

## B1.1 BACKGROUND

Field surveys were crucial to the accurate description of current channel geometry, including the width, depth, cross-sectional area, and slope of the channel. Accurate measurements were needed so that the hydraulic calculations used to establish the relationships between channel change and land use (impervious area) change are dependable. The survey reach locations were pre-determined by the existence of previous surveys at each location. Care was taken to re-occupy the previously surveyed cross section location(s) so that a comparison to the results of previous surveys could be made. Additional cross section locations were added to supplement the current knowledge of the site for use in the hydraulic calculations needed for the assessment.

## B1.2 PROCESS

Field surveys were performed using a Leica TCR-705 Total Station and a rod with prism attachment as the target. The target height was adjusted as needed to take readings above or through vegetation. The features surveyed included the Thalweg (deepest point in the channel), bar edges, bank tops and toes, and other relevant points within the active channel, as well as the three to five cross sections surveyed perpendicular to the assumed direction of channel flow. The minimum number of Total Station locations were used at each site to capture the necessary readings, thus minimizing the potential for adjustment error. However, when relocation of the Total Station was necessary, back-sighting and adjustment of the subsequent readings was accomplished automatically by the TCR-705, also minimizing the possible error. Data files were downloaded from the Total station onto a laptop computer and then burned into a recordable CD. Data files were subsequently uploaded into AutoCADD software for processing into a site map, a longitudinal profile of the reach, and cross sections perpendicular to the channel reach.

## B1.3 RESULTS

Digital files of recorded data from the surveying work are not included here, as they would increase the size of this document unnecessarily. Plotted results are included to allow comparisons among the sites of this study and other sites outside of this study effort. Site maps are provided in Figures B1-1 through B1-10 that show a combination of the descriptive geomorphic features sketched in the field on a scale drawing, overlain by the surveyed features. Longitudinal profiles for each of the ten study reaches are provided in Figures B1-11 through B1-20. Plots of the compared cross sections over time for the study reaches are provided in Figures B1-21 through B1-30.

**Table B1-1. Master Data Set**  
**Southern California Stream Sites**  
**(from May 2004 field measurements)**

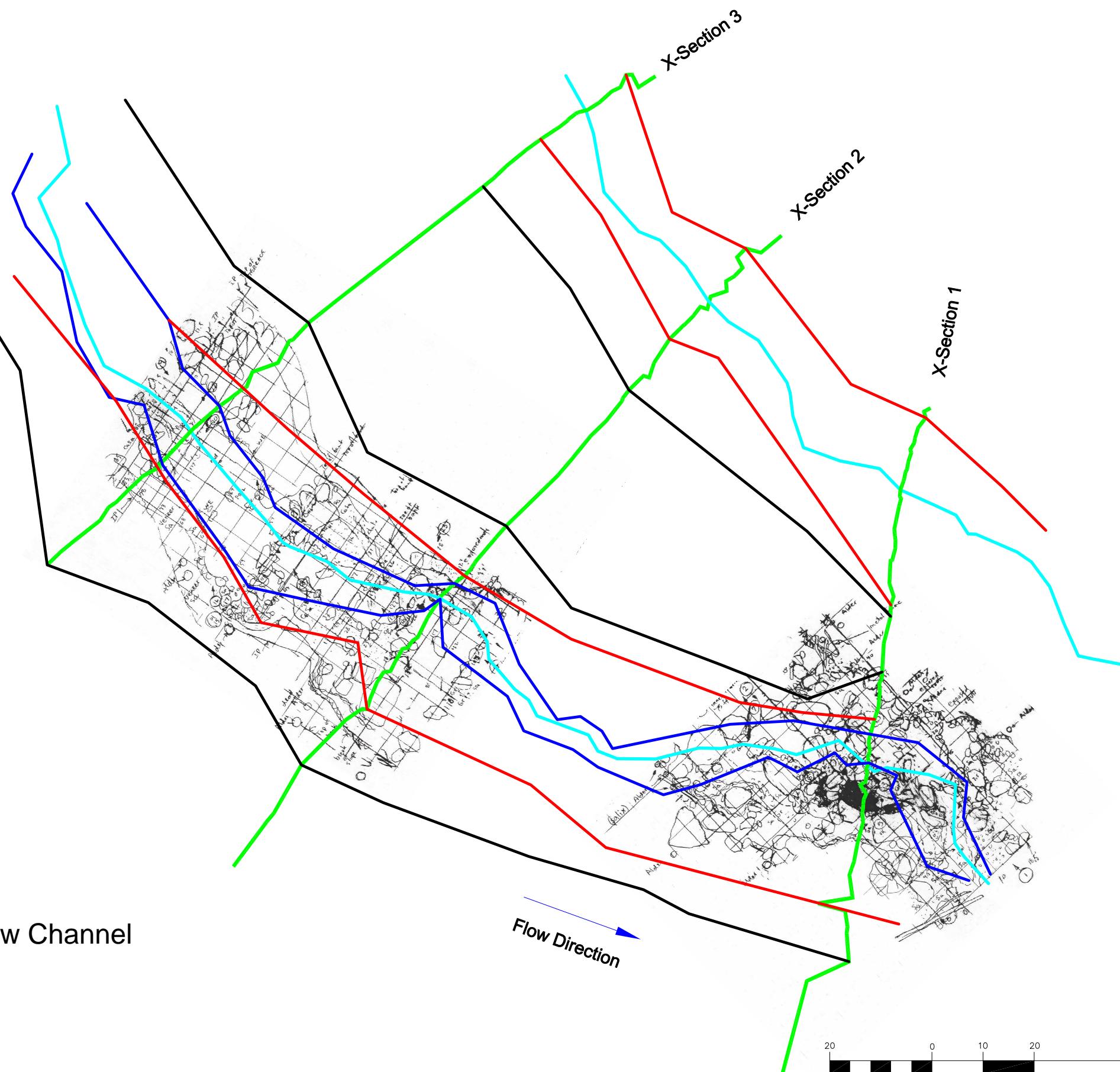
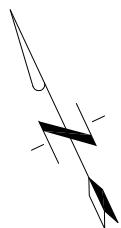
1	2	3	4	5	6	7	8	9	10
Site No.	Name	Stream Type	Classification Field	Graphed	Dominant Discharge Q <sub>bfl</sub> (ft <sup>3</sup> /s)	Average Std. Dev.	W <sub>bfl</sub> (ft)	Bankfull Width Average	Std. Dev.
1	Topanga Canyon	TOP-01	AL	Step-Pool	Step-Pool	1,131.49	1,084.31	61.98	60.58
		TOP-02	AL	Step-Pool	Step-Pool	1,035.59	4.4%	51.34	14.2%
		TOP-03	AL	Step-Pool	Cascade	1,085.85		68.41	
3	Hasley Canyon	HAS-01	AL	Cascade	Cascade	68.39	70.97	10.19	10.65
		HAS-02	AL	Step	Step	77.44	7.8%	7.24	38.1%
		HAS-03	AL(Ar)	Step	Step	73.22		8.69	
		HAS-04	AL(Ar)	Cascade	Cascade	64.82		16.45	
4u	Plum Canyon u/s	PLU(u/s)-01	AL	Braided	Braided (Tr)	241.05	282.06	69.21	58.35
		PLU(u/s)-02	AL	Braided	Braided	286.33	15.3%	92.23	40.3%
		PLU(u/s)-03	AL	Braided	Braided	237.46		43.27	
		PLU(u/s)-04	AL	Braided	Braided	337.27		55.35	
		PLU(u/s)-05	AL	Step	Cascade	308.16		31.67	
4d	Plum Canyon d/s	PLU(d/s)-01	AL	Braided	Braided (Tr)	144.27	127.80	39.82	54.84
		PLU(d/s)-02	AL	Braided	Braided	127.75	7.5%	41.68	42.7%
		PLU(d/s)-03	AL	Braided	Step (Tr)	123.71		39.78	
		PLU(d/s)-04	AL	Braided	Braided	123.00		58.65	
		PLU(d/s)-05	AL	Braided	Braided	120.29		94.28	
7u	Borrego Creek u/s	BOR(u/s)-01	AL	Meander	Braided	329.74	343.37	175.24	95.11
		BOR(u/s)-02	AL	Braided	Braided	361.06	4.2%	118.64	59.9%
		BOR(u/s)-03	AL	Braided	Braided	327.58		41.59	
		BOR(u/s)-04	AL	Braided	Braided	351.29		100.88	
		BOR(u/s)-05	AL	Braided	Step	347.18		39.19	
7d	Borrego Creek d/s	BOR(d/s)-01	AL	Cascade	Cascade	260.46	243.51	32.85	54.23
		BOR(d/s)-02	AL	Cascade	Cascade	221.65	8.5%	73.29	33.3%
		BOR(d/s)-03	AL	Braided	Braided	269.49		72.55	
		BOR(d/s)-04	AL	Braided	Braided	237.20		49.26	
		BOR(d/s)-05	AL	Cascade	Cascade	228.75		43.21	
9	Serrano Creek	SER-01	RC	Canyon	Cascade	328.32	339.96	11.08	15.00
		SER-02	RC	Canyon	Step (Tr)	320.90	4.5%	22.94	46.1%
		SER-03	RC	Canyon	Step	347.47		8.39	
		SER-04	RC	Canyon	Step (Tr)	344.32		10.54	
		SER-05	AL(Ar)	Step	Cascade	358.79		22.03	
10	Santiago Creek	SAN-01	AL	Braided	Braided	754.21	793.75	66.87	70.87
		SAN-02	AL	Cascade	Cascade	910.48	8.9%	68.77	6.2%
		SAN-03	AL	Cascade	Cascade	806.75		71.81	
		SAN-04		Step	Cascade	766.25		78.13	
		SAN-05		Step	Cascade	731.08		68.76	
23	Dry Creek	DRY-01	AL	Cascade	Cascade	52.30	57.74	10.67	9.72
		DRY-02	AL	Cascade	Cascade	51.69	11.5%	9.75	12.6%
		DRY-03	AL	Cascade	Cascade	66.93		9.68	
		DRY-04	AL	Cascade	Cascade	62.33		10.77	
		DRY-05	AL	Cascade	Cascade	55.44		7.71	
27	Hick's Canyon	HIC-01	AL	Step	Step (Tr)	44.33	42.93	8.61	8.36
		HIC-02	AL	Cascade	Cascade (Tr)	37.90	6.6%	7.44	16.3%
		HIC-03	AL	Meander-P/R	Meander (Tr)	44.01		10.51	
		HIC-04	AL	Step	Step (Tr)	44.31		6.98	
		HIC-05	AL	Cascade	Cascade	44.08		8.27	

**Table B1-1. Master Data Set**

Southern California Stream Sites  
(from May 2004 field measurement)

