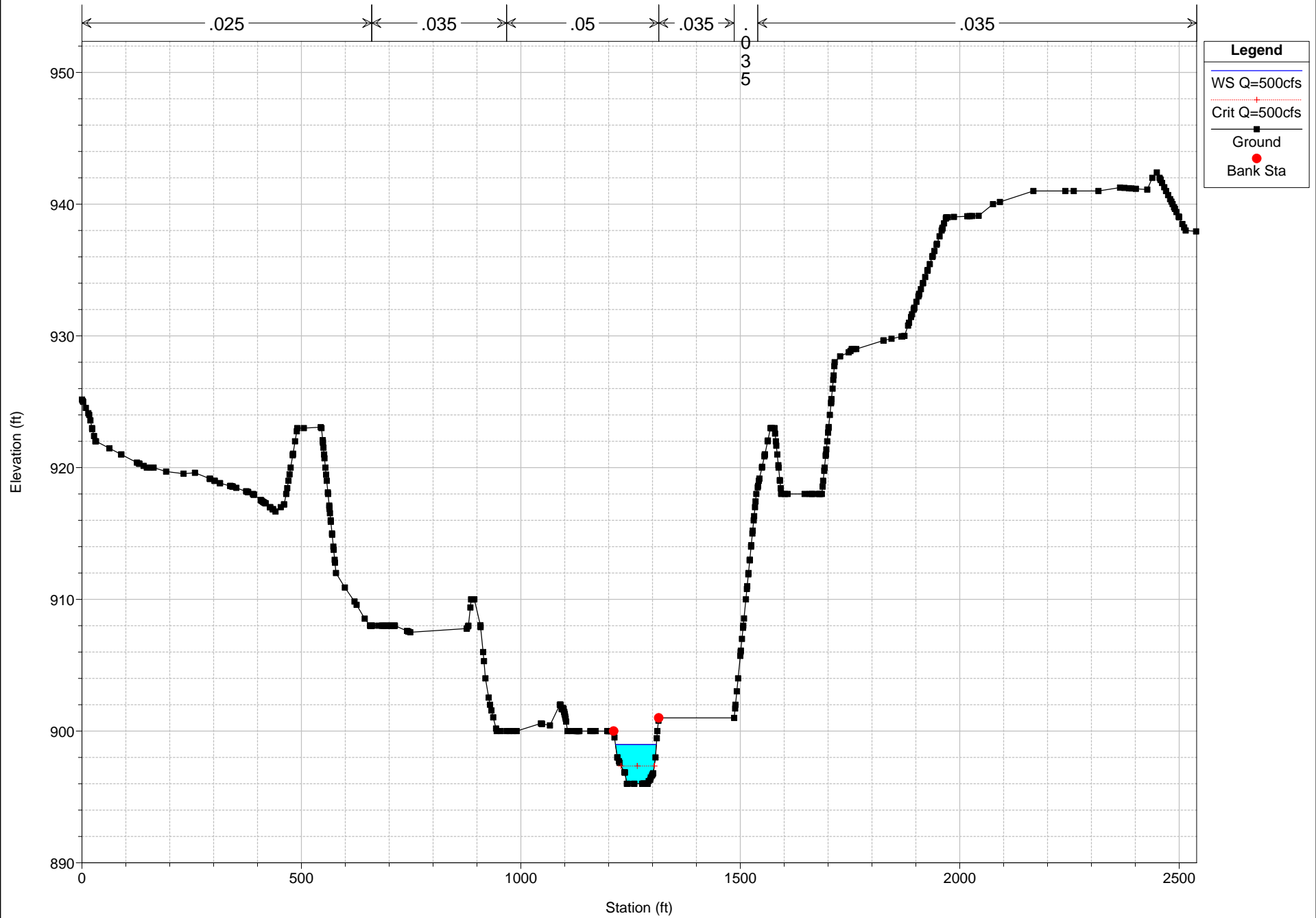
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- Crit Q=500cfs
- Ground
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

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Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23179

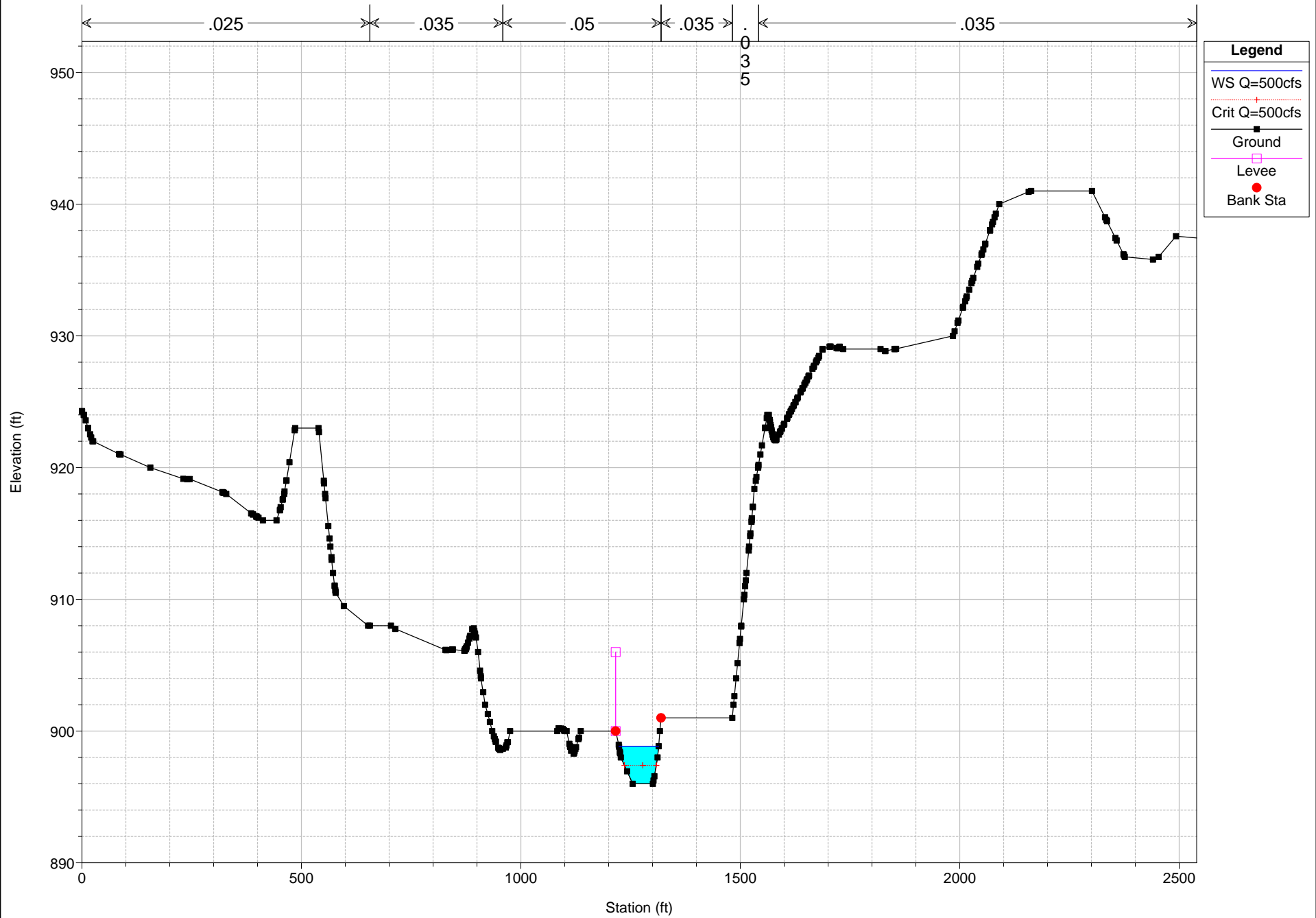


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23128



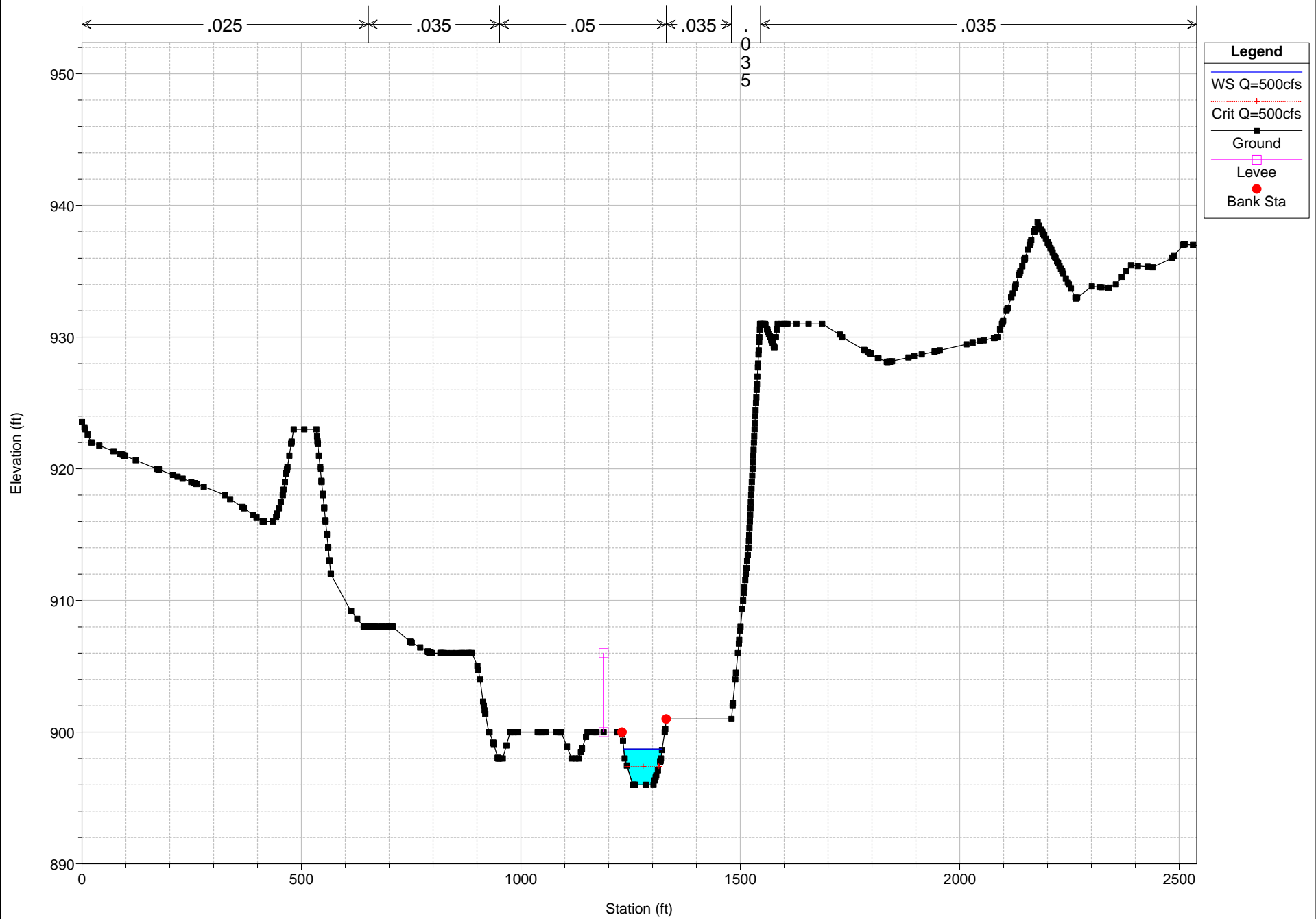
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 23081



**Legend**

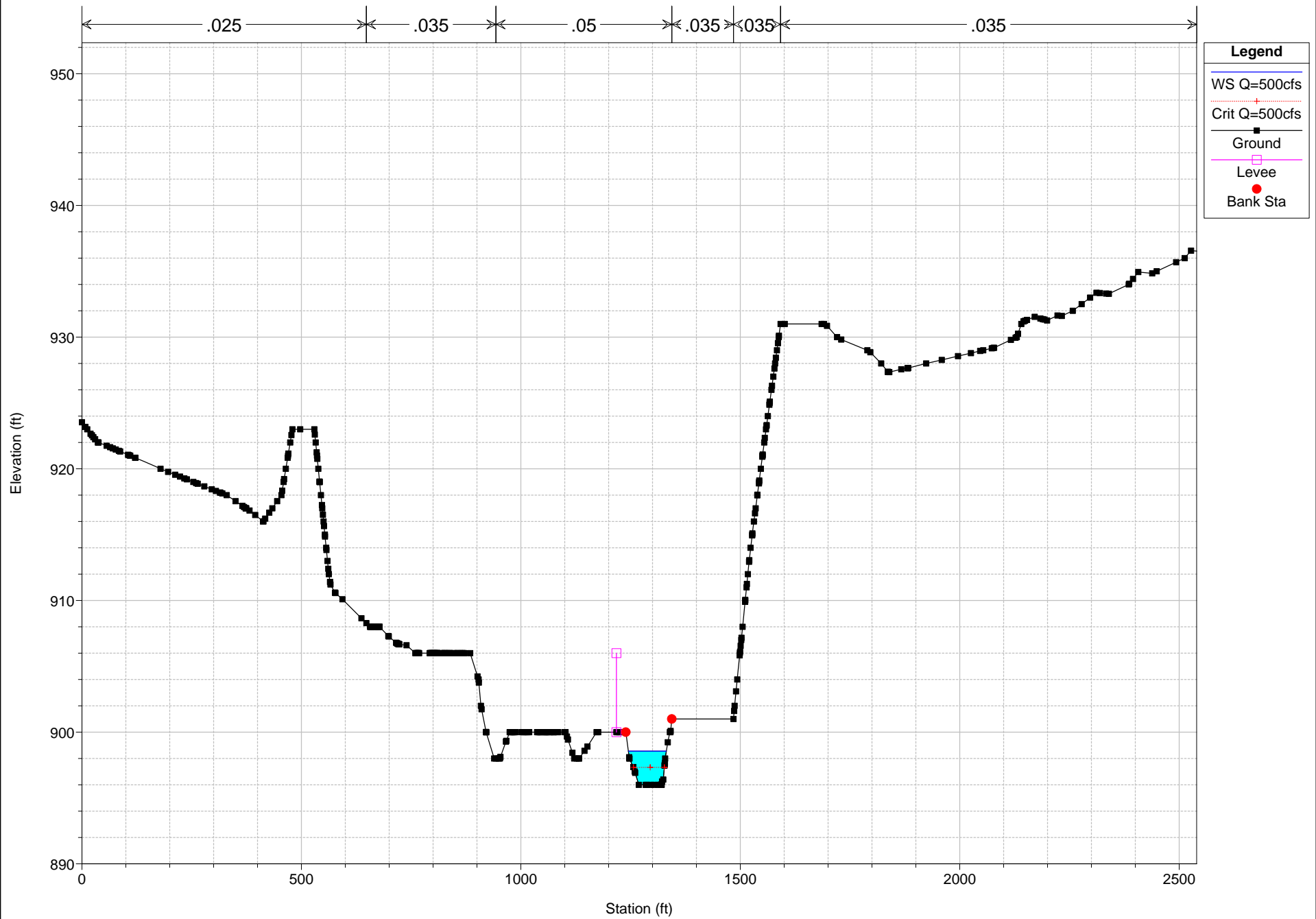
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- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

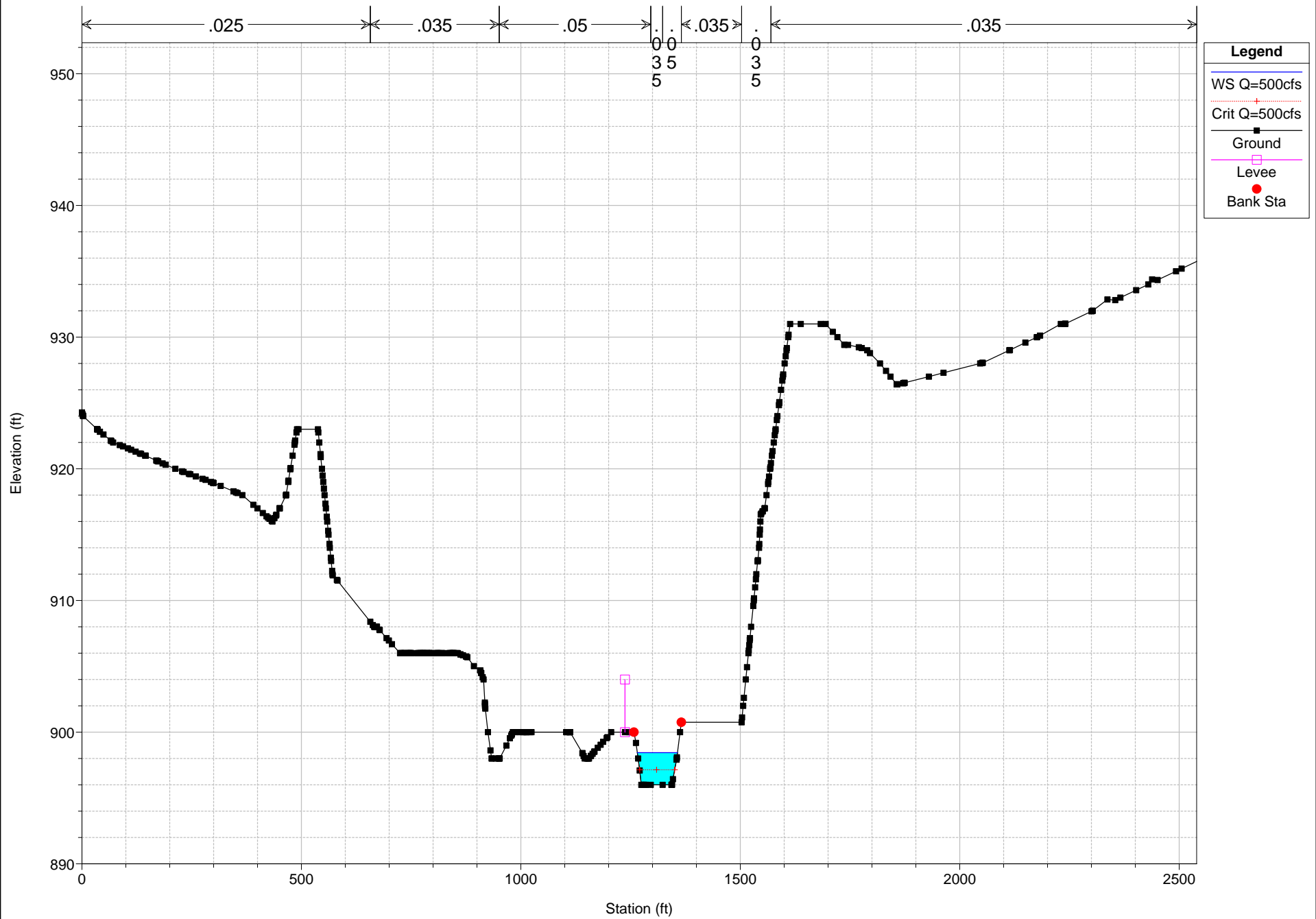
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22978

