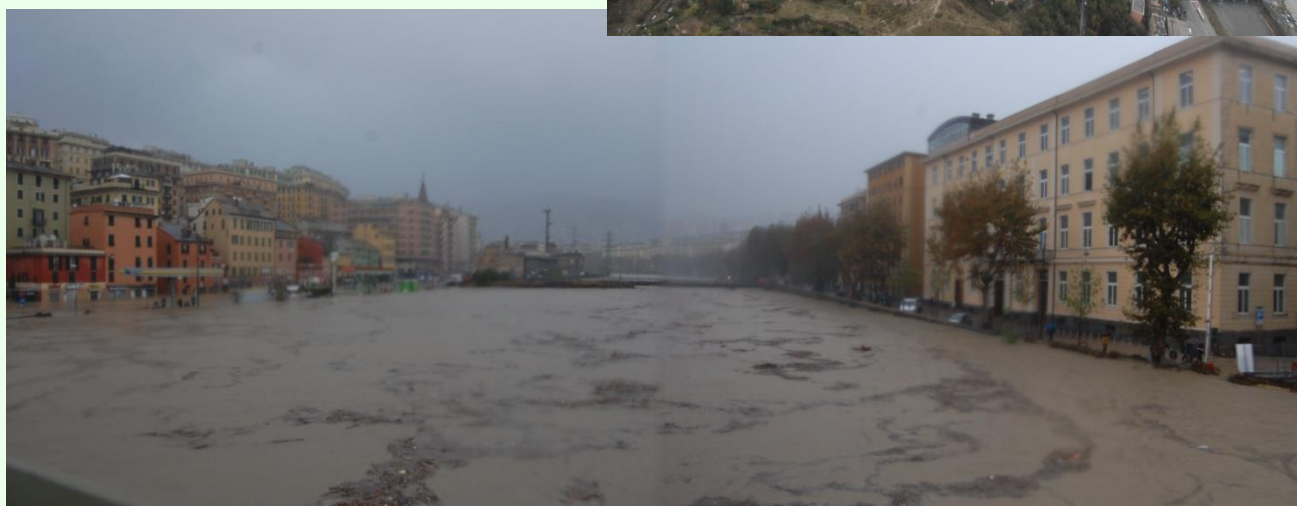


TORRENTE BISAGNO



PIANO DI BACINO STRALCIO PER LA TUTELA DAL RISCHIO IDROGEOLOGICO

(ai sensi dell'art. 1, comma 1, del D.L.
180/1998 convertito in L. 267/1998)



VERIFICHE IDRAULICHE Asta principale

APPROVAZIONE	Delibera del Consiglio Provinciale di Genova n. 62 del 04/12/2001
ULTIMA MODIFICA DELL'ELABORATO	Delibera di Giunta Regionale n. 712 del 29/07/2016
ENTRATA IN VIGORE	Pubblicazione sul BURL n. 34 del 24/08/2016

Allegato

Verifiche idrauliche

Torrente Bisagno

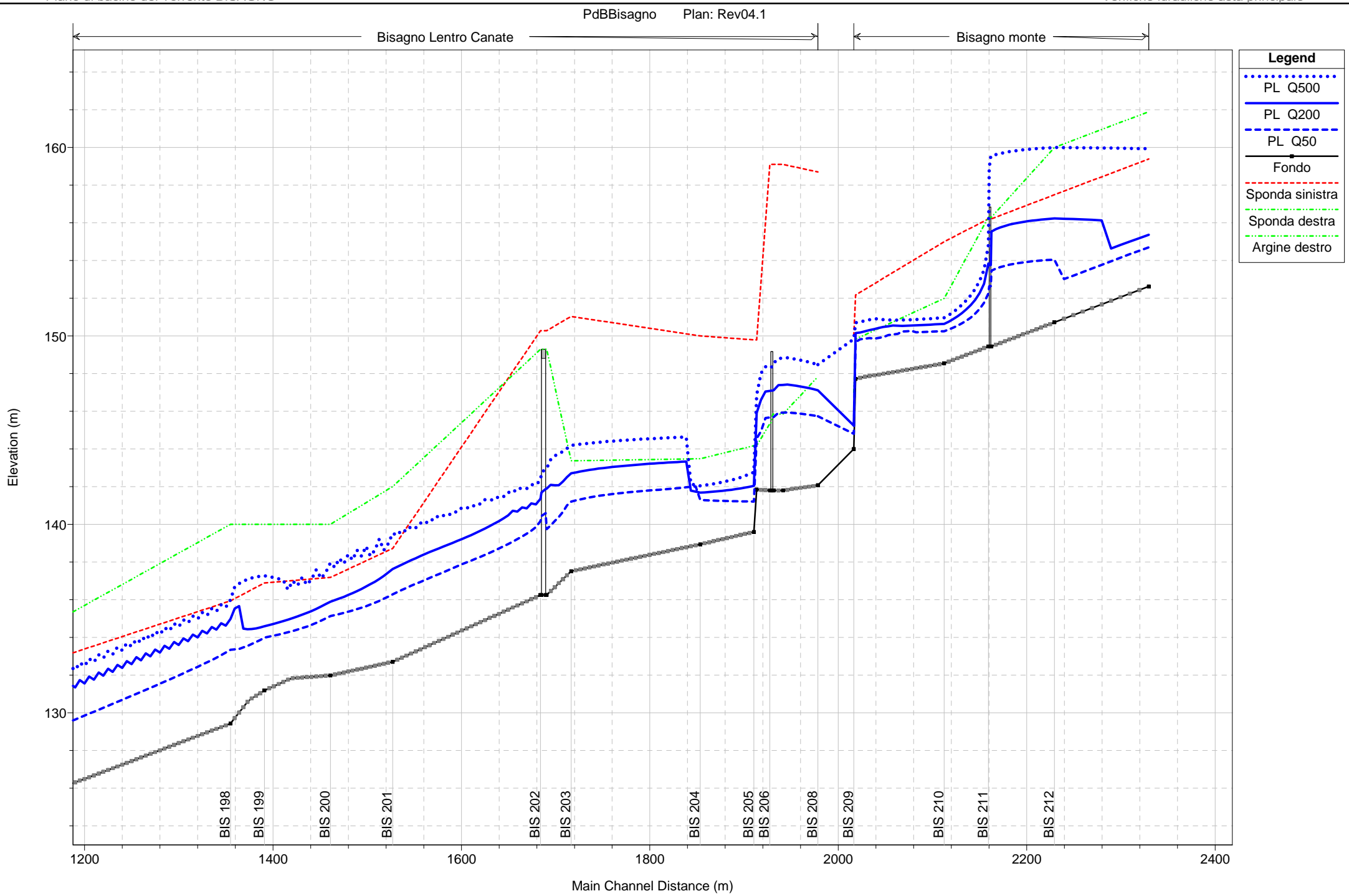
- tratto a monte del torrente Canate -

- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo

PdBBisagno Plan: Rev04.1

Bisagno Lentro Canate

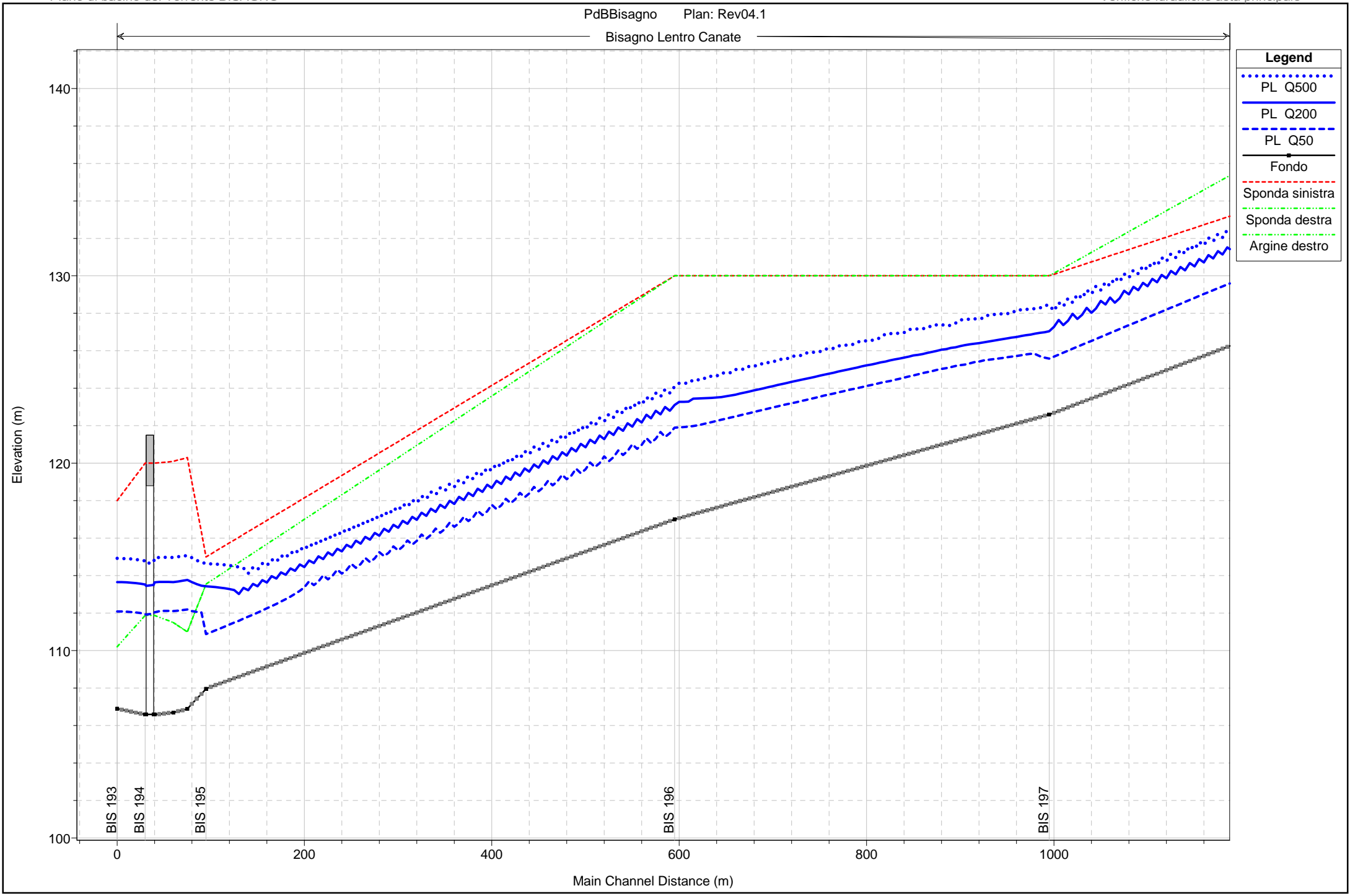
Bisagno monte



Legend	
PL Q500	(Dotted blue line)
PL Q200	(Solid blue line)
PL Q50	(Dashed blue line)
Fondo	(Solid black line)
Sponda sinistra	(Dashed red line)
Sponda destra	(Dotted green line)
Argine destro	(Dotted light green line)

PdBBisagno Plan: Rev04.1

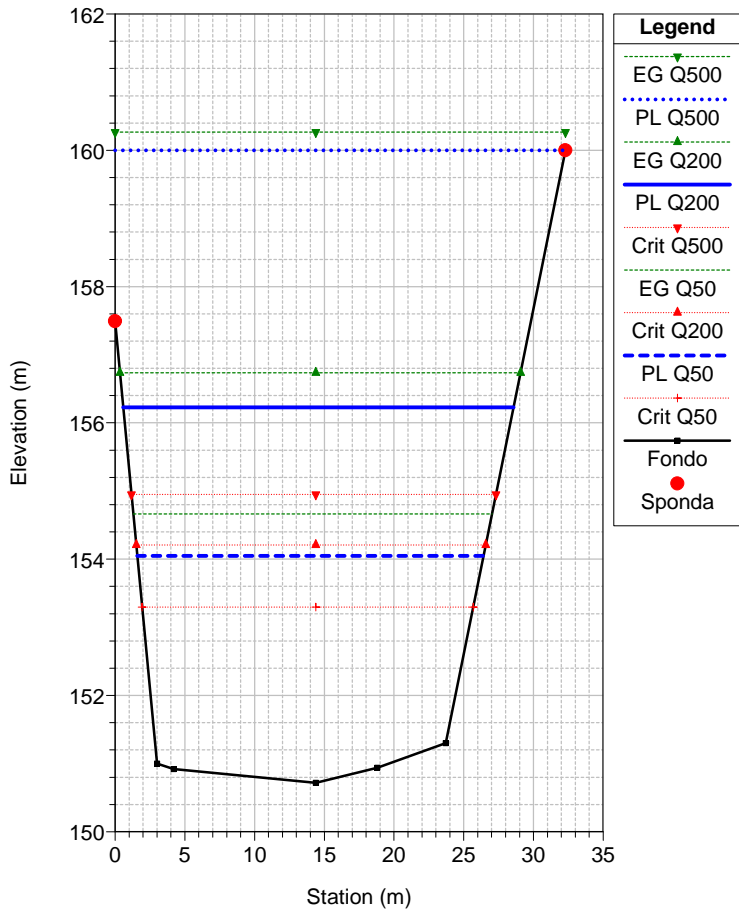
Bisagno Lentro Canate



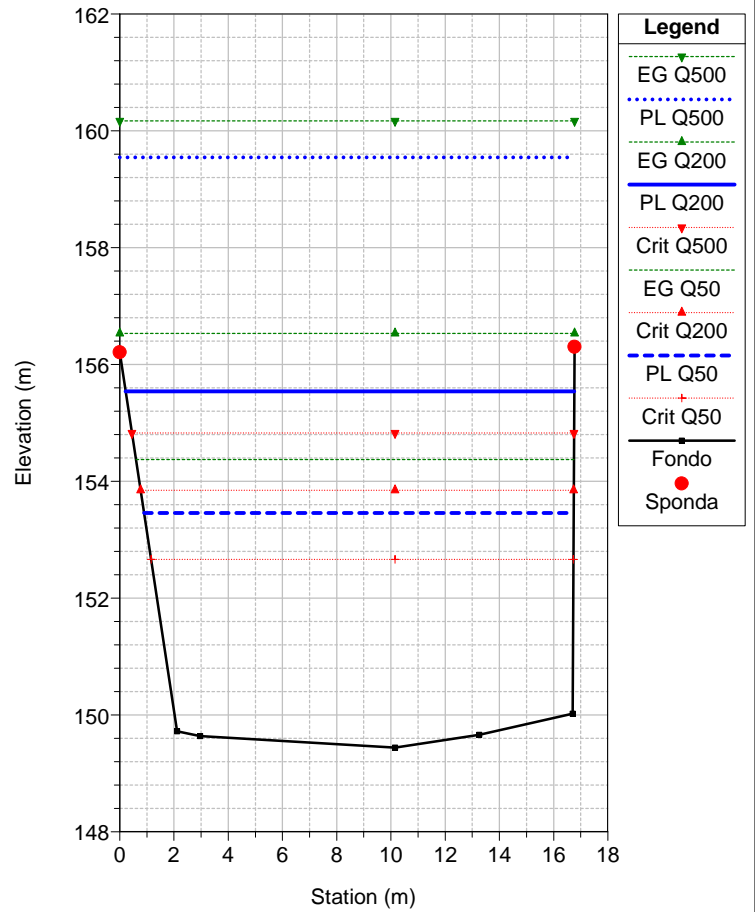
Legend

- PL Q500
- PL Q200
- PL Q50
- Fondo
- Sponda sinistra
- Sponda destra
- Argine destro

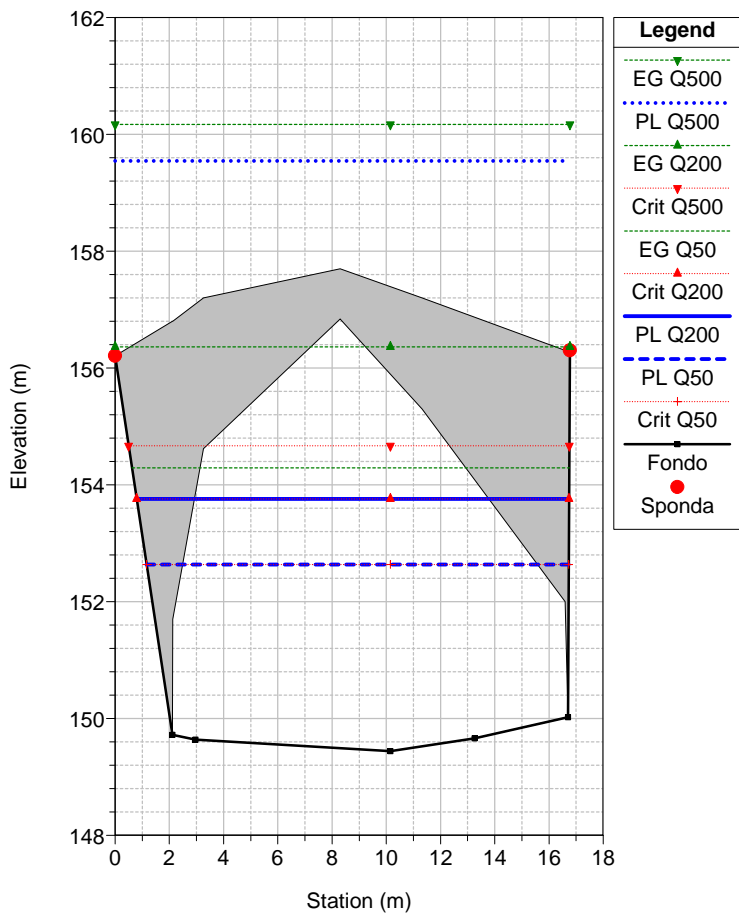
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 212



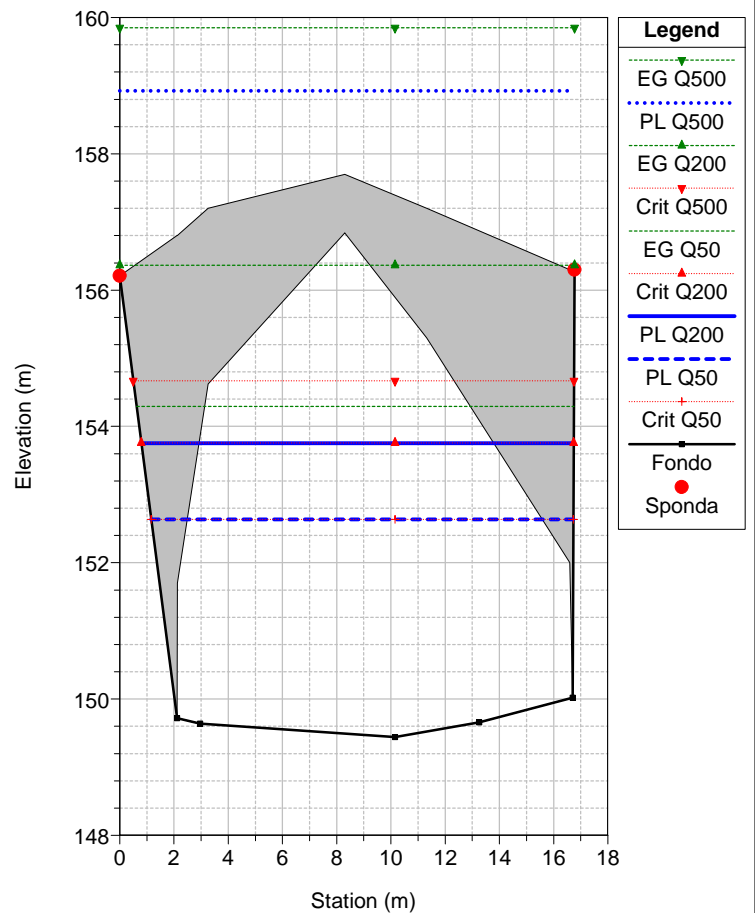
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 211



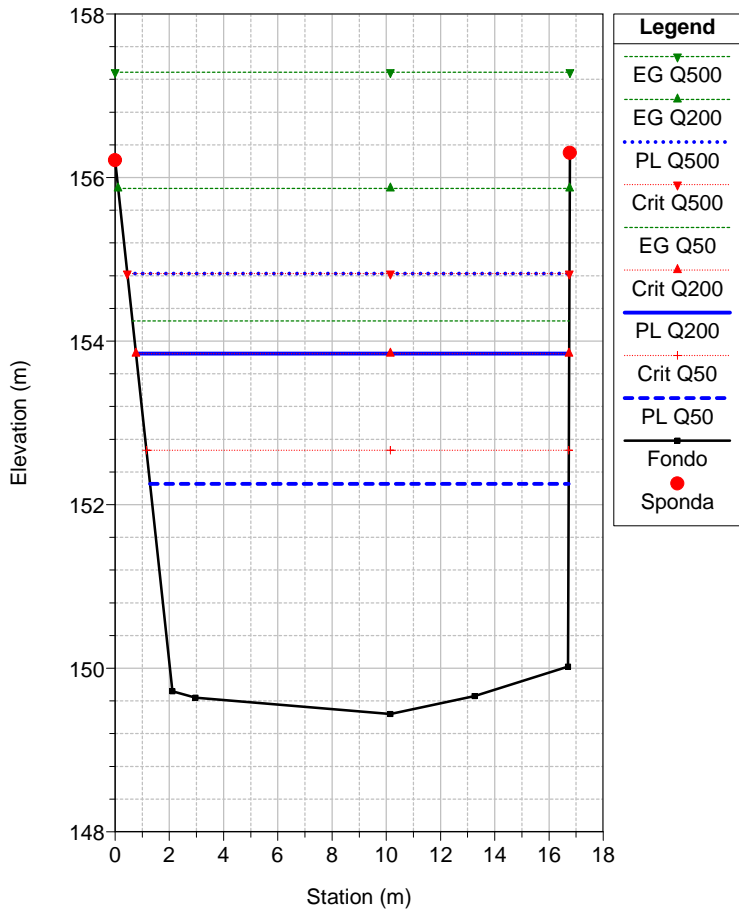
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 211



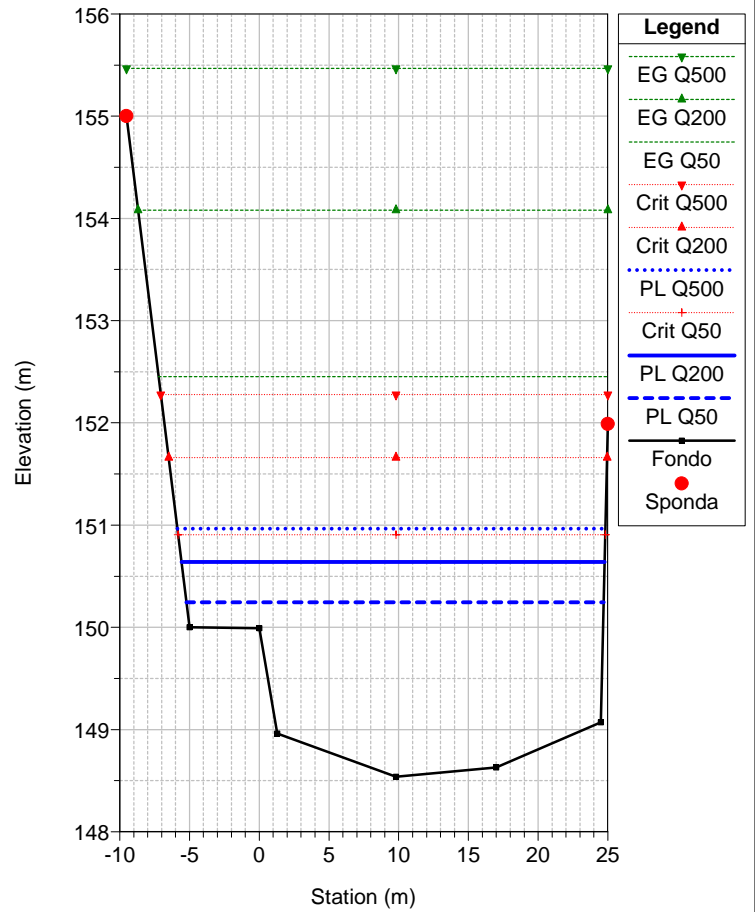
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 211



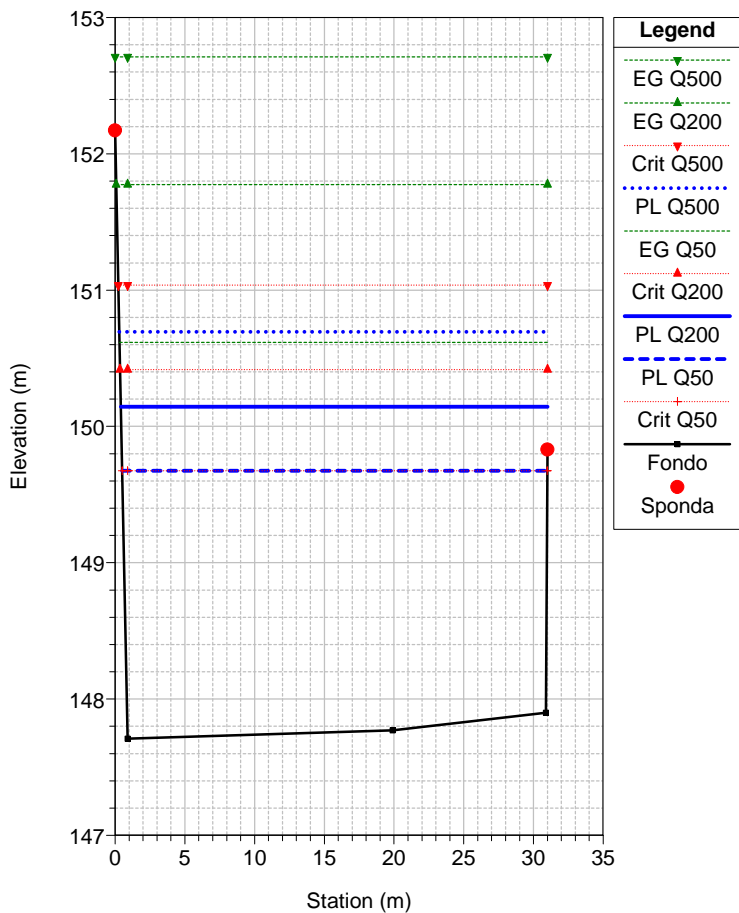
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 211



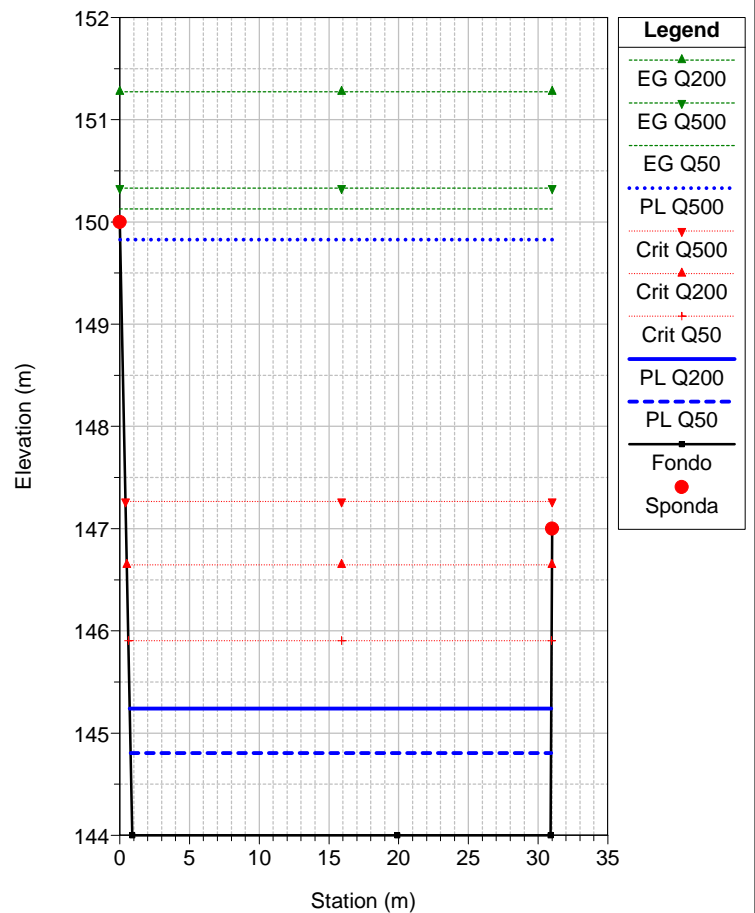
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 210



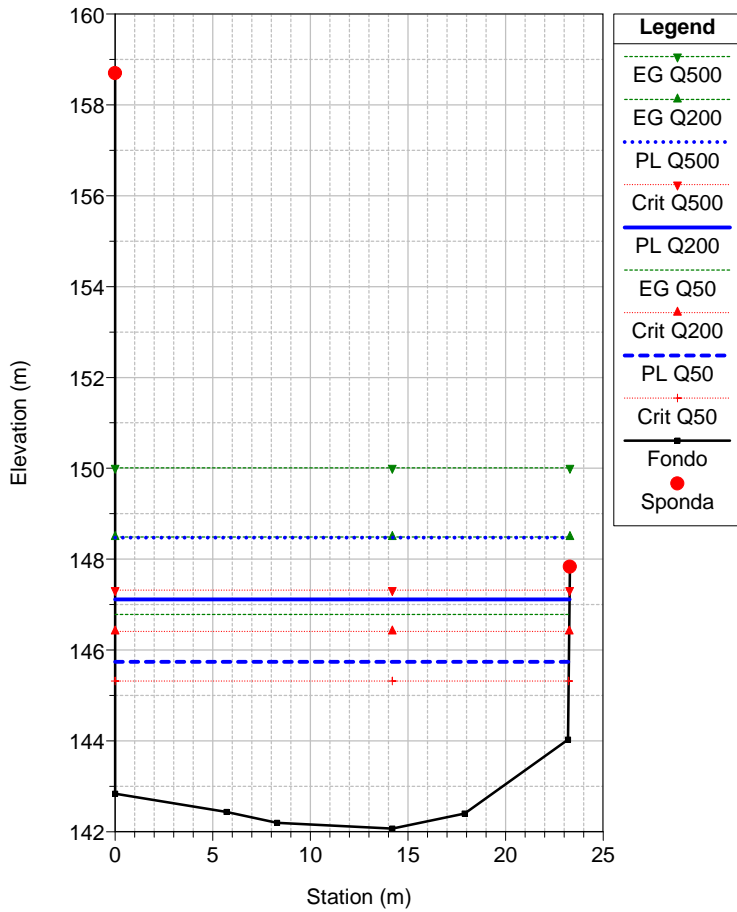
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 209



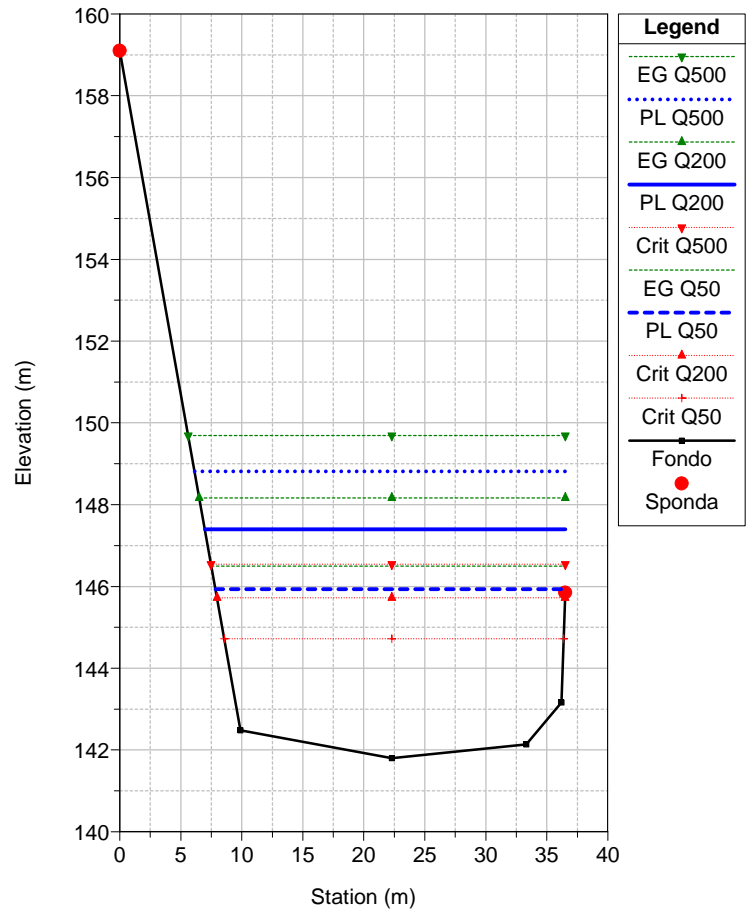
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = monte BIS 209



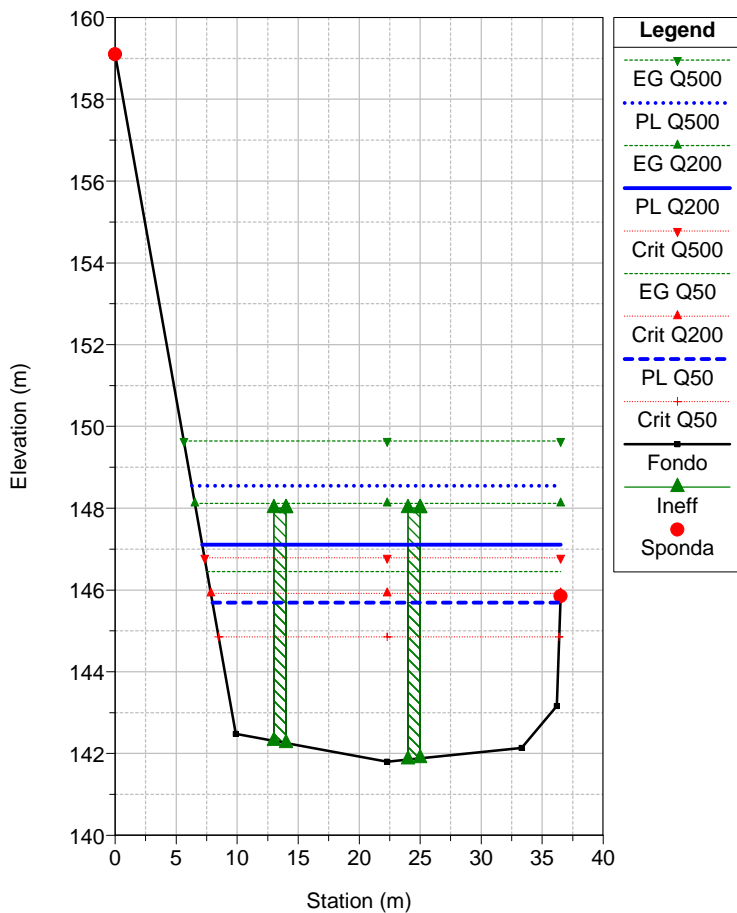
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 208



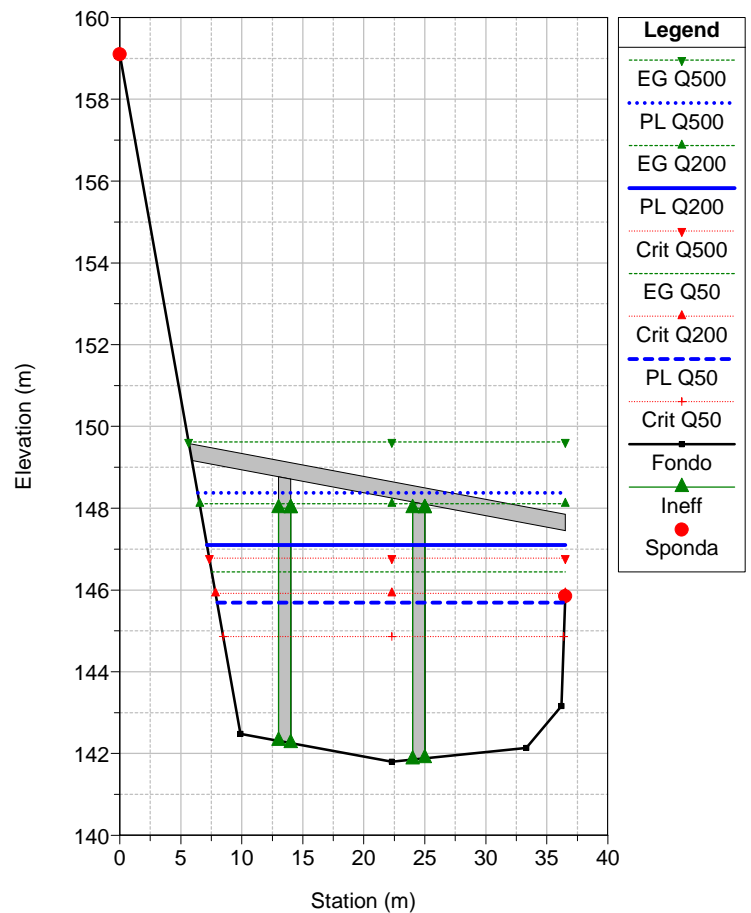
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 207



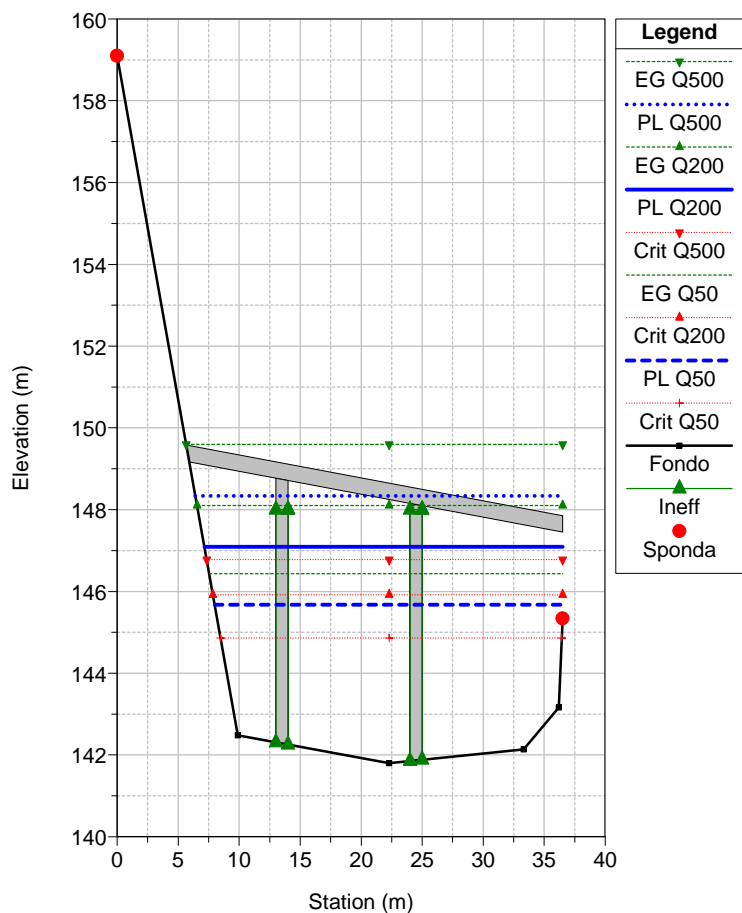
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 206



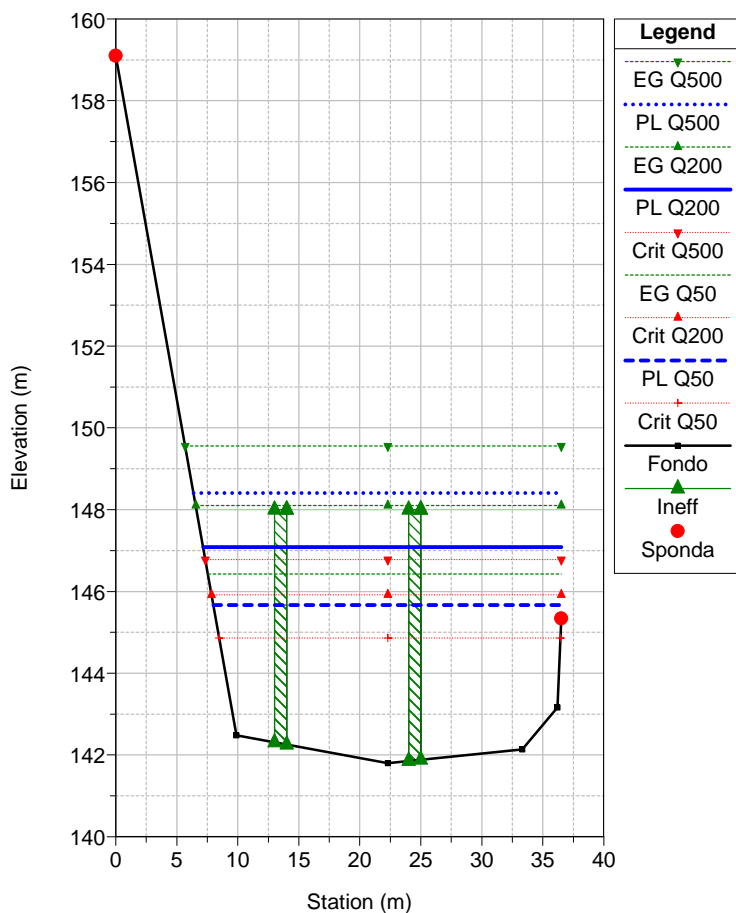
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 206



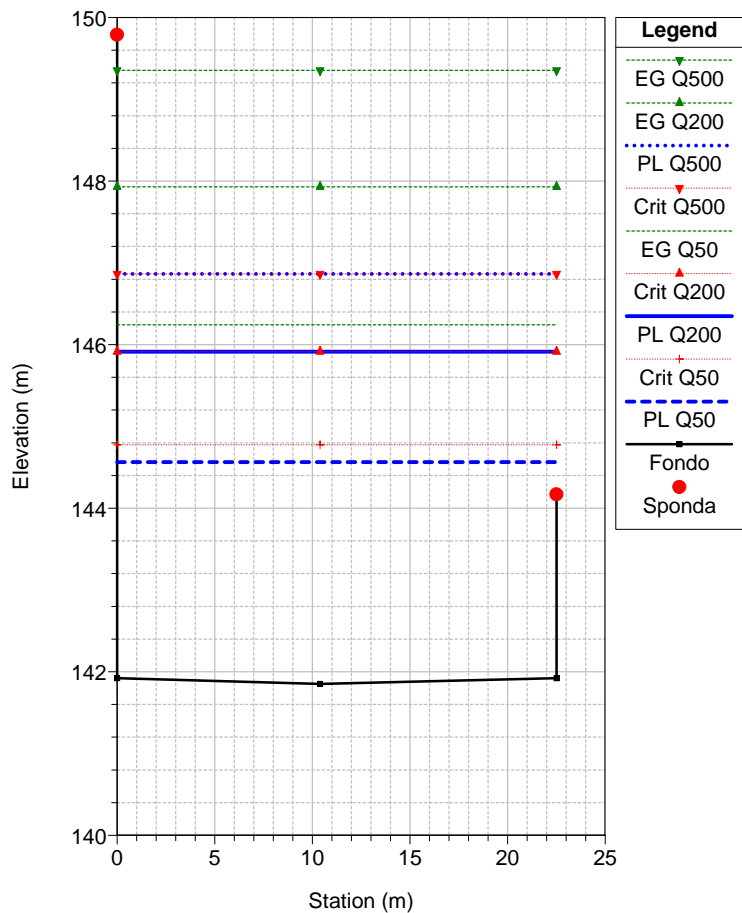
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 206



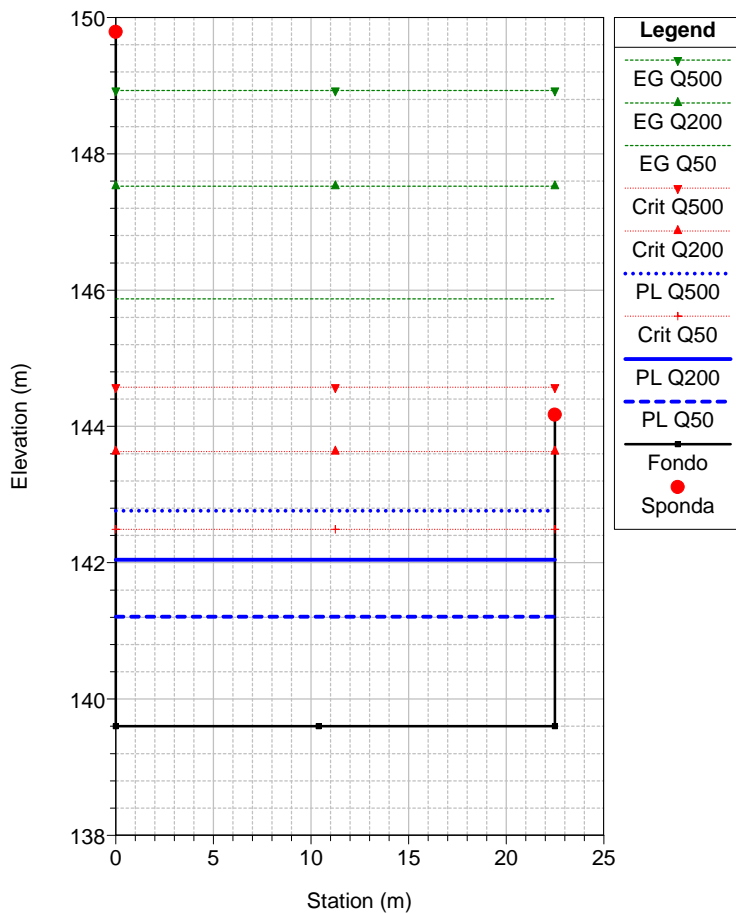
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 206



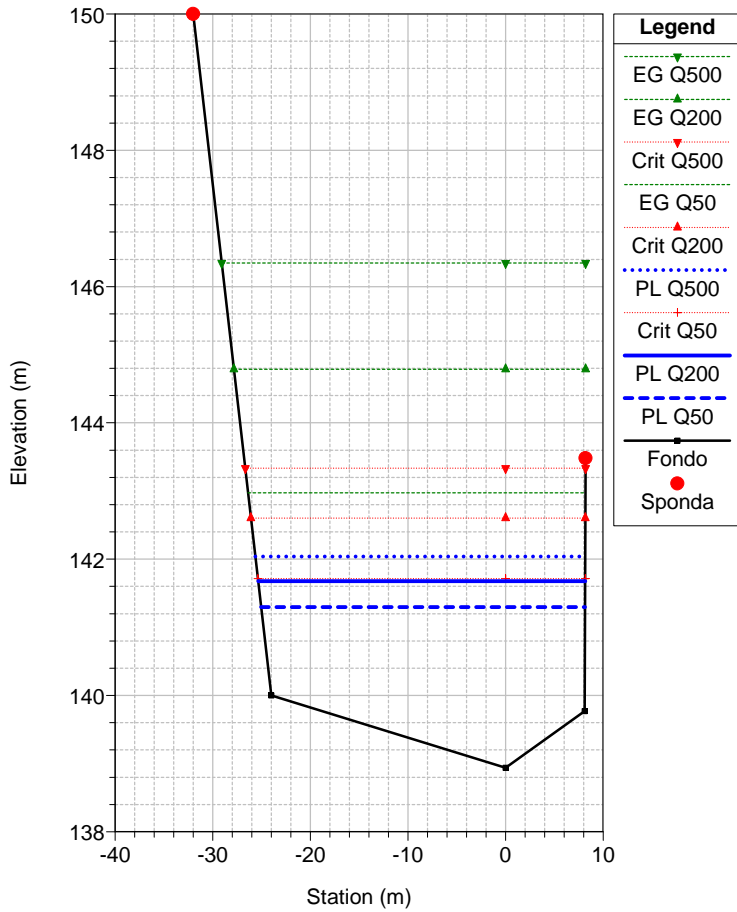
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 205