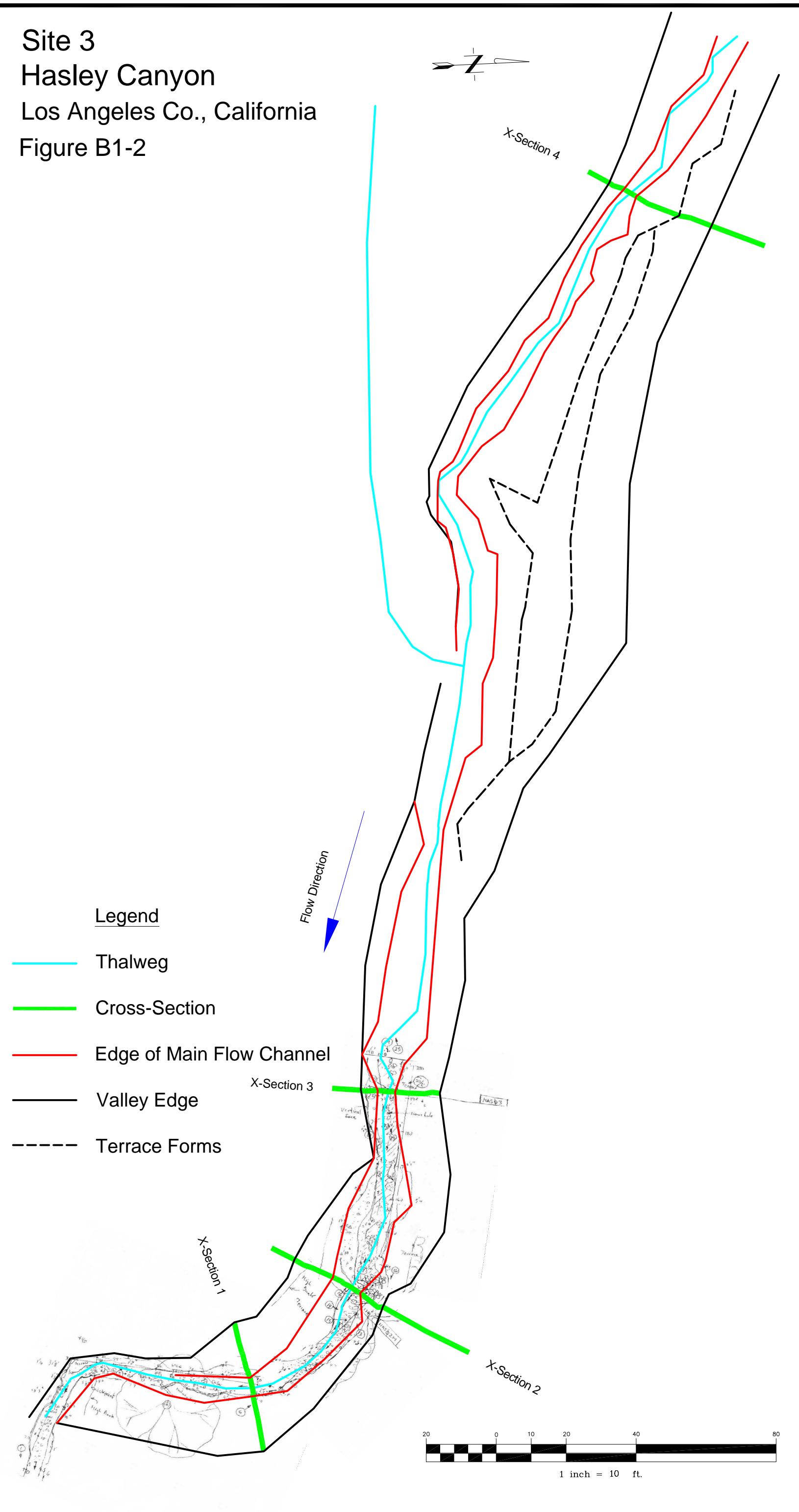
1	2	3	11	12	13	14	15	16
Site No.	Name	Longitudinal Gradient			Bankfull Depth		Bankfull Area	
		$S_{bf}$ (ft/ft)	Average Std. Dev.	d <sub>bf</sub> (ft)	Average Std. Dev.	A <sub>bf</sub> (ft <sup>2</sup> )	Average Std. Dev.	
1	Topanga Canyon	TOP-01	0.04165	0.03	5.72	5.63	181.20	167.59
		TOP-02	0.03388	48.3%	5.71	2.8%	137.98	15.3%
		TOP-03	0.01380		5.45		183.60	
3	Hasley Canyon	HAS-01	0.02091	0.03	1.88	1.73	11.80	11.64
		HAS-02	0.03250	43.4%	1.76	13.4%	9.21	25.5%
		HAS-03	0.03891		1.39		9.78	
		HAS-04	0.01334		1.88		15.77	
4u	Plum Canyon u/s	PLU(u/s)-01	0.02130	0.02	1.60	2.25	50.05	52.72
		PLU(u/s)-02	0.02591	15.6%	2.15	23.1%	65.46	18.6%
		PLU(u/s)-03	0.02027		2.15		41.43	
		PLU(u/s)-04	0.02369		2.30		59.92	
		PLU(u/s)-05	0.01702		3.04		46.71	
4d	Plum Canyon d/s	PLU(d/s)-01	0.02956	0.03	1.48	1.07	32.26	32.60
		PLU(d/s)-02	0.02436	28.1%	1.05	22.7%	28.21	19.5%
		PLU(d/s)-03	0.03562		0.92		25.03	
		PLU(d/s)-04	0.01646		1.04		36.71	
		PLU(d/s)-05	0.02267		0.86		40.81	
7u	Borrego Creek u/s	BOR(u/s)-01	0.01698	0.02	1.53	1.66	113.19	78.98
		BOR(u/s)-02	0.01516	34.6%	1.77	6.5%	88.21	32.1%
		BOR(u/s)-03	0.01416		1.77		57.58	
		BOR(u/s)-04	0.01576		1.63		85.49	
		BOR(u/s)-05	0.02952		1.61		50.43	
7d	Borrego Creek d/s	BOR(d/s)-01	0.01796	0.02	1.62	1.87	41.91	53.48
		BOR(d/s)-02	0.01903	15.5%	2.30	18.7%	57.63	14.9%
		BOR(d/s)-03	0.01845		1.61		62.01	
		BOR(d/s)-04	0.01715		1.62		49.15	
		BOR(d/s)-05	0.01245		2.21		56.69	
9	Serrano Creek	SER-01	0.01136	0.02	5.50	5.07	38.37	41.45
		SER-02	0.02107	35.4%	4.22	21.5%	43.73	21.2%
		SER-03	0.02107		5.29		32.59	
		SER-04	0.01622		6.54		37.10	
		SER-05	0.00885		3.79		55.43	
10	Santiago Creek	SAN-01	0.00943	0.01	4.38	4.55	194.39	190.94
		SAN-02	0.00777	35.9%	4.83	13.4%	186.39	18.2%
		SAN-03	0.00626		4.53		247.85	
		SAN-04	0.01559		3.68		163.19	
		SAN-05	0.01143		5.35		162.87	
23	Dry Creek	DRY-01	0.01464	0.02	1.67	1.69	12.82	11.47
		DRY-02	0.01964	17.8%	1.48	12.7%	10.43	10.0%
		DRY-03	0.01465		1.94		12.32	
		DRY-04	0.01914		1.48		11.56	
		DRY-05	0.01333		1.87		10.21	
27	Hick's Canyon	HIC-01	0.03099	0.02	1.46	1.62	8.00	8.49
		HIC-02	0.02583	45.9%	1.30	18.6%	6.91	24.9%
		HIC-03	0.00660		2.08		11.94	
		HIC-04	0.02414		1.53		6.74	
		HIC-05	0.01620		1.72		8.87	

**Site 1**  
**Topanga Canyon**  
Los Angeles Co.,  
California  
Figure B1-1



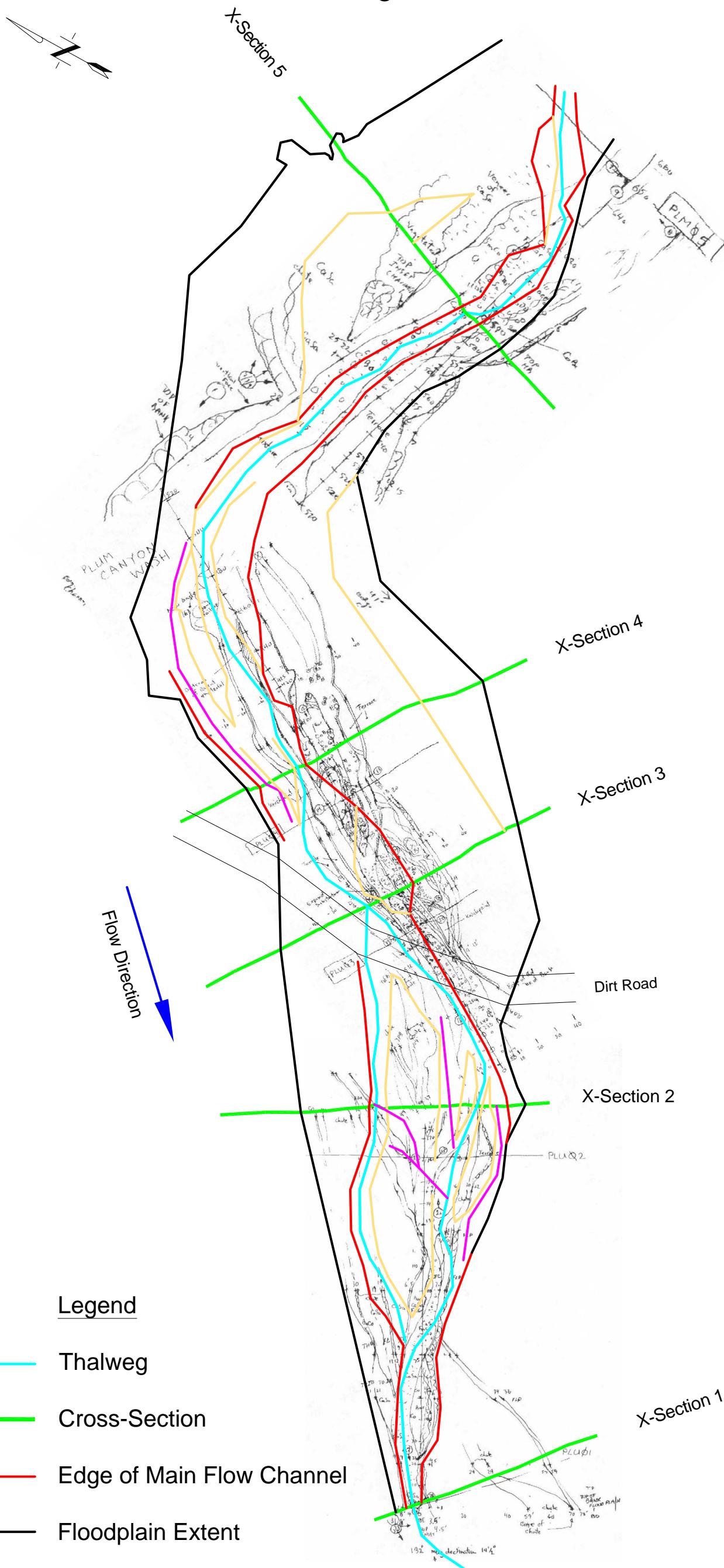
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1 inch = 10 ft.

**Site 3**  
**Hasley Canyon**  
Los Angeles Co., California  
Figure B1-2



Site 4u  
Plum Canyon  
Los Angeles Co., California

Figure B1-3



Site 4d  
Plum Canyon  
Los Angeles County, California  
Figure B1-4

X-Section 5

X-Section 4  
ANCILLARY 3

X-Section 3  
ANCILLARY 2

X-Section 2

X-Section 1

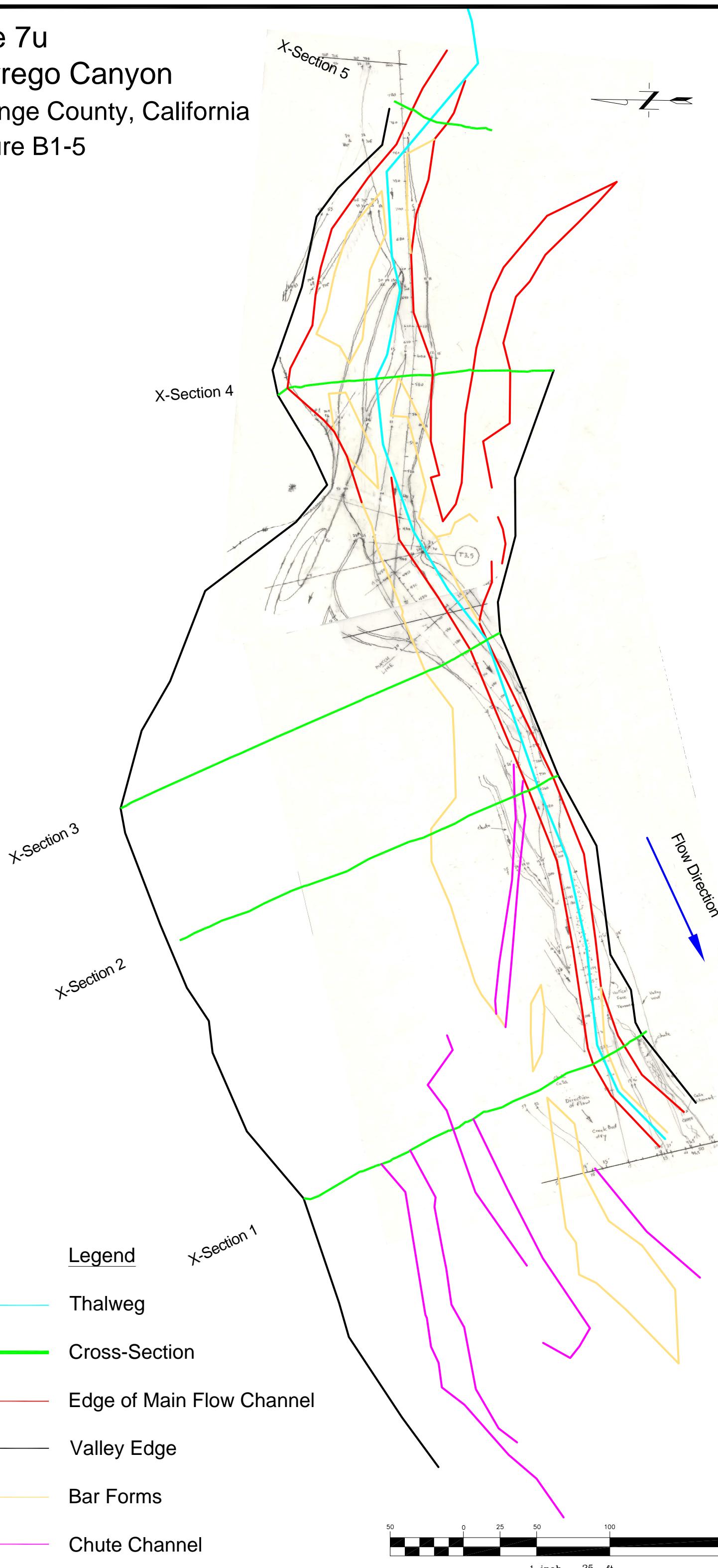
- main/Active Channel
- Eroding Bank/Cut Face
- Chute
- Bed Sediment Pit/Borehole
- Boil Pit
- Photograph location Number & Direction
- Shrub
- Tree
- Log
- Coarse Material Cob to BaCo

Legend

- Thalweg
- Cross-Section
- Chute (centerline)
- Edge of Bar Forms
- Floodplain Extent (top and toe of bank)

10 0 10 20 40 80  
1 inch = 10 ft.

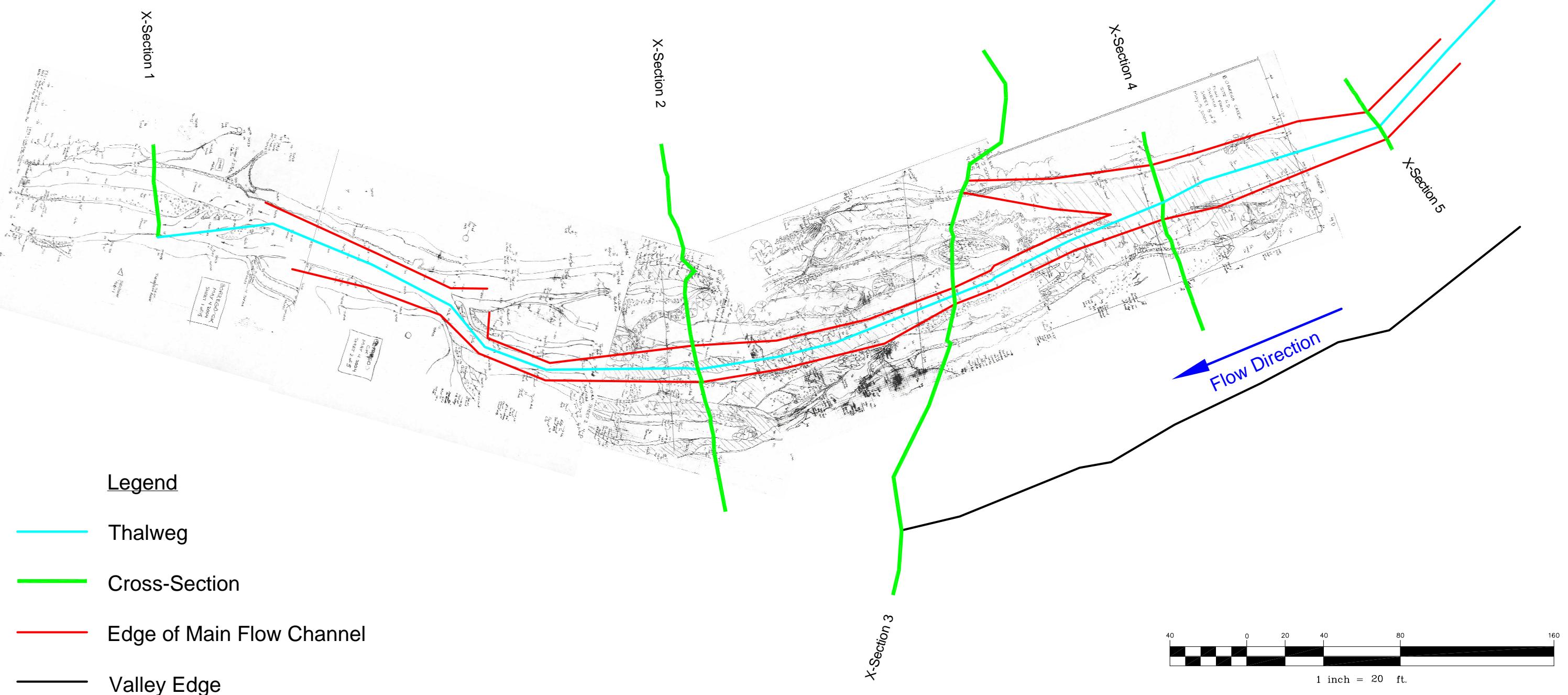
Site 7u  
 Borrego Canyon  
 Orange County, California  
 Figure B1-5