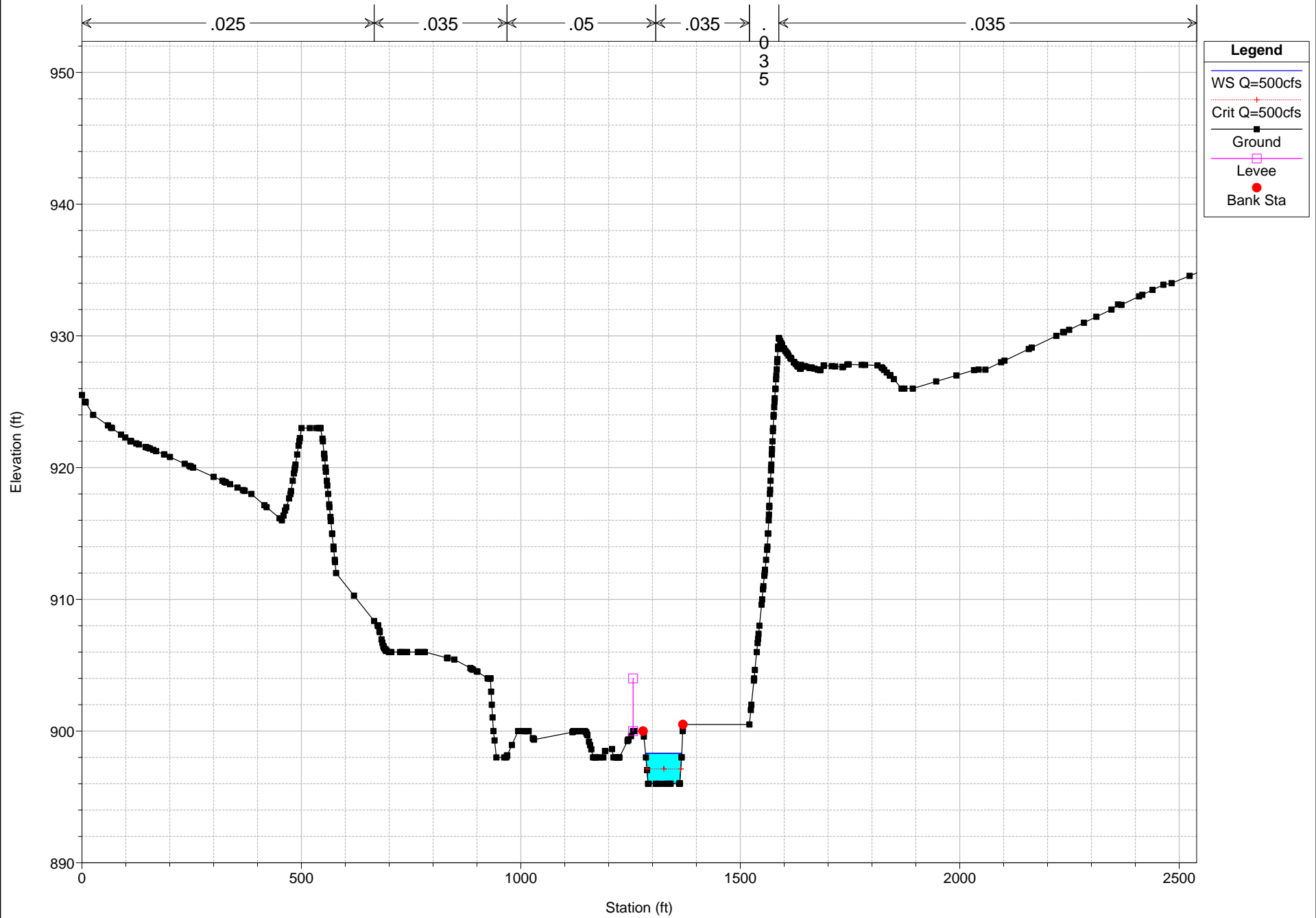


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22926

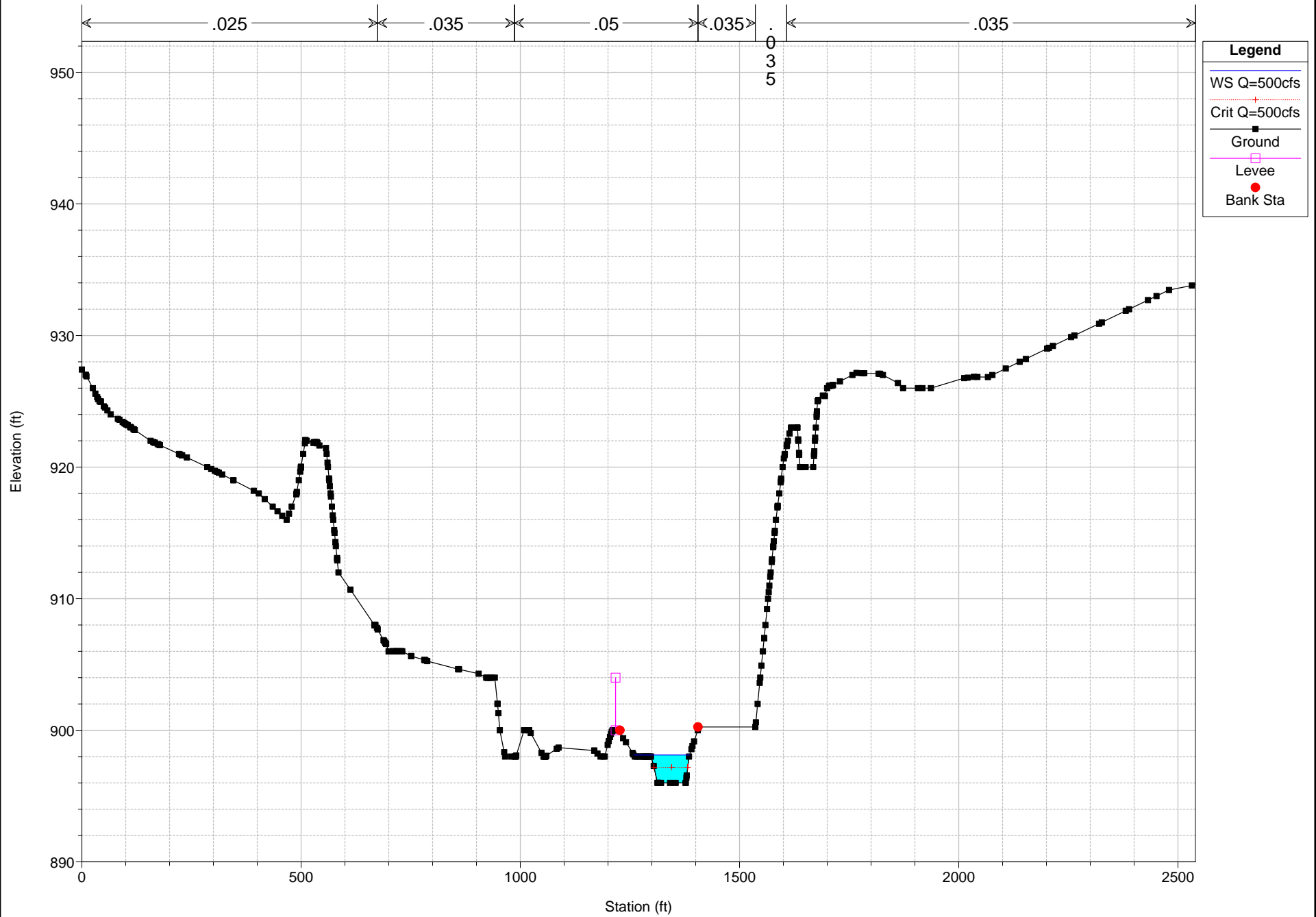


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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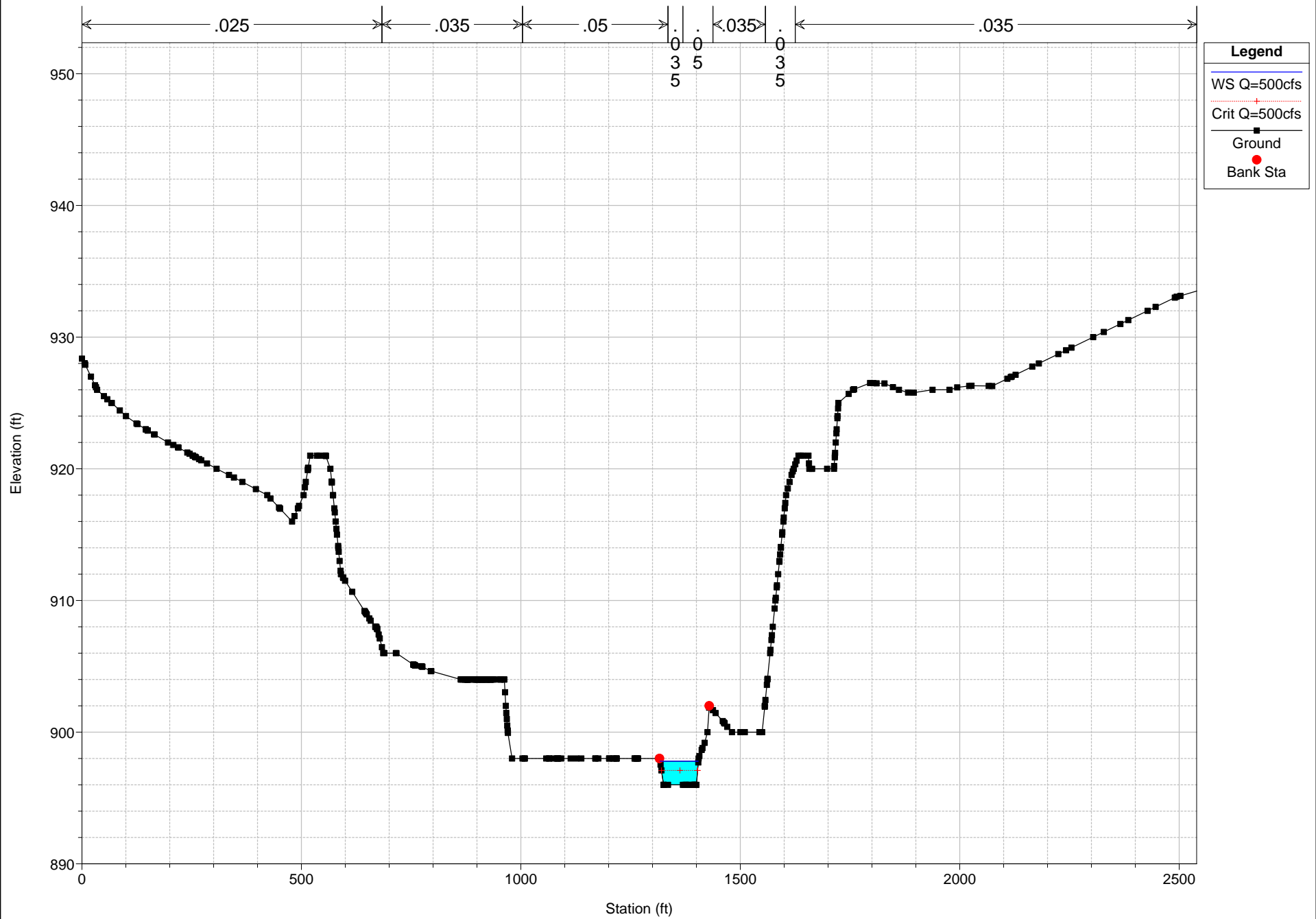


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22790

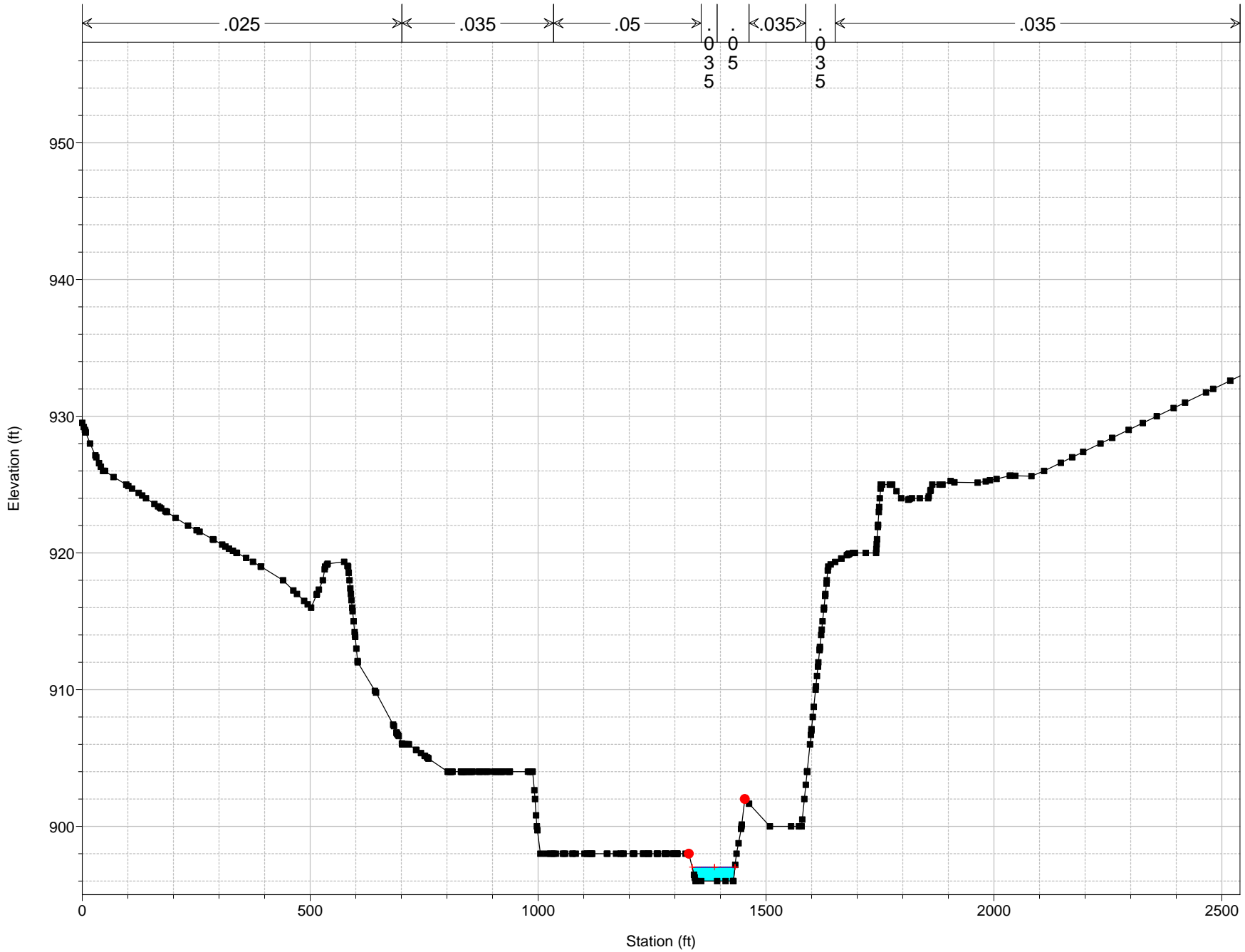


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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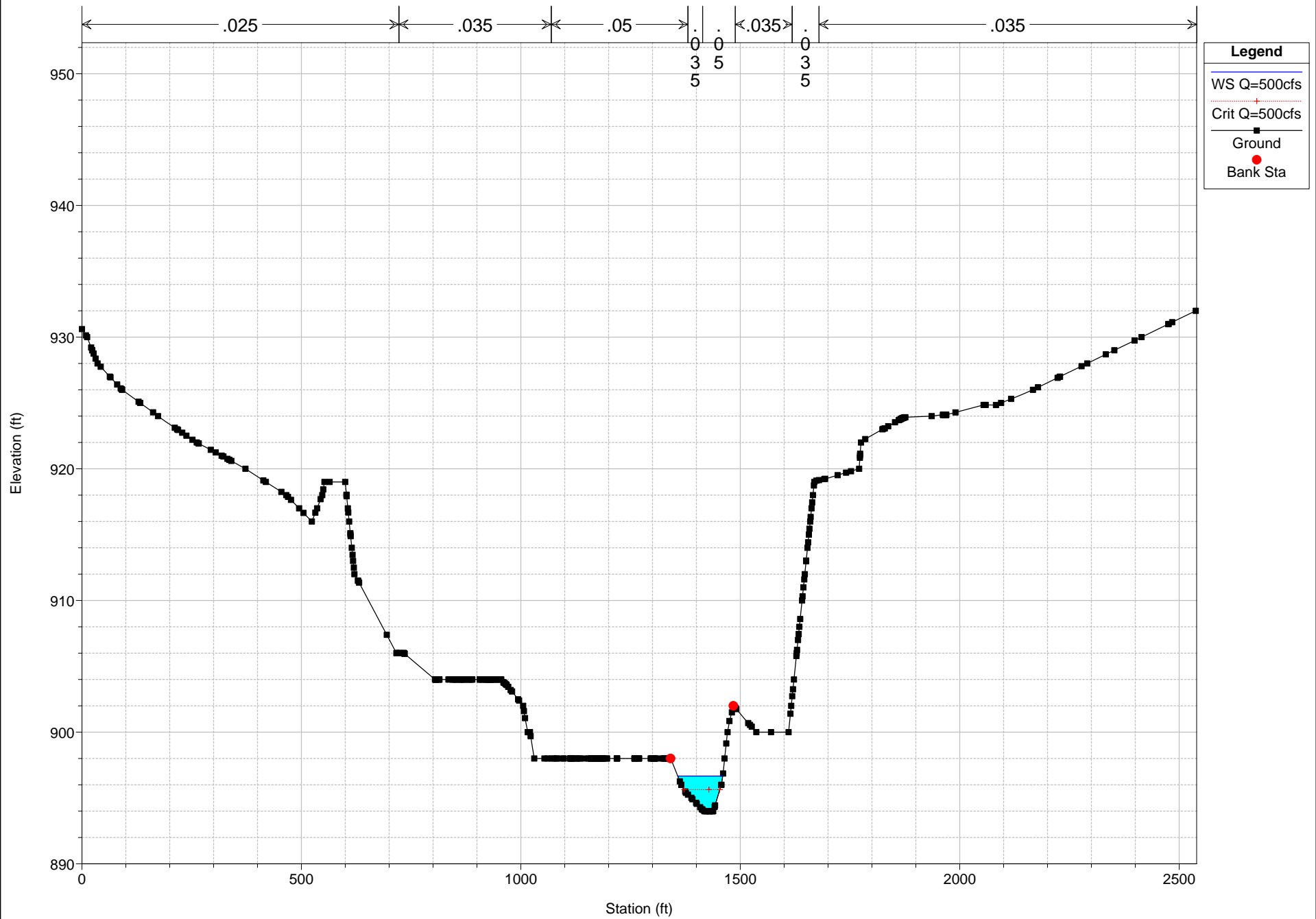


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22727



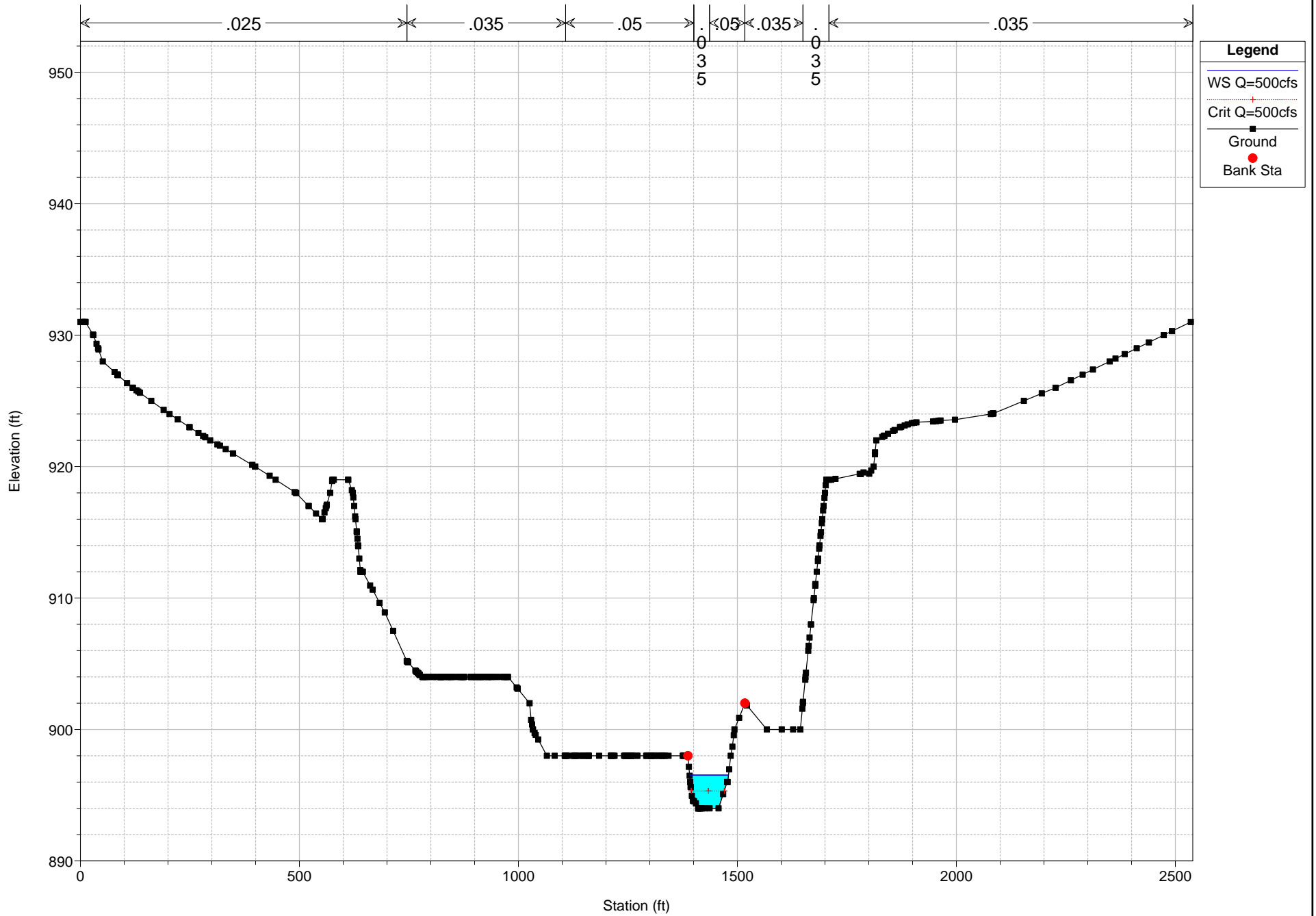
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22674

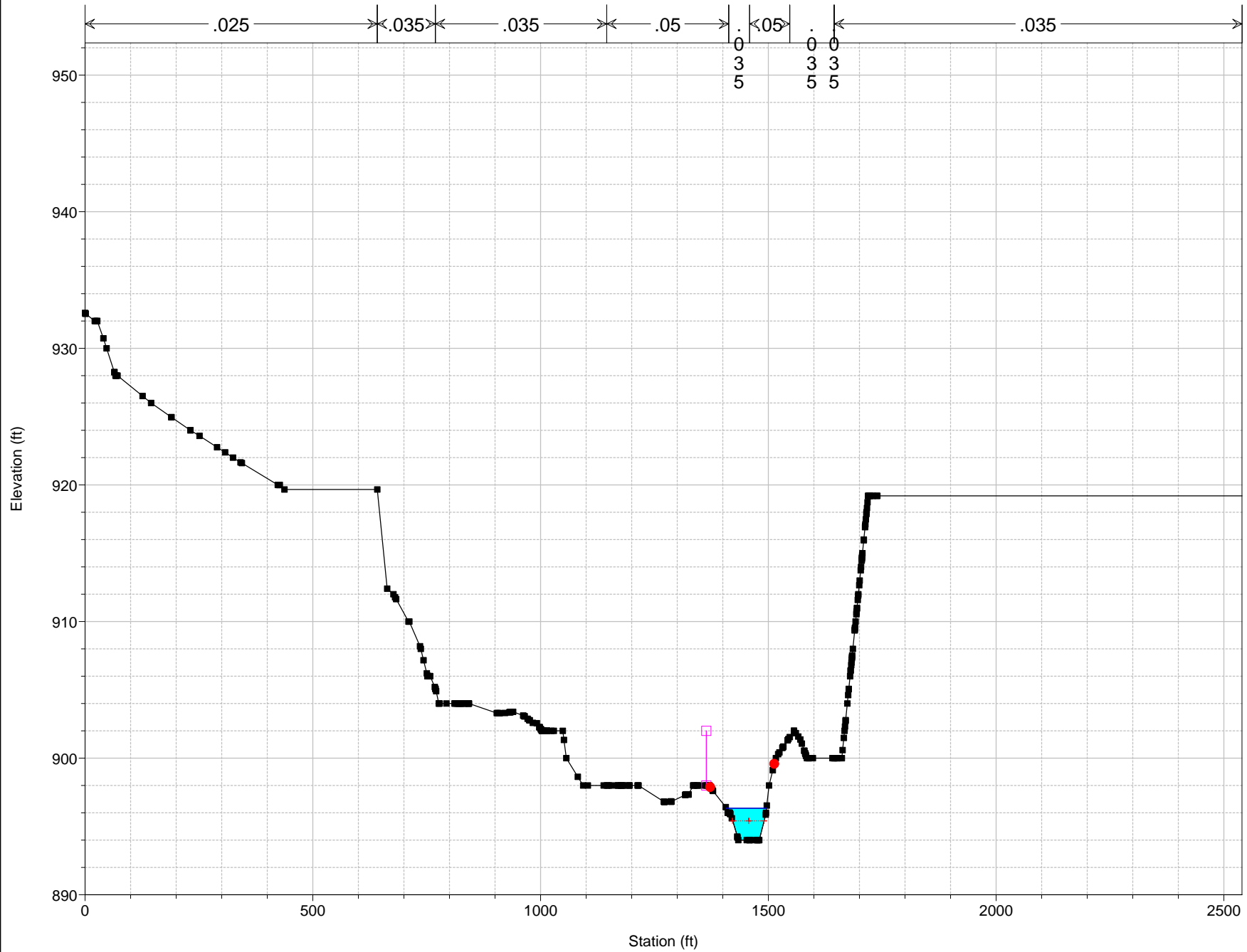


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22600



**Legend**

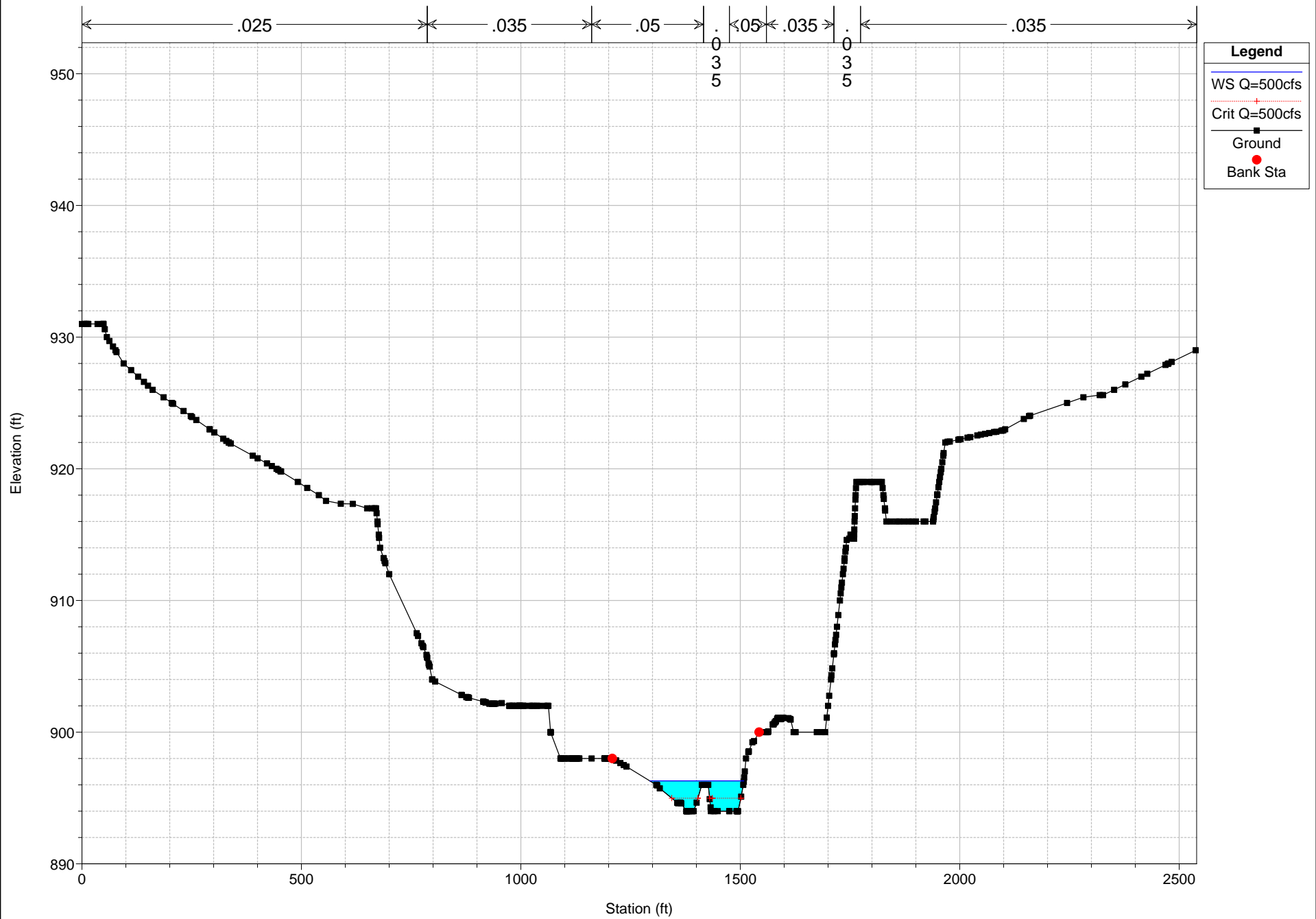
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- Crit Q=500cfs
- Ground
- Levee
- Bank Sta