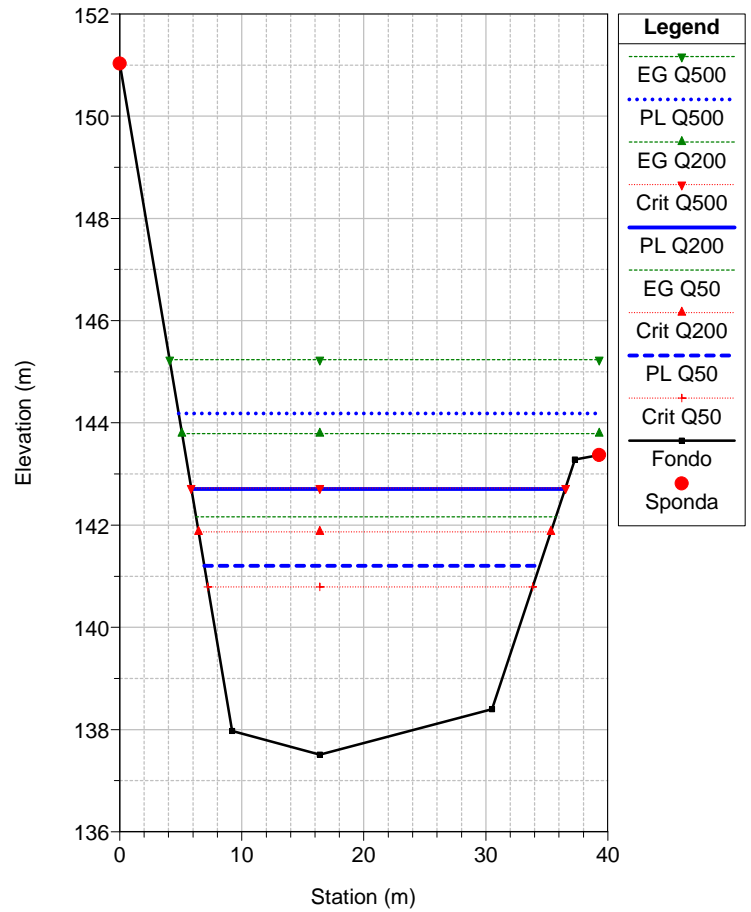
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 205



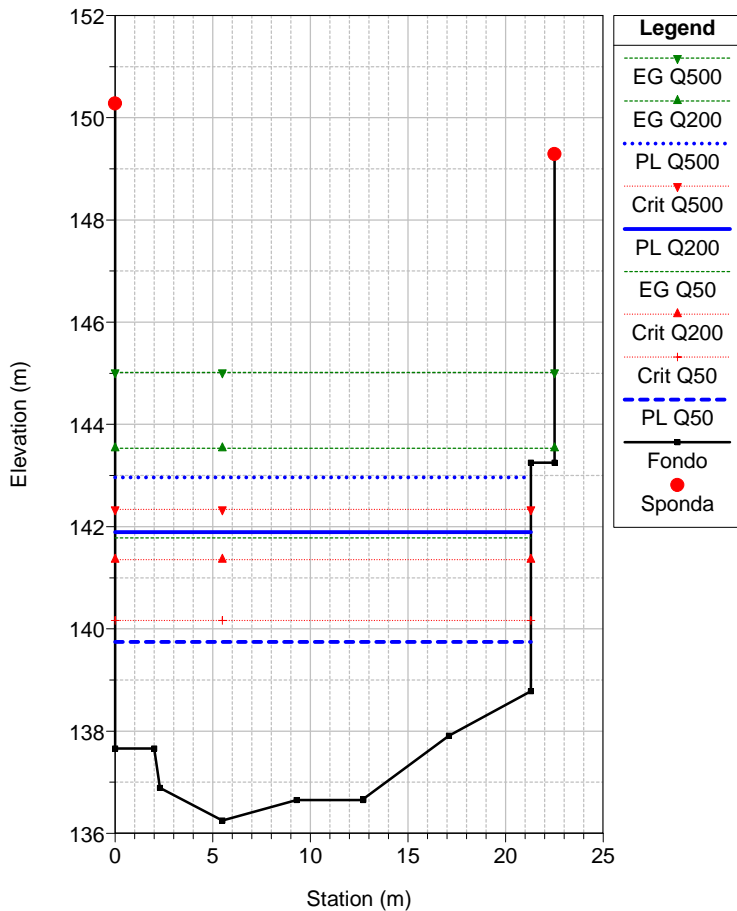
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 204



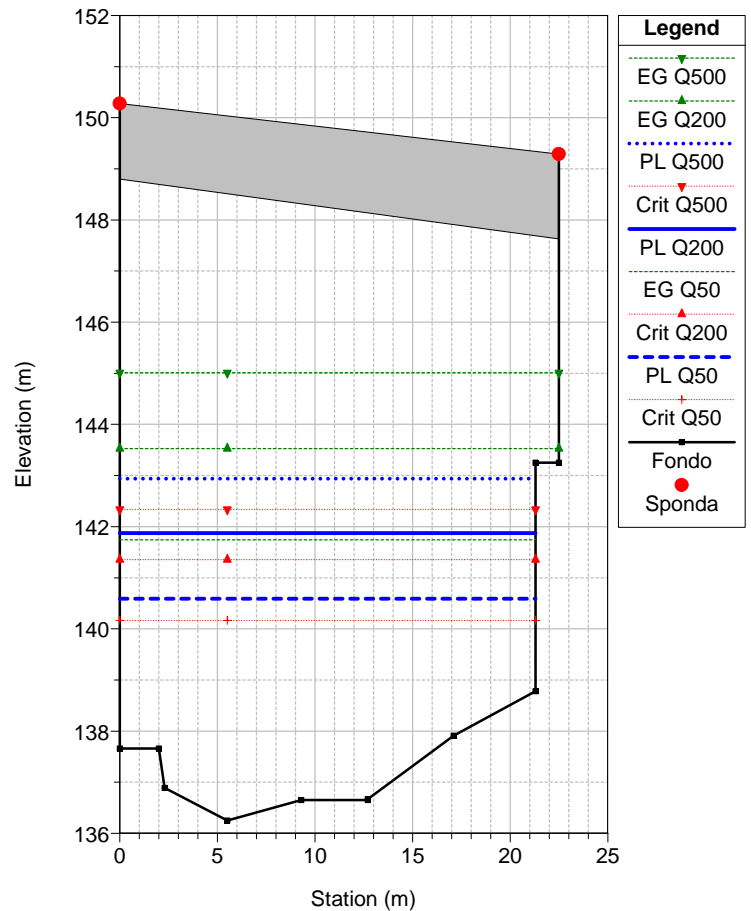
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 203



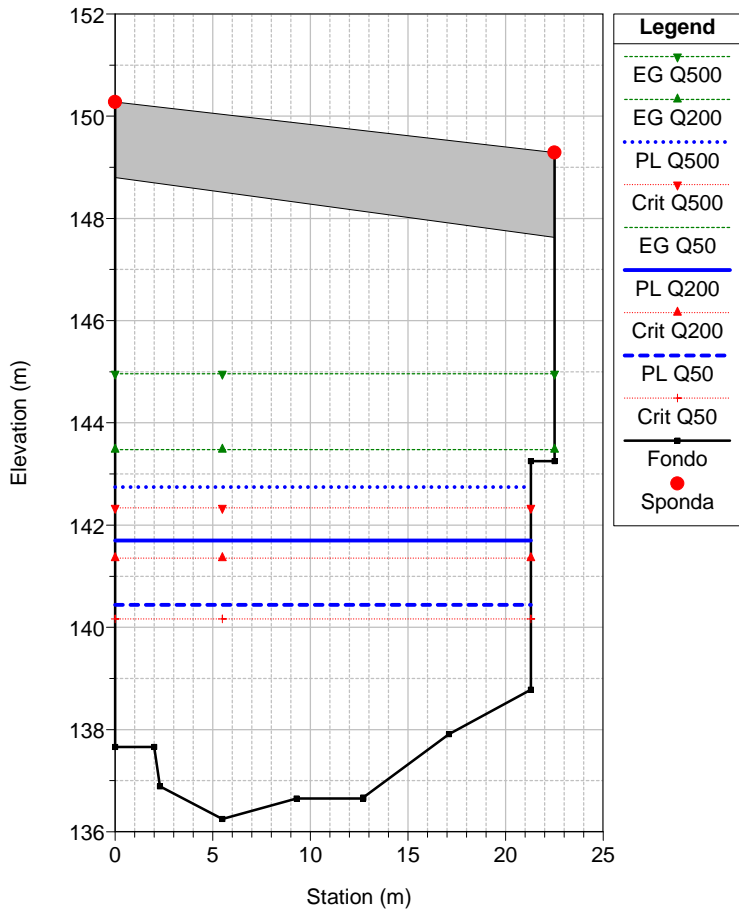
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 202



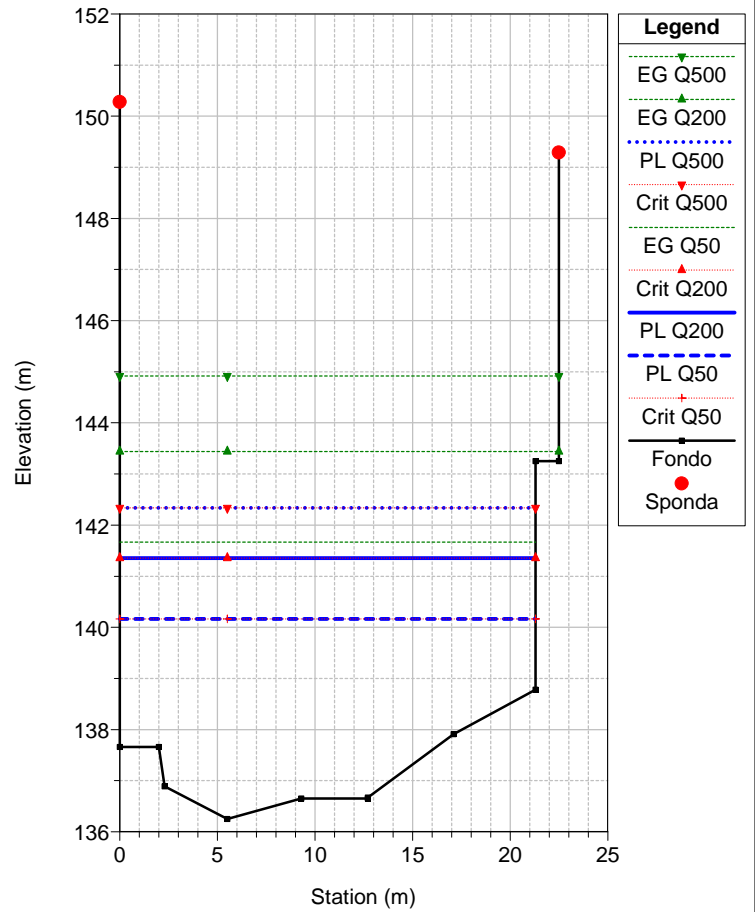
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 202



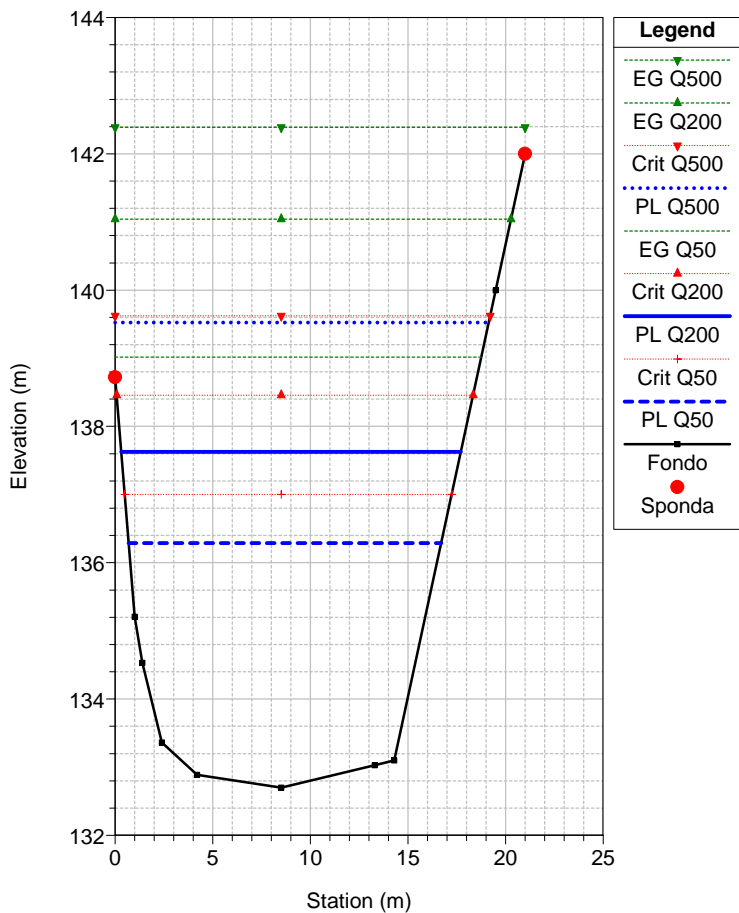
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 202



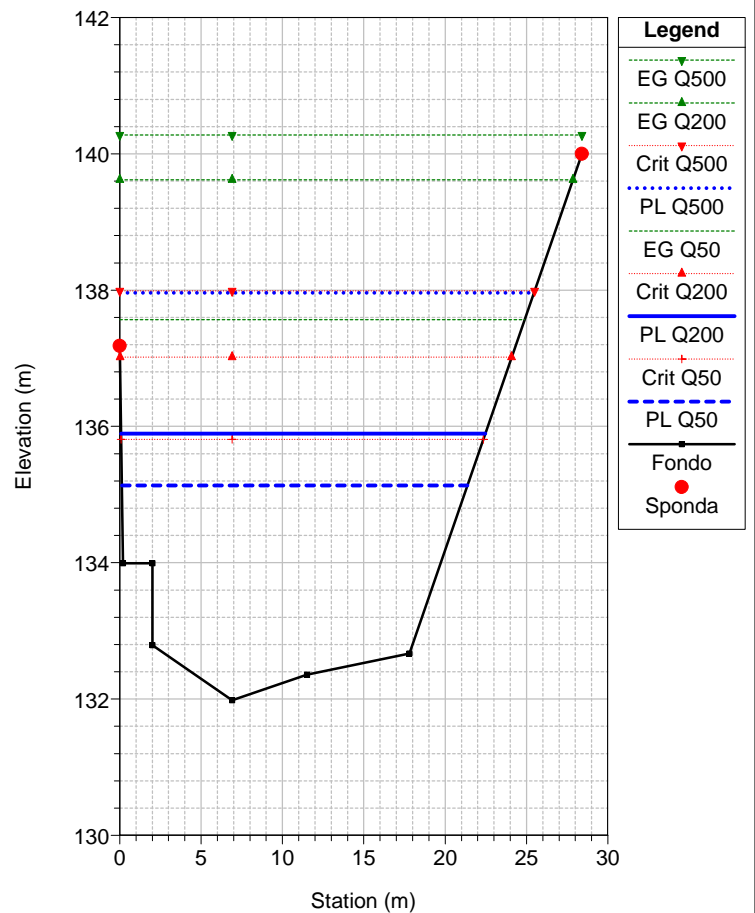
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 202



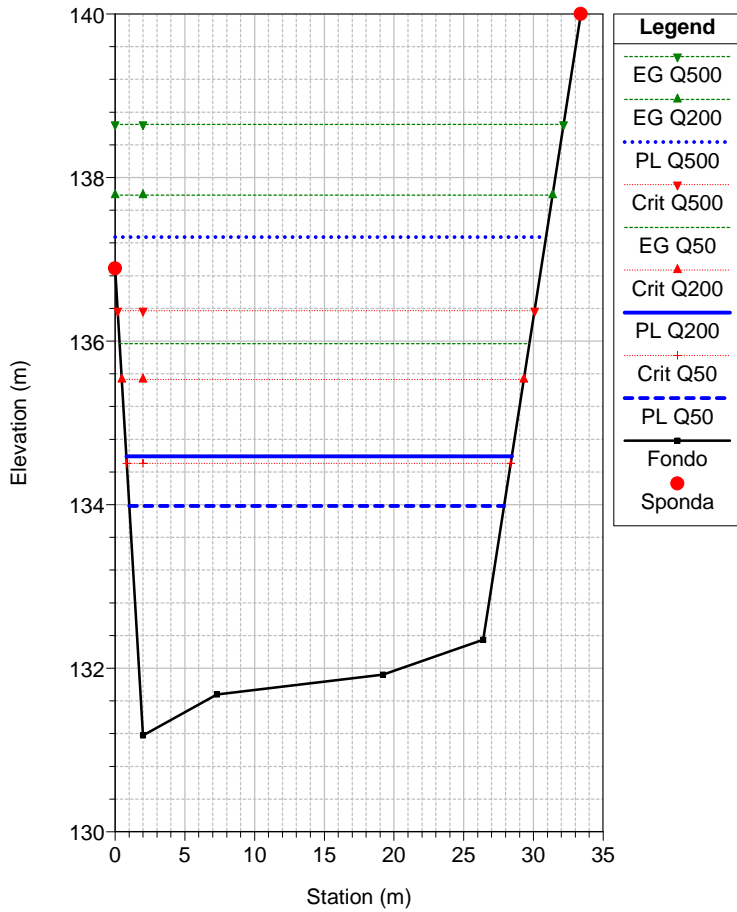
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 201



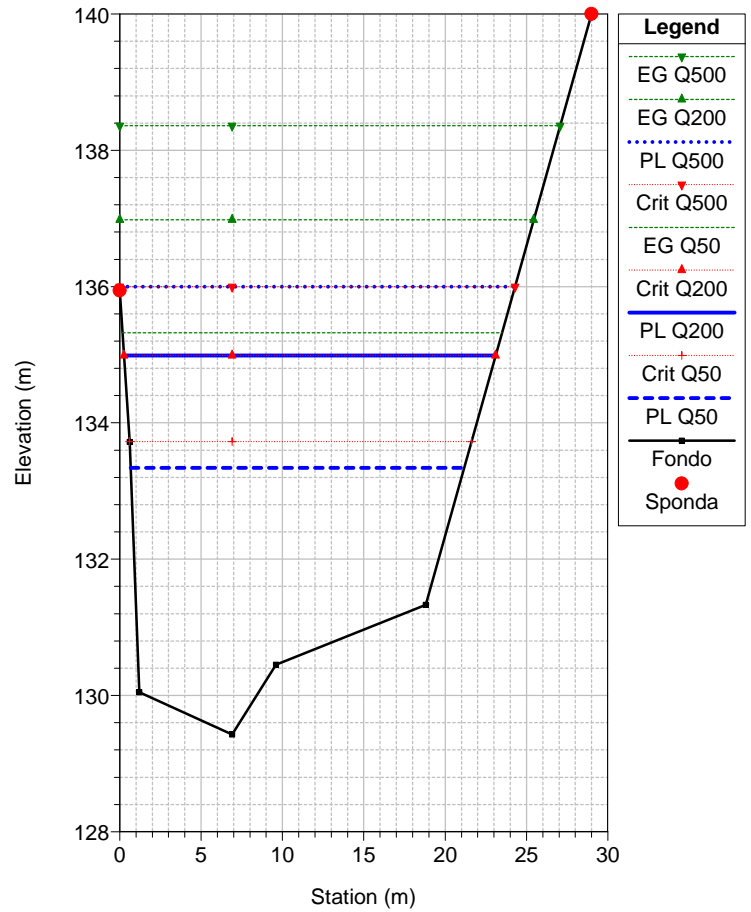
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 200



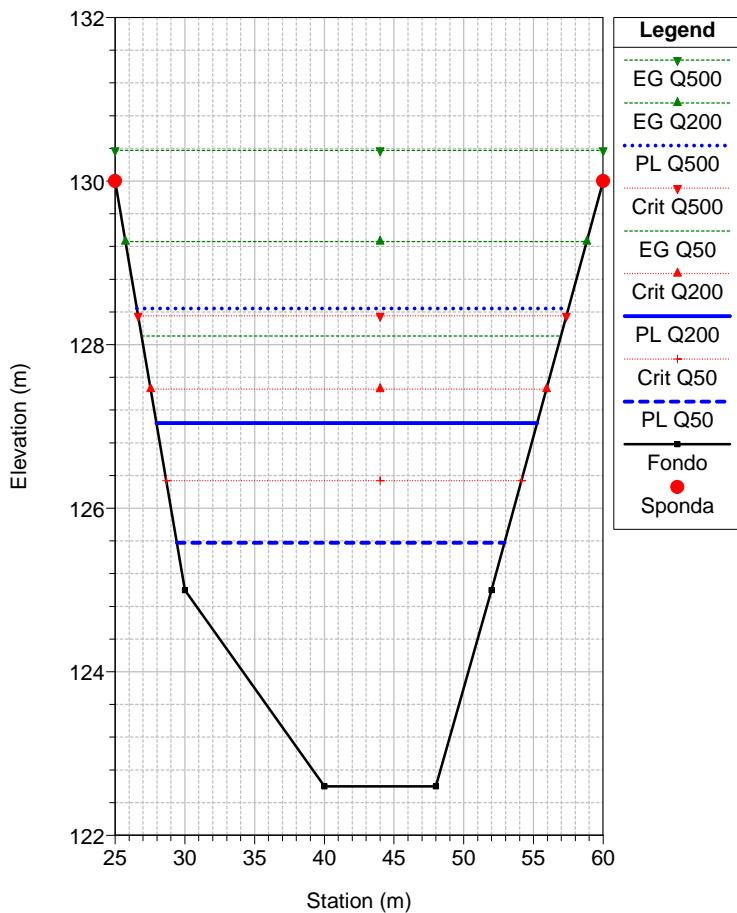
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 199



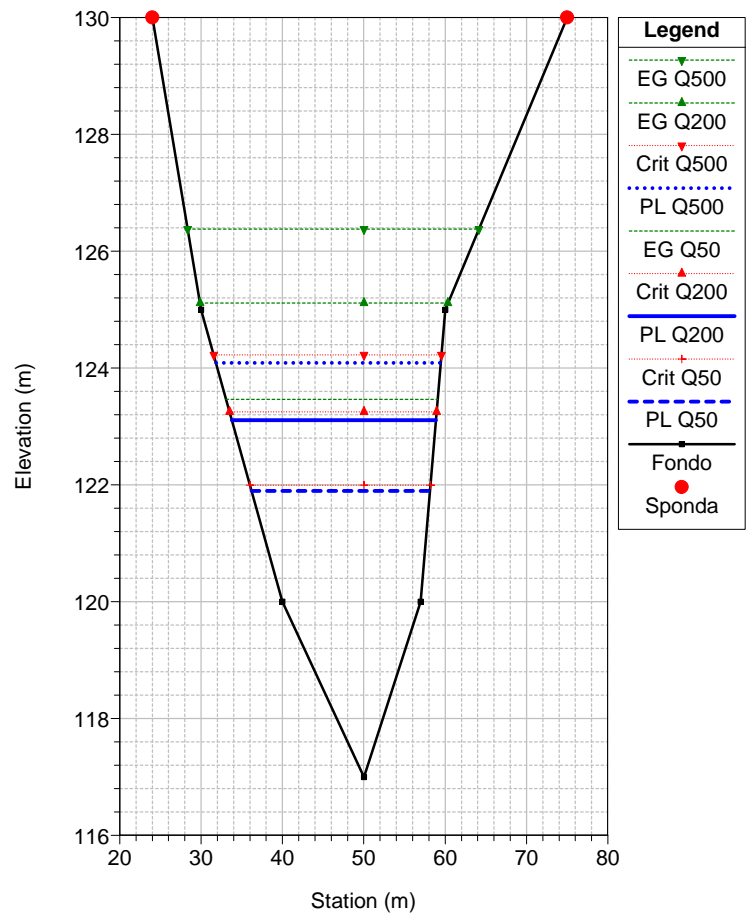
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 198



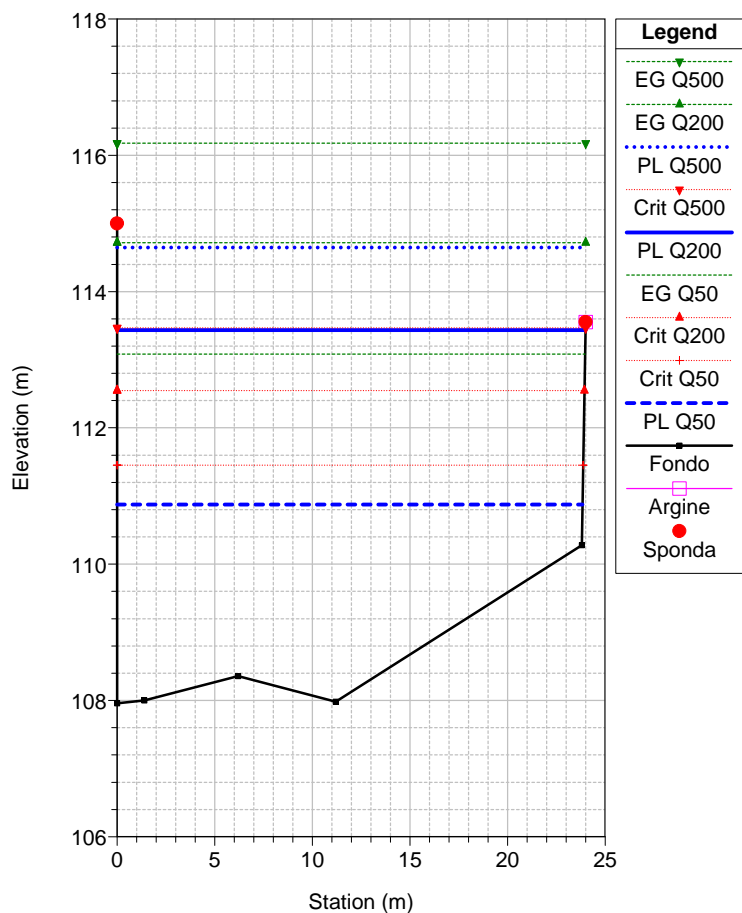
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 197



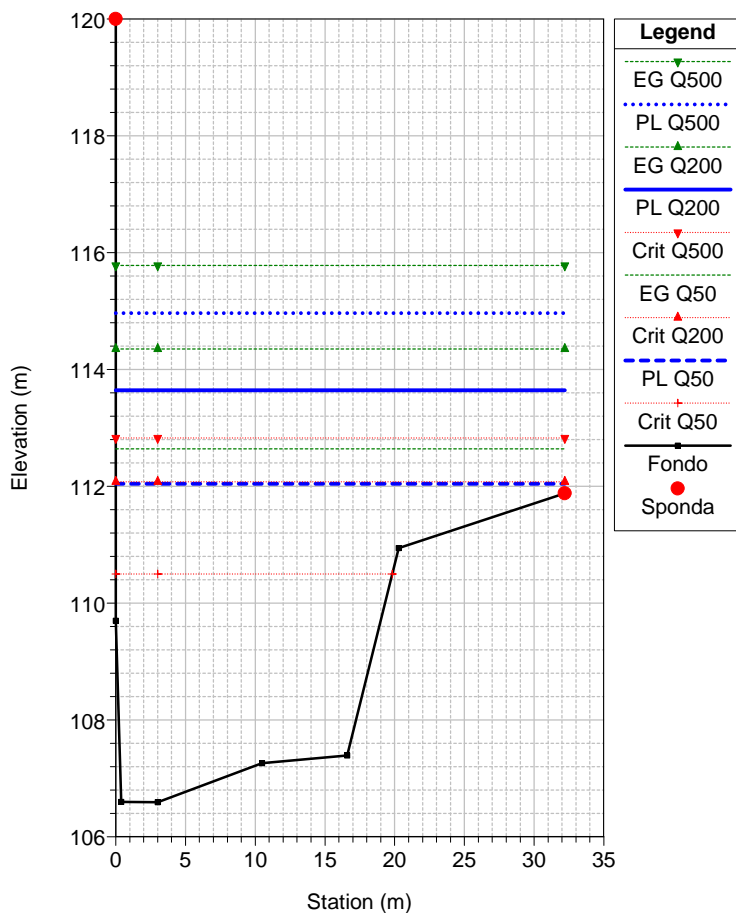
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 196



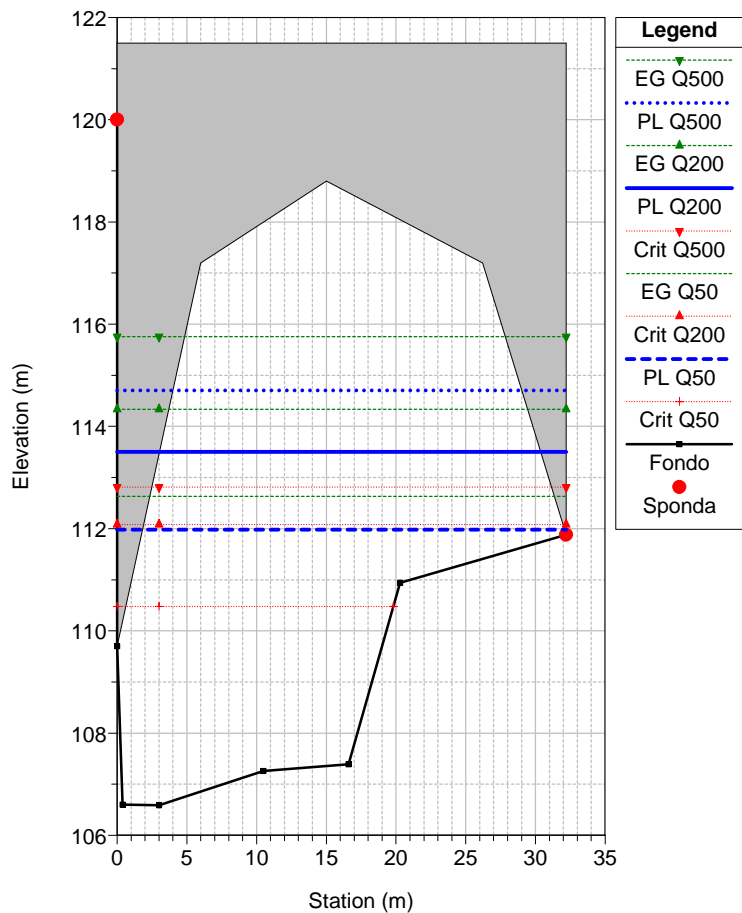
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 195



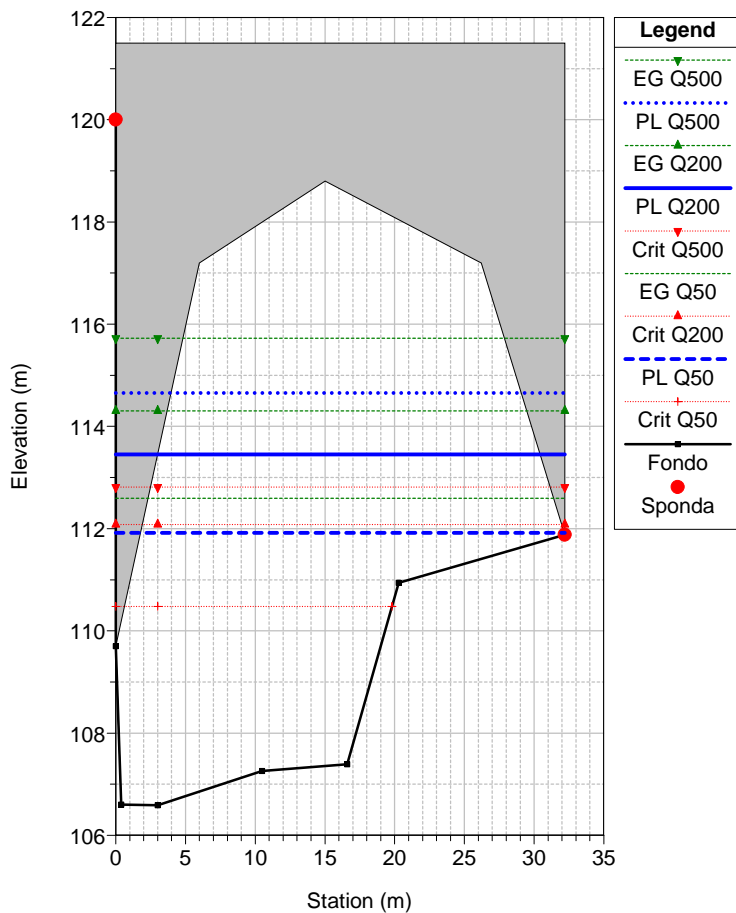
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 194



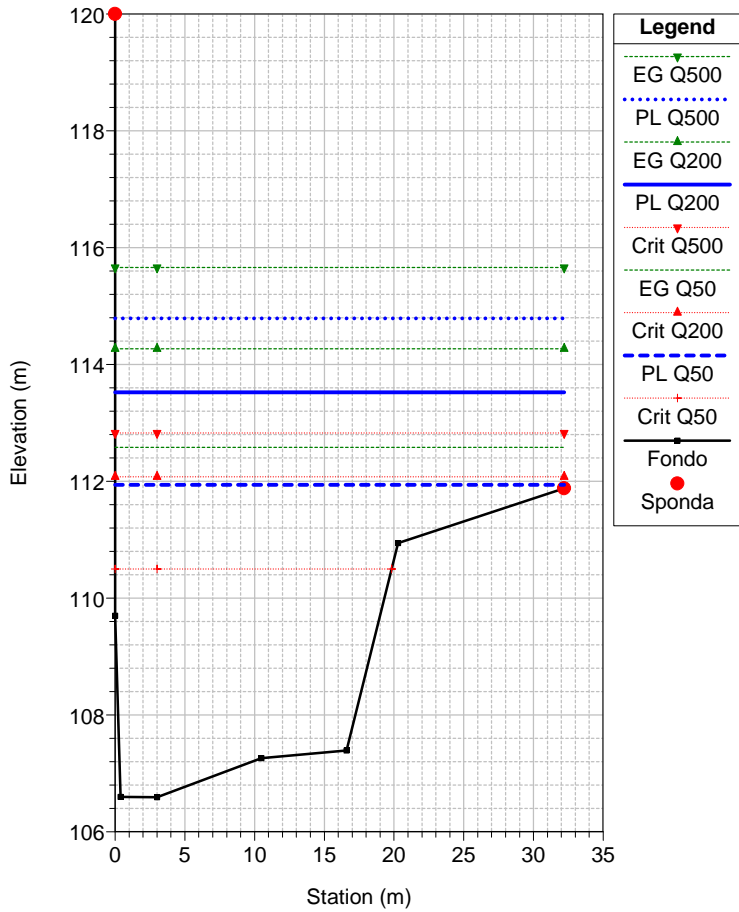
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 194



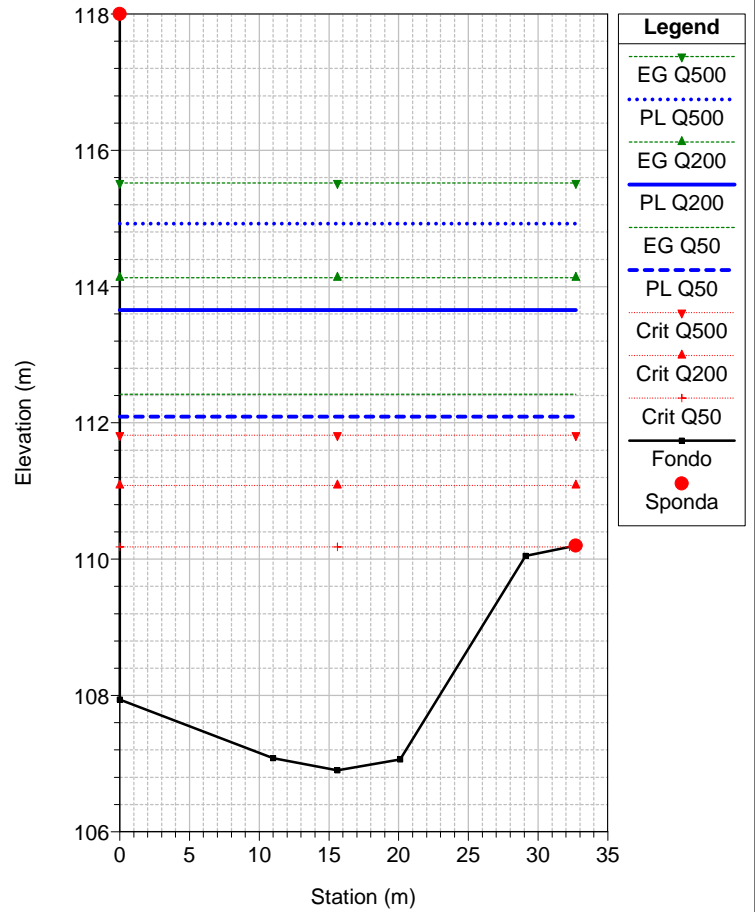
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Lentro Canate BIS 194



PdBBisagno Plan: Rev04.1
 River = Bisagno Reach = Lentro Canate BIS 194



PdBBisagno Plan: Rev04.1
 River = Bisagno Reach = Lentro Canate BIS 193



HEC-RAS Plan: 4.1_qdm

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	
monte	458.	Q50	247.00	152.62	154.70	159.39	4.69	161.90	7.20	155.20	156.54	0.020030	6.01	41.12	23.01	1.43	
monte	458.	Q200	406.00	152.62	155.37	159.39	4.02	161.90	6.53	156.11	157.96	0.020024	7.14	56.89	23.99	1.48	
monte	458.	Q500	558.00	152.62	159.93	159.39	-0.54	161.90	1.97	156.85	160.42	0.001276	3.08	181.42	30.36	0.40	
monte	212.	BIS 212	Q50	247.00	150.72	154.05	157.49	3.44	160.00	5.95	153.30	154.66	0.003802	3.48	71.00	24.82	0.66
monte	212.	BIS 212	Q200	406.00	150.72	156.23	157.49	1.26	160.00	3.77	154.21	156.74	0.001798	3.16	128.64	27.99	0.47
monte	212.	BIS 212	Q500	558.00	150.72	160.00	157.49	-2.51	160.00	0.00	154.95	160.27	0.000564	2.30	242.93	32.30	0.27
monte	211.1	BIS 211	Q50	247.00	149.44	153.46	156.21	2.75	156.30	2.84	152.66	154.37	0.005315	4.23	58.34	15.84	0.70
monte	211.1	BIS 211	Q200	406.00	149.44	155.54	156.21	0.67	156.30	0.76	153.85	156.53	0.003985	4.41	92.01	16.54	0.60
monte	211.1	BIS 211	Q500	558.00	149.44	159.54	156.21	-3.33	156.30	-3.24	154.83	160.17	0.001732	3.51	159.08	16.77	0.36
monte	211.	BIS 211	Bridge														
monte	210.9	BIS 211	Q50	247.00	149.44	152.25	156.21	3.96	156.30	4.05	152.66	154.25	0.016684	6.26	39.47	15.44	1.25
monte	210.9	BIS 211	Q200	406.00	149.44	153.85	156.21	2.36	156.30	2.45	153.85	155.87	0.010780	6.30	64.50	15.97	1.00
monte	210.9	BIS 211	Q500	558.00	149.44	154.83	156.21	1.38	156.30	1.47	154.83	157.29	0.010965	6.95	80.33	16.30	1.00
monte	210.	BIS 210	Q50	247.00	148.54	150.25	155.00	4.75	151.99	1.74	150.90	152.45	0.037188	6.58	37.53	29.92	1.88
monte	210.	BIS 210	Q200	406.00	148.54	150.64	155.00	4.36	151.99	1.35	151.66	154.08	0.041840	8.22	49.39	30.34	2.06
monte	210.	BIS 210	Q500	558.00	148.54	150.97	155.00	4.03	151.99	1.02	152.28	155.47	0.044180	9.40	59.36	30.70	2.16
monte	209.	BIS 209	Q50	247.00	147.71	149.67	152.17	2.50	149.83	0.16	149.67	150.62	0.009922	4.30	57.44	30.49	1.00
monte	209.	BIS 209	Q200	406.00	147.71	150.14	152.17	2.03	149.83	-0.31	150.42	151.77	0.013233	5.66	71.78	30.59	1.18
monte	209.	BIS 209	Q500	558.00	147.71	150.69	152.17	1.48	149.83	-0.86	151.04	152.71	0.012891	6.29	88.67	30.70	1.18
monte	208.9	BIS 209	Q50	247.00	144.00	144.80	150.00	5.20	147.00	2.20	145.90	150.13	0.162858	10.22	24.16	30.15	3.64
monte	208.9	BIS 209	Q200	406.00	144.00	145.24	150.00	4.76	147.00	1.76	146.64	151.27	0.107349	10.89	37.30	30.23	3.13
monte	208.9	BIS 209	Q500	558.00	144.00	149.83	150.00	0.17	147.00	-2.83	147.27	150.33	0.001552	3.14	177.82	30.97	0.42
Lentro Canate	208.	BIS 208	Q50	336.00	142.07	145.74	158.70	12.96	147.83	2.09	145.32	146.78	0.006118	4.53	74.19	23.24	0.81
Lentro Canate	208.	BIS 208	Q200	552.00	142.07	147.11	158.70	11.59	147.83	0.72	146.41	148.49	0.005668	5.20	106.15	23.28	0.78
Lentro Canate	208.	BIS 208	Q500	758.00	142.07	148.47	158.70	10.23	147.83	-0.64	147.32	150.01	0.005010	5.50	137.82	23.30	0.72
Lentro Canate	207.	BIS 207	Q50	346.00	141.80	145.93	159.10	13.17	145.85	-0.08	144.72	146.49	0.002637	3.33	104.04	28.66	0.56
Lentro Canate	207.	BIS 207	Q200	570.00	141.80	147.40	159.10	11.70	145.85	-1.55	145.72	148.17	0.002565	3.88	146.81	29.53	0.56
Lentro Canate	207.	BIS 207	Q500	783.00	141.80	148.82	159.10	10.29	145.85	-2.96	146.55	149.69	0.002314	4.14	189.19	30.37	0.53
Lentro Canate	206.1	BIS 206	Q50	346.00	141.80	145.69	159.10	13.41	145.85	0.16	144.86	146.45	0.003840	3.84	90.07	28.50	0.67
Lentro Canate	206.1	BIS 206	Q200	570.00	141.80	147.11	159.10	11.99	145.85	-1.26	145.92	148.12	0.003648	4.45	128.19	29.36	0.66
Lentro Canate	206.1	BIS 206	Q500	783.00	141.80	148.55	159.10	10.55	145.85	-2.70	146.78	149.64	0.003282	4.62	169.37	30.22	0.62
Lentro Canate	206.	BIS 206	Bridge														
Lentro Canate	205.9	BIS 206	Q50	346.00	141.80	145.67	159.10	13.43	145.34	-0.33	144.86	146.43	0.003928	3.87	89.40	28.50	0.67
Lentro Canate	205.9	BIS 206	Q200	570.00	141.80	147.08	159.10	12.02	145.34	-1.74	145.91	148.10	0.003705	4.47	127.51	29.34	0.66
Lentro Canate	205.9	BIS 206	Q500	783.00	141.80	148.41	159.10	10.69	145.34	-3.07	146.78	149.55	0.003533	4.74	165.14	30.13	0.65

HEC-RAS Plan: 4.1_qdm (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Lentro Canate	205.1 BIS 205	Q50	346.00	141.85	144.56	149.79	5.23	144.17	-0.39	144.78	146.24	0.012799	5.74	60.25	22.50	1.12
Lentro Canate	205.1 BIS 205	Q200	570.00	141.85	145.91	149.79	3.88	144.17	-1.74	145.91	147.93	0.010064	6.29	90.67	22.50	1.00
Lentro Canate	205.1 BIS 205	Q500	783.00	141.85	146.87	149.79	2.92	144.17	-2.70	146.87	149.35	0.010162	6.99	112.06	22.50	1.00
Lentro Canate	204.9 BIS 205	Q50	346.00	139.60	141.21	149.79	8.58	144.17	2.96	142.49	145.87	0.063280	9.57	36.16	22.50	2.41
Lentro Canate	204.9 BIS 205	Q200	570.00	139.60	142.04	149.79	7.75	144.17	2.13	143.63	147.53	0.046318	10.37	54.94	22.50	2.12
Lentro Canate	204.9 BIS 205	Q500	783.00	139.60	142.76	149.79	7.03	144.17	1.41	144.58	148.93	0.039513	11.00	71.16	22.50	1.97
Lentro Canate	204. BIS 204	Q50	346.00	138.94	141.30	150.00	8.70	143.48	2.18	141.72	142.97	0.017548	5.73	60.35	33.18	1.36
Lentro Canate	204. BIS 204	Q200	570.00	138.94	141.68	150.00	8.32	143.48	1.80	142.60	144.79	0.026109	7.81	72.98	33.49	1.69
Lentro Canate	204. BIS 204	Q500	783.00	138.94	142.04	150.00	7.96	143.48	1.44	143.34	146.34	0.030306	9.19	85.20	33.79	1.85
Lentro Canate	203. BIS 203	Q50	346.00	137.51	141.21	151.03	9.82	143.37	2.16	140.79	142.16	0.005544	4.33	79.97	27.49	0.81
Lentro Canate	203. BIS 203	Q200	570.00	137.51	142.70	151.03	8.33	143.37	0.67	141.87	143.79	0.004237	4.61	123.51	30.63	0.73
Lentro Canate	203. BIS 203	Q500	783.00	137.51	144.19	151.03	6.84	143.37	-0.82	142.73	145.24	0.003218	4.54	172.39	34.48	0.65
Lentro Canate	202.1 BIS 202	Q50	346.00	136.25	139.74	150.28	10.54	149.29	9.55	140.17	141.78	0.015503	6.32	54.73	21.30	1.26
Lentro Canate	202.1 BIS 202	Q200	570.00	136.25	141.90	150.28	8.38	149.29	7.39	141.35	143.53	0.006824	5.67	100.60	21.30	0.83
Lentro Canate	202.1 BIS 202	Q500	783.00	136.25	142.96	150.28	7.32	149.29	6.33	142.34	145.02	0.007163	6.35	123.35	21.30	0.84
Lentro Canate	202. BIS 202		Bridge													
Lentro Canate	201.9 BIS 202	Q50	346.00	136.25	140.17	150.28	10.11	149.29	9.12	140.17	141.67	0.009737	5.43	63.76	21.30	1.00
Lentro Canate	201.9 BIS 202	Q200	570.00	136.25	141.35	150.28	8.93	149.29	7.94	141.35	143.44	0.009762	6.40	89.01	21.30	1.00
Lentro Canate	201.9 BIS 202	Q500	783.00	136.25	142.34	150.28	7.94	149.29	6.95	142.34	144.92	0.009925	7.11	110.07	21.30	1.00
Lentro Canate	201. BIS 201	Q50	346.00	132.70	136.29	138.72	2.43	142.00	5.71	137.00	139.02	0.017835	7.32	47.25	16.01	1.36
Lentro Canate	201. BIS 201	Q200	570.00	132.70	137.63	138.72	1.09	142.00	4.37	138.46	141.04	0.016180	8.19	69.61	17.40	1.31
Lentro Canate	201. BIS 201	Q500	783.00	132.70	139.52	138.72	-0.80	142.00	2.48	139.62	142.39	0.009986	7.50	104.43	19.14	1.02
Lentro Canate	200. BIS 200	Q50	346.00	131.98	135.13	137.18	2.05	140.00	4.87	135.81	137.57	0.019905	6.91	50.07	21.23	1.44
Lentro Canate	200. BIS 200	Q200	570.00	131.98	135.89	137.18	1.29	140.00	4.11	137.02	139.62	0.023219	8.55	66.67	22.38	1.58
Lentro Canate	200. BIS 200	Q500	783.00	131.98	137.96	137.18	-0.78	140.00	2.04	137.99	140.28	0.008935	6.74	116.15	25.45	1.01
Lentro Canate	199. BIS 199	Q50	346.00	131.18	133.99	136.89	2.91	140.00	6.02	134.50	135.97	0.018369	6.24	55.46	26.88	1.39
Lentro Canate	199. BIS 199	Q200	570.00	131.18	134.59	136.89	2.30	140.00	5.41	135.53	137.78	0.022249	7.91	72.03	27.65	1.56
Lentro Canate	199. BIS 199	Q500	783.00	131.18	137.27	136.89	-0.38	140.00	2.73	136.37	138.65	0.004617	5.20	150.61	30.90	0.75
Lentro Canate	198. BIS 198	Q50	346.00	129.43	133.34	135.94	2.60	140.00	6.66	133.72	135.32	0.014104	6.24	55.46	20.50	1.21
Lentro Canate	198. BIS 198	Q200	570.00	129.43	134.99	135.94	0.95	140.00	5.01	134.99	136.98	0.009048	6.25	91.17	22.84	1.00
Lentro Canate	198. BIS 198	Q500	783.00	129.43	136.00	135.94	-0.06	140.00	4.00	136.00	138.36	0.008854	6.81	114.96	24.29	1.00
Lentro Canate	197. BIS 197	Q50	346.00	122.60	125.58	130.00	4.42	130.00	4.42	126.34	128.10	0.021788	7.04	49.12	23.50	1.56
Lentro Canate	197. BIS 197	Q200	570.00	122.60	127.04	130.00	2.96	130.00	2.96	127.46	129.26	0.011424	6.60	86.37	27.31	1.18
Lentro Canate	197. BIS 197	Q500	783.00	122.60	128.44	130.00	1.56	130.00	1.56	128.35	130.37	0.007206	6.16	127.12	30.95	0.97
Lentro Canate	196. BIS 196	Q50	346.00	117.00	121.90	130.00	8.10	130.00	8.10	122.00	123.46	0.009626	5.54	62.41	21.93	1.05
Lentro Canate	196. BIS 196	Q200	570.00	117.00	123.11	130.00	6.89	130.00	6.89	123.25	125.11	0.009189	6.27	90.86	25.08	1.05