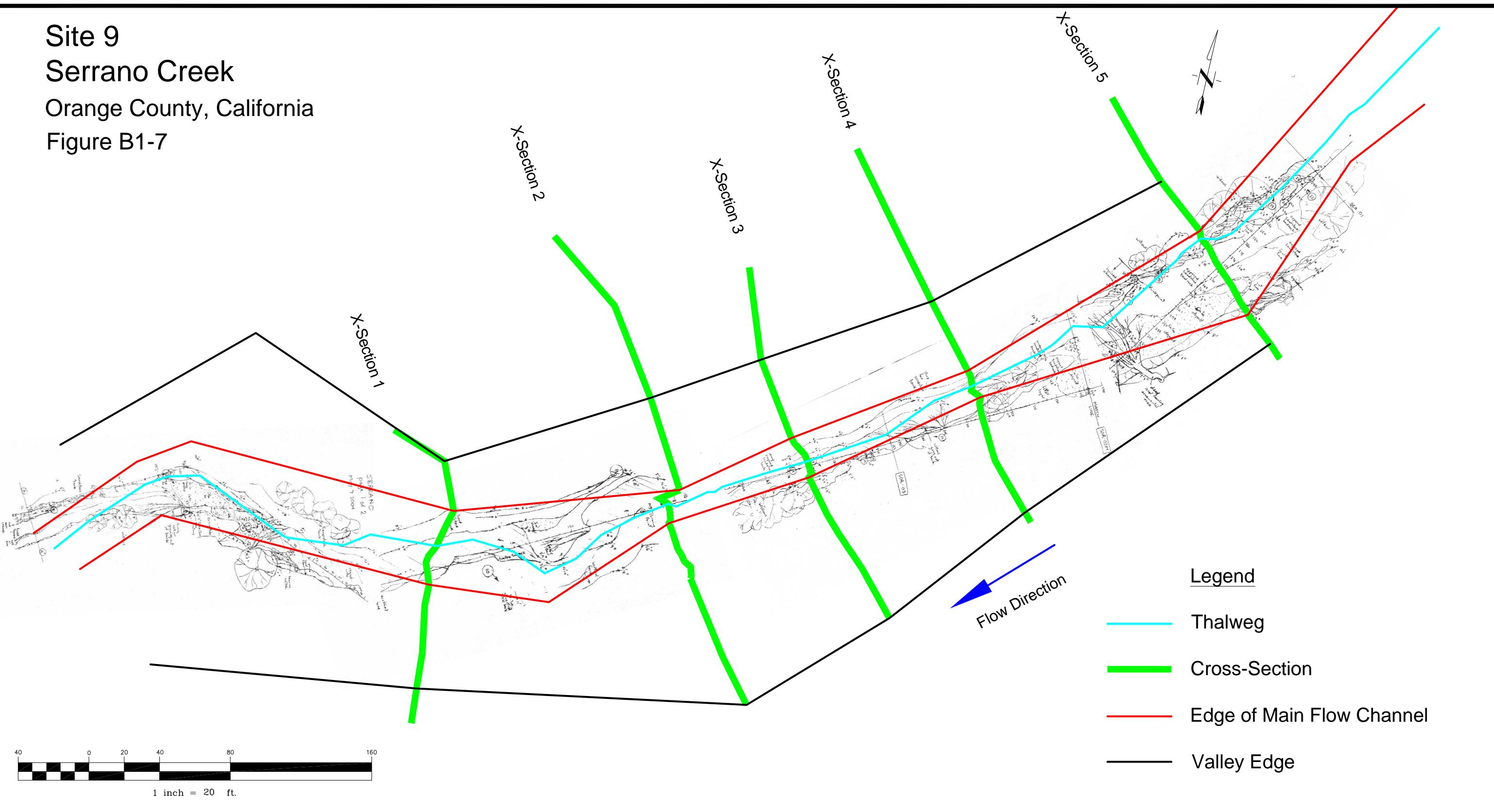
Site 7d  
Borrego Range 4D  
Orange County, California

Figure B1-6

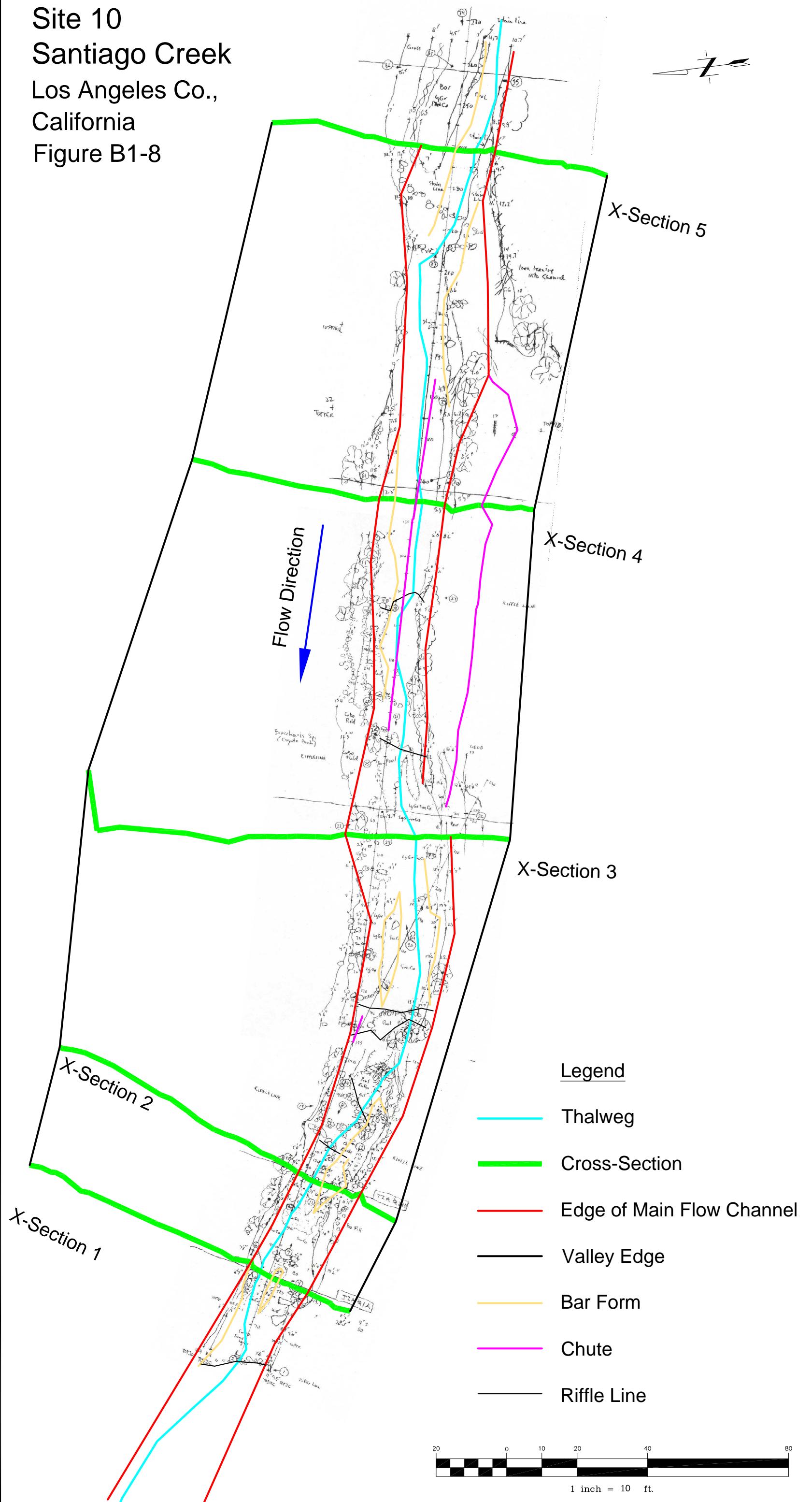
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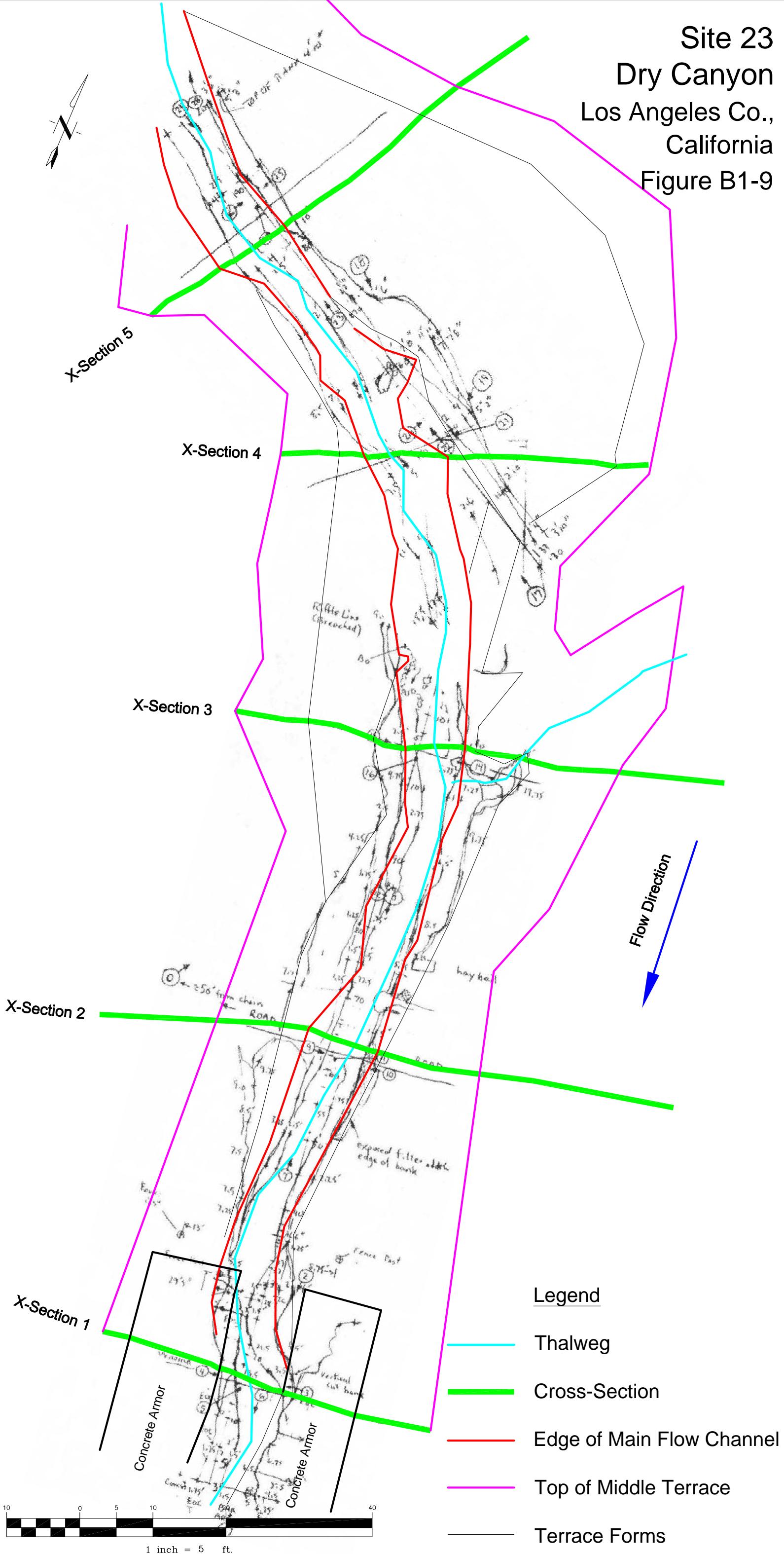
**Site 9**  
**Serrano Creek**  
Orange County, California  
Figure B1-7



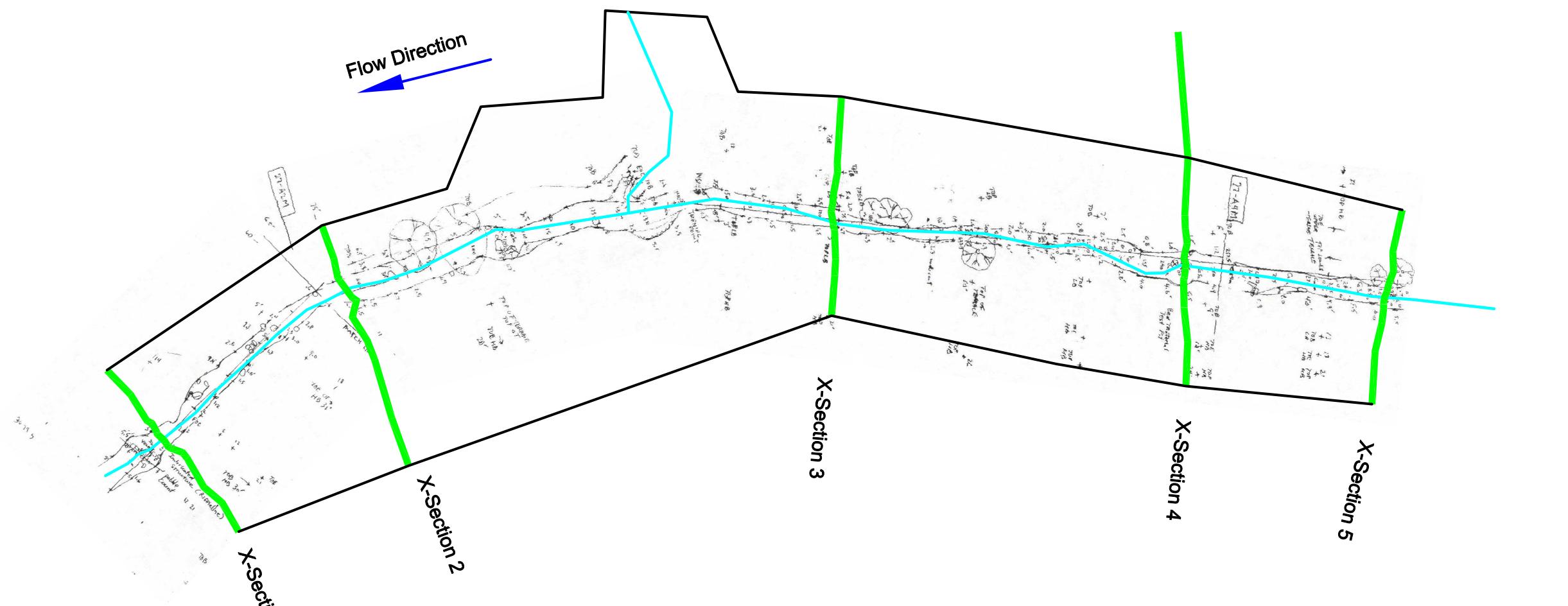
**Site 10**  
**Santiago Creek**  
**Los Angeles Co.,**  
**California**  
**Figure B1-8**

