

Current Downstream Model – 500 year storm event

Plan

Profile

Summary

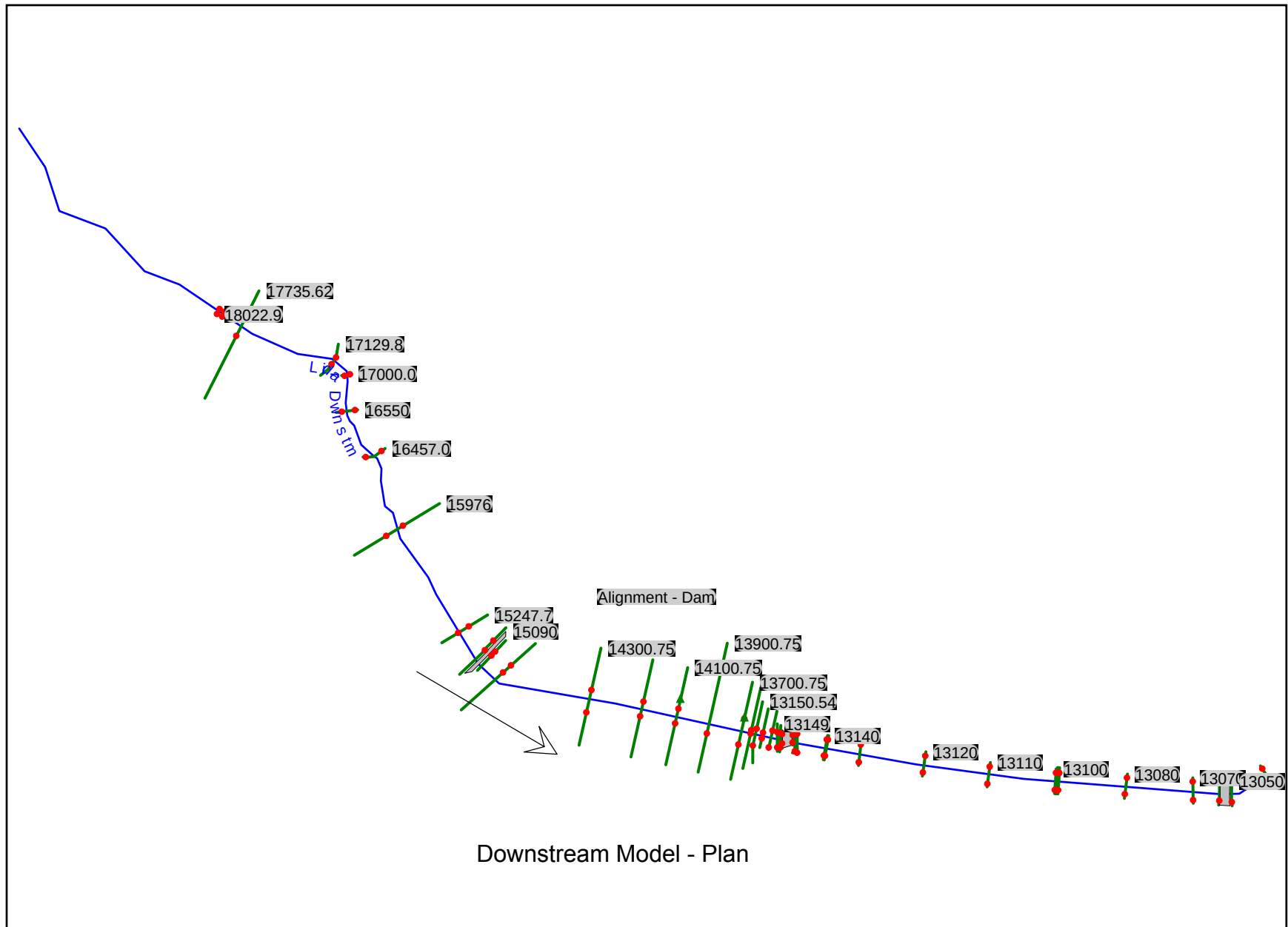
Cross Sections

Input/output Report

Hydraulics Model – HEC-RAS Analysis (CD)

Current Downstream Files

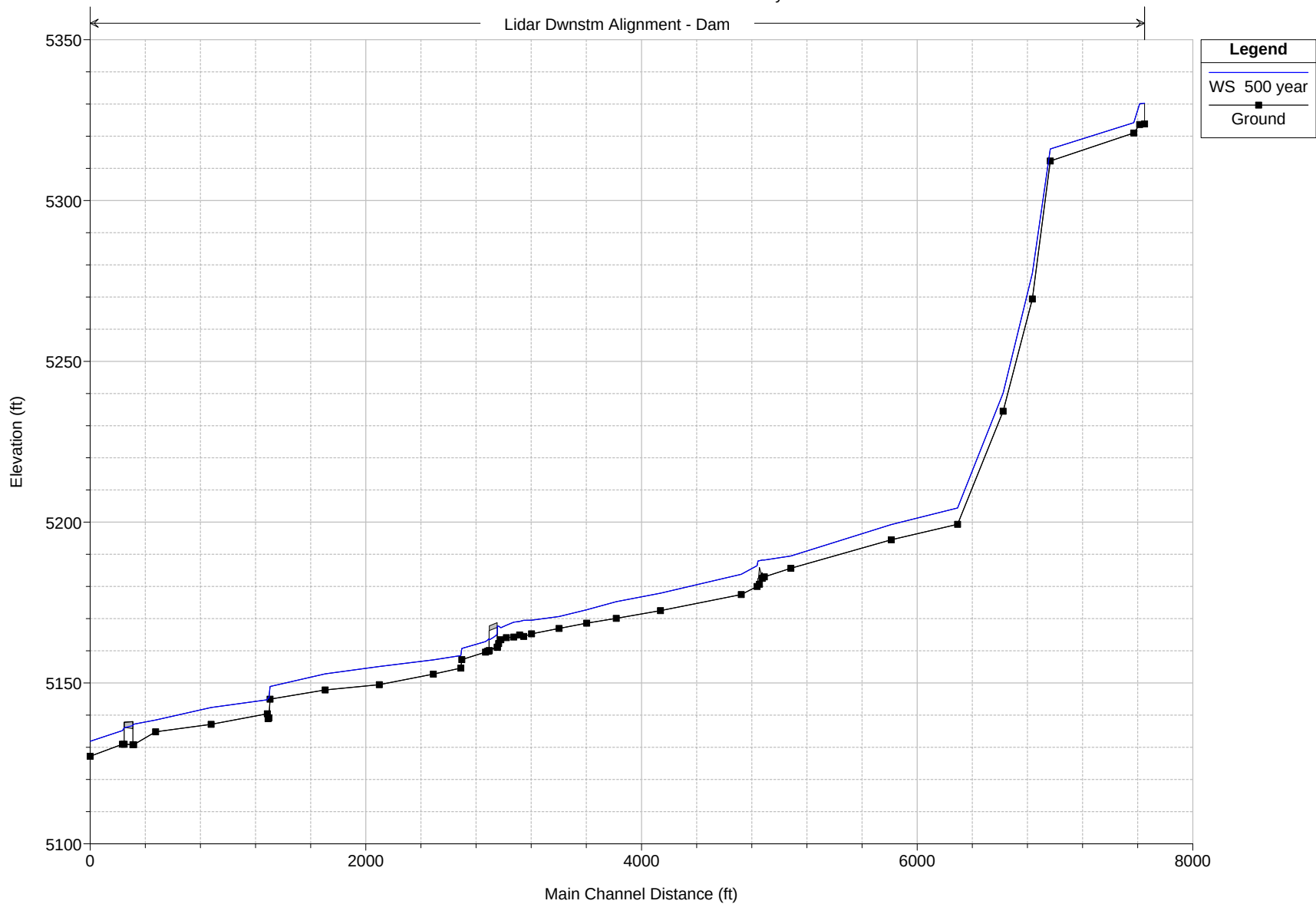
i.Project:	Boca Negra Arroyo– Current Downstream BNADwstn-.prj	
ii.Plan:	Current Downstream 2015-500 yr	BNADwstn-.p11
iii.Geometry:	Current Downstream 2015-500 yr	BNADwstn-.g09
iv.Flow:	Updated 2015 – Downstream 500 yr	BNADwstn-.f08



Boca Negra Arroyo-Current Downstream Plan: Current Downstream 2015-500 yr 1/7/2016

Geom: Current Downstream-500 yr

Lidar Dwnstm Alignment - Dam

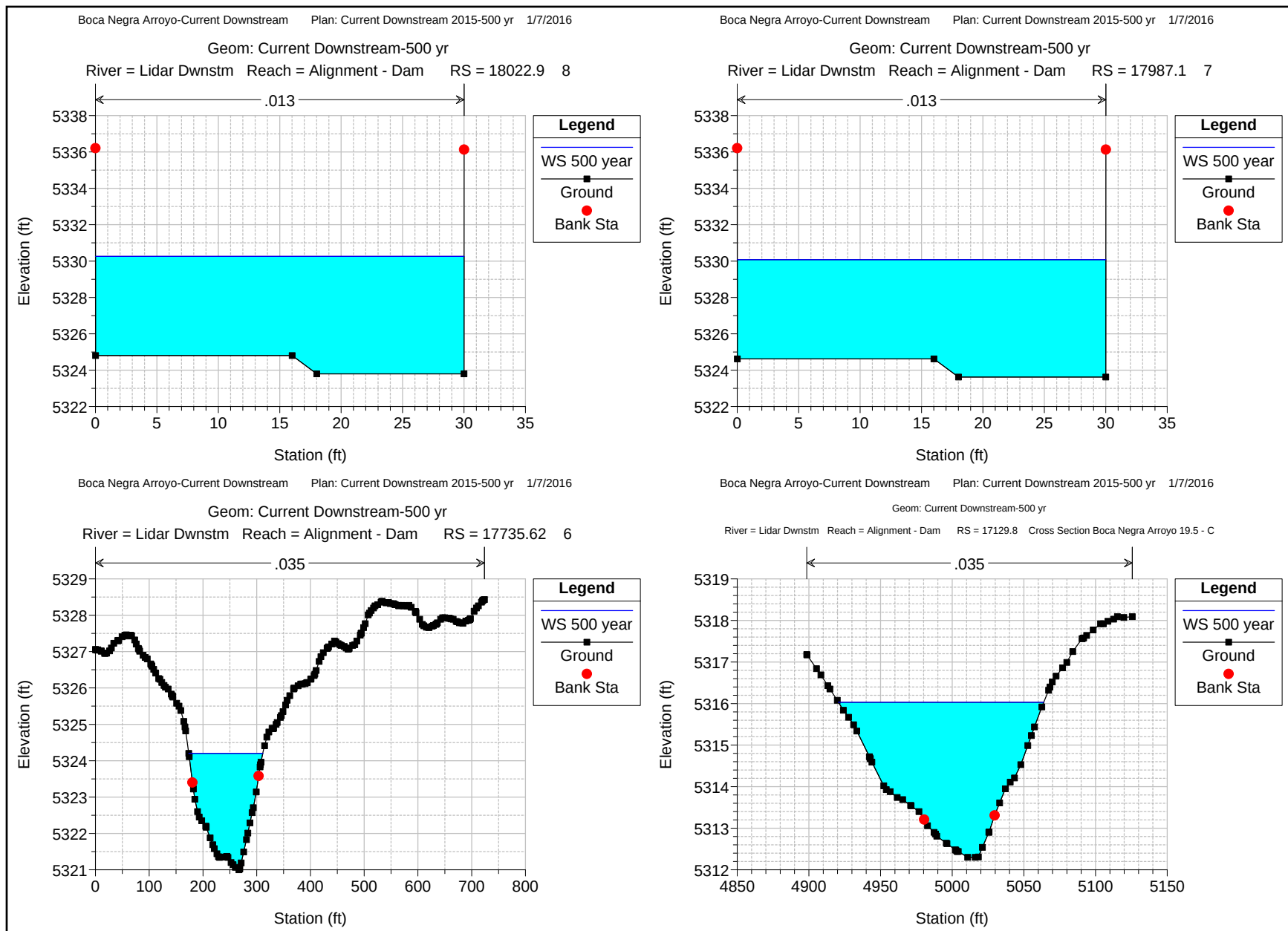


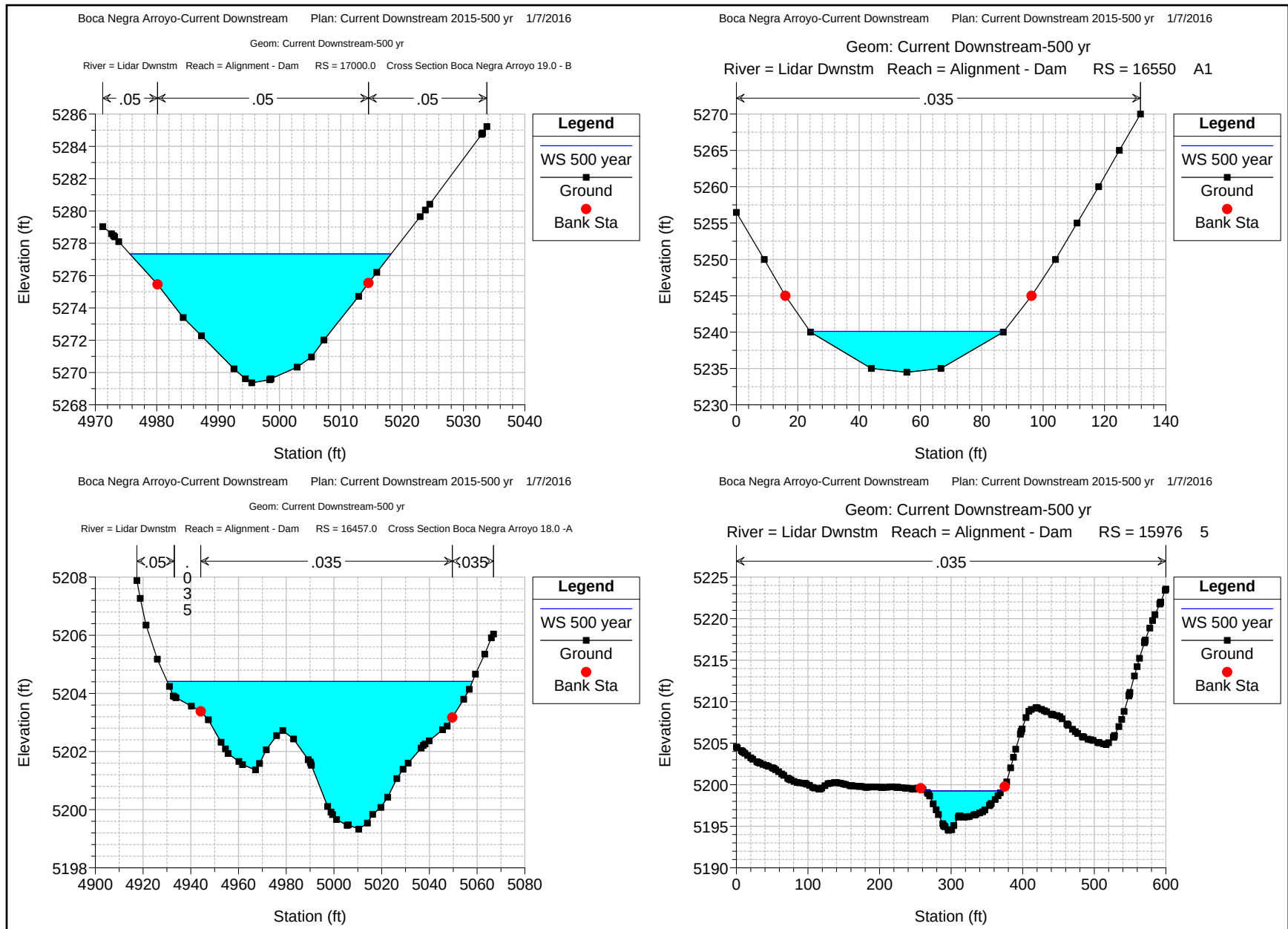
HEC-RAS Plan: 01 River: Lidar Dwnstm Reach: Alignment - Dam Profile: 500 year