1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

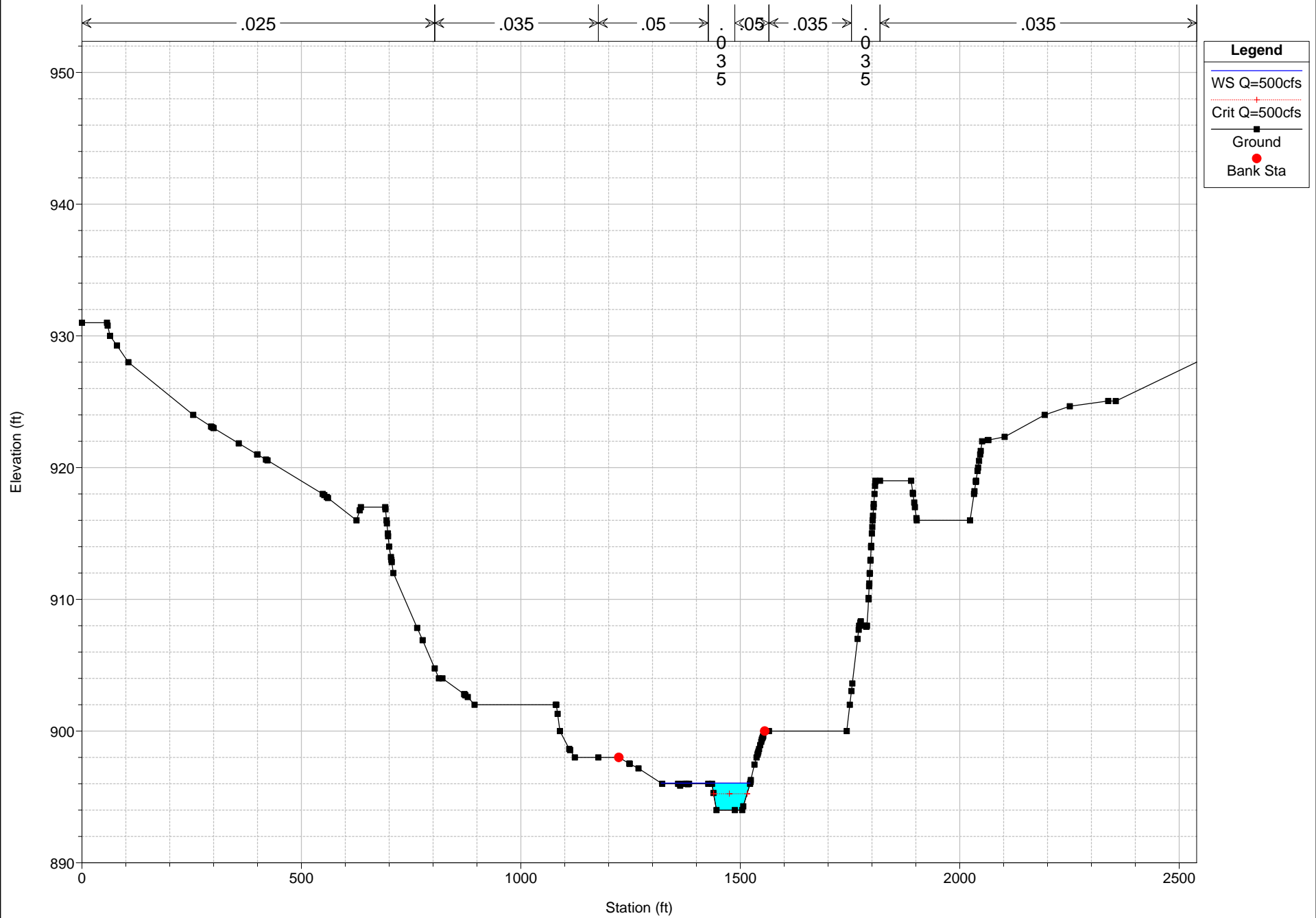
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22498

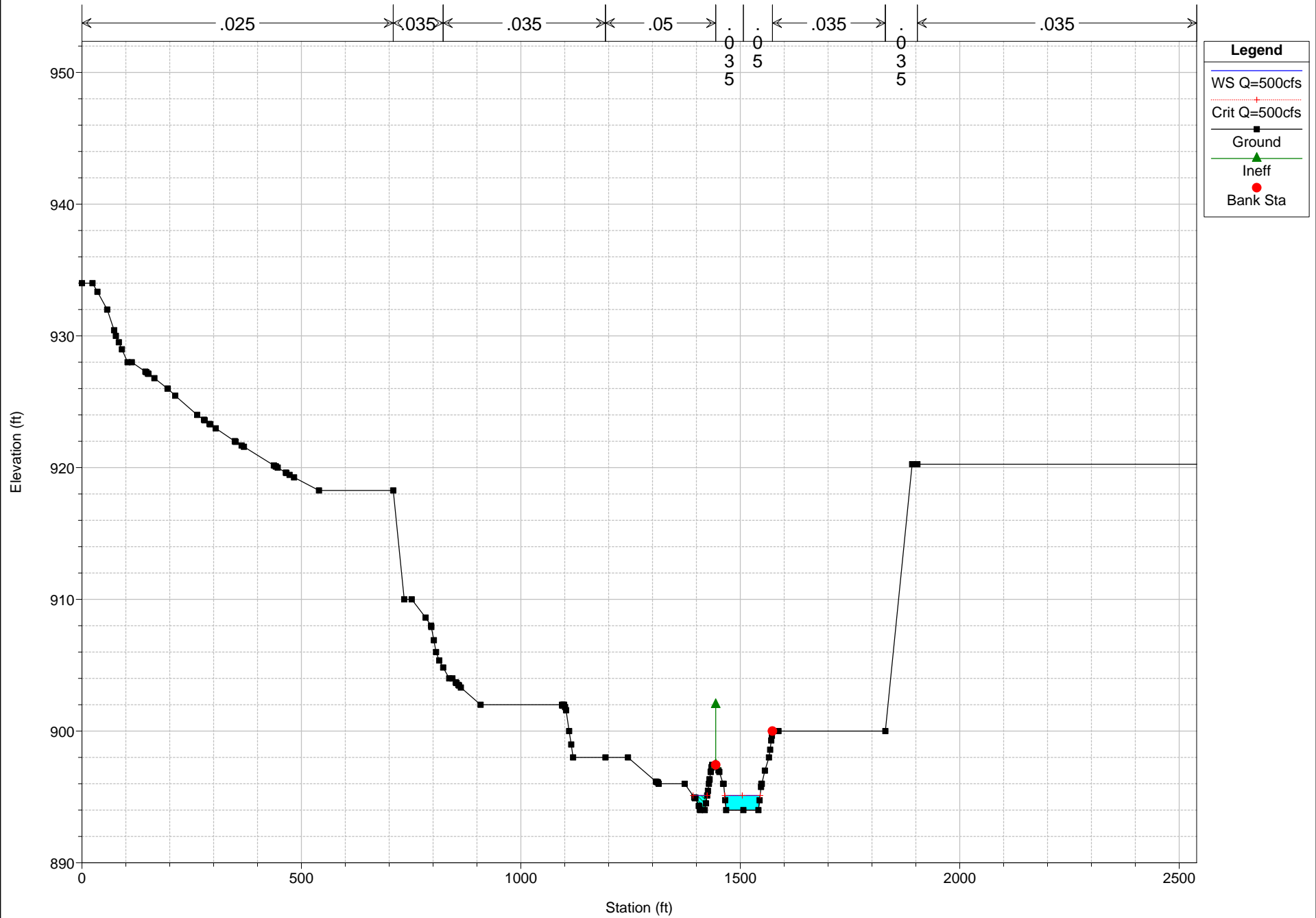


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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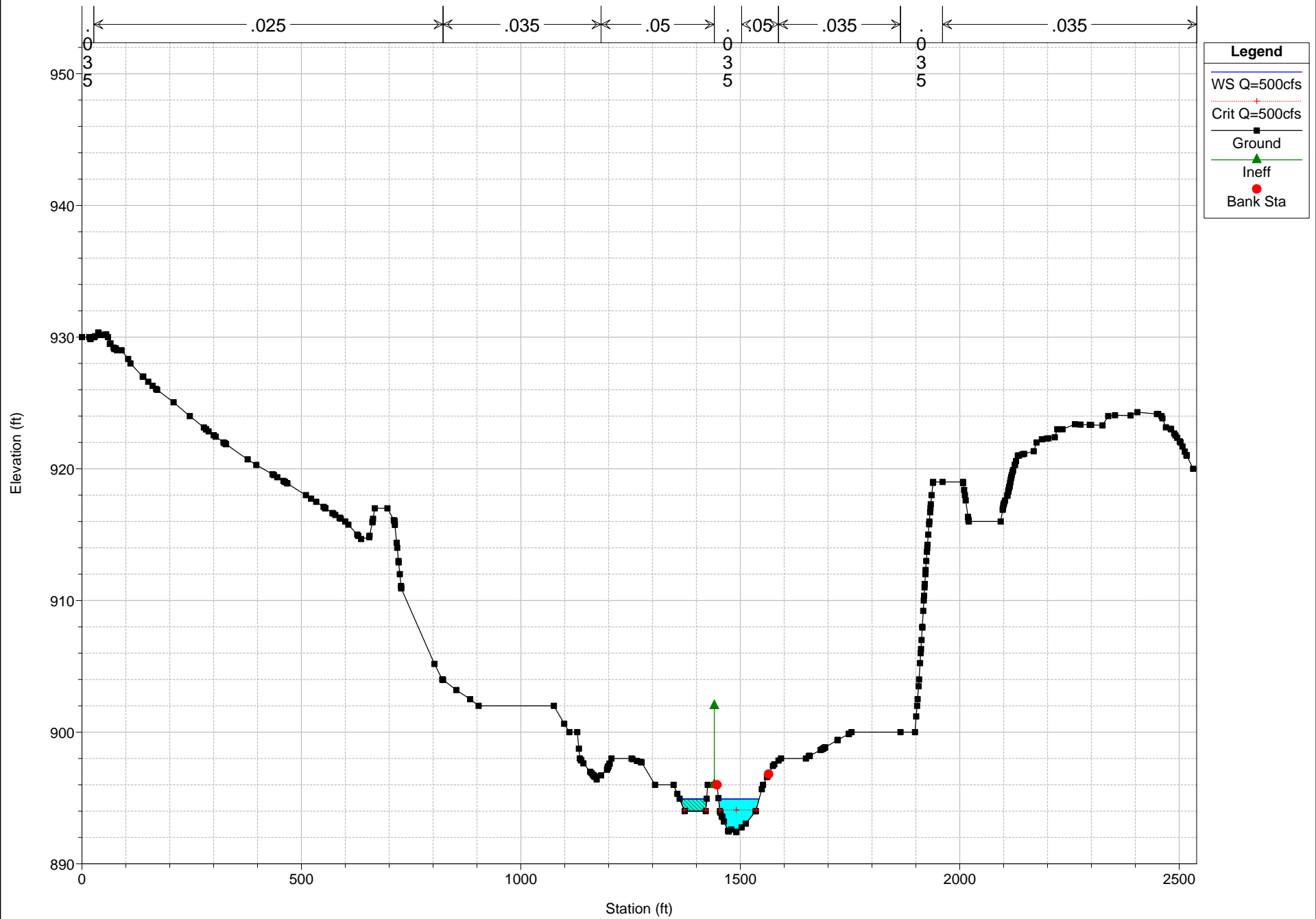


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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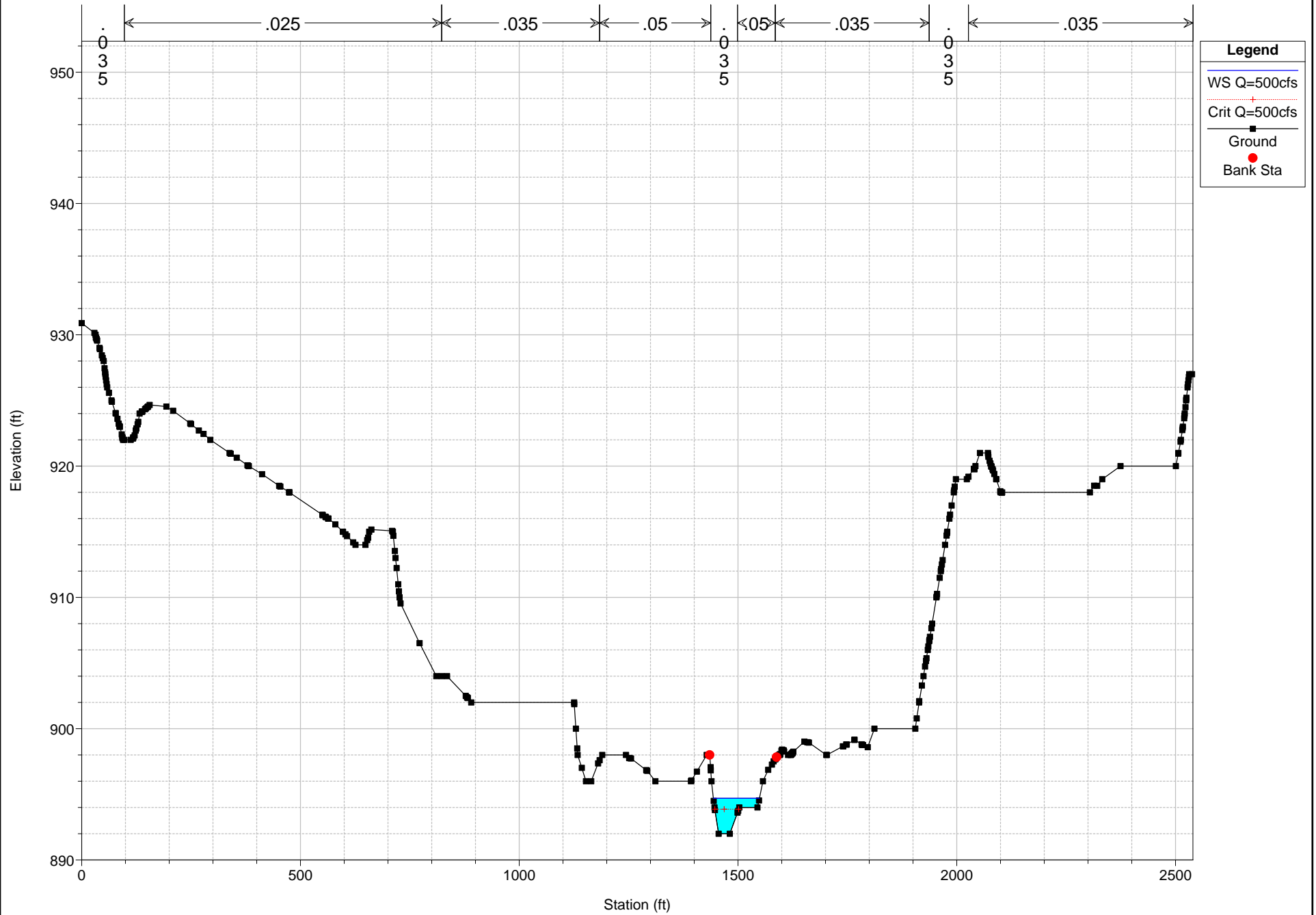


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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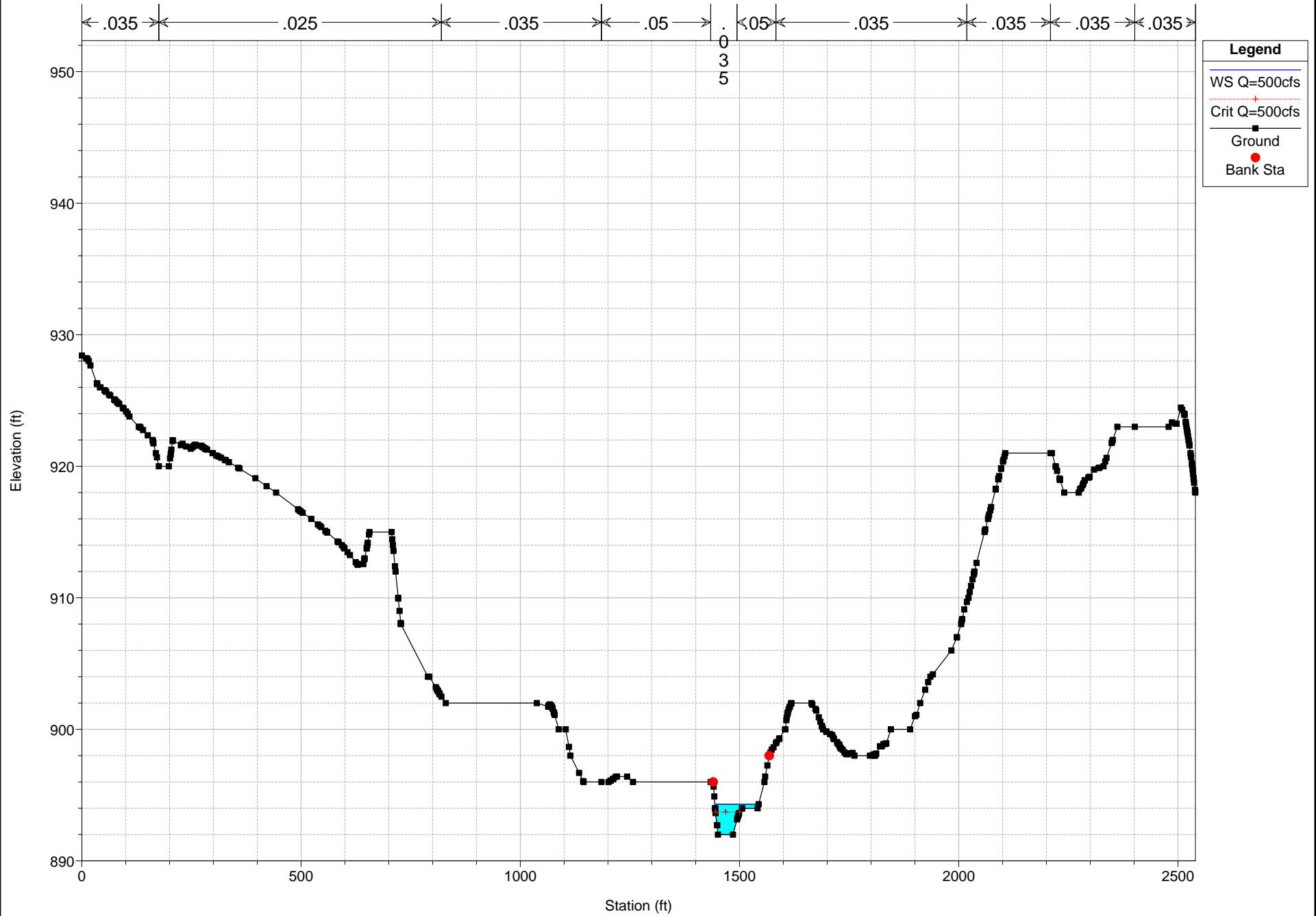


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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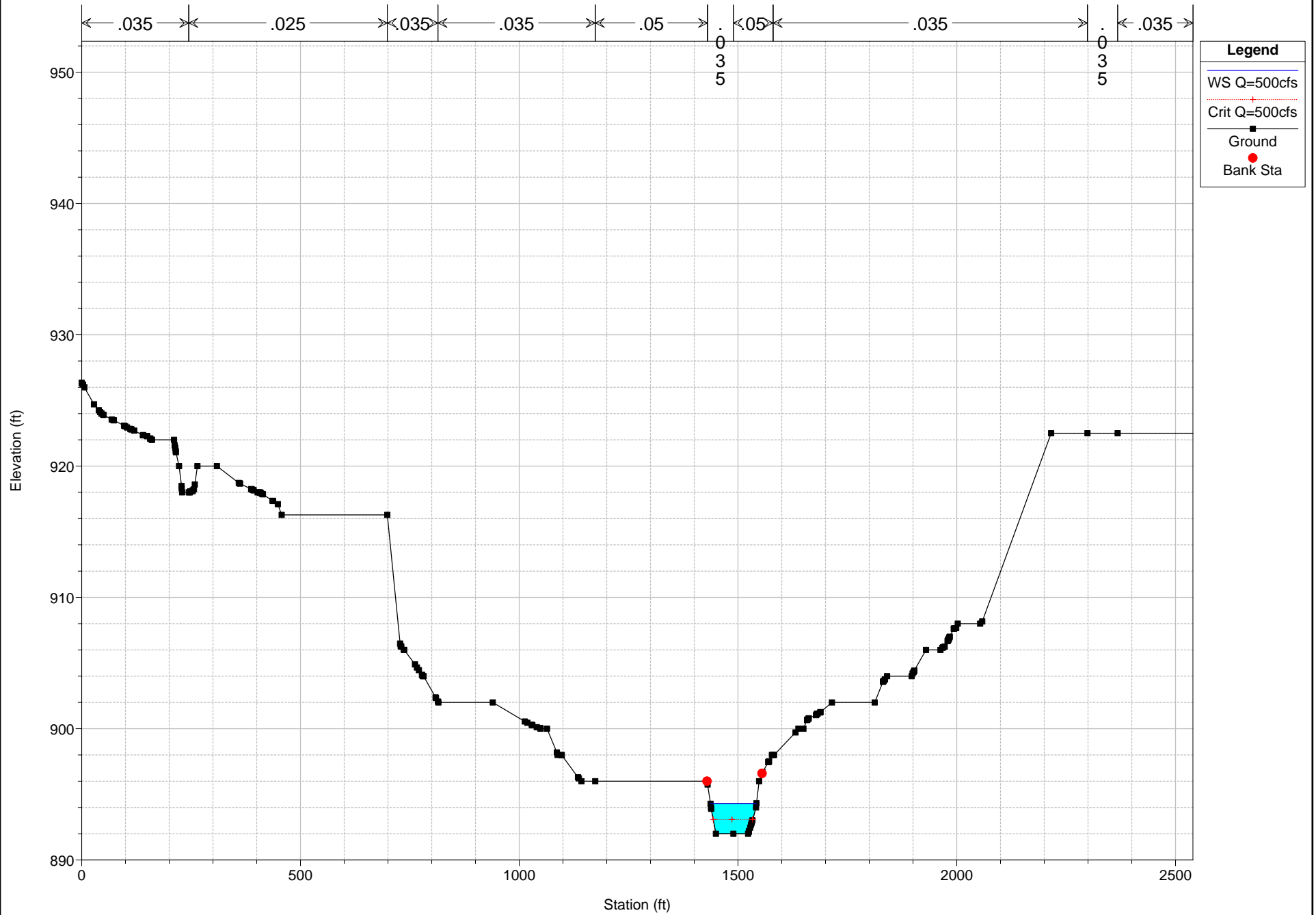
1 in Horiz. = 300 ft 1 in Vert. = 10 ft



SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22195



1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22169

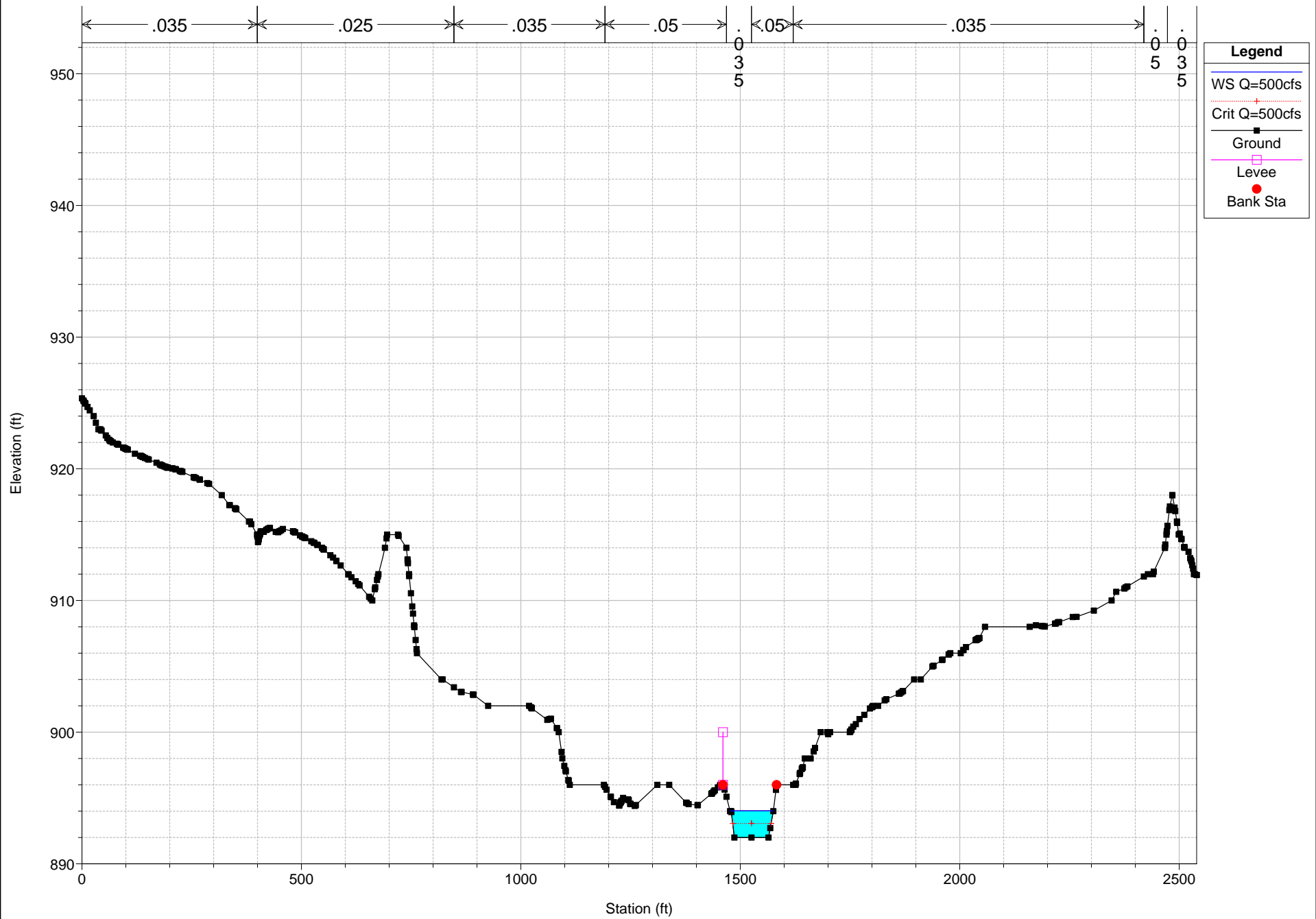


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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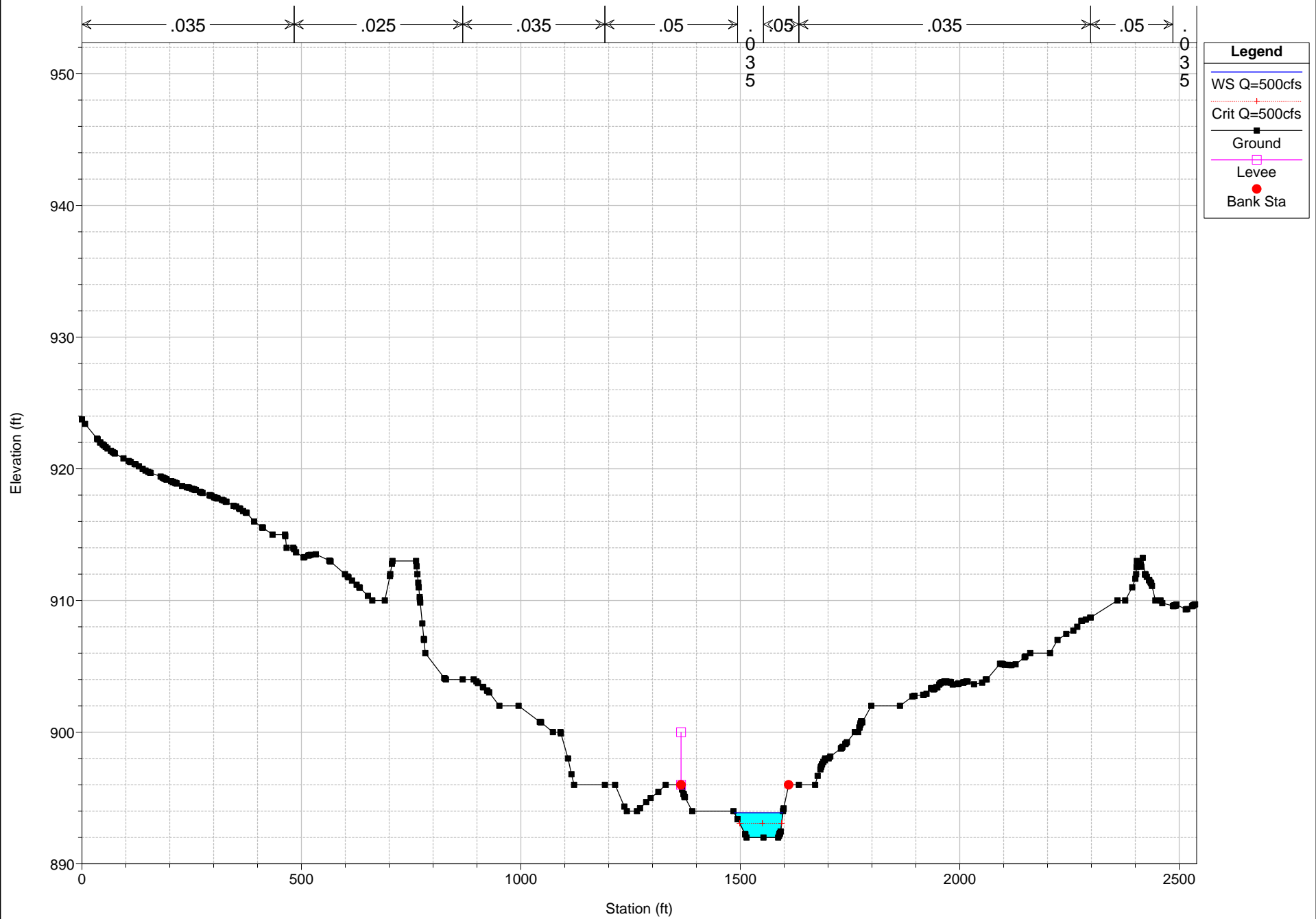


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

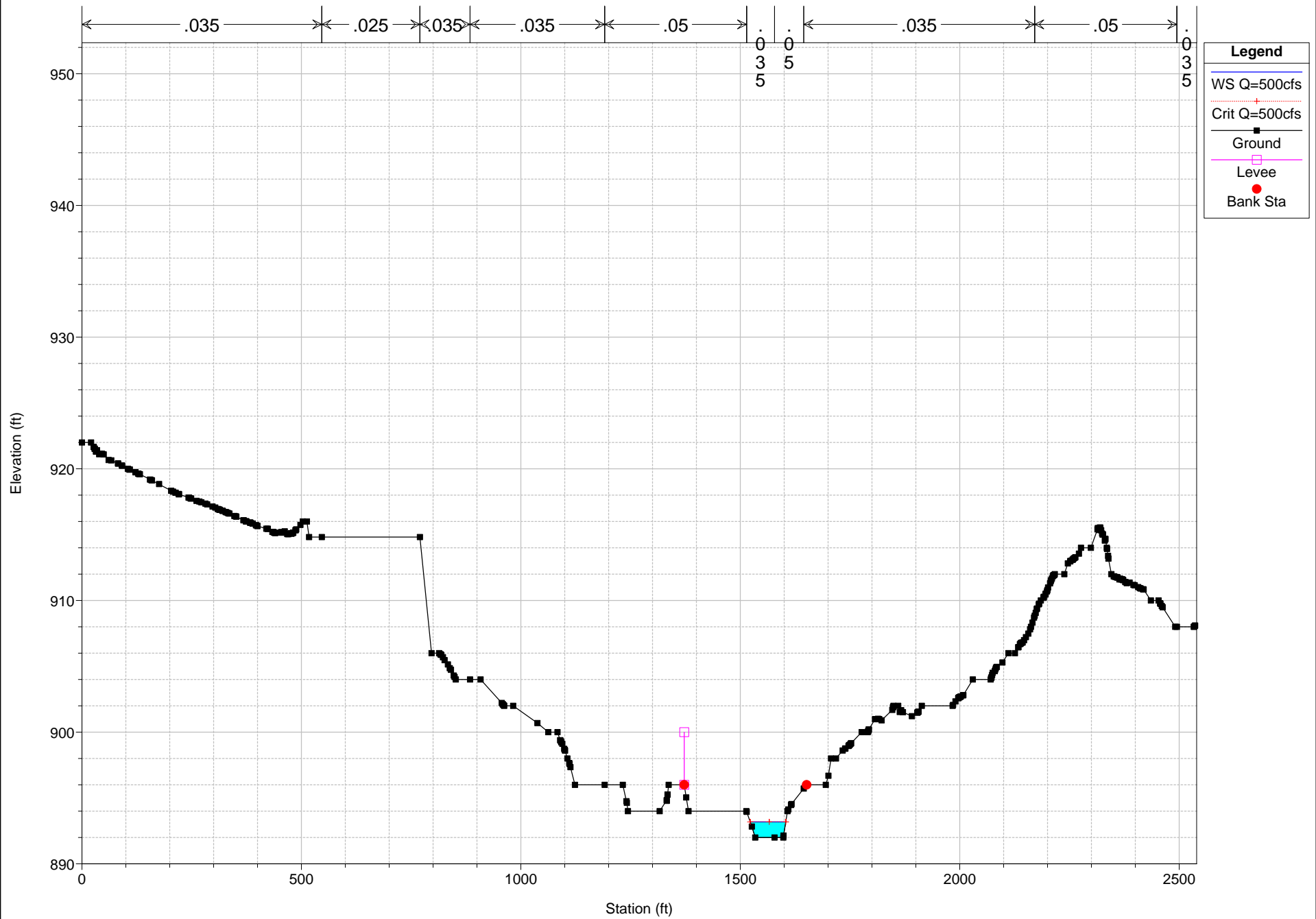
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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 22010



1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

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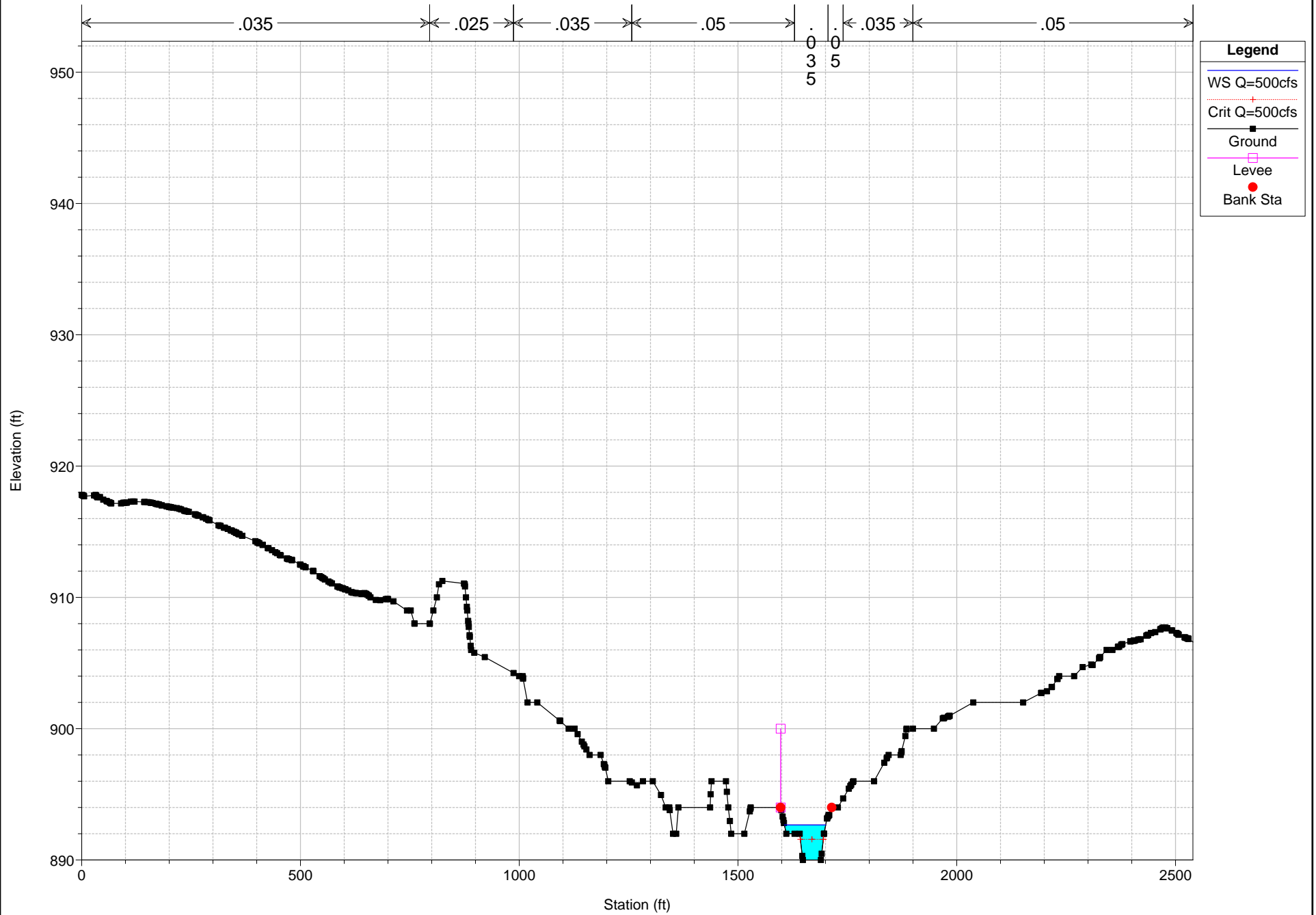


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SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 21917

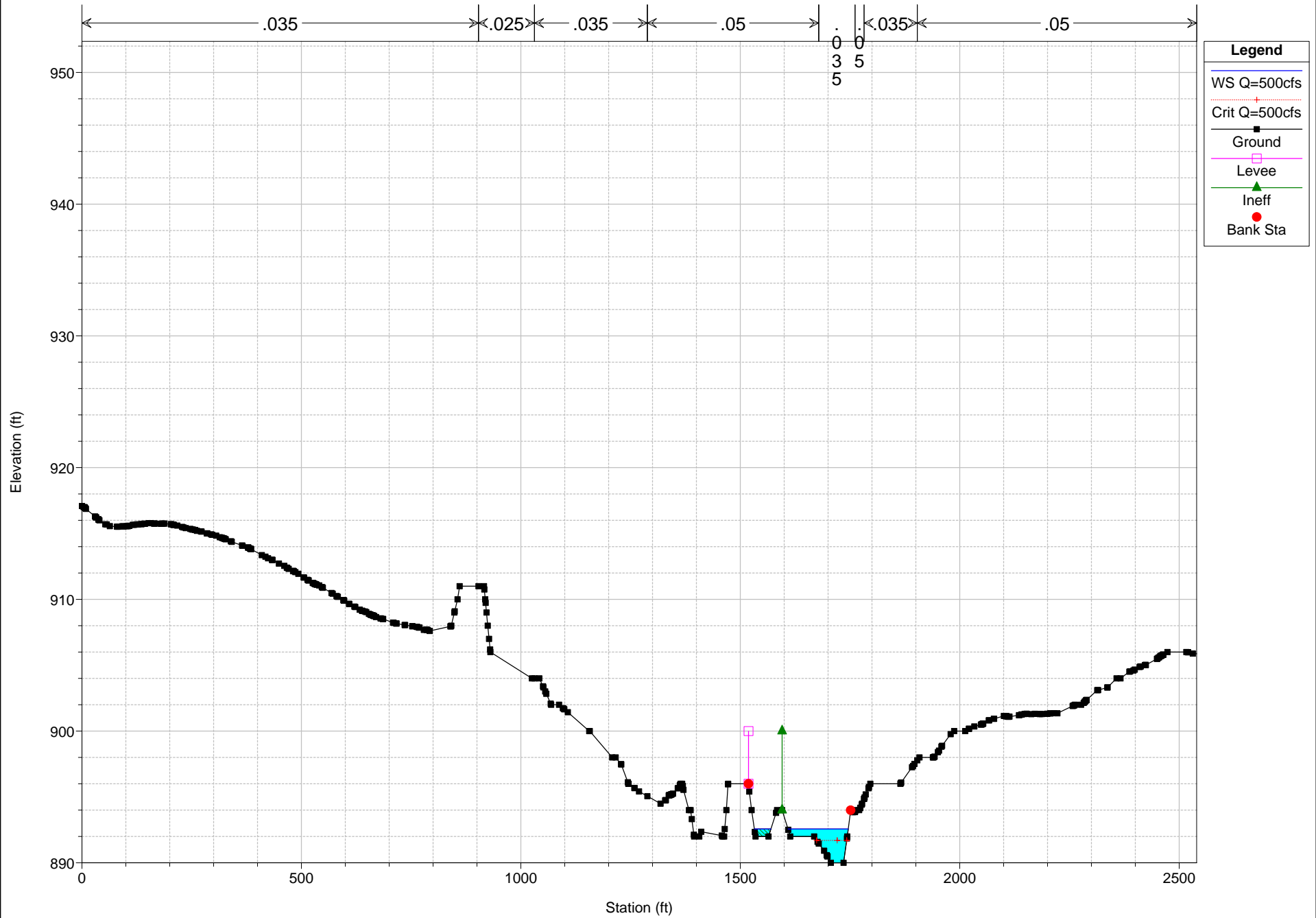


1 in Horiz. = 300 ft 1 in Vert. = 10 ft

SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 21865



**Legend**

- WS Q=500cfs
- Crit Q=500cfs
- Ground
- Levee
- Ineff
- Bank Sta

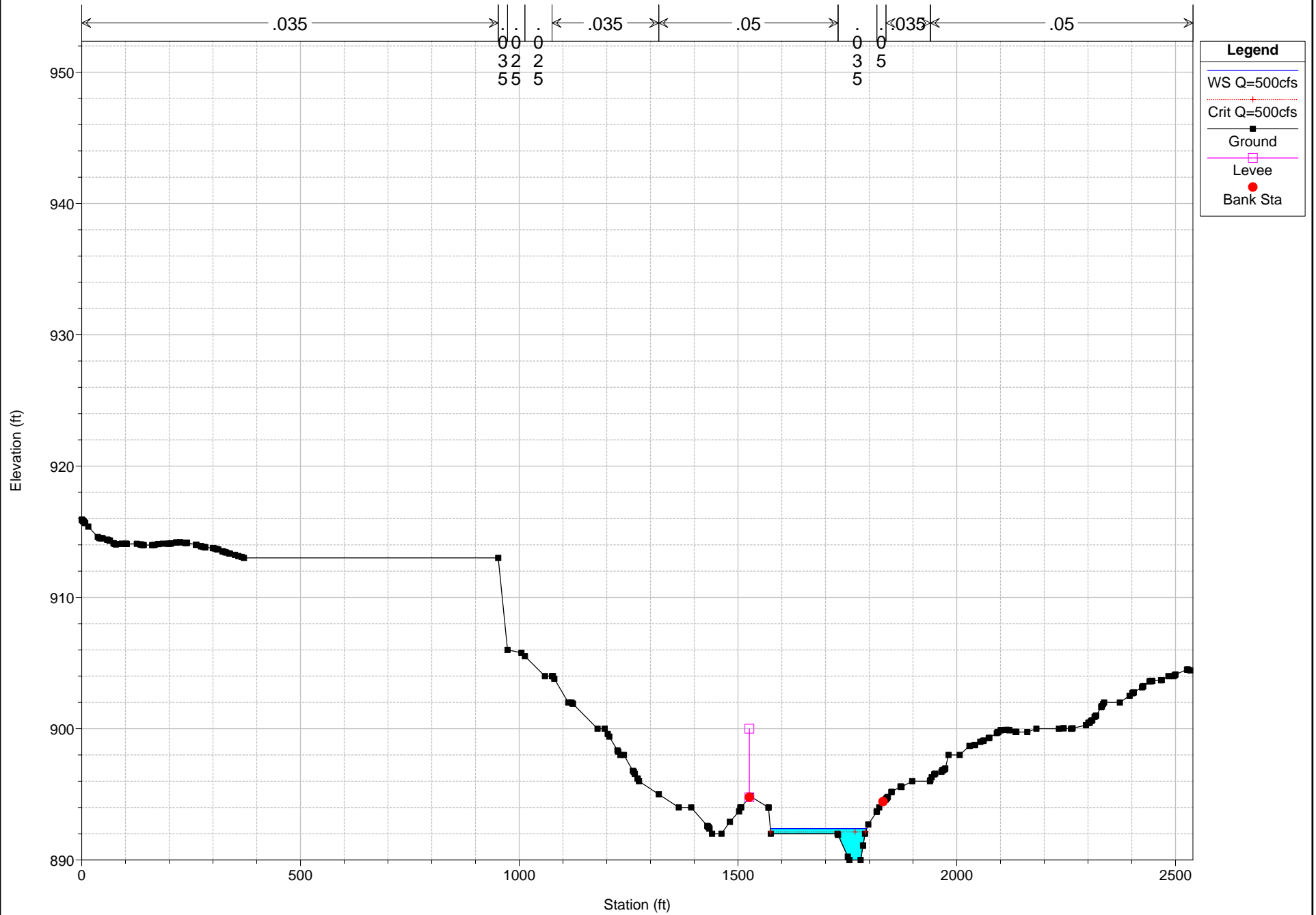
1 in Horiz. = 300 ft 1 in Vert. = 10 ft



SCR\_Long Canyon Plan: SCR 500cfs 2/15/2017

Geom: SCR\_Long Canyon\_varied n\_500

River = SCR Reach = 1 RS = 21790



1 in Horiz. = 300 ft 1 in Vert. = 10 ft

# **Appendix 22**

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**Sample Location Map and  
Summary Table,  
Allan E. Seward  
Engineering Geology, Inc.,  
February 14, 2005**







# **Appendix 23**

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**Final Newhall Ranch  
Project Description,  
Attachment 3 to Letter from  
Matt Carpenter to Aaron O. Allen,  
August 2011**

**Attachment 3 to Letter from Matt Carpenter to Aaron O. Allen**  
**FINAL NEWHALL RANCH PROJECT DESCRIPTION**

(August 2011)

**1.0 OVERVIEW**

The Final Newhall Ranch Project (LEDPA), shown in **Figure 1**, is a modified version of the Draft LEDPA, which was described in the Final EIS/EIR. Compared to the Draft LEDPA, the biggest change is the avoidance of permanent impacts to an additional 18.4 acres of waters of the United States, including 3.5 acres of wetlands in the middle reach of Potrero Canyon. This avoidance was achieved primarily by reconfiguring the development areas in Potrero Canyon and relocating the proposed manufactured open space to be adjacent to the drainage, eliminating the need for geotechnical remediation to support development adjacent to the drainage. Additionally, a small development area in San Martinez Grande Canyon will be relocated, allowing proposed bank stabilization to be constructed entirely in upland areas and thereby reducing temporary impacts to aquatic resources in San Martinez Grande by 0.5 acre. The changes in Potrero Canyon reduce net developable acreage (NDA) by approximately seven acres compared to the Draft LEDPA.

Based on input received from the California Department of Fish and Game (CDFG), the LEDPA also provides increased spineflower preserve acreage, in part by adding two new spineflower preserves – the Magic Mountain and Spring preserves. The addition of spineflower acreage, and related minor changes to the configuration of some lot boundaries, reduces NDA by approximately 10 acres compared to the Draft LEDPA (in addition to the seven acres of NDA lost as a result of avoidance in Potrero Canyon). This brings the total NDA for the LEDPA to 2570 acres.

The LEDPA also provides larger riparian corridors within five major tributaries. As with the Draft LEDPA, there would only be two bridges crossing the Santa Clara River (Commerce Center Drive Bridge and the Long Canyon Road Bridge). The Potrero Canyon Road Bridge would not be constructed, reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and lower Potrero Canyon. In addition, a 19.3-acre wetland mitigation area would be established in lower Potrero Canyon, contiguous with the existing lower mesic meadow (CAM). In Long canyon, most of the existing drainage would be modified and a new channel constructed that will replace the existing function and values; only 5.24 acres would be used for project mitigation. The excess in Long Canyon will be available for permittee responsible mitigation for other than for Newhall Ranch or for mitigation banking under 33 CFR Part 332. In the three other major tributary drainages, Lion, San Martinez Grande, and Chiquito canyons, the project would incorporate limited channel grading to expand the drainages and adjacent riparian areas and realign their banks. The remainder of the jurisdictional areas in Potrero, Lion, San Martinez Grande and Chiquito Canyons would be avoided.

Overall, the LEDPA would permanently fill approximately 47.9 acres of waters of the United States, which is 45.4 acres less than the proposed Project and 18.4 acres less than the Draft LEDPA. It would temporarily disturb 35.3 acres, which is 2 acres more than the proposed Project and 3.1 acres more than

the draft LEDPA. Of those impacts, 5.8 acres of permanent impact and 15.7 acres of temporary impact to waters of the United States would occur in the mainstem of the Santa Clara River. The remaining 42.1 acres of permanent impact and 19.6 acres of temporary impact to waters of the United States would occur in the tributary drainages within the Project area. Of the total 660.1 acres of waters of the United States present on the RMDP site, the LEDPA would avoid permanent or temporary impacts to approximately 87 percent (576.9 acres), compared to 80 percent avoidance under the proposed Project and 85 percent avoidance for the Draft LEDPA.

Implementation of the LEDPA would permanently disturb 5.1 acres of wetlands, 15.4 acres less than the proposed Project and 2.6 acres less than the Draft LEDPA. The LEDPA would temporarily disturb 11.8 acres of wetlands, approximately 0.6 acres more than the proposed Project and 0.4 acres more than the draft LEDPA. These impacts are a subset of the total impacts to waters of the United States described in the previous paragraph. In total, the LEDPA would avoid permanent or temporary impacts to approximately 94 percent of the 276.9 acres of wetlands on site.