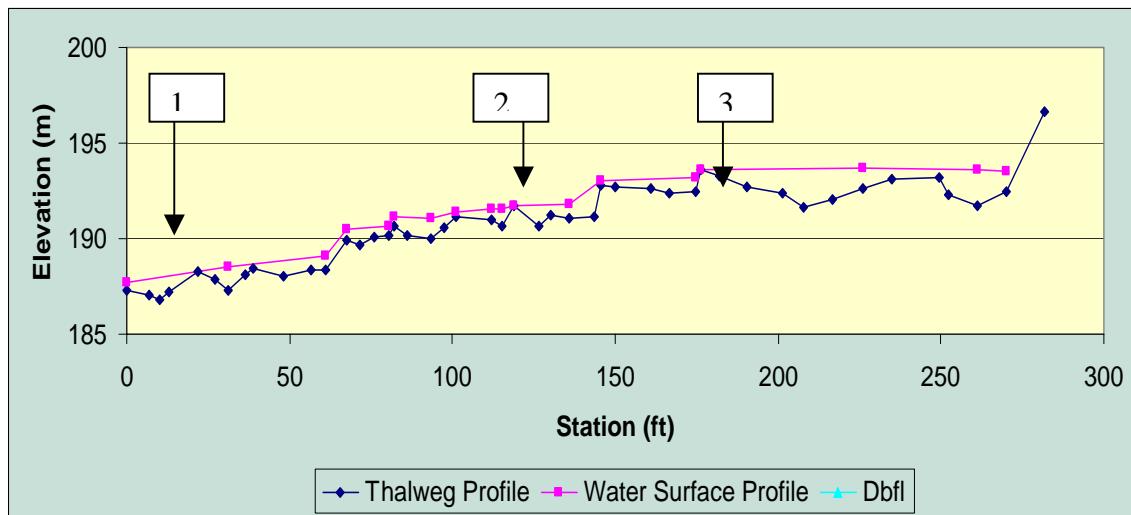


Site 23  
Dry Canyon  
Los Angeles Co.,  
California  
Figure B1-9

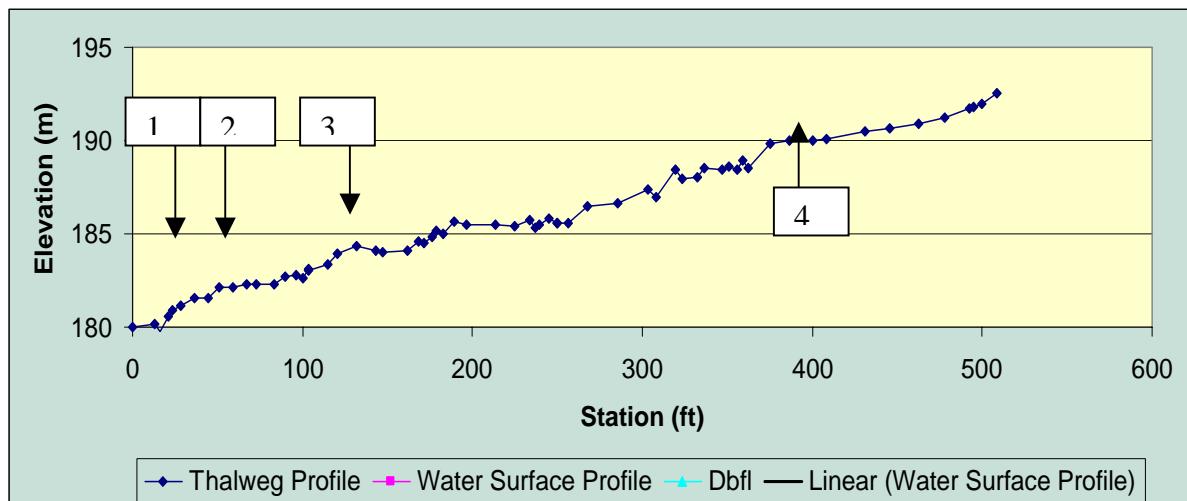


Site 27  
Hick's Canyon  
Orange County, California  
Figure B1-10

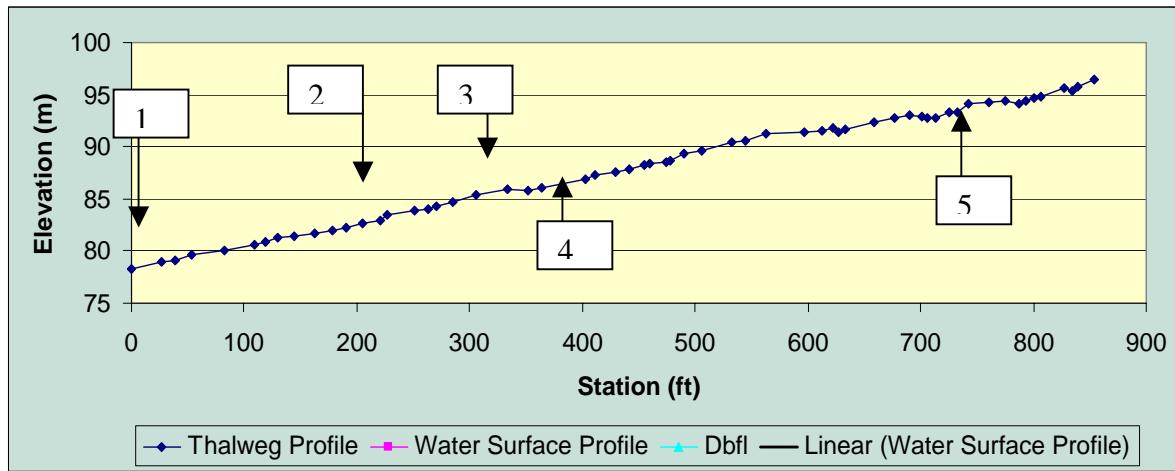




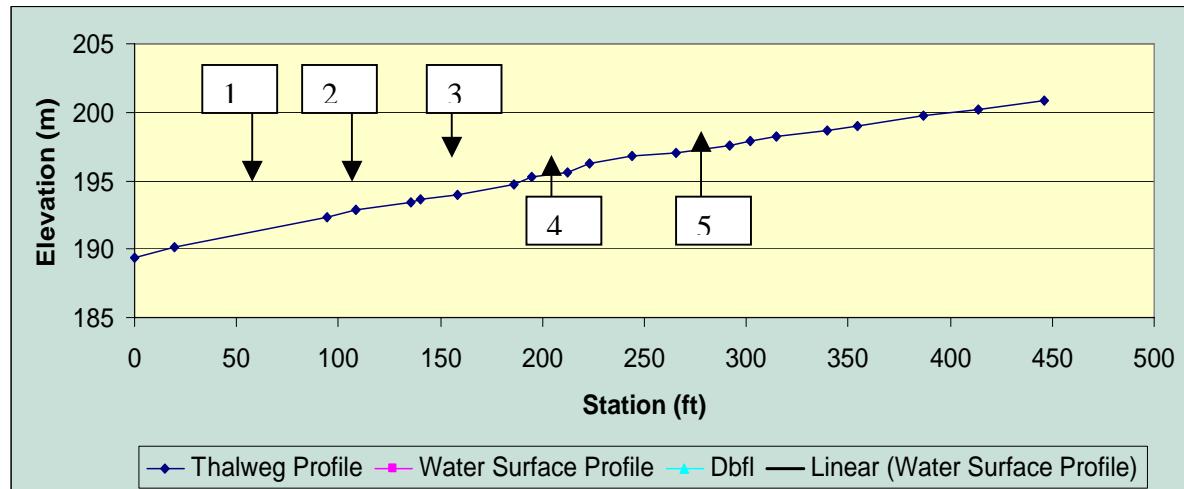
**Figure B1-11 Site 1 Topanga Creek Longitudinal Profile**



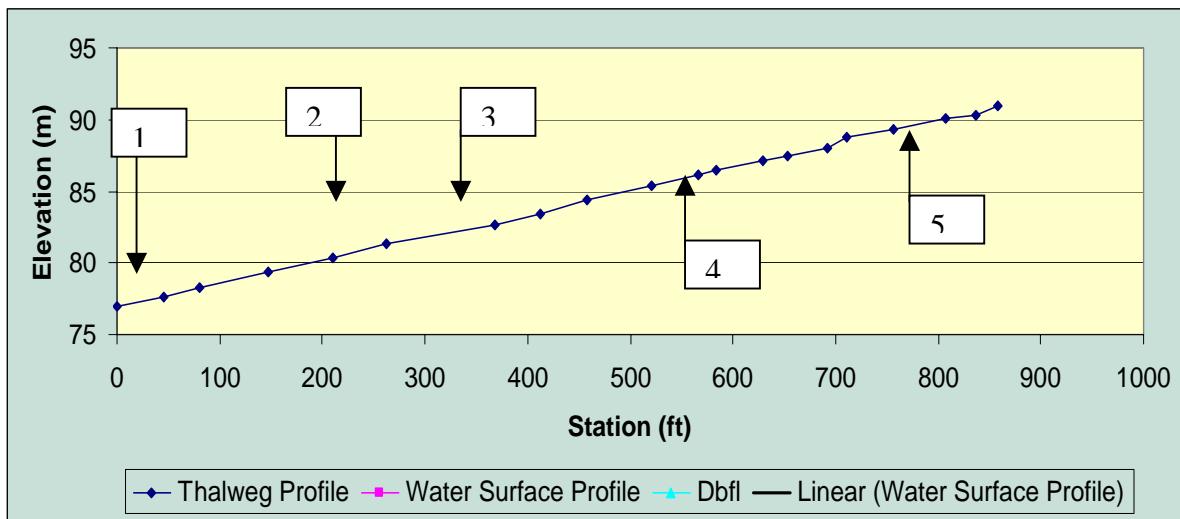
**Figure B1-12 Site 3 Hasley Canyon Longitudinal Profile**



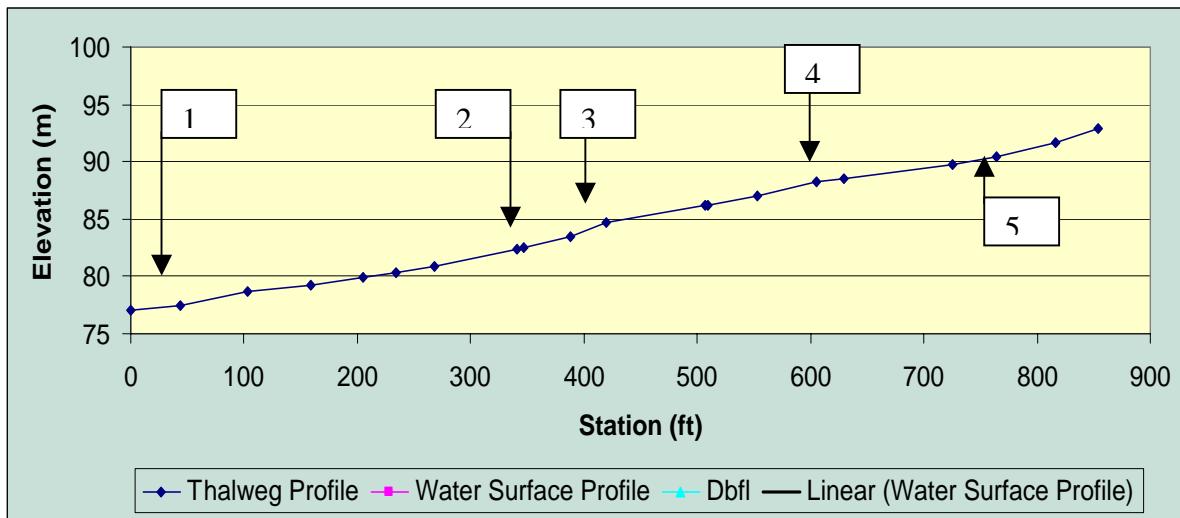
**Figure B1-13 Site 4u Plum Canyon Longitudinal Profile**



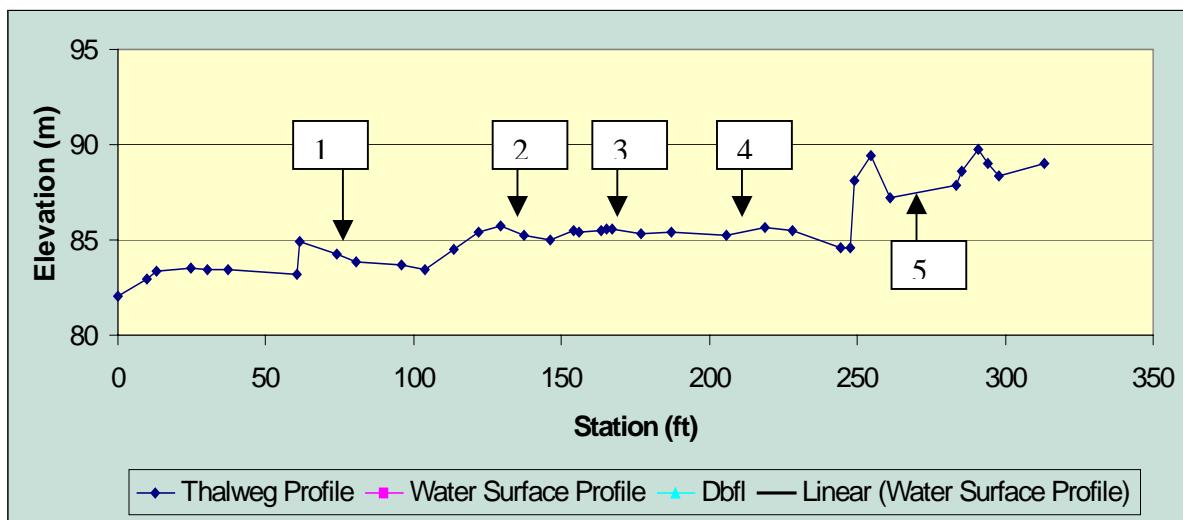
**Figure B1-14 Site 4d Plum Canyon Longitudinal Profile**