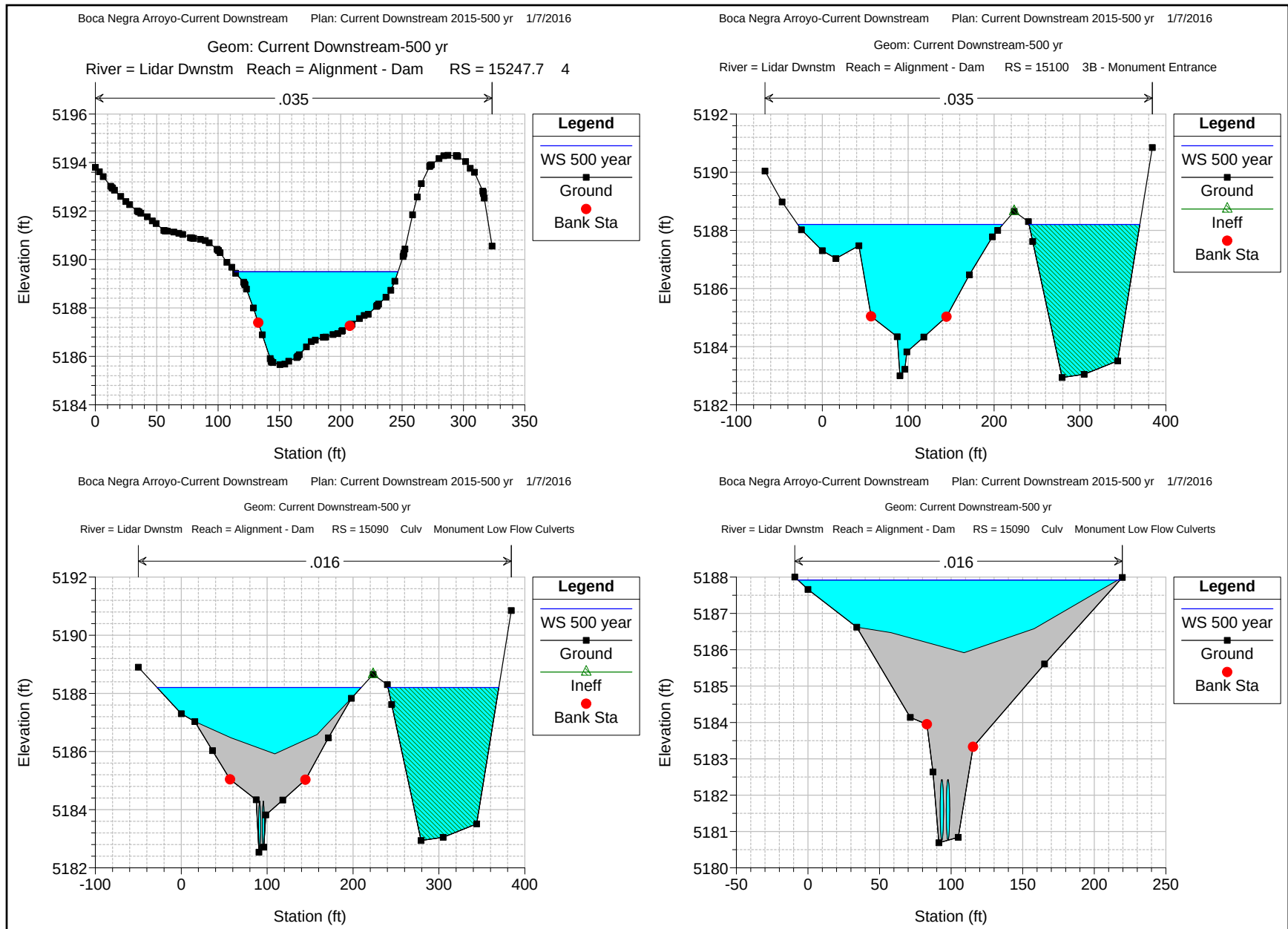
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Alignment - Dam	18022.9	500 year	2447.00	5323.80	5330.26	5330.26	5333.24	0.002172	13.85	176.66	30.00	1.01
Alignment - Dam	17987.1	500 year	2447.00	5323.62	5330.08	5330.08	5333.06	0.002171	13.85	176.69	30.00	1.01
Alignment - Dam	17735.62	500 year	2447.00	5321.00	5324.20	5324.20	5325.33	0.013209	8.54	290.28	138.08	0.99
Alignment - Dam	17129.8	500 year	2447.00	5312.30	5316.03	5316.03	5317.15	0.010146	9.64	312.98	143.16	0.92
Alignment - Dam	17000.0	500 year	2447.00	5269.36	5277.34	5277.34	5279.84	0.020737	12.76	197.08	42.58	0.96
Alignment - Dam	16550	500 year	2447.00	5234.48	5240.12	5240.12	5241.92	0.012036	10.77	227.12	63.24	1.00
Alignment - Dam	16457.0	500 year	2447.00	5199.33	5204.41	5204.05	5205.31	0.007711	7.67	328.31	127.93	0.78
Alignment - Dam	15976	500 year	2447.00	5194.51	5199.25	5199.25	5200.52	0.013193	9.03	271.13	107.04	1.00
Alignment - Dam	15247.7	500 year	2447.00	5185.66	5189.49	5189.49	5190.65	0.010428	9.12	299.95	133.00	0.92
Alignment - Dam	15100	500 year	2447.00	5183.00	5188.20	5187.22	5188.65	0.003157	5.82	515.81	367.70	0.52
Alignment - Dam	15090		Culvert									
Alignment - Dam	15080	500 year	2447.00	5180.00	5186.45	5186.45	5187.63	0.007152	10.17	332.81	145.80	0.81
Alignment - Dam	14886.4	500 year	2867.00	5177.49	5183.78	5183.78	5185.14	0.007291	9.60	336.21	180.36	0.81
Alignment - Dam	14300.75	500 year	2919.00	5172.48	5177.91		5178.48	0.004223	6.14	514.77	256.74	0.59
Alignment - Dam	14200	500 year	2919.00	5170.08	5175.28	5175.28	5176.47	0.009466	9.06	357.83	184.91	0.88
Alignment - Dam	14100.75	500 year	2928.00	5168.60	5172.77	5172.77	5173.54	0.008039	7.88	475.06	288.06	0.80
Alignment - Dam	13900.75	500 year	2928.00	5166.95	5170.64		5170.91	0.004665	4.18	702.89	416.83	0.56
Alignment - Dam	13700.75	500 year	2928.00	5165.29	5169.50	5169.01	5169.96	0.004644	5.74	587.79	343.29	0.60
Alignment - Dam	13150.55	500 year	2928.00	5164.49	5169.49		5169.72	0.002246	5.59	820.15	365.40	0.46
Alignment - Dam	13150.54	500 year	2928.00	5164.94	5169.14		5169.61	0.003398	6.00	612.35	314.31	0.54
Alignment - Dam	13150	500 year	2928.00	5164.30	5168.91	5168.02	5169.45	0.003731	6.88	536.98	197.75	0.58
Alignment - Dam	13149.5	500 year	2928.00	5164.10	5167.94	5167.94	5169.09	0.009688	8.76	361.09	173.71	0.88
Alignment - Dam	13149	500 year	2928.00	5163.46	5167.17	5167.17	5168.83	0.001697	10.33	283.32	85.45	1.00
Alignment - Dam	13148.5	500 year	2928.00	5162.28	5167.66		5168.45	0.000521	7.13	411.21	90.49	0.58
Alignment - Dam	13148	500 year	2928.00	5161.09	5167.71	5165.11	5168.39	0.000342	6.58	445.01	69.82	0.46
Alignment - Dam	13146		Culvert									
Alignment - Dam	13145	500 year	2928.00	5159.94	5163.75	5163.75	5165.61	0.001825	10.95	267.31	72.70	1.01
Alignment - Dam	13144	500 year	2928.00	5159.86	5163.33	5163.33	5164.93	0.010234	10.15	288.57	91.14	1.00
Alignment - Dam	13143	500 year	2928.00	5159.58	5162.87	5162.87	5164.39	0.010830	9.89	296.03	98.26	1.00
Alignment - Dam	13140	500 year	2928.00	5157.25	5160.75	5160.75	5162.35	0.012641	10.16	288.27	91.08	1.01
Alignment - Dam	13135	500 year	2928.00	5154.62	5158.54		5159.83	0.008694	9.13	320.70	88.67	0.85
Alignment - Dam	13130	500 year	2928.00	5152.76	5157.17		5158.25	0.006749	8.33	351.56	93.69	0.76
Alignment - Dam	13120	500 year	2928.00	5149.46	5155.11		5155.97	0.004796	7.45	393.22	96.09	0.65
Alignment - Dam	13110	500 year	2935.00	5147.82	5152.83	5151.98	5153.85	0.005988	8.10	362.32	92.00	0.72
Alignment - Dam	13100	500 year	2935.00	5144.96	5148.89	5148.89	5150.45	0.012462	10.02	292.81	94.18	1.00
Alignment - Dam	13095	500 year	2935.00	5139.15	5145.29		5146.03	0.003257	6.92	424.23	85.03	0.55
Alignment - Dam	13093	500 year	2935.00	5138.89	5145.45		5145.94	0.001809	5.62	522.51	91.03	0.41
Alignment - Dam	13090	500 year	2935.00	5140.41	5144.79		5145.87	0.006281	8.33	352.46	87.78	0.73
Alignment - Dam	13080	500 year	2935.00	5137.16	5142.36	5141.48	5143.36	0.005904	8.02	365.88	93.51	0.71
Alignment - Dam	13070	500 year	2936.00	5134.83	5138.46	5138.46	5139.97	0.012538	9.85	297.98	98.77	1.00
Alignment - Dam	13060	500 year	2936.00	5130.80	5137.17	5134.59	5137.59	0.002306	5.25	559.59	108.66	0.41

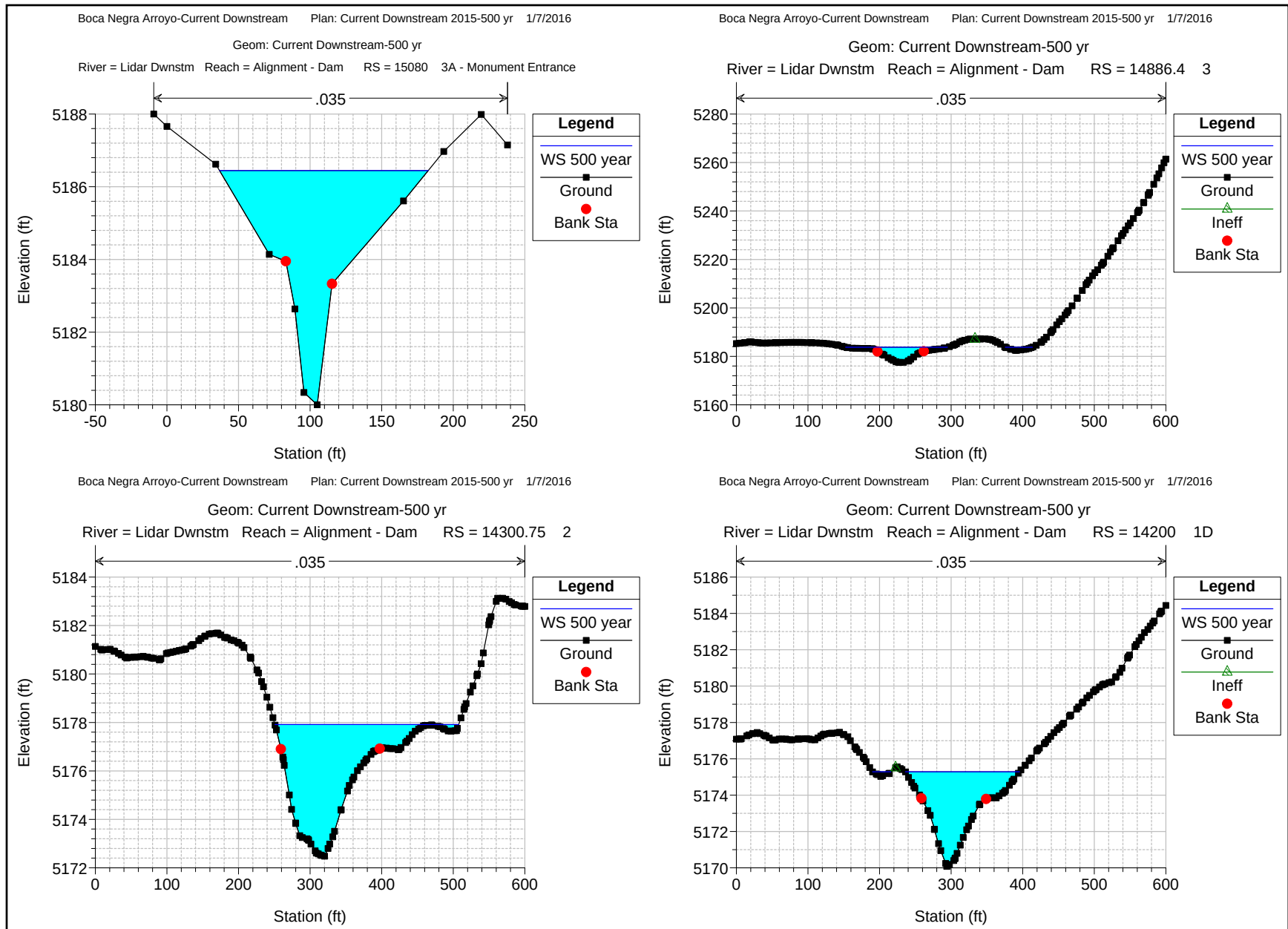
HEC-RAS Plan: 01 River: Lidar Dwnstm Reach: Alignment - Dam Profile: 500 year (Continued)

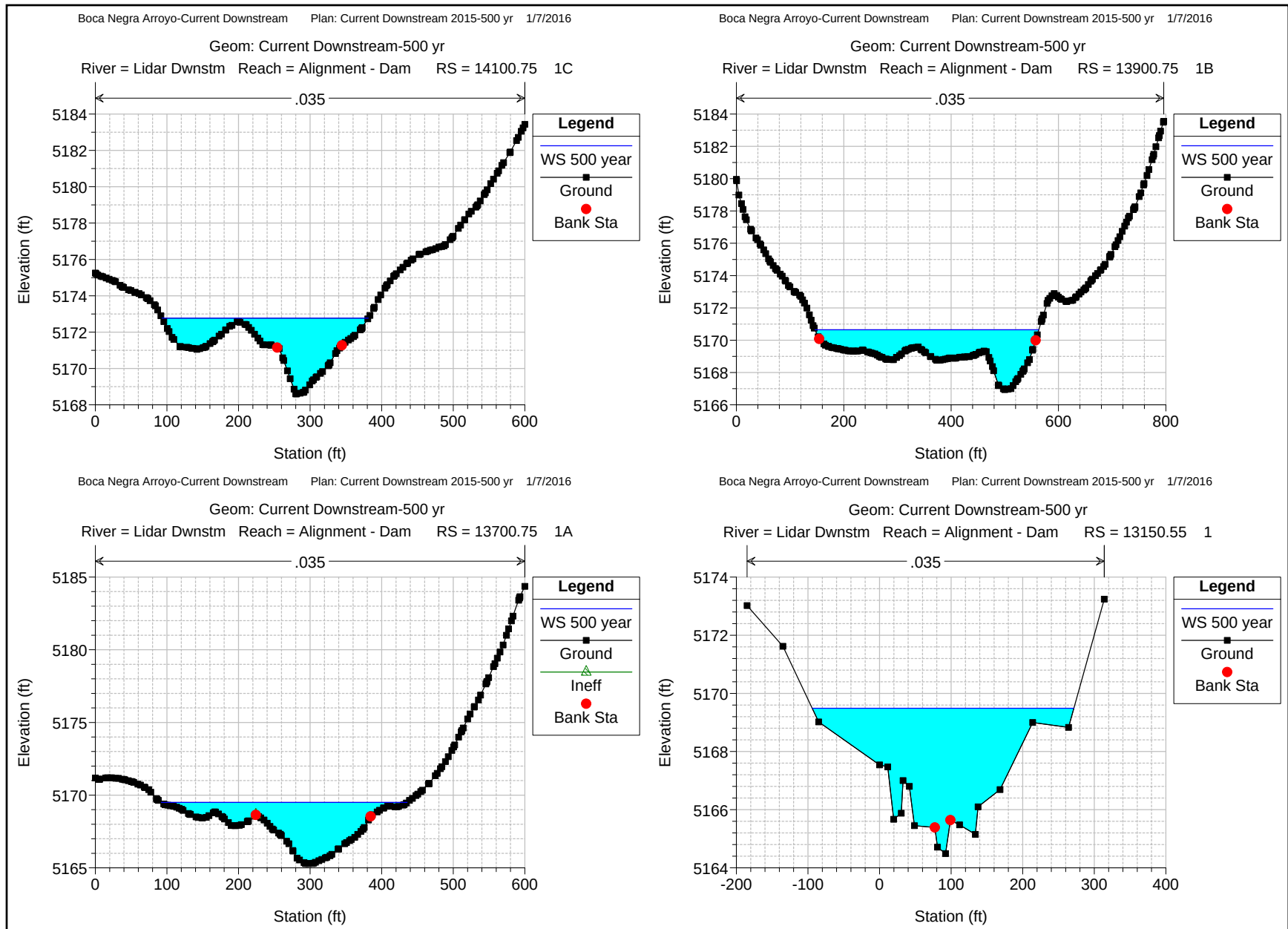
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Alignment - Dam	13055		Bridge									
Alignment - Dam	13050	500 year	2936.00	5130.97	5135.19		5136.34	0.010242	8.63	340.04	96.36	0.81
Alignment - Dam	13040	500 year	2936.00	5127.23	5131.88	5131.88	5133.67	0.012156	10.75	273.20	77.15	1.01