The mitigation associated with the LEDPA will substantially increase the acreage of waters of the United States and functions/services and values of waters of the United States. The LEDPA would provide 114.04 acres of compensatory mitigation (creation and enhancement of jurisdictional areas), with a 2.4 to 1 mitigation ratio for permanent impacts to waters of the United States and a 6.9 to 1 mitigation ratio for permanent impacts to wetland waters of the United States. In addition, the LEDPA would preserve and protect in perpetuity approximately 612.2 acres of waters that are not permanently impacted, including 271.8 acres of wetlands and would place a restrictive covenant for flood protection on an additional 119 acres, consisting of approximately 89 acres of waters of the United States and 30 acres of adjacent upland floodplain area in the Santa Clara River immediately downstream of the RMDP area, as shown on Figure 20 and Figure 9, respectively, of the Mitigation Plan (Dudek, 2011). The ratio of preserved acres to permanently impacted acres of waters of the United States is approximately 14.6 to 1, and 53 to 1 for impacted wetlands. The LEDPA also would comply with all of the mitigation measures required by CDFG under the streambed alteration program created by Fish & Game Code sections 1602 and 1605.

In addition, as described in Section 5.0, the LEDPA will incorporate advanced Low Impact Development (LID) measures, consistent with a LID Performance Standard that was developed based on consultation with the Corps, the U.S. Environmental Protection Agency and the Regional Water Quality Control Board.

As described in Section 7.0, by October 15, 2028, oil and gas wells located in areas scheduled for future protection under conservation easements or deed restrictions will be plugged and abandoned and surrounding areas remediated. Within 180 days after the Permit is issued, the Project will install suitable erosion control best management practices (BMPs) between those oil wells and the adjacent waters of the United States and maintain such BMPs in good working condition until the wells are abandoned and remediated

The LEDPA is further described below.

## **2.0 DESCRIPTION OF REGULATED ACTIVITIES**

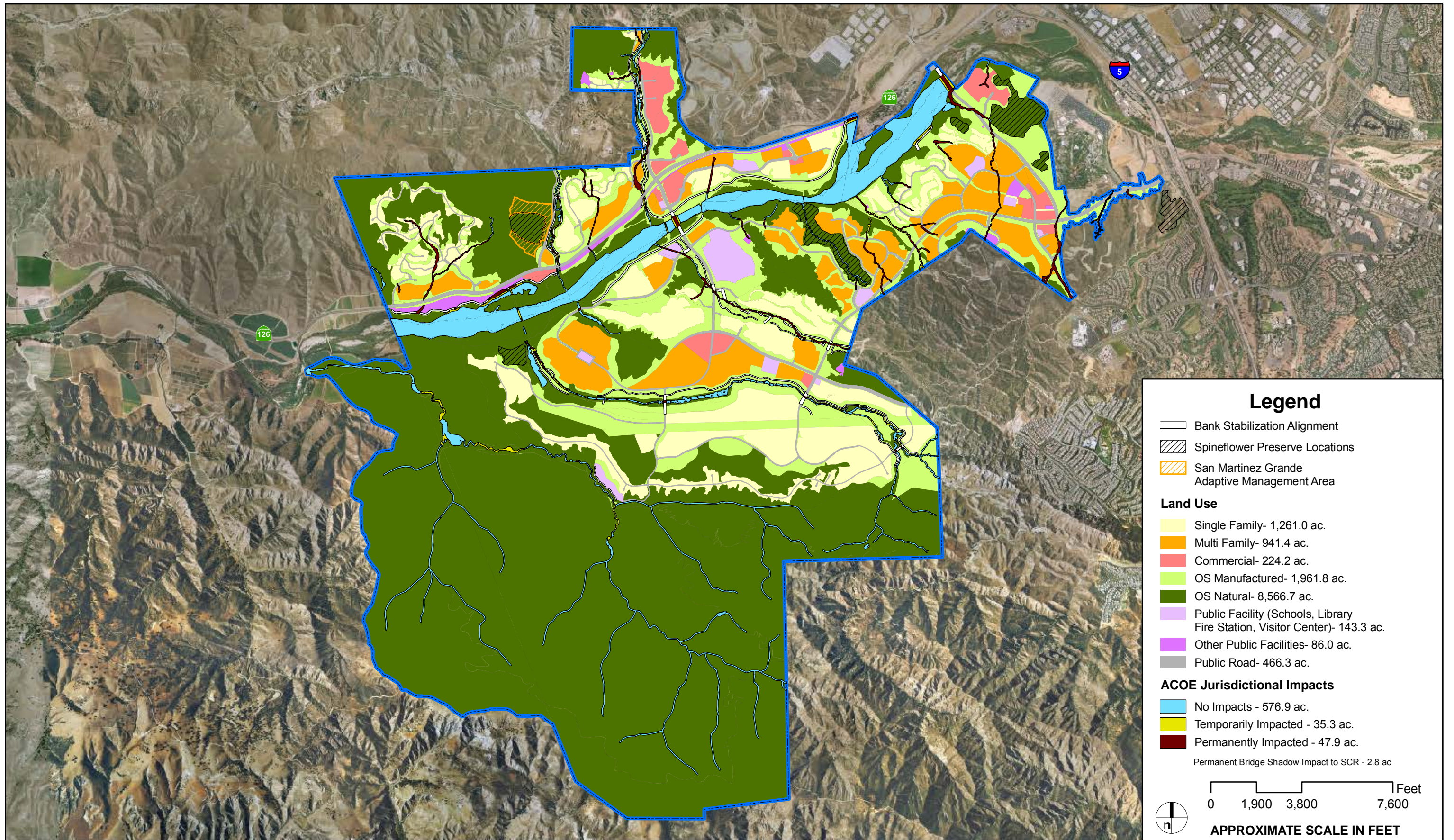
### **2.1 RMDP Component Of The Project**

Infrastructure would be constructed in and adjacent to the Santa Clara River and tributary drainages within the Project area. A description of the infrastructure and related channel design elements is provided below.

#### **2.1.1 Santa Clara River**

**Figure 2** depicts the locations of the major RMDP infrastructure that would be provided along the Santa Clara River relative to jurisdictional areas. **Table 1** summarizes the characteristics of this infrastructure.



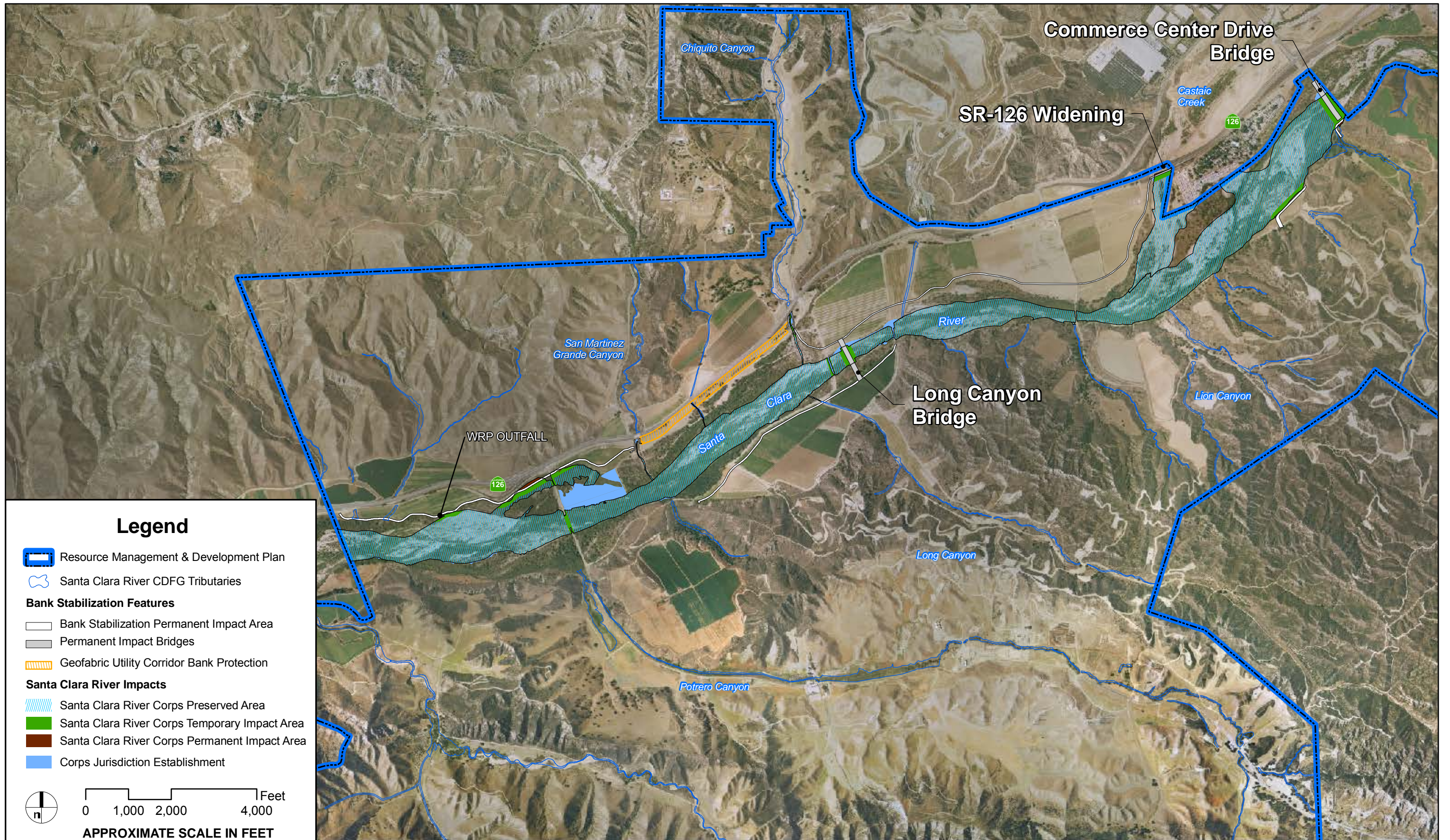


SOURCE: HUNSAKER 2010/PACE 2010

FIGURE 1

NEWHALL RANCH RMDP





SOURCE: PACE 2010

FIGURE 2  
 NEWHALL RANCH RMDP  
 SANTA CLARA RIVER MAJOR FEATURES



**Table 1**  
**Santa Clara River Major RMDP Infrastructure**

Santa Clara River Location	Bank Stabilization (lf)	Outlets (No.)	Bridges			
			Length (lf)	Width (lf)	Piers (No.)	Vertical Clearance (ft)
<b>Bridges</b>						
Commerce Center Drive Bridge	-	-	1,200	100	9	22
Long Canyon Road Bridge	-	-	980	100	9	31-40
<b>Banks</b>						
North River Bank	19,158	25	-	-	-	-
South River Bank	7,693	10	-	-	-	-
<b>Total</b>	<b>26,851</b>	<b>35</b>	-	-	-	-

Source: Newhall, 2010.

As shown in **Figure 2**, one proposed bridge, Long Canyon Road Bridge, and one previously approved bridge, Commerce Center Drive Bridge, would be located across the main stem of the Santa Clara River. The Corps permit would not authorize construction of the Potrero Canyon Road Bridge, thereby reducing impacts to jurisdictional waters and wetlands in the Santa Clara River and lower Potrero Canyon. **Table 1** documents the length, width, and vertical clearance of the two bridges, as well as the number of piers supporting each bridge.

Buried bank stabilization would be installed in upland and riparian areas along approximately one-half of the north bank (19,158 lf) and one-third of the south bank (7,693 lf) of the Santa Clara River. Twenty-five storm drain outlets would be installed along the north bank and 10 outlets on the south bank of the River (35 storm drain outlets total). The WRP outfall to the Santa Clara River also would be constructed. Geofabric bank protection is proposed on the north side of the Santa Clara River between San Martinez Grande Canyon and Chiquito Canyon for the utility corridor.

**Figure 2** also depicts the proposed RMDP riparian/upland revegetation zones in green and the newly created river channel in blue.

### 2.1.1 Tributary Drainages

**Figure 3** illustrates the modified, converted, and preserved tributary drainages within the Project area under the LEDPA. **Table 2** describes the characteristics of the tributary drainages. Overall, the Project would avoid or restore 194,866 lf of on-site drainages, which is 81 percent of the total 242,061 lf of jurisdictional drainages on the Project site. The acreage of the avoided and restored drainages will exceed the acreage existing under baseline conditions. The Project would convert 47,195 lf of tributary channel to buried storm drain; install 67,537 lf of bank stabilization in tributary drainages outside of

Corps jurisdiction; and provide three bridges over tributaries and 13 culvert road crossings over tributaries.

**Chiquito Canyon.** Under the LEDPA, Chiquito Canyon would require stabilizing treatments to protect the channel and surrounding development from excessive vertical scour and lateral channel migration, as shown on **Figure 4**. The existing drainage would remain mostly intact but would be permanently altered by construction of stabilization elements, including buried bank stabilization and grade stabilization structures. Approximately 7,298 lf of buried bank stabilization would be installed along the west bank and 5,959 lf of buried bank stabilization would be installed along the east bank of Chiquito Canyon outside of Corps jurisdiction. In addition, approximately 2,571 lf of drainage would be converted to buried storm drain. Two culverted road crossings would be installed along Chiquito Canyon to accommodate traffic circulation, and a culverted road extension would be installed for the Caltrans SR-126 road widening project.<sup>1</sup> **Table 2** summarizes the proposed changes.

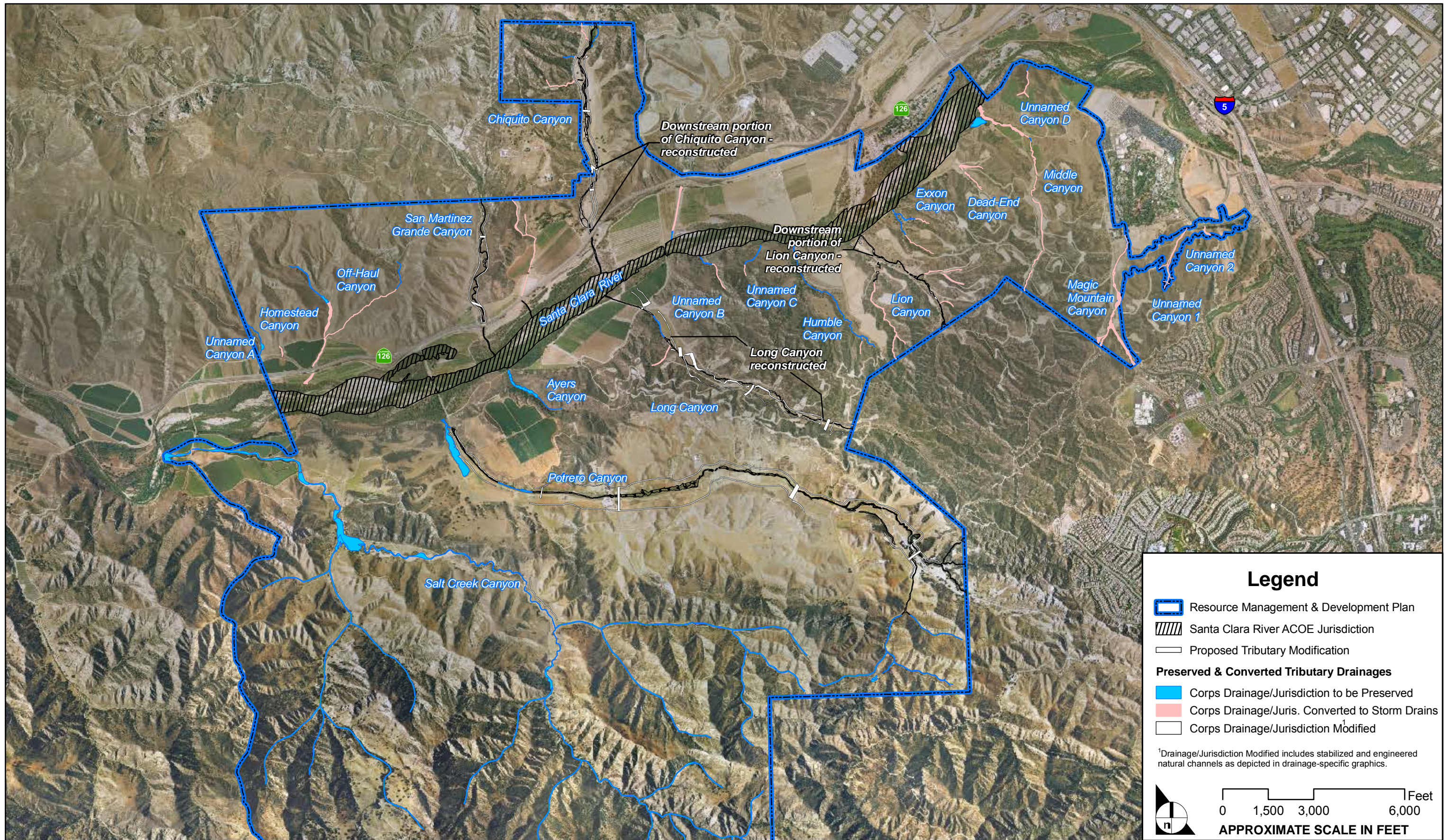
**San Martinez Grande Canyon.** Under the LEDPA, the Project would construct a soft-bottom channel to incorporate the existing alignment of San Martinez Grande Canyon Road between SR-126 and the northern Project boundary, as shown on **Figure 5**. Portions of the existing drainage would be permanently altered by construction of the modified tributary drainage, including installation of grade stabilizing structures and buried bank stabilization outside of Corps jurisdiction. Approximately 3,423 lf of buried bank stabilization would be installed along the west bank and 3,884 lf of buried bank stabilization would be installed along the east bank of San Martinez Grande Canyon. As shown, one bridge and one culverted road crossing would be installed along San Martinez Grande Canyon to accommodate traffic circulation, and a culverted road extension would be installed for the Caltrans SR-126 road widening project. As stated above, a portion of San Martinez Grande Canyon would be redesigned to reduce temporary impacts by 0.5 acre when compared to the Draft LEDPA.

**Table 2** summarizes the modifications to the San Martinez Grande drainage that are proposed under the LEDPA. Please refer to **Figure 5** for locations of the San Martinez Grande Canyon proposed RMDP tributary drainage features, including affected drainages/jurisdictional areas, and the development areas along San Martinez Grande Canyon.

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<sup>1</sup> In addition, as part of the Caltrans SR-126 road widening project, the existing six-lane bridge would be expanded to eight lanes, allowing SR-126 to cross the Castaic Creek drainage.





SOURCE: PACE - 2010

**FIGURE 3**  
**NEWHALL RANCH RMDP**  
**MODIFIED, CONVERTED, AND PRESERVED TRIBUTARY DRAINAGES**



Table 2 Project Tributary Drainage RMDP Infrastructure							
Drainage Location	Drainage Modified and Restored (lf)	Drainage Converted to Buried Storm Drain (lf)	Bank Stabilization <sup>1</sup> (lf)		Avoided Drainage (lf)	Road Crossings	
			West Bank	East Bank		Bridges	Culverts
<b>Modified Drainages</b>							
Chiquito Canyon	4,080	2,571	7,298	5,959	5,408	1	2
Lion Canyon	5,835	6,095	-	-	0	-	1
Long Canyon	8,742	961	6,005	8,030	876	-	4
Potrero Canyon	13,743	0	13,342	17,755	25,950	1	4
San Martinez Grande Canyon	0	0	3,423	3,884	5,170	1	1
<b>Unmodified/Converted Drainages</b>							
Agricultural Ditch	-	1,479	-	-	329	-	-
Ayers Canyon <sup>2</sup>	102	-	-	-	2,363	0	1
Dead-End Canyon	-	1,931	-	-	-	-	-
Exxon Canyon	-	1,754	-	-	1,788	-	-
Homestead Canyon	-	609	-	-	-	-	-
Humble Canyon	-	421	-	-	5,116	-	-
Middle Canyon	-	7,443	-	-	143	-	-
Mid-Martinez Canyon	-	4,346	-	-	467	-	-
Off-Haul Canyon	-	5,764	-	-	3,014	-	-
Salt Canyon	7,290	-	-	1,841	101,470	-	-
Magic Mountain Canyon	-	6,111	-	-	-	-	-
Unnamed Canyon 1 <sup>3</sup>	-	4,647	-	-	-	-	-
Unnamed Canyon 2	-	416	-	-	-	-	-
Unnamed Canyon A	-	-	-	-	1,293	-	-
Unnamed Canyon B	-	1,004	-	-	568	-	-
Unnamed Canyon C	-	402	-	-	869	-	-
Unnamed Canyon D	-	1,241	-	-	250	-	-
<b>Totals</b>	<b>39,792</b>	<b>47,195</b>	<b>30,068</b>	<b>37,469</b>	<b>155,074</b>	<b>3</b>	<b>13</b>

Notes:

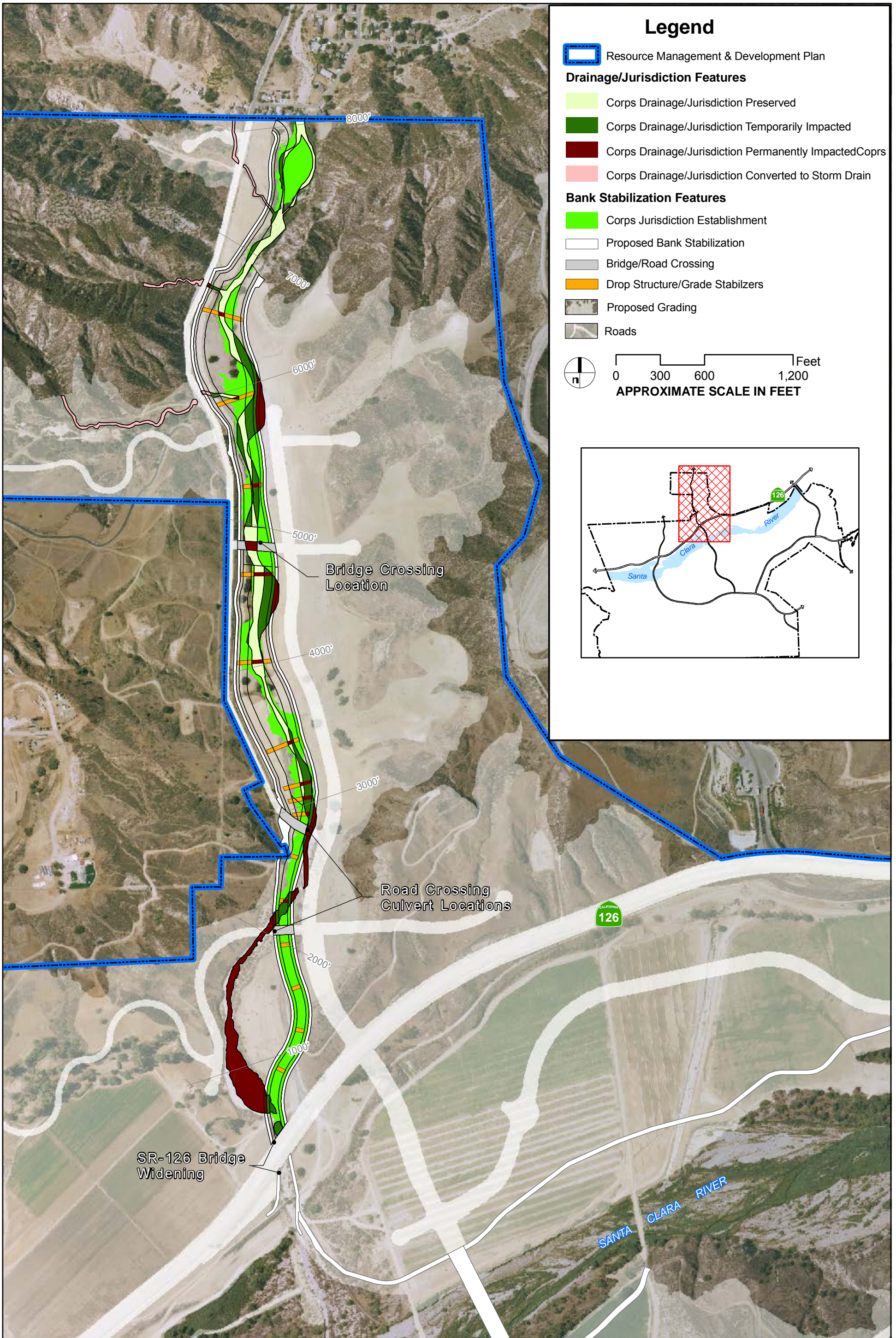
<sup>1</sup> The lf of bank stabilization does not necessarily reflect impacts to jurisdictional areas; it only provides the linear feet of bank protection to be installed along various tributary drainages, outside of Corps jurisdiction.

<sup>2</sup> The 102 lf of Drainage Modified is road crossing bridge/culvert-related.