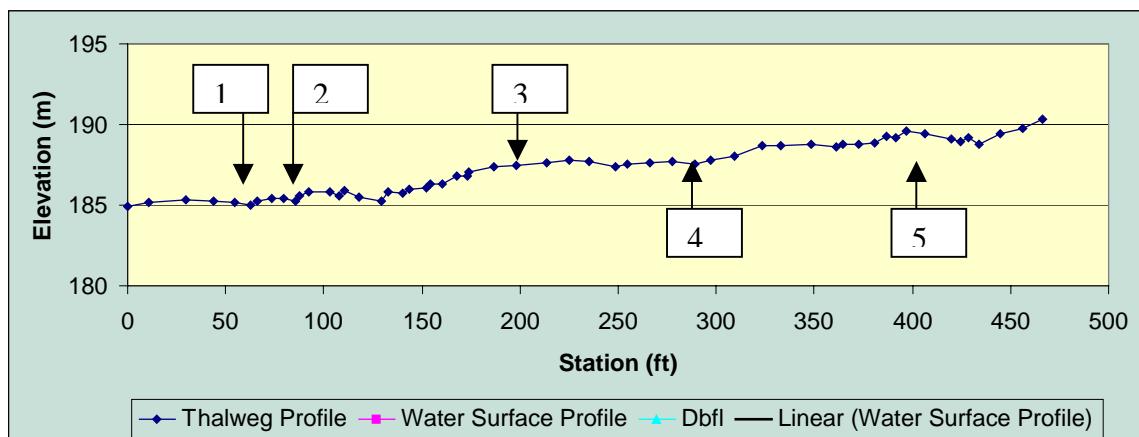
**Figure B1-15 Site 7u Borrego Canyon Longitudinal Profile**



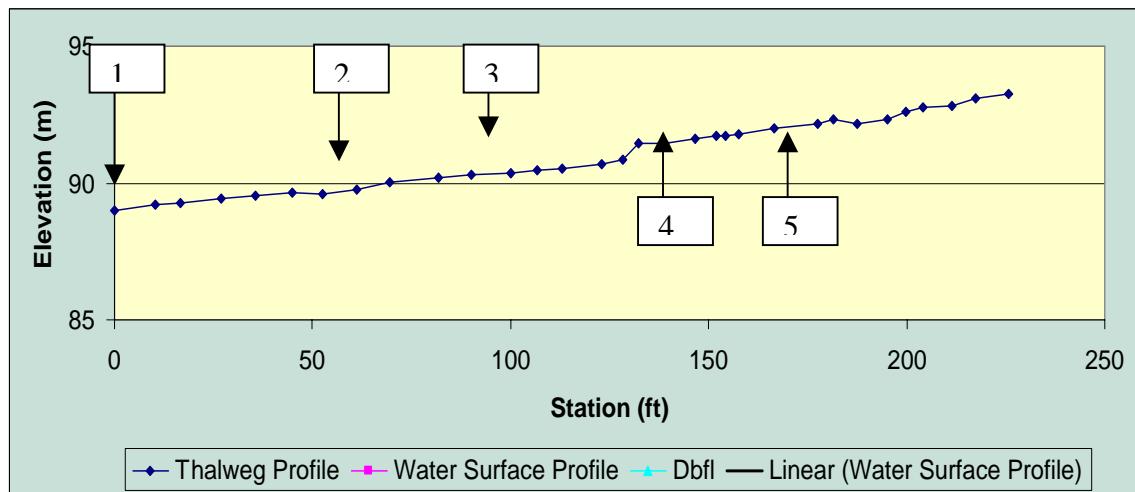
**Figure B1-16 Site 7d Borrego Canyon Longitudinal Profile**



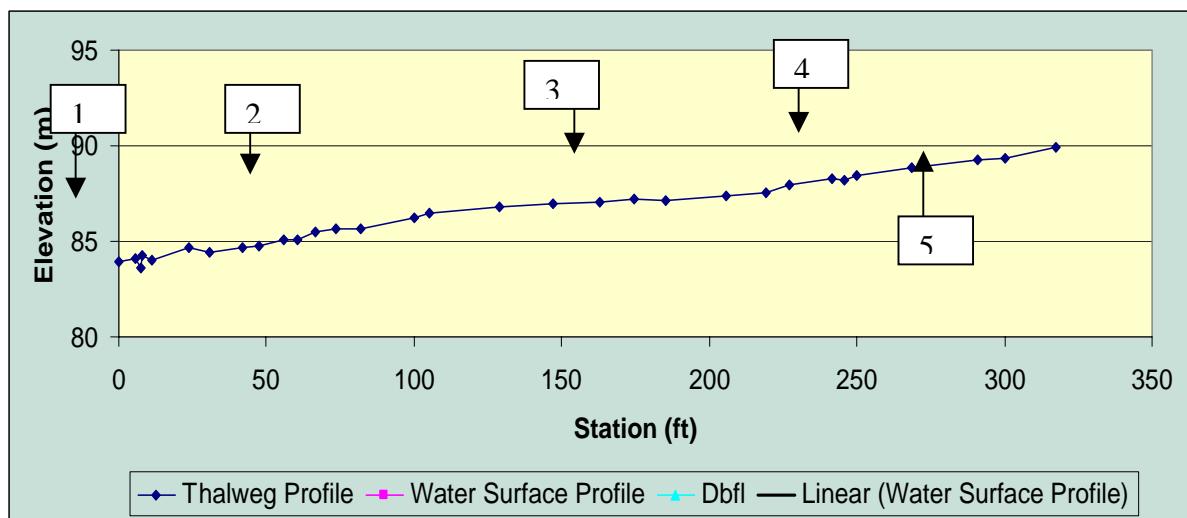
**Figure B1-17 Site 9 Serrano Creek Longitudinal Profile**