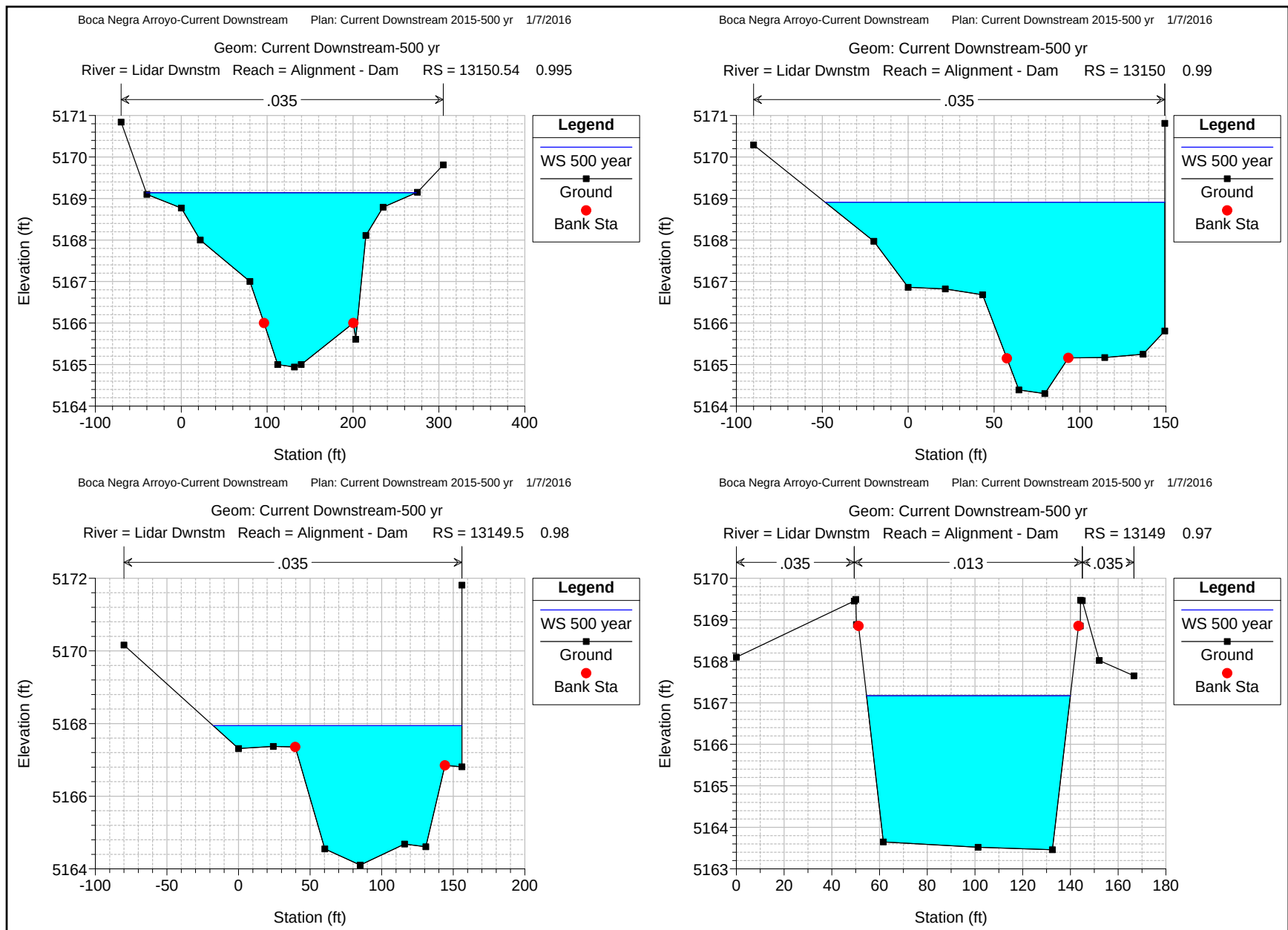


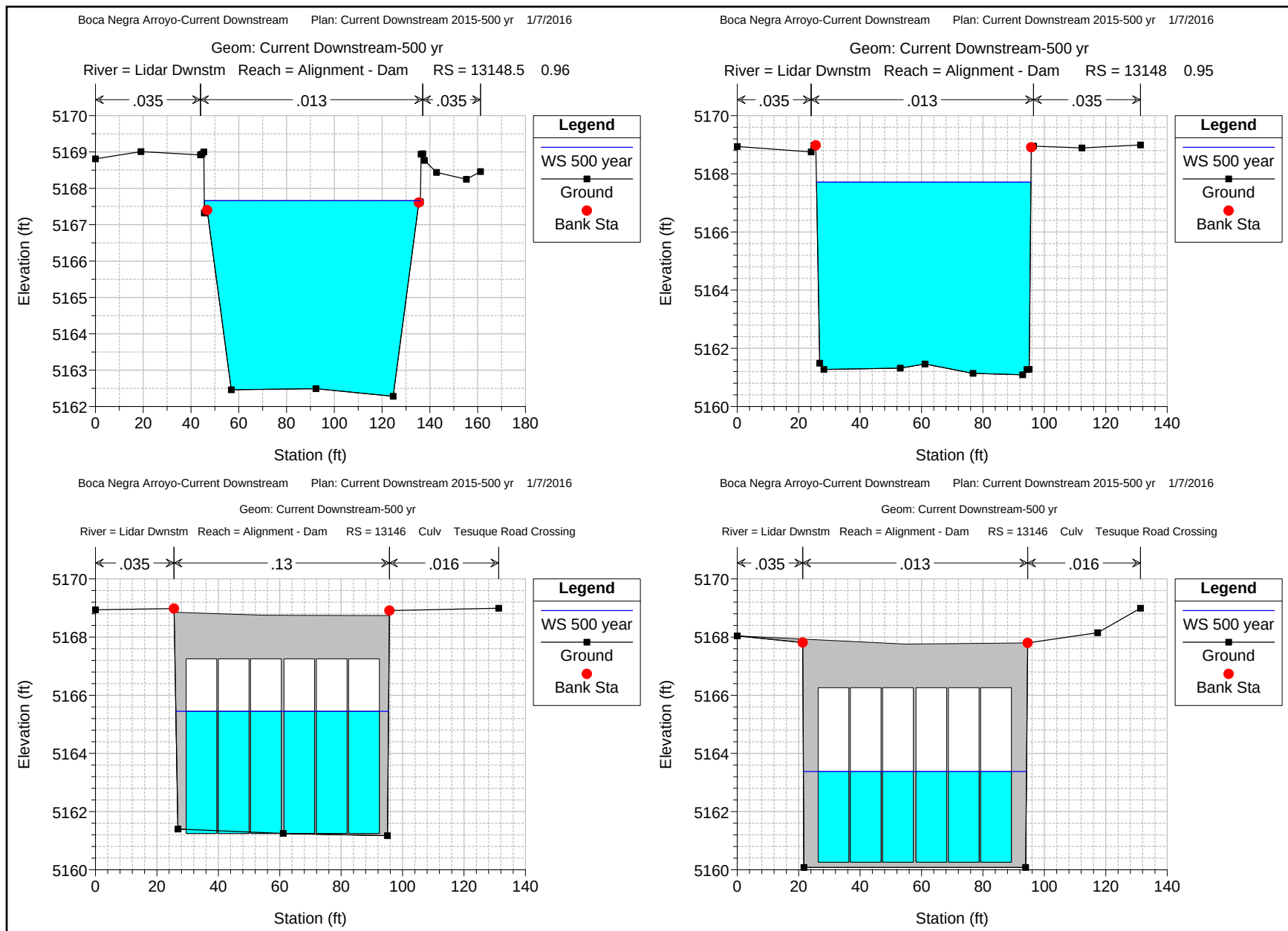


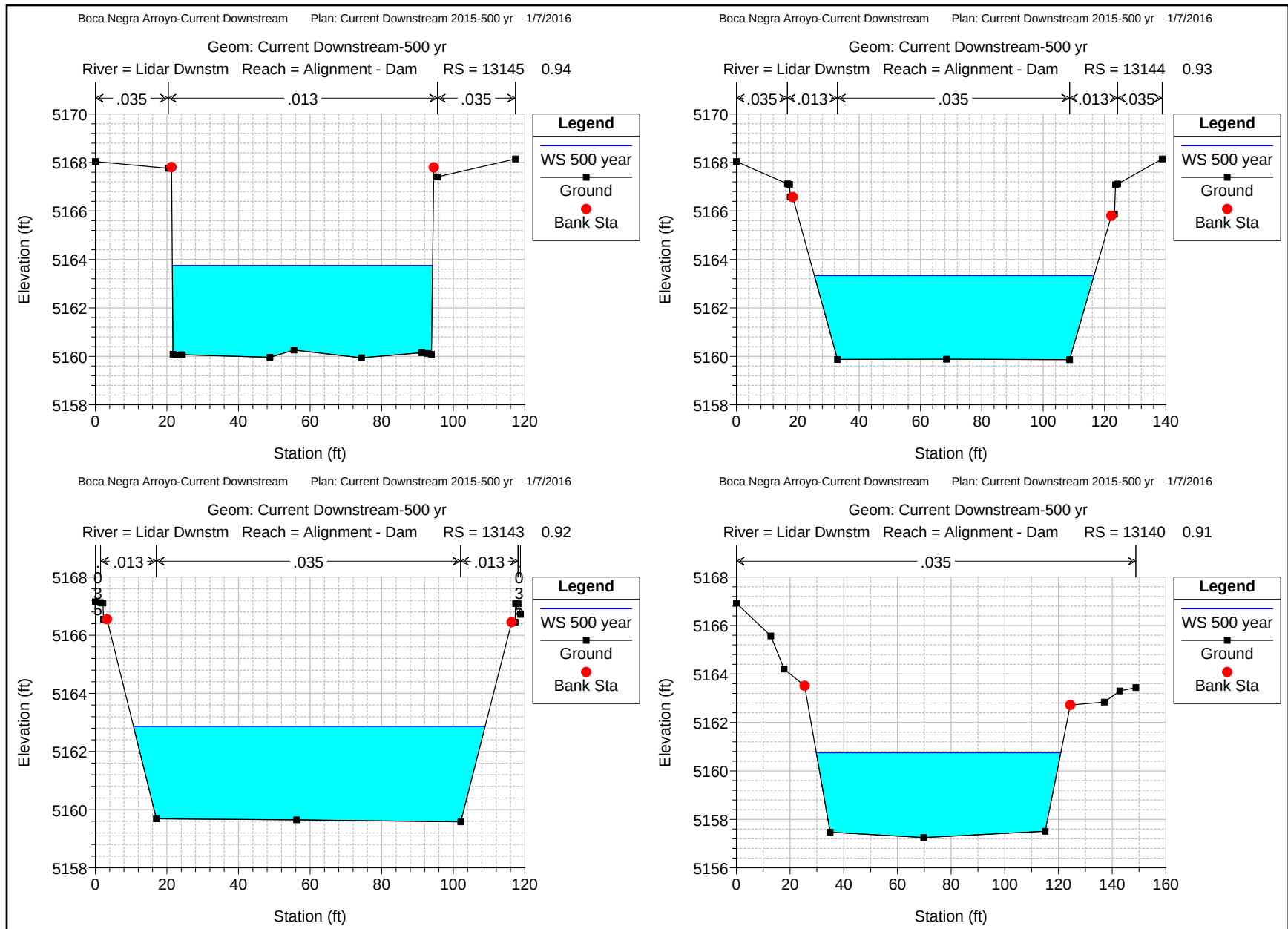


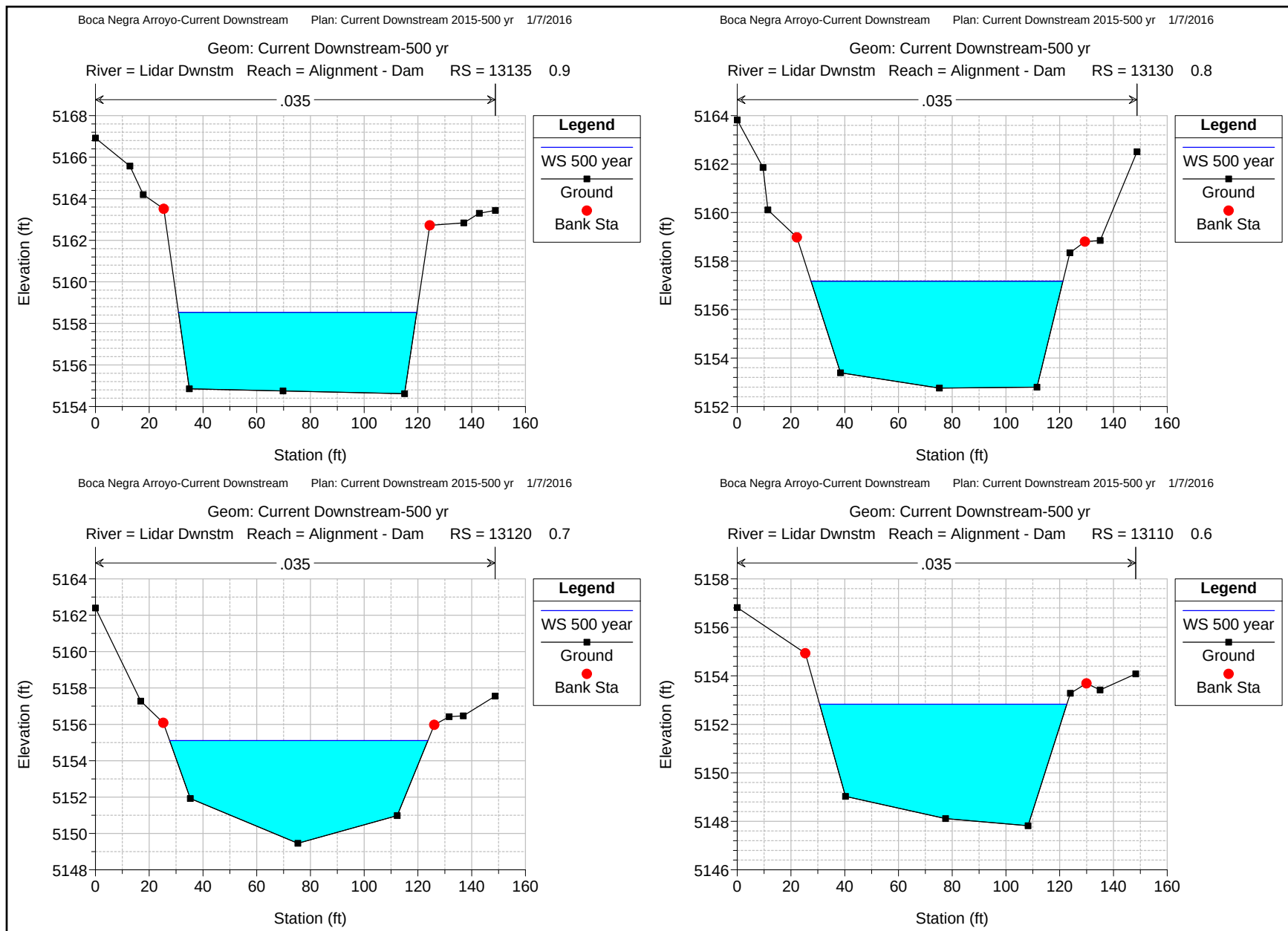


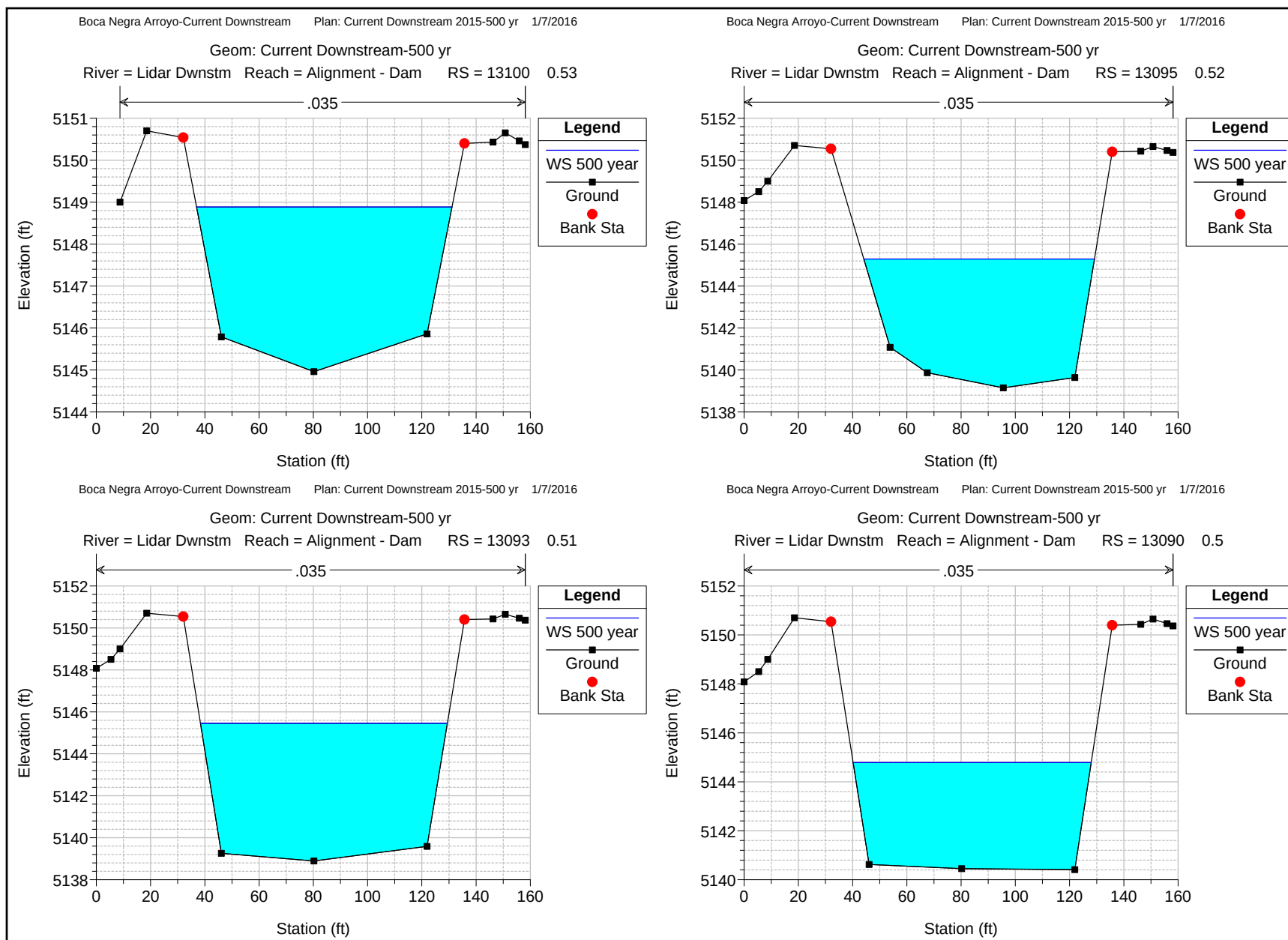


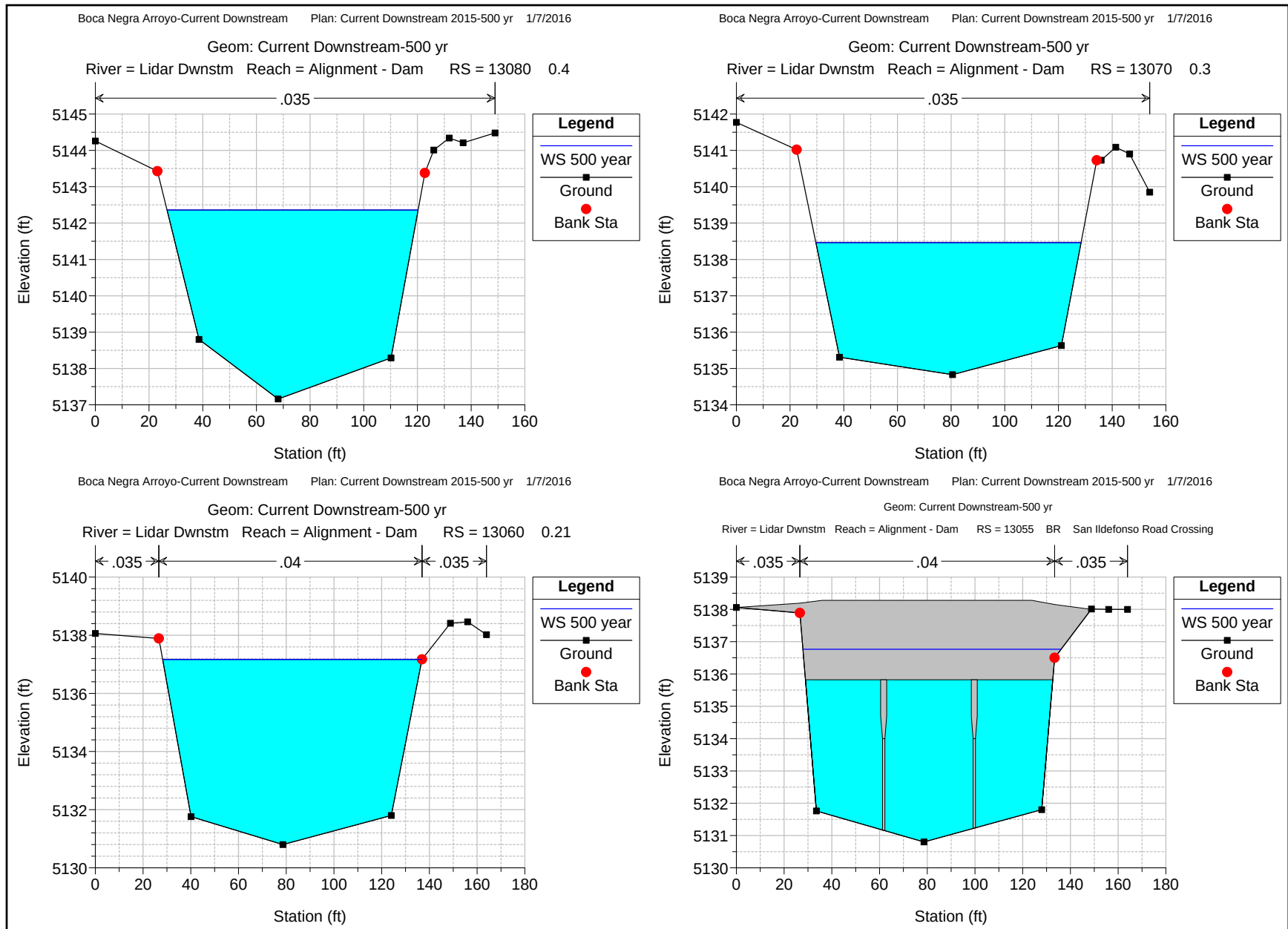


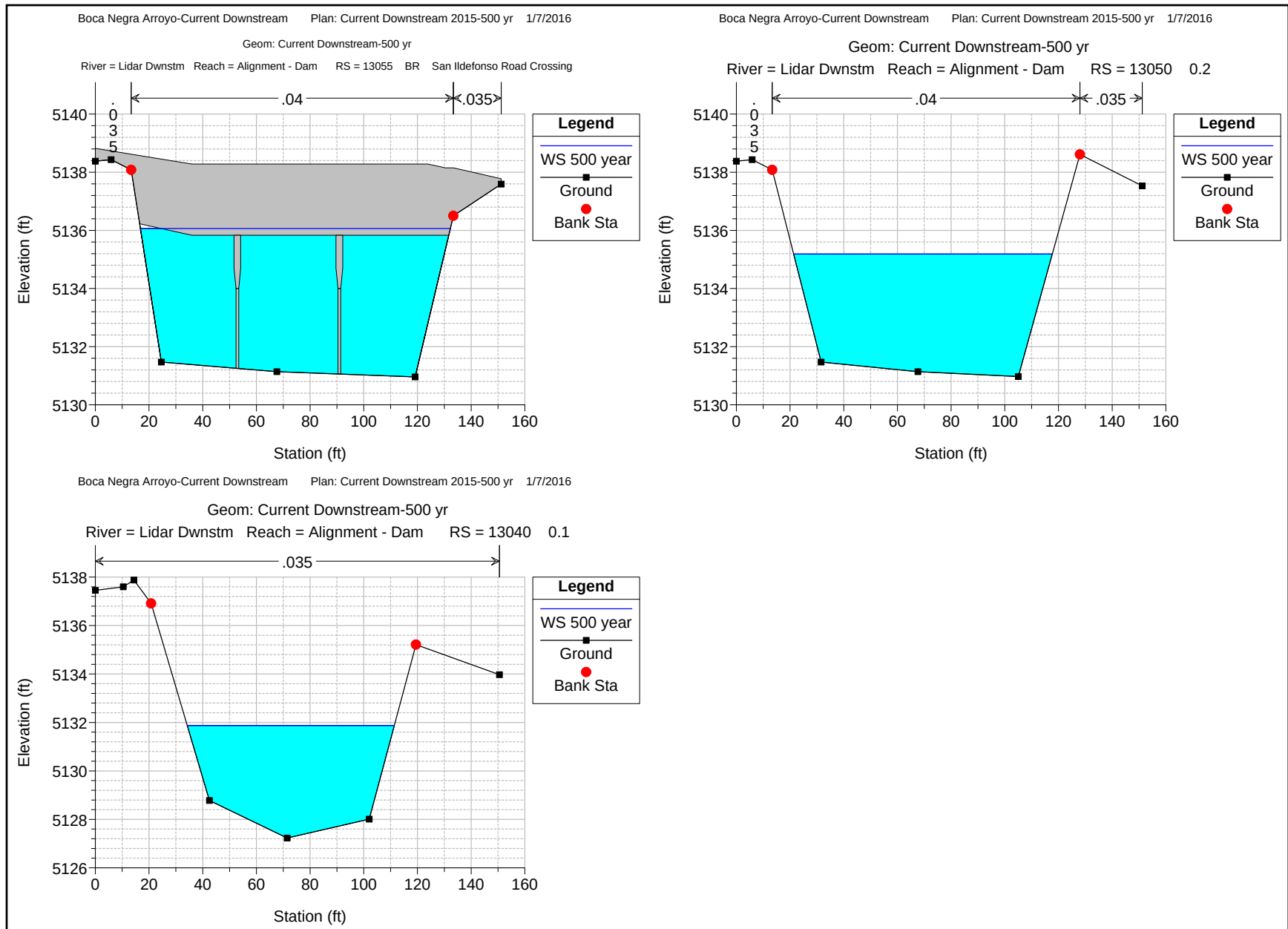












BNADwstm-.rep

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

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X   X   XXXXXX   XXXX   XXXX   XX   XXXX
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PROJECT DATA

Project Title: Boca Negra Arroyo-Current Downstream
Project File : BNADwstm-.prj
Run Date and Time: 1/7/2016 9:19:55 AM

Project in English units

PLAN DATA

Plan Title: Current Downstream 2015-500 yr
Plan File : t:\Projects\321807802\Eng\2012 Final Plans_Specifications_Estimate_Reports\2014 Final Construction Acceptance Reports\H&H\LOMR - RAS\BNADwstm-.p11

Geometry Title: Current Downstream-500 yr
Geometry File : t:\Projects\321807802\Eng\2012 Final Plans_Specifications_Estimate_Reports\2014 Final Construction Acceptance Reports\H&H\LOMR - RAS\BNADwstm-.g09

Flow Title : Updated 2015 - Downstream 500 yr
Flow File : t:\Projects\321807802\Eng\2012 Final Plans_Specifications_Estimate_Reports\2014 Final Construction Acceptance Reports\H&H\LOMR - RAS\BNADwstm-.f08

Plan Summary Information:

Number of:	Cross Sections =	41	Multiple Openings =	0
	Culverts =	2	Inline Structures =	0
	Bridges =	1	Lateral Structures =	0

Computational Information

Water surface calculation tolerance =	0.01
Critical depth calculation tolerance =	0.01
Maximum number of iterations =	20
Maximum difference tolerance =	0.3
Flow tolerance factor =	0.001

Computation Options

Critical depth computed only where necessary