<sup>3</sup> Unnamed Canyons 1 and 2 are located within the Entrada planning area and are given a numerical designation to distinguish them from the four other unnamed canyons located within the Specific Plan area (i.e., Unnamed Canyons A-D).

Source: Newhall, 2010.





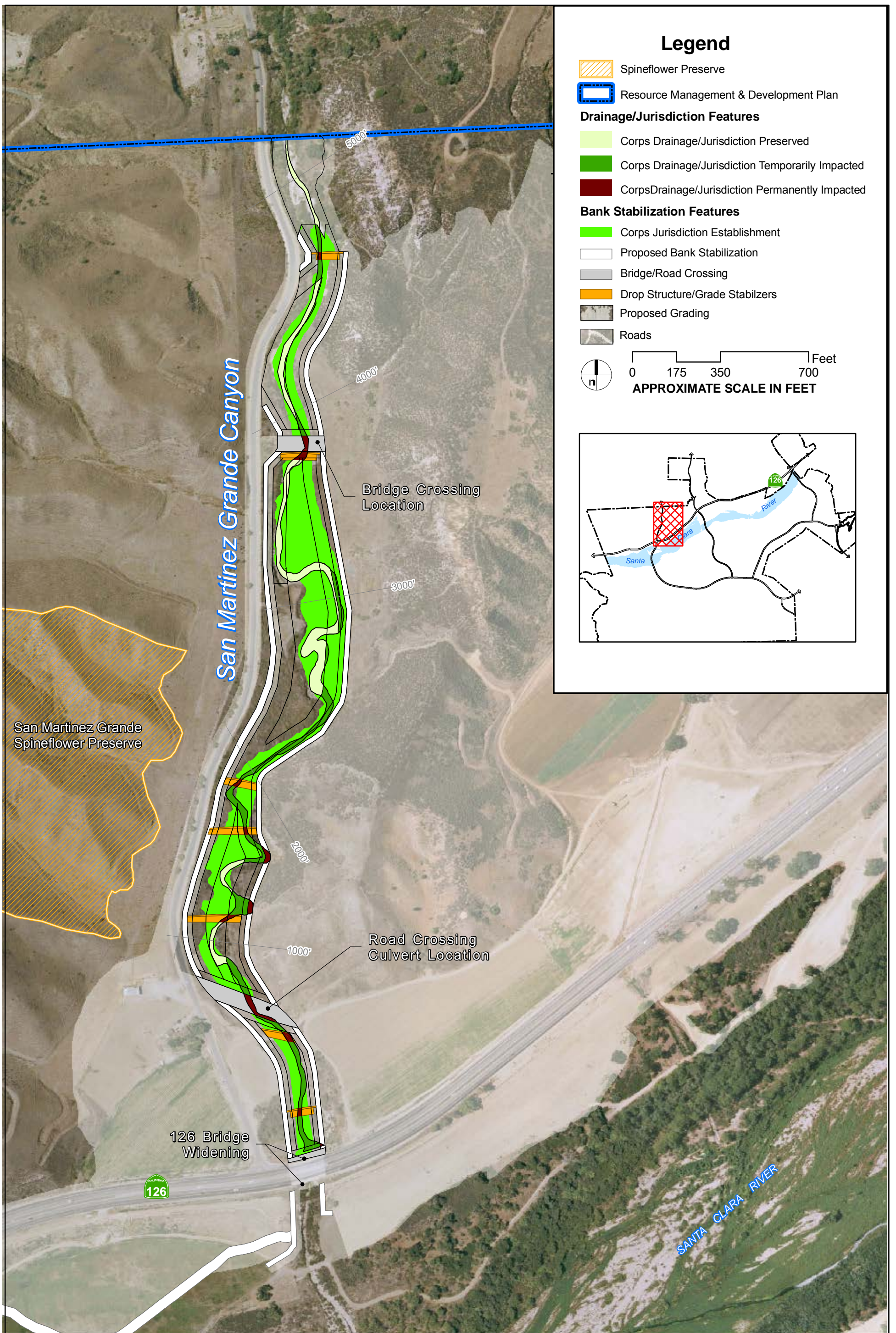
SOURCE: PACE 2010

Note: Location of drop structures/grade stabilizers are approximate.

FIGURE 4

CHIQUITO CANYON DETAIL - NEWHALL RANCH RMDP  
PROPOSED RMDP TRIBUTARY TREATMENTS





SOURCE: PACE 2010

Note: Location of drop structures/grade stabilizers are approximate.

FIGURE 5

SAN MARTINEZ GRANDE CANYON DETAIL - NEWHALL RANCH RMDP  
PROPOSED RMDP TRIBUTARY TREATMENTS



**Potrero Canyon.** Within Potrero Canyon, the LEDPA will preserve the existing planform and longitudinal profile of Potrero Canyon creek and provide a buffer of undeveloped land adjacent to it, with additional open space around the undeveloped land buffer. In Potrero Canyon, the LEDPA would result in bank stabilization along both sides of the preserved Potrero Canyon drainage, outside of Corps jurisdiction, as shown on **Figure 6**. Bank stabilization would be constructed in upland areas, allowing additional areas for creation of jurisdictional riparian habitat and native upland transition habitat. In the lowermost reach, the existing incised channel will be broadened and stabilized, including additional floodplain enhancement along the western bank. Approximately 19.3 acres of CAM wetlands will be constructed immediately adjacent to the existing CAM in the lower Canyon. A maximum of 60 grade stabilization structures will be constructed at appropriate intervals to remedy existing channel instability conditions, as well as to provide a stable channel under post-development conditions. Four road crossings will be constructed in Potrero Canyon, consisting of culverts across two branches in the easternmost portion of the valley,<sup>2</sup> another soft-bottomed culvert further downstream across the mainstem, and a bridge across the furthest downstream portion of the CAM in the middle portion of Potrero Canyon (see **Figure 6**). Approximately 13,342 lf of buried bank stabilization would be installed along the west bank, and 17,755 lf of buried bank stabilization would be installed along the east bank of Potrero Creek. None of the Potrero Canyon drainage would be converted to buried storm drain. The LEDPA would achieve total avoidance of waters and wetlands in Potrero Canyon, with the exception of necessary grade control structures.

**Table 2** summarizes the modifications to the Potrero Canyon drainage that are proposed under the LEDPA. Refer to **Figure 6** for locations of newly created drainage, preserved drainage area, permanent drainage impact areas, side drainage bank stabilization areas, and bridge/road crossing culvert locations relative to jurisdictional areas. **Figure 6** also shows the relationship of the proposed Potrero Canyon drainage modifications to the proposed Potrero spineflower preserve to the west.

**Potrero Creek Stream Stabilization Criteria.** Under the LEDPA, stream stabilization measures used in Potrero Creek will conform to the following design criteria.<sup>3</sup> In each Construction Notification for a project phase affecting Potrero Creek, Newhall will provide detailed construction plans that demonstrate compliance with the criteria.

1. **Number:** Not more than 60 Step-Pool Grade Control Structures (GCS) shall be located along the Potrero Creek drainage within the RMDP project area.
2. **Height:** The average height of the GCS (the elevation of the drop stabilized by each structure) shall be 4 feet, with no structures greater than 5 feet high and a target height of 3 feet.

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<sup>2</sup> The easternmost road crossing in Potrero Canyon includes two culverts, because it crosses two forks of the Potrero drainage. Thus, a total of four culverts will be constructed in Potrero Canyon, as indicated in Table 2.

<sup>3</sup> The criteria are derived from "Creek Stabilization Approach for Potrero Canyon," ESA PWA (February 28, 2011).



3. **Location:** The GCS shall be located to minimize impacts to or avoid localized aquatic vegetation or habitats, stabilize existing headcuts, and be sited in conjunction with proposed creek road crossings (see below). The spacing of the GCS shall be determined by the difference between the existing and predicted equilibrium slope in each of the four creek reaches (i.e. the steeper the equilibrium slope, the closer the GCS spacing).
4. **Design:** The preferred step-pool design shall use ungrouted boulders and be similar to that shown in **Figure 7**. While boulder step pools are the preferred method of stabilization, there may be limited locations where specific site conditions (minimizing impact to sensitive habitat, exceptionally high velocity flows, etc) would result in an alternative design being preferred. The applicant shall prepare a hydrologic justification for review and approval by the Corps that justifies an alternative design that could include vertical sheet piles, soil cement, or grouted boulder drop, but still subject to the criteria set forth above in 1-3.

Potrero Creek Road Crossings. Potrero Creek road crossings will be constructed using soft-bottom, clear span arch culverts. The culverts will be designed to be underlain by natural stream material (sand) placed at the equilibrium slope. Grade control structures will be located at the up- and downstream end of the structures. The arches will be designed to allow wildlife passage along the creek corridor.

Long Canyon. In Long Canyon, the LEDPA would reconstruct a wide, stabilized channel along the same general alignment as the existing drainage. The reconstructed Long Canyon channel would be graded on top of 10 to 30 feet of fill material within Long Canyon. The reconstructed channel includes numerous grade stabilization structures to ensure vertical stability and a wider channel and valley bottom to accommodate controlled, lateral migration within a revegetated corridor; only 5.24 acres would be used for project mitigation. The excess would be available for permittee responsible mitigation for projects other than Newhall Ranch or for mitigation banking under 33 CFR Part 332.

Under the LEDPA, approximately 8,742 lf of Long Canyon would consist of reconstructed channel, while 876 lf would be preserved and 961 lf would be converted to buried storm drain. There would be 6,005 lf of buried bank stabilization along the west bank and 8,030 lf along the east bank of Long Canyon, outside of Corps jurisdiction. The Project includes four road crossing culverts in Long Canyon, including a large fill-supported crossing for Magic Mountain Parkway.

**Table 2** summarizes the proposed changes. Please refer to **Figure 8** for locations of the proposed infrastructure features, affected drainages/jurisdictional areas, and development areas along Long Canyon.





SOURCE: PACE 2010

Note: Location of drop structures/grade stabilizers are approximate.

**FIGURE 6**  
**POTRERO CANYON DETAIL - NEWHALL RANCH RMDP**  
**PROPOSED RMDP TRIBUTARY TREATMENTS**











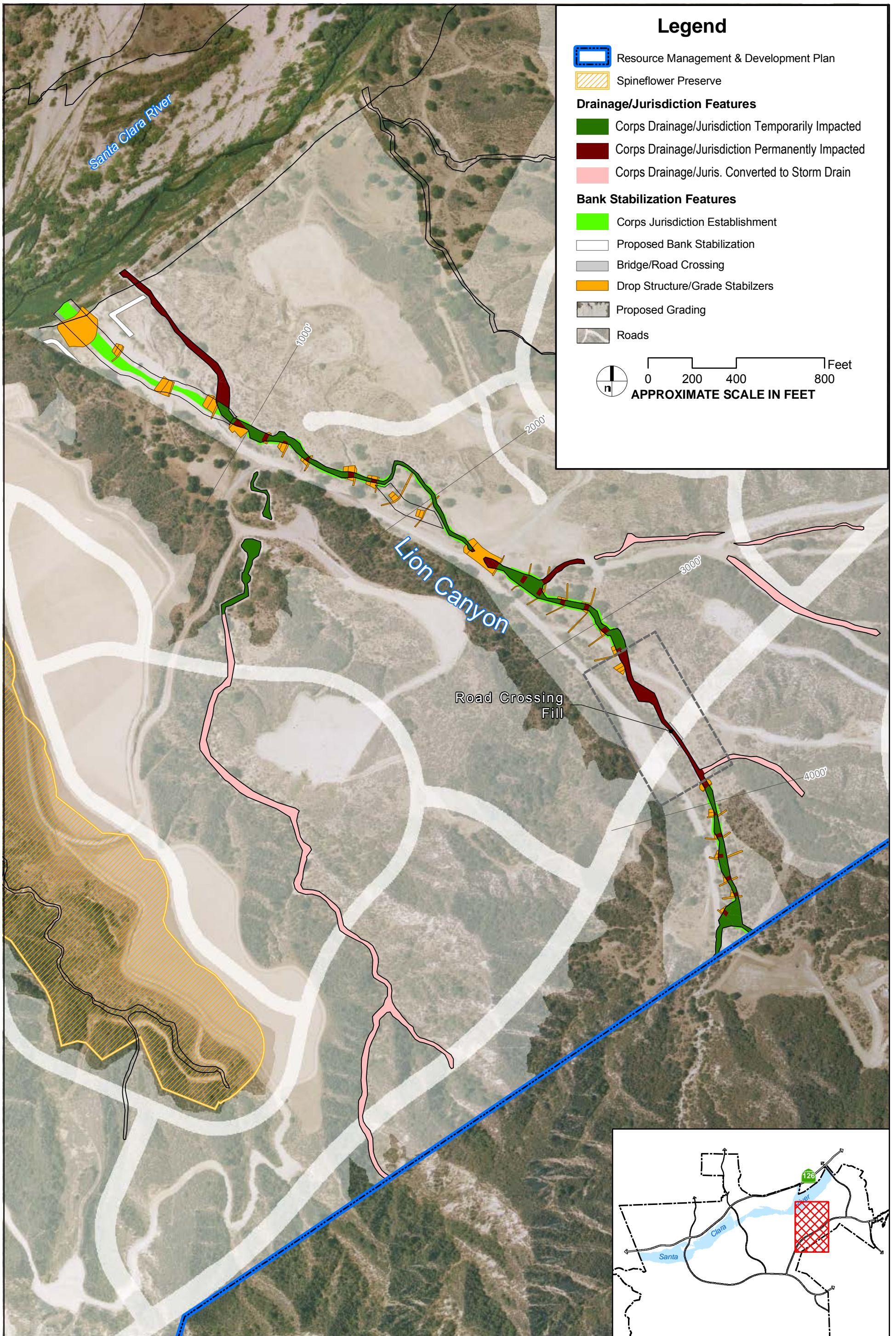
**Lion Canyon.** Under the LEDPA, approximately 5,835 lf of the existing drainage in the main branch of Lion Canyon would be modified and restored in order to stabilize the drainage, through selective regrading in some areas and stabilization with grade control structures in others. In addition, approximately 6,095 lf of drainage would be converted to buried storm drain.

There would be one major road crossing culvert to support Magic Mountain Parkway in the uppermost reach. An existing agricultural road crossing in the lower reach would remain and would be converted for maintenance access to the water quality basin near the confluence with the Santa Clara River.

**Table 2** summarizes the proposed modifications to the Lion Canyon drainage under the LEDPA. Please refer to **Figure 9** for locations of the proposed features, including affected drainages/jurisdictional areas, and the development areas along Lion Canyon.

**Other Drainages.** One culverted road crossing would be constructed across the mouth of the Ayers Canyon drainage. No other drainage facilities would be constructed in Ayers Canyon. In addition, the existing six-lane bridge would be expanded to eight lanes, allowing SR-126 to cross the Castaic Creek drainage. Portions of other drainages would be stabilized, restored, or converted to buried storm drain, as summarized in **Table 2**.





SOURCE: PACE 2010

Note: Location of drop structures/grade stabilizers are approximate.

FIGURE 9

LION CANYON DETAIL - NEWHALL RANCH RMDP  
RMDP TRIBUTARY TREATMENTS



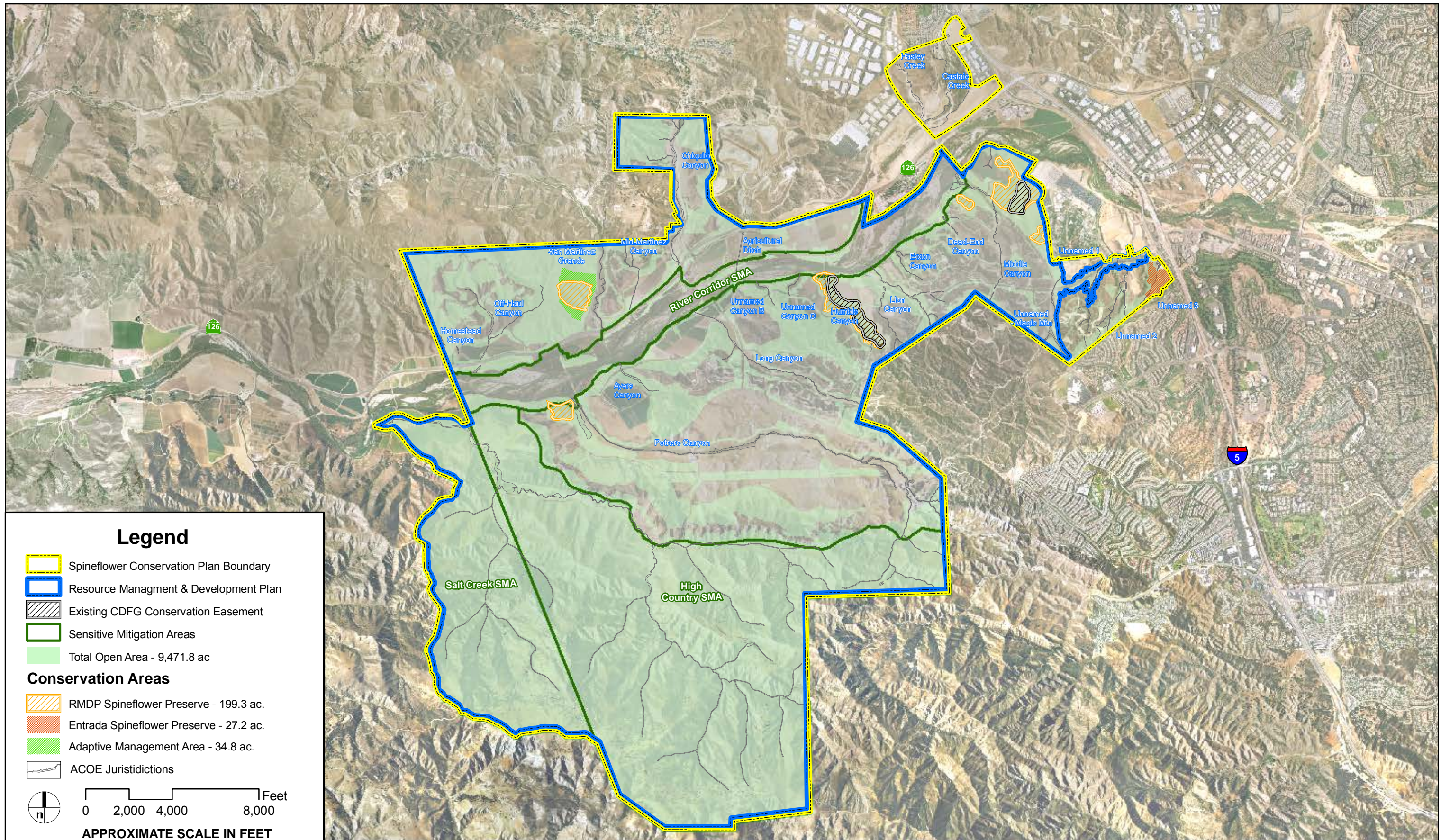
## 2.2 SCP Component Of The Project

The spineflower preserve design identified in the Revised Initial LEDPA has been further refined based on input received from CDFG, which is the CEQA lead agency on the EIS/EIR. As summarized on **Table 3**, two new spineflower preserve areas, referred to as the Magic Mountain and Spring preserves, have been added to the LEDPA. The locations of all proposed spineflower preserve areas are depicted on **Figure 10**. Within the preserves, spineflower management and monitoring actions would be as described in the Spineflower Conservation Plan (SCP).

**Figure 10** also shows the connectivity among the project spineflower preserves and the approved and proposed open space within the SCP study area. **Table 3** summarizes the Project spineflower preserve characteristics, including acreage of spineflower to be preserved and taken.

Preserve Area	Preserve Size (ac)	Spineflower Preserved (ac)	Spineflower Impacted (ac)	Percent Preserved (ac)	Percent Taken (ac)
Airport Mesa	67.75	5.28	1.72	75.4%	24.6%
Grapevine Mesa	65.97	4.02	0.86	82.4%	17.6%
Potrero	16.91	1.32	0.33	80.0%	20.0%
San Martinez Grande	34.41	2.29	0	100.0%	0.0%
Magic Mountain	7.66	0.95	0	100.0%	0.0%
Spring	6.55	0.51	0	100.0%	0.0%
<b>RMDP Total</b>	<b>199.26</b>	<b>14.37</b>	<b>2.91</b>	<b>83.0%</b>	<b>17.0%</b>
Entrada/VCC (SCP Only)	27.19	1.03	1.94	34.7%	65.3%
<b>SCP Total</b>	<b>226.45</b>	<b>15.4</b>	<b>4.85</b>	<b>76%</b>	<b>24%</b>





SOURCE: PACE 2010

FIGURE 10

NEWHALL RANCH RMDP SPINEFLOWER PRESERVES



**Table 4** summarizes each of the proposed spineflower preserve areas and the preserve design elements, including the core or occupied spineflower population areas, the interior areas within the core that allow for expansion of the preserves, and the designated buffer, which represents the area within the preserve between the core perimeter and the outer preserve boundary or urban edge.

Preserve Area	Preserve Statistics		Preserve Design Elements		
	Proposed Preserve <sup>1</sup> (ac)	Cumulative Area Occupied <sup>2</sup> (ac)	Core <sup>3</sup>	Buffer <sup>4</sup>	Expansion <sup>5</sup>
Airport Mesa	67.75	5.28	26.22	41.53	20.94
Grapevine Mesa	65.97	4.02	9.01	56.96	4.99
Potrero	16.91	1.32	4.37	12.54	3.05
San Martinez Grande	34.41	2.29	8.24	26.17	5.95
Magic Mountain	7.66	0.95	1.70	5.98	0.75
Spring	6.55	0.51	0.64	5.90	0.13
<b>RMDP Total</b>	<b>199.26</b>	<b>14.37</b>	<b>50.18</b>	<b>149.08</b>	<b>35.81</b>
Entrada/VCC (SCP Only)	27.19	1.03	9.00	18.19	7.97
<b>SCP Total</b>	<b>226.45</b>	<b>15.4</b>	<b>59.18</b>	<b>167.27</b>	<b>43.78</b>

Notes:

<sup>1</sup> Proposed preserve is the total area within the preserve boundary.

<sup>2</sup> Cumulative area occupied is the total area of mapped spineflower within the preserve between 2002 and 2007.

<sup>3</sup> Core identifies the occupied/preserved populations interior to buffer area and preserve boundary.

<sup>4</sup> Buffer represents the area within the preserve between the core perimeter and the preserve boundary (urban edge.)

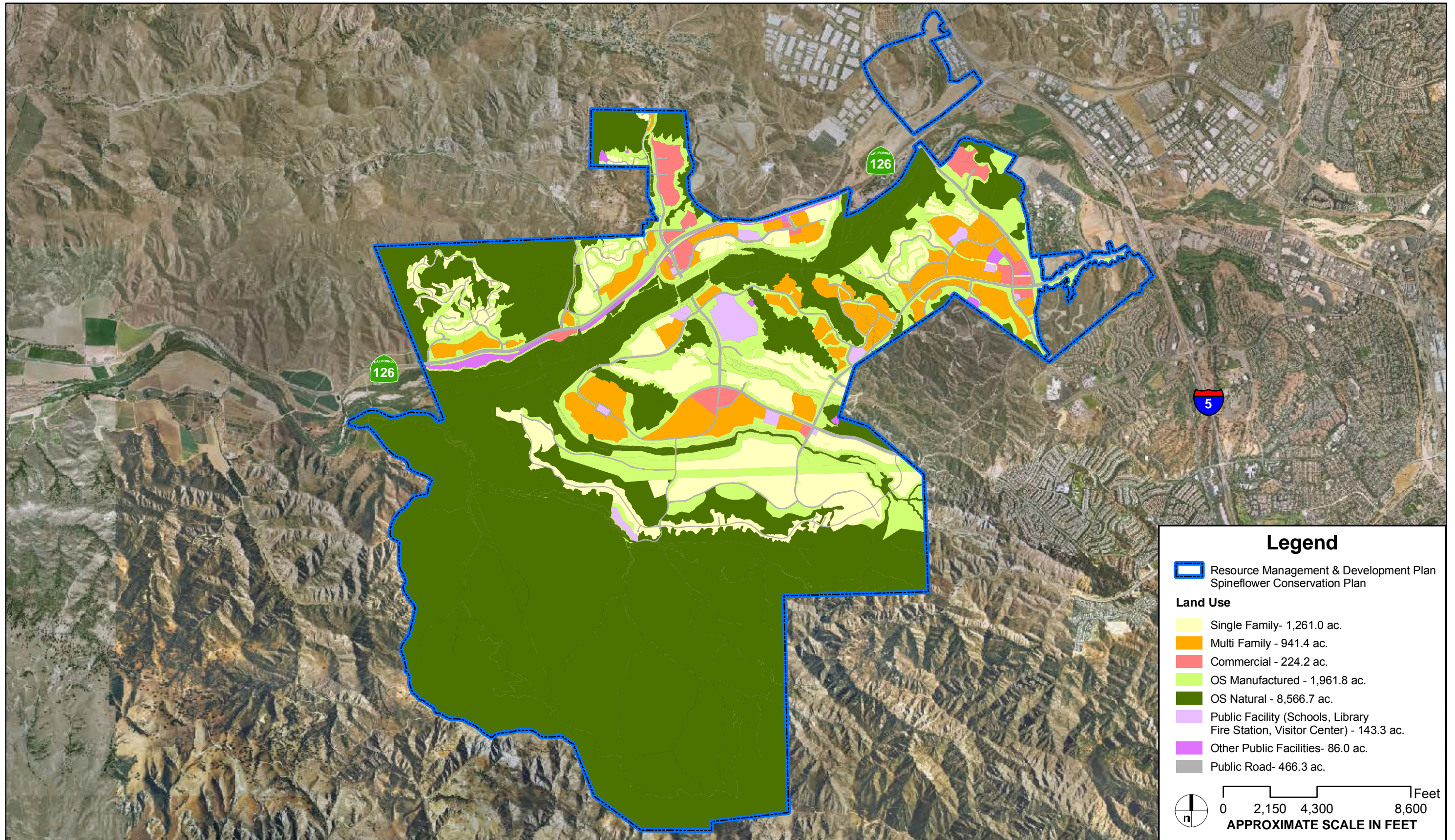
<sup>5</sup> Expansion area represents the area interior to the core that is not part of the cumulative area occupied.