**Figure B1-18 Site 10 Santiago Creek Longitudinal Profile**



**Figure B1-19 Site 23 Dry Canyon Longitudinal Profile**



**Figure B1-20 Site 27 Hicks Canyon Longitudinal Profile**

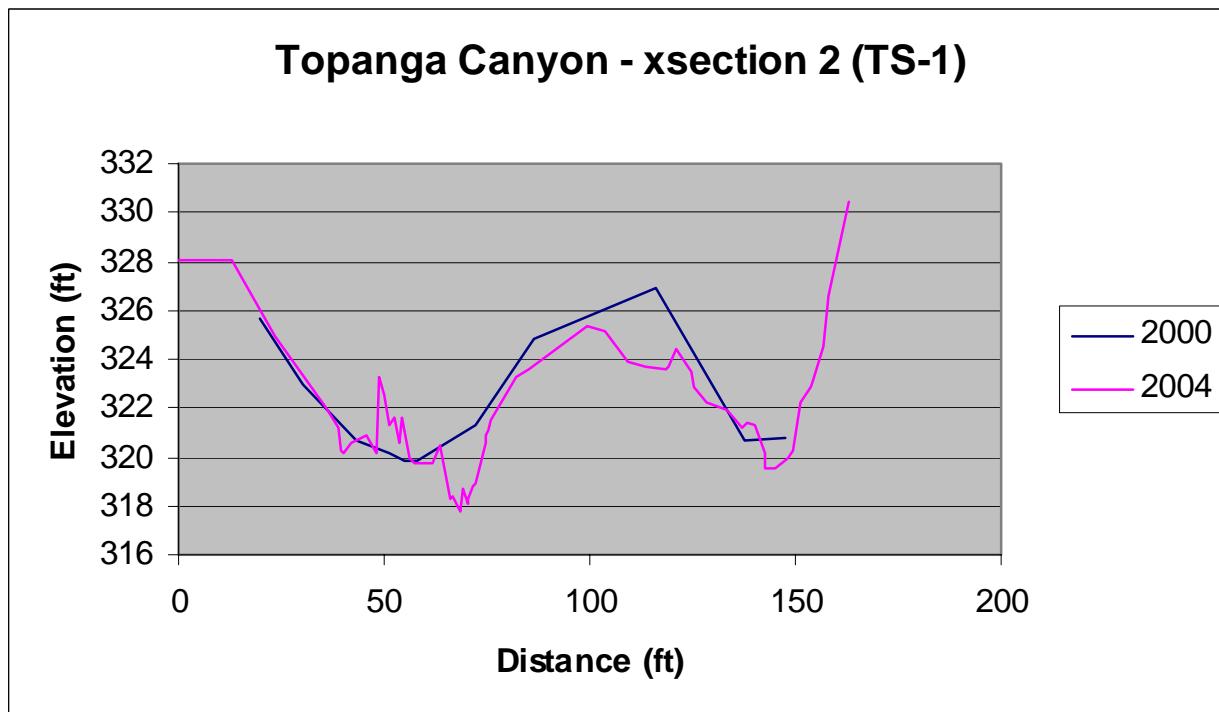


Figure B1-21 Site 1 Topanga Creek Cross Section History

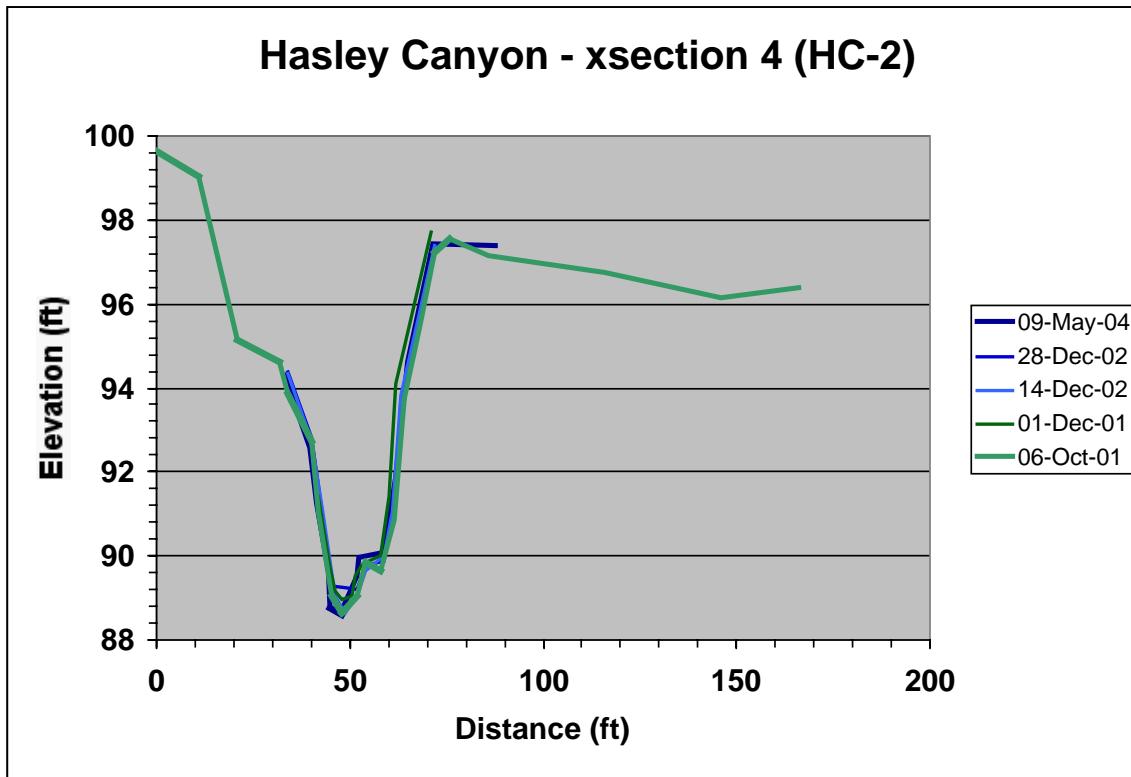


Figure B1-22 Site 3 Hasley Canyon Cross Section History

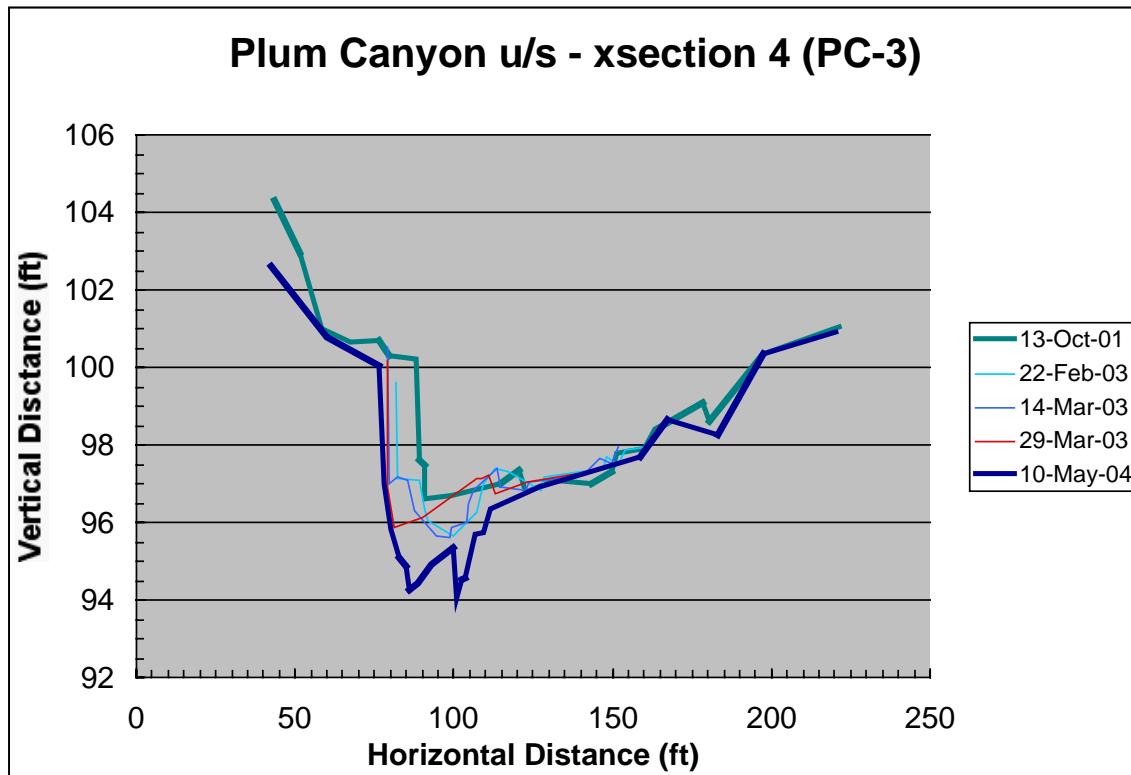


Figure B1-23 Site 4u Plum Canyon Cross Section History

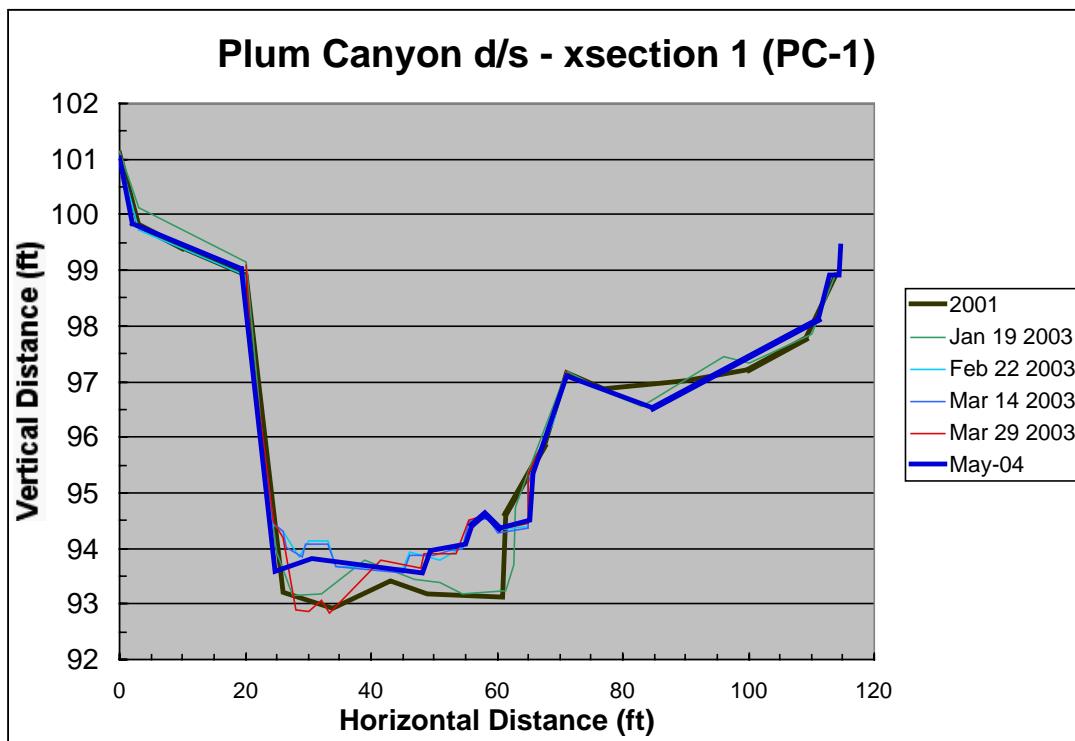
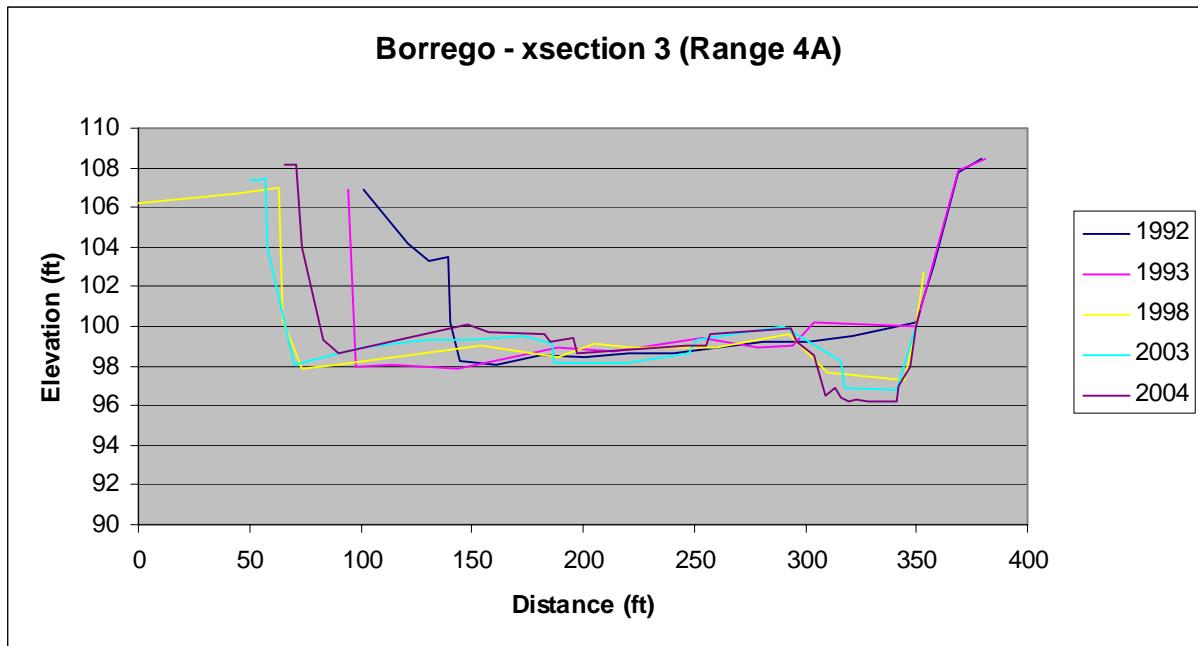
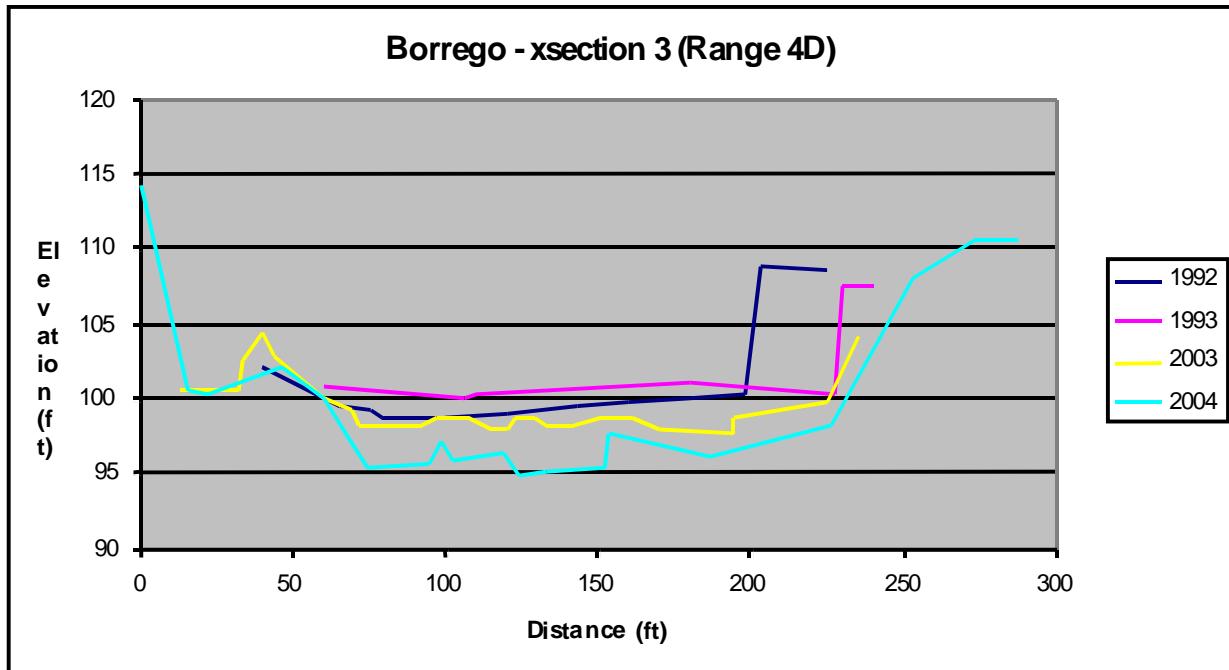