Conveyance Calculation Method: At breaks in n values only
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: Updated 2015 - Downstream 500 yr
Flow File : t:\Projects\321807802\Eng\2012 Final Plans_Specifications_Estimate_Reports\2014 Final Construction Acceptance Reports\H&H\LOMR - RAS\BNADwstm-.f08

Flow Data (cfs)

River	Reach	RS	500 year
Lidar Dwnstm	Alignment - Dam	18022.9	2447
Lidar Dwnstm	Alignment - Dam	14886.4	2867
Lidar Dwnstm	Alignment - Dam	14300.75	2919
Lidar Dwnstm	Alignment - Dam	14100.75	2928
Lidar Dwnstm	Alignment - Dam	13110	2935
Lidar Dwnstm	Alignment - Dam	13070	2936

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Lidar Dwnstm	Alignment - Dam	500 year		Normal S = 0.013

GEOMETRY DATA

Geometry Title: Current Downstream-500 yr
 Geometry File : t:\Projects\321807802\Eng\2012 Final Plans_Specifications_Estimate_Reports\2014 Final Construction
 Acceptance Reports\H&H\LOMR - RAS\BNADwstm-.g09

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 18022.9

INPUT

Description: 8

Station	Elevation	Data	num=	6						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	5336.21	.01	5324.8	16.01	5324.8	18.01	5323.8	30	5323.8	
30.01	5336.13									

Manning's n Values

num= 1

Sta	n Val
0	.013

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	0	30.01	35	35	35		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 17987.1

INPUT

Description: 7

Station	Elevation	Data	num=	6						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	5336.21	.01	5324.62	16.01	5324.62	18.01	5323.62	30	5323.62	
30.01	5336.13									

Manning's n Values

num= 1

Sta	n Val
0	.013

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	0	30.01	43	43	43		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 17735.62