CDFG is responsible for granting incidental take authorization under the California Endangered Species Act for impacts to spineflower. On December 3, 2010, CDFG certified the EIR portion of the Final EIS/EIR and approved the RMDP/SCP project, associated Master Streambed Alteration Agreement and two Incidental Take Permits, including an Incidental Take Permit for spineflower. The Project is consistent with the CDFG Master Streambed Alteration Agreement and the Incidental Take Permits.

### **2.3 Summary Description of Development Facilitated by the Project**

**Figure 11** depicts the land uses that would be facilitated within the RMDP area under the Project. The Project would provide 2,570 net developable acres, approximately 19,517 residential units, and 5.45 million square feet of commercial uses. **Table 5** compares the development facilitated under the LEDPA to the development under the proposed project.





SOURCE: HUNSAKER, PACE 2010

FIGURE 11  
 NEWHALL RANCH RMDP  
 LAND USE PLAN



**Table 5**  
**Development Facilitated by the Project**

Land Use Category <sup>1</sup>	Acres	Res.	Comm. <sup>3</sup>	Percent	Percent	Total	Total
		(DU) <sup>2</sup>	(MSF) <sup>4</sup>	Res. Reduction (DU) <sup>5</sup>	Comm. Reduction (MSF) <sup>5</sup>	Res. Reduction (DU) <sup>5</sup>	Comm. Reduction (MSF) <sup>5</sup>
Single-Family Residential	1,261.0	8,316	-	-8.4%	-	-765	-
Multi-Family Residential	941.4	11,201	-	-5.1%	-	-603	-
Commercial	224.2	-	5.45	-	-1.8%	-	-0.1
Public Facilities <sup>6</sup>	143.3	-	-	-	-	-	-
<b>Subtotal – Net Developable Acreage</b>	<b>2,569.9</b>						
Other Public Facilities	552.4	-	-	-	-	-	-
Open Space <sup>7</sup>	10,528.5	-	-	-	-	-	-
<b>Subtotal RMDP Area</b>	<b>13,650.8</b>	<b>19,517</b>	<b>5.45</b>	<b>-6.6%</b>	<b>-1.8%</b>	<b>-1,368</b>	<b>-0.1</b>

Notes:

<sup>1</sup> In some instances, land use categories have been consolidated to simplify presentation of the land use data.

<sup>2</sup> "DU" means development units

<sup>3</sup> Commercial includes business park, office, retail, *etc.*

<sup>4</sup> "MSF" means million square feet.

<sup>5</sup> All reductions represent a comparison to the amount of development approved under the Specific Plan and included in the Proposed Project.

<sup>6</sup> Public Facilities includes parks, schools, libraries, *etc.*

<sup>7</sup> Open Space means natural (preserved) and manufactured open space, and includes the Specific Plan's High Country SMA/SEA 20, River Corridor SMA/SEA 23, Open Areas, spineflower preservations areas, the Salt Creek area adjacent to the Specific Plan boundary, and other specified open areas, primarily located within the Specific Plan's Estate Residential designation.

Source: The Newhall Land and Farming Company, 2010.

### 3.0 PERMANENT AND TEMPORARY FILL OF WATERS OF THE UNITED STATES

Of the 660.1 acres of waters of the United States on the Project site, the LEDPA would avoid permanent or temporary impacts to approximately 87 percent (576.9 acres) of the jurisdictional waters on site, compared to 80 percent avoidance under the proposed Project. In total, the LEDPA would permanently fill approximately 47.9 acres of waters of the United States (48.6 percent reduction in impact acreage compared to the proposed Project), and would temporarily disturb 35.3 acres (6 percent increase in temporary impact acreage compared to the proposed Project). The temporary impacts would be associated with construction zones adjacent to proposed Project facilities, which would be restored and revegetated following completion of construction. In some instances, temporary impacts also would result from restoration activities

(e.g., when such activities require earthwork to be conducted in jurisdictional areas to correct existing incised channel banks). **Table 6** provides a summary of the permanent and temporary fill impacts that would result from the currently proposed LEDPA.

***Avoidance.*** As stated above, of the total 660.1 acres of waters of the United States that occur on the RMDP site, the LEDPA would avoid permanent or temporary impacts to 576.9 acres of waters of the United States, or approximately 87 percent of the jurisdictional waters on site. Key avoided areas under the LEDPA would include the majority of the Santa Clara River main stem, the Middle Canyon spring complex (a high-quality wetland), and the Salt Creek sub-watershed. In addition, the entire Potrero Canyon drainage, including the CAM areas, would be avoided except for necessary channel bed stabilization features. The lower CAM within Potrero Canyon is also proposed to be linked with a 19.3-acre wetland mitigation site immediately upstream from the mesic meadow, creating one, nearly contiguous CAM wetland area in lower Potrero Canyon.

***Fill in the Santa Clara River.*** Of the 471.2 acres of waters of the United States within the Santa Clara River main stem on site, the LEDPA would result in 5.8 acres of permanent impact and 15.7 acres of temporary impact to waters of the United States in the main stem of the river. The permanent impact would be associated with the construction of two bridges across the river (one of which is already permitted), the Utility Corridor, and future improvements to SR-126. Permanent impacts would represent approximately one percent of the total jurisdictional acreage in the river within the Project area.

***Fill in On-Site Tributary Drainages.*** Of the total 188.9 acres of waters of the United States within tributary drainages on site, the LEDPA would result in approximately 42.1 acres of permanent impact and 19.6 acres of temporary impact to waters of the United States. This impact results from converting drainages to buried storm drains, eliminating existing drainages for realignment, and grading to accommodate site development. The permanent impact would represent 22.4 percent of the total jurisdictional acreage in the on-site tributaries. The Project would generally affect all classes of tributary drainages on site (small and large tributary drainages), and no type of aquatic resource would be disproportionately affected.

***Fill in Special Aquatic Sites.*** Of the 276.9 acres of wetland waters of the United States on site, the LEDPA would permanently disturb 5.1 acres of wetlands (a 75 percent reduction compared to the proposed Project) and temporarily disturb 11.8 acres (a five percent increase compared to the proposed Project's 11.2 acres of temporary wetland impacts). These impacts would occur primarily due to bridge construction and the Utility Corridor along the Santa Clara River main stem. Elimination of the planned bridge across the river at Potrero Canyon Road would reduce impacts to wetlands along the river and in lower Potrero Canyon. In addition, the Salt Creek watershed and the Middle Canyon spring complex would be preserved and no permanent impacts to wetlands in those areas would occur. Additionally, the CAM wetlands in lower Potrero Canyon would be avoided, and the CAM wetland in middle Potrero Canyon would be

avoided except for impacts associated with necessary channel bed stabilization features. In total, the LEDPA would avoid permanent or temporary impacts to 94 percent of all wetlands on site, compared to 89 percent for the proposed Project. **Table 7** provides a summary of the LEDPA's permanent and temporary impacts to federally protected wetlands.

***Impact to the Riparian Condition.*** The LEDPA would affect the riparian condition of the aquatic resources on site as shown in **Table 8**. Changes in riparian condition would stem from two sources: (a) changes in the acreage of jurisdictional areas on site; and (b) changes in the overall quality (measured by the HARC Total Score) of on-site riparian areas. As discussed above and shown in **Table 9**, the LEDPA would result in a net gain of jurisdictional area on site. After taking into account the changes in HARC total scores that would occur as a result of Project impacts and mitigation, the LEDPA also would result in a Project-wide increase of 33.24 HARC AW-score units. This gain would occur both within the Santa Clara River main stem, through conversion of disturbed and agricultural lands to river jurisdiction, and within the stabilized, modified and reconstructed tributary drainages, where the change is primarily attributable to the increased size of many assessment reaches post-Project.

**Table 6****Fill of Corps Jurisdictional Waters (Including Wetlands) Resulting From LEDPA (Acres)**

<b>Project Component</b>	<b>Impact Type</b>	<b>Santa Clara River</b>	<b>Chiquito Canyon</b>	<b>San Martinez Grande Canyon</b>	<b>Long Canyon</b>	<b>Potrero Canyon</b>	<b>Lion Canyon</b>	<b>Salt Creek</b>	<b>Other Drainages</b>	<b>All Tributaries Subtotal</b>	<b>Total</b>
Bridges and Road Crossings	Permanent	3.34	0.17	0.08	0.13	0.42	0.03	0.00	0.00	0.84	<b>4.17</b>
	Temporary	5.48	0.00	0.09	0.00	0.12	0.00	0.00	0.00	0.21	<b>5.69</b>
Bank Stabilization	Permanent	1.94	0.89	0.05	0.00	0.04	0.64	0.00	0.00	1.63	<b>3.57</b>
	Temporary	8.17	3.05	0.95	0.01	3.57	1.92	0.00	0.06	9.56	<b>17.73</b>
Converted Drainage to Buried Storm Drain	Permanent	0.09	0.84	0.00	0.67	0.00	3.34	0.00	23.55	28.39	<b>28.48</b>
Drainage to be Regraded	Permanent	0	0	0	2.88	0	0	0	0	2.88	<b>2.88</b>
Drainage Displaced by Development and Manufactured Open Space	Permanent	0.16	2.16	0.00	0.87	0.00	0.40	0.01	1.44	4.88	<b>5.04</b>
Existing Drainage to be Restored	Temporary	0.11	0.00	0.00	0.00	0.00	0.00	7.24	0.00	7.24	<b>7.35</b>
Other Facilities <sup>1</sup>	Permanent	0.26	0.64	0.09	0.68	1.59	0.28	0.22	0.00	3.51	<b>3.77</b>
	Temporary	1.94	0.31	0.02	0.00	1.98	0.24	0.03	0.00	2.58	<b>4.53</b>
<b>Total Acreage Filled</b>	<b>Permanent</b>	<b>5.79</b>	<b>4.70</b>	<b>0.22</b>	<b>5.24</b>	<b>2.06</b>	<b>4.69</b>	<b>0.23</b>	<b>24.99</b>	<b>42.13</b>	<b>47.92</b>
	<b>Temporary</b>	<b>15.70</b>	<b>3.36</b>	<b>1.06</b>	<b>0.01</b>	<b>5.67</b>	<b>2.17</b>	<b>7.28</b>	<b>0.06</b>	<b>19.60</b>	<b>35.30</b>

<sup>1</sup> This category includes grade control structures, trail crossings, debris and detention basins, wildlife viewing platforms, and the WRP outfall. See **Subsection 2.6** of the Final EIS/EIR for a description of these facilities.

**Table 7**  
**Fill of Federally Protected Wetlands Resulting from Implementation of LEDPA (Acres)**

<b>Project Component</b>	<b>Impact Type</b>	<b>Santa Clara River Fringe Wetlands</b>	<b>Salt Creek Canyon Wetlands</b>	<b>Potrero Canyon Riverine and Seep Wetlands (PO-4 and PO-7)</b>	<b>Spring Complex Near Middle Canyon (MI-6)</b>	<b>Total</b>
Bridges	Permanent	2.49	0.00	0.08	0.00	2.57
	Temporary	2.67	0.00	0.07	0.00	2.74
Bank Stabilization	Permanent	1.79	0.00	0.00	0.00	1.79
	Temporary	5.30	0.00	0.99	0.00	6.28
Drainage Graded	Permanent	0.09	0.00	0.00	0.00	0.10
	Temporary	0.00	0.00	0.00	0.00	0.00
Other Facilities <sup>(1)</sup>	Permanent	0.22	0.00	0.42	0.00	0.65
	Temporary	0.99	0.00	0.56	0.00	1.56
Restoration	Permanent	0.00	0.00	0.00	0.00	0.00
	Temporary	0.07	1.14	0.00	0.00	1.21
<b>Total Impacts</b>	<b>Permanent</b>	<b>4.59</b>	<b>0.00</b>	<b>0.49</b>	<b>0.00</b>	<b>5.10</b>
	<b>Temporary</b>	<b>9.04</b>	<b>1.14</b>	<b>1.61</b>	<b>0.00</b>	<b>11.79</b>
<b>Percent Reduction in Permanent Impacts to Wetlands, Compared to Proposed RMDP</b>		<b>-33.5%</b>	<b>0%</b>	<b>-92.9%</b>	<b>0%</b>	<b>-75%</b>

**TABLE 8  
FINAL LEDPA CORPS JURISDICTIONAL IMPACTS  
AND AVERAGE HARC SCORES AND AW-SCORE UNITS**

Type of Impact	Corps River Impacts	Corps Tributary Impacts	Corps Total Impacts	
	(Acres of Waters of the United States)			
Permanent Impacts	5.79	42.13	47.92	
Temporary Impacts	15.70	19.60	35.30	
<b>Totals</b>	<b>21.49</b>	<b>61.73</b>	<b>83.22</b>	
Type of Impact	HARC - River Impacts	HARC - Tributary Impacts	HARC Impacts Total	Calculated Average HARC Score
	(HARC AW Score Units)			
Permanent Impacts	4.41	26.10	30.51	0.64
Temporary Impacts	12.11	15.56	27.68	0.78
<b>Totals</b>	<b>16.53</b>	<b>41.67</b>	<b>58.19</b>	<b>0.70</b>



#### 4.0 MITIGATION

The LEDPA would incorporate extensive mitigation both on-site and off-site, as detailed in the Mitigation Plan (Dudek, 2011) (**Attachment 1**). In total, the Project would provide 114.04 acres of compensatory mitigation (creation and enhancement of jurisdictional areas), with a 2.4 to 1 mitigation ratio for permanent impacts to waters of the United States sitewide and a 6.9 to 1 mitigation ratio for permanent impacts to wetland waters of the United States sitewide. The proposed mitigation will also ensure that the Project results in a net increase in functions and services of waters of the United States within the Project area and that those functions are maintained in perpetuity. Mitigation capacity in excess of these requirements will be available as mitigation for other Permittee-responsible activities in accordance with Corps regulations or for mitigation banking under 33 CFR Part 332.

In addition to compensatory mitigation, the LEDPA would preserve and protect in perpetuity approximately 612.2 acres of waters that are not permanently impacted, including 271.8 acres of wetlands. These areas will be protected by a conservation easement or deed restriction and will be managed under an endowed long-term management plan. The ratio of preserved acres to permanently impacted waters is approximately 14.6 to 1, and 53 to 1 for impacted wetlands specifically. The schedule for recordation of the conservation instruments and dedication of the mitigation areas is summarized in **Table 10**. **Figure 12** shows the proposed fee owners and easement holders for the conservation areas and the restrictive covenant for flood protection on an additional 119 acres of floodplain area in the Santa Clara River immediately downstream of the RMDP area. **Figure 13** shows the dedication of conservation areas within the Santa Clara River Corridor associated with the phases of project construction.

The Mitigation Plan has been modified in the manner specified by the Corps. Under the revised Mitigation Plan, Newhall would implement the 19.3-acre wetland mitigation area in lower Potrero Canyon, the 15.9 acres of wetlands mitigation in the Santa Clara River at Mayo Crossing, and 19.7 acres of habitat enhancement in portions of the upper Salt Creek watershed prior to any permanent impacts to waters of the United States. Thus, the initial phase of the Mitigation Plan would include the implementation of 35.2 acres of wetlands creation and 19.7 acres of enhancement, for a total of 54.9 acres of mitigation implemented prior to any permanent impacts to waters of the United States. In addition, prior to any impacts to waters of the United States, a restrictive covenant for floodplain protection will be placed on the Additional Floodplain Conservation Area.

Additional mitigation would be implemented during construction of Project phases, including 2.7 acres along the Santa Clara River at Long Canyon Bridge, 18.5 acres in lower-middle Salt Canyon, 2.1 acres in Lion Canyon, 5.24 acres in Long Canyon, 9.8 acres in Chiquito Canyon, 6.8 acres in San Martinez Grande Canyon, and 14 acres in Potrero Canyon, as summarized in **Table 9**, below. The Mitigation Plan specifies that each of these mitigation areas will be implemented concurrently with a specific phase of Project construction (i.e., implementation will occur prior to or within two years of impacts associated with that phase). The Mitigation Plan provides additional information on the location and configuration of each of the proposed mitigation areas. In particular, the Mitigation Plan includes detailed information regarding the existing conditions, mitigation objectives and concepts, mitigation implementation components, and rationale for success for the lower Potrero Canyon, Salt

Creek and Mayo Crossing mitigation sites. (See Mitigation Plan §§ 2.2.2-2.2.4.) Mitigation excess of these requirements will be available for permittee responsible mitigation or for mitigation banking under 33 CFR Part 332

The Mitigation Plan also fully describes the following for each of the proposed mitigation areas:

- Goals of the Mitigation Plan
- Descriptions of the mitigation sites
- An implementation plan for mitigation sites
- Maintenance activities during the mitigation monitoring period
- A monitoring plan for the mitigation sites
- Criteria for successful completion of mitigation implementation
- Long-term management plan
- Contingency measures

<b>Table 9</b>			
<b>Mitigation for Permanent Impacts to Corps Jurisdictional Areas</b>			
<b>HARC-AW-Total Score Units</b>			
<b>Mitigation Site</b>	<b>Jurisdiction Creation/ Enhancement Mitigation (Acres)</b>	<b>Post-project HARC Score Estimate</b>	<b>Total HARC AW Score Units Provided</b>
Mayo Crossing (Santa Clara River)	15.9	0.8	12.7
Potrero Canyon CAM	19.3	0.8	15.2
Upper Salt Creek	19.7	0.1	2.0
Santa Clara River (@ Long Cyn Bridge)	2.7	0.8	2.2
Lower & Middle Salt Creek	18.5	0.8	7.5
Lion Canyon	2.1	0.6	1.3
Long Canyon	5.24	0.6	3.14
Chiquito Canyon	9.8	0.6	5.9
San Martinez Grande Canyon	6.8	0.6	4.1
Potrero Canyon	14	0.8	9.8

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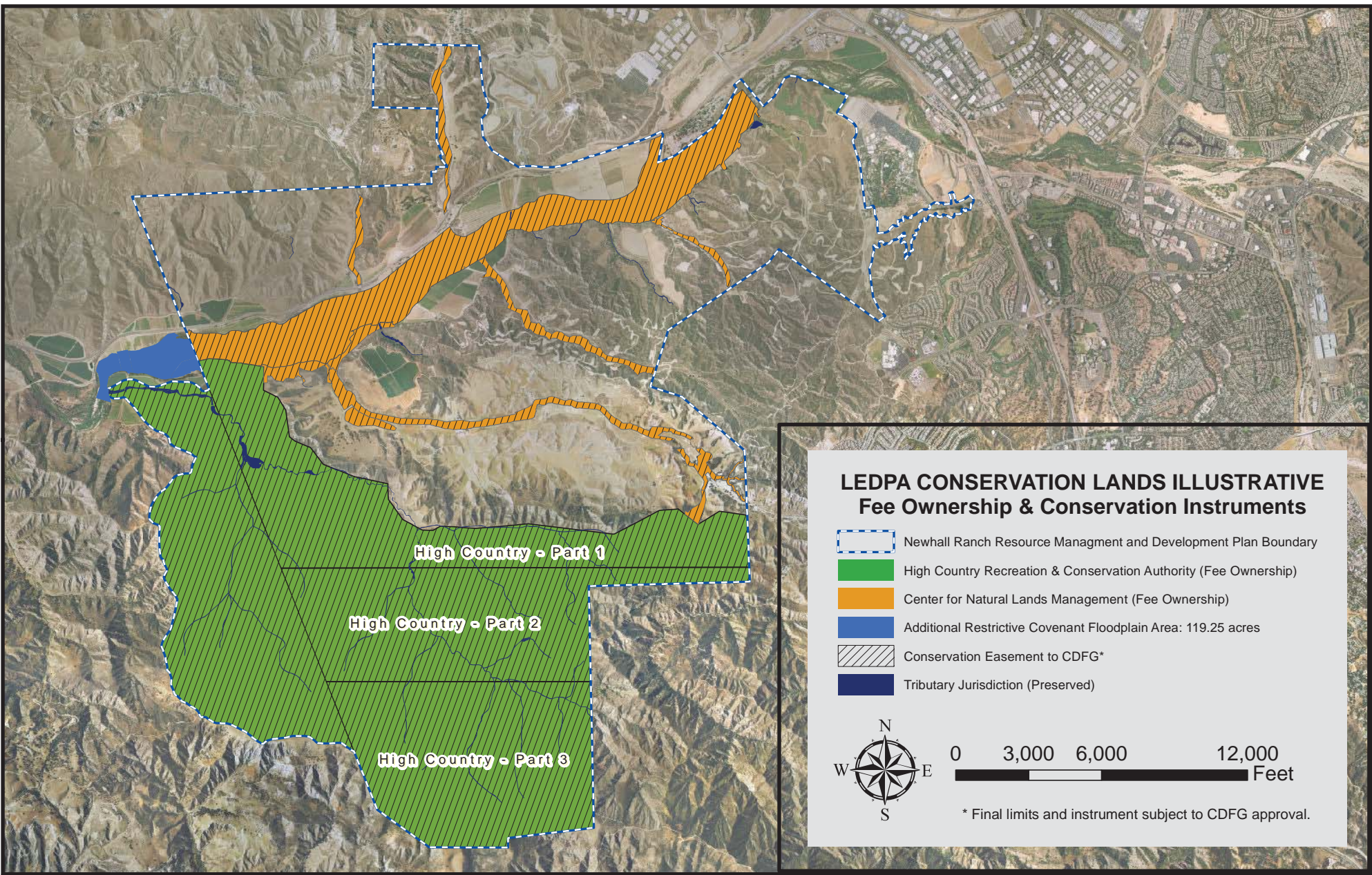
<b>TOTAL Mitigation</b>	<b>114.04</b>	<b>0.6</b>	<b>63.74</b>
<b>Project Impacts (permanent)</b>	<b>-47.9</b>	<b>0.64</b>	<b>-30.5</b>
<b>Calculated Mitigation Ratio</b>	<b>2.4 : 1</b>		<b>2.1 : 1</b>

<b>Table 10: LEDPA Conservation Land Dedication/Recordation Schedule (See Note at End of Table)</b>			
<b>Open Space Area</b>	<b>Conservation Instrument</b>	<b>Fee Ownership</b>	<b>Schedule/Phase of Development</b>
<b>High Country SMA</b>			
High Country (Part 1)	Conservation Easement to CDFG	High Country Recreation & Conservation Authority (JPA)	At Issuance of 2,000 <sup>th</sup> Residential Building Permit
High Country (Part 2)	Conservation Easement to CDFG	High Country Recreation & Conservation Authority (JPA)	At Issuance of 6,000 <sup>th</sup> Residential Building Permit
High Country (Part 3)	Conservation Easement to CDFG	High Country Recreation & Conservation Authority (JPA)	At Issuance of 11,000 <sup>th</sup> Residential Building Permit
<b>Salt Creek – Ventura County</b>			
Salt Creek Watershed w/in Ventura County	Conservation Easement to CDFG	High Country Recreation & Conservation Authority (JPA)	Upon Approval of Potrero Canyon TTM
<b>Santa Clara River</b>			
Santa Clara River (LMV Phase 1)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Landmark Village TTM Development - Castaic Creek Confluence Area
Santa Clara River (LMV Phase 2)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Landmark Village TTM Development - Long Canyon Bridge Area
Santa Clara River (LMV Phase 3)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Landmark Village TTM Development - Castaic Creek at SR126 Area
Santa Clara River (MV Phase 1)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Mission Village TTM Development - SJ Flats to Lion Canyon
Santa Clara River (MV Phase 2)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Mission Village TTM Development - Middle Canyon Spring Area
Santa Clara River (MV Phase 3)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Mission Village TTM Development - Commerce Center Bridge Area
Santa Clara River (UC Phase 1)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Utility Corridor Construction between Chiquito and San Martinez Grande drainages

Santa Clara River (UC Phase 2)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Utility Corridor Construction west of San Martinez Grande
Santa Clara River (WRP)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Newhall Ranch Wastewater Reclamation Plant (WRP) construction
Santa Clara River (HS)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Homestead Village South TTM Development
Santa Clara River (Pot)	Conservation Easement to CDFG	Center for Natural Lands Management (CNLM)	At completion of Potrero Village TTM Development
<b>Tributary Drainages</b>			
Mission Village Preserved & Lion Canyon Drainages	Conservation Easement to CDFG or Deed Restriction	Center for Natural Lands Management (CNLM)	At completion of Mission Village TTM Development
Homestead Village South Preserved and Long Canyon Drainages	Conservation Easement to CDFG or Deed Restriction	Center for Natural Lands Management (CNLM)	At completion of Homestead South Village TTM Development
Homestead Village North Preserved, Chiquito, San Martinez Grande Drainages	Conservation Easement to CDFG or Deed Restriction	Center for Natural Lands Management (CNLM)	At completion of Homestead North Village TTM Development
Potrero Canyon Drainage and CAM Mitigation Site	Conservation Easement to CDFG or Deed Restriction	Center for Natural Lands Management (CNLM)	At completion of Potrero Village TTM Development

**Note:** In addition, Newhall may not begin work in waters of the United States for any Pre-Construction Notification area, including the advance mitigation areas (the 19.3-acre wetland mitigation area in lower Potrero Canyon, the 15.9 acres of wetlands mitigation in the Santa Clara River at Mayo Crossing, and the 19.7 acres of habitat enhancement in portions of the upper Salt Creek watershed), until it has made an irrevocable offer of dedication to the Corps of a Deed Restriction or Conservation Easement within the Pre-Construction Notification area in a manner consistent with Master Streambed Alteration Agreement No. 1600-2004-0016-R5 and that permittee may not sell, transfer assign or otherwise divest itself of fee title for any real property within a future Conservation Area with first recording a deed restriction or conservation easement over the area.