Figure B1-24 Site 4d Plum Canyon Cross Section History



**Figure B1-25 Site 7u Borrego Canyon Cross Section History**



**Figure B1-26 Site 7d Borrego Canyon Cross Section History**

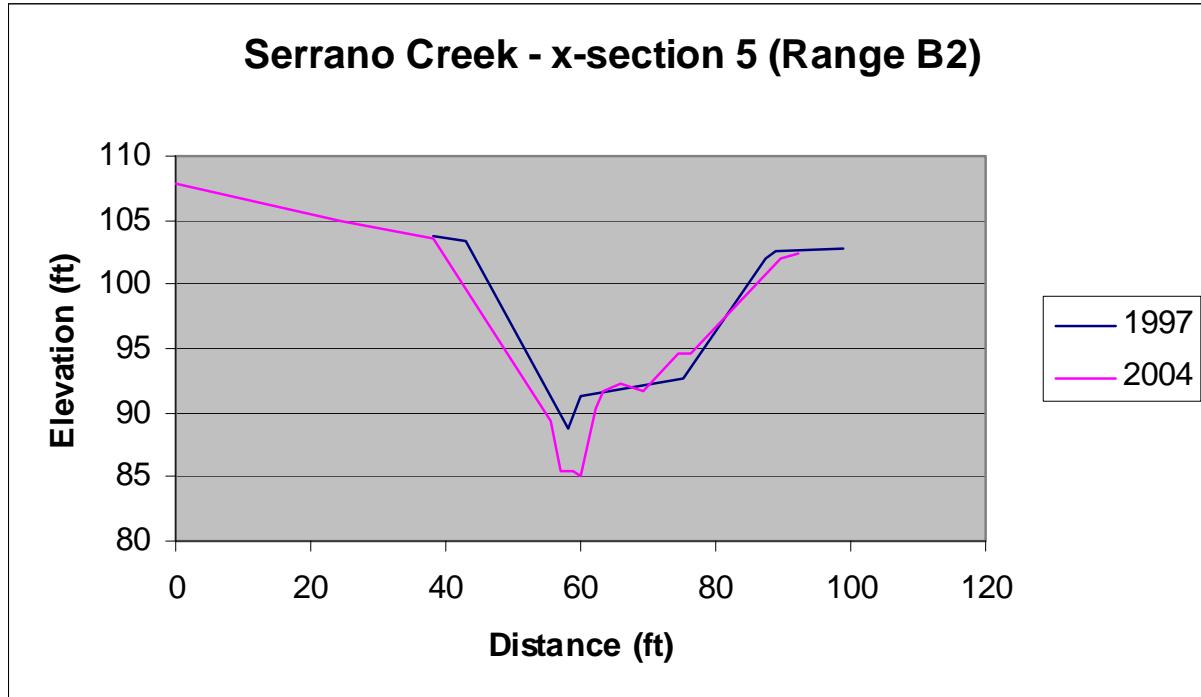


Figure B1-27a Site 9 Serrano Creek Cross Section History

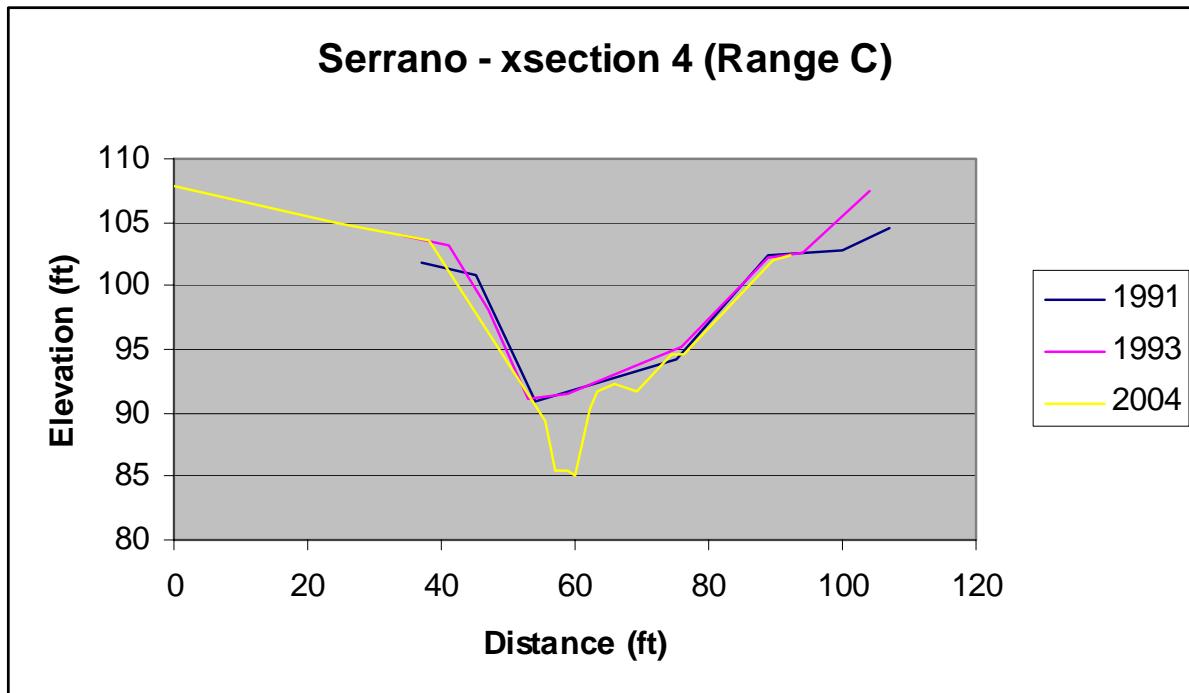


Figure B1-27b Site 9 Serrano Creek Cross Section History

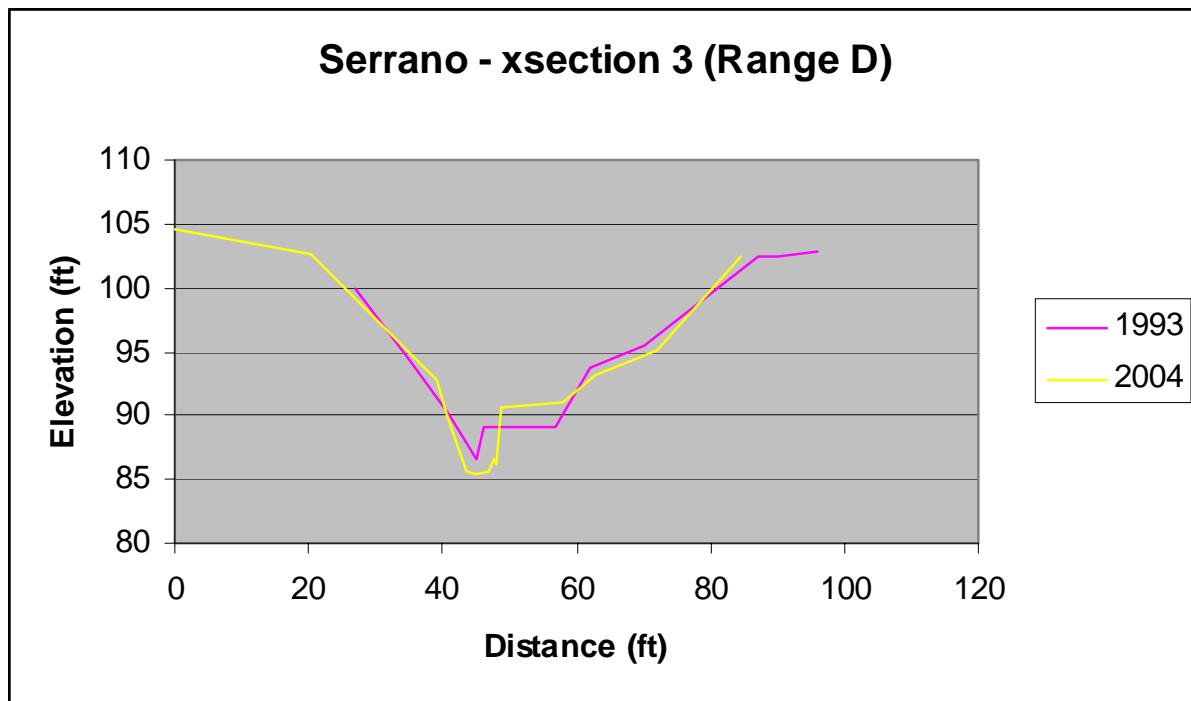


Figure B1-27c Site 9 Serrano Creek Cross Section History

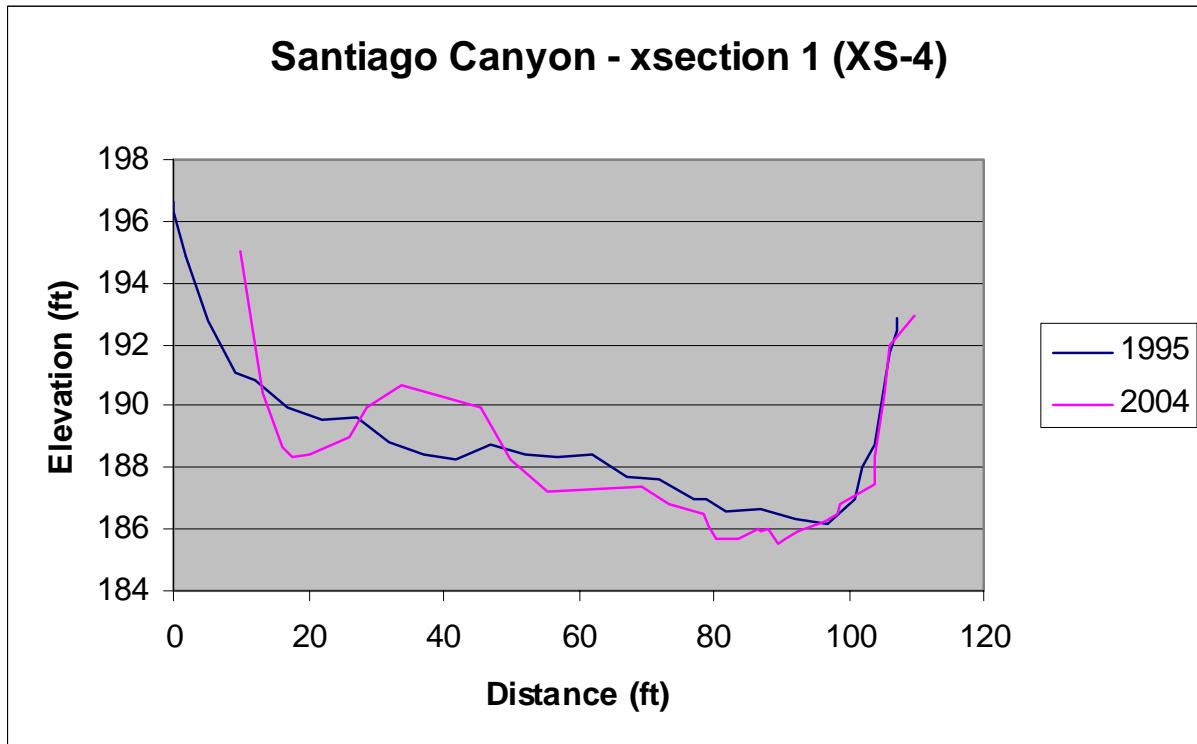


Figure B1-28a Site 10 Santiago Creek Cross Section History

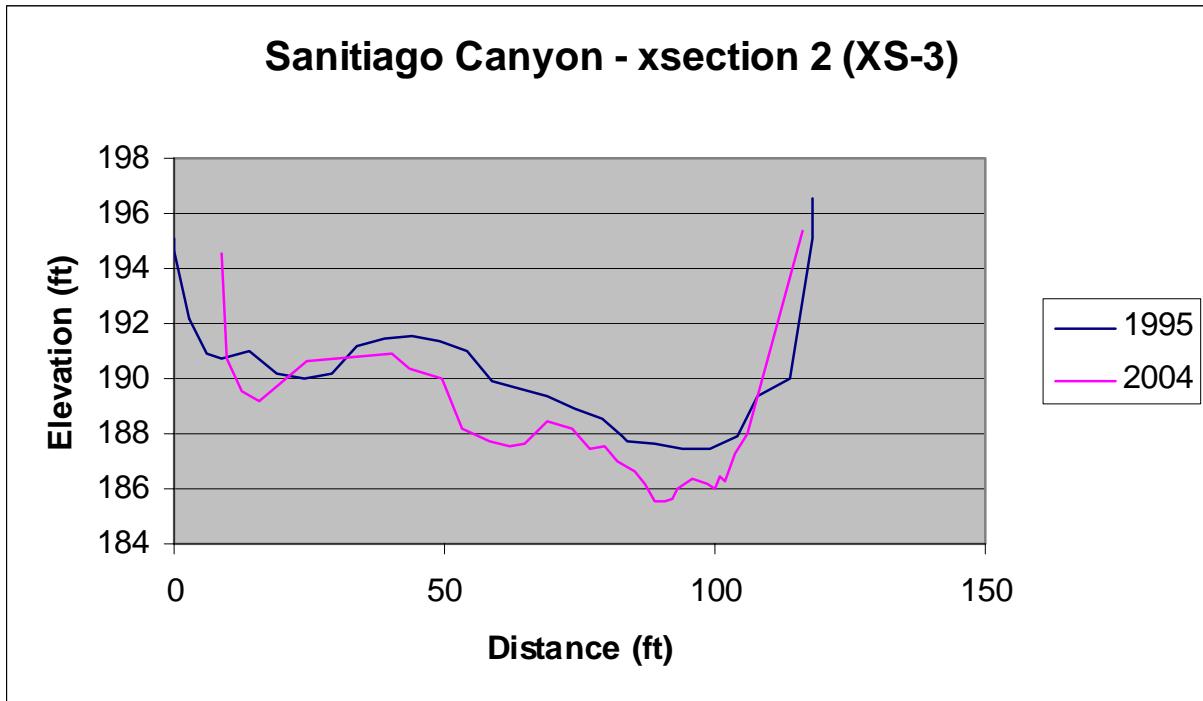


Figure B1-28b Site 10 Santiago Creek Cross Section History