HEC-RAS Plan: 4.1_qdm (Continued)

Reach	River Sta		Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Lentro Canate	196.	BIS 196	Q500	783.00	117.00	124.09	130.00	5.91	130.00	5.91	124.23	126.38	0.008728	6.71	116.66	27.62	1.04
Lentro Canate	195.	BIS 195	Q50	346.00	107.96	110.88	115.00	4.12	113.55	2.67	111.45	113.08	0.019948	6.58	52.56	23.84	1.42
Lentro Canate	195.	BIS 195	Q200	570.00	107.96	113.44	115.00	1.56	113.55	0.11	112.55	114.72	0.005181	5.01	113.76	23.99	0.73
Lentro Canate	195.	BIS 195	Q500	783.00	107.96	114.64	115.00	0.36	113.55	-1.09	113.47	116.18	0.005044	5.48	142.76	24.00	0.72
Lentro Canate	194.5		Q50	346.00	106.89	112.19	120.30	8.11	111.00	-1.19	110.62	112.76	0.002700	3.43	108.88	32.20	0.51
Lentro Canate	194.5		Q200	570.00	106.89	113.77	120.30	6.53	111.00	-2.77	112.10	114.47	0.002519	3.88	159.47	32.20	0.50
Lentro Canate	194.5		Q500	783.00	106.89	115.08	120.30	5.22	111.00	-4.08	112.90	115.89	0.002414	4.20	201.69	32.20	0.49
Lentro Canate	194.3		Q50	346.00	106.69	112.10	120.10	8.00	111.50	-0.60	110.43	112.72	0.002915	3.50	103.97	32.00	0.51
Lentro Canate	194.3		Q200	570.00	106.69	113.65	120.10	6.45	111.50	-2.15	111.98	114.42	0.002831	4.02	153.47	32.00	0.51
Lentro Canate	194.3		Q500	783.00	106.69	114.97	120.10	5.13	111.50	-3.47	112.93	115.85	0.002696	4.34	195.60	32.00	0.50
Lentro Canate	194.1	BIS 194	Q50	346.00	106.59	112.04	120.00	7.96	111.88	-0.16	110.50	112.64	0.003580	3.42	101.04	32.20	0.62
Lentro Canate	194.1	BIS 194	Q200	570.00	106.59	113.64	120.00	6.36	111.88	-1.76	112.08	114.35	0.002735	3.74	152.53	32.20	0.55
Lentro Canate	194.1	BIS 194	Q500	783.00	106.59	114.96	120.00	5.04	111.88	-3.08	112.83	115.78	0.002465	4.01	195.08	32.20	0.52
Lentro Canate	194.	BIS 194		Bridge													
Lentro Canate	193.9	BIS 194	Q50	346.00	106.59	111.94	120.00	8.06	111.88	-0.06	110.50	112.58	0.003969	3.54	97.76	32.20	0.65
Lentro Canate	193.9	BIS 194	Q200	570.00	106.59	113.52	120.00	6.48	111.88	-1.64	112.08	114.27	0.002955	3.83	148.69	32.20	0.57
Lentro Canate	193.9	BIS 194	Q500	783.00	106.59	114.79	120.00	5.21	111.88	-2.91	112.83	115.66	0.002687	4.13	189.51	32.20	0.54
Lentro Canate	193.	BIS 193	Q50	346.00	106.90	112.09	118.00	5.91	110.20	-1.89	110.18	112.42	0.001352	2.55	135.78	32.70	0.40
Lentro Canate	193.	BIS 193	Q200	570.00	106.90	113.66	118.00	4.34	110.20	-3.46	111.08	114.13	0.001400	3.05	186.98	32.70	0.41
Lentro Canate	193.	BIS 193	Q500	783.00	106.90	114.92	118.00	3.08	110.20	-4.72	111.82	115.52	0.001465	3.43	228.36	32.70	0.41

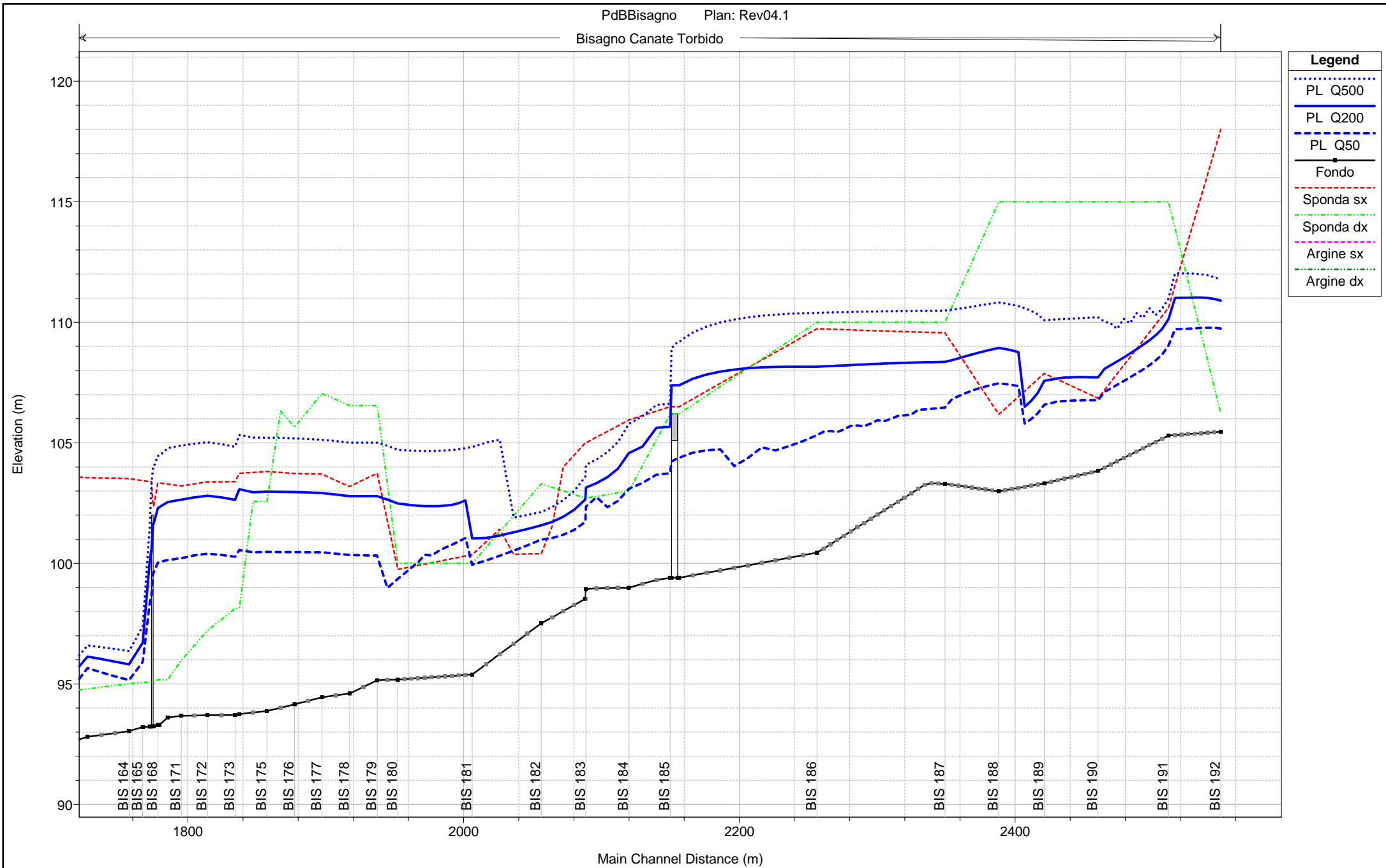
Allegato

Verifiche idrauliche

Torrente Bisagno

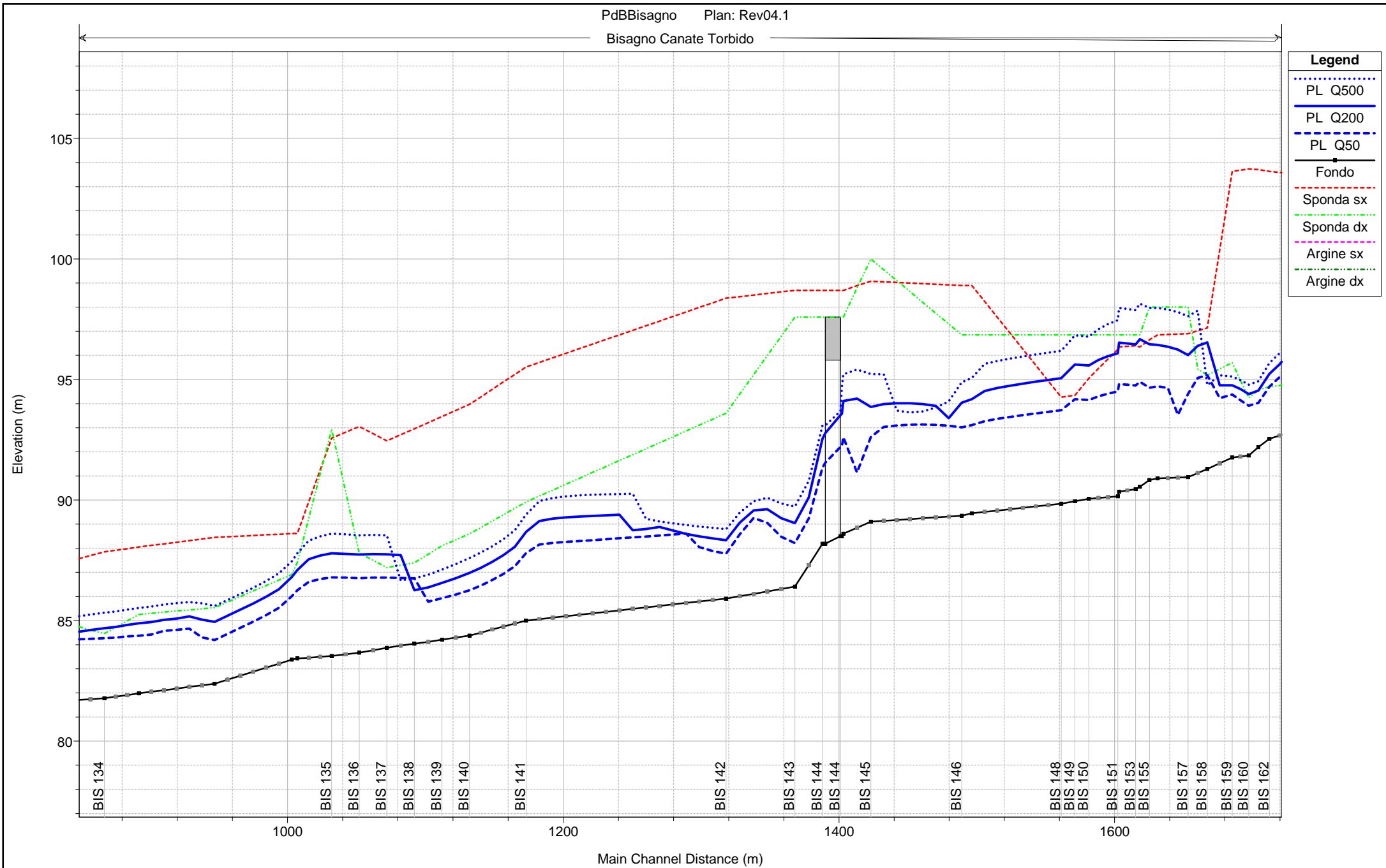
- tratto a monte del torrente Canate -

- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo

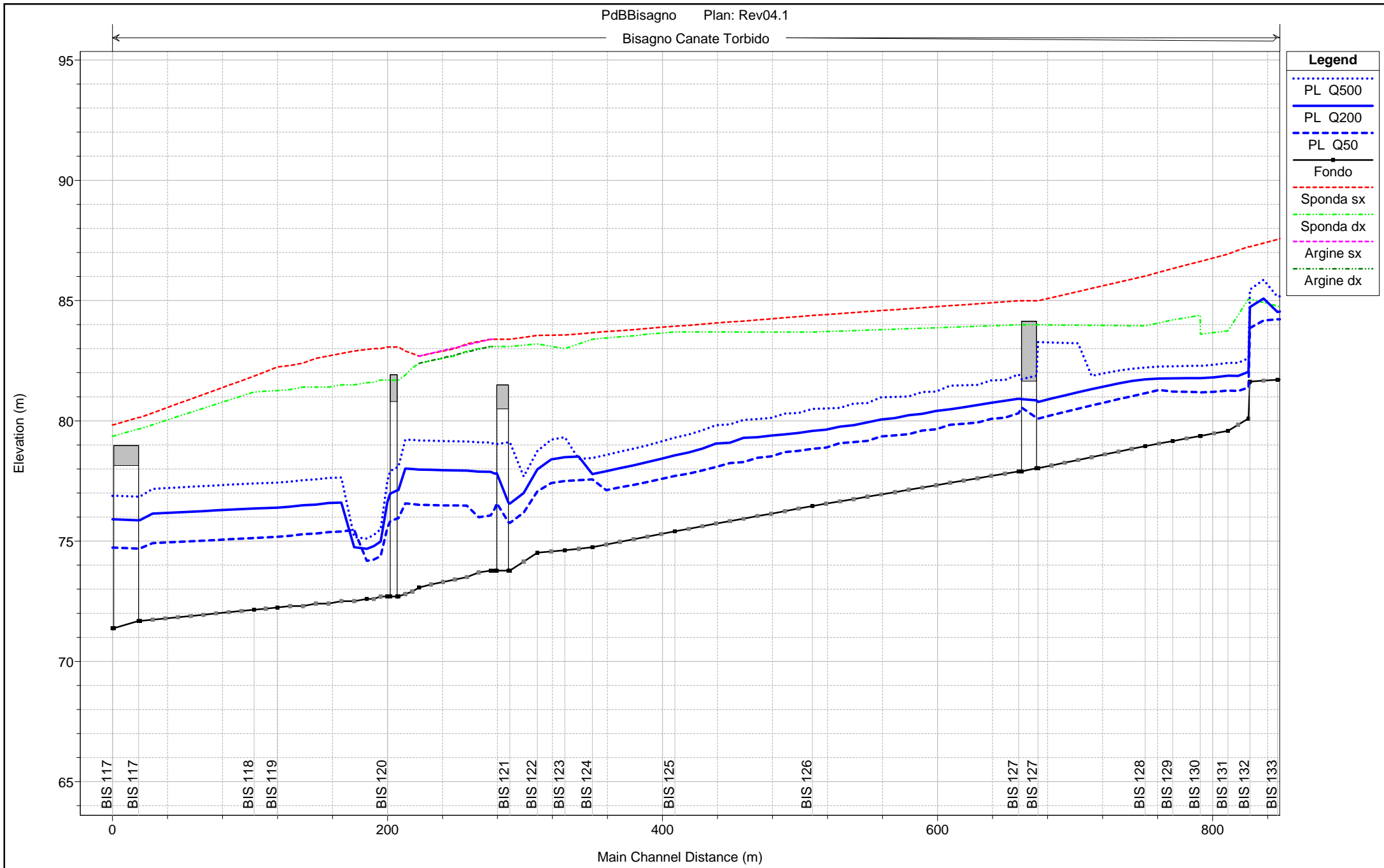


Legend	
PL Q500	(Dotted blue line)
PL Q200	(Solid blue line)
PL Q50	(Dashed blue line)
Fondo	(Solid black line with markers)
Sponda sx	(Dashed red line)
Sponda dx	(Dotted green line)
Argine sx	(Dashed magenta line)
Argine dx	(Dotted green line)

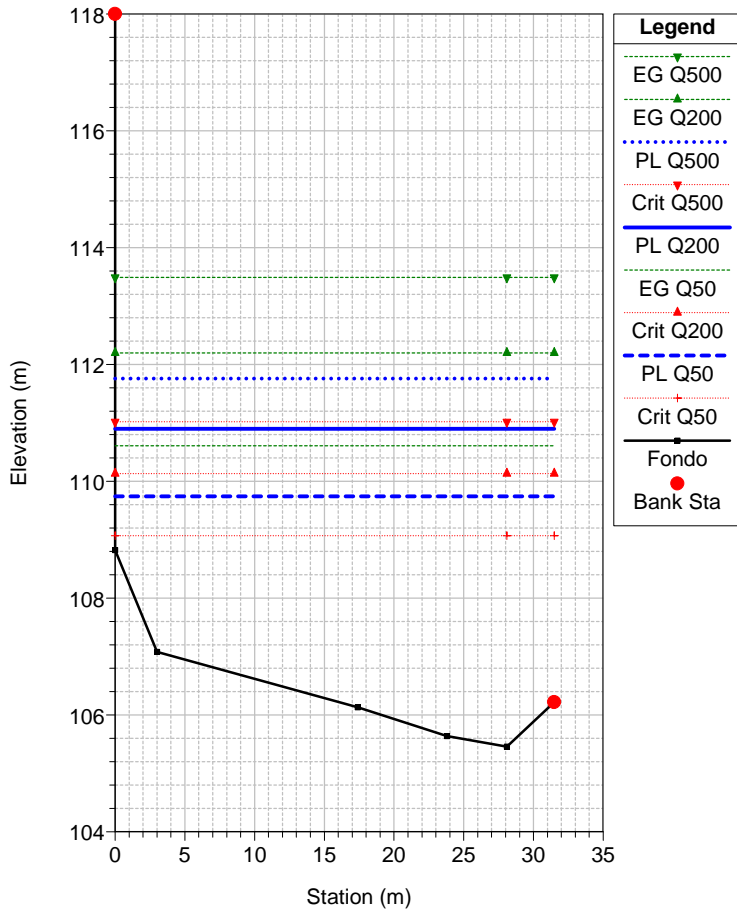
1 cm Horiz. = 35 m 1 cm Vert. = 2 m



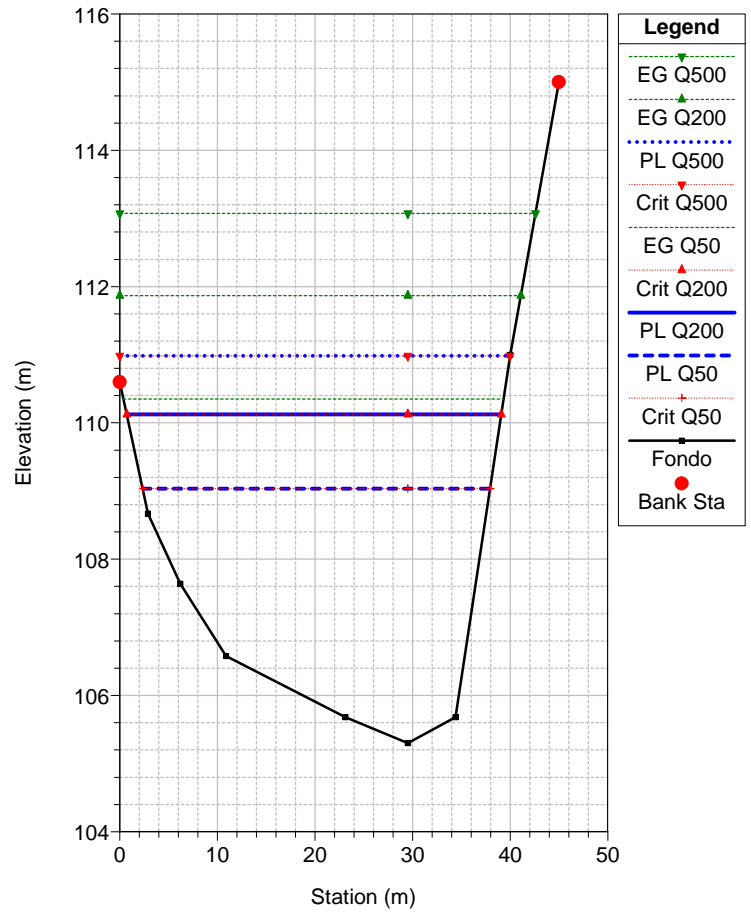
1 cm Horiz. = 35 m 1 cm Vert. = 2 m



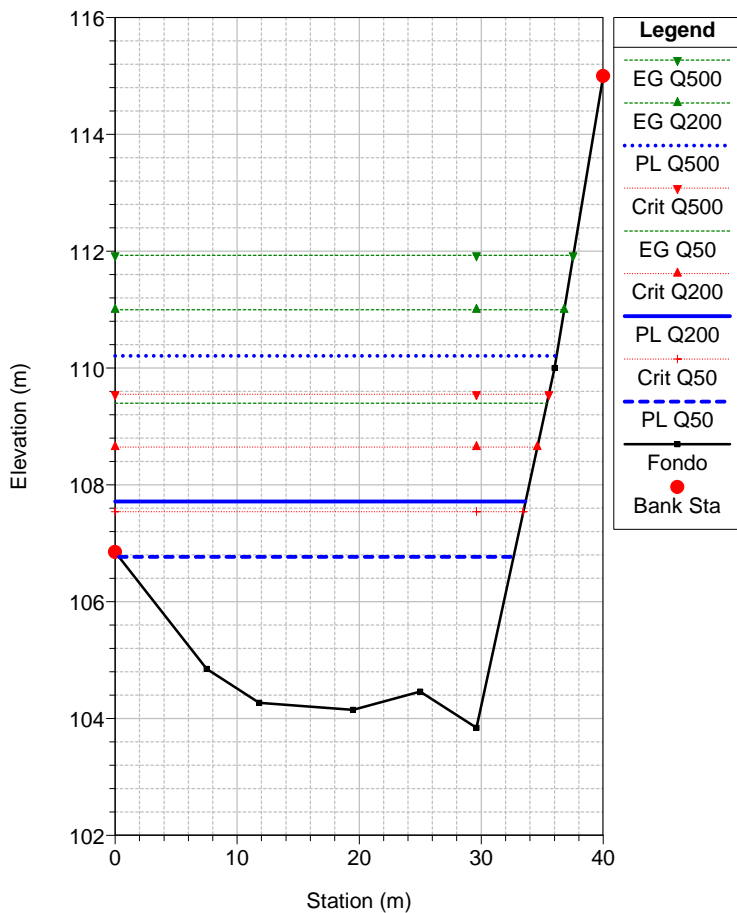
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 192



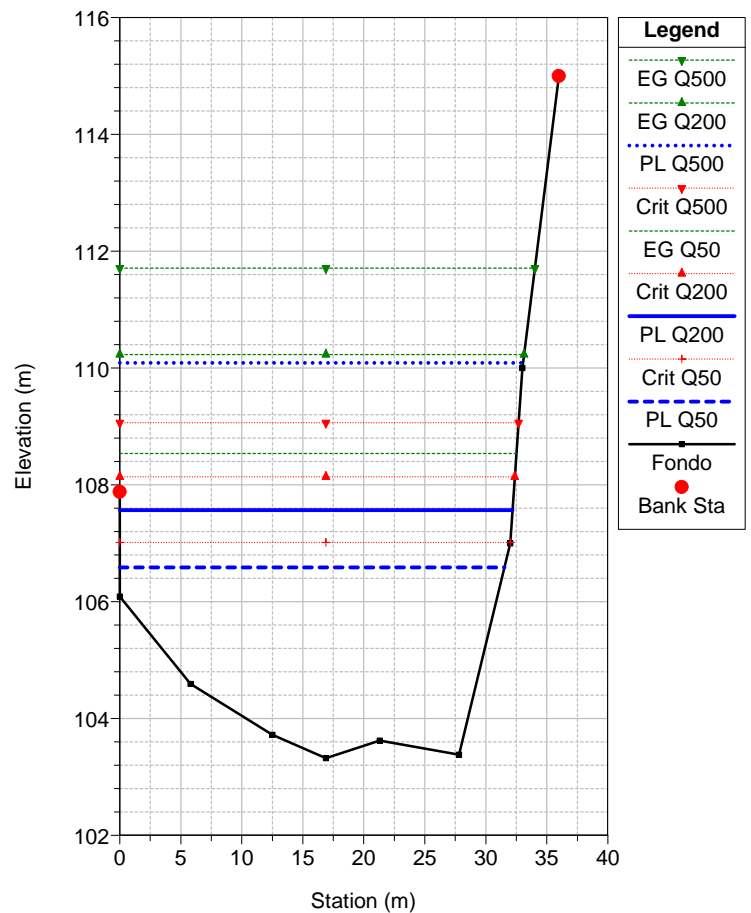
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 191

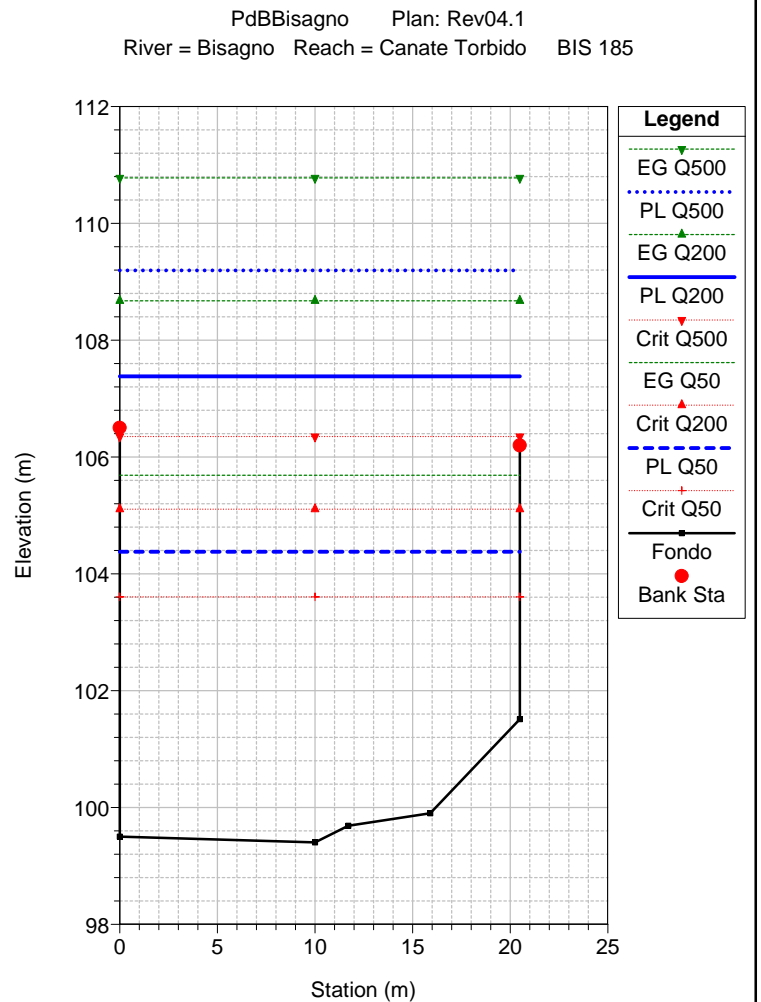
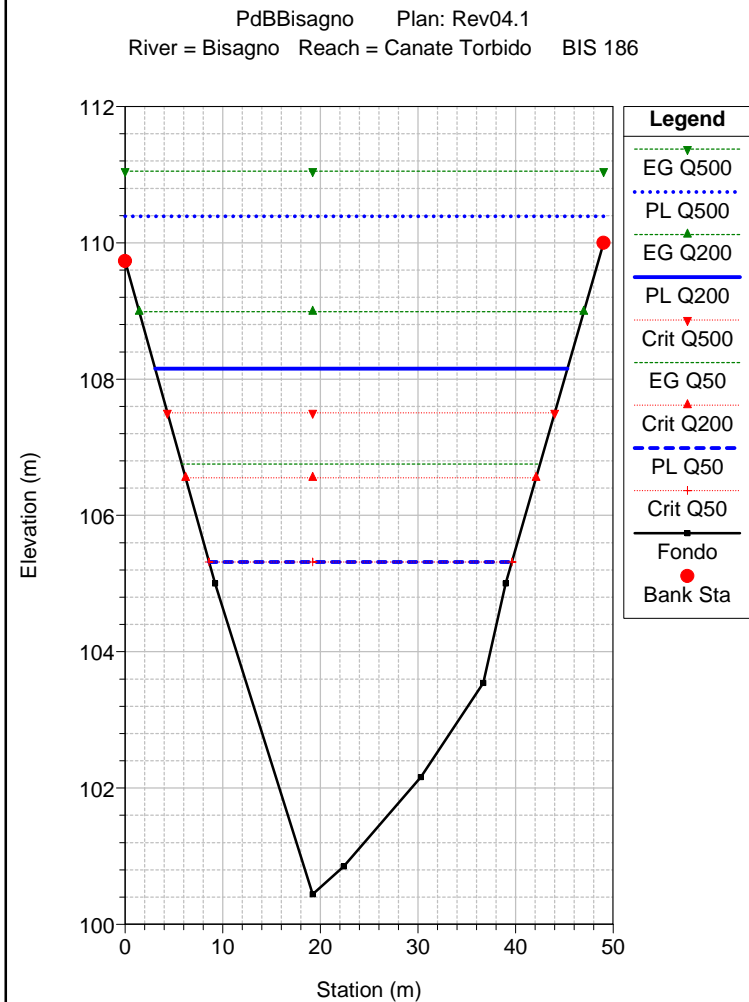
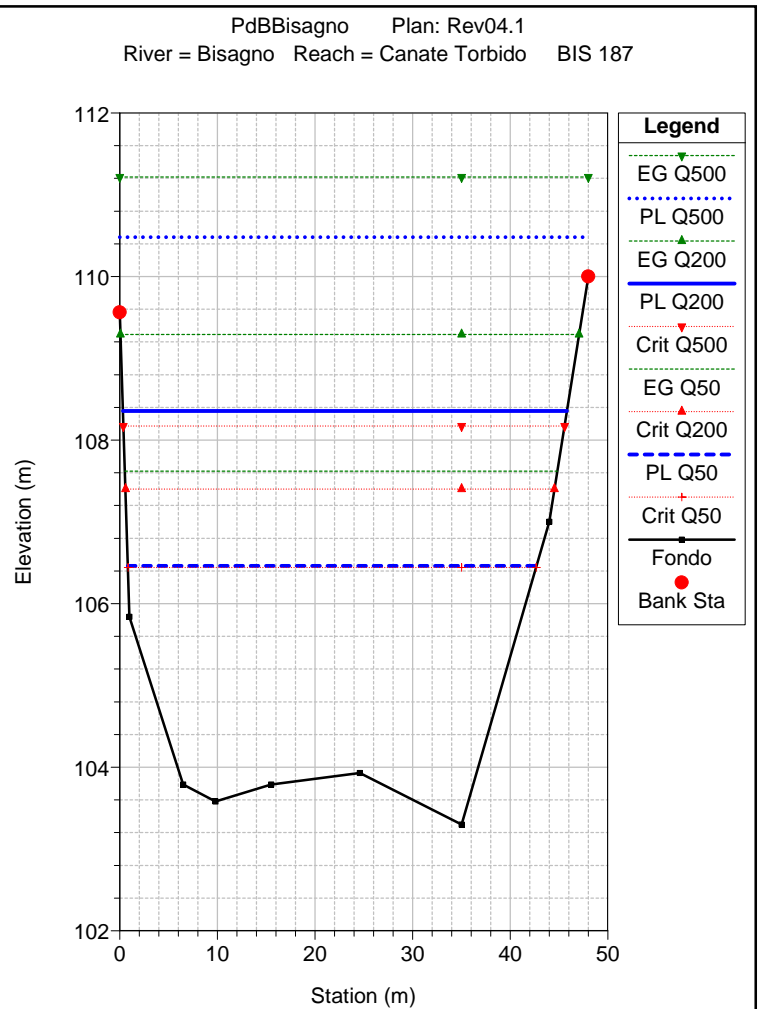
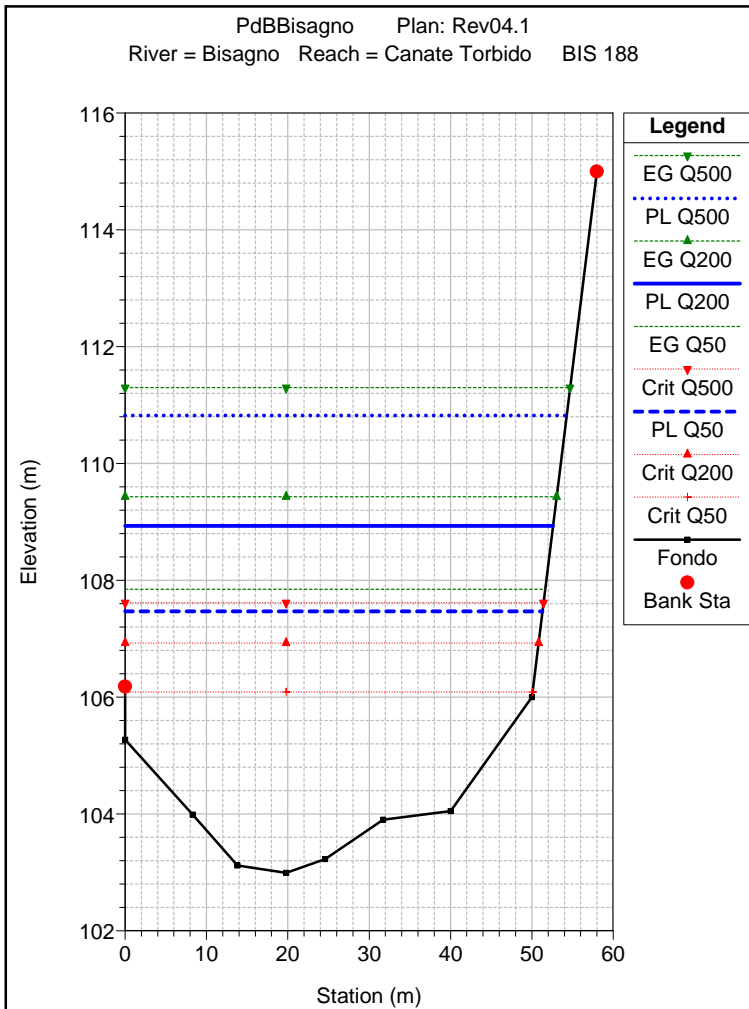


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 190

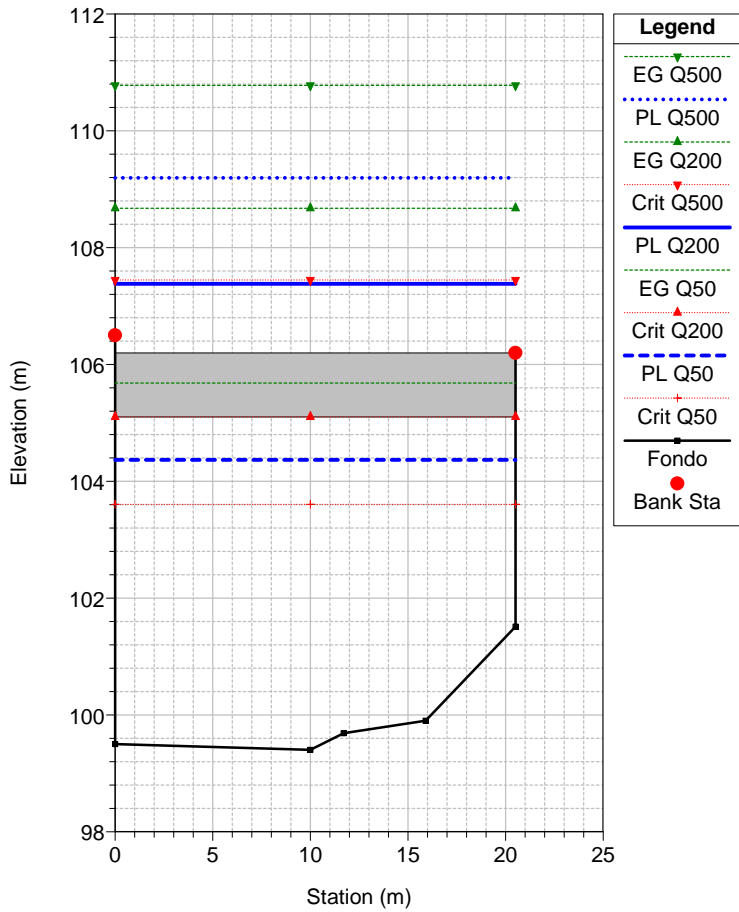


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 189

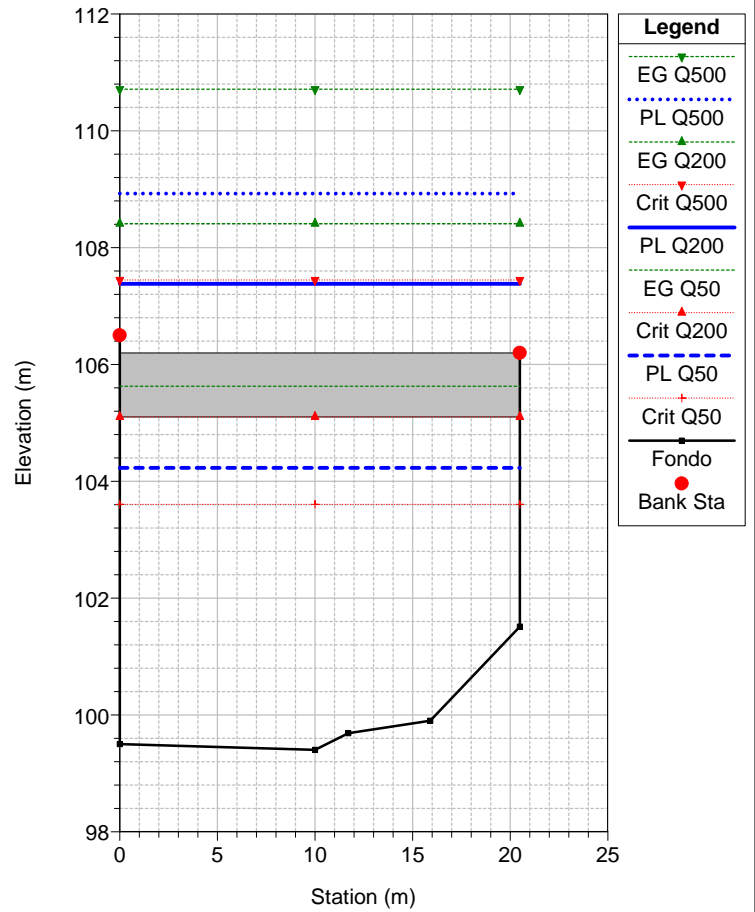




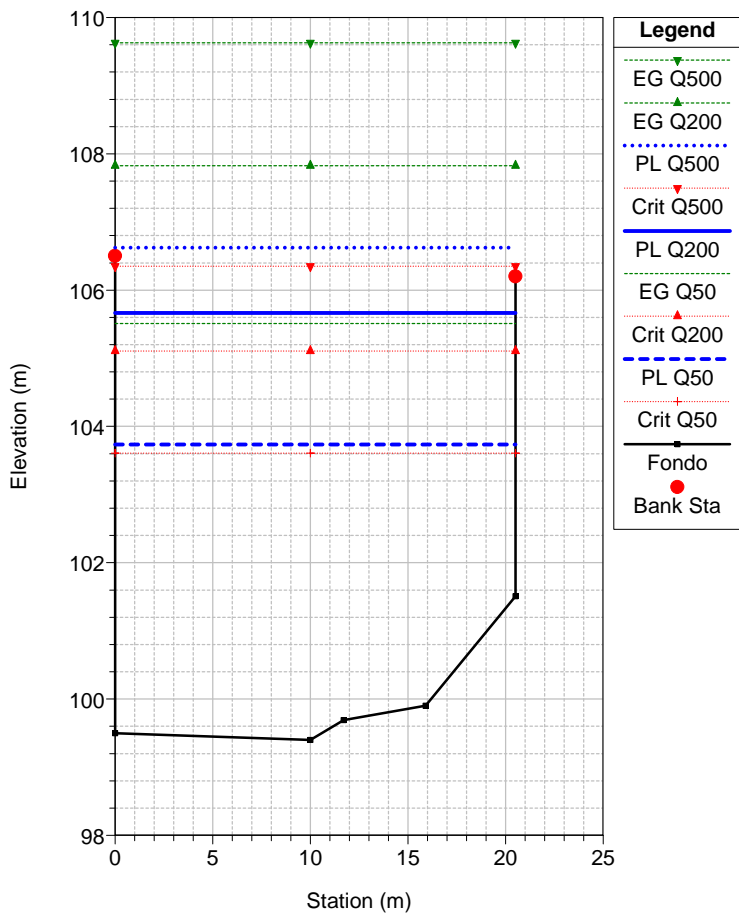
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 185



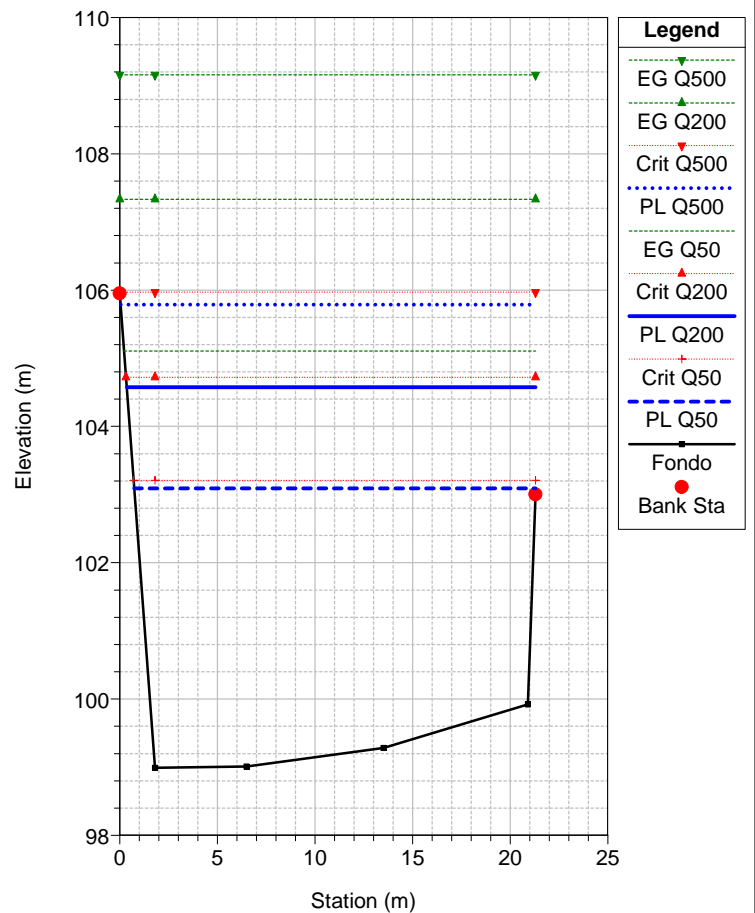
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 185