INPUT

Description: 6

Station	Elevation	Data	num=	212						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta
0	5327.06	3200073	5327.052	849976	5327.044	400024	5327.0510	65002	5327.02	
10.88	5327.0116	97998	5326.9518	45001	5326.9520	83002	5326.9626	23999	5327.02	
29.56	5327.134	03998	5327.2341	33997	5327.341	83997	5327.342	14001	5327.3	
43.40002	5327.31	49.63	5327.4154	71997	5327.4557	42999	5327.4661	84998	5327.43	
65.22998	5327.4567	29999	5327.4473	02002	5327.3275	92999	5327.21	79.88	5327.09	
80.82001	5327.0682	35999	5327.01	88.62	5326.992	45001	5326.8496	40997	5326.8	
102.87	5326.66	104.21	5326.63	105.03	5326.6	108.45	5326.51	112.01	5326.41	
117.61	5326.26	119.81	5326.24	123.38	5326.15	127.6	5326.07	130.19	5326.02	
135.4	5325.97	140.98	5325.83	142.77	5325.79	143.2	5325.78	143.89	5325.75	
150.99	5325.58	155.35	5325.5	158.79	5325.38	164.4	5325.08	166.59	5324.93	
167.92	5324.82	173.51	5324.2	174.38	5324.11	180.5	5323.4	182.18	5323.22	
184.91	5322.94	189.98	5322.6	193.08	5322.45	197.77	5322.35	205.43	5322.2	
205.57	5322.19	205.66	5322.19	206.03	5322.17	213.37	5321.88	218.24	5321.69	
221.16	5321.58	225.94	5321.44	228.96	5321.36	230.82	5321.34	236.76	5321.35	
238.51	5321.35	238.56	5321.35	243.39	5321.36	244.55	5321.37	246.45	5321.34	
252.35	5321.2	255.97	5321.14	260.15	5321.07	266.96	5321	267.94	5321.02	
268.55	5321.03	271.08	5321.19	275.74	5321.49	281.13	5321.83	283.54	5322.01	
287.47	5322.29	291.34	5322.57	293.71	5322.71	299.13	5323.14	303.61	5323.58	
306.29	5323.83	306.93	5323.89	307.98	5323.96	314.73	5324.41	318.87	5324.65	
322.52	5324.79	328.49	5324.89	330.32	5324.88	331.44	5324.89	336.13	5325	
338.12	5325.05	344.02	5325.19	345.91	5325.24	349	5325.35	353.71	5325.53	
356.6	5325.66	361.51	5325.79	368.66	5325.97	369.18	5325.99	369.3	5325.99	
369.51	5325.99	377.1	5326.06	381.76	5326.11	384.9	5326.11	390.02	5326.12	
392.69	5326.14	394.34	5326.15	400.49	5326.24	401.18	5326.25	406.91	5326.34	
408.29	5326.38	410.53	5326.48	416.08	5326.73	419.49	5326.86	423.88	5326.97	
431.04	5327.09	431.68	5327.1	432.07	5327.1	433.71	5327.13	439.48	5327.21	
444.65	5327.29	447.27	5327.27	451.55	5327.22	455.07	5327.19	457.23	5327.17	
462.87	5327.14	466.24	5327.1	469.81	5327.07	470.66	5327.07	472.06	5327.09	
478.46	5327.17	482.38	5327.19	486.26	5327.29	492.57	5327.45	494.05	5327.5	
494.96	5327.51	498.76	5327.66	501.85	5327.77	507.54	5328.01	509.65	5328.06	
513.08	5328.13	517.44	5328.2	520.12	5328.26	525.24	5328.29	531.29	5328.36	
532.7	5328.38	533.04	5328.38	533.59	5328.38	540.83	5328.34	545.28	5328.35	
548.63	5328.32	554.1	5328.32	556.43	5328.3	557.86	5328.29	563.81	5328.27	
564.22	5328.26	570.43	5328.27	572.02	5328.26	574.61	5328.26	579.82	5328.25	
583.01	5328.27	587.61	5328.22	595.12	5328.1	595.41	5328.1	595.59	5328.09	
596.34	5328.07	603.21	5327.89	608.17	5327.75	611.01	5327.71	615.63	5327.67	
618.8	5327.67	620.75	5327.66	626.6	5327.7	628.86	5327.72	633.33	5327.75	

BNADwstm-.rep

634.4	5327.76	636.14	5327.79	642.19	5327.89	645.9	5327.93	649.99	5327.93
656.65	5327.92	657.79	5327.92	658.48	5327.92	661.39	5327.9	665.58	5327.89
671.06	5327.83	673.38	5327.82	677.16	5327.79	681.18	5327.79	683.64	5327.78
688.97	5327.84	693.92	5327.86	696.22	5327.88	696.77	5327.89	697.67	5327.91
704.57	5328.11	708.8	5328.2	712.36	5328.26	718.18	5328.36	720.16	5328.4
721.38	5328.42	723.62	5328.43						

Manning's n Values num= 1
Sta n Val
0 .035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	180.5	303.61		605.82	605.82	605.82		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 17129.8

INPUT

Description: Cross Section Boca Negra Arroyo 19.5 - C

Station Elevation Data		num= 69									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4898.5	5317.18	4898.64	5317.17	4905.28	5316.84	4908.38	5316.69	4913.17	5316.43		
4914.67	5316.35	4919.79	5316.08	4924.06	5315.84	4927.7	5315.67	4931.19	5315.49		
4933.45	5315.34	4942.22	5314.72	4942.6	5314.69	4942.84	5314.67	4943.98	5314.59		
4952.23	5314.02	4954.01	5313.93	4956.75	5313.88	4961.62	5313.74	4965.41	5313.69		
4971.01	5313.55	4971.27	5313.54	4976.82	5313.4	4980.4	5313.21	4982.77	5313.06		
4987.32	5312.9	4988.36	5312.86	4989.19	5312.81	4995.84	5312.64	4996.39	5312.63		
5002.14	5312.48	5002.6	5312.47	5003.31	5312.44	5004.21	5312.44	5010.79	5312.3		
5016.02	5312.3	5018.26	5312.31	5021.09	5312.54	5025.58	5312.9	5025.73	5312.91		
5029.57	5313.31	5033.1	5313.61	5037.08	5313.95	5040.47	5314.11	5043.47	5314.21		
5047.83	5314.53	5052.75	5314.99	5055.2	5315.23	5057.37	5315.44	5062.56	5315.92		
5067.22	5316.32	5068.12	5316.4	5069.84	5316.52	5072.49	5316.66	5076.97	5316.86		
5079.9	5316.99	5084.11	5317.25	5090.57	5317.56	5091.24	5317.57	5091.67	5317.58		
5093.74	5317.64	5098.37	5317.77	5103.45	5317.92	5105.5	5317.92	5108.65	5317.98		
5112.63	5318.03	5115.23	5318.09	5119.77	5318.07	5125.6	5318.09				

Manning's n Values num= 1
Sta n Val
4898.5 .035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	4980.4	5029.57		129.8	129.8	129.8		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 17000.0

INPUT

Description: Cross Section Boca Negra Arroyo 19.0 - B

Station Elevation Data		num= 27									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
4971.2	5279.03	4972.63	5278.59	4972.96	5278.47	4973.15	5278.4	4973.81	5278.1		
4980.13	5275.45	4984.31	5273.4	4987.29	5272.27	4992.6	5270.23	4994.45	5269.61		
4995.48	5269.36	4998.4	5269.55	4998.52	5269.58	4998.64	5269.62	5002.89	5270.33		
5005.24	5270.96	5007.26	5272.01	5012.91	5274.72	5014.51	5275.54	5015.88	5276.2		
5022.93	5279.65	5023.78	5280.06	5024.5	5280.42	5032.96	5284.74	5033.04	5284.79		
5033.12	5284.83	5033.8	5285.23								

Manning's n Values num= 3
Sta n Val Sta n Val
4971.2 .05 4980.13 .05 5014.51 .05

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	4980.13	5014.51		212	212	212		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 16550

INPUT

Description: A1

Station Elevation Data		num= 14									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5256.48	9.1	5250	16	5245	24.17	5240	44.01	5235		
55.58	5234.48	66.69	5235	87	5240	96.23	5245	104.03	5250		
111.06	5255	118.1	5260	124.84	5265	131.73	5270				

Manning's n Values num= 1
Sta n Val
0 .035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	16	96.23		331	331	331		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 16457.0

INPUT

Description: Cross Section Boca Negra Arroyo 18.0 -A

Station Elevation Data		num= 53		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
4917.4	5207.88	4918.82	5207.27	4921.23	5206.35	4925.96	5205.18	4931.06	5204.24		
4932.7	5203.91	4933.1	5203.89	4933.77	5203.85	4940.24	5203.56	4944.16	5203.38		
4947.38	5203.09	4952.7	5202.32	4954.52	5202.09	4955.63	5201.93	4960.13	5201.66		
4961.67	5201.55	4967.1	5201.37	4968.81	5201.59	4971.63	5202.06	4975.95	5202.55		
4978.56	5202.72	4983.09	5202.43	4989.2	5201.72	4990.03	5201.64	4990.23	5201.6		
4990.56	5201.53	4997.37	5200.11	4998.74	5199.92	4999.41	5199.83	5001.09	5199.66		
5005.5	5199.46	5006.02	5199.48	5010.38	5199.33	5014.02	5199.54	5016.21	5199.84		
5019.66	5200.08	5022.55	5200.43	5026.39	5201.07	5028.94	5201.39	5031.08	5201.6		
5036.58	5202.12	5037.48	5202.21	5038.22	5202.26	5039.89	5202.37	5045.53	5202.75		
5047.47	5202.87	5049.59	5203.17	5054.36	5203.8	5056.71	5204.14	5059.29	5204.66		
5063.19	5205.35	5065.96	5205.91	5066.87	5206.04						

Manning's n Values		num= 4		Sta n Val		Sta n Val		Sta n Val	
4917.4	.05	4933.1	.035	4944.16	.035	5049.59	.035		

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	4944.16	5049.59	481	481	481		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 15976

INPUT

Description: 5

Station Elevation Data		num= 198		Sta Elev		Sta Elev		Sta Elev		Sta Elev	
0	5204.531	280029	5204.456	869995	5204.12	8.48999	52049.289978	5203.94			
11.70001	5203.79	15.69	5203.5320	09003	5203.2522	9.00002	5203.0828	53003	5202.78		
30.09998	5202.7	30.88	5202.6733	22998	5202.5937	2.99999	5202.4541	6.79999	5202.33		
44.51001	5202.2250	17999	5202.0551	71002	5201.9852	4.69997	5201.96	54.75	5201.82		
58.91998	5201.5763	27002	5201.31	66.12	5201.1471	8.4003	5200.7973	3.2001	5200.7		
74.06	5200.6676	27002	5200.5880	53003	5200.4184	8.59999	5200.2787	7.29998	5200.23		
93.48999	5200.1994	92999	5200.1895	64999	5200.1797	7.99999	5200.08	102.14	5199.93		
106.45	5199.69	109.34	5199.6	115.15	5199.49	116.55	5199.48	117.24	5199.49		
119.32	5199.61	123.75	5199.89	128.04	5200.13	130.95	5200.18	136.81	5200.25		
138.16	5200.27	138.83	5200.27	140.84	5200.24	145.36	5200.19	149.63	5200.11		
152.57	5200.03	158.46	5199.91	159.77	5199.89	160.42	5199.89	162.37	5199.87		
166.97	5199.83	171.22	5199.79	174.18	5199.8	180.12	5199.71	181.38	5199.7		
182.01	5199.7	183.89	5199.71	188.58	5199.75	192.8	5199.73	195.79	5199.73		
201.78	5199.69	202.99	5199.68	203.6	5199.68	205.41	5199.69	210.2	5199.69		
214.39	5199.75	217.4	5199.75	223.43	5199.71	224.6	5199.69	225.19	5199.7		
226.94	5199.68	231.81	5199.65	235.98	5199.59	239.01	5199.59	245.09	5199.51		
246.22	5199.51	246.78	5199.5	248.46	5199.51	253.42	5199.59	257.57	5199.57		
260.62	5199.43	266.74	5199.06	267.83	5198.98	268.37	5198.93	269.98	5198.64		
275.03	5197.71	279.16	5196.99	282.24	5196.42	288.4	5195.32	289.44	5195.11		
289.96	5195.03	291.5	5194.95	295.77	5194.59	296.64	5194.51	300.75	5194.59		
303.85	5195.09	310.06	5196.1	311.05	5196.22	311.55	5196.25	313.03	5196.23		
318.25	5196.1	322.34	5196.13	325.46	5196.19	331.71	5196.35	332.66	5196.37		
333.14	5196.39	334.55	5196.44	339.87	5196.6	343.93	5196.75	347.07	5196.96		
353.37	5197.49	354.27	5197.57	354.73	5197.61	356.07	5197.75	361.48	5198.23		
365.52	5198.68	368.68	5199.03	375.02	5199.78	375.89	5199.88	376.32	5199.95		
377.6	5200.35	383.09	5202.04	387.11	5203.3	390.29	5204.28	396.68	5206.09		
397.5	5206.34	397.9	5206.45	399.12	5206.72	404.7	5208.1	408.7	5208.85		
411.91	5209.07	418.34	5209.25	419.11	5209.27	419.49	5209.27	420.64	5209.24		
426.31	5209.08	430.29	5208.91	433.52	5208.79	439.99	5208.51	440.72	5208.47		
441.08	5208.46	442.17	5208.43	447.92	5208.34	451.88	5208.2	455.13	5207.94		
461.65	5207.34	462.33	5207.27	462.67	5207.23	463.69	5207.15	469.54	5206.68		
473.47	5206.39	476.74	5206.16	483.31	5205.8	483.94	5205.77	484.26	5205.75		
485.21	5205.72	491.15	5205.49	495.06	5205.42	498.35	5205.33	504.96	5205.1		
505.56	5205.08	505.85	5205.08	506.74	5205.06	512.76	5204.92	516.65	5204.83		
519.96	5205.06	526.62	5205.71	527.17	5205.75	527.44	5205.78	528.26	5205.94		
534.37	5207	538.24	5207.86	541.58	5208.82	548.27	5210.69	548.78	5210.83		
549.03	5210.89	549.78	5211.12	555.98	5213.09	559.83	5214.23	563.19	5215.23		
569.93	5217.09	570.39	5217.21	570.62	5217.27	571.31	5217.43	577.59	5218.87		
581.42	5219.77	584.8	5220.49	591.59	5221.75	592	5221.83	592.21	5221.87		
592.83	5222	599.21	5223.42	600	5223.56						

Manning's n Values		num= 1		Sta n Val		Sta n Val	
0	.035						

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	257.57	375.02	728.26	728.26	728.26		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 15247.7

INPUT

Description: 4

Station	Elevation	Data	num=	107	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5193.8	3.25	5193.626	339996	5193.4212	51999	5193.0213	54001	5192.96			
14.04999	5192.94	15.56	5192.8620	73999	5192.6	24.84	5192.3927	95001	5192.26			
34.17999	519235.14999	5191.9735	64001	5191.9637	07999	5191.9142	35999	5191.76				
46.42999	5191.59	49.56	5191.48	55.84	5191.256	76001	5191.1857	23001	5191.18			
58.60999	5191.17	63.97	5191.1368	01999	5191.0871	17001	5191.0377	48999	5190.9			
78.37	5190.89	78.81	5190.88	80.13	5190.8785	57999	5190.8389	60999	5190.78			
92.78	5190.6999	14999	5190.4299	98999	5190.38	100.4	5190.36	101.65	5190.28			
107.19	5189.88	111.2	5189.68	114.39	5189.43	120.8	5189.06	121.6	5188.99			
121.99	5188.95	123.18	5188.78	128.8	5188	132.79	5187.39	136.01	5186.89			
142.46	5185.91	143.21	5185.81	143.58	5185.76	144.7	5185.75	150.41	5185.66			
154.38	5185.68	157.62	5185.8	164.12	5185.95	164.82	5185.99	165.17	5186.01			
166.22	5186.07	172.03	5186.39	175.97	5186.61	179.23	5186.67	185.77	5186.79			
186.43	5186.79	186.76	5186.79	187.75	5186.8	193.64	5186.9	197.56	5186.94			
200.84	5187.04	201.44	5187.06	207.43	5187.26	208.04	5187.28	208.35	5187.29			
209.27	5187.33	215.25	5187.56	219.15	5187.69	222.45	5187.74	229.08	5188.06			
229.66	5188.09	229.94	5188.11	230.79	5188.16	236.86	5188.44	240.74	5188.73			
244.06	5189.1	250.74	5190.12	251.27	5190.21	251.53	5190.26	252.32	5190.43			
258.47	5191.84	262.33	5192.58	265.68	5193.13	272.4	5193.84	272.88	5193.88			
273.12	5193.89	273.84	5193.91	280.08	5194.16	283.91	5194.28	287.29	5194.3			
294.05	5194.28	294.49	5194.28	294.71	5194.28	295.36	5194.25	301.7	5194.04			
305.5	5193.76	308.9	5193.6	315.71	5192.82	316.1	5192.76	316.3	5192.71			
316.88	5192.53	323.31	5190.55									

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	132.79	207.43		139	192		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 15100

INPUT

Description: 3B - Monument Entrance

Station	Elevation	Data	num=	23	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-66.73	5190.04	-46.73	5188.98	-24.33	5188.02	0	5187.3	15.86	5187.03			
42.56	5187.47	56.9	5185.04	87.21	5184.34	90.38	5183	96.07	5183.22			
98.45	5183.82	118.18	5184.33	144.58	5185.03	171.35	5186.47	198.12	5187.78			
204.13	5188	223.32	5188.65	240	5188.3	245	5187.62	279.2	5182.94			
304.9	5183.05	343.9	5183.51	384.27	5190.85							