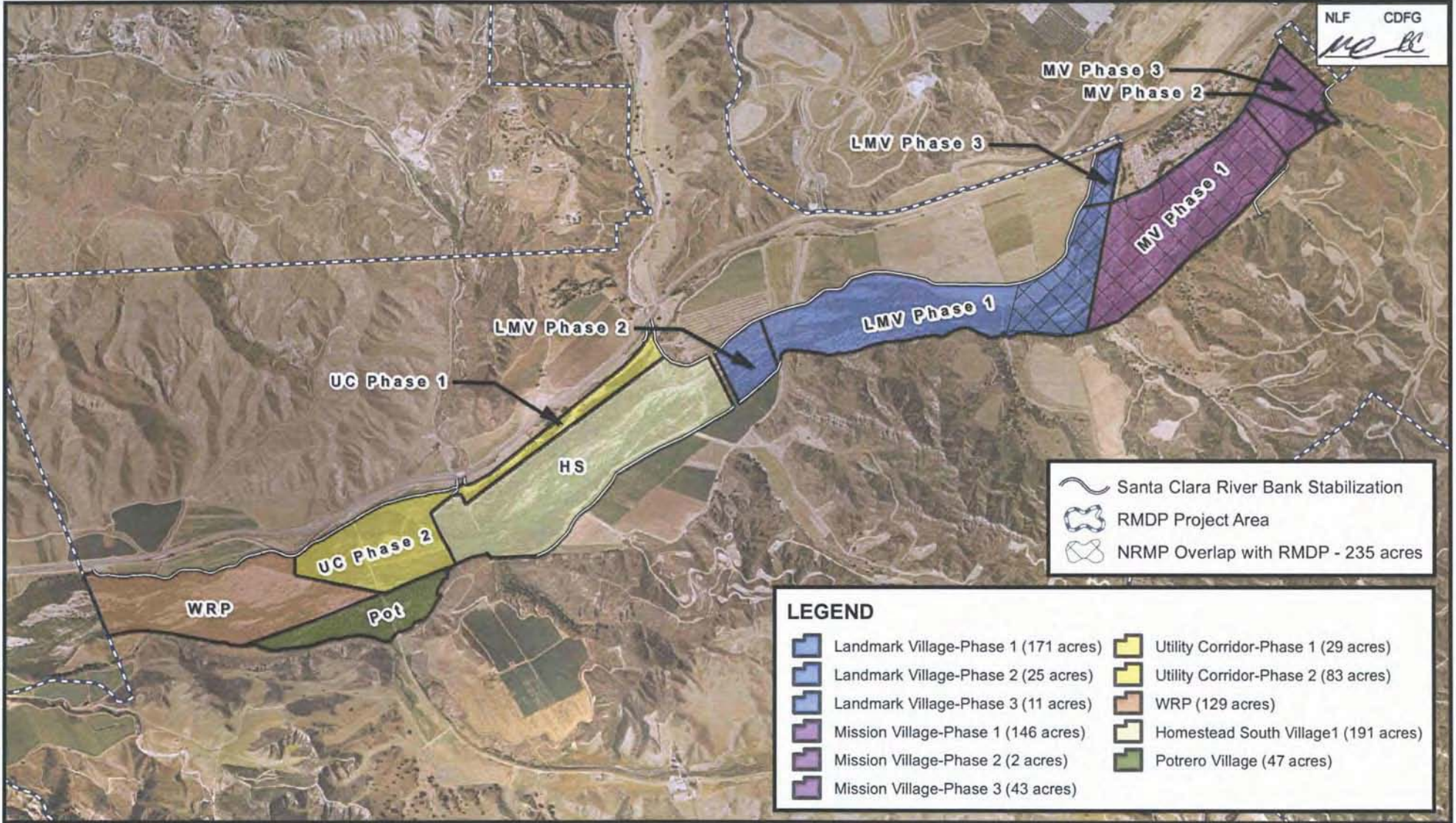




**FIGURE 12  
CONSERVATION LANDS**



NLF CDFG  
*[Signature]*



Name: RiverCorridorDedicationPhasingbyVillage\_Ver3



0 1,000 2,000 4,000 6,000 8,000 Feet

# River Corridor Conservation Easement Phasing Map

FIGURE 13

## 5.0 LID STANDARD

The LEDPA will incorporate advanced LID measures, consistent with a LID Performance Standard that was developed in consultation with the Corps, the U.S. Environmental Protection Agency and the Regional Water Quality Control Board.

Under the LID Performance Standard, LID project design features (PDFs) will be selected and sized to retain the volume of stormwater runoff produced from a 0.75 inch storm event to reduce the percentage of Effective Impervious Area (EIA) to 5 percent or less of the total project area within the Newhall Ranch Specific Plan. Runoff from all EIA will be treated with effective treatment control measures that are selected to address the pollutants of concern and are sized to capture and treat 80 percent of the average annual runoff volume. The Regional Board will evaluate compliance with the LID Performance Standard for each Village<sup>4</sup> within the RMDP as part of the WQTR review process. Each Village-level project must demonstrate that the LID Performance Standard is achieved cumulatively, considering the retention volume provided by the project itself and by all previous development phases within the RMDP area.

**The Newhall Ranch Specific Plan LID Performance Standard (May 2011), Attachment 2,** describes the LID Performance Standard in greater detail.

## 6.0 WATER RECLAMATION PLANT

The Project plans to treat effluent and obtain recycled water from the Newhall Ranch Water Reclamation Plant (WRP). The Regional Board issued an NPDES permit/WDRs (NPDES No. CA0064556, Order No. R4-2007-0046) for the Newhall Ranch WRP ("Newhall WRP Permit"). The Corps section 404 Permit application includes impacts both for the construction of the Newhall Ranch WRP and the utility corridor associated with the Newhall Ranch WRP.

The Newhall Ranch WRP Permit became effective October 27, 2007, and will expire on August 10, 2012. In accordance with state and federal regulations, a renewal request must be filed at least 180 days prior to the expiration date, or by February 12, 2012. "Treatment at the [Newhall Ranch WRP] ... will consist of screening, activated sludge secondary treatment with membrane bioreactors, nitrification/denitrification, ultraviolet disinfection, and partial reverse osmosis.... Brine from the RO system will be disposed of through . . . deep well injection, under a separate USEPA permit." (Newhall Ranch WRP Permit, Attachment F, Section A, Pages F-4 – F-5.) The chloride effluent limit at the Newhall Ranch WRP discharge point is set at 100 mg/L (average monthly). (*Id.*, Table 6.)

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<sup>4</sup> The Newhall WRP is treated the same as a "Village" for purposes of this review process.



As an interim, alternative engineering arrangement to the use of the Newhall Ranch WRP, Newhall and the Sanitation Districts Nos. 26 and 32 (later consolidated as the Santa Clarita Valley Sanitation District ["SCVSD"]) entered into an Interconnection Agreement, dated January 9, 2002 ("2002 Interconnection Agreement"). The 2002 Interconnection Agreement sets conditions under which the first 6,000 homes (up to an equivalent flow of 1.6 MGD) on Newhall Ranch may temporarily treat the effluent at the existing Valencia WRP. The Sanitation District approved the 2002 Interconnection Agreement in duly noticed public meetings and has been referenced in subsequent official documents, including Los Angeles County and LAFCO documents supporting formation of the Newhall Ranch Sanitation District ("NRSD"), which was formed to operate the Newhall Ranch WRP under the Newhall Ranch WRP NPDES Permit.

The County of Los Angeles ("County") adopted a resolution on January 18, 2011, confirming formation of the NRSD. In doing so, the County found that formation of the NRSD was within the scope of the previously certified Newhall Ranch EIR and Addendum and specifically referenced the alternative for interim treatment of the effluent from up to 6,000 units at the Valencia WRP during construction of the Newhall Ranch WRP.

Due to engineering and logistical considerations, and as specified in the 2002 Interconnection Agreement, Newhall's current plan is to defer construction of the Newhall Ranch WRP and instead treat effluent from the first 6,000 homes at the Valencia WRP and to obtain recycled water from the Valencia WRP. The Valencia WRP has a design capacity of 21.6 MGD. (Valencia WRP Permit, Attachment F, Section II, Page F-4.) The plant currently treats a much smaller volume of approximately 15 MGD and is not anticipated to approach its design capacity (even with the additional influent from other projects) for many years. The SCVSD also has stated it has more than sufficient capacity to treat the effluent from the 6,000 units on an interim basis as contemplated by the 2002 Interconnection Agreement.

The water that the Project can use as recycled water is water that would receive tertiary treatment from either the Valencia WRP or Newhall Ranch WRP. During the "dry" season (roughly May through September), the Project can essentially re-use 100 percent of the effluent sent for tertiary treatment resulting in no discharge of the Project's effluent to the Santa Clara River. During the "wet" season (roughly October through April), the demand for recycled water is reduced and the effluent would occasionally exceed the need for recycled water resulting in a discharge to the Santa Clara River. The Fact Sheet for the Newhall WRP Permit shows that, for a 2 MGD effluent flow, there would be an average discharge of 0.2 MGD to the Santa Clara River for the five month wet season. Under the existing Newhall Ranch WRP permit, those flows would be treated and discharged to the Santa Clara River at less than or equal 100 milligram/liter ("mg/l") in compliance with the Basin Plan. Under current conditions, the balance of flows from the existing Valencia WRP would be discharged at approximately 125 mg/L unless further chloride reduction treatment is provided.

Development of the Newhall Ranch WRP is expected to commence between occupancy of the first 3,000 and 4,000 units during interim operation under the 2002 Interconnection Agreement. Due to the delay in construction and operation of the Newhall Ranch WRP, Newhall Land has proposed interim equivalent chloride reduction treatment at the Valencia WRP. The proposal involves chloride treatment of the effluent amount originating from Newhall Ranch (up to 6,000 units) at the Valencia WRP during the 2002 Interconnection Agreement operation period, so that the Project effluent discharged to the Santa Clara River through the permitted Valencia WRP outfall would result in discharge equivalent to 100 mg/L chloride (or other applicable standard), which is the chloride effluent treatment standard under the Newhall Ranch WRP Permit. **Figure 14** conceptually illustrates the additional chloride reduction treatment process at the Valencia WRP that would occur in implementing the 2002 Interconnection Agreement. This equivalent chloride reduction treatment may require a revised NPDES permit for the Valencia WRP under the federal Clean Water Act (33 U.S.C. §§ 1251, *et seq.*). The revised NPDES permit would need to be approved by the Los Angeles Regional Water Quality Control Board ("LARWQCB"). The SCVSD would be the permittee for the revised NPDES permit for the Valencia WRP, and the funding for implementing treatment would be addressed through implementation of the 2002 Interconnection Agreement. Should the Valencia WRP permit revision be subject to unexpected delays attributed to actions by LARWQCB or the SCVSD, or if the LARWQCB formally determines that a revised NPDES permit is not required, then the Project will send effluent to the Valencia WRP per the terms and conditions of the 2002 Interconnection Agreement.

As part of the Project, Newhall has incorporated this interim chloride reduction treatment as a design feature that would be employed at the Valencia WRP under the 2002 Interconnection Agreement to achieve interim chloride reduction equivalent to that of the Newhall Ranch WRP under the Newhall Ranch WRP Permit (100 mg/L). As stated, **Figure 14** conceptually illustrates the additional treatment process incorporated to remove chloride from Newhall Ranch effluent at the Valencia WRP.

#### 7.0 LID Standard and Oil and Gas Well in Future Conservation areas

Existing oil and gas well sites numbered RSF076, RSF090, RSF093, RSF119, RSF122, and RSF139 on Figure 15 attached hereto, located in or adjacent to future Corps mitigation areas, will be plugged and abandoned and surrounding areas remediated by October 15, 2028. Further, within 180 days after the effective date of this Permit, the Project will install suitable erosion control best management practices (BMPs) between those oil wells and the adjacent waters of the United States and maintain such BMPs in good working condition until the wells are abandoned and remediated as described in section (a) above.



# NEWHALL RANCH RO OF 6,000 UNITS AT VALENCIA WRP

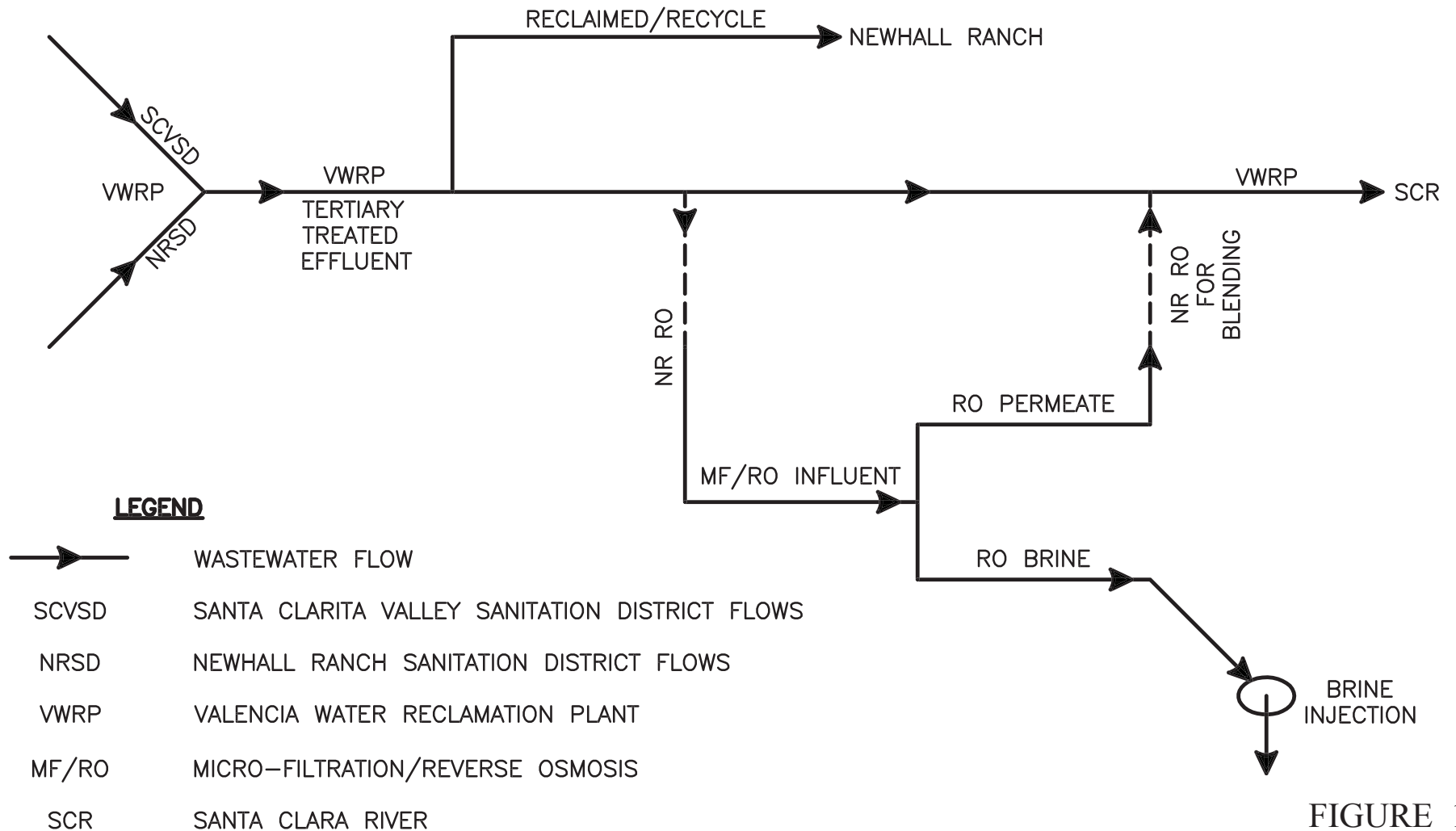
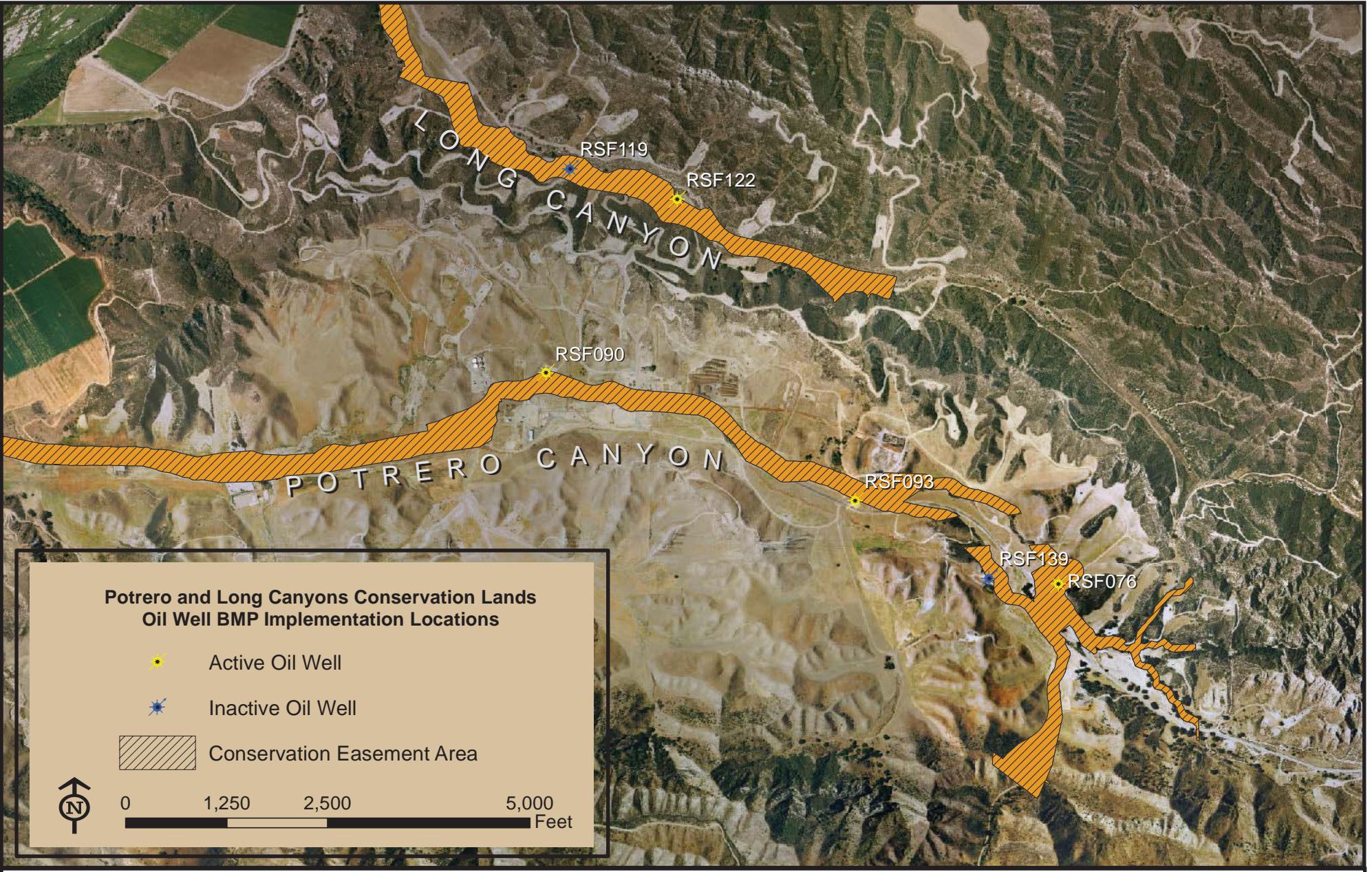


FIGURE 14  
CHLORIDE TREATMENT





# **Appendix 24**

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**Table 5 Development Facilitated  
by the Project,  
Permanent and Temporary Fill  
of Waters of the United States,  
August 11, 2011**

**Table 5**  
**Development Facilitated by the Project**

Land Use Category <sup>1</sup>	Acres	Res.	Comm. <sup>3</sup>	Percent	Percent	Total	Total
		(DU) <sup>2</sup>	(MSF) <sup>4</sup>	Res. Reduction (DU) <sup>5</sup>	Comm. Reduction (MSF) <sup>5</sup>	Res. Reduction (DU) <sup>5</sup>	Comm. Reduction (MSF) <sup>5</sup>
Single-Family Residential	1,261.0	8,316	-	-8.4%	-	-765	-
Multi-Family Residential	941.4	11,201	-	-5.1%	-	-603	-
Commercial	224.2	-	5.45	-	-1.8%	-	-0.1
Public Facilities <sup>6</sup>	143.3	-	-	-	-	-	-
<b>Subtotal – Net Developable Acreage</b>	<b>2,569.9</b>						
Other Public Facilities	552.4	-	-	-	-	-	-
Open Space <sup>7</sup>	10,528.5	-	-	-	-	-	-
<b>Subtotal RMDP Area</b>	<b>13,650.8</b>	<b>19,517</b>	<b>5.45</b>	<b>-6.6%</b>	<b>-1.8%</b>	<b>-1,368</b>	<b>-0.1</b>

Notes:

<sup>1</sup> In some instances, land use categories have been consolidated to simplify presentation of the land use data.

<sup>2</sup> "DU" means development units

<sup>3</sup> Commercial includes business park, office, retail, *etc.*

<sup>4</sup> "MSF" means million square feet.

<sup>5</sup> All reductions represent a comparison to the amount of development approved under the Specific Plan and included in the Proposed Project.

<sup>6</sup> Public Facilities includes parks, schools, libraries, *etc.*

<sup>7</sup> Open Space means natural (preserved) and manufactured open space, and includes the Specific Plan's High Country SMA/SEA 20, River Corridor SMA/SEA 23, Open Areas, spineflower preservation areas, the Salt Creek area adjacent to the Specific Plan boundary, and other specified open areas, primarily located within the Specific Plan's Estate Residential designation.

Source: The Newhall Land and Farming Company, 2010.

### 3.0 PERMANENT AND TEMPORARY FILL OF WATERS OF THE UNITED STATES

Of the 660.1 acres of waters of the United States on the Project site, the LEDPA would avoid permanent or temporary impacts to approximately 87 percent (576.9 acres) of the jurisdictional waters on site, compared to 80 percent avoidance under the proposed Project. In total, the LEDPA would permanently fill approximately 47.9 acres of waters of the United States (48.6 percent reduction in impact acreage compared to the proposed Project), and would temporarily disturb 35.3 acres (6 percent increase in temporary impact acreage compared to the proposed Project). The temporary impacts would be associated with construction zones adjacent to proposed Project facilities, which would be restored and revegetated following completion of construction. In some instances, temporary impacts also would result from restoration activities