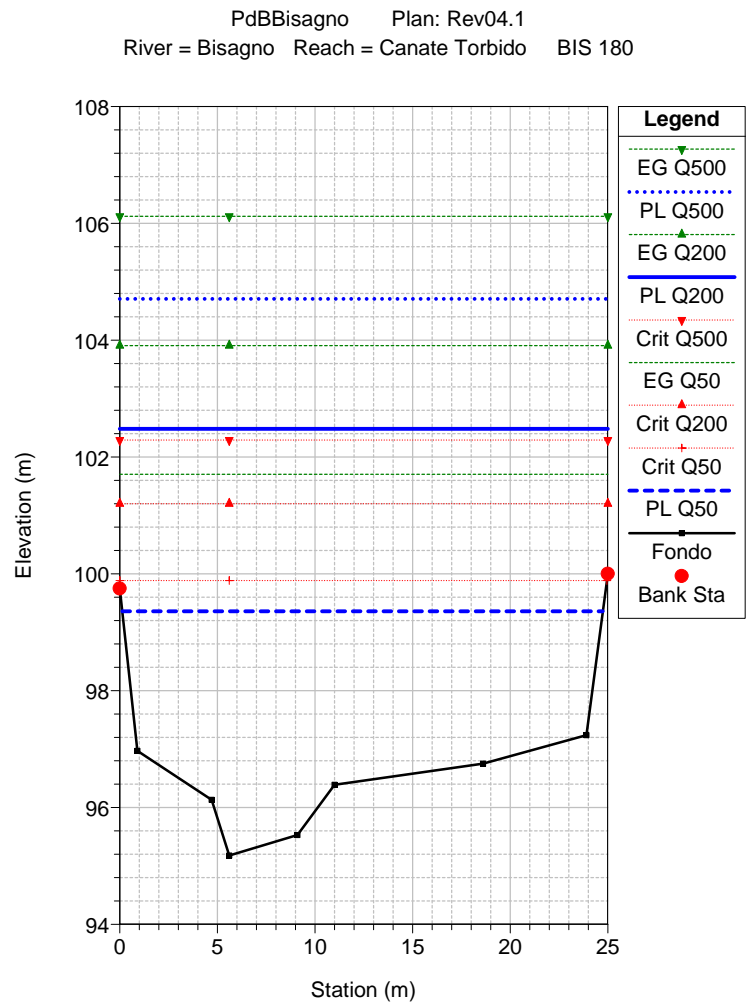
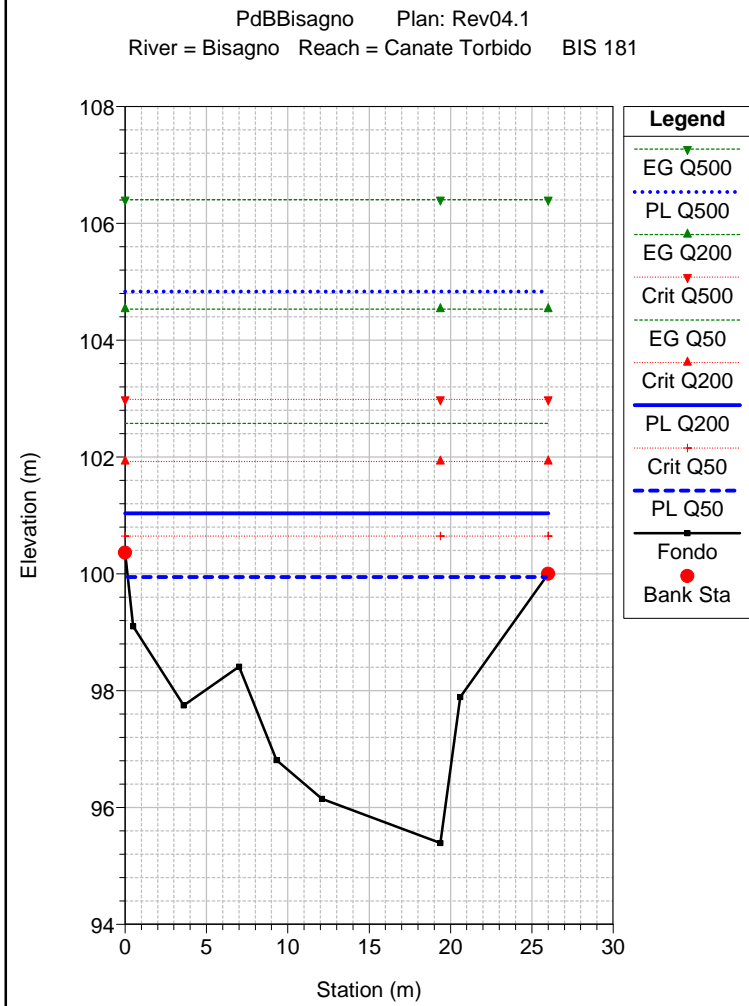
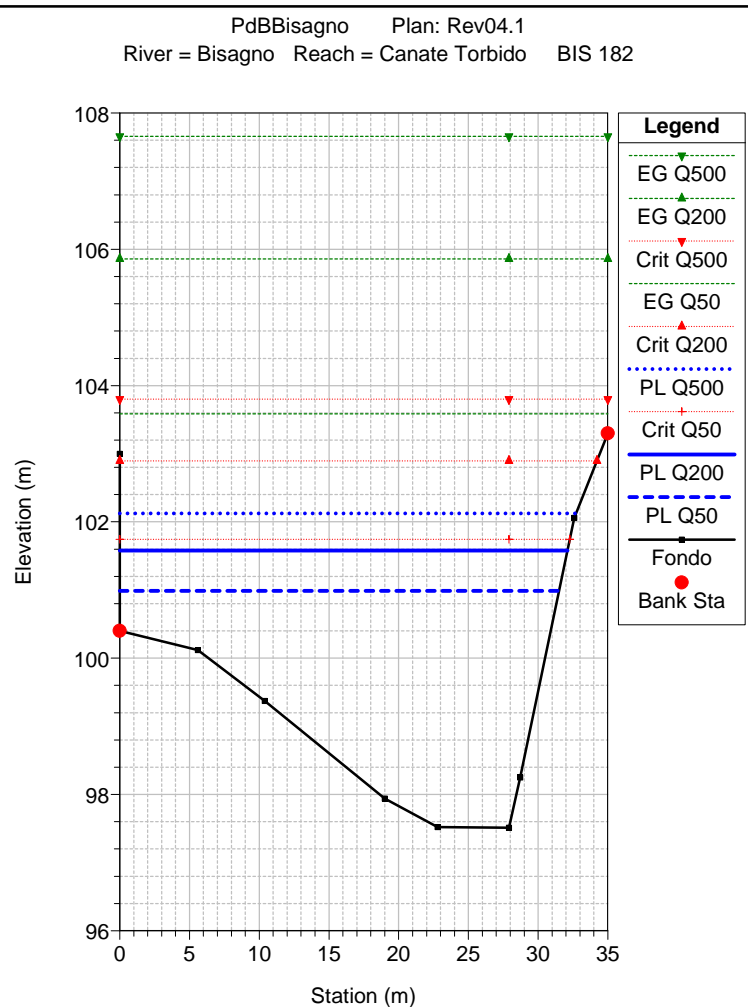
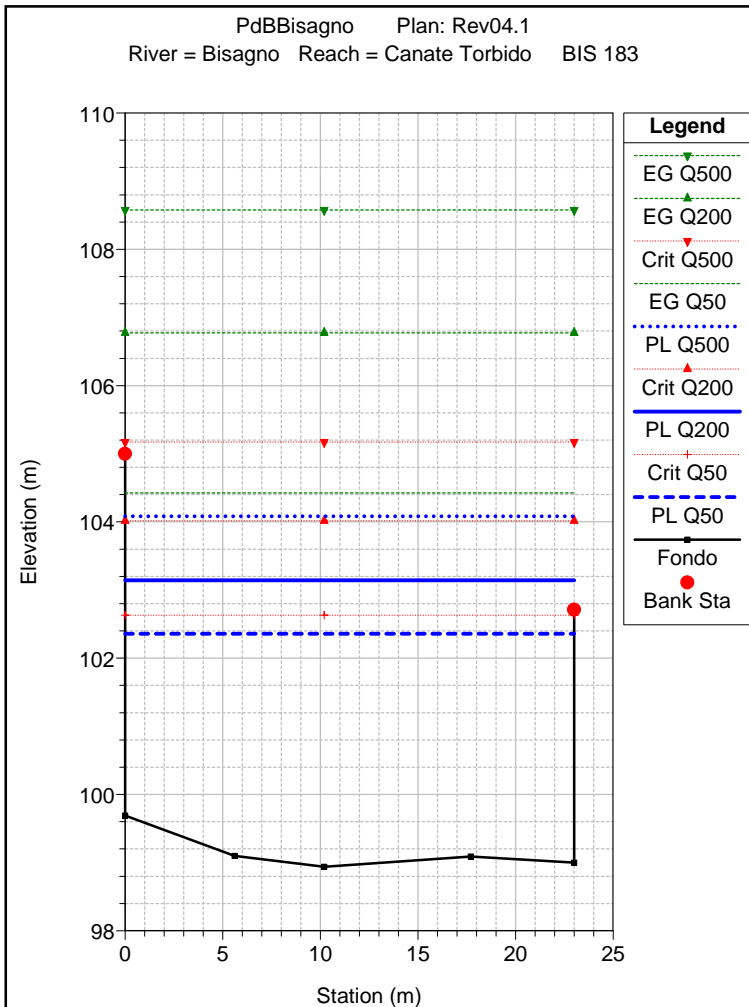


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 185

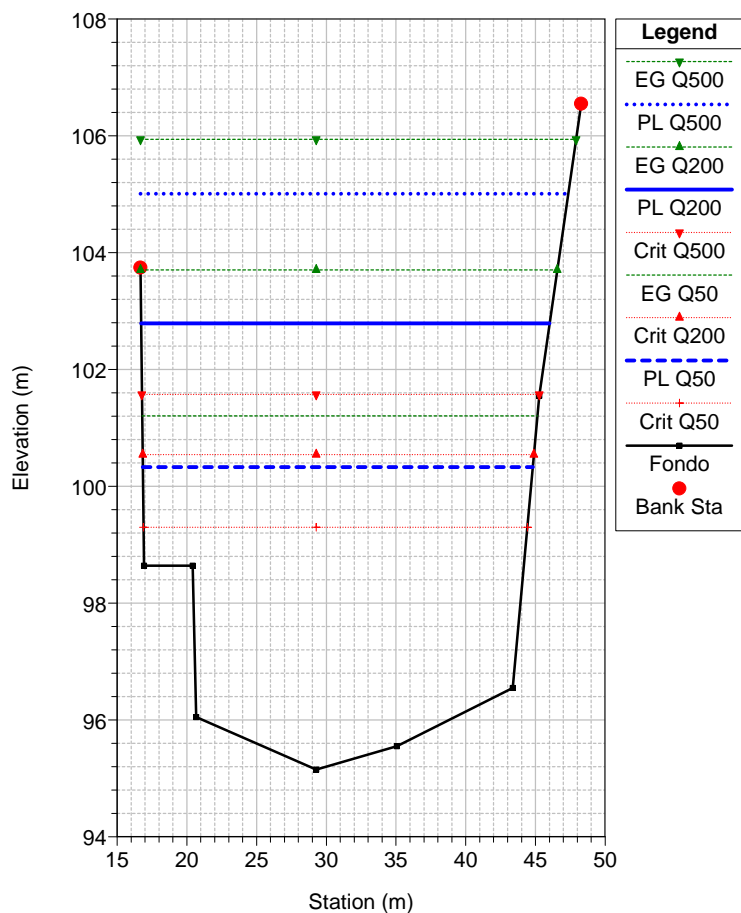


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 184

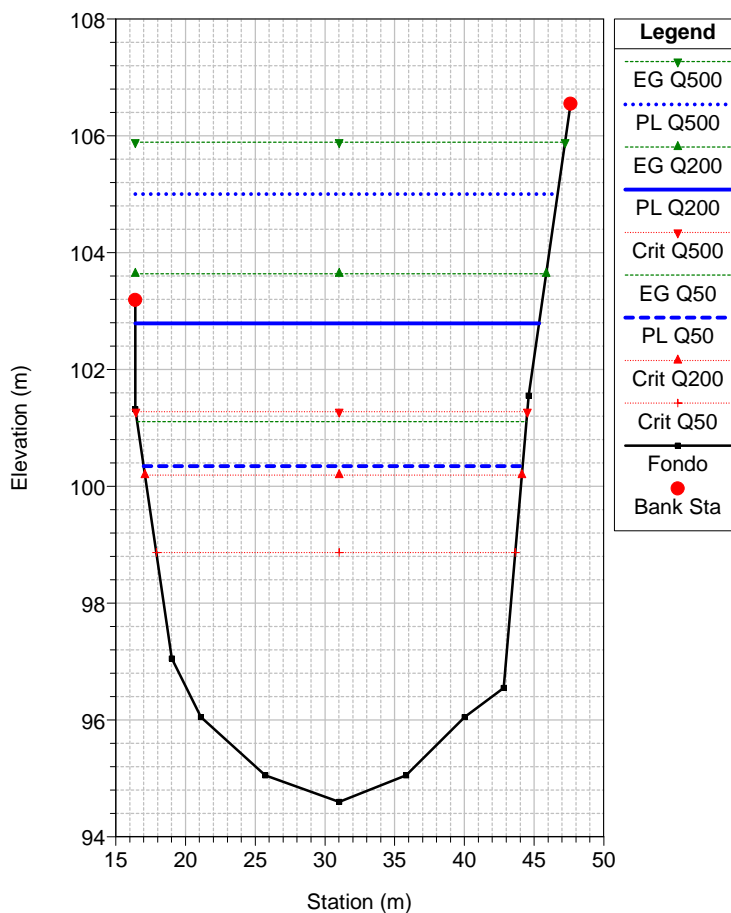




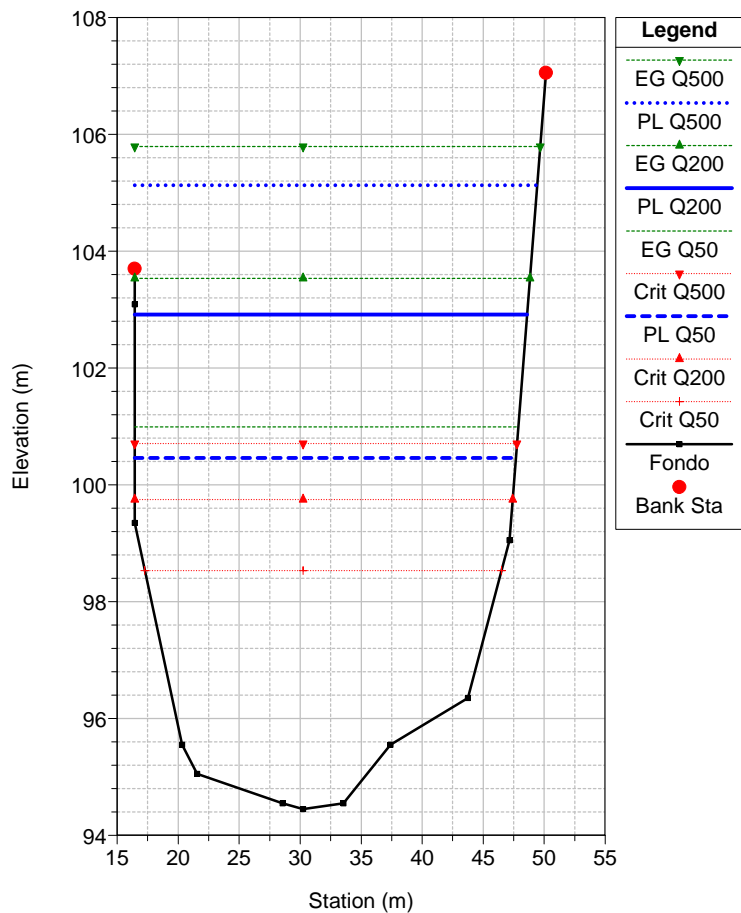
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 179



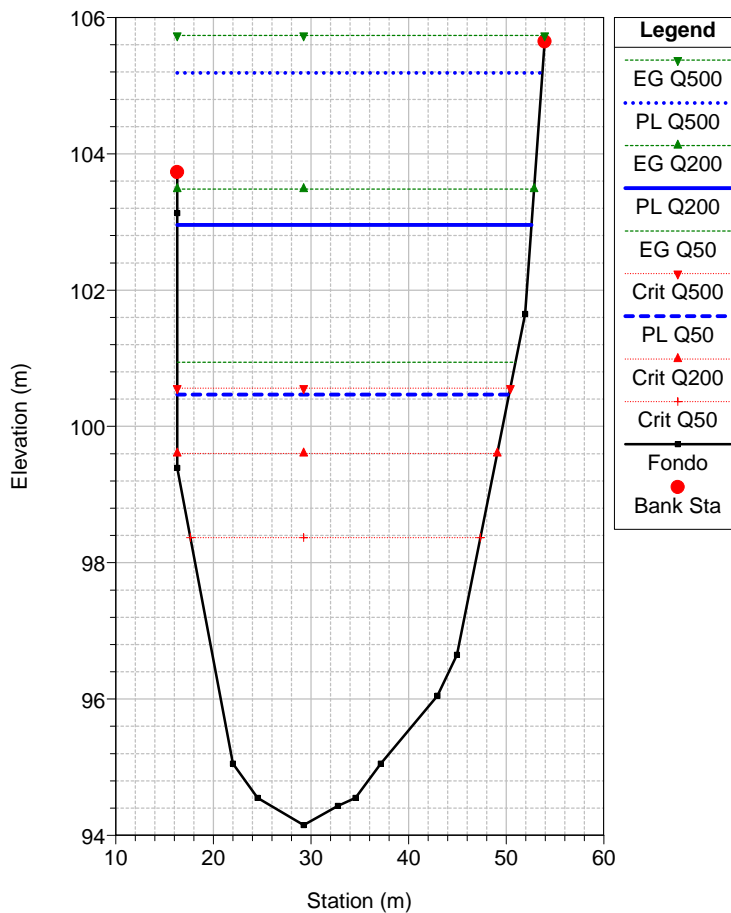
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 178

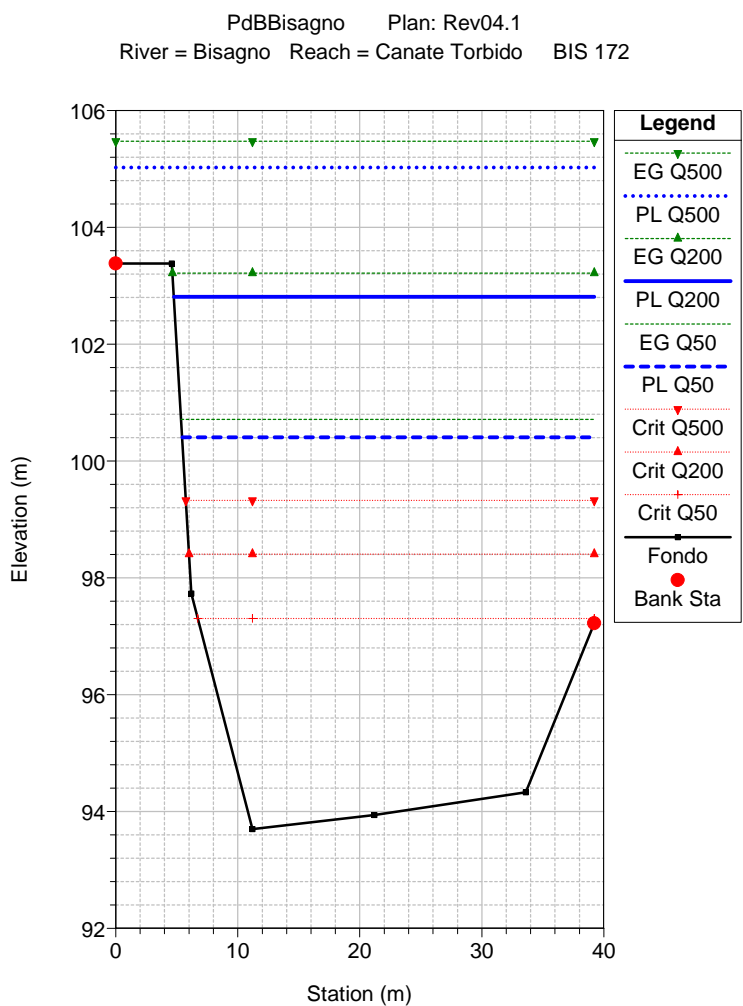
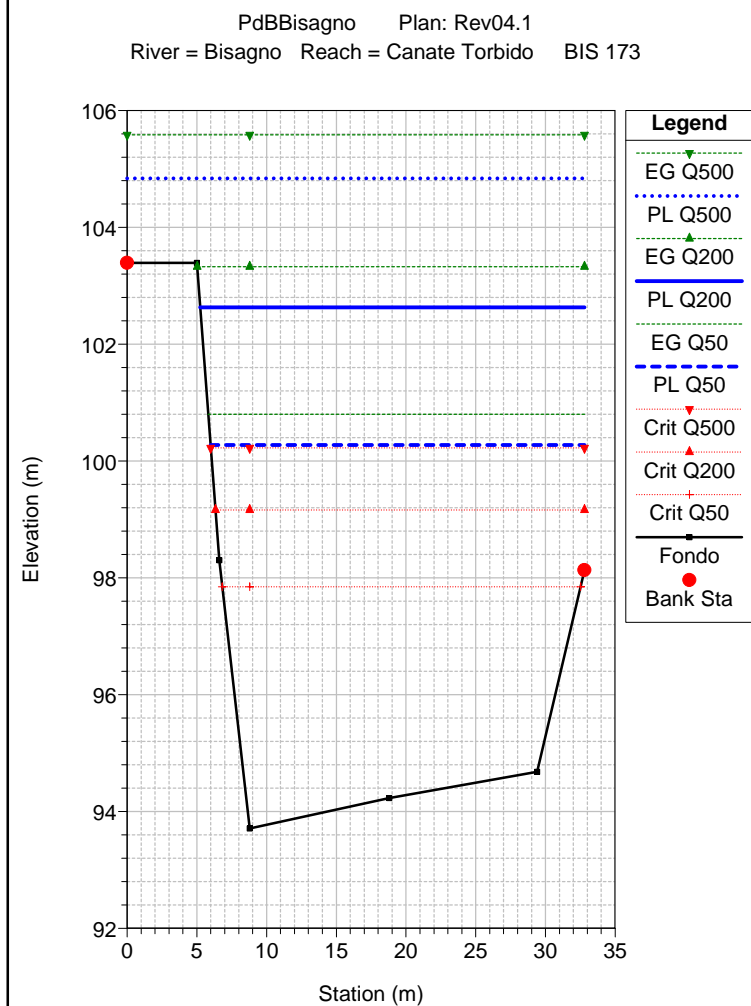
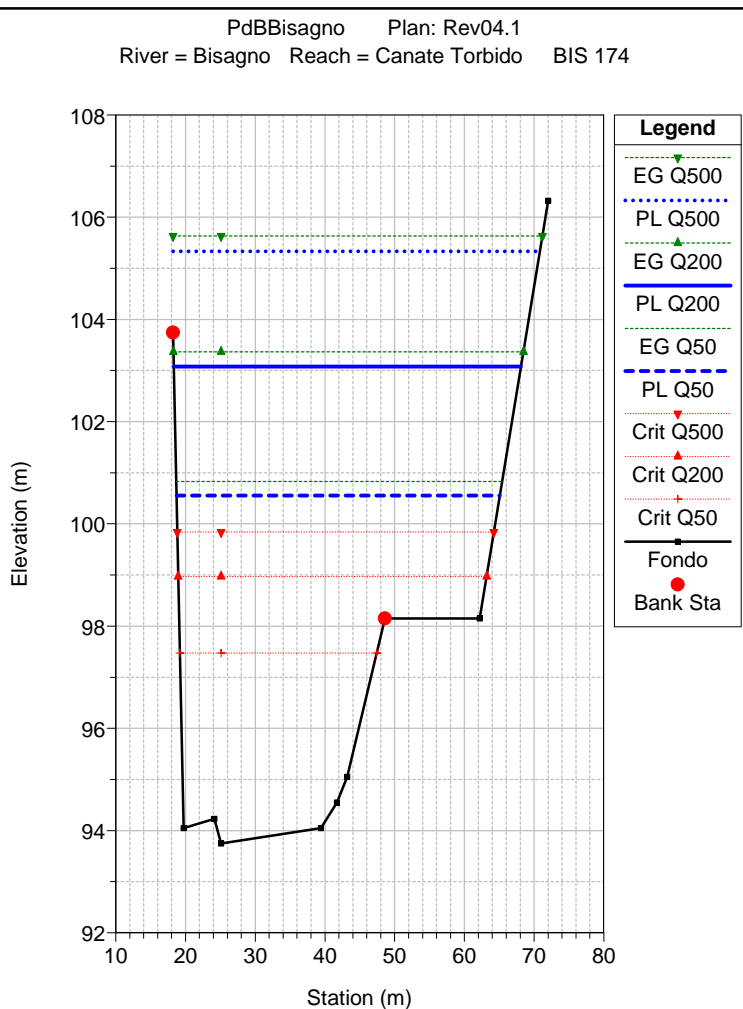
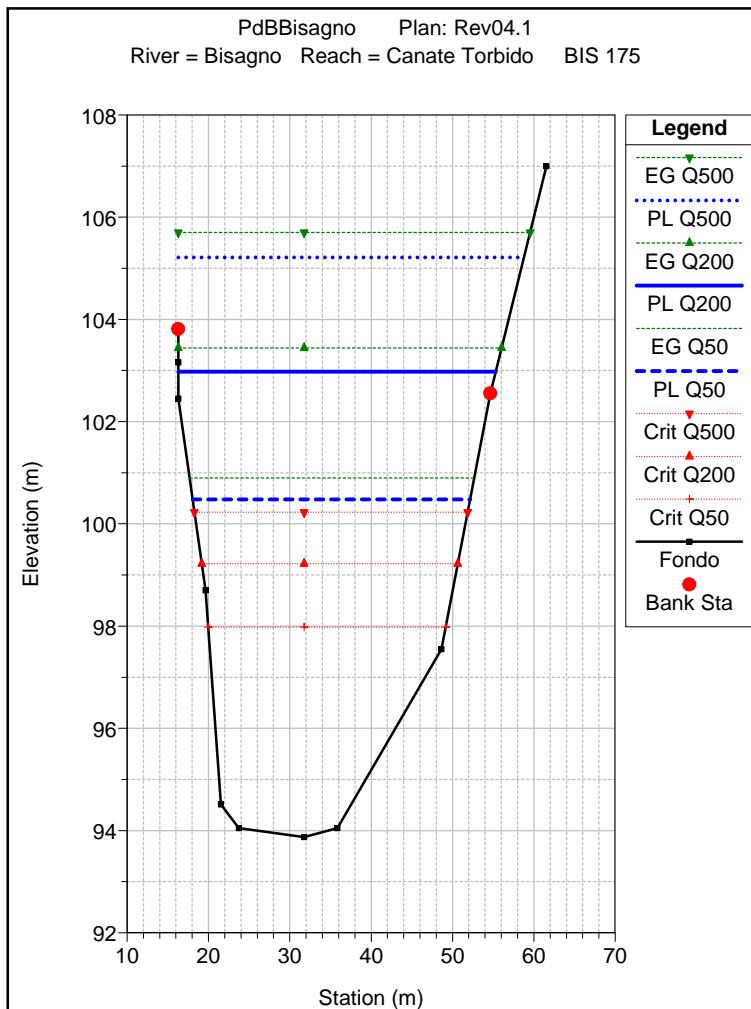


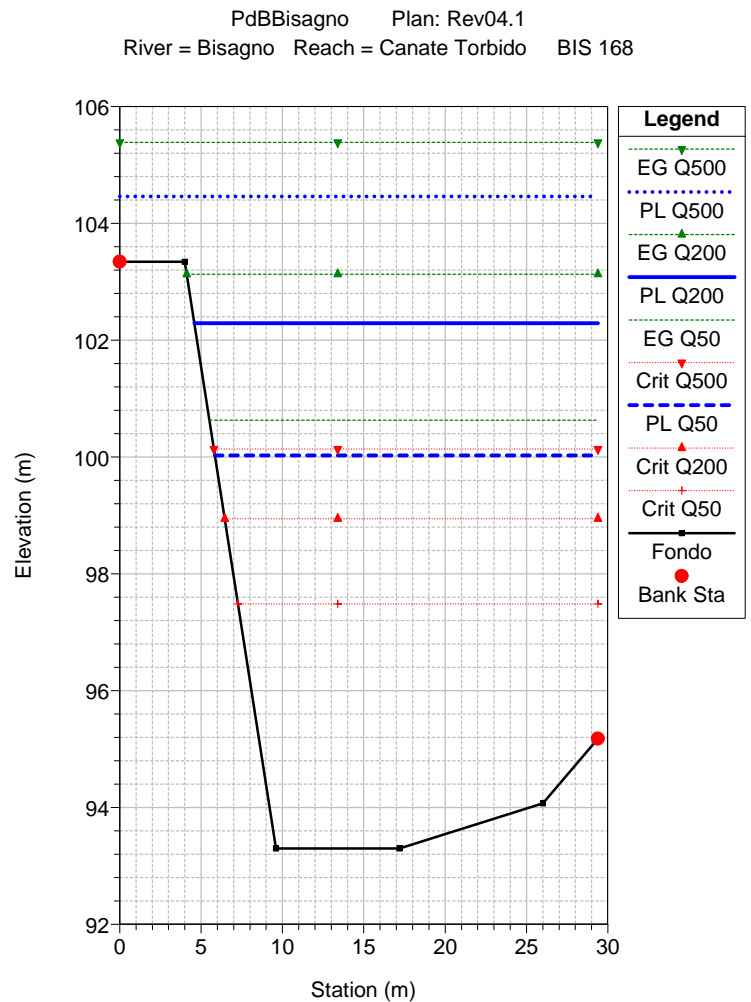
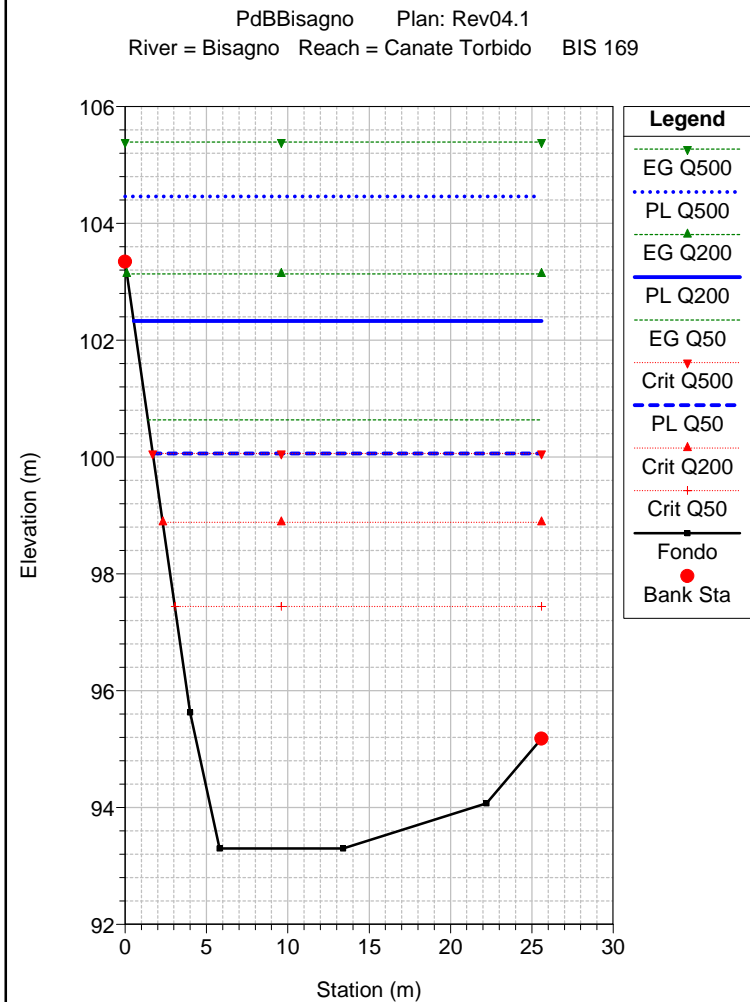
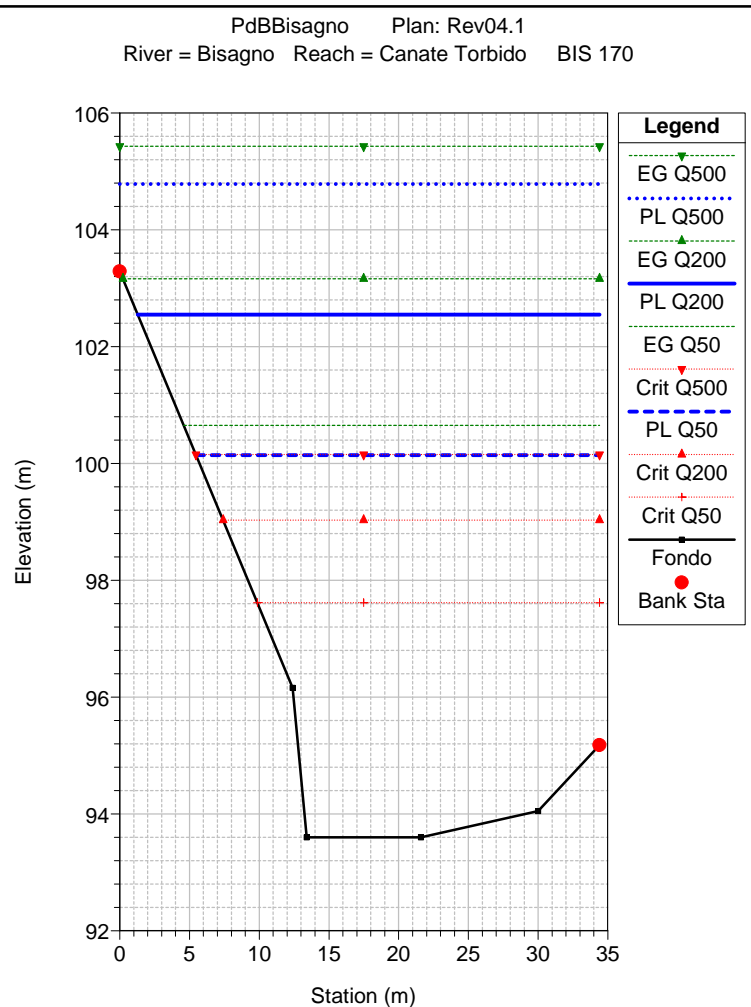
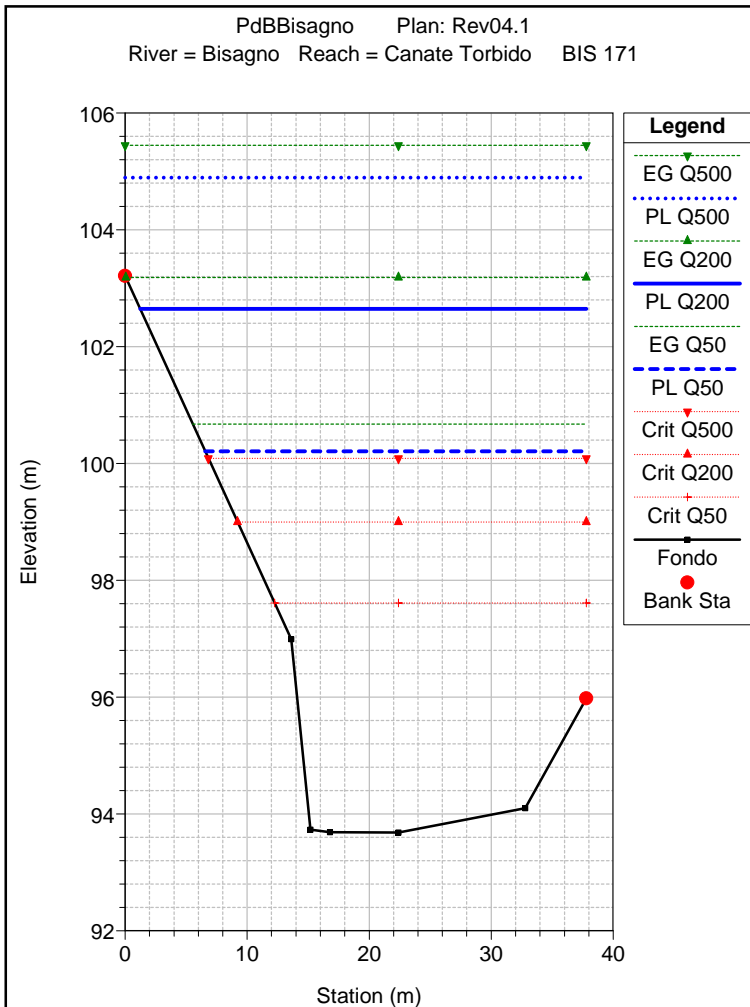
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 177

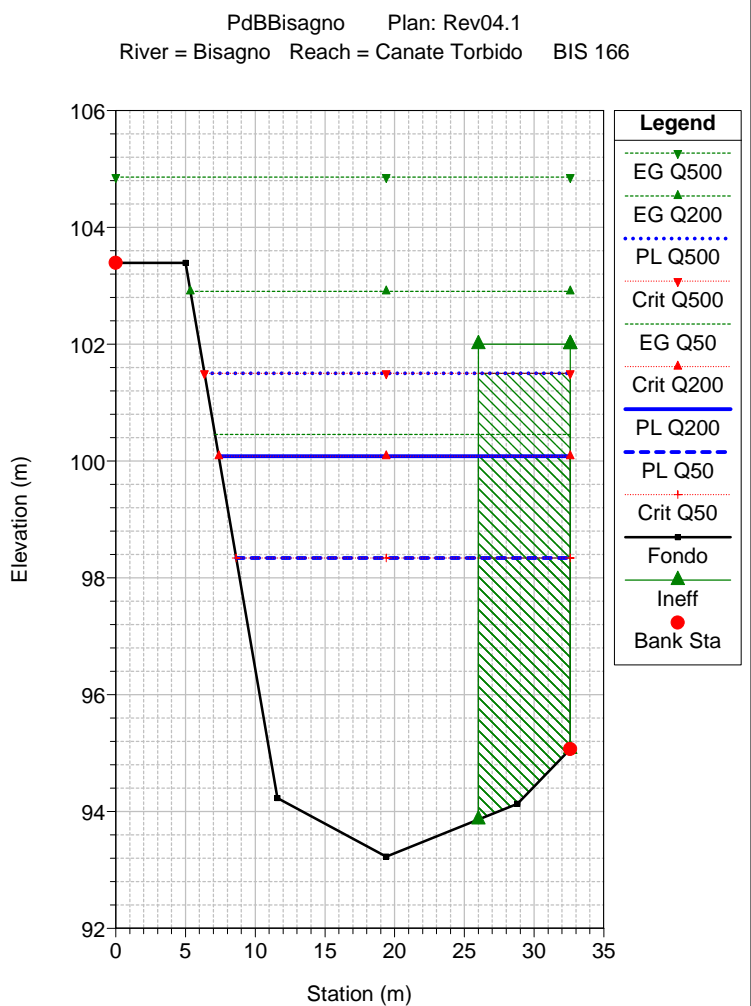
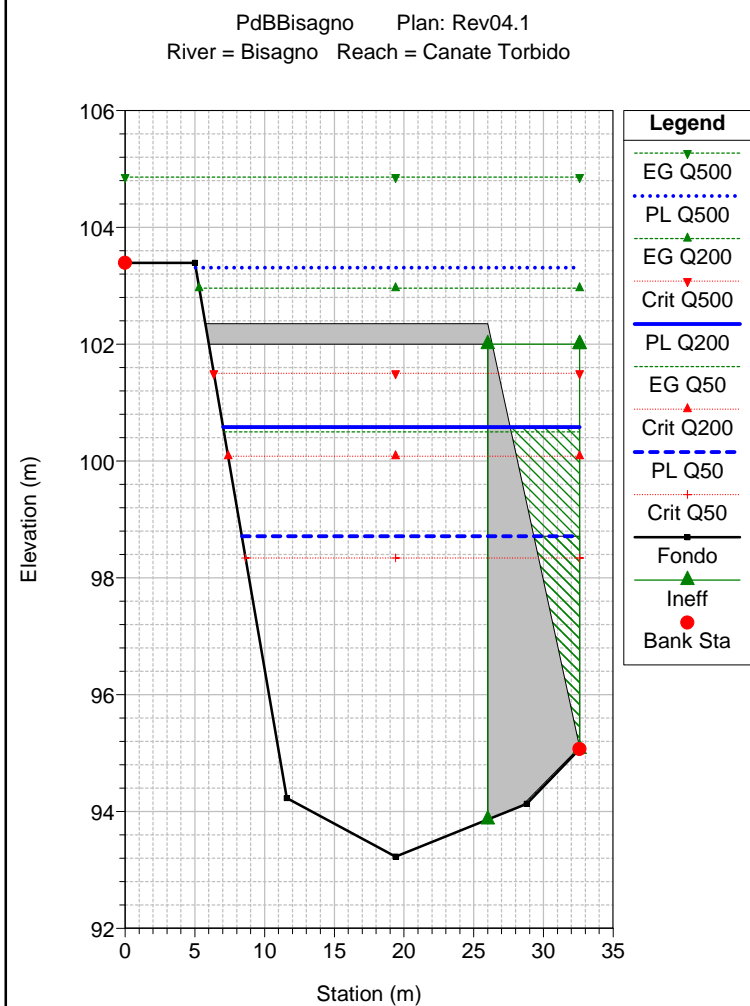
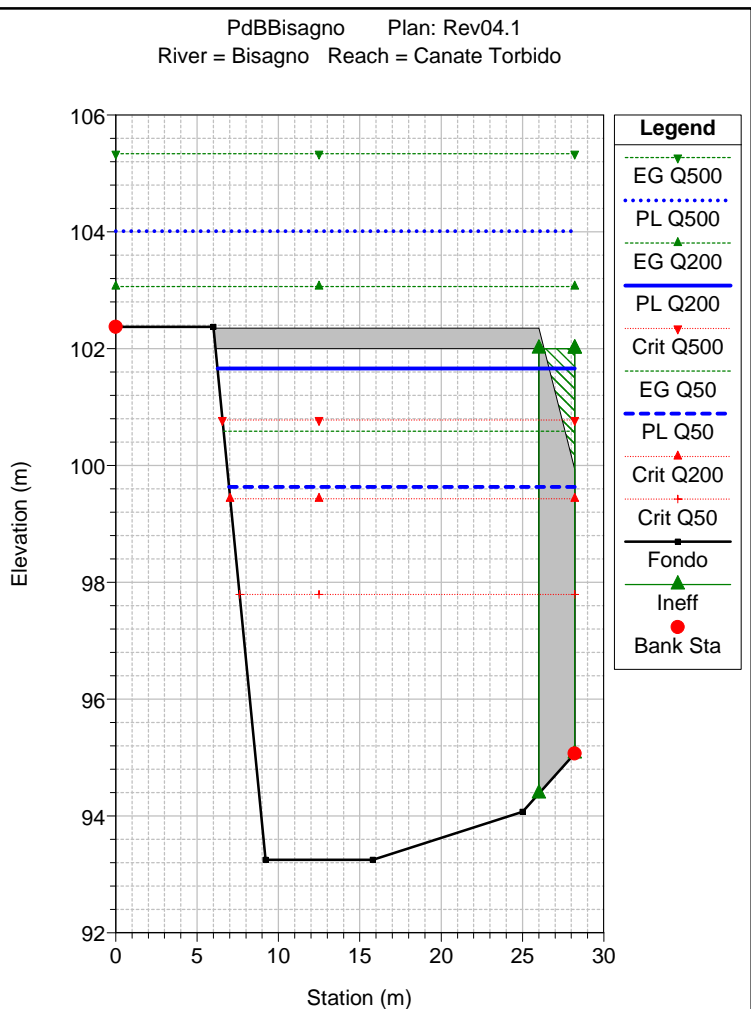
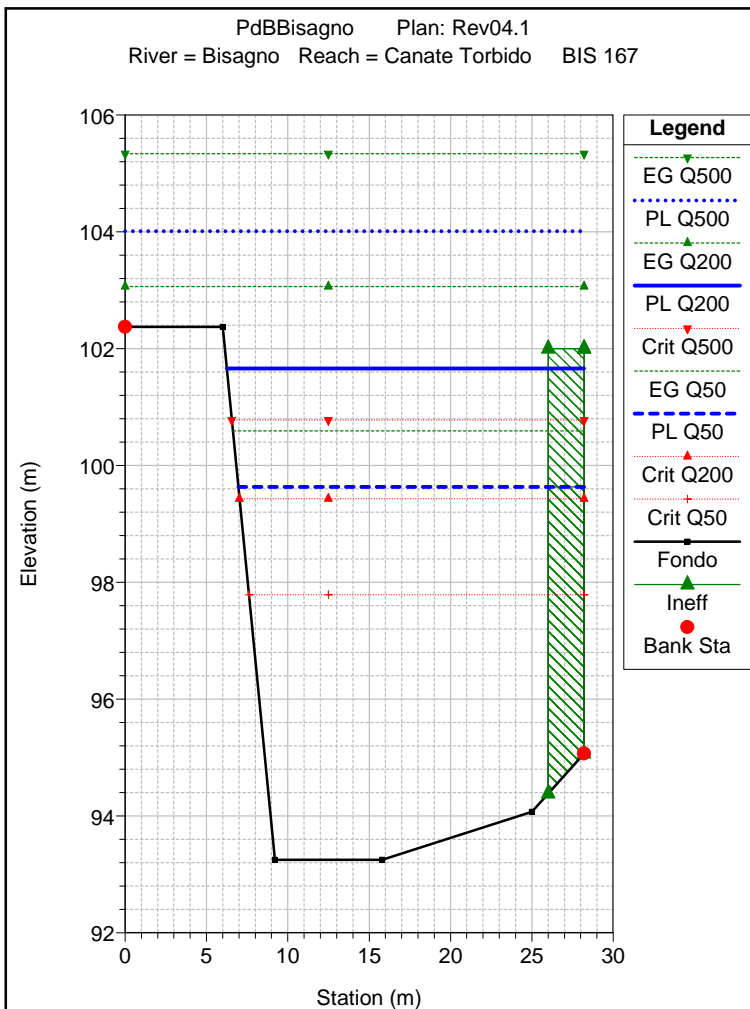


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 176

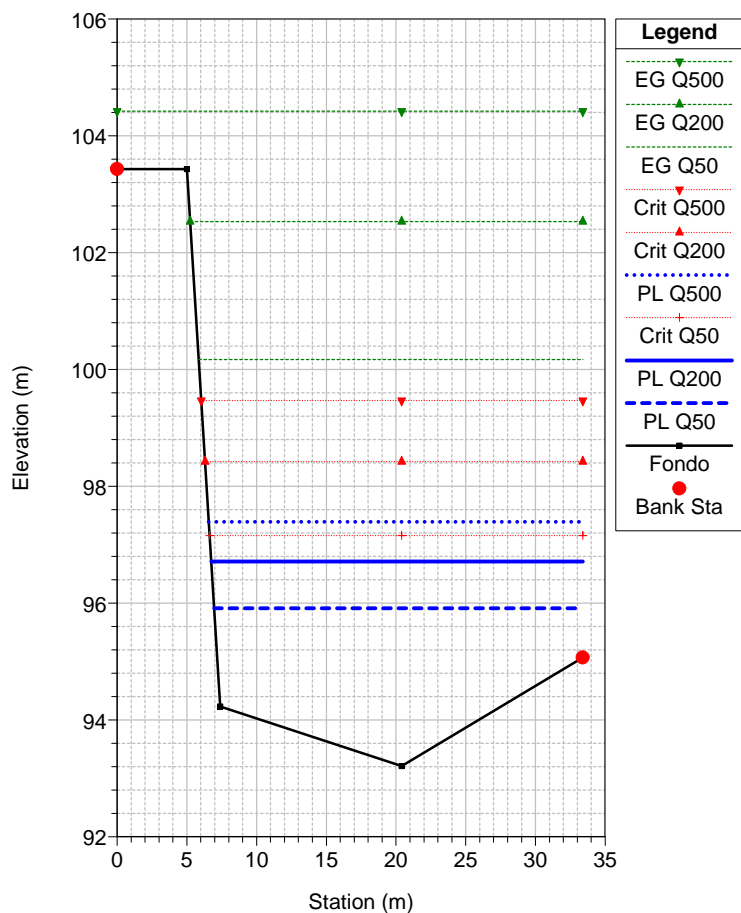




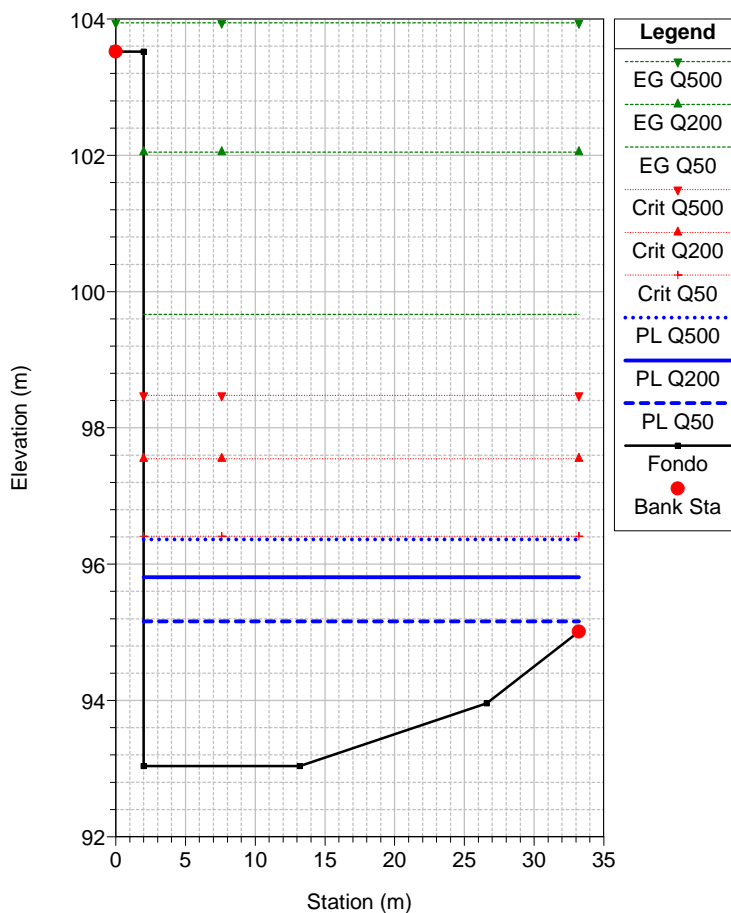




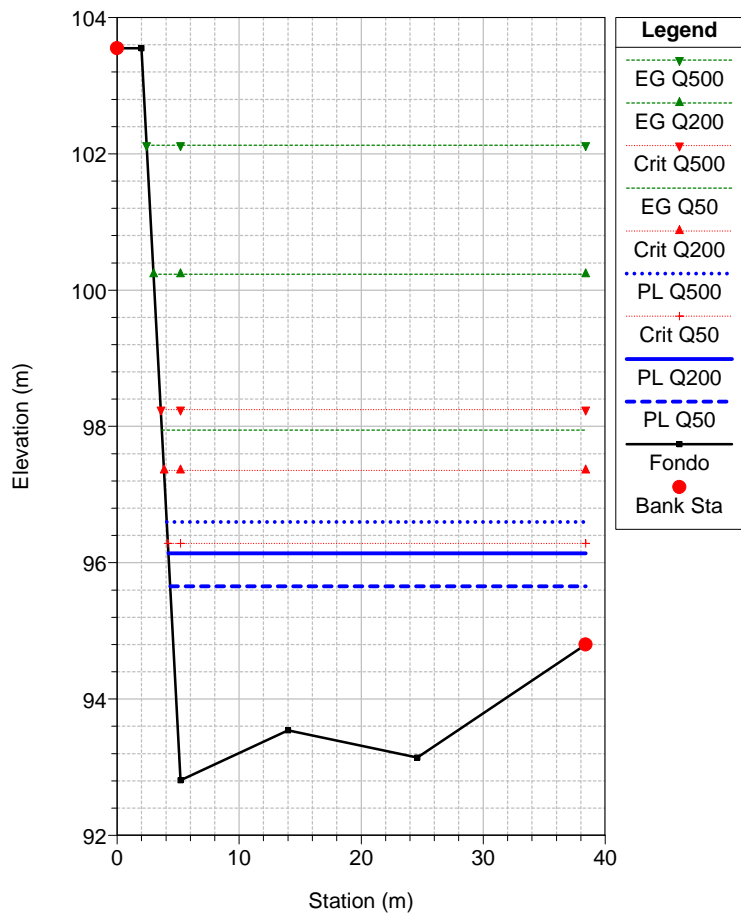
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 165