Manning's n Values num= 1

Sta	n Val
-66.73	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	56.9	144.58		53	53		.3	.5

Ineffective Flow num= 1

Sta L	Sta R	Elev	Permanent
223.32	384.27	5188.65	F

CULVERT

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 15090

INPUT

Description: Monument Low Flow Culverts

Distance from Upstream XS = 15.3

Deck/Roadway Width = 21

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	5	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
		15.86	5187.03	5187.03	58	5186.47		109	5185.92	
		158	5186.58		198.12	5187.83				

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	20	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-50	5188.9	0	5187.3	15.86	5187.03	36.38	5186.03	56.9	5185.04			
87.21	5184.34	90.38	5182.54	96.07	5182.71	98.45	5183.82	118.18	5184.33			
144.58	5185.03	171.35	5186.47	198.12	5187.83	223.32	5188.65	240	5188.3			
245	5187.62	279.2	5182.94	304.9	5183.05	343.9	5183.51	384.27	5190.85			

Manning's n Values num= 1

Sta	n Val
-50	.016

BNADwstm-.rep

Bank Sta: Left Right Coeff Contr. Expan.
 56.9 144.58 .3 .5
 Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 223.32 384.27 5188.65 F

Downstream Deck/Roadway Coordinates
 num= 5
 Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord Sta Hi Cord Lo Cord
 34.09 5186.62 5186.62 58 5186.47 109 5185.92
 158 5186.58 219.55 5187.99

Downstream Bridge Cross Section Data
 Station Elevation Data num= 11
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -9.2 5188 0 5187.66 34.09 5186.62 71.5 5184.14 83.06 5183.95
 87.3 5182.64 91.5 5180.69 105 5180.84 115.37 5183.33 165.26 5185.61
 219.55 5187.99

Manning's n Values num= 1
 Sta n Val
 -9.2 .016

Bank Sta: Left Right Coeff Contr. Expan.
 83.06 115.37 .1 .3

Upstream Embankment side slope = 2 horiz. to 1.0 vertical
 Downstream Embankment side slope = 2 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .98
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span
 Culvert #1 Ellipse 1.67 2.33
 FHWA Chart # 29- Horizontal Ellipse; Concrete
 FHWA Scale # 1 - Square edge with headwall
 Solution Criteria = Highest U.S. EG
 Culvert Upstrm Dist Length Top n Bottom n Depth Blocked Entrance Loss Coef Exit Loss Coef
 15.3 31.8 .024 .024 0 .9 1

Number of Barrels = 2
 Upstream Elevation = 5182.625
 Centerline Stations
 Sta. Sta.
 91.23 95.55
 Downstream Elevation = 5180.76
 Centerline Stations
 Sta. Sta.
 93.52 97.8

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 15080

INPUT

Description: 3A - Monument Entrance
 Station Elevation Data num= 13
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 -9.2 5188 0 5187.66 34.09 5186.62 71.5 5184.14 83.06 5183.95
 89.37 5182.64 95.67 5180.34 105 5180 115.37 5183.33 165.26 5185.61
 193.38 5186.97 219.55 5187.99 237.86 5187.15

Manning's n Values num= 1
 Sta n Val
 -9.2 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 83.06 115.37 115 115 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 14886.4

INPUT

Description: 3
 Station Elevation Data num= 184
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 5185.273.880005 5185.43 5 5185.455.820007 5185.4711.16998 5185.64
 12.14001 5185.6718.20001 5185.9719.28003 5185.97 20.75 5185.9726.40997 5185.75
 30.57001 5185.6633.54999 5185.5437.60999 5185.49 40.69 5185.542.95001 5185.52
 47.82001 5185.5954.46997 5185.6854.96002 5185.6855.32001 5185.6857.66998 5185.69
 62.09998 5185.767.70001 5185.7169.23999 5185.7371.33002 5185.75 76.37 5185.79
 80.07001 5185.7983.51001 5185.7788.20001 5185.7690.64999 5185.7592.45001 5185.74
 97.78 5185.7 104.16 5185.69 104.82 5185.69 104.92 5185.69 105.06 5185.69
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112.06	5185.56	117.19	5185.47	119.19	5185.43	121.92	5185.39	126.33	5185.26
129.57	5185.12	133.47	5184.98	138.78	5184.79	140.61	5184.71	141.94	5184.62
147.74	5184.15	150.65	5183.93	154.32	5183.65	154.88	5183.61	155.65	5183.57
162.02	5183.39	166.69	5183.32	169.15	5183.31	172.51	5183.29	176.29	5183.28
179.07	5183.25	183.43	5183.28	189.37	5183.19	190.56	5183.04	191.44	5182.91
197.15	5181.99	197.7	5181.9	203.82	5180.92	204.84	5180.73	206.23	5180.47
211.98	5179.46	216.19	5178.81	219.11	5178.33	223.1	5177.77	226.25	5177.55
228.56	5177.49	233.39	5177.54	239.96	5178.03	240.52	5178.11	240.94	5178.18
243.64	5178.81	247.66	5179.76	253.31	5180.94	254.8	5181.23	256.82	5181.53
261.93	5182.1	265.69	5182.39	269.07	5182.51	273.68	5182.71	276.21	5182.81
278.06	5182.92	283.35	5183.1	290.14	5183.38	290.44	5183.39	290.48	5183.39
290.55	5183.4	297.62	5184.03	302.81	5184.57	304.76	5184.81	307.41	5185.2
311.89	5185.92	315.19	5186.3	319.03	5186.68	324.27	5187.01	326.17	5187.07
326.59	5187.08	327.56	5187.09	333.31	5187.14	336.63	5187.16	339.93	5187.19
340.44	5187.19	341.13	5187.2	347.58	5187.21	352.31	5187.09	354.72	5186.97
358	5186.67	361.85	5186.18	364.68	5185.73	368.99	5184.99	374.86	5183.9
376.13	5183.69	377.06	5183.57	383.12	5182.95	383.26	5182.94	389.43	5182.53
390.4	5182.49	391.72	5182.47	397.54	5182.65	401.81	5182.81	404.68	5182.97
408.58	5183.25	411.81	5183.57	414.18	5183.85	418.95	5184.58	425.45	5185.79
426.09	5185.92	426.56	5186.02	429.62	5186.92	433.22	5187.95	438.93	5189.79
440.36	5190.3	442.31	5191.08	447.5	5192.97	451.3	5194.36	454.63	5195.48
459.17	5197.11	461.77	5198.07	463.68	5198.84	468.91	5200.87	476.03	5203.98
476.05	5203.99	476.11	5204.02	483.18	5207.17	488.43	5209.65	490.32	5210.4
492.9	5211.48	497.46	5213.23	500.8	5214.52	504.59	5215.78	509.76	5217.6
511.73	5218.31	513.18	5218.88	518.87	5221.33	522.6	5223.05	525.55	5224.39
526	5224.59	526.62	5224.85	533.14	5227.71	537.93	5229.77	540.28	5230.78
543.48	5232.2	547.42	5233.87	550.3	5235.01	554.55	5236.87	560.35	5239.31
561.69	5239.94	562.68	5240.37	568.83	5243.4	569.1	5243.53	575.05	5246.46
575.96	5246.95	577.21	5247.65	583.1	5251.06	587.42	5253.62	590.24	5255.37
594.07	5257.78	597.37	5259.9	599.8	5261.32	600	5261.45		

Manning's n Values num= 1
Sta n Val
0 .035

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
197.15	261.93	585.65	585.65	585.65		.1	.3

Ineffective Flow num= 1
Sta L Sta R Elev Permanent
333.31 600 5187.14 F

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 14300.75

INPUT

Description: 2

Station	Elevation	Data	num=	174
0	5181.147	580017	5181.028	909973
17.94	5181.0120	78998	5181.0225	78998
36.01001	5180.7841	65997	5180.743	82001
54.08002	5180.755	33002	5180.6957	53003
72.15002	5180.773	40997	5180.6978	35999
89.88	5180.59	90.22	5180.691	45999
105.16	5180.89	108.29	5180.91	112.91
124.43	5181.01	126.36	5181.04	133.39
136.9	5181.22	144.43	5181.38	147.46
158.97	5181.65	162.5	5181.67	168.65
175.33	5181.61	180.57	5181.51	182
193.52	5181.38	198.63	5181.31	200.4
216.27	5180.7	216.55	5180.69	216.7
228.06	5180.04	232.15	5179.69	234.77
248.02	5178.2	251.09	5177.89	252.84
262.61	5176.47	263.9	5176.23	270.91
279.95	5173.83	285.64	5173.33	288.98
298.02	5173.13	301.15	5172.98	307.05
314.63	5172.53	316.09	5172.51	320.19
331.7	5173.28	334.15	5173.51	343.09
343.27	5174.4	352.22	5175.17	354.73
366.25	5176.01	370.29	5176.17	375.01
385.03	5176.68	388.36	5176.79	389.28
400.79	5176.96	406.43	5176.94	406.76
422.64	5176.88	423.82	5176.88	424.5
435.34	5177.23	438.51	5177.34	442.57
454.38	5177.79	458.37	5177.86	460.64
469.89	5177.89	470.26	5177.89	478.71
487.74	5177.72	492.92	5177.65	496.78
505.81	5177.76	510.84	5178.19	514.85
523.88	5179.25	527.46	5179.51	532.92
541.95	5180.87	549.63	5182.03	550.49
560.02	5183	562.01	5183.13	565.5
578.09	5182.99	581.38	5182.94	585.04
596.16	5182.8	596.56	5182.8	597.25
				600

Manning's n Values num= 1
Sta n Val
0 .035

Bank Sta: Left Right Lengths: Left Channel Right BNADwstm-.rep
 259.21 397.4 321 321 321 Coeff Contr. Expan.
 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 14200

INPUT

Description: 1D
 Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5177.084	030029	5177.095	559998	5177.1	5.97998	5177.096	719971	5177.11
14.59003	5177.2617	48999	5177.3222	59003	5177.38	23.63	5177.3929	01001	5177.45
32.65997	5177.3838	46002	5177.340	52002	5177.2641	70001	5177.2545	96997	5177.15
50.72998	5177.0452	03998	5177.0254	34003	5177.0359	77002	5177.0963	54999	5177.09
68.79999	5177.0970	21002	5177.0775	07001	5177.0577	84003	5177.0486	09003	5177.09
86.59003	5177.09	86.87	5177.0987	90997	5177.0995	89999	5177.198	10001	5177.11
101.96	5177.09	104.94	5177.05	109.62	5177.04	113.97	5177.15	117.83	5177.25
121.13	5177.33	123.01	5177.36	129.84	5177.39	132.04	5177.4	132.65	5177.4
133.71	5177.4	141.08	5177.43	144.16	5177.46	149.58	5177.34	150.11	5177.33
155.68	5177.21	159.15	5177	165.46	5176.66	167.19	5176.56	168.18	5176.51
171.78	5176.35	177.22	5176.09	178.71	5176.01	181.33	5175.84	186.25	5175.52
190.22	5175.28	195.29	5175.17	197.2	5175.13	201.74	5175.03	204.32	5175.07
213.08	5175.19	213.25	5175.19	213.36	5175.19	213.72	5175.21	222.39	5175.51
224.77	5175.56	228.95	5175.46	231.42	5175.41	236.29	5175.28	240.46	5174.97
244.83	5174.7	247.8	5174.49	249.49	5174.39	255.66	5174.01	258.53	5173.83
259.32	5173.79	260.7	5173.68	267.56	5173.15	270.83	5172.89	276.57	5172.12
276.6	5172.11	282.35	5171.33	285.63	5170.95	292.45	5170.24	293.86	5170.08
294.67	5170.09	297.6	5170.19	303.7	5170.4	305.38	5170.5	305.75	5170.54
308.32	5170.8	312.74	5171.25	316.89	5171.67	321.77	5172.1	324.2	5172.3
328.41	5172.66	330.81	5172.85	339.54	5173.47	339.84	5173.49	339.92	5173.49
340.07	5173.5	348.88	5173.79	351.44	5173.85	355.94	5173.85	357.91	5173.86
362.95	5173.85	366.94	5173.96	371.82	5174.1	374.47	5174.17	375.98	5174.26
381.48	5174.55	385.01	5174.74	385.99	5174.79	387.69	5174.88	394.05	5175.21
397.5	5175.39	403.08	5175.63	403.57	5175.65	409.02	5175.89	412.12	5176.04
419.44	5176.43	420.53	5176.48	421.15	5176.51	423.41	5176.59	430.19	5176.83
432.05	5176.91	435.31	5177.06	439.22	5177.24	443.56	5177.44	448.26	5177.61
451.19	5177.72	455.08	5177.87	457.29	5177.96	465.35	5178.34	466.33	5178.38
466.59	5178.39	467.06	5178.41	475.36	5178.73	478.11	5178.85	482.94	5179.06
484.39	5179.13	489.62	5179.35	493.43	5179.49	498.81	5179.69	501.14	5179.78
502.46	5179.81	507.29	5179.95	511.5	5180.07	512.65	5180.1	514.68	5180.12
520.53	5180.19	524.17	5180.23	529.57	5180.48	530.56	5180.52	535.69	5180.76
538.6	5180.99	546.43	5181.54	547.2	5181.59	547.64	5181.62	549.23	5181.71
556.67	5182.17	558.72	5182.29	562.31	5182.49	565.71	5182.69	570.23	5182.94
574.74	5183.12	578.18	5183.3	581.75	5183.47	583.78	5183.58	591.17	5183.98
592.81	5184.07	593.26	5184.09	594.05	5184.13	600	5184.44		

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 258.53 348.88 215 215 215 .1 .3

Ineffective Flow num= 1
 Sta L Sta R Elev Permanent
 0 222.39 5175.51 F

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 14100.75

INPUT

Description: 1C
 Station Elevation Data num= 174

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5175.251	159973	5175.213	539978	5175.147	719971	5175.08	10.19	5175.05
15.04999	5174.9819	22998	5174.9123	59003	5174.8526	57001	5174.8128	26001	5174.77
34.42999	5174.5837	29999	5174.538	08002	5174.4839	46002	5174.4646	33002	5174.33
49.59998	5174.2955	34003	5174.19	55.37	5174.1961	10999	5174.1264	40002	5174.05
71.21002	5173.9	72.63	5173.87	73.44	5173.84	76.37	5173.7382	46997	5173.51
84.15002	5173.4587	09003	5173.2291	51001	5172.9	95.66	5172.58	100.54	5172.2
102.96	5172.03	107.18	5171.71	109.57	5171.6	118.31	5171.21	118.61	5171.2
118.69	5171.19	118.83	5171.19	127.64	5171.17	130.21	5171.15	134.71	5171.11
136.68	5171.1	141.72	5171.05	145.71	5171.09	150.58	5171.14	153.24	5171.17
154.75	5171.22	160.25	5171.37	163.78	5171.47	164.75	5171.5	166.46	5171.56
172.82	5171.78	176.27	5171.89	181.85	5172.11	182.33	5172.12	187.78	5172.32
190.89	5172.38	198.2	5172.57	199.3	5172.59	199.92	5172.58	202.19	5172.54
208.96	5172.43	210.81	5172.41	214.08	5172.26	217.99	5172.1	222.33	5171.89
227.03	5171.67	229.95	5171.51	233.84	5171.31	236.06	5171.3	244.13	5171.29
245.09	5171.29	245.36	5171.29	245.83	5171.28	254.13	5171.15	256.88	5171.09
261.7	5170.59	263.16	5170.44	268.39	5169.87	272.2	5169.44	277.57	5168.86
279.91	5168.6	281.23	5168.6	286.07	5168.64	290.27	5168.68	291.42	5168.7
293.45	5168.81	299.3	5169.1	302.94	5169.31	304.86	5169.38	308.34	5169.51
309.32	5169.54	314.45	5169.73	317.37	5169.83	325.2	5170.15	325.97	5170.18
326.41	5170.2	328	5170.31	335.44	5170.82	337.48	5170.98	341.07	5171.12
344.48	5171.27	349	5171.44	353.51	5171.57	356.95	5171.65	360.51	5171.75
362.55	5171.83	369.94	5172.12	371.58	5172.19	372.03	5172.2	372.82	5172.25