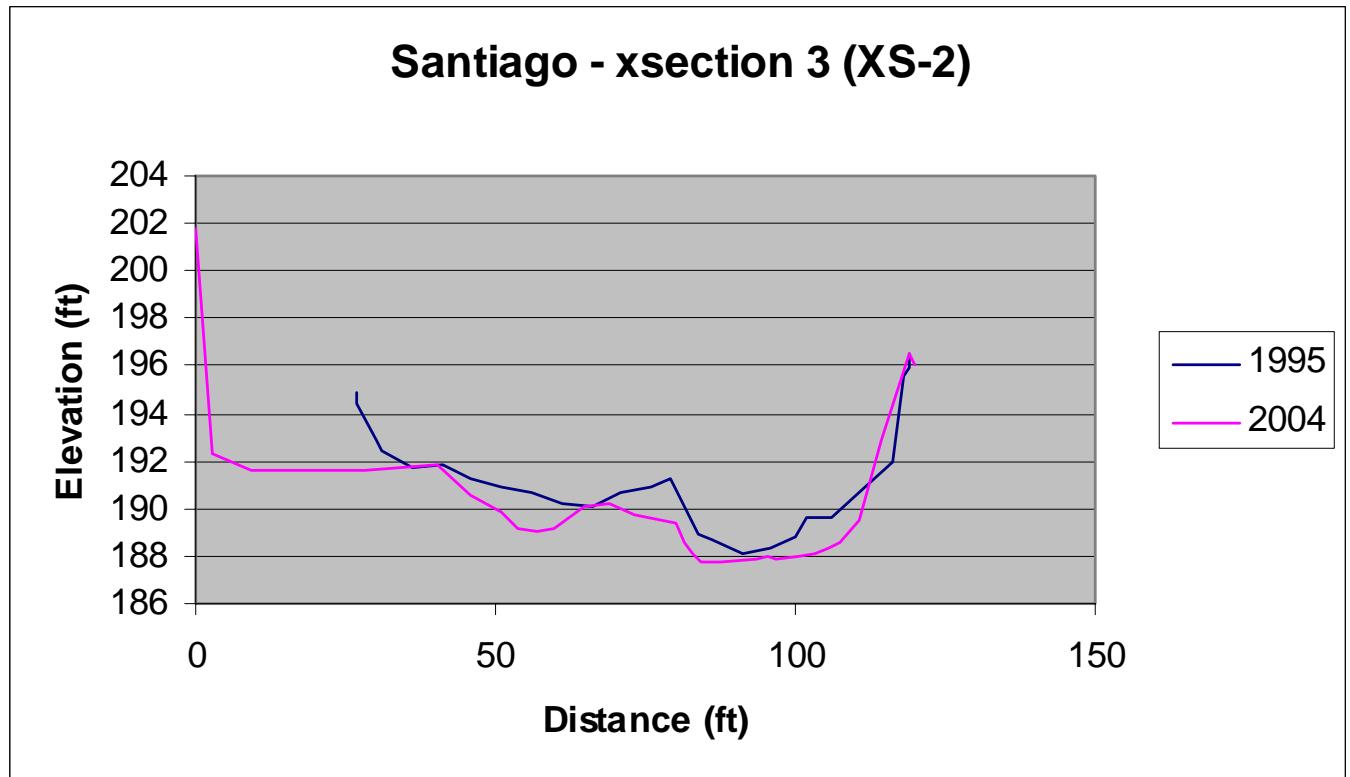


Figure B1-28c Site 10 Santiago Creek Cross Section History

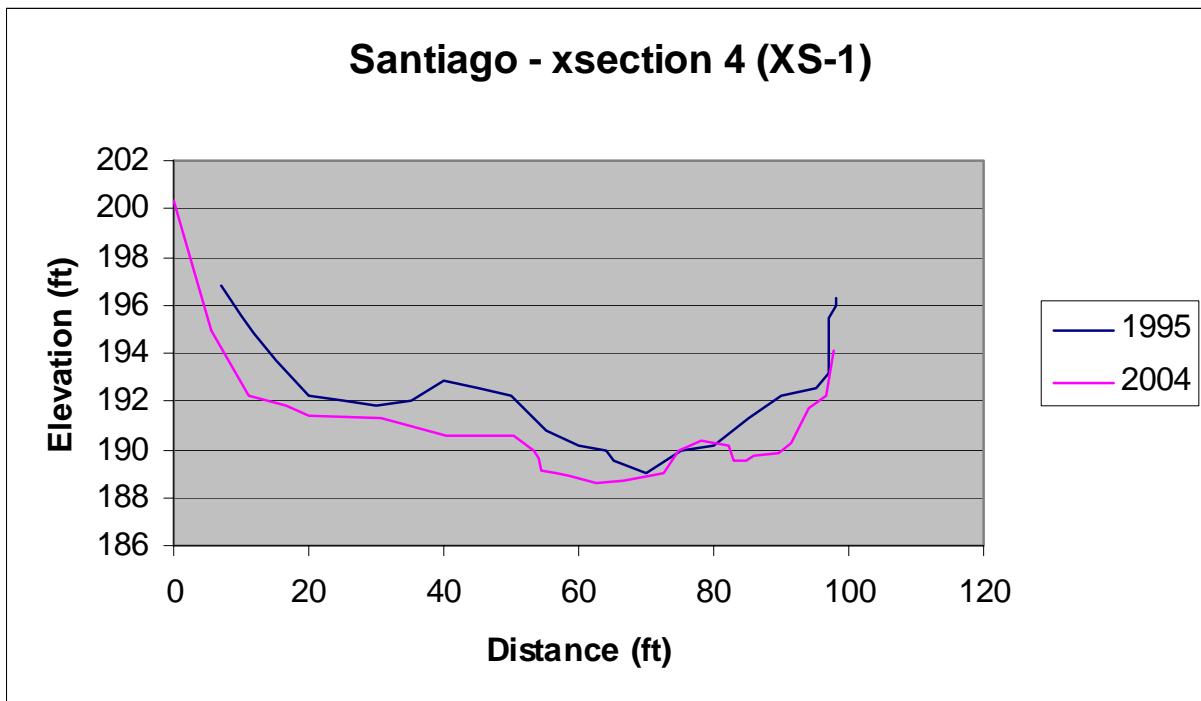


Figure B1-28d Site 10 Santiago Creek Cross Section History

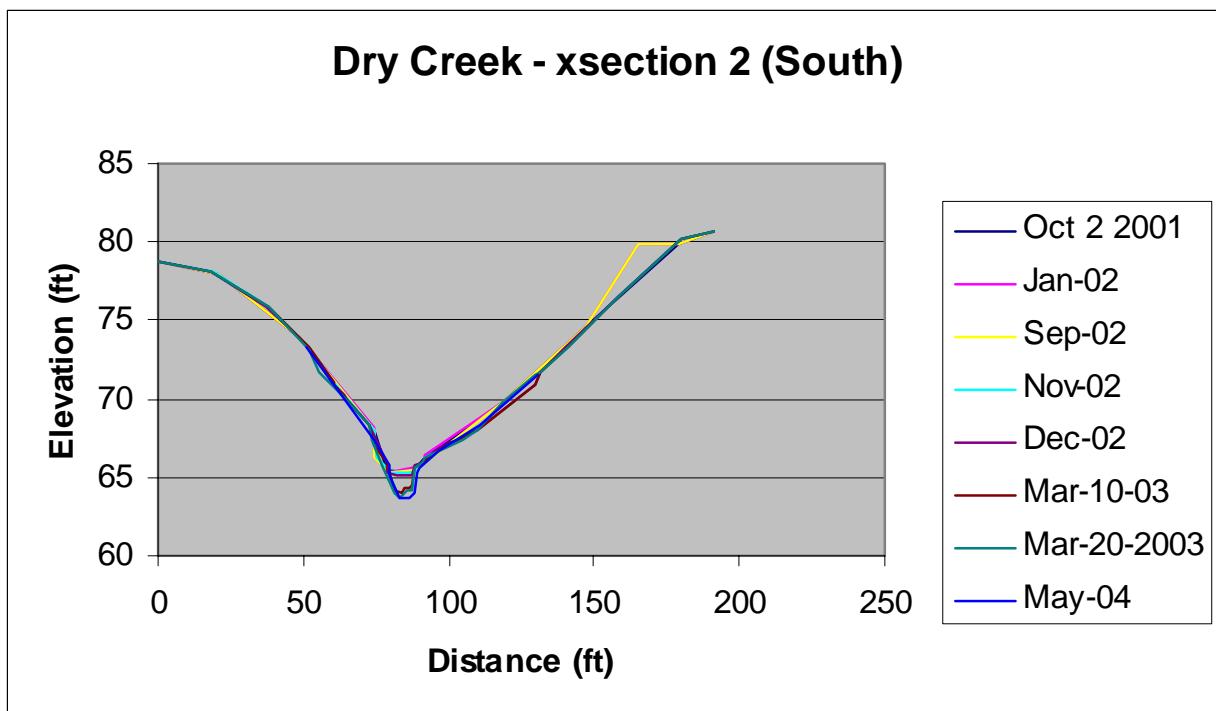


Figure B1-29a Site 23 Dry Canyon Cross Section History

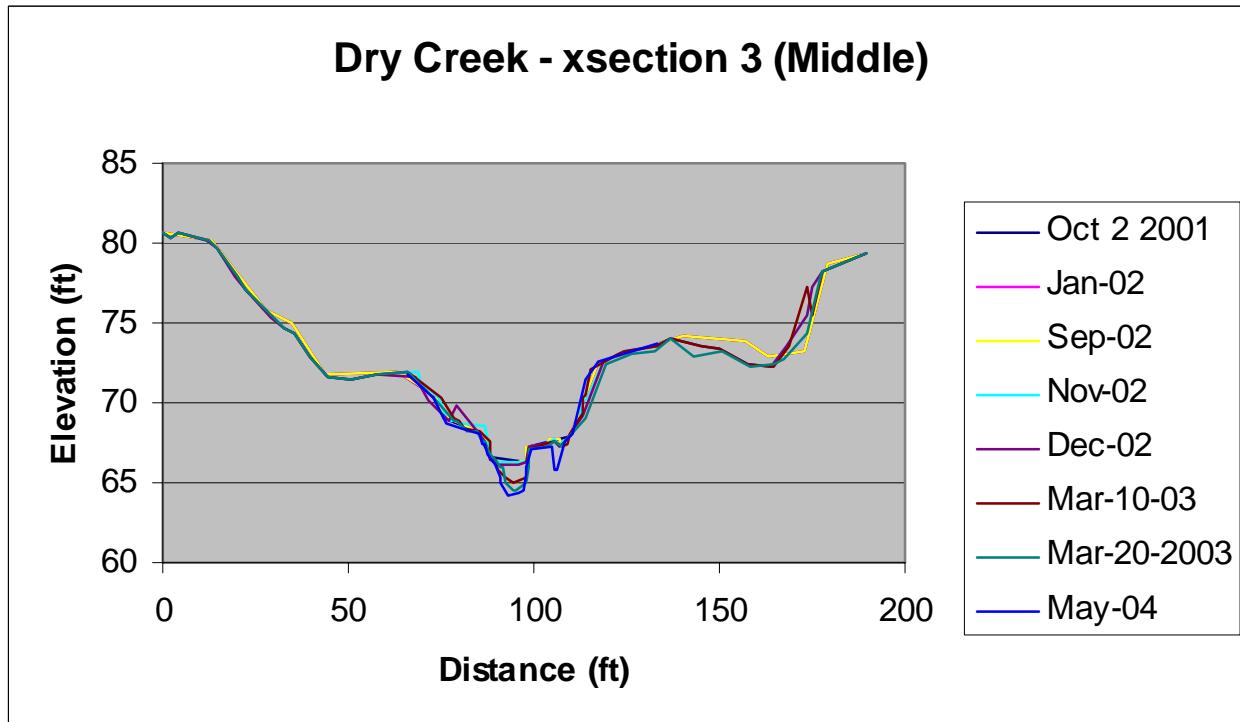


Figure B1-29b Site 23 Dry Canyon Cross Section History

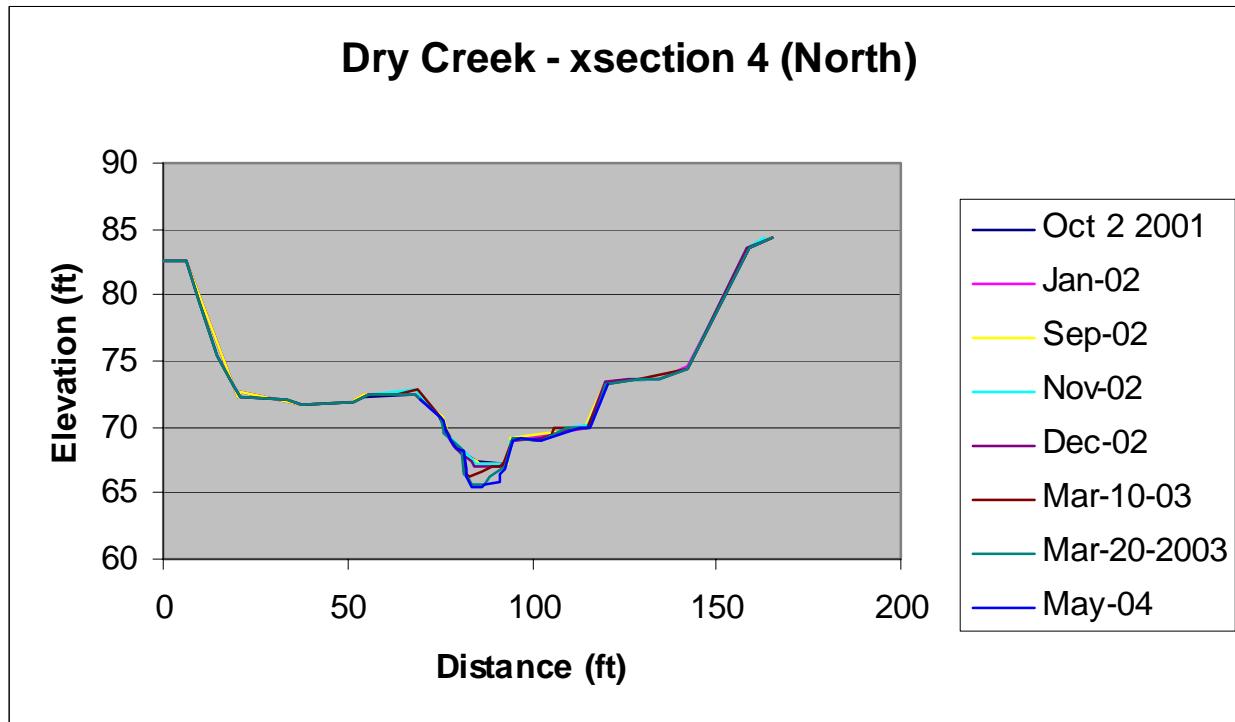
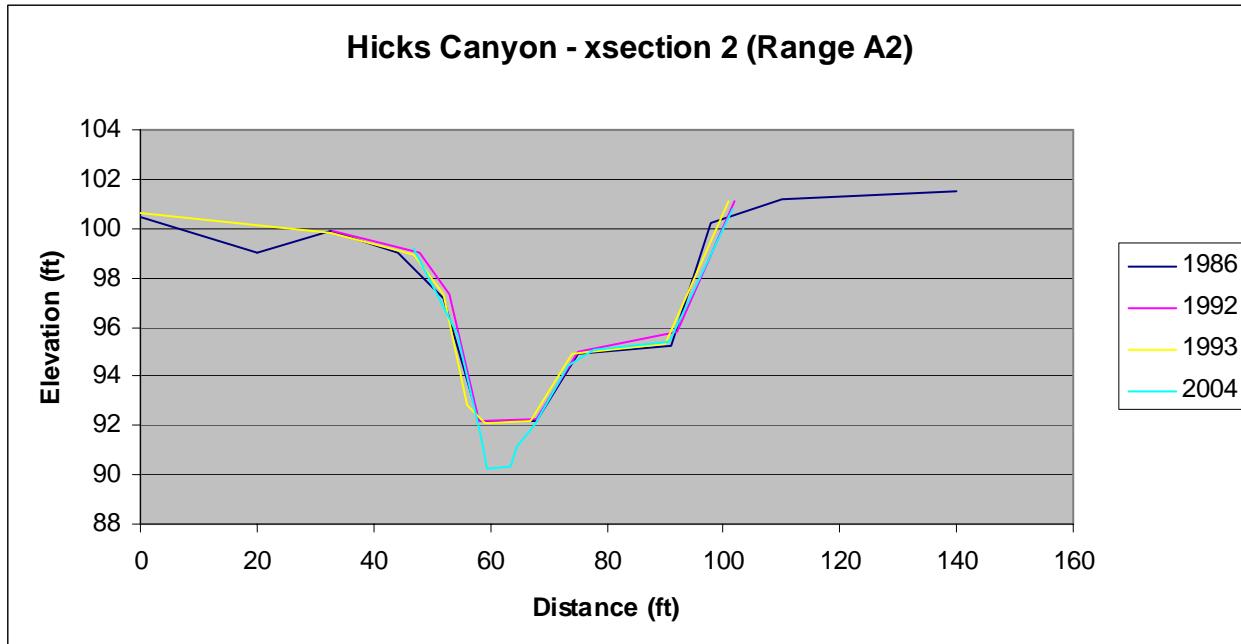
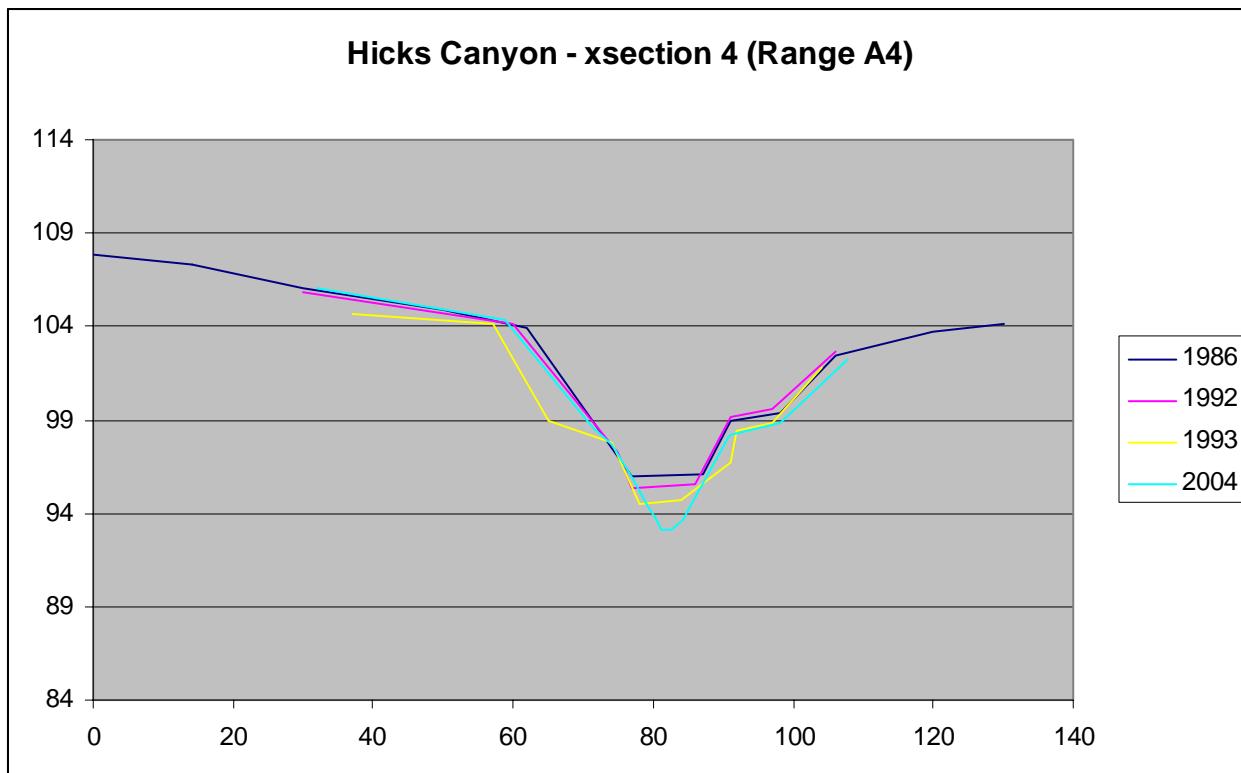


Figure B1-29c Site 23 Dry Canyon Cross Section History



**Figure B1-30a Site 27 Hicks Canyon Cross Section History**



**Figure B1-30b Site 27 Hicks Canyon Cross Section History**