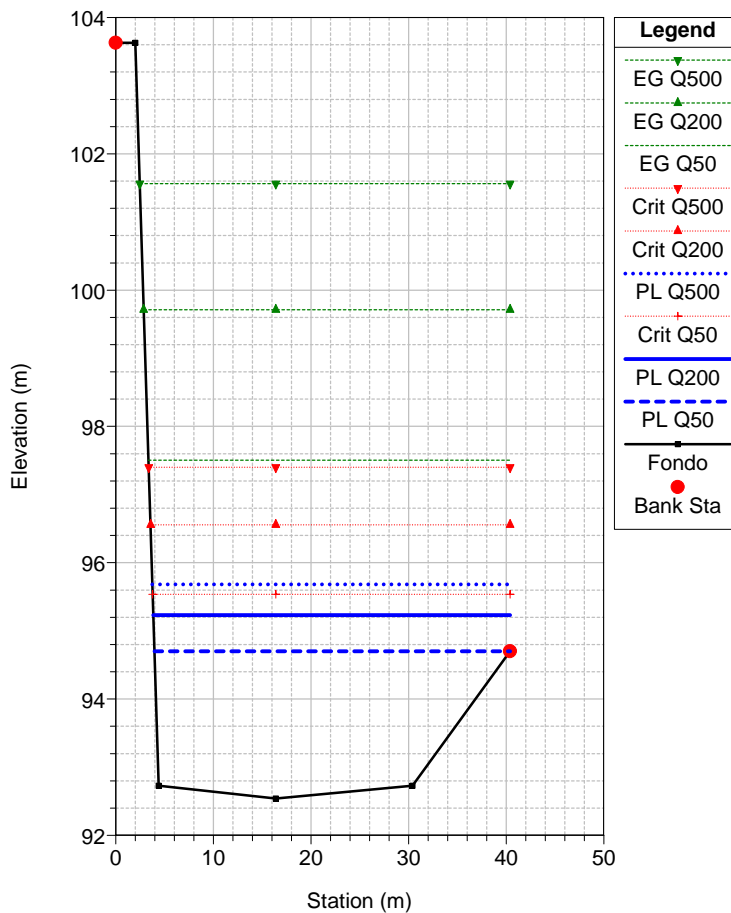
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 164

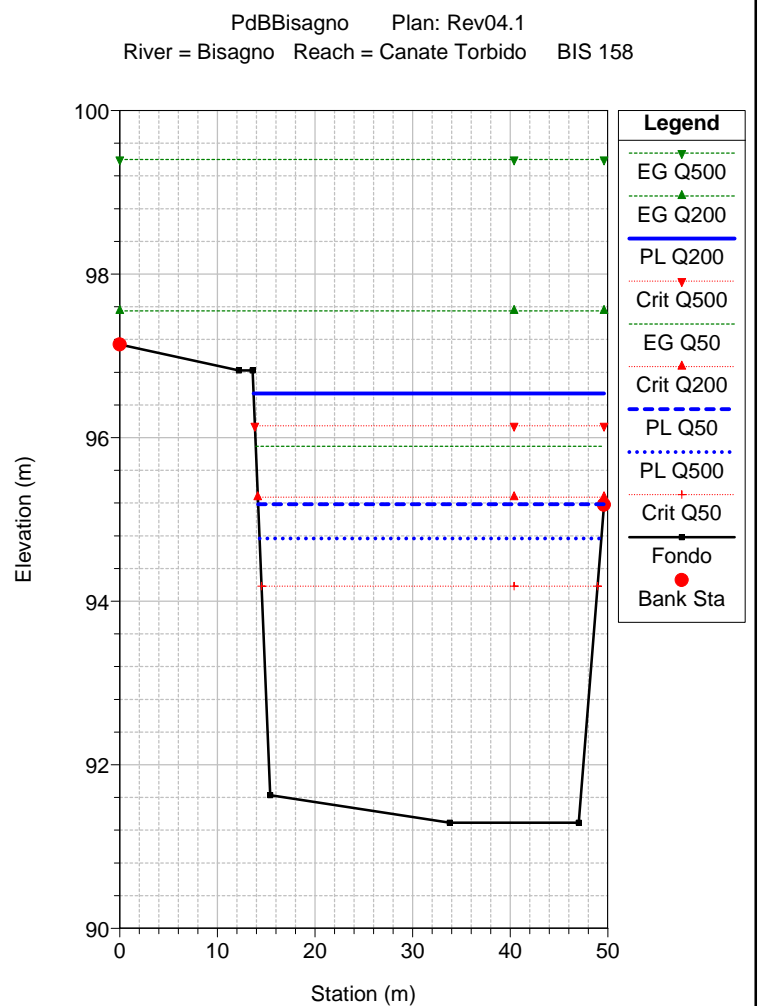
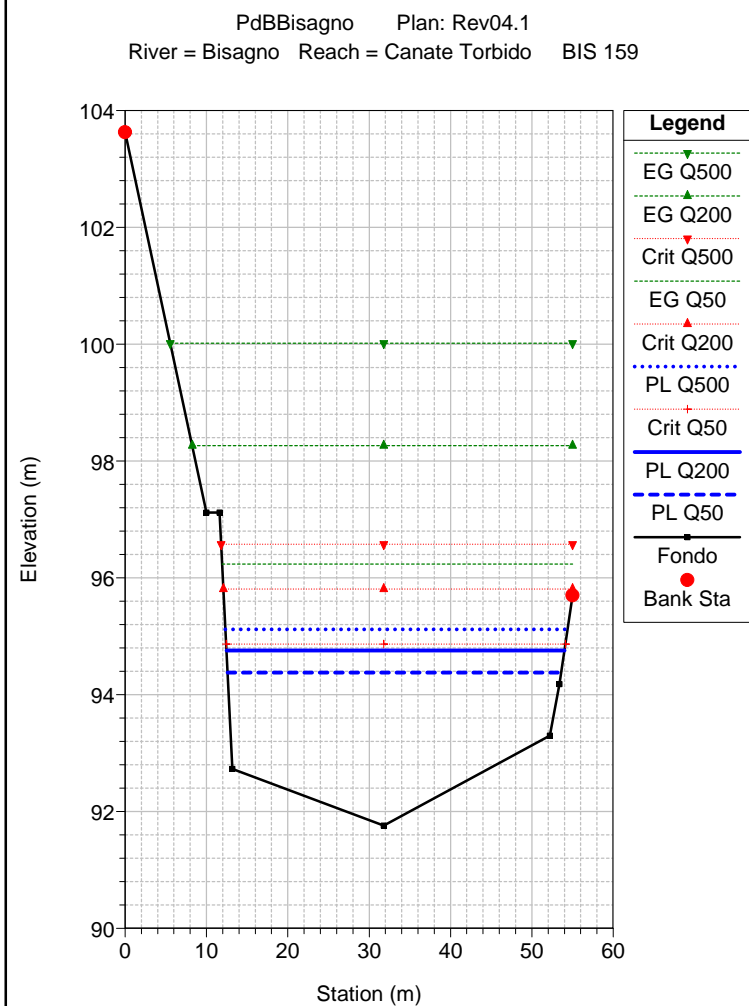
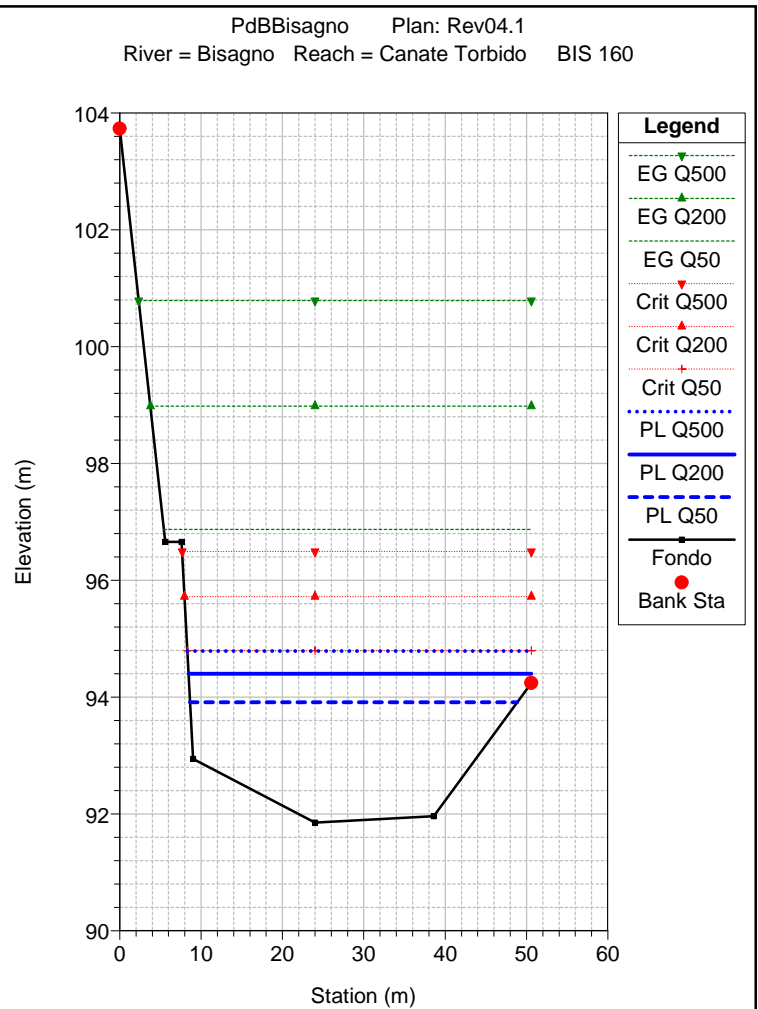
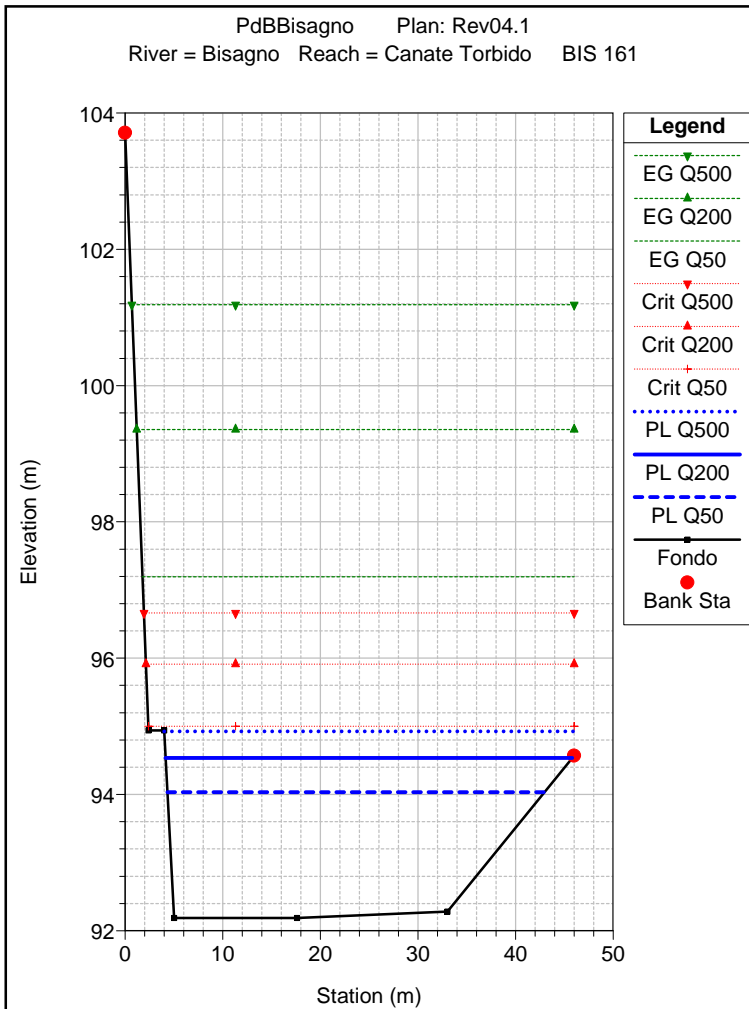


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 163

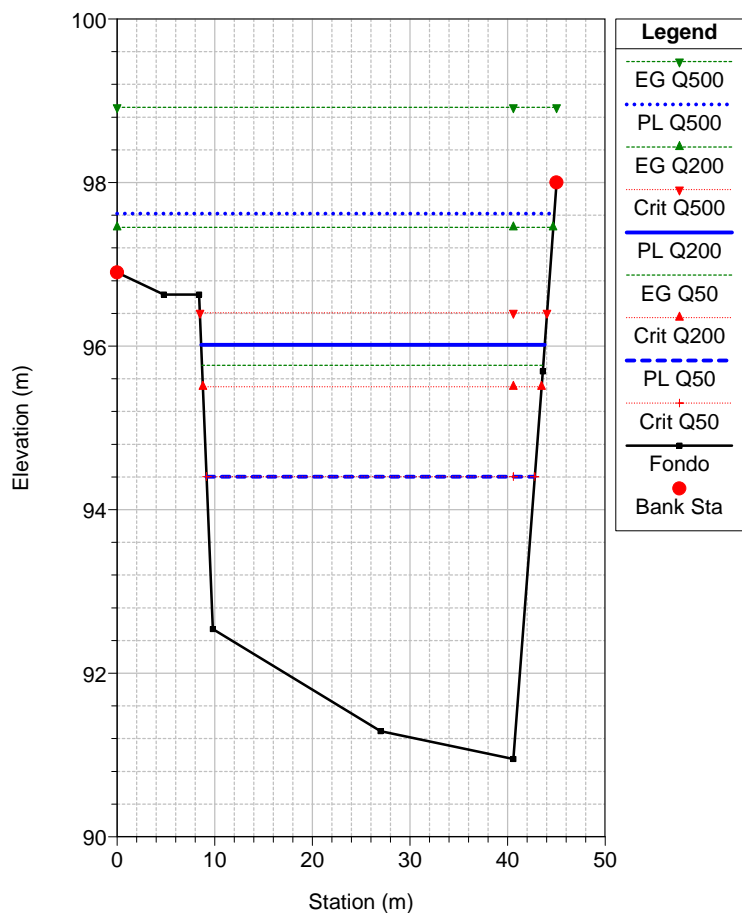


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 162

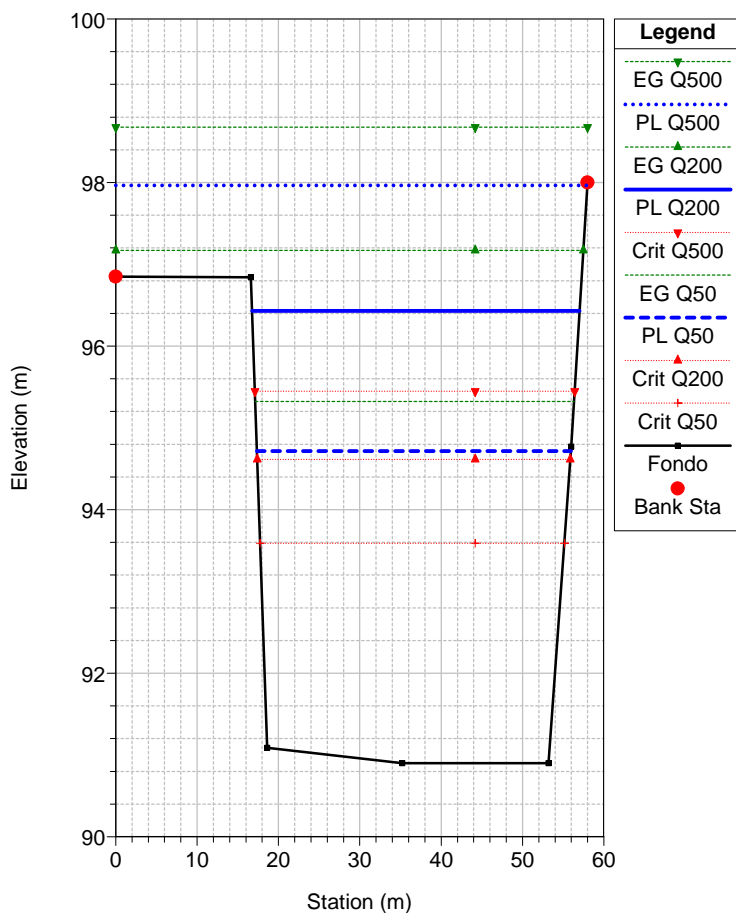




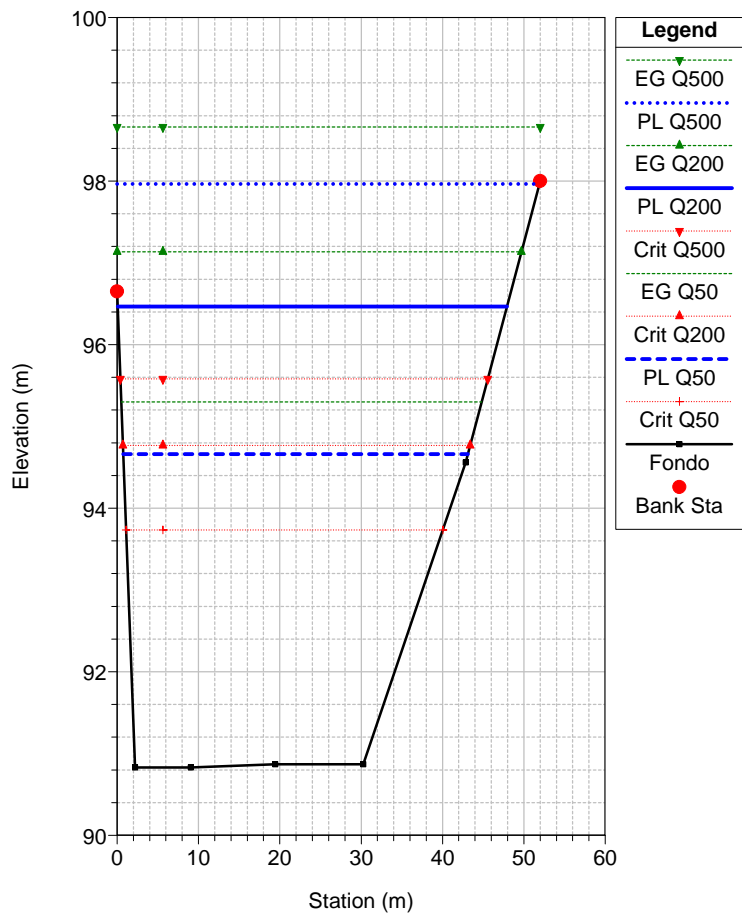
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 157



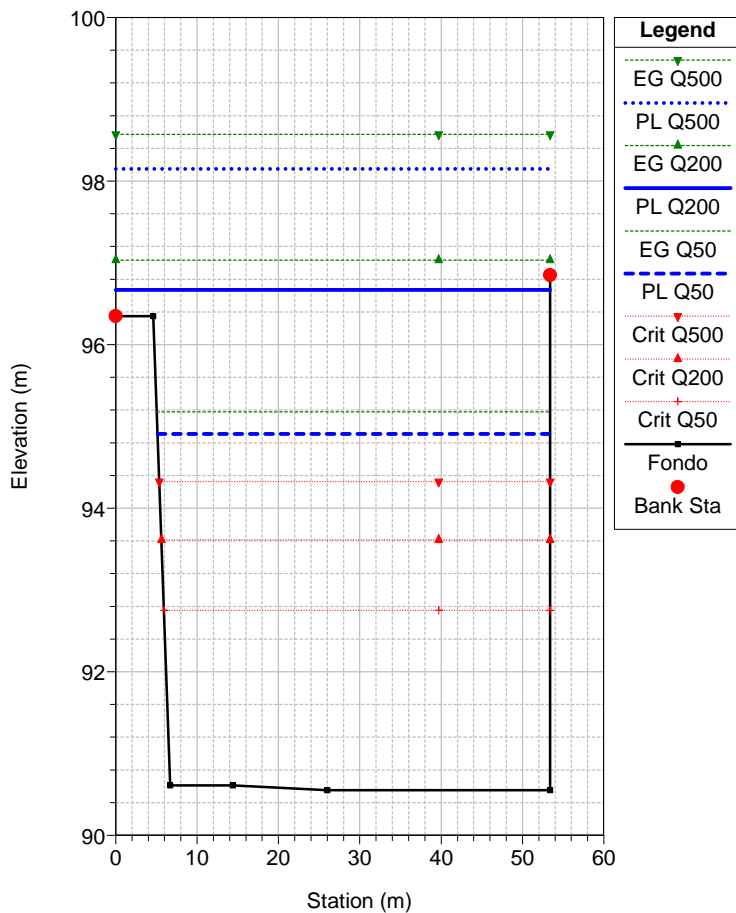
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 156



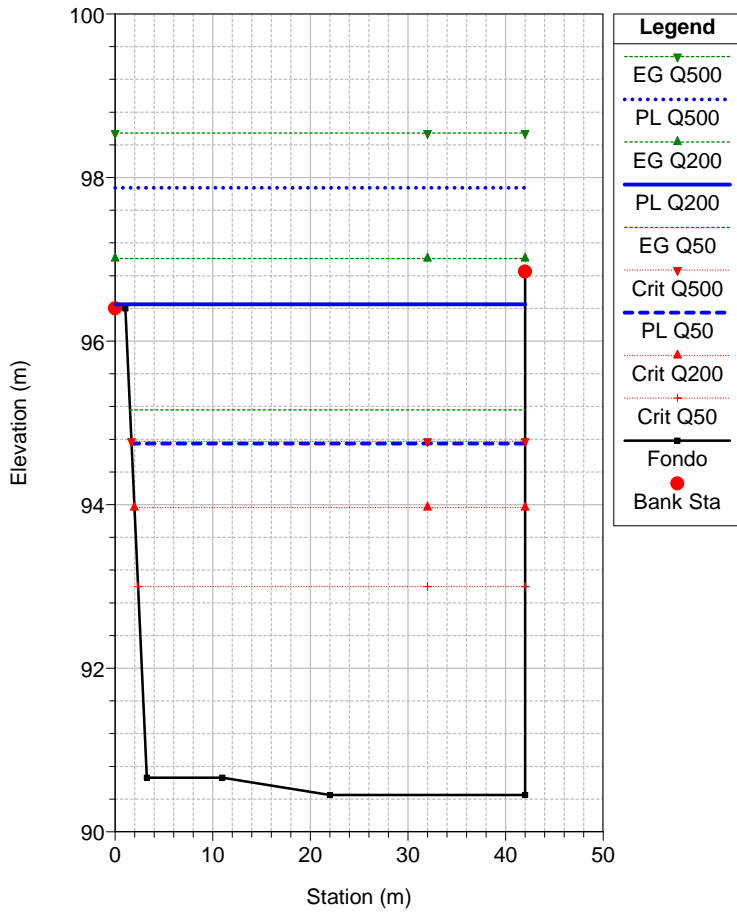
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 155



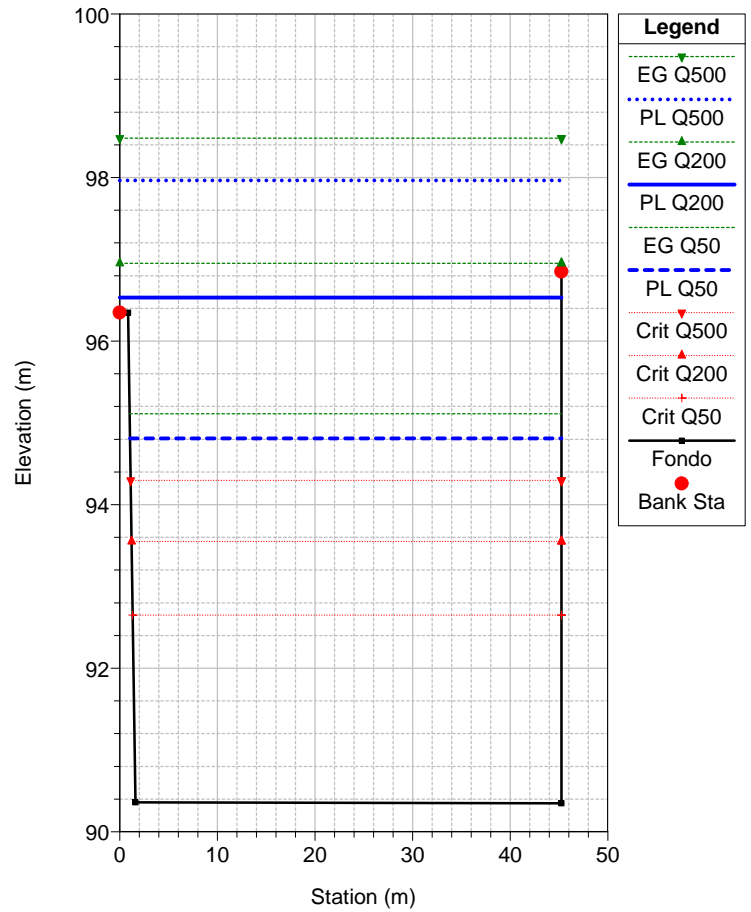
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 154



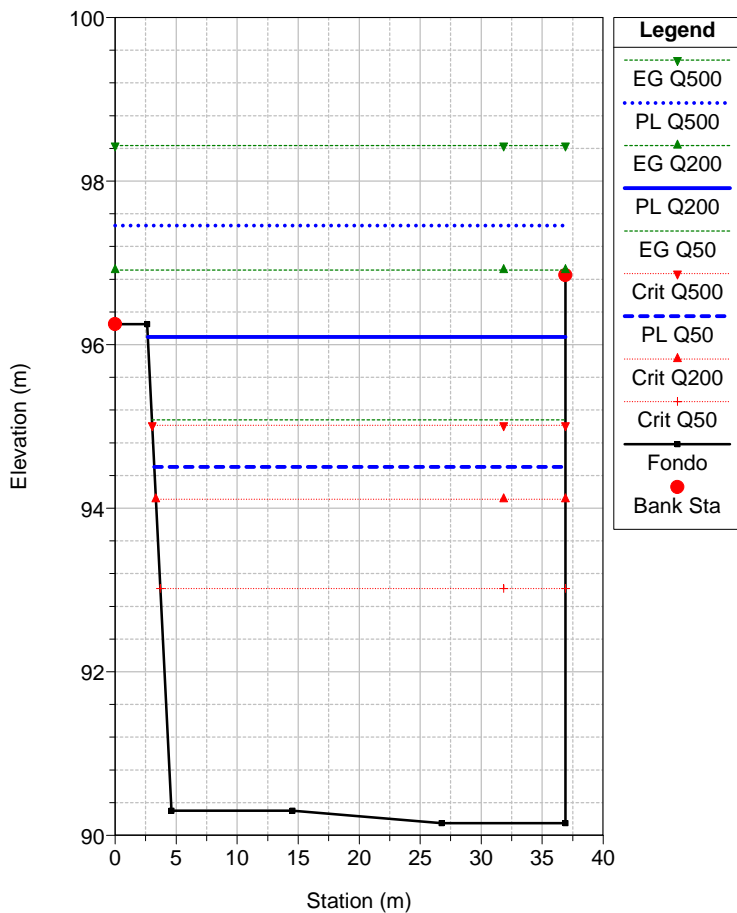
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 153



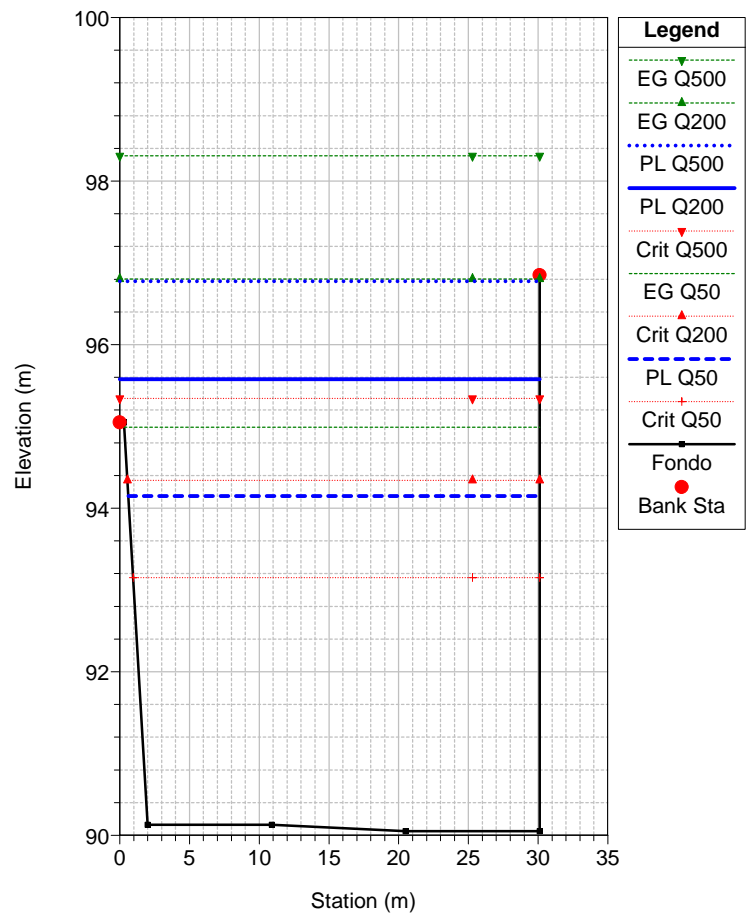
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 152



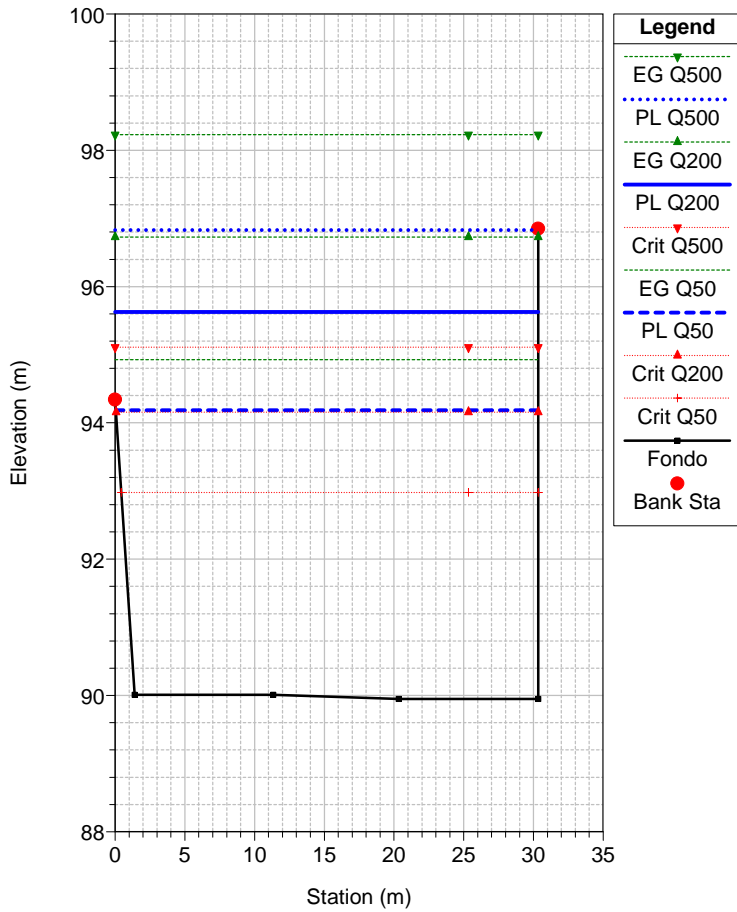
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 151



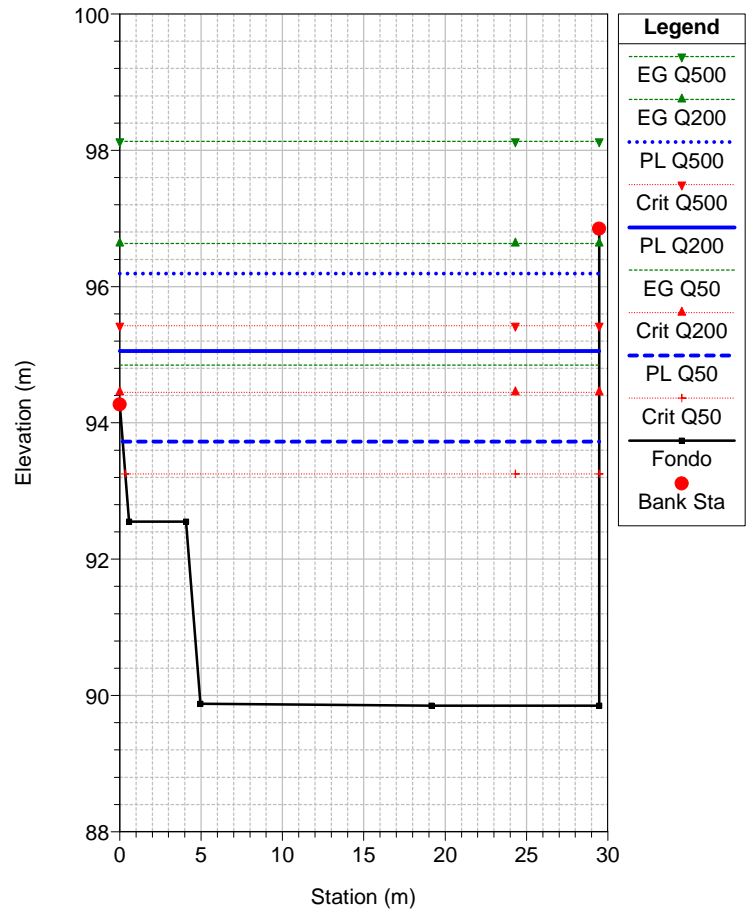
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 150



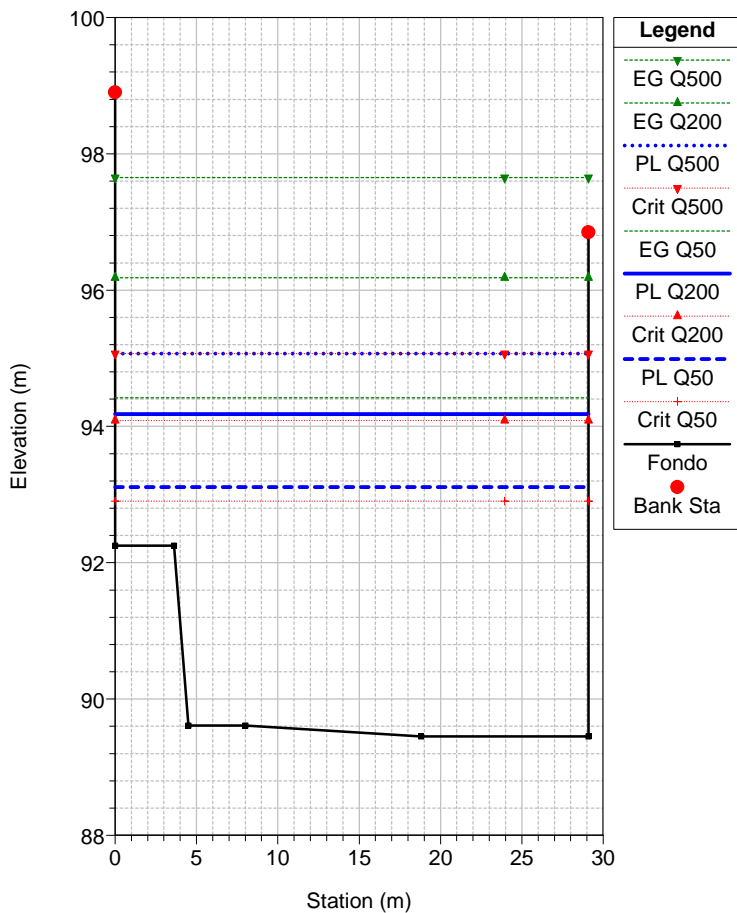
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 149



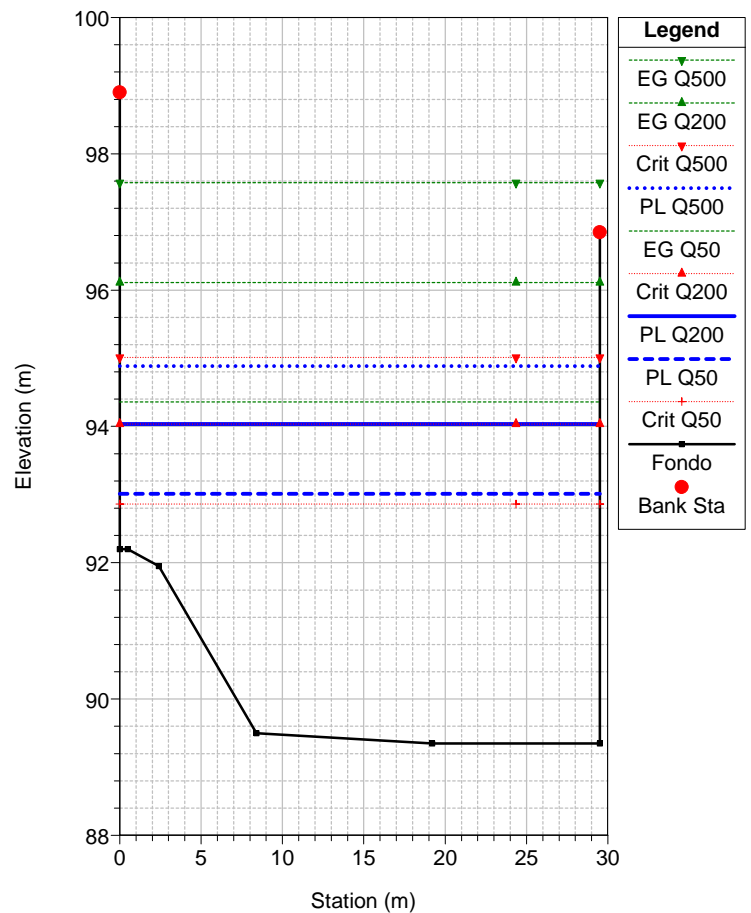
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 148

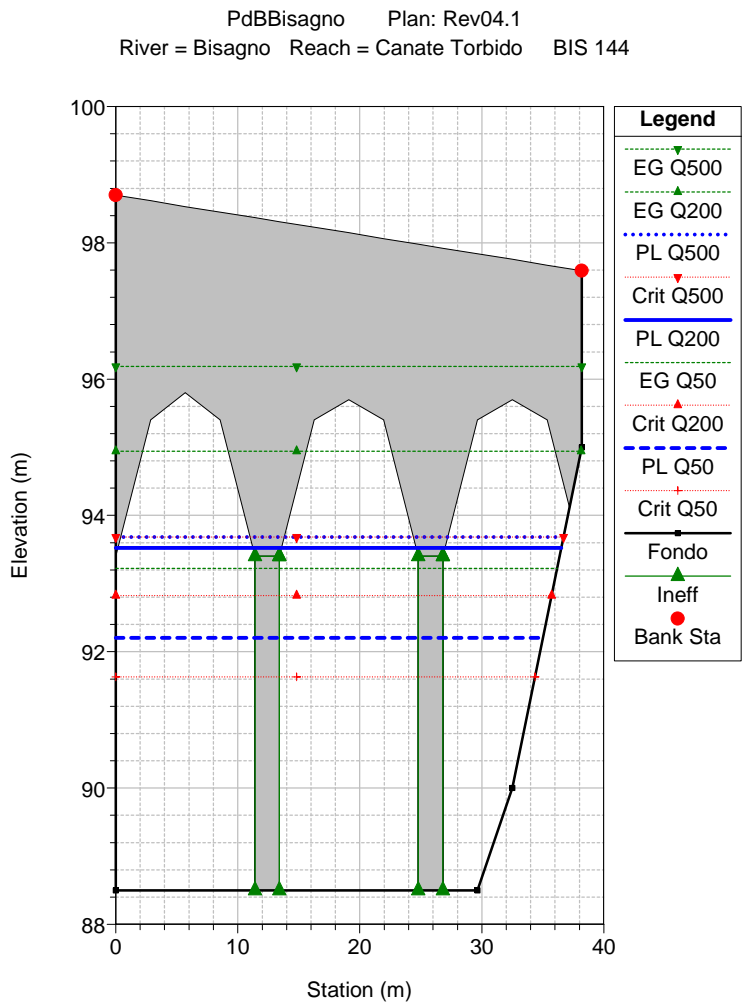
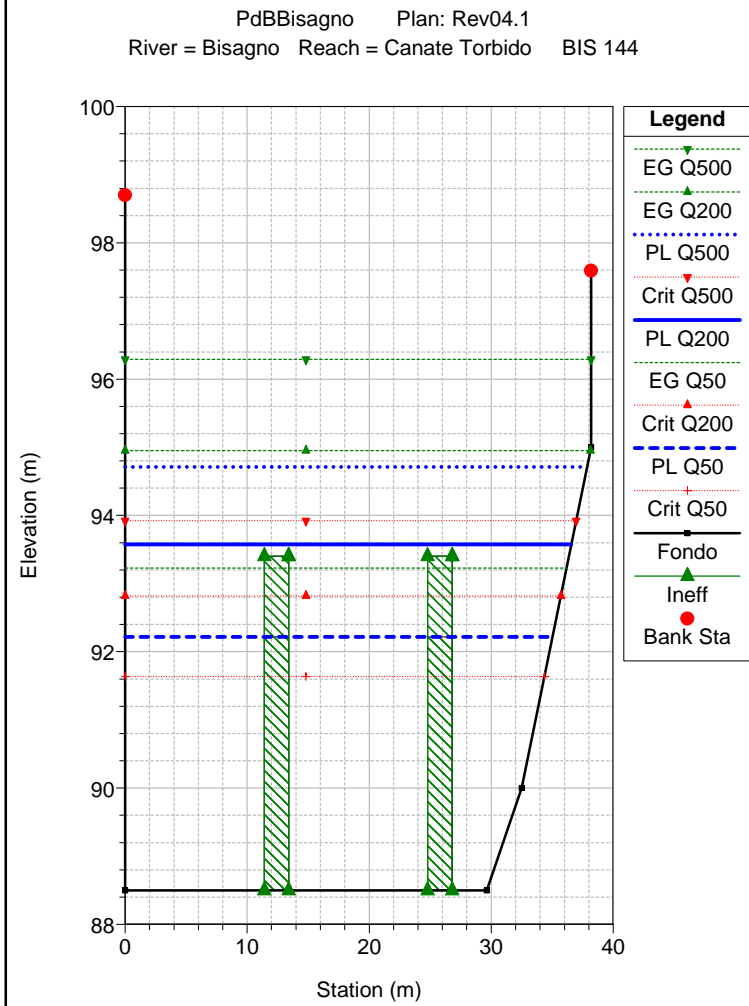
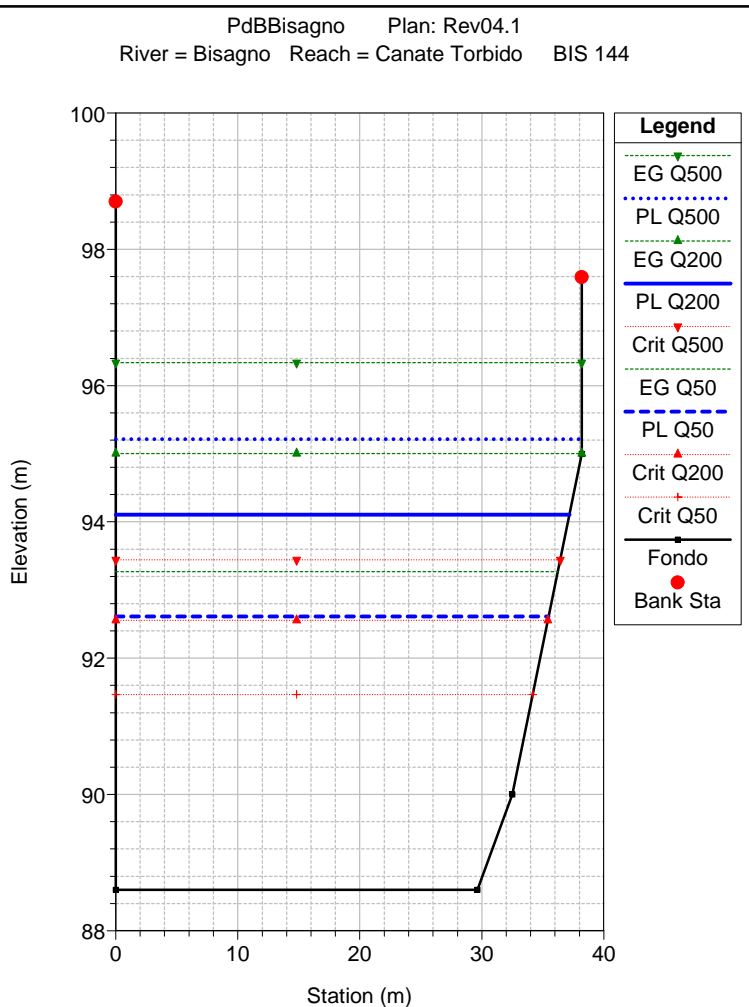
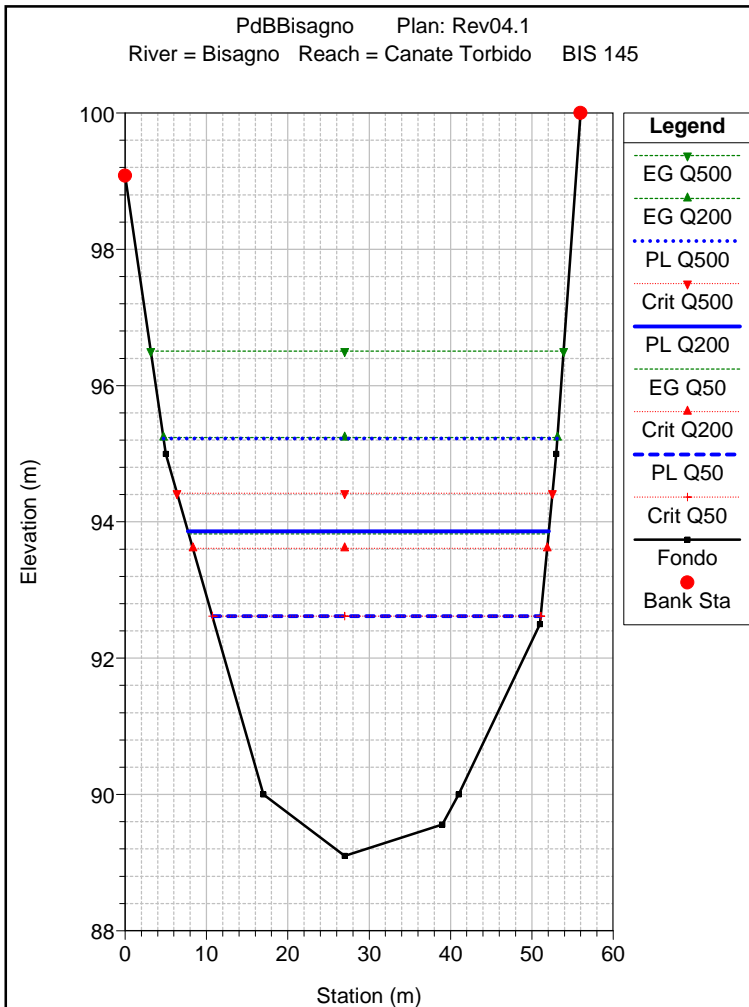