BNADwstm-.rep

380.61	5172.73	383.54	5172.92	388.69	5173.3	389.65	5173.37	395.06	5173.79
398.68	5174.05	404.57	5174.42	406.58	5174.55	407.72	5174.61	411.88	5174.82
416.75	5175.07	418.09	5175.12	420.44	5175.21	425.79	5175.42	429.61	5175.57
434.82	5175.76	436.32	5175.8	441.12	5175.96	443.86	5176.03	452.19	5176.27
452.64	5176.28	452.89	5176.29	453.82	5176.3	461.93	5176.42	464.15	5176.46
468.06	5176.51	470.96	5176.53	475.67	5176.6	480	5176.68	483.94	5176.71
487.18	5176.75	489.03	5176.82	495.76	5177.09	498.06	5177.18	498.7	5177.21
499.81	5177.28	507.1	5177.71	510.21	5177.89	515.69	5178.17	516.13	5178.19
521.73	5178.5	525.17	5178.65	531.56	5178.88	533.24	5178.95	534.2	5179.01
537.7	5179.22	543.24	5179.57	544.76	5179.66	547.43	5179.83	552.27	5180.17
556.28	5180.42	561.31	5180.74	563.31	5180.88	567.79	5181.18	570.34	5181.33
579.18	5181.88	579.31	5181.89	579.38	5181.89	579.64	5181.91	588.41	5182.54
590.82	5182.72	595.06	5183.05	597.45	5183.24	600	5183.43		

Manning's n Values num= 1
Sta n Val
0 .035

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	254.13	344.48	200	200	200		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 13900.75

INPUT

Description: 1B

Station	Elevation	Data	num=	230									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5179.96	4100342	5179.87	4.72998	5178.999	440002	5178.46	12.32001	5178.1				
16.23999	5177.64	18.47998	5177.46	26.60004	5176.87	27.51001	5176.81	27.76001	5176.79				
28.20001	5176.77	36.54999	5176.33	39.28003	5176.22	44.07001	5175.96	45.58002	5175.88				
50.79004	5175.59	54.62	5175.36	59.95001	5175.03	62.31	5174.89	63.65002	5174.83				
68.54004	5174.62	72.67999	5174.44	73.82001	5174.47	82.001	5174.33	81.72003	5174.09				
85.34003	5173.97	90.75	5173.71	91.69	5173.66	96.85004	5173.39	99.79004	5173.3				
107.57	5173.02	108.37	5172.99	108.82	5172.99	110.48	5172.95	117.86	5172.79				
119.88	5172.72	123.44	5172.5	126.89	5172.29	131.4	5171.99	135.93	5171.57				
139.32	5171.24	142.91	5170.9	144.96	5170.75	152.42	5170.21	154	5170.11				
154.43	5170.08	155.19	5170.06	163.03	5169.77	165.94	5169.69	171.06	5169.62				
172.07	5169.61	177.46	5169.55	181.1	5169.53	186.94	5169.49	188.98	5169.48				
190.14	5169.47	194.36	5169.44	199.17	5169.4	200.49	5169.39	202.81	5169.38				
208.2	5169.34	212.01	5169.33	217.24	5169.32	218.69	5169.33	223.52	5169.33				
226.27	5169.33	234.56	5169.38	235.04	5169.38	235.31	5169.38	236.3	5169.37				
244.34	5169.28	246.55	5169.26	250.43	5169.22	253.38	5169.19	258.07	5169.15				
262.41	5169.08	266.31	5169	269.58	5168.95	271.45	5168.93	278.24	5168.84				
280.48	5168.82	281.1	5168.81	282.18	5168.81	289.52	5168.8	292.61	5168.79				
298.06	5168.93	298.55	5168.94	304.13	5169.05	307.59	5169.15	313.93	5169.33				
315.64	5169.38	316.62	5169.39	320.17	5169.43	325.65	5169.5	327.16	5169.52				
329.8	5169.54	334.69	5169.56	338.68	5169.58	343.72	5169.43	345.68	5169.39				
350.19	5169.28	352.76	5169.23	361.55	5168.99	361.71	5168.99	361.79	5168.99				
362.11	5168.98	370.83	5168.82	373.22	5168.76	377.43	5168.77	379.86	5168.77				
384.74	5168.79	388.9	5168.83	393.3	5168.86	396.25	5168.89	397.93	5168.9				
404.05	5168.89	406.97	5168.89	407.77	5168.89	409.17	5168.9	416	5168.95				
419.28	5168.95	425.04	5168.96	425.05	5168.96	430.8	5168.99	434.07	5168.98				
440.92	5169.06	442.31	5169.06	443.11	5169.08	445.99	5169.12	452.14	5169.23				
453.83	5169.26	456.8	5169.27	461.17	5169.33	465.34	5169.29	470.21	5168.93				
472.67	5168.71	476.86	5168.37	479.24	5168.11	487.93	5167.23	488.28	5167.2				
488.38	5167.19	488.54	5167.19	497.31	5166.99	499.89	5166.95	500.03	5166.95				
504.42	5166.97	506.35	5166.98	511.41	5167	515.38	5167.19	520.29	5167.43				
522.92	5167.56	524.42	5167.63	529.87	5167.89	533.45	5168.07	534.44	5168.12				
536.17	5168.23	542.49	5168.6	545.95	5168.8	551.52	5169.38	552.04	5169.43				
557.47	5169.99	560.56	5170.34	567.91	5171.16	568.98	5171.28	569.59	5171.33				
571.8	5171.56	578.63	5172.28	580.5	5172.47	583.79	5172.59	587.66	5172.75				
592.01	5172.89	596.69	5172.77	599.66	5172.67	603.53	5172.57	605.73	5172.53				
613.74	5172.41	614.76	5172.4	615.04	5172.4	615.54	5172.4	623.8	5172.45				
626.56	5172.48	631.41	5172.64	632.83	5172.69	638.07	5172.86	641.87	5172.99				
647.28	5173.11	649.59	5173.18	650.9	5173.24	655.68	5173.45	659.94	5173.65				
661.11	5173.7	663.16	5173.78	668.97	5173.99	672.62	5174.13	678.01	5174.33				
679.03	5174.37	684.14	5174.56	687.04	5174.7	694.91	5175.14	695.65	5175.18				
696.08	5175.21	697.62	5175.31	705.11	5175.79	707.17	5175.91	710.78	5176.17				
714.15	5176.41	718.68	5176.74	723.18	5177.06	726.65	5177.31	730.2	5177.57				
732.21	5177.68	739.56	5178.08	741.25	5178.17	741.71	5178.19	742.53	5178.26				
750.28	5178.89	753.23	5179.12	758.4	5179.61	759.32	5179.7	764.74	5180.19				
768.35	5180.57	774.28	5181.18	776.26	5181.39	777.39	5181.51	781.5	5181.98				
786.42	5182.53	787.77	5182.67	790.15	5182.94	795.46	5183.49	796.01	5183.55				

Manning's n Values num= 1
Sta n Val
0 .035

Bank	Sta: Left	Right	Lengths: Left	Channel	Right	Coeff	Contr.	Expan.
	154.43	557.47	200	200	200		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
REACH: Alignment - Dam RS: 13700.75

INPUT

Description: 1A

Station	Elevation	Data	num=	174							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5171.184	200012	5171.15	159973	5171.095	419983	5171.085	890015	5171.09		
14.20001	5171.18	16.94	5171.221	76001	5171.1923	22998	5171.1928	45001	5171.16		
32.26001	5171.1637	64001	5171.0939	96997	5171.0841	29999	5171.0546	14001	5170.99		
50.33002	5170.9451	48999	5170.9353	51001	5170.88	59.37	5170.76	63	5170.69		
68.40002	5170.55	69.38	5170.5274	52002	5170.38	77.44	5170.285	26001	5169.76		
86.03003	5169.7186	46997	5169.6988	07999	5169.6495	51001	5169.3997	54999	5169.34		
101.13	5169.31	104.54	5169.27	109.06	5169.24	113.58	5169.17	117.01	5169.1		
120.58	5169.03	122.61	5168.95	130.02	5168.74	131.65	5168.69	132.09	5168.68		
132.88	5168.67	140.68	5168.5	143.61	5168.46	148.75	5168.44	149.72	5168.43		
155.12	5168.47	158.75	5168.59	164.63	5168.78	166.64	5168.85	167.78	5168.84		
171.95	5168.71	176.82	5168.54	178.15	5168.48	180.5	5168.36	185.85	5168.11		
189.67	5167.91	194.89	5167.9	196.38	5167.91	201.19	5167.92	203.92	5167.97		
212.25	5168.18	212.7	5168.19	212.96	5168.19	213.89	5168.23	221.99	5168.55		
224.22	5168.64	228.12	5168.52	231.03	5168.44	235.73	5168.29	240.06	5168.07		
244	5167.85	247.25	5167.67	249.1	5167.6	255.83	5167.39	258.13	5167.31		
258.76	5167.28	259.87	5167.22	267.17	5166.83	270.28	5166.66	275.75	5166.19		
276.2	5166.15	281.79	5165.67	285.23	5165.54	291.62	5165.36	293.31	5165.3		
294.27	5165.29	297.77	5165.29	303.19	5165.3	303.3	5165.3	304.82	5165.32		
307.49	5165.38	312.34	5165.49	316.34	5165.58	321.37	5165.69	323.37	5165.73		
327.85	5165.83	330.41	5165.93	339.24	5166.28	339.37	5166.29	339.44	5166.29		
339.71	5166.3	348.48	5166.66	350.89	5166.74	355.12	5166.87	357.51	5166.95		
362.4	5167.1	366.55	5167.3	370.99	5167.51	373.92	5167.65	375.58	5167.78		
381.65	5168.29	384.62	5168.54	385.43	5168.6	386.86	5168.65	393.65	5168.85		
396.95	5168.96	402.69	5169.11	402.74	5169.12	408.46	5169.25	411.72	5169.25		
418.61	5169.2	419.98	5169.19	420.75	5169.19	423.59	5169.22	429.79	5169.31		
431.49	5169.35	434.49	5169.46	438.82	5169.64	443.01	5169.78	447.86	5169.97		
450.36	5170.07	454.52	5170.24	456.89	5170.34	465.52	5170.77	465.93	5170.79		
466.04	5170.79	466.23	5170.81	474.96	5171.34	477.55	5171.5	482.11	5171.82		
484	5171.96	489.07	5172.31	493.03	5172.64	497.98	5173.08	500.58	5173.31		
502.07	5173.45	507.46	5173.99	511.1	5174.35	512.1	5174.44	513.86	5174.62		
520.14	5175.24	523.62	5175.58	529.17	5176.06	529.73	5176.1	535.13	5176.55		
538.21	5176.88	545.6	5177.65	546.65	5177.76	547.24	5177.83	549.4	5178.08		
556.27	5178.84	558.16	5179.05	561.48	5179.42	565.31	5179.85	569.68	5180.33		
574.34	5181	577.35	5181.44	581.19	5181.99	583.38	5182.31	591.34	5183.41		
592.41	5183.55	592.71	5183.59	593.23	5183.65	600	5184.36				

Manning's n Values

num= 1

Sta n Val
0 .035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	224.22	384.62		57	57	57		.1	.3
Ineffective Flow	num=		1						
Sta L	Sta R	Elev	Permanent						
0	224.22	5168.64	F						

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13150.55

INPUT

Description: 1

Station	Elevation	Data	num=	21							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-185	5173.02	-135	5171.62	-85	5169.02	0	5167.54	11.41	5167.47		
19.81	5165.67	30.27	5165.88	32.83	5167	41.57	5166.8	48.77	5165.45		
77.26	5165.39	80.94	5164.71	92.23	5164.49	98.97	5165.64	111.85	5165.48		
133.75	5165.15	137.68	5166.1	168.37	5166.69	213.99	5169	263.99	5168.83		
313.99	5173.24										

Manning's n Values

num= 1

Sta n Val
-185 .035

Bank Sta:	Left	Right	Lengths:	Left	Channel	Right	Coeff	Contr.	Expan.
	77.26	98.97		29	29	29		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13150.54

INPUT

Description: 0.995

Station	Elevation	Data	num=	15							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-70	5170.84	-40	5169.1	0	5168.77	22.2	5168	80	5167		
96.4	5166	112.3	5165	131.7	5164.94	139.7	5165	200.4	5166		
203	5165.61	215	5168.11	235	5168.79	275	5169.151	305	5169.81		

Manning's n Values

num= 1

Sta n Val
-70 .035

Bank Sta: Left Right Lengths: Left Channel Right BNADwstm-.rep
 96.4 200.4 43 43 43 Coeff Contr. Expan.
 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13150

INPUT

Description: 0.99
 Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-90	5170.29	-20	5167.97	0	5166.86	21.63	5166.82	43.34	5166.68
57.45	5165.149	64.44	5164.39	79.51	5164.3	93.24	5165.16	114.39	5165.17
136.73	5165.25	149.39	5165.81	149.39	5170.81				

Manning's n Values num= 1

Sta	n Val
-90	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 57.45 93.24 53 53 53 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13149.5

INPUT

Description: 0.98
 Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
-80	5170.16	0	5167.313	24.29	5167.371	39.62	5167.354	60.32	5164.549
85.01	5164.104	116.02	5164.682	130.83	5164.608	144.23	5166.849	156.05	5166.808
156.06	5171.81								

Manning's n Values num= 1

Sta	n Val
-80	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 39.62 144.23 40 40 40 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13149

INPUT

Description: 0.97
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.1	49.4	5169.45	50.07	5169.49	50.35	5168.885	51.17	5168.85
61.59	5163.65	101.31	5163.52	132.46	5163.46	143.4	5168.85	144.12	5168.85
144.23	5169.47	144.98	5169.46	152.11	5168.02	166.64	5167.65		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	49.4	.013	144.98	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 51.17 143.4 16 16 16 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13148.5

INPUT

Description: 0.96
 Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.81	19.065	5169.01	43.977	5168.92	44.59	5168.94	45.38	5169
45.595	5167.32	46.785	5167.4	56.885	5162.462	92.275	5162.49	124.64	5162.28
135.357	5167.61	136.04	5167.63	136.31	5168.94	137.01	5168.95	137.718	5168.77
142.765	5168.44	155.28	5168.25	161.19	5168.46				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	43.977	.013	137.01	.035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 46.785 135.357 9 9 9 .3 .5

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13148

INPUT

Description: 0.95

Station	Elevation	Data	num=	16							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.94	24.08	5168.75	24.97	5168.97	25.58	5168.98	26.85	5161.49		
28.25	5161.275	53.1	5161.32	61.14	5161.46	76.77	5161.14	92.95	5161.09		
94.34	5161.27	95.08	5161.28	95.72	5168.91	96.47	5168.95	112.27	5168.89		
131.3	5168.99										

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	24.08	.013	96.47	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	25.58	95.72		65	63		.3	.5

CULVERT

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13146

INPUT

Description: Tesuque Road Crossing

Distance from Upstream XS = 2

Deck/Roadway Width = 57

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	4										
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi
0	5168.94	5167.17	54.97	5168.75						119	5168.73
182.49	5168.87										

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	7							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.94	25.58	5168.98	26.85	5161.4	61.14	5161.25	95.08	5161.17		
95.72	5168.91	131.3	5168.99								

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	25.58	.13	95.72	.016

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	25.58	95.72		.3	.5

Downstream Deck/Roadway Coordinates

num=	5										
Sta	Hi	Cord	Lo	Cord	Sta	Hi	Cord	Lo	Cord	Sta	Hi
0	5168.04	5166.66	54.97	5167.76						94	5167.8
119	5167.6		182.49	5168.53							

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	7							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.04	21.31	5167.81	21.7	5160.08	93.91	5160.08	94.56	5167.8		
117.375	5168.15	131.3	5168.99								

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	21.31	.013	94.56	.016

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	21.31	94.56		.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical

Downstream Embankment side slope = 0 horiz. to 1.0 vertical

Maximum allowable submergence for weir flow = .98

Elevation at which weir flow begins =

Energy head used in spillway design =

Spillway height used in design =

Weir crest shape = Broad Crested

Number of Culverts = 1

Culvert Name Shape Rise Span

Culvert #1 Box 6 10

FHWA Chart # 8 - flared wingwalls

FHWA Scale # 1 - Wingwall flared 30 to 75 deg.