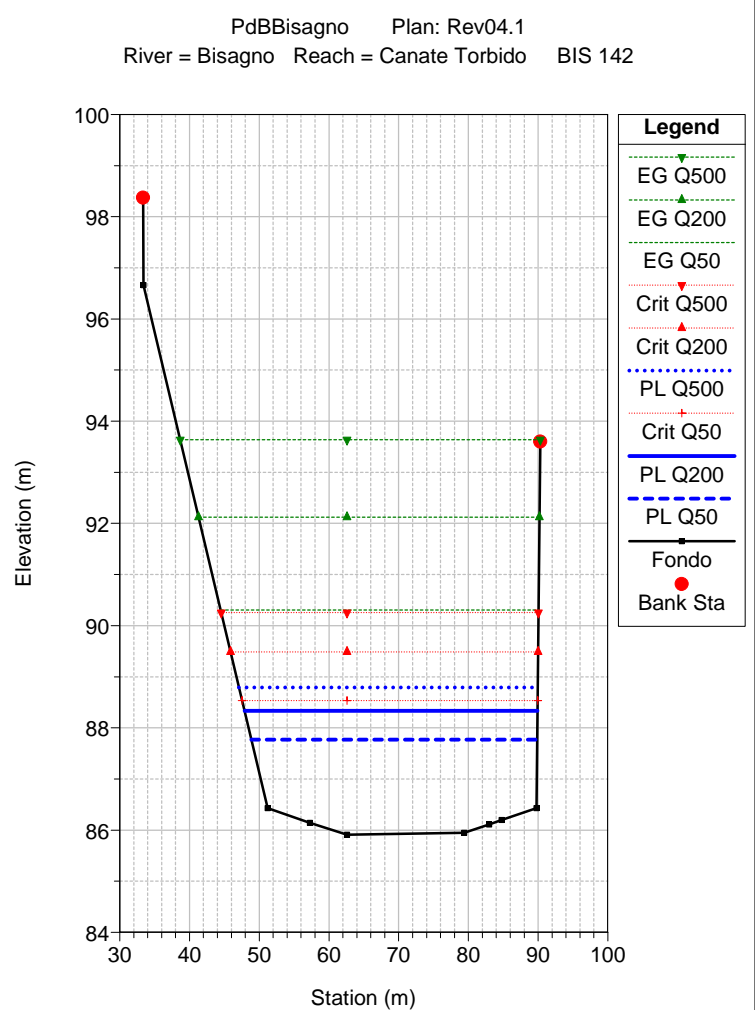
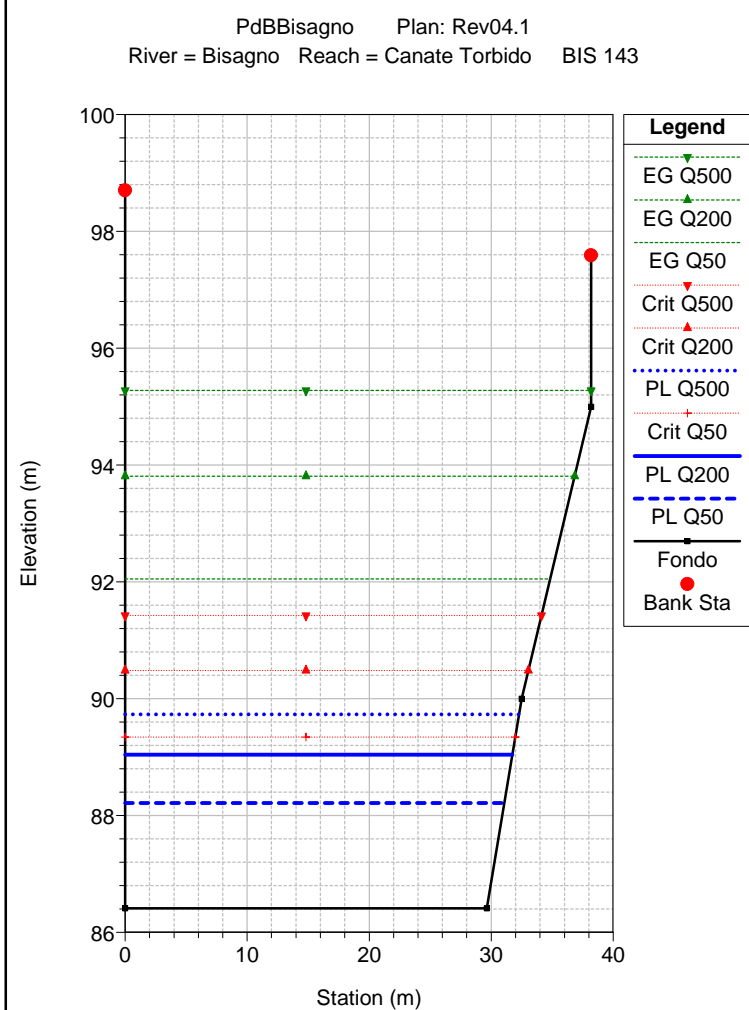
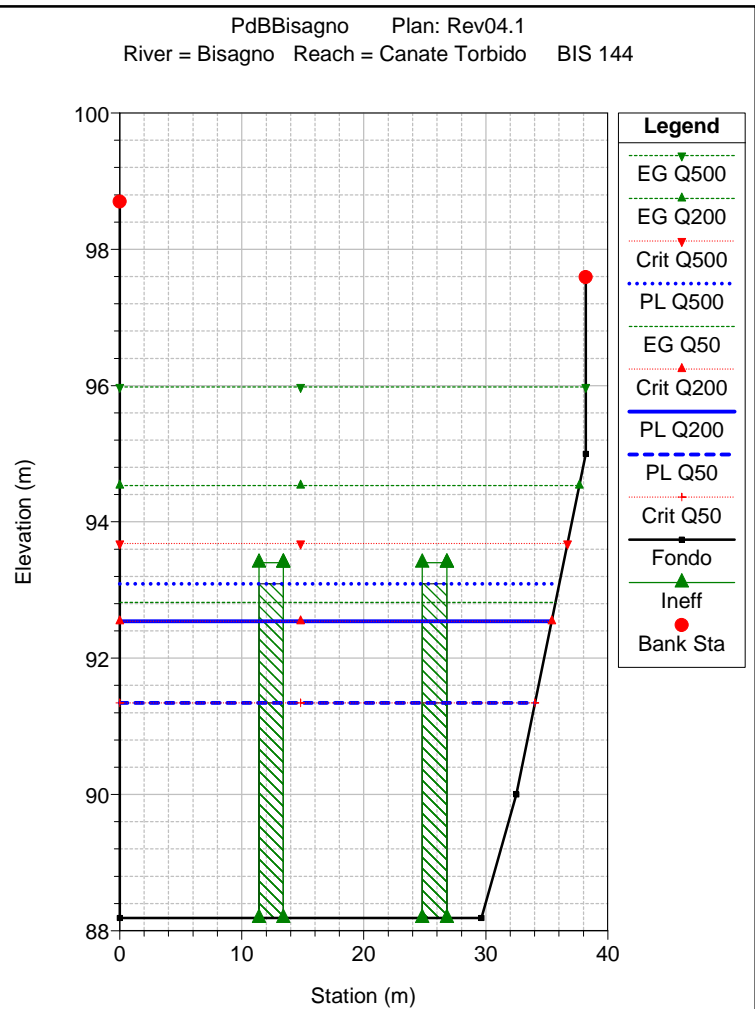
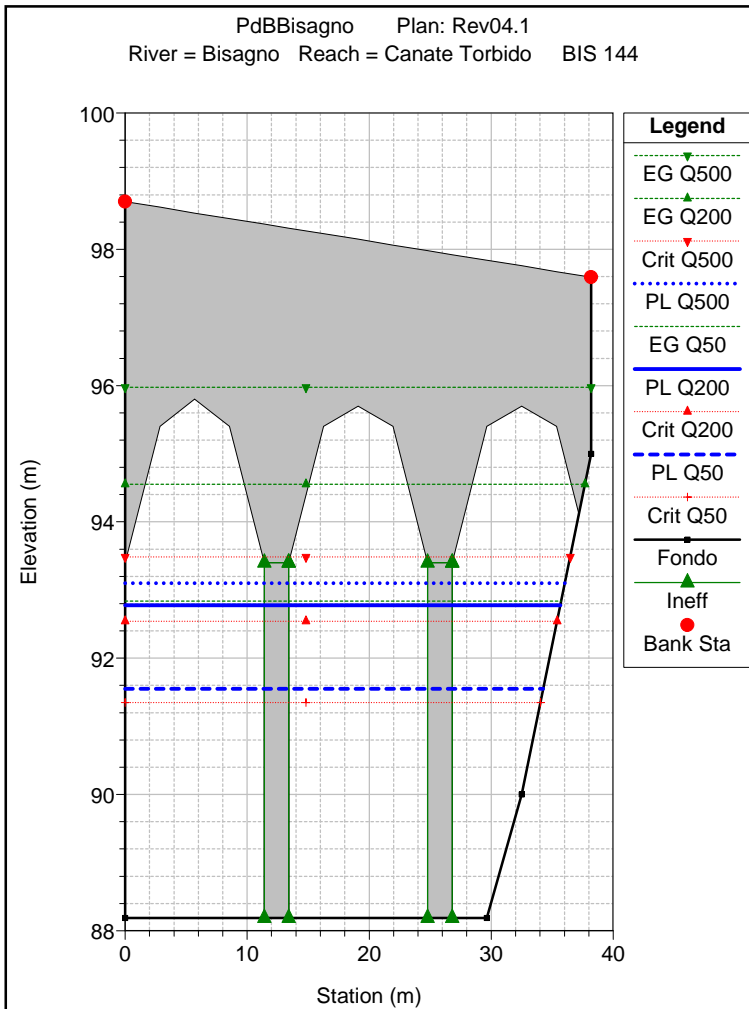
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 147

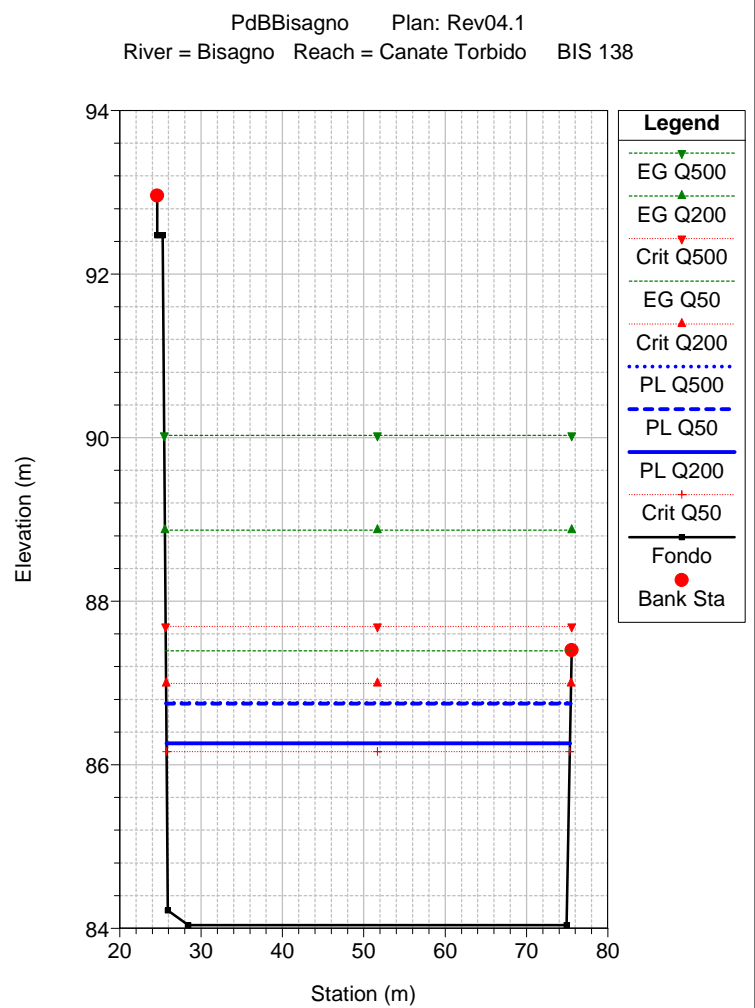
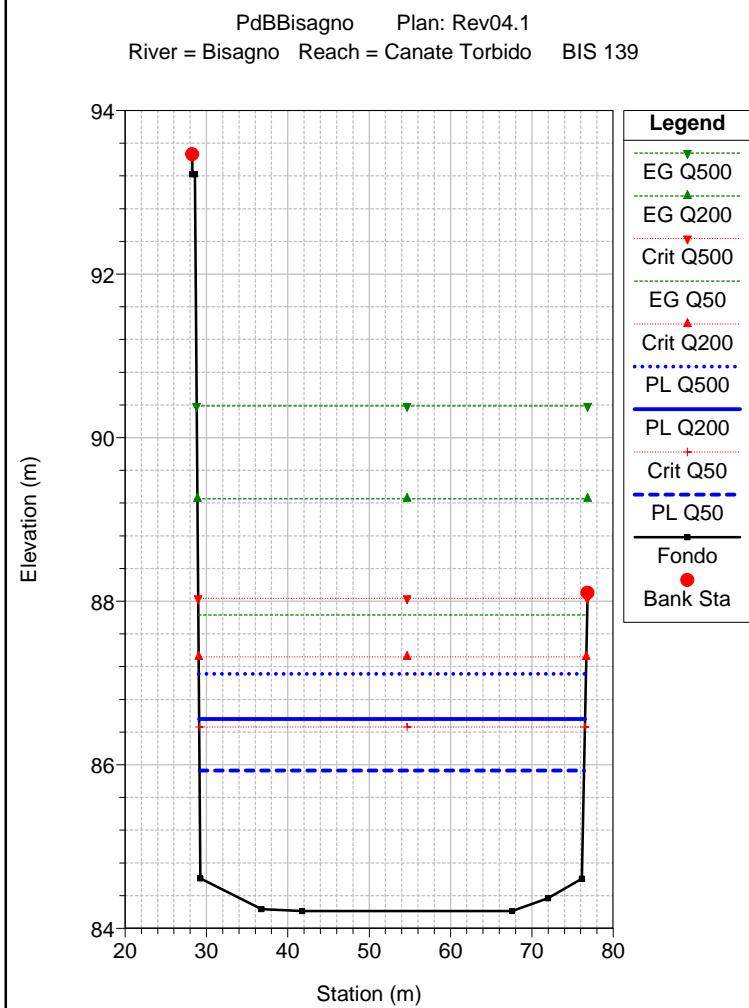
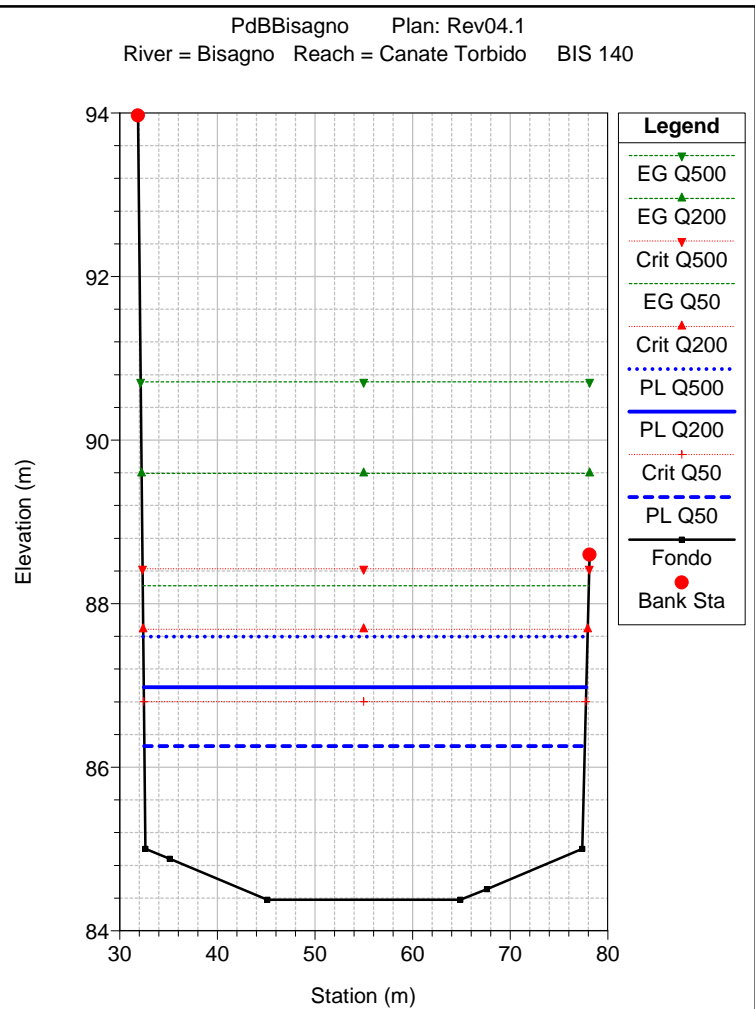
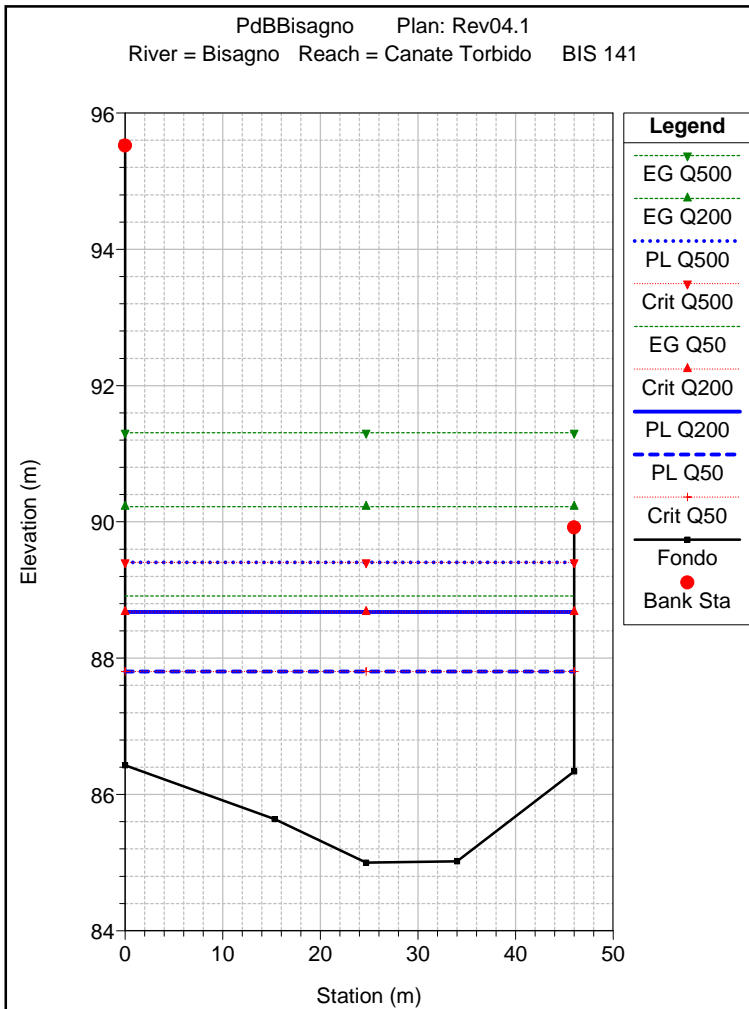


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 146

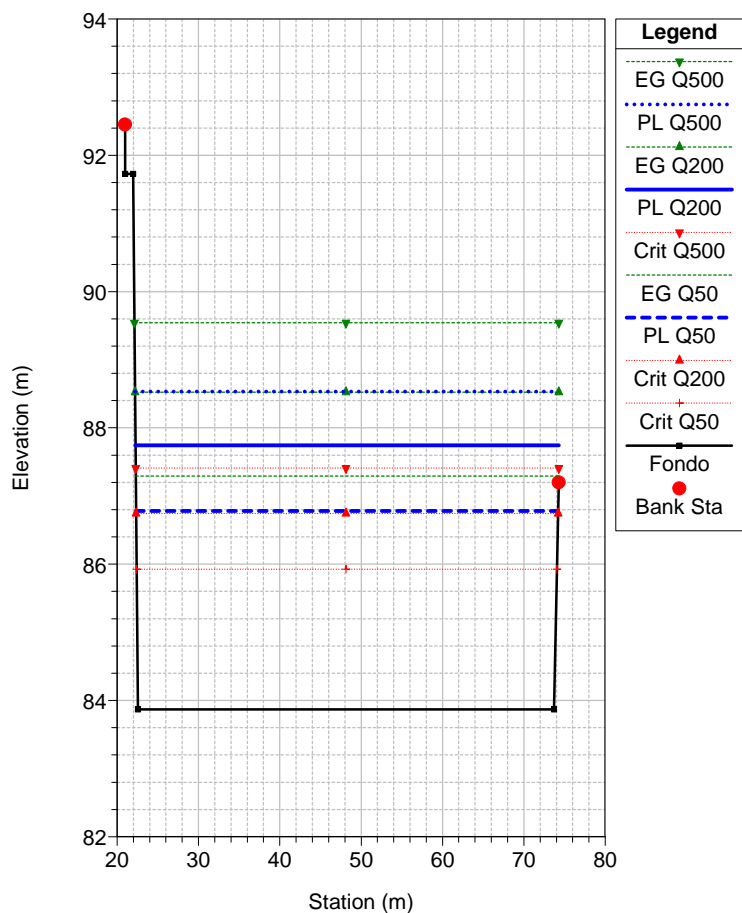




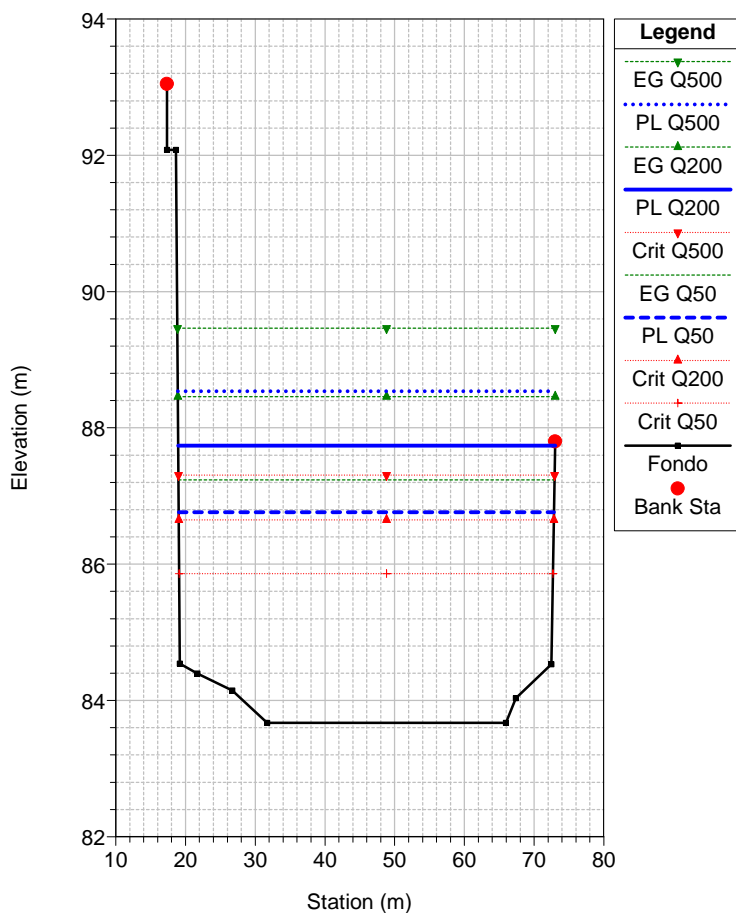




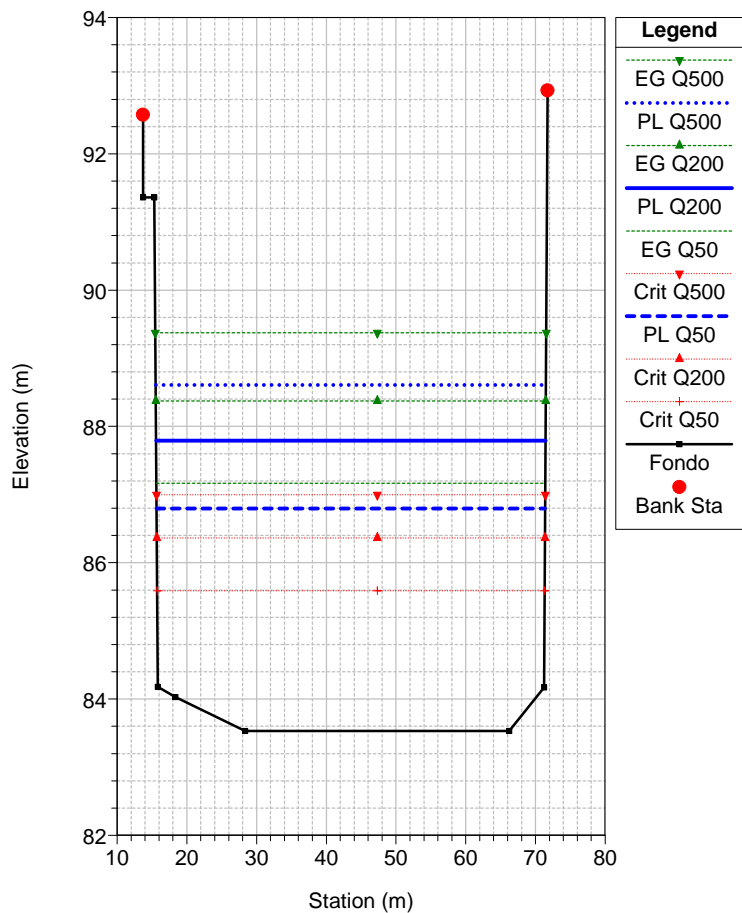
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 137



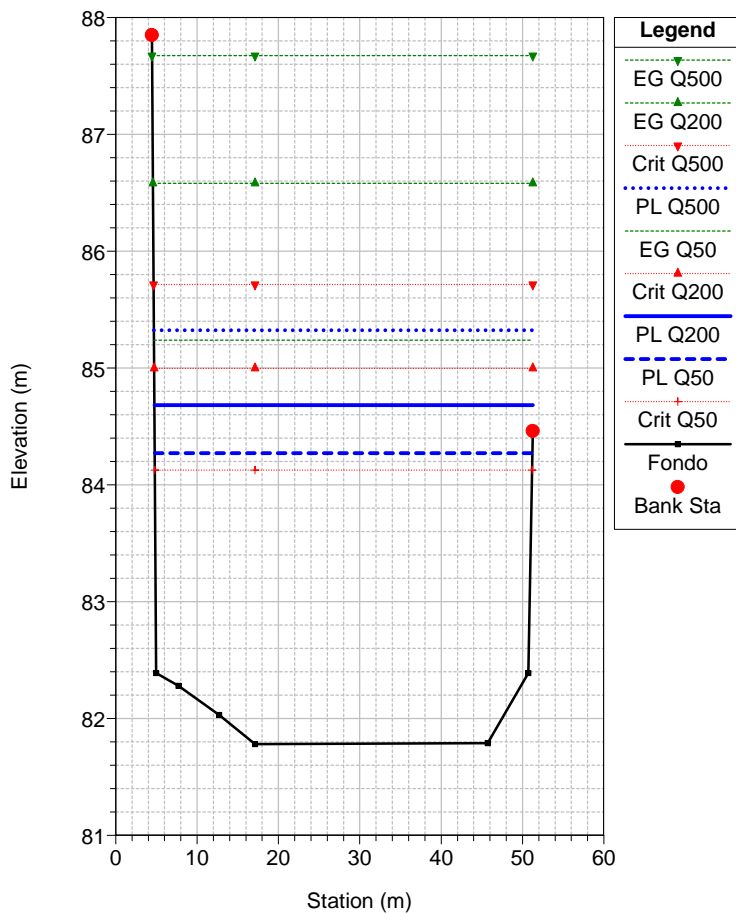
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 136



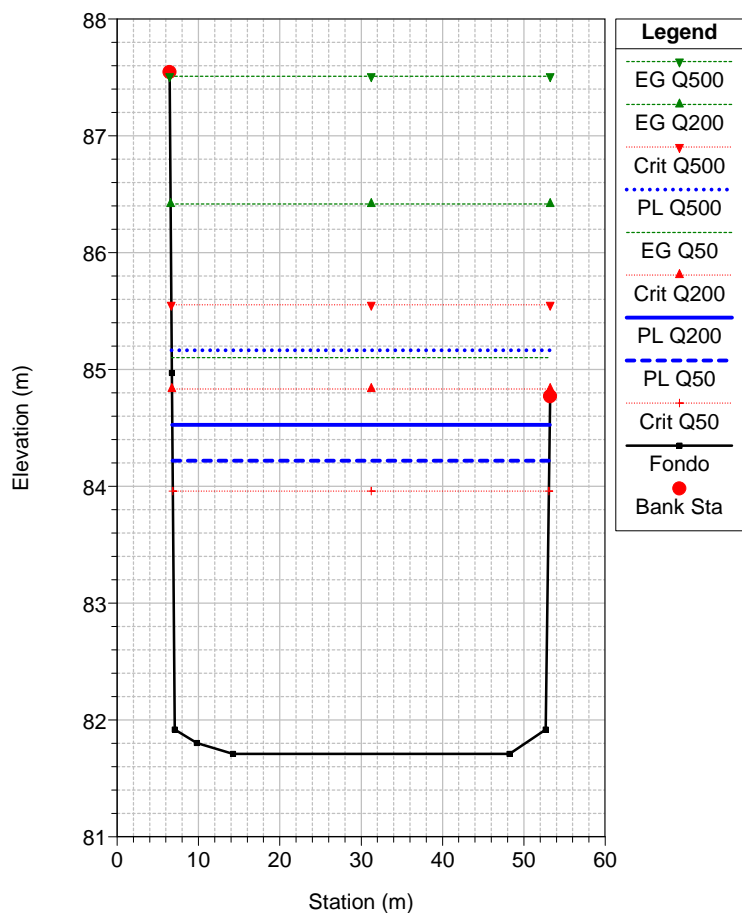
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 135



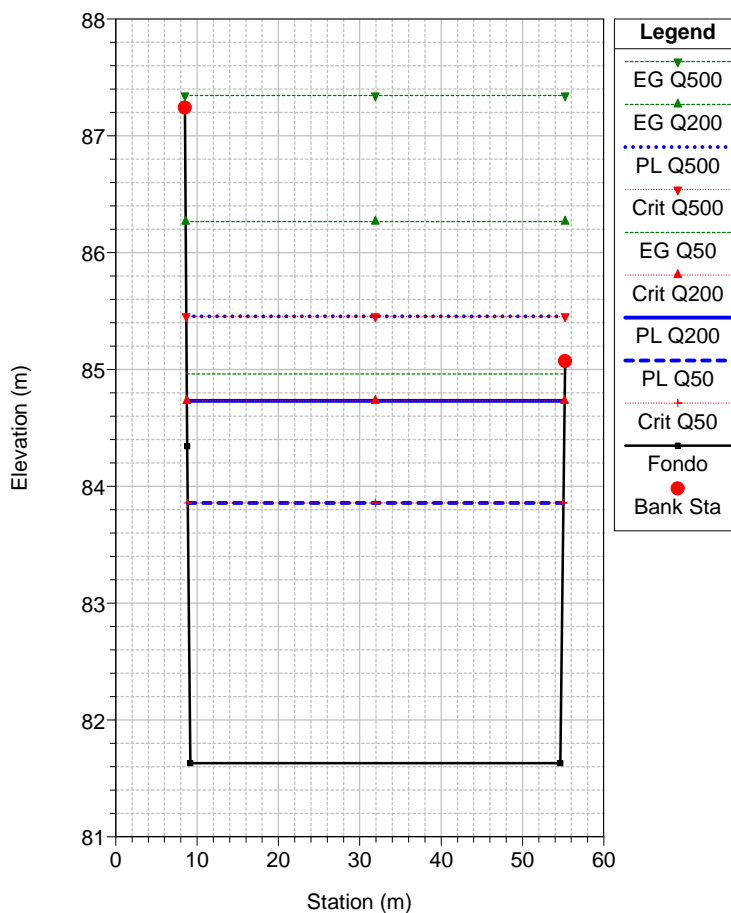
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 134



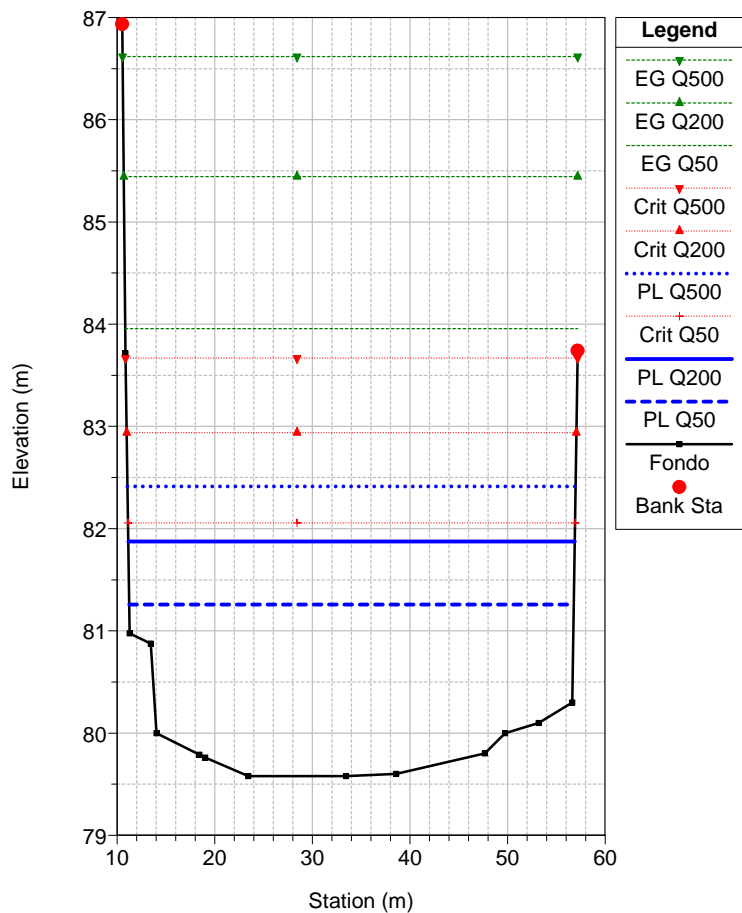
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 133



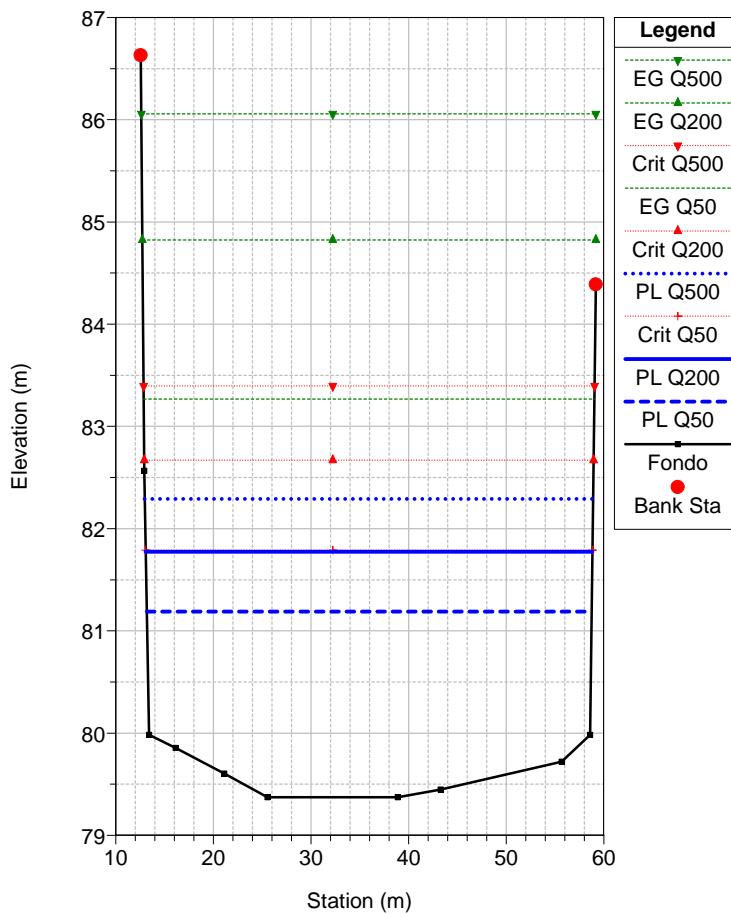
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 132



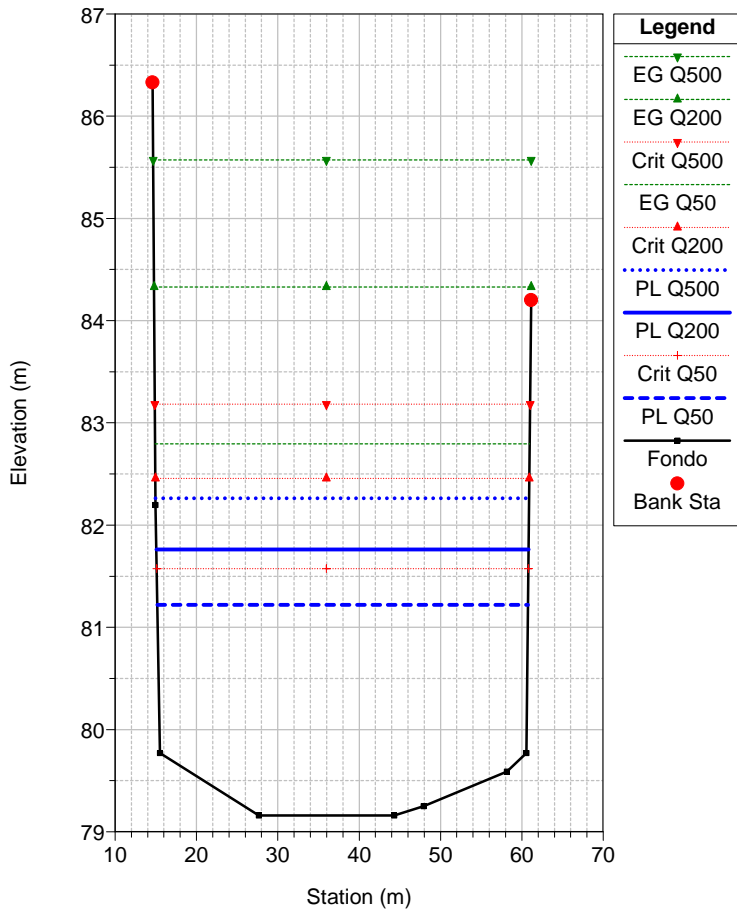
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 131



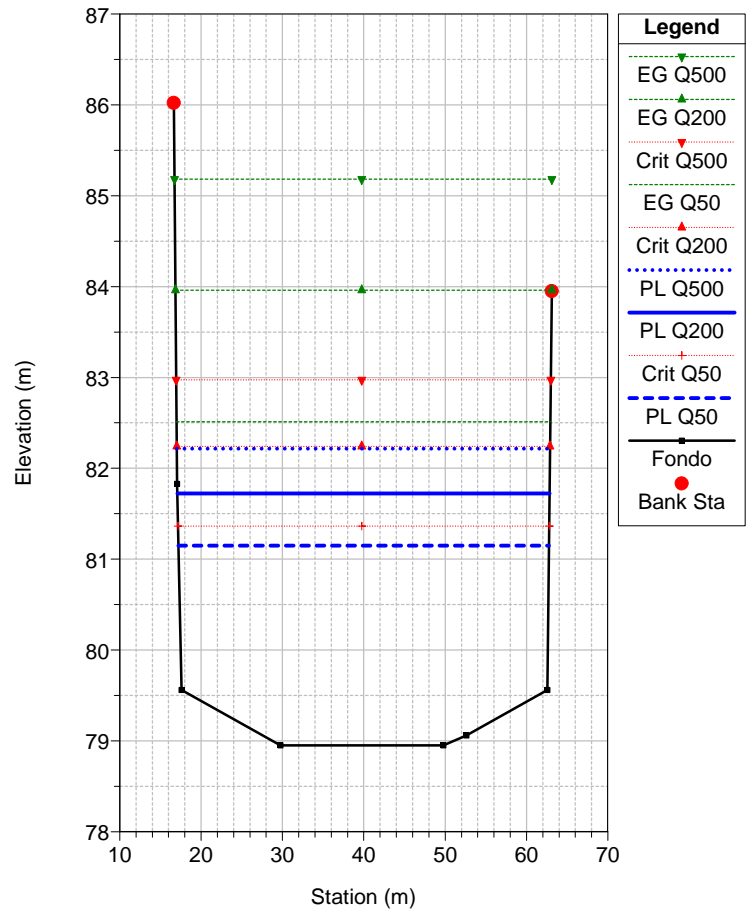
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 130



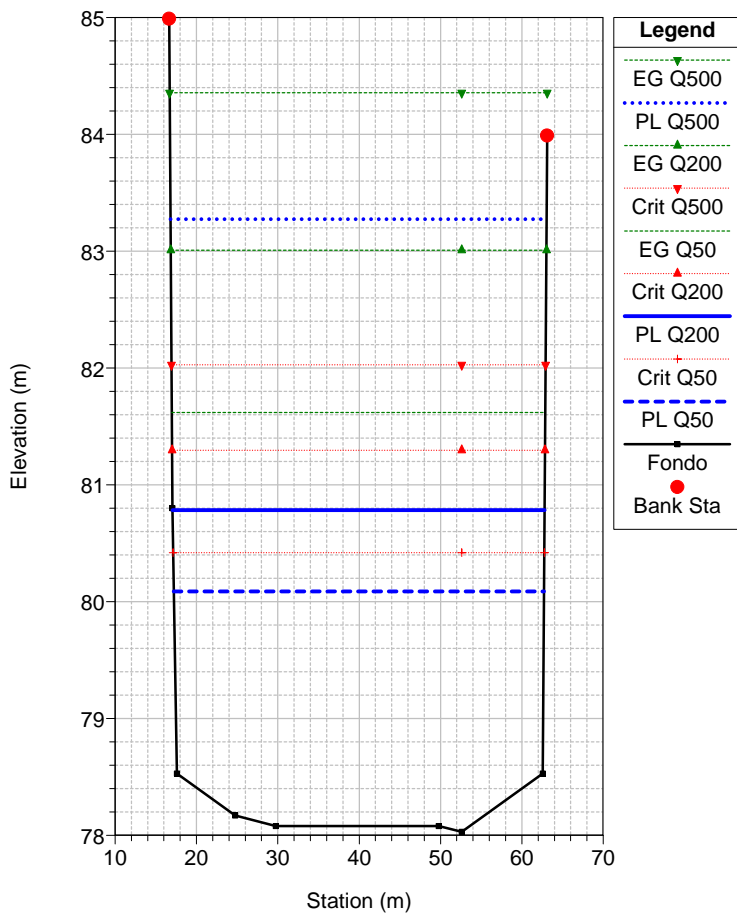
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 129



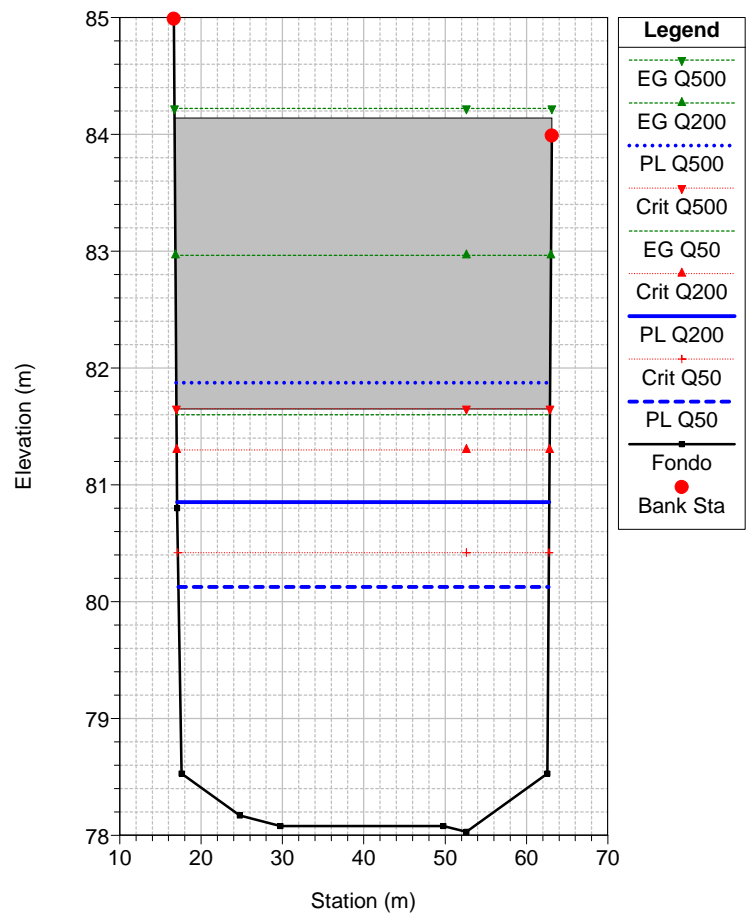
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 128



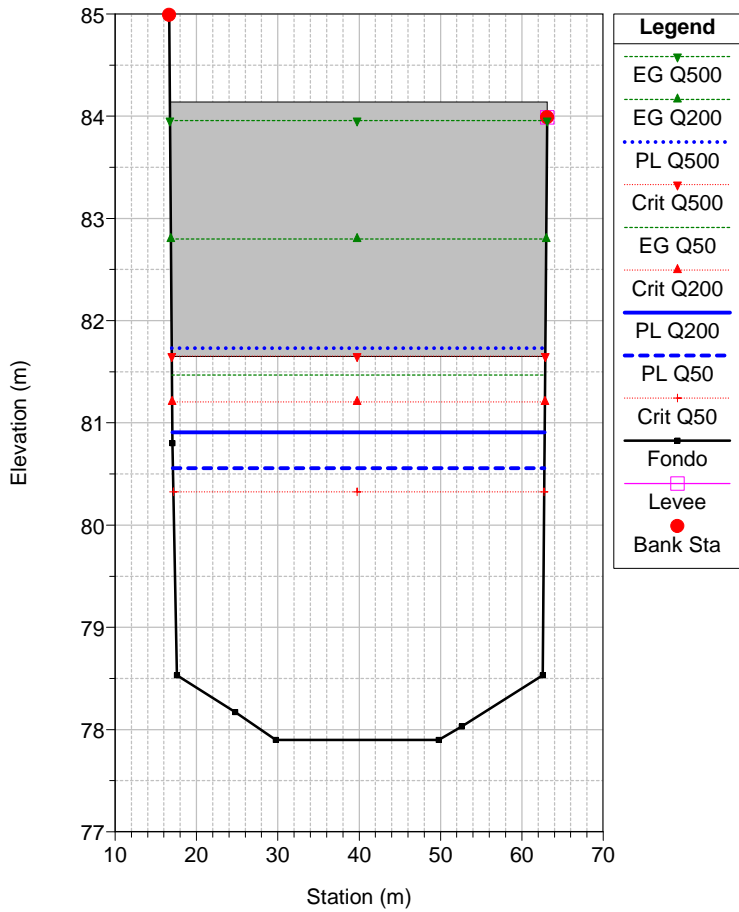
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 127



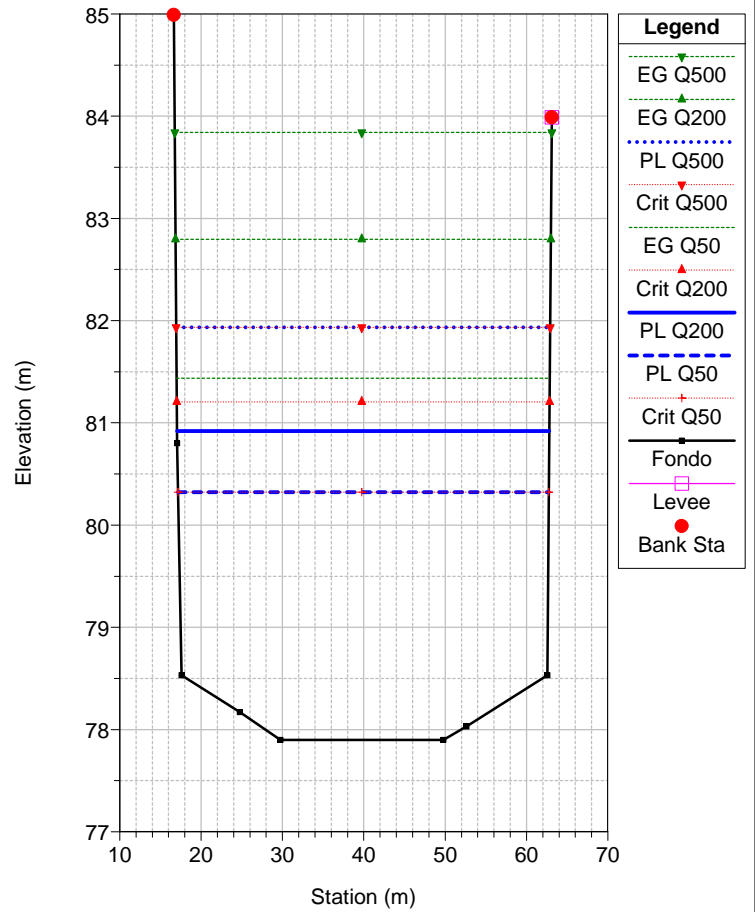
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



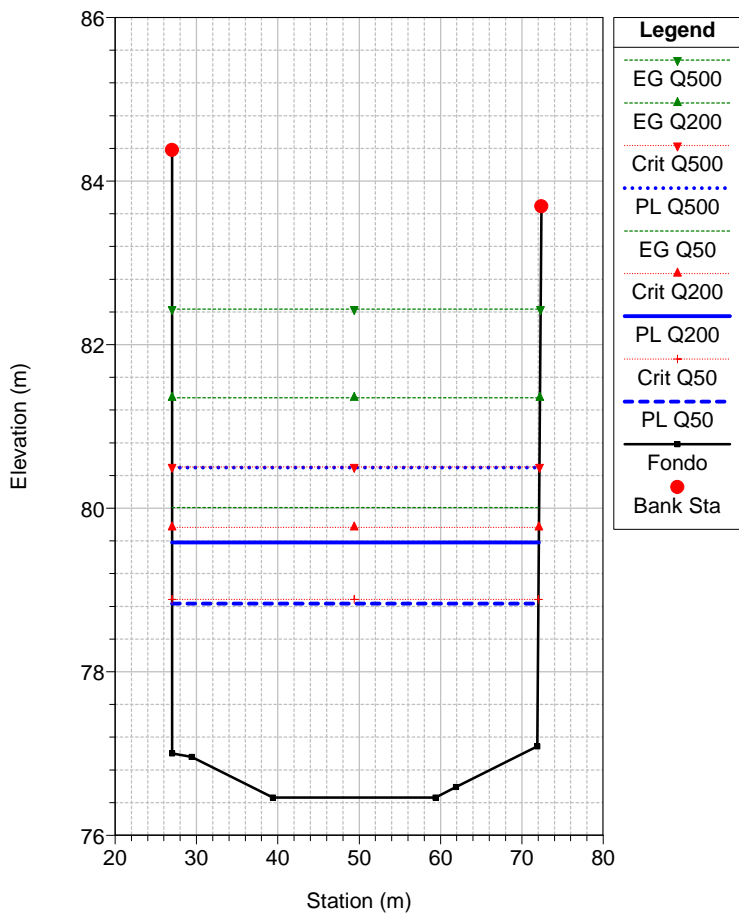
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



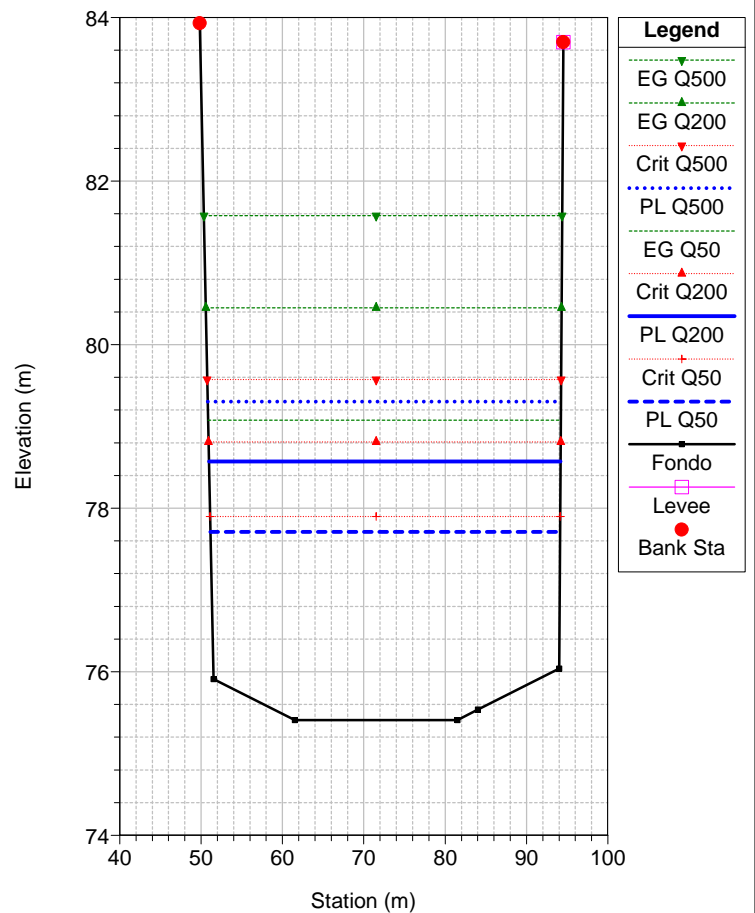
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 127

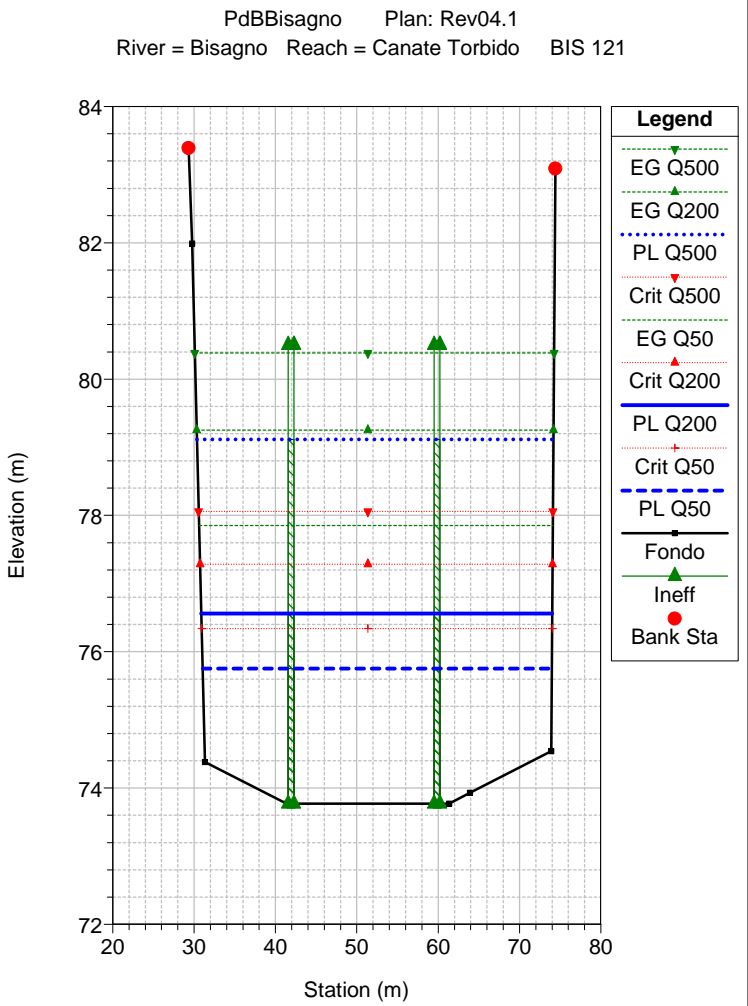
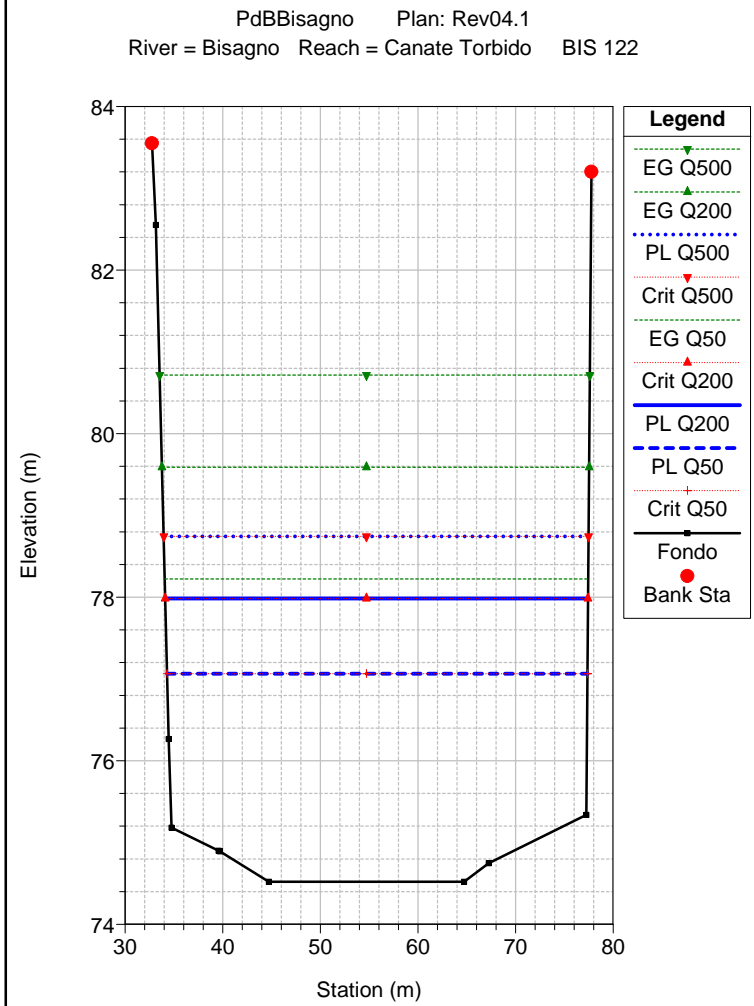
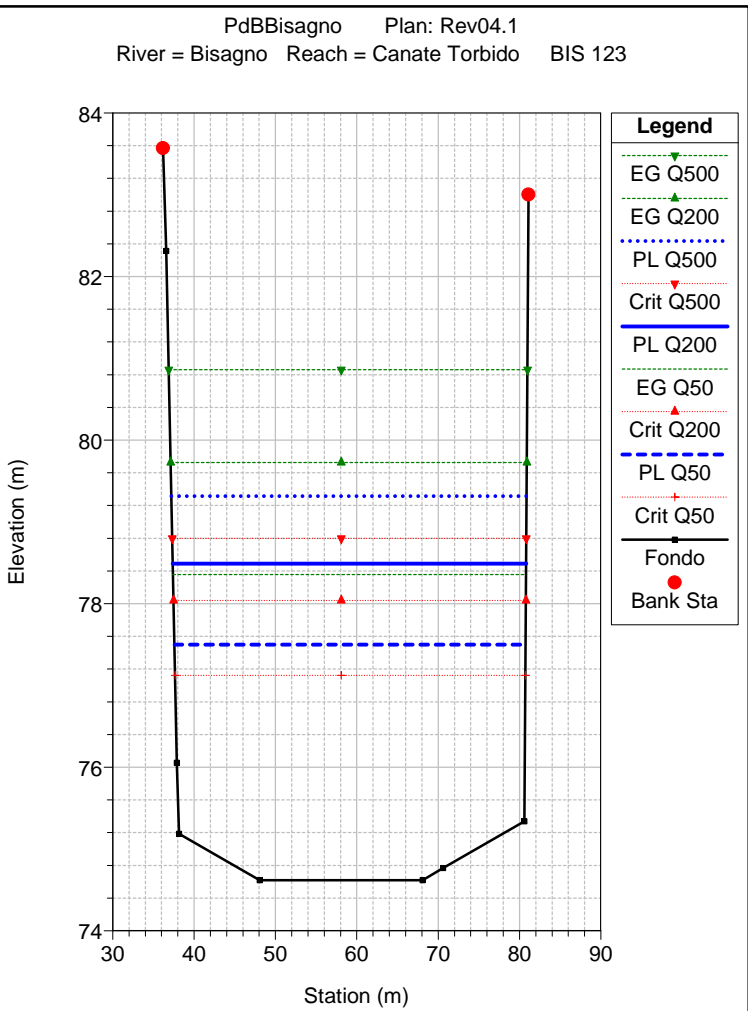
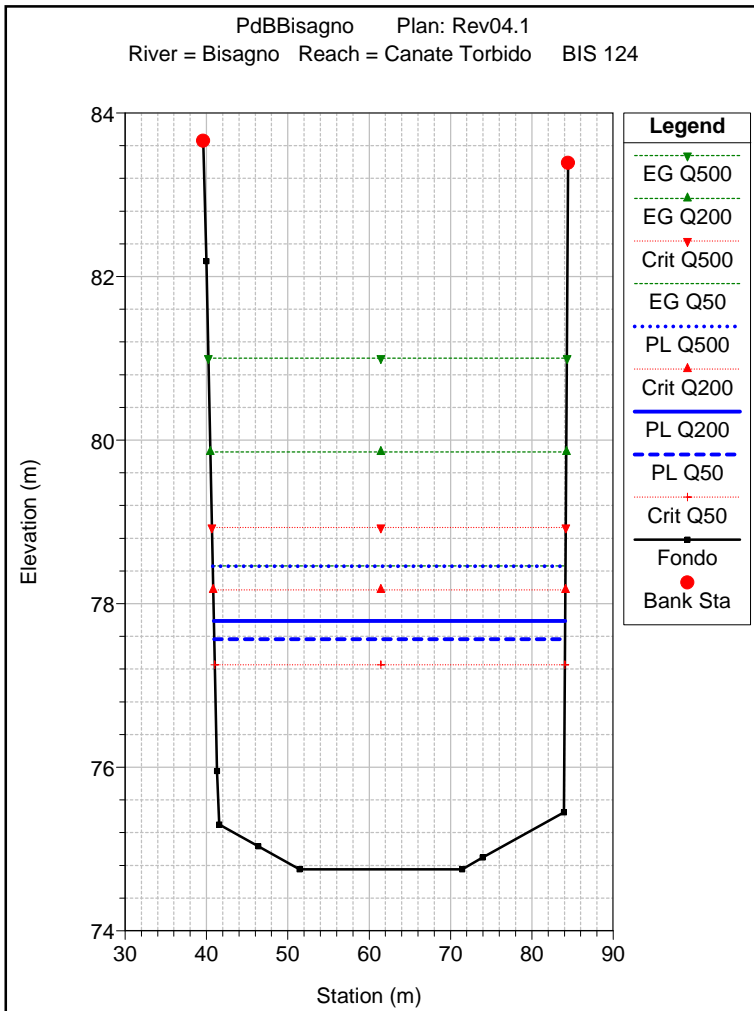


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 126

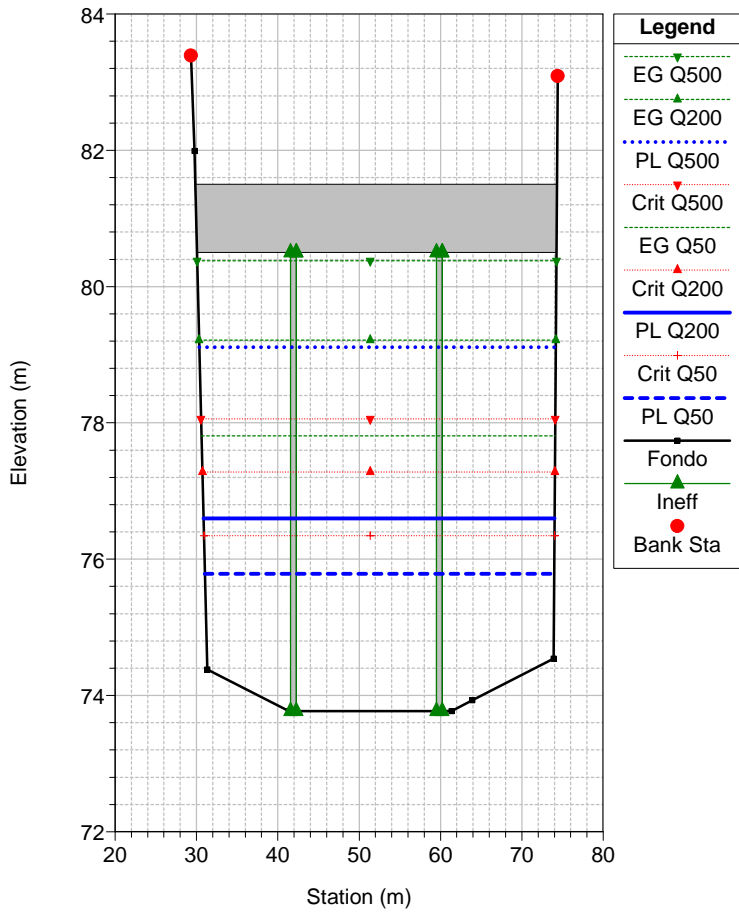


PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 125

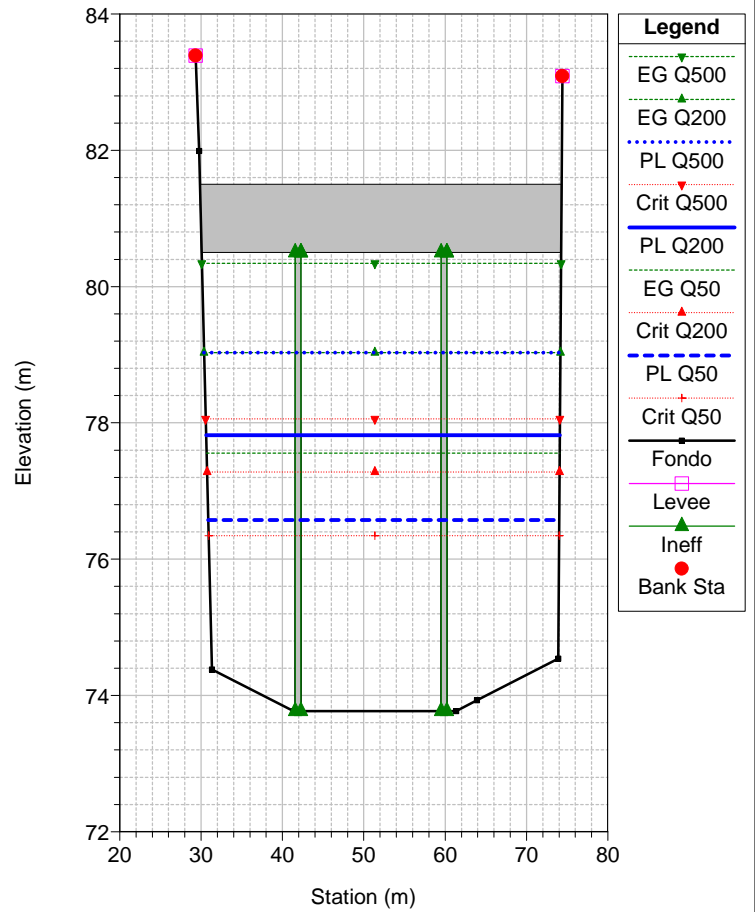




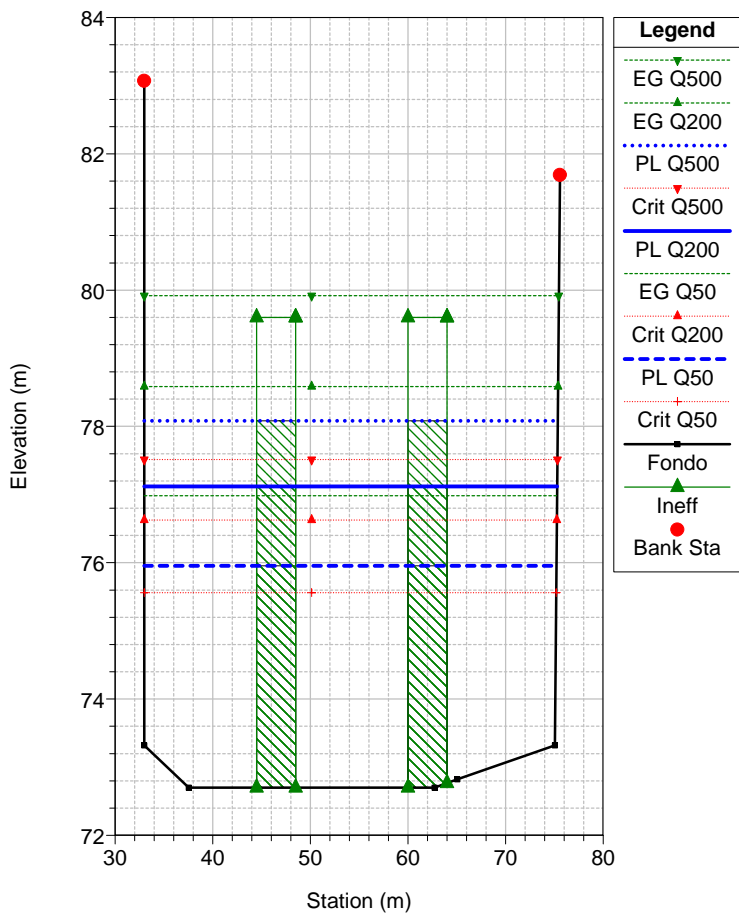
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



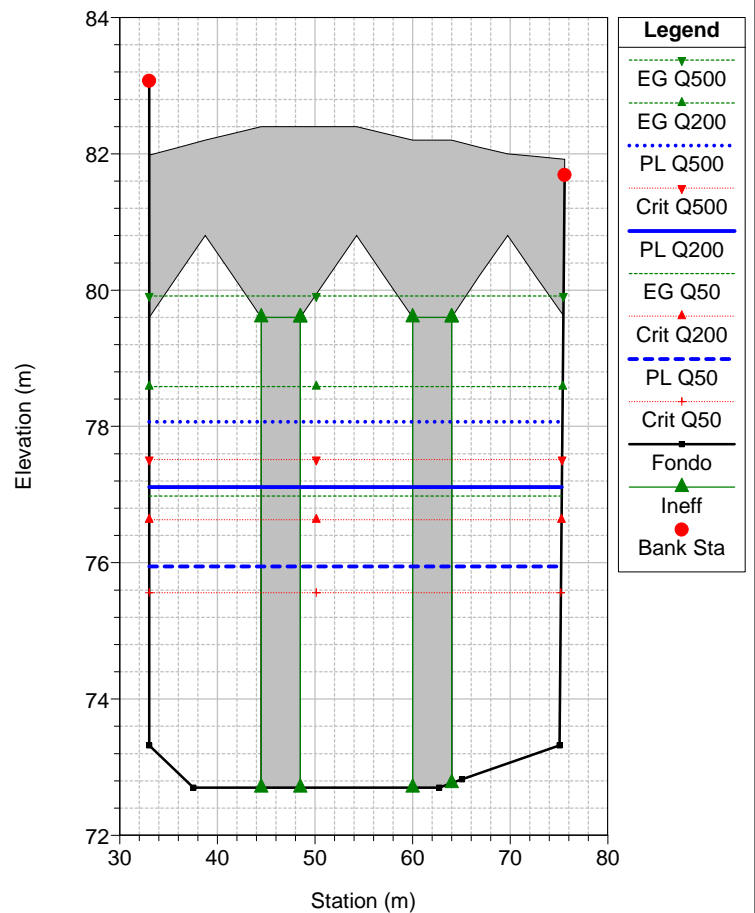
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



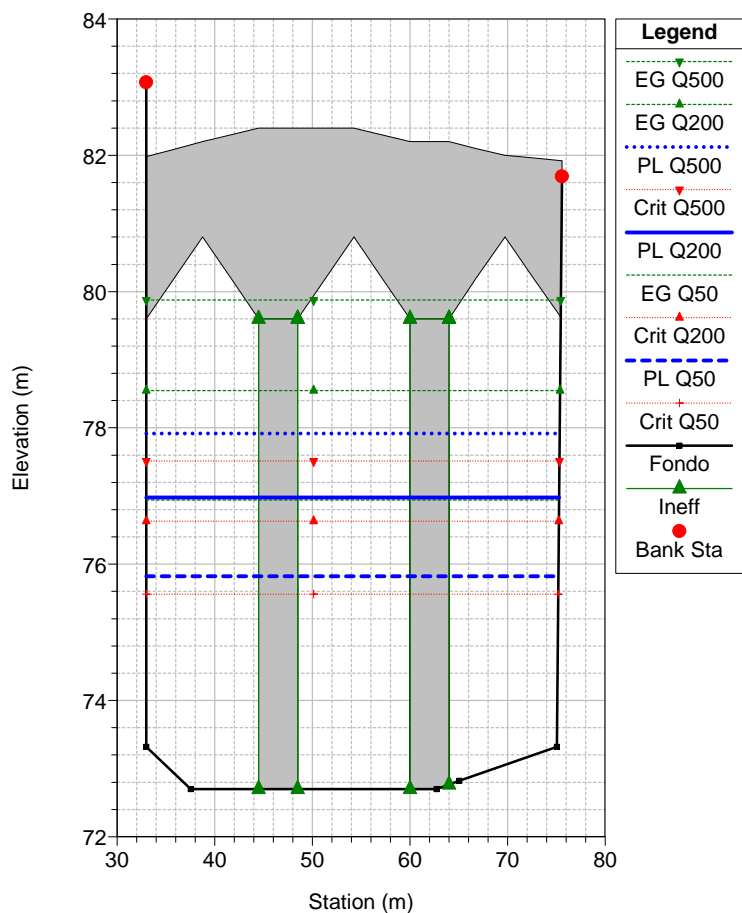
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 120



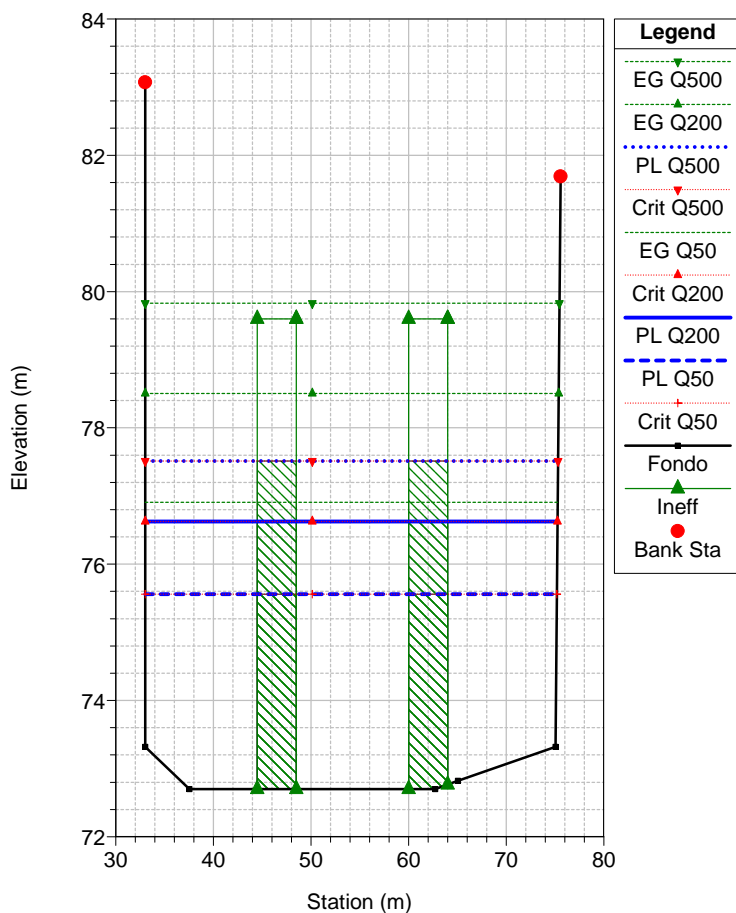
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



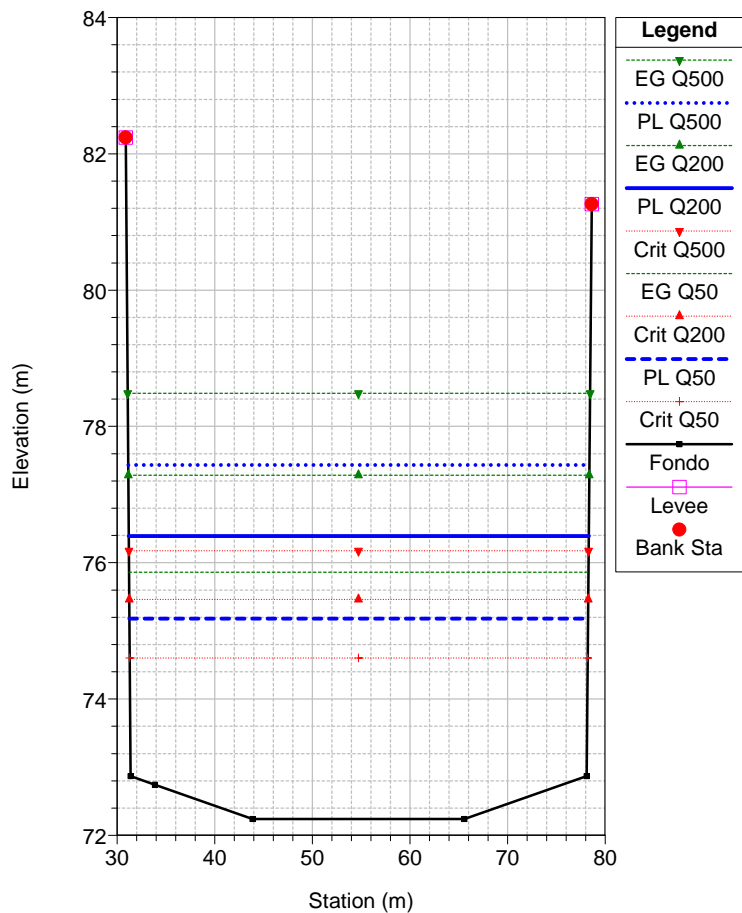
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido



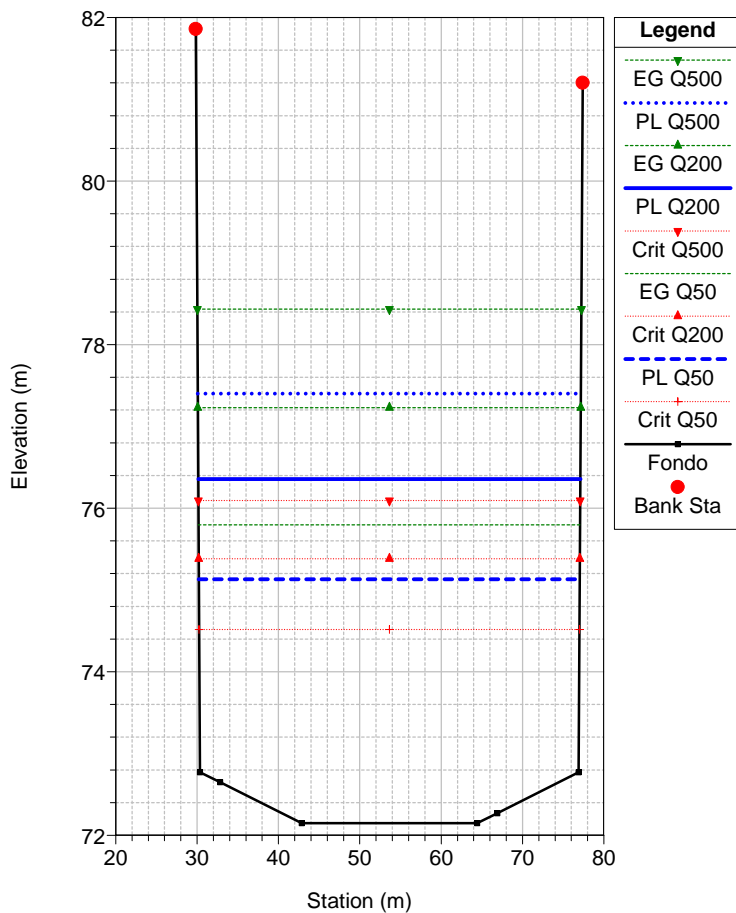
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 120



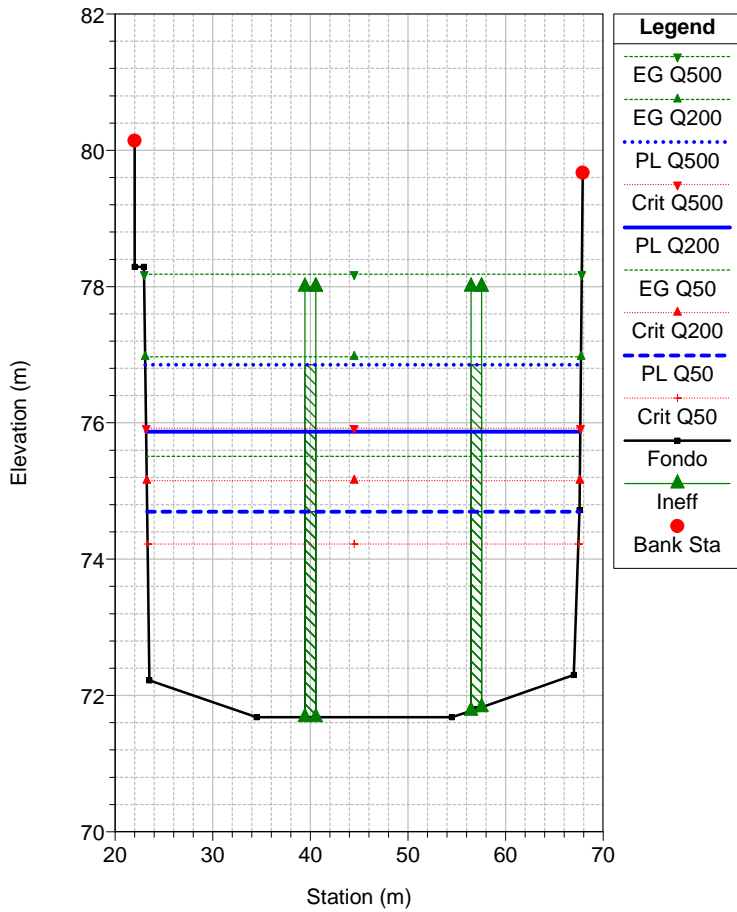
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 119



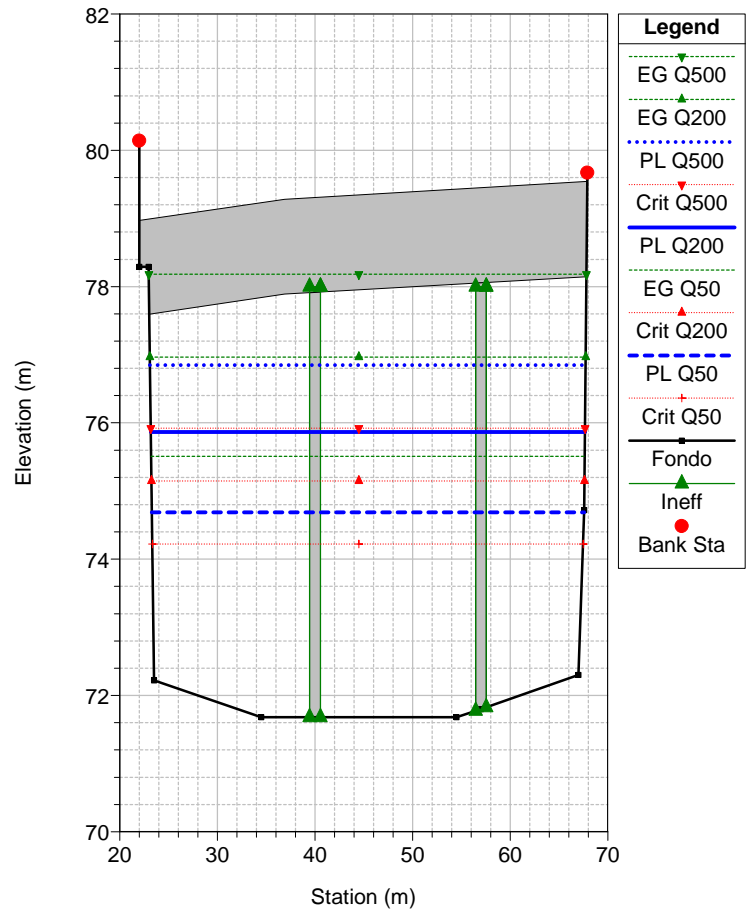
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 118



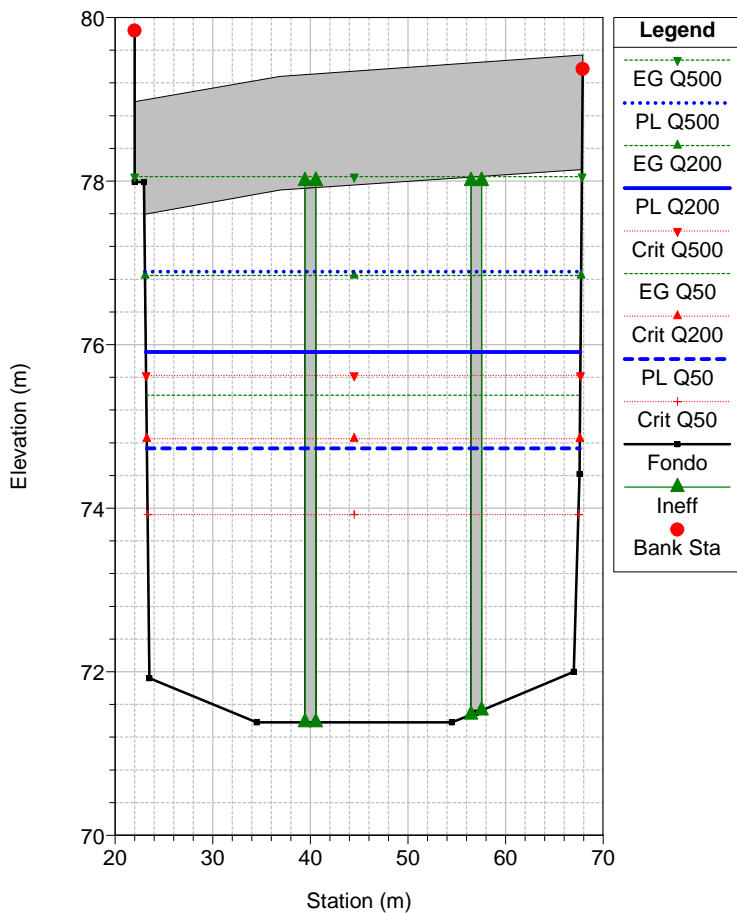
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 117



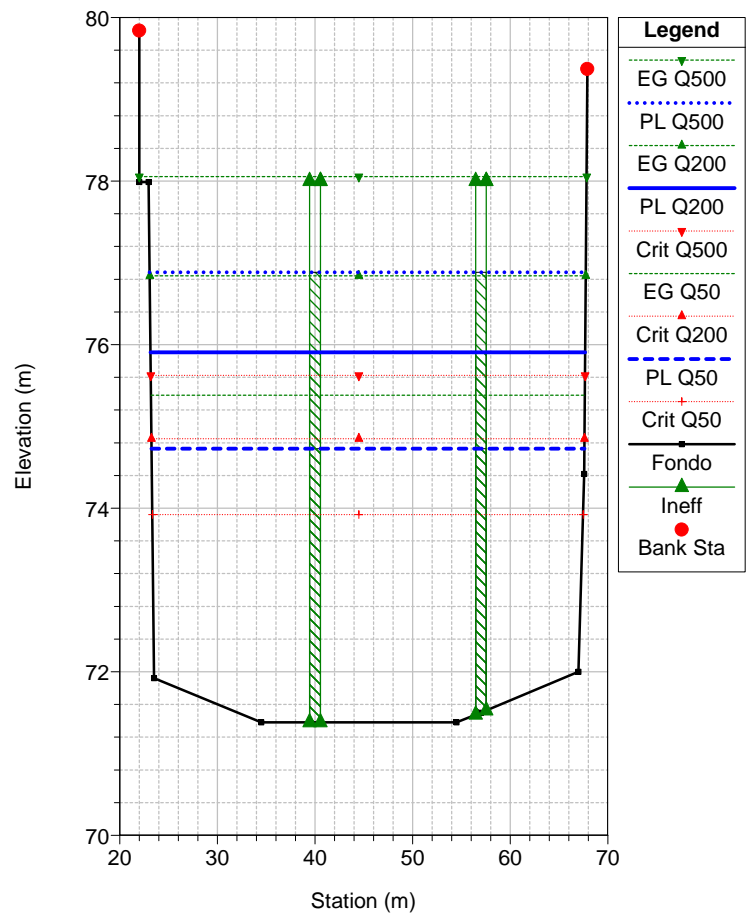
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 117



PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 117



PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Canate Torbido BIS 117



HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	192. BIS 192	Q50	439.00	105.46	109.74	118.00	8.26	106.22	-3.52	109.07	110.61	0.004438	4.12	106.56	31.50	0.72
Canate Torbido	192. BIS 192	Q200	722.00	105.46	110.90	118.00	7.10	106.22	-4.68	110.13	112.20	0.004897	5.05	142.91	31.50	0.76
Canate Torbido	192. BIS 192	Q500	991.00	105.46	111.76	118.00	6.24	106.22	-5.54	111.02	113.49	0.005466	5.82	170.14	31.50	0.80
Canate Torbido	191. BIS 191	Q50	475.00	105.30	109.04	110.60	1.56	115.00	5.96	109.04	110.35	0.008262	5.08	93.54	35.58	1.00
Canate Torbido	191. BIS 191	Q200	782.00	105.30	110.13	110.60	0.47	115.00	4.87	110.13	111.87	0.007657	5.84	133.84	38.37	1.00
Canate Torbido	191. BIS 191	Q500	1073.00	105.30	110.98	110.60	-0.38	115.00	4.02	110.98	113.07	0.007380	6.41	167.51	39.98	1.00
Canate Torbido	190. BIS 190	Q50	475.00	103.84	106.77	106.85	0.08	115.00	8.23	107.54	109.40	0.023035	7.19	66.11	32.33	1.60
Canate Torbido	190. BIS 190	Q200	782.00	103.84	107.71	106.85	-0.86	115.00	7.29	108.65	111.00	0.018882	8.03	97.42	33.62	1.51
Canate Torbido	190. BIS 190	Q500	1073.00	103.84	110.21	106.85	-3.36	115.00	4.79	109.55	111.93	0.005190	5.81	184.55	36.17	0.82
Canate Torbido	189. BIS 189	Q50	475.00	103.32	106.58	107.88	1.30	115.00	8.42	107.01	108.54	0.013845	6.19	76.68	31.52	1.27
Canate Torbido	189. BIS 189	Q200	782.00	103.32	107.57	107.88	0.31	115.00	7.43	108.14	110.23	0.012986	7.23	108.16	32.19	1.26
Canate Torbido	189. BIS 189	Q500	1073.00	103.32	110.09	107.88	-2.21	115.00	4.91	109.06	111.71	0.004452	5.64	190.35	33.05	0.75
Canate Torbido	188. BIS 188	Q50	475.00	102.99	107.47	106.18	-1.29	115.00	7.53	106.09	107.84	0.001712	2.72	174.51	51.30	0.47
Canate Torbido	188. BIS 188	Q200	782.00	102.99	108.93	106.18	-2.75	115.00	6.07	106.93	109.43	0.001504	3.12	250.74	52.61	0.46
Canate Torbido	188. BIS 188	Q500	1073.00	102.99	110.82	106.18	-4.64	115.00	4.18	107.62	111.30	0.001011	3.05	351.65	54.29	0.38
Canate Torbido	187. BIS 187	Q50	475.00	103.30	106.46	109.56	3.10	110.00	3.54	106.44	107.62	0.008173	4.77	99.60	41.86	0.99
Canate Torbido	187. BIS 187	Q200	782.00	103.30	108.36	109.56	1.20	110.00	1.64	107.40	109.29	0.003452	4.28	182.68	45.48	0.68
Canate Torbido	187. BIS 187	Q500	1073.00	103.30	110.48	109.56	-0.92	110.00	-0.48	108.17	111.22	0.001741	3.79	282.74	48.00	0.50
Canate Torbido	186. BIS 186	Q50	475.00	100.44	105.32	109.73	4.41	110.00	4.68	105.32	106.76	0.008096	5.31	89.42	31.04	1.00
Canate Torbido	186. BIS 186	Q200	782.00	100.44	108.16	109.73	1.57	110.00	1.84	106.55	108.99	0.002583	4.04	193.36	42.24	0.60
Canate Torbido	186. BIS 186	Q500	1073.00	100.44	110.39	109.73	-0.66	110.00	-0.39	107.50	111.05	0.001467	3.61	296.94	49.00	0.47
Canate Torbido	185.1 BIS 185	Q50	475.00	99.40	104.38	106.50	2.12	106.20	1.82	103.61	105.69	0.005740	5.07	93.69	20.50	0.76
Canate Torbido	185.1 BIS 185	Q200	782.00	99.40	107.38	106.50	-0.88	106.20	-1.18	105.11	108.68	0.003729	5.04	155.24	20.50	0.58
Canate Torbido	185.1 BIS 185	Q500	1073.00	99.40	109.19	106.50	-2.69	106.20	-2.99	106.35	110.78	0.003924	5.58	192.35	20.50	0.58
Canate Torbido	185. BIS 185		Bridge													
Canate Torbido	184.9 BIS 185	Q50	475.00	99.40	103.74	106.50	2.76	106.20	2.46	103.61	105.51	0.008958	5.90	80.48	20.50	0.95
Canate Torbido	184.9 BIS 185	Q200	782.00	99.40	105.67	106.50	0.83	106.20	0.53	105.11	107.83	0.007644	6.52	120.02	20.50	0.86
Canate Torbido	184.9 BIS 185	Q500	1073.00	99.40	106.62	106.50	-0.12	106.20	-0.42	106.35	109.63	0.009411	7.68	139.63	20.50	0.94
Canate Torbido	184. BIS 184	Q50	475.00	98.99	103.09	105.95	2.86	103.00	-0.09	103.21	105.11	0.010701	6.29	75.51	20.56	1.05
Canate Torbido	184. BIS 184	Q200	782.00	98.99	104.57	105.95	1.38	103.00	-1.57	104.72	107.33	0.010713	7.36	106.28	20.94	1.04
Canate Torbido	184. BIS 184	Q500	1073.00	98.99	105.79	105.95	0.16	103.00	-2.79	105.97	109.16	0.010938	8.14	131.85	21.26	1.04
Canate Torbido	183. BIS 183	Q50	475.00	98.94	102.36	105.00	2.64	102.71	0.35	102.63	104.42	0.012541	6.36	74.64	23.00	1.13
Canate Torbido	183. BIS 183	Q200	782.00	98.94	103.14	105.00	1.86	102.71	-0.43	104.02	106.77	0.017755	8.44	92.62	23.00	1.34
Canate Torbido	183. BIS 183	Q500	1073.00	98.94	104.08	105.00	0.92	102.71	-1.37	105.17	108.58	0.017975	9.39	114.26	23.00	1.34
Canate Torbido	182.9	Q50	475.00	98.53	101.72	105.00	3.28	102.71	0.99	102.36	104.36	0.018163	7.20	66.01	23.00	1.36
Canate Torbido	182.9	Q200	782.00	98.53	102.66	105.00	2.34	102.71	0.05	103.75	106.72	0.020906	8.93	87.57	23.00	1.46
Canate Torbido	182.9	Q500	1073.00	98.53	103.59	105.00	1.41	102.71	-0.88	104.91	108.52	0.020516	9.84	109.07	23.00	1.44

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl	
Canate Torbido	182.	BIS 182	Q50	475.00	97.51	100.99	100.40	-0.59	103.30	2.31	101.74	103.59	0.021929	7.14	66.49	31.49	1.57
Canate Torbido	182.	BIS 182	Q200	782.00	97.51	101.58	100.40	-1.18	103.30	1.72	102.89	105.86	0.026797	9.17	85.30	32.10	1.80
Canate Torbido	182.	BIS 182	Q500	1073.00	97.51	102.12	100.40	-1.72	103.30	1.18	103.80	107.66	0.027818	10.42	102.97	32.72	1.87
Canate Torbido	181.	BIS 181	Q50	475.00	95.39	99.95	100.36	0.41	100.00	0.05	100.65	102.58	0.018905	7.19	66.09	25.70	1.43
Canate Torbido	181.	BIS 181	Q200	782.00	95.39	101.04	100.36	-0.68	100.00	-1.04	101.93	104.53	0.017249	8.28	94.46	26.00	1.39
Canate Torbido	181.	BIS 181	Q500	1073.00	95.39	104.83	100.36	-4.47	100.00	-4.83	102.99	106.41	0.003992	5.56	193.14	26.00	0.65
Canate Torbido	180.	BIS 180	Q50	475.00	95.18	99.36	99.75	0.39	100.00	0.64	99.89	101.70	0.015167	6.79	69.97	24.62	1.29
Canate Torbido	180.	BIS 180	Q200	782.00	95.18	102.48	99.75	-2.73	100.00	-2.48	101.20	103.91	0.004415	5.28	148.05	25.00	0.69
Canate Torbido	180.	BIS 180	Q500	1073.00	95.18	104.71	99.75	-4.96	100.00	-4.71	102.29	106.12	0.003372	5.27	203.63	25.00	0.59
Canate Torbido	179	BIS 179	Q50	475.00	95.15	100.33	103.74	3.41	106.55	6.22	99.30	101.20	0.003815	4.15	114.43	27.97	0.66
Canate Torbido	179	BIS 179	Q200	782.00	95.15	102.79	103.74	0.95	106.55	3.76	100.54	103.70	0.002524	4.23	184.79	29.30	0.54
Canate Torbido	179	BIS 179	Q500	1073.00	95.15	105.01	103.74	-1.27	106.55	1.54	101.57	105.94	0.001983	4.27	251.39	30.68	0.48
Canate Torbido	178	BIS 178	Q50	475.00	94.60	100.35	103.19	2.84	106.55	6.20	98.87	101.10	0.002709	3.86	123.19	27.17	0.58
Canate Torbido	178	BIS 178	Q200	782.00	94.60	102.79	103.19	0.40	106.55	3.76	100.19	103.64	0.002050	4.07	192.05	28.94	0.50
Canate Torbido	178	BIS 178	Q500	1073.00	94.60	105.00	103.19	-1.81	106.55	1.55	101.28	105.89	0.001704	4.17	257.54	30.27	0.46
Canate Torbido	177	BIS 177	Q50	475.00	94.45	100.46	103.70	3.24	107.05	6.59	98.53	100.99	0.001763	3.24	146.66	31.25	0.48
Canate Torbido	177	BIS 177	Q200	782.00	94.45	102.92	103.70	0.78	107.05	4.13	99.75	103.53	0.001376	3.48	224.62	32.17	0.42
Canate Torbido	177	BIS 177	Q500	1073.00	94.45	105.13	103.70	-1.43	107.05	1.92	100.71	105.79	0.001179	3.62	296.65	33.00	0.39
Canate Torbido	176	BIS 176	Q50	475.00	94.15	100.47	103.73	3.26	105.65	5.18	98.37	100.94	0.001546	3.05	155.78	33.99	0.45
Canate Torbido	176	BIS 176	Q200	782.00	94.15	102.96	103.73	0.77	105.65	2.69	99.60	103.48	0.001142	3.21	243.96	36.29	0.39
Canate Torbido	176	BIS 176	Q500	1073.00	94.15	105.19	103.73	-1.46	105.65	0.46	100.56	105.74	0.000936	3.29	326.11	37.41	0.36
Canate Torbido	175	BIS 175	Q50	475.00	93.87	100.48	103.81	3.33	102.55	2.07	97.98	100.90	0.001287	2.85	166.58	34.12	0.41
Canate Torbido	175	BIS 175	Q200	782.00	93.87	102.98	103.81	0.84	102.55	-0.43	99.22	103.44	0.000993	3.03	258.06	39.01	0.37
Canate Torbido	175	BIS 175	Q500	1073.00	93.87	105.21	103.81	-1.40	102.55	-2.66	100.23	105.70	0.000758	3.11	349.27	42.49	0.33
Canate Torbido	174	BIS 174	Q50	475.00	93.75	100.56	103.74	3.18	98.15	-2.41	97.47	100.83	0.000762	2.40	213.63	46.38	0.31
Canate Torbido	174	BIS 174	Q200	782.00	93.75	103.08	103.74	0.66	98.15	-4.93	98.97	103.37	0.000571	2.52	334.85	49.80	0.28
Canate Torbido	174	BIS 174	Q500	1073.00	93.75	105.33	103.74	-1.59	98.15	-7.18	99.84	105.63	0.000461	2.56	450.51	52.62	0.25
Canate Torbido	173.	BIS 173	Q50	475.00	93.71	100.27	103.39	3.12	98.13	-2.14	97.85	100.80	0.001631	3.21	147.86	26.82	0.44
Canate Torbido	173.	BIS 173	Q200	782.00	93.71	102.63	103.39	0.76	98.13	-4.50	99.16	103.33	0.001582	3.69	212.01	27.56	0.42
Canate Torbido	173.	BIS 173	Q500	1073.00	93.71	104.84	103.39	-1.45	98.13	-6.71	100.23	105.59	0.001557	3.82	280.57	32.80	0.42
Canate Torbido	172.	BIS 172	Q50	475.00	93.70	100.40	103.38	2.98	97.22	-3.18	97.30	100.71	0.000825	2.45	193.97	33.76	0.33
Canate Torbido	172.	BIS 172	Q200	782.00	93.70	102.81	103.38	0.57	97.22	-5.59	98.40	103.22	0.000802	2.83	275.96	34.44	0.32
Canate Torbido	172.	BIS 172	Q500	1073.00	93.70	105.02	103.38	-1.64	97.22	-7.80	99.33	105.48	0.000790	2.98	360.10	39.20	0.31
Canate Torbido	171.	BIS 171	Q50	475.00	93.68	100.21	103.21	3.00	95.98	-4.23	97.61	100.67	0.001512	3.01	157.64	31.24	0.43
Canate Torbido	171.	BIS 171	Q200	782.00	93.68	102.65	103.21	0.56	95.98	-6.67	99.00	103.19	0.001306	3.26	240.17	36.57	0.41
Canate Torbido	171.	BIS 171	Q500	1073.00	93.68	104.89	103.21	-1.68	95.98	-8.91	100.09	105.45	0.001037	3.30	324.78	37.80	0.36
Canate Torbido	170.	BIS 170	Q50	475.00	93.60	100.14	103.29	3.15	95.18	-4.96	97.62	100.65	0.001677	3.16	150.09	28.93	0.44
Canate Torbido	170.	BIS 170	Q200	782.00	93.60	102.55	103.29	0.74	95.18	-7.37	99.03	103.16	0.001505	3.48	224.64	33.11	0.43

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	170. BIS 170	Q500	1073.00	93.60	104.78	103.29	-1.49	95.18	-9.60	100.15	105.43	0.001240	3.56	301.04	34.40	0.38
Canate Torbido	169. BIS 169	Q50	475.00	93.30	100.06	103.34	3.28	95.18	-4.88	97.44	100.64	0.001767	3.37	141.07	23.90	0.44
Canate Torbido	169. BIS 169	Q200	782.00	93.30	102.33	103.34	1.01	95.18	-7.15	98.88	103.13	0.001899	3.98	196.69	25.08	0.45
Canate Torbido	169. BIS 169	Q500	1073.00	93.30	104.46	103.34	-1.12	95.18	-9.28	100.06	105.39	0.001838	4.28	250.95	25.60	0.44
Canate Torbido	168. BIS 168	Q50	475.00	93.30	100.03	103.34	3.31	95.18	-4.85	97.48	100.63	0.001885	3.44	137.92	23.55	0.45
Canate Torbido	168. BIS 168	Q200	782.00	93.30	102.29	103.34	1.05	95.18	-7.11	98.94	103.13	0.002018	4.06	192.65	24.81	0.47
Canate Torbido	168. BIS 168	Q500	1073.00	93.30	104.46	103.34	-1.12	95.18	-9.28	100.14	105.39	0.002039	4.26	252.02	29.40	0.46
Canate Torbido	167. BIS 167	Q50	475.00	93.25	99.63	102.37	2.74	95.07	-4.56	97.79	100.59	0.002645	4.33	109.63	21.24	0.58
Canate Torbido	167. BIS 167	Q200	782.00	93.25	101.66	102.37	0.71	95.07	-6.59	99.43	103.07	0.002895	5.25	148.99	21.95	0.61
Canate Torbido	167. BIS 167	Q500	1073.00	93.25	104.01	102.37	-1.64	95.07	-8.94	100.78	105.34	0.003688	5.11	210.08	28.20	0.60
Canate Torbido	166.5	Bridge														
Canate Torbido	166. BIS 166	Q50	475.00	93.23	98.34	103.39	5.05	95.07	-3.27	98.34	100.46	0.007733	6.45	73.64	23.96	1.00
Canate Torbido	166. BIS 166	Q200	782.00	93.23	100.08	103.39	3.31	95.07	-5.01	100.08	102.91	0.007374	7.44	105.05	25.22	1.00
Canate Torbido	166. BIS 166	Q500	1073.00	93.23	101.50	103.39	1.89	95.07	-6.43	101.50	104.86	0.007157	8.12	132.17	26.24	1.00
Canate Torbido	165. BIS 165	Q50	475.00	93.21	95.91	103.43	7.52	95.07	-0.84	97.16	100.17	0.041332	9.14	51.97	26.44	2.08
Canate Torbido	165. BIS 165	Q200	782.00	93.21	96.71	103.43	6.72	95.07	-1.64	98.42	102.53	0.038549	10.69	73.16	26.65	2.06
Canate Torbido	165. BIS 165	Q500	1073.00	93.21	97.39	103.43	6.04	95.07	-2.32	99.47	104.42	0.036746	11.75	91.34	26.83	2.03
Canate Torbido	164. BIS 164	Q50	475.00	93.04	95.16	103.52	8.36	95.01	-0.15	96.41	99.67	0.055890	9.40	50.51	31.20	2.36
Canate Torbido	164. BIS 164	Q200	782.00	93.04	95.81	103.52	7.71	95.01	-0.80	97.55	102.05	0.052010	11.07	70.67	31.20	2.35
Canate Torbido	164. BIS 164	Q500	1073.00	93.04	96.36	103.52	7.16	95.01	-1.35	98.48	103.94	0.049234	12.20	87.95	31.20	2.32
Canate Torbido	163. BIS 163	Q50	475.00	92.81	95.66	103.55	7.89	94.80	-0.86	96.28	97.95	0.020698	6.70	70.86	34.05	1.48
Canate Torbido	163. BIS 163	Q200	782.00	92.81	96.14	103.55	7.41	94.80	-1.34	97.36	100.23	0.029060	8.97	87.22	34.19	1.79
Canate Torbido	163. BIS 163	Q500	1073.00	92.81	96.60	103.55	6.95	94.80	-1.80	98.24	102.12	0.032458	10.42	103.01	34.33	1.92
Canate Torbido	162. BIS 162	Q50	475.00	92.54	94.70	103.63	8.93	94.70	0.00	95.54	97.51	0.030115	7.42	64.03	36.43	1.79
Canate Torbido	162. BIS 162	Q200	782.00	92.54	95.23	103.63	8.40	94.70	-0.53	96.56	99.71	0.035065	9.37	83.42	36.55	1.98
Canate Torbido	162. BIS 162	Q500	1073.00	92.54	95.68	103.63	7.95	94.70	-0.98	97.40	101.56	0.037336	10.74	99.89	36.65	2.08
Canate Torbido	161. BIS 161	Q50	475.00	92.19	94.03	103.71	9.68	94.57	0.54	95.00	97.20	0.039196	7.88	60.30	38.63	2.01
Canate Torbido	161. BIS 161	Q200	782.00	92.19	94.53	103.71	9.18	94.57	0.04	95.91	99.36	0.045442	9.73	80.38	41.65	2.24
Canate Torbido	161. BIS 161	Q500	1073.00	92.19	94.93	103.71	8.78	94.57	-0.36	96.67	101.19	0.047431	11.08	96.80	42.00	2.33
Canate Torbido	160. BIS 160	Q50	475.00	91.85	93.91	103.73	9.82	94.24	0.33	94.80	96.87	0.036337	7.62	62.34	40.25	1.95
Canate Torbido	160. BIS 160	Q200	782.00	91.85	94.40	103.73	9.33	94.24	-0.16	95.72	98.98	0.041836	9.48	82.46	42.15	2.16
Canate Torbido	160. BIS 160	Q500	1073.00	91.85	94.79	103.73	8.94	94.24	-0.55	96.49	100.79	0.044113	10.86	98.84	42.29	2.27
Canate Torbido	159. BIS 159	Q50	475.00	91.76	94.38	103.63	9.25	95.70	1.32	94.86	96.24	0.017541	6.04	78.66	41.01	1.39
Canate Torbido	159. BIS 159	Q200	782.00	91.76	94.76	103.63	8.87	95.70	0.94	95.81	98.26	0.026771	8.30	94.27	41.55	1.76
Canate Torbido	159. BIS 159	Q500	1073.00	91.76	95.12	103.63	8.51	95.70	0.58	96.57	100.01	0.031479	9.80	109.48	42.06	1.94
Canate Torbido	158. BIS 158	Q50	475.00	91.29	95.18	97.14	1.96	95.18	0.00	94.18	95.89	0.003253	3.73	127.19	35.43	0.63
Canate Torbido	158. BIS 158	Q200	782.00	91.29	96.54	97.14	0.60	95.18	-1.36	95.27	97.55	0.003299	4.46	175.49	35.90	0.64

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	158. BIS 158	Q500	1073.00	91.29	94.77	97.14	2.37	95.18	0.41	96.14	99.40	0.024193	9.54	112.53	35.01	1.70
Canate Torbido	157. BIS 157	Q50	475.00	90.95	94.40	96.90	2.50	98.00	3.60	94.40	95.77	0.008644	5.17	91.82	33.62	1.00
Canate Torbido	157. BIS 157	Q200	782.00	90.95	96.02	96.90	0.88	98.00	1.98	95.50	97.45	0.005493	5.31	147.28	35.19	0.83
Canate Torbido	157. BIS 157	Q500	1073.00	90.95	97.62	96.90	-0.72	98.00	0.38	96.41	98.92	0.004268	5.05	212.50	44.77	0.74
Canate Torbido	156. BIS 156	Q50	475.00	90.90	94.72	96.85	2.13	98.00	3.28	93.59	95.32	0.002737	3.44	138.00	38.60	0.58
Canate Torbido	156. BIS 156	Q200	782.00	90.90	96.43	96.85	0.42	98.00	1.57	94.61	97.17	0.002201	3.80	205.58	40.27	0.54
Canate Torbido	156. BIS 156	Q500	1073.00	90.90	97.96	96.85	-1.11	98.00	0.04	95.45	98.68	0.002189	3.74	286.86	57.98	0.54
Canate Torbido	155. BIS 155	Q50	475.00	90.83	94.66	96.65	1.99	98.00	3.34	93.74	95.30	0.003238	3.54	134.11	42.37	0.64
Canate Torbido	155. BIS 155	Q200	782.00	90.83	96.46	96.65	0.19	98.00	1.54	94.77	97.14	0.002190	3.63	215.46	47.84	0.55
Canate Torbido	155. BIS 155	Q500	1073.00	90.83	97.97	96.65	-1.32	98.00	0.03	95.58	98.66	0.001752	3.70	290.37	51.91	0.50
Canate Torbido	154. BIS 154	Q50	475.00	90.55	94.91	96.35	1.44	96.85	1.94	92.75	95.18	0.001011	2.31	205.99	48.26	0.36
Canate Torbido	154. BIS 154	Q200	782.00	90.55	96.67	96.35	-0.32	96.85	0.18	93.61	97.03	0.001016	2.67	293.11	53.40	0.36
Canate Torbido	154. BIS 154	Q500	1073.00	90.55	98.15	96.35	-1.80	96.85	-1.30	94.33	98.57	0.000918	2.88	371.97	53.40	0.35
Canate Torbido	153. BIS 153	Q50	475.00	90.45	94.75	96.40	1.65	96.85	2.10	93.00	95.16	0.001646	2.84	166.98	40.33	0.45
Canate Torbido	153. BIS 153	Q200	782.00	90.45	96.45	96.40	-0.05	96.85	0.40	93.97	97.01	0.001584	3.31	236.31	42.00	0.45
Canate Torbido	153. BIS 153	Q500	1073.00	90.45	97.87	96.40	-1.47	96.85	-1.02	94.77	98.54	0.001511	3.62	296.03	42.00	0.44
Canate Torbido	152. BIS 152	Q50	475.00	90.35	94.81	96.35	1.54	96.85	2.04	92.65	95.11	0.001113	2.43	195.71	44.21	0.37
Canate Torbido	152. BIS 152	Q200	782.00	90.35	96.53	96.35	-0.18	96.85	0.32	93.55	96.95	0.001116	2.87	272.17	45.26	0.37
Canate Torbido	152. BIS 152	Q500	1073.00	90.35	97.96	96.35	-1.61	96.85	-1.12	94.30	98.48	0.001100	3.18	337.05	45.26	0.37
Canate Torbido	151. BIS 151	Q50	475.00	90.15	94.50	96.25	1.75	96.85	2.35	93.02	95.08	0.002379	3.37	141.15	33.70	0.52
Canate Torbido	151. BIS 151	Q200	782.00	90.15	96.09	96.25	0.16	96.85	0.76	94.11	96.91	0.002427	4.01	195.11	34.23	0.54
Canate Torbido	151. BIS 151	Q500	1073.00	90.15	97.46	96.25	-1.21	96.85	-0.61	95.01	98.43	0.002489	4.38	245.05	36.91	0.54
Canate Torbido	150. BIS 150	Q50	475.00	90.05	94.15	95.05	0.90	96.85	2.70	93.15	94.99	0.003802	4.06	116.90	29.49	0.65
Canate Torbido	150. BIS 150	Q200	782.00	90.05	95.58	95.05	-0.53	96.85	1.27	94.34	96.80	0.004097	4.90	159.45	30.10	0.68
Canate Torbido	150. BIS 150	Q500	1073.00	90.05	96.78	95.05	-1.73	96.85	0.07	95.34	98.31	0.004224	5.49	195.56	30.10	0.69
Canate Torbido	149. BIS 149	Q50	475.00	89.95	94.18	94.34	0.16	96.85	2.67	92.98	94.93	0.003208	3.82	124.49	30.29	0.60
Canate Torbido	149. BIS 149	Q200	782.00	89.95	95.63	94.34	-1.29	96.85	1.22	94.16	96.73	0.003518	4.65	168.23	30.34	0.63
Canate Torbido	149. BIS 149	Q500	1073.00	89.95	96.83	94.34	-2.49	96.85	0.02	95.11	98.23	0.003714	5.24	204.81	30.34	0.64
Canate Torbido	148. BIS 148	Q50	475.00	89.85	93.73	94.27	0.54	96.85	3.12	93.25	94.85	0.006000	4.69	101.36	29.28	0.80
Canate Torbido	148. BIS 148	Q200	782.00	89.85	95.05	94.27	-0.78	96.85	1.80	94.45	96.63	0.006041	5.57	140.41	29.46	0.81
Canate Torbido	148. BIS 148	Q500	1073.00	89.85	96.19	94.27	-1.92	96.85	0.66	95.42	98.13	0.006020	6.17	173.87	29.46	0.81
Canate Torbido	147. BIS 147	Q50	475.00	89.45	93.11	98.90	5.79	96.85	3.74	92.90	94.42	0.007690	5.07	93.66	29.10	0.90
Canate Torbido	147. BIS 147	Q200	782.00	89.45	94.18	98.90	4.72	96.85	2.67	94.09	96.18	0.008646	6.26	124.85	29.10	0.97
Canate Torbido	147. BIS 147	Q500	1073.00	89.45	95.07	98.90	3.83	96.85	1.78	95.07	97.65	0.009260	7.12	150.61	29.10	1.00
Canate Torbido	146. BIS 146	Q50	475.00	89.35	93.01	98.90	5.89	96.85	3.84	92.86	94.36	0.007734	5.14	92.38	29.50	0.93
Canate Torbido	146. BIS 146	Q200	782.00	89.35	94.04	98.90	4.86	96.85	2.81	94.04	96.11	0.008811	6.38	122.62	29.50	1.00
Canate Torbido	146. BIS 146	Q500	1073.00	89.35	94.89	98.90	4.01	96.85	1.96	95.01	97.58	0.009491	7.27	147.64	29.50	1.04

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	145. BIS 145	Q50	475.00	89.10	92.61	99.08	6.47	100.00	7.39	92.61	93.82	0.008214	4.87	97.58	40.37	1.00
Canate Torbido	145. BIS 145	Q200	782.00	89.10	93.86	99.08	5.22	100.00	6.14	93.61	95.24	0.006092	5.20	150.46	44.36	0.90
Canate Torbido	145. BIS 145	Q500	1073.00	89.10	95.22	99.08	3.86	100.00	4.78	94.42	96.51	0.004087	5.02	213.71	48.41	0.76
Canate Torbido	144.3 BIS 144	Q50	475.00	88.60	92.61	98.70	6.09	97.59	4.98	91.47	93.27	0.002930	3.59	132.22	35.48	0.59
Canate Torbido	144.3 BIS 144	Q200	782.00	88.60	94.11	98.70	4.59	97.59	3.48	92.56	95.00	0.002832	4.19	186.63	37.18	0.60
Canate Torbido	144.3 BIS 144	Q500	1073.00	88.60	95.21	98.70	3.49	97.59	2.38	93.45	96.34	0.002937	4.70	228.46	38.20	0.61
Canate Torbido	144.2 BIS 144	Q50	475.00	88.50	92.22	98.70	6.48	97.59	5.37	91.64	93.23	0.005075	4.46	106.61	35.03	0.77
Canate Torbido	144.2 BIS 144	Q200	782.00	88.50	93.57	98.70	5.13	97.59	4.02	92.82	94.95	0.005598	5.20	150.48	36.58	0.82
Canate Torbido	144.2 BIS 144	Q500	1073.00	88.50	94.71	98.70	3.99	97.59	2.88	93.92	96.29	0.005025	5.57	192.79	37.87	0.79
Canate Torbido	144.11 BIS 144	Bridge														
Canate Torbido	144.1 BIS 144	Q50	475.00	88.19	91.34	98.70	7.36	97.59	6.25	91.34	92.82	0.008898	5.38	88.31	34.03	1.00
Canate Torbido	144.1 BIS 144	Q200	782.00	88.19	92.54	98.70	6.16	97.59	5.05	92.54	94.53	0.008444	6.25	125.15	35.40	1.00
Canate Torbido	144.1 BIS 144	Q500	1073.00	88.19	93.09	98.70	5.61	97.59	4.50	93.68	95.98	0.010827	7.53	142.50	36.02	1.14
Canate Torbido	143. BIS 143	Q50	475.00	86.41	88.21	98.70	10.49	97.59	9.38	89.34	92.05	0.043025	8.68	54.74	31.08	2.09
Canate Torbido	143. BIS 143	Q200	782.00	86.41	89.04	98.70	9.66	97.59	8.55	90.48	93.81	0.034194	9.67	80.84	31.74	1.93
Canate Torbido	143. BIS 143	Q500	1073.00	86.41	89.73	98.70	8.97	97.59	7.86	91.42	95.28	0.030558	10.43	102.85	32.29	1.87
Canate Torbido	142. BIS 142	Q50	475.00	85.91	87.77	98.37	10.60	93.60	5.83	88.53	90.31	0.024355	7.06	67.33	41.00	1.76
Canate Torbido	142. BIS 142	Q200	782.00	85.91	88.34	98.37	10.03	93.60	5.26	89.48	92.12	0.025723	8.62	90.73	42.02	1.87
Canate Torbido	142. BIS 142	Q500	1073.00	85.91	88.79	98.37	9.58	93.60	4.81	90.26	93.63	0.026508	9.75	110.04	42.85	1.94
Canate Torbido	141. BIS 141	Q50	475.00	85.00	87.80	95.52	7.72	89.92	2.12	87.80	88.91	0.007370	4.66	101.85	46.00	1.00
Canate Torbido	141. BIS 141	Q200	782.00	85.00	88.68	95.52	6.84	89.92	1.24	88.68	90.22	0.006899	5.50	142.09	46.00	1.00
Canate Torbido	141. BIS 141	Q500	1073.00	85.00	89.40	95.52	6.12	89.92	0.52	89.40	91.31	0.006675	6.11	175.47	46.00	1.00
Canate Torbido	140. BIS 140	Q50	475.00	84.38	86.26	93.97	7.71	88.60	2.34	86.80	88.22	0.018274	6.21	76.53	45.13	1.52
Canate Torbido	140. BIS 140	Q200	782.00	84.38	86.98	93.97	6.99	88.60	1.62	87.69	89.59	0.015822	7.17	109.09	45.34	1.48
Canate Torbido	140. BIS 140	Q500	1073.00	84.38	87.60	93.97	6.37	88.60	1.00	88.43	90.71	0.014332	7.82	137.26	45.52	1.44
Canate Torbido	139. BIS 139	Q50	475.00	84.21	85.93	93.46	7.53	88.10	2.17	86.46	87.83	0.018461	6.11	77.72	47.26	1.52
Canate Torbido	139. BIS 139	Q200	782.00	84.21	86.56	93.46	6.90	88.10	1.54	87.32	89.25	0.017530	7.27	107.55	47.44	1.54
Canate Torbido	139. BIS 139	Q500	1073.00	84.21	87.11	93.46	6.35	88.10	0.99	88.03	90.39	0.016379	8.02	133.87	47.59	1.53
Canate Torbido	138. BIS 138	Q50	475.00	84.04	86.75	92.96	6.21	87.40	0.65	86.16	87.39	0.003444	3.56	133.39	49.74	0.69
Canate Torbido	138. BIS 138	Q200	782.00	84.04	86.26	92.96	6.70	87.40	1.14	87.00	88.87	0.017675	7.15	109.35	49.61	1.54
Canate Torbido	138. BIS 138	Q500	1073.00	84.04	86.76	92.96	6.20	87.40	0.64	87.69	90.03	0.017356	8.01	133.92	49.74	1.56
Canate Torbido	137. BIS 137	Q50	475.00	83.87	86.78	92.45	5.67	87.20	0.42	85.93	87.29	0.002485	3.17	150.01	51.89	0.59
Canate Torbido	137. BIS 137	Q200	782.00	83.87	87.74	92.45	4.71	87.20	-0.54	86.74	88.52	0.002696	3.91	200.07	52.04	0.64
Canate Torbido	137. BIS 137	Q500	1073.00	83.87	88.53	92.45	3.92	87.20	-1.33	87.41	89.54	0.002823	4.45	241.12	52.10	0.66
Canate Torbido	136. BIS 136	Q50	475.00	83.67	86.76	93.05	6.28	87.80	1.04	85.86	87.24	0.002237	3.05	155.71	53.81	0.57
Canate Torbido	136. BIS 136	Q200	782.00	83.67	87.74	93.05	5.31	87.80	0.06	86.65	88.46	0.002400	3.75	208.40	54.05	0.61
Canate Torbido	136. BIS 136	Q500	1073.00	83.67	88.54	93.05	4.51	87.80	-0.74	87.31	89.46	0.002495	4.26	251.70	54.12	0.63

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	135. BIS 135	Q50	475.00	83.53	86.79	92.57	5.77	92.93	6.13	85.59	87.17	0.001593	2.70	175.75	55.73	0.49
Canate Torbido	135. BIS 135	Q200	782.00	83.53	87.79	92.57	4.78	92.93	5.14	86.36	88.37	0.001804	3.38	231.34	55.86	0.53
Canate Torbido	135. BIS 135	Q500	1073.00	83.53	88.61	92.57	3.96	92.93	4.32	87.00	89.37	0.001928	3.87	276.99	55.96	0.56
Canate Torbido	134.7	Q50	475.00	83.43	86.26	88.61	2.35	87.41	1.15	86.02	87.06	0.005157	3.96	119.88	53.29	0.84
Canate Torbido	134.7	Q200	782.00	83.43	87.10	88.61	1.51	87.41	0.31	86.82	88.25	0.005077	4.76	164.36	53.44	0.87
Canate Torbido	134.7	Q500	1073.00	83.43	87.79	88.61	0.82	87.41	-0.38	87.48	89.23	0.005005	5.33	201.48	53.50	0.88
Canate Torbido	134.6	Q50	475.00	83.38	86.01	88.61	2.60	86.91	0.90	86.01	87.02	0.007470	4.44	106.89	53.30	1.00
Canate Torbido	134.6	Q200	782.00	83.38	86.81	88.61	1.80	86.91	0.10	86.81	88.20	0.006886	5.23	149.41	53.48	1.00
Canate Torbido	134.6	Q500	1073.00	83.38	87.46	88.61	1.15	86.91	-0.55	87.46	89.18	0.006624	5.82	184.42	53.50	1.00
Canate Torbido	134.4	Q50	475.00	82.38	84.19	88.45	4.26	85.54	1.35	84.73	86.11	0.017953	6.13	77.51	46.12	1.51
Canate Torbido	134.4	Q200	782.00	82.38	84.94	88.45	3.51	85.54	0.60	85.60	87.42	0.014795	6.97	112.17	46.36	1.43
Canate Torbido	134.4	Q500	1073.00	82.38	85.60	88.45	2.85	85.54	-0.06	86.32	88.48	0.012869	7.51	142.92	46.56	1.37
Canate Torbido	134.2	Q50	475.00	81.98	84.37	88.05	3.68	85.25	0.88	84.32	85.43	0.006924	4.56	104.15	46.29	0.97
Canate Torbido	134.2	Q200	782.00	81.98	84.88	88.05	3.17	85.25	0.37	85.20	86.79	0.009712	6.11	127.96	46.45	1.18
Canate Torbido	134.2	Q500	1073.00	81.98	85.52	88.05	2.53	85.25	-0.27	85.92	87.88	0.009430	6.81	157.67	46.59	1.18
Canate Torbido	134. BIS 134	Q50	475.00	81.78	84.27	87.85	3.58	84.46	0.19	84.13	85.24	0.005999	4.36	108.93	46.43	0.91
Canate Torbido	134. BIS 134	Q200	782.00	81.78	84.68	87.85	3.17	84.46	-0.22	85.00	86.58	0.009695	6.11	128.05	46.53	1.18
Canate Torbido	134. BIS 134	Q500	1073.00	81.78	85.32	87.85	2.53	84.46	-0.86	85.72	87.67	0.009377	6.79	157.96	46.59	1.18
Canate Torbido	133. BIS 133	Q50	475.00	81.71	84.22	87.54	3.33	84.77	0.55	83.96	85.10	0.005214	4.16	114.20	46.33	0.85
Canate Torbido	133. BIS 133	Q200	782.00	81.71	84.53	87.54	3.02	84.77	0.24	84.83	86.42	0.009709	6.09	128.44	46.43	1.17
Canate Torbido	133. BIS 133	Q500	1073.00	81.71	85.17	87.54	2.38	84.77	-0.40	85.55	87.51	0.009446	6.78	158.15	46.55	1.17
Canate Torbido	132. BIS 132	Q50	475.00	81.63	83.86	87.24	3.38	85.07	1.21	83.86	84.96	0.007523	4.65	102.06	46.17	1.00
Canate Torbido	132. BIS 132	Q200	782.00	81.63	84.73	87.24	2.51	85.07	0.34	84.73	86.27	0.007023	5.49	142.49	46.42	1.00
Canate Torbido	132. BIS 132	Q500	1073.00	81.63	85.46	87.24	1.78	85.07	-0.39	85.46	87.35	0.006765	6.09	176.17	46.55	1.00
Canate Torbido	131.9	Q50	475.00	80.10	81.39	87.24	5.85	85.07	3.68	82.33	84.72	0.045153	8.09	58.69	45.74	2.28
Canate Torbido	131.9	Q200	782.00	80.10	82.04	87.24	5.20	85.07	3.03	83.20	86.01	0.032153	8.83	88.59	45.87	2.03
Canate Torbido	131.9	Q500	1073.00	80.10	82.60	87.24	4.64	85.07	2.47	83.93	87.08	0.026517	9.37	114.53	45.99	1.90
Canate Torbido	131. BIS 131	Q50	475.00	79.58	81.26	86.94	5.68	83.74	2.48	82.06	83.96	0.030891	7.28	65.24	45.54	1.94
Canate Torbido	131. BIS 131	Q200	782.00	79.58	81.87	86.94	5.06	83.74	1.87	82.94	85.44	0.026192	8.37	93.43	45.74	1.87
Canate Torbido	131. BIS 131	Q500	1073.00	79.58	82.41	86.94	4.52	83.74	1.33	83.67	86.62	0.023258	9.08	118.11	45.92	1.81
Canate Torbido	130.1	Q50	475.00	79.37	81.19	86.63	5.44	83.60	2.41	81.79	83.27	0.020399	6.40	74.26	45.62	1.60
Canate Torbido	130.1	Q200	782.00	79.37	81.77	86.63	4.86	83.60	1.83	82.66	84.82	0.020483	7.74	101.01	45.82	1.66
Canate Torbido	130.1	Q500	1073.00	79.37	82.29	86.63	4.34	83.60	1.31	83.39	86.06	0.019666	8.61	124.68	46.00	1.67
Canate Torbido	130. BIS 130	Q50	475.00	79.37	81.19	86.63	5.44	84.39	3.20	81.79	83.27	0.020341	6.39	74.32	45.59	1.60
Canate Torbido	130. BIS 130	Q200	782.00	79.37	81.77	86.63	4.86	84.39	2.62	82.67	84.82	0.020436	7.74	101.08	45.77	1.66
Canate Torbido	130. BIS 130	Q500	1073.00	79.37	82.29	86.63	4.34	84.39	2.10	83.40	86.06	0.019623	8.60	124.76	45.94	1.67
Canate Torbido	129. BIS 129	Q50	475.00	79.16	81.22	86.33	5.11	84.20	2.98	81.57	82.80	0.012934	5.56	85.39	45.57	1.30
Canate Torbido	129. BIS 129	Q200	782.00	79.16	81.76	86.33	4.57	84.20	2.44	82.46	84.33	0.015441	7.10	110.20	45.76	1.46

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	129. BIS 129	Q500	1073.00	79.16	82.26	86.33	4.07	84.20	1.94	83.18	85.57	0.015892	8.06	133.18	45.93	1.51
Canate Torbido	128. BIS 128	Q50	475.00	78.95	81.15	86.02	4.87	83.95	2.80	81.37	82.51	0.010189	5.17	91.85	45.55	1.16
Canate Torbido	128. BIS 128	Q200	782.00	78.95	81.72	86.02	4.30	83.95	2.23	82.24	83.96	0.012368	6.63	118.01	45.76	1.32
Canate Torbido	128. BIS 128	Q500	1073.00	78.95	82.21	86.02	3.81	83.95	1.74	82.98	85.18	0.013333	7.63	140.62	45.89	1.39
Canate Torbido	127.1 BIS 127	Q50	475.00	78.03	80.09	84.99	4.90	83.99	3.90	80.42	81.62	0.012353	5.48	86.65	45.49	1.27
Canate Torbido	127.1 BIS 127	Q200	782.00	78.03	80.78	84.99	4.21	83.99	3.21	81.30	83.01	0.012306	6.61	118.36	45.74	1.31
Canate Torbido	127.1 BIS 127	Q500	1073.00	78.03	83.27	84.99	1.72	83.99	0.72	82.03	84.36	0.002759	4.61	232.90	46.24	0.66
Canate Torbido	127		Bridge													
Canate Torbido	126.8 BIS 127	Q50	475.00	77.90	80.32	84.99	4.67	83.99	3.67	80.32	81.44	0.007365	4.68	101.60	45.58	1.00
Canate Torbido	126.8 BIS 127	Q200	782.00	77.90	80.92	84.99	4.07	83.99	3.07	81.20	82.80	0.009337	6.07	128.87	45.77	1.15
Canate Torbido	126.8 BIS 127	Q500	1073.00	77.90	81.93	84.99	3.06	83.99	2.06	81.93	83.84	0.006637	6.12	175.40	45.97	1.00
Canate Torbido	126. BIS 126	Q50	475.00	76.46	78.83	84.38	5.55	83.69	4.86	78.89	80.01	0.008012	4.80	98.96	45.03	1.03
Canate Torbido	126. BIS 126	Q200	782.00	76.46	79.58	84.38	4.80	83.69	4.11	79.77	81.35	0.008534	5.90	132.56	45.09	1.10
Canate Torbido	126. BIS 126	Q500	1073.00	76.46	80.50	84.38	3.88	83.69	3.19	80.51	82.43	0.006804	6.17	174.04	45.16	1.00
Canate Torbido	125. BIS 125	Q50	475.00	75.41	77.71	83.93	6.22	83.70	5.99	77.90	79.08	0.009600	5.17	91.81	42.99	1.13
Canate Torbido	125. BIS 125	Q200	782.00	75.41	78.57	83.93	5.36	83.70	5.13	78.81	80.45	0.008845	6.07	128.79	43.22	1.12
Canate Torbido	125. BIS 125	Q500	1073.00	75.41	79.30	83.93	4.63	83.70	4.40	79.57	81.58	0.008328	6.69	160.50	43.42	1.11
Canate Torbido	124. BIS 124	Q50	475.00	74.75	77.56	83.66	6.10	83.39	5.83	77.25	78.46	0.004909	4.20	113.11	43.14	0.83
Canate Torbido	124. BIS 124	Q200	782.00	74.75	77.79	83.66	5.87	83.39	5.60	78.17	79.85	0.010255	6.37	122.77	43.20	1.21
Canate Torbido	124. BIS 124	Q500	1073.00	74.75	78.46	83.66	5.20	83.39	4.93	78.93	81.00	0.009887	7.07	151.77	43.39	1.21
Canate Torbido	123. BIS 123	Q50	475.00	74.62	77.50	83.57	6.07	83.00	5.50	77.12	78.36	0.004542	4.10	115.91	43.17	0.80
Canate Torbido	123. BIS 123	Q200	782.00	74.62	78.49	83.57	5.08	83.00	4.51	78.04	79.73	0.004561	4.93	158.75	43.44	0.82
Canate Torbido	123. BIS 123	Q500	1073.00	74.62	79.32	83.57	4.25	83.00	3.68	78.80	80.86	0.004540	5.51	194.80	43.67	0.83
Canate Torbido	122. BIS 122	Q50	475.00	74.52	77.07	83.55	6.48	83.20	6.14	77.07	78.22	0.007335	4.77	99.68	43.06	1.00
Canate Torbido	122. BIS 122	Q200	782.00	74.52	77.98	83.55	5.57	83.20	5.22	77.98	79.59	0.006866	5.61	139.31	43.31	1.00
Canate Torbido	122. BIS 122	Q500	1073.00	74.52	78.74	83.55	4.81	83.20	4.46	78.74	80.72	0.006635	6.23	172.32	43.52	1.00
Canate Torbido	121.1 BIS 121	Q50	475.00	73.77	75.75	83.39	7.64	83.09	7.34	76.34	77.85	0.018410	6.42	74.04	42.93	1.53
Canate Torbido	121.1 BIS 121	Q200	782.00	73.77	76.56	83.39	6.83	83.09	6.53	77.28	79.25	0.015054	7.26	107.64	43.15	1.44
Canate Torbido	121.1 BIS 121	Q500	1073.00	73.77	79.12	83.39	4.27	83.09	3.97	78.06	80.38	0.003254	4.99	215.12	43.83	0.71
Canate Torbido	121.		Bridge													
Canate Torbido	120.9	Q50	475.00	73.77	76.35	83.39	7.04	83.09	6.74	76.35	77.53	0.007334	4.82	98.65	43.09	1.00
Canate Torbido	120.9	Q200	782.00	73.77	77.80	83.39	5.59	83.09	5.29	77.28	79.03	0.004340	4.90	159.72	43.48	0.80
Canate Torbido	120.9	Q500	1073.00	73.77	79.02	83.39	4.37	83.09	4.07	78.06	80.34	0.003443	5.08	211.19	43.81	0.73
Canate Torbido	120.8	Q50	475.00	73.77	76.06	83.39	7.33	83.09	7.03	76.28	77.48	0.010154	5.27	90.13	43.01	1.16
Canate Torbido	120.8	Q200	782.00	73.77	77.88	83.39	5.51	83.09	5.21	77.21	78.98	0.003777	4.64	168.66	43.50	0.75
Canate Torbido	120.8	Q500	1073.00	73.77	79.10	83.39	4.29	83.09	3.99	77.96	80.29	0.003040	4.84	221.91	43.83	0.69

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Canate Torbido (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Canate Torbido	120.3	Q50	475.00	73.07	76.51	82.69	6.18	82.39	5.88	75.59	77.10	0.002518	3.40	139.68	43.32	0.60
Canate Torbido	120.3	Q200	782.00	73.07	77.97	82.69	4.72	82.39	4.42	76.50	78.73	0.002118	3.85	203.20	43.71	0.57
Canate Torbido	120.3	Q500	1073.00	73.07	79.18	82.69	3.51	82.39	3.21	77.26	80.08	0.001957	4.19	256.30	44.04	0.55
Canate Torbido	120.1 BIS 120	Q50	475.00	72.70	75.95	83.07	7.12	81.69	5.74	75.56	76.98	0.004856	4.49	105.81	42.21	0.81
Canate Torbido	120.1 BIS 120	Q200	782.00	72.70	77.12	83.07	5.95	81.69	4.57	76.63	78.59	0.004888	5.37	145.74	42.28	0.83
Canate Torbido	120.1 BIS 120	Q500	1073.00	72.70	78.08	83.07	4.99	81.69	3.61	77.51	79.92	0.004946	6.00	178.77	42.34	0.84
Canate Torbido	120.	Bridge														
Canate Torbido	119.9 BIS 120	Q50	475.00	72.70	75.56	83.07	7.51	81.69	6.13	75.56	76.91	0.007463	5.15	92.25	42.19	1.00
Canate Torbido	119.9 BIS 120	Q200	782.00	72.70	76.63	83.07	6.44	81.69	5.06	76.63	78.50	0.007148	6.07	128.79	42.25	1.00
Canate Torbido	119.9 BIS 120	Q500	1073.00	72.70	77.51	83.07	5.56	81.69	4.18	77.51	79.83	0.007031	6.74	159.17	42.31	1.00
Canate Torbido	119.8	Q50	475.00	72.60	74.18	82.97	8.79	81.59	7.41	74.85	76.45	0.026390	6.68	71.14	50.11	1.79
Canate Torbido	119.8	Q200	782.00	72.60	74.68	82.97	8.29	81.59	6.91	75.68	78.03	0.026694	8.12	96.35	50.17	1.87
Canate Torbido	119.8	Q500	1073.00	72.60	75.11	82.97	7.86	81.59	6.48	76.36	79.33	0.026290	9.11	117.78	50.21	1.90
Canate Torbido	119. BIS 119	Q50	475.00	72.24	75.18	82.24	7.06	81.26	6.08	74.60	75.86	0.003513	3.66	129.70	46.99	0.70
Canate Torbido	119. BIS 119	Q200	782.00	72.24	76.39	82.24	5.85	81.26	4.87	75.46	77.29	0.002994	4.18	186.94	47.13	0.67
Canate Torbido	119. BIS 119	Q500	1073.00	72.24	77.43	82.24	4.81	81.26	3.83	76.18	78.49	0.002728	4.55	235.96	47.25	0.65
Canate Torbido	118. BIS 118	Q50	475.00	72.15	75.13	81.86	6.73	81.20	6.07	74.52	75.80	0.003354	3.61	131.45	46.85	0.69
Canate Torbido	118. BIS 118	Q200	782.00	72.15	76.36	81.86	5.50	81.20	4.84	75.38	77.23	0.002887	4.14	188.94	46.99	0.66
Canate Torbido	118. BIS 118	Q500	1073.00	72.15	77.40	81.86	4.46	81.20	3.80	76.09	78.44	0.002650	4.51	237.99	47.11	0.64
Canate Torbido	117.1 BIS 117	Q50	475.00	71.68	74.70	80.14	5.44	79.67	4.97	74.22	75.51	0.004093	4.00	118.78	44.29	0.76
Canate Torbido	117.1 BIS 117	Q200	782.00	71.68	75.87	80.14	4.27	79.67	3.80	75.15	76.97	0.003705	4.64	168.36	44.48	0.74
Canate Torbido	117.1 BIS 117	Q500	1073.00	71.68	76.85	80.14	3.29	79.67	2.82	75.92	78.18	0.003524	5.11	209.95	44.64	0.73
Canate Torbido	117. BIS 117	Bridge														
Canate Torbido	116.9 BIS 117	Q50	475.00	71.38	74.73	79.84	5.11	79.37	4.64	73.92	75.38	0.002878	3.58	132.78	44.35	0.64
Canate Torbido	116.9 BIS 117	Q200	782.00	71.38	75.90	79.84	3.94	79.37	3.47	74.85	76.84	0.002885	4.29	182.49	44.53	0.66
Canate Torbido	116.9 BIS 117	Q500	1073.00	71.38	76.89	79.84	2.95	79.37	2.48	75.62	78.05	0.002887	4.79	224.06	44.69	0.67

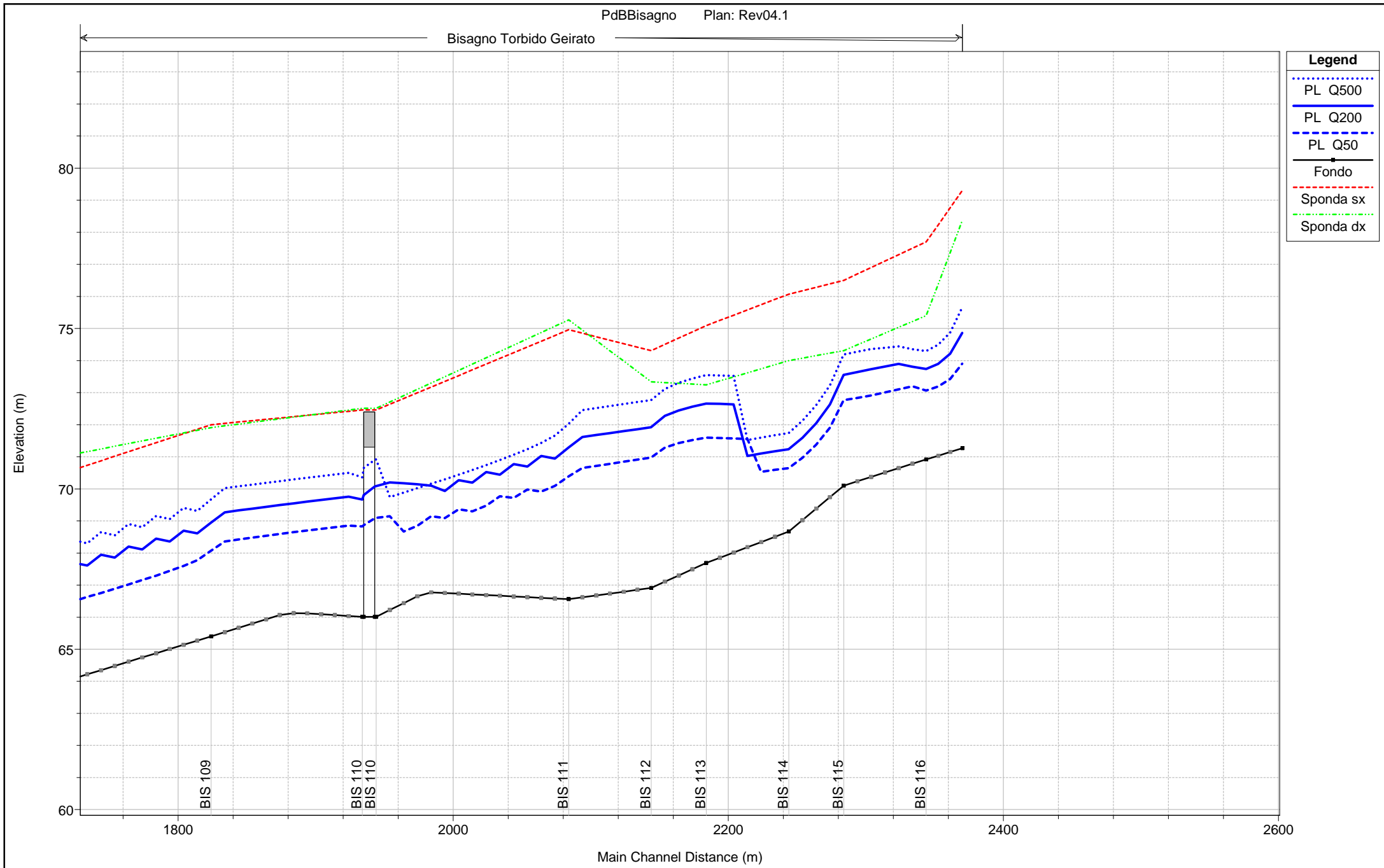
Allegato

Verifiche idrauliche