Solution Criteria = Highest U.S. EG

Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
2	59	.013	.013	0	.4	1

Number of Barrels = 6

Upstream Elevation = 5161.25

Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
34.51	45.01	55.51	66.36	76.93	87.43

Downstream Elevation = 5160.26

Centerline Stations

Sta.	Sta.	Sta.	Sta.	Sta.	Sta.
31.34	41.84	52.34	63.19	73.76	84.26

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13145

INPUT

Description: 0.94

Station Elevation Data		num=	15						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.04	20.36	5167.76	21.31	5167.81	21.7	5160.08	22.86	5160.06
24.3	5160.07	48.8	5159.96	55.49	5160.26	74.36	5159.94	91.17	5160.15
92.78	5160.12	93.91	5160.08	94.56	5167.8	95.6	5167.41	117.375	5168.15

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.035	20.36	.013	95.6	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	21.31	94.56		9	9		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13144

INPUT

Description: 0.93

Station Elevation Data		num=	13						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5168.04	16.65	5167.12	17.33	5167.1	17.53	5166.58	18.37	5166.57
32.98	5159.87	68.47	5159.88	108.6	5159.86	122.23	5165.8	123.255	5165.865
123.615	5167.085	124.35	5167.116	138.79	5168.15				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	16.65	.013	32.98	.035	108.6	.013	124.3	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	18.37	122.23		15	15		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13143

INPUT

Description: 0.92

Station Elevation Data		num=	13						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5167.15	1.453	5167.12	2.135	5167.105	2.29	5166.55	3.24	5166.55
17.055	5159.686	56.23	5159.65	102.1	5159.58	116.32	5166.45	117.28	5166.45
117.4	5167.09	118.106	5167.08	118.775	5166.717				

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.035	1.453	.013	17.05	.035	102.1	.013	118.106	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	3.24	116.32		183	172		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm

REACH: Alignment - Dam RS: 13140

INPUT

Description: 0.91

Station Elevation Data		num=	11						
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5166.92	12.82	5165.57	17.77	5164.2	25.43	5163.51	34.93	5157.47
69.78	5157.25	115.03	5157.51	124.4	5162.72	137.06	5162.84	142.85	5163.3
148.81	5163.44								

Manning's n Values

Sta	n Val	num=	1
0	.035		

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	25.43	124.4		7	7		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13135

INPUT

Description: 0.9
 Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5166.92	12.82	5165.57	17.77	5164.2	25.43	5163.51	34.93	5154.85
69.78	5154.75	115.03	5154.62	124.4	5162.72	137.06	5162.84	142.85	5163.3
148.81	5163.44								

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	25.43	124.4		199	199		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13130

INPUT

Description: 0.8
 Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5163.82	9.59	5161.86	11.43	5160.11	22.22	5158.98	38.45	5153.39
75.24	5152.76	111.51	5152.8	123.76	5158.34	129.39	5158.8	135.05	5158.85
148.75	5162.51								

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	22.22	129.39		394	392		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13120

INPUT

Description: 0.7
 Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5162.4	16.83	5157.28	25.27	5156.08	35.28	5151.92	75.33	5149.46
112.29	5150.98	126.1	5155.97	131.63	5156.42	136.88	5156.47	148.72	5157.55

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	25.27	126.1		393	393		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13110

INPUT

Description: 0.6
 Station Elevation Data num= 9

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5156.82	25.32	5154.93	40.3	5149.03	77.54	5148.11	108.22	5147.82
123.95	5153.28	129.96	5153.69	135.02	5153.42	148.3	5154.08		

Manning's n Values num= 1

Sta	n Val
0	.035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	25.32	129.96		398	400		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13100

INPUT

Description: 0.53
 Station Elevation Data num= 11

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
8.71	5149	18.57	5150.7	32.06	5150.54	46.08	5145.79	80.21	5144.96
121.91	5145.86	135.74	5150.4	146.26	5150.43	150.77	5150.65	155.95	5150.46

158.16 5150.37

Manning's n Values num= 1
 Sta n Val
 8.71 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 32.06 135.74 8 8 8 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13095

INPUT

Description: 0.52
 Station Elevation Data num= 14

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5148.08	5.4	5148.5	8.71	5149	18.57	5150.7	32.06	5150.54
53.82	5141.08	67.52	5139.87	95.57	5139.15	121.91	5139.64	135.74	5150.4
146.26	5150.43	150.77	5150.65	155.95	5150.46	158.16	5150.37		

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 32.06 135.74 6 6 6 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13093

INPUT

Description: 0.51
 Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5148.08	5.4	5148.5	8.71	5149	18.57	5150.7	32.06	5150.54
46.08	5139.26	80.21	5138.89	121.91	5139.59	135.74	5150.4	146.26	5150.43
150.77	5150.65	155.95	5150.46	158.16	5150.37				

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 32.06 135.74 6 6 6 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13090

INPUT

Description: 0.5
 Station Elevation Data num= 13

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5148.08	5.4	5148.5	8.71	5149	18.57	5150.7	32.06	5150.54
46.08	5140.62	80.21	5140.45	121.91	5140.41	135.74	5150.4	146.26	5150.43
150.77	5150.65	155.95	5150.46	158.16	5150.37				

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 32.06 135.74 410 408 401 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13080

INPUT

Description: 0.4
 Station Elevation Data num= 10

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5144.26	23.15	5143.43	38.59	5138.8	68.1	5137.16	110.17	5138.29
122.75	5143.38	126.08	5144.01	131.81	5144.34	137.01	5144.21	148.91	5144.48

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 23.15 122.75 394 402 416 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13070

INPUT

Description: 0.3

Station	Elevation	Data	num=	10	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	5141.77	22.48	5141.02	38.43	5135.31	80.51	5134.83	121.07	5135.63			
134.28	5140.73	135.9	5140.73	141.35	5141.09	146.52	5140.9	153.97	5139.85			

Manning's n Values num= 1
 Sta n Val
 0 .035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	22.48	134.28		160	160		.1	.3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13060

INPUT

Description: 0.21

Station	Elevation	Data	num=	9	Sta	Elev	Sta	Elev	Sta	Elev
0	5138.06	26.64	5137.89	40.08	5131.76	78.6	5130.8	124.02	5131.8	
136.9	5137.17	148.83	5138.41	156.01	5138.46	163.91	5138.02			

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .035 26.64 .04 136.9 .035

Bank Sta:	Left	Right	Lengths:	Left Channel	Right	Coeff	Contr.	Expan.
	26.64	136.9		81	81		.3	.5

BRIDGE

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13055

INPUT

Description: San Ildefonso Road Crossing

Distance from Upstream XS = 5

Deck/Roadway Width = 63

Weir Coefficient = 2.6

Upstream Deck/Roadway Coordinates

num=	6	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
		0	5138.06	5137.82	26.54	5138.19	5135.82	35.95	5138.28	5135.82
		123.89	5138.28	5135.82	133.38	5138.15	5135.82	191.4	5137.59	

Upstream Bridge Cross Section Data

Station	Elevation	Data	num=	9	Sta	Elev	Sta	Elev	Sta	Elev
0	5138.06	26.64	5137.89	33.52	5131.76	78.6	5130.8	127.95	5131.8	
133.38	5136.5	148.83	5138.01	156.01	5138	163.91	5138			

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .035 26.64 .04 133.38 .035

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	26.64	133.38		.3	.5

Downstream Deck/Roadway Coordinates

num=	6	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
		0	5138.82	5136.56	35.95	5138.28	5135.83	123.89	5138.28	5135.83
		130.4	5138.15	5135.83	133.38	5138.15	5135.83	160	5137.59	

Downstream Bridge Cross Section Data

Station	Elevation	Data	num=	8	Sta	Elev	Sta	Elev	Sta	Elev
0	5138.38	5.88	5138.43	13.34	5138.08	24.6	5131.47	67.63	5131.14	
119.12	5130.96	133.38	5136.5	151.22	5137.59					

Manning's n Values num= 3
 Sta n Val Sta n Val
 0 .035 13.34 .04 133.38 .035

Bank Sta:	Left	Right	Coeff	Contr.	Expan.
	13.34	133.38		.1	.3

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
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Downstream Embankment side slope = BNADwstm-.rep
 Maximum allowable submergence for weir flow = 0 horiz. to 1.0 vertical
 Elevation at which weir flow begins = .98
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of Piers = 2

Pier Data
 Pier Station Upstream= 61.72 Downstream= 52.9
 Upstream num= 4
 Width Elev Width Elev Width Elev Width Elev
 1 5131.5 1 5134 2.5 5134.7 2.5 5136.5
 Downstream num= 4
 Width Elev Width Elev Width Elev Width Elev
 1 5131.5 1 5134 2.5 5134.7 2.5 5136.5

Pier Data
 Pier Station Upstream= 99.7 Downstream= 90.9
 Upstream num= 4
 Width Elev Width Elev Width Elev Width Elev
 1 5131.5 1 5134 2.5 5134.7 2.5 5136.5
 Downstream num= 4
 Width Elev Width Elev Width Elev Width Elev
 1 5131.5 1 5134 2.5 5134.7 2.5 5136.5

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data

Energy
 Selected Low Flow Methods = Highest Energy Answer

High Flow Method
 Energy Only

Additional Bridge Parameters

Add Friction component to Momentum
 Do not add Weight component to Momentum
 Class B flow critical depth computations use critical depth
 inside the bridge at the upstream end
 Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13050

INPUT

Description: 0.2
 Station Elevation Data num= 8
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 5138.38 5.88 5138.43 13.34 5138.08 31.58 5131.47 67.63 5131.14
 105.01 5130.97 127.98 5138.61 151.22 5137.53

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .035 13.34 .04 127.98 .035

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
 13.34 127.98 193 234 277 .1 .3

CROSS SECTION

RIVER: Lidar Dwnstm
 REACH: Alignment - Dam RS: 13040

INPUT

Description: 0.1
 Station Elevation Data num= 9
 Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev Sta Elev
 0 5137.45 10.38 5137.6 14.36 5137.88 20.8 5136.91 42.51 5128.78
 71.46 5127.23 102.04 5128.01 119.45 5135.21 150.52 5133.97

Manning's n Values num= 1
 Sta n Val Sta n Val
 0 .035

Bank Sta: Left Right Coeff Contr. Expan.
 20.8 119.45 .1 .3

SUMMARY OF MANNING'S N VALUES

River:Lidar Dwnstm

Reach River Sta. n1 n2 n3 n4 n5

BNADwstm-.rep					
Alignment - Dam	18022.9	.013			
Alignment - Dam	17987.1	.013			
Alignment - Dam	17735.62	.035			
Alignment - Dam	17129.8	.035			
Alignment - Dam	17000.0	.05	.05	.05	
Alignment - Dam	16550	.035			
Alignment - Dam	16457.0	.05	.035	.035	.035
Alignment - Dam	15976	.035			
Alignment - Dam	15247.7	.035			
Alignment - Dam	15100	.035			
Alignment - Dam	15090		Culvert		
Alignment - Dam	15080	.035			
Alignment - Dam	14886.4	.035			
Alignment - Dam	14300.75	.035			
Alignment - Dam	14200	.035			
Alignment - Dam	14100.75	.035			
Alignment - Dam	13900.75	.035			
Alignment - Dam	13700.75	.035			
Alignment - Dam	13150.55	.035			
Alignment - Dam	13150.54	.035			
Alignment - Dam	13150	.035			
Alignment - Dam	13149.5	.035			
Alignment - Dam	13149	.035	.013	.035	
Alignment - Dam	13148.5	.035	.013	.035	
Alignment - Dam	13148	.035	.013	.035	
Alignment - Dam	13146		Culvert		
Alignment - Dam	13145	.035	.013	.035	
Alignment - Dam	13144	.035	.013	.035	.013
Alignment - Dam	13143	.035	.013	.035	.035
Alignment - Dam	13140	.035			
Alignment - Dam	13135	.035			
Alignment - Dam	13130	.035			
Alignment - Dam	13120	.035			
Alignment - Dam	13110	.035			
Alignment - Dam	13100	.035			
Alignment - Dam	13095	.035			
Alignment - Dam	13093	.035			
Alignment - Dam	13090	.035			
Alignment - Dam	13080	.035			
Alignment - Dam	13070	.035			
Alignment - Dam	13060	.035	.04	.035	
Alignment - Dam	13055		Bridge		
Alignment - Dam	13050	.035	.04	.035	
Alignment - Dam	13040	.035			

SUMMARY OF REACH LENGTHS

River: Lidar Dwnstm

Reach	River Sta.	Left	Channel	Right
Alignment - Dam	18022.9	35	35	35
Alignment - Dam	17987.1	43	43	43
Alignment - Dam	17735.62	605.82	605.82	605.82
Alignment - Dam	17129.8	129.8	129.8	129.8
Alignment - Dam	17000.0	212	212	212
Alignment - Dam	16550	331	331	331
Alignment - Dam	16457.0	481	481	481
Alignment - Dam	15976	728.26	728.26	728.26
Alignment - Dam	15247.7	139	192	259
Alignment - Dam	15100	53	53	53
Alignment - Dam	15090		Culvert	
Alignment - Dam	15080	115	115	115
Alignment - Dam	14886.4	585.65	585.65	585.65
Alignment - Dam	14300.75	321	321	321
Alignment - Dam	14200	215	215	215
Alignment - Dam	14100.75	200	200	200
Alignment - Dam	13900.75	200	200	200
Alignment - Dam	13700.75	57	57	57
Alignment - Dam	13150.55	29	29	29
Alignment - Dam	13150.54	43	43	43
Alignment - Dam	13150	53	53	53
Alignment - Dam	13149.5	40	40	40
Alignment - Dam	13149	16	16	16
Alignment - Dam	13148.5	9	9	9
Alignment - Dam	13148	65	63	62
Alignment - Dam	13146		Culvert	
Alignment - Dam	13145	9	9	9
Alignment - Dam	13144	15	15	15
Alignment - Dam	13143	183	172	162
Alignment - Dam	13140	7	7	7
Alignment - Dam	13135	199	199	199
Alignment - Dam	13130	394	392	390
Alignment - Dam	13120	393	393	393
Alignment - Dam	13110	398	400	409
Alignment - Dam	13100	8	8	8
Alignment - Dam	13095	6	6	6
Alignment - Dam	13093	6	6	6

				BNADwstm-.rep
Alignment - Dam	13090	410	408	401
Alignment - Dam	13080	394	402	416
Alignment - Dam	13070	160	160	160
Alignment - Dam	13060	81	81	81
Alignment - Dam	13055	Bridge		
Alignment - Dam	13050	193	234	277
Alignment - Dam	13040			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Lidar Dwnstm

Reach	River Sta.	Contr.	Expan.
Alignment - Dam	18022.9	.1	.3
Alignment - Dam	17987.1	.1	.3
Alignment - Dam	17735.62	.1	.3
Alignment - Dam	17129.8	.1	.3
Alignment - Dam	17000.0	.1	.3
Alignment - Dam	16550	.1	.3
Alignment - Dam	16457.0	.1	.3
Alignment - Dam	15976	.1	.3
Alignment - Dam	15247.7	.1	.3
Alignment - Dam	15100	.3	.5
Alignment - Dam	15090	Culvert	
Alignment - Dam	15080	.1	.3
Alignment - Dam	14886.4	.1	.3
Alignment - Dam	14300.75	.1	.3
Alignment - Dam	14200	.1	.3
Alignment - Dam	14100.75	.1	.3
Alignment - Dam	13900.75	.1	.3
Alignment - Dam	13700.75	.1	.3
Alignment - Dam	13150.55	.1	.3
Alignment - Dam	13150.54	.1	.3
Alignment - Dam	13150	.1	.3
Alignment - Dam	13149.5	.1	.3
Alignment - Dam	13149	.1	.3
Alignment - Dam	13148.5	.3	.5
Alignment - Dam	13148	.3	.5
Alignment - Dam	13146	Culvert	
Alignment - Dam	13145	.1	.3
Alignment - Dam	13144	.1	.3
Alignment - Dam	13143	.1	.3
Alignment - Dam	13140	.1	.3
Alignment - Dam	13135	.1	.3
Alignment - Dam	13130	.1	.3
Alignment - Dam	13120	.1	.3
Alignment - Dam	13110	.1	.3
Alignment - Dam	13100	.1	.3
Alignment - Dam	13095	.1	.3
Alignment - Dam	13093	.1	.3
Alignment - Dam	13090	.1	.3
Alignment - Dam	13080	.1	.3
Alignment - Dam	13070	.1	.3
Alignment - Dam	13060	.3	.5
Alignment - Dam	13055	Bridge	
Alignment - Dam	13050	.1	.3
Alignment - Dam	13040	.1	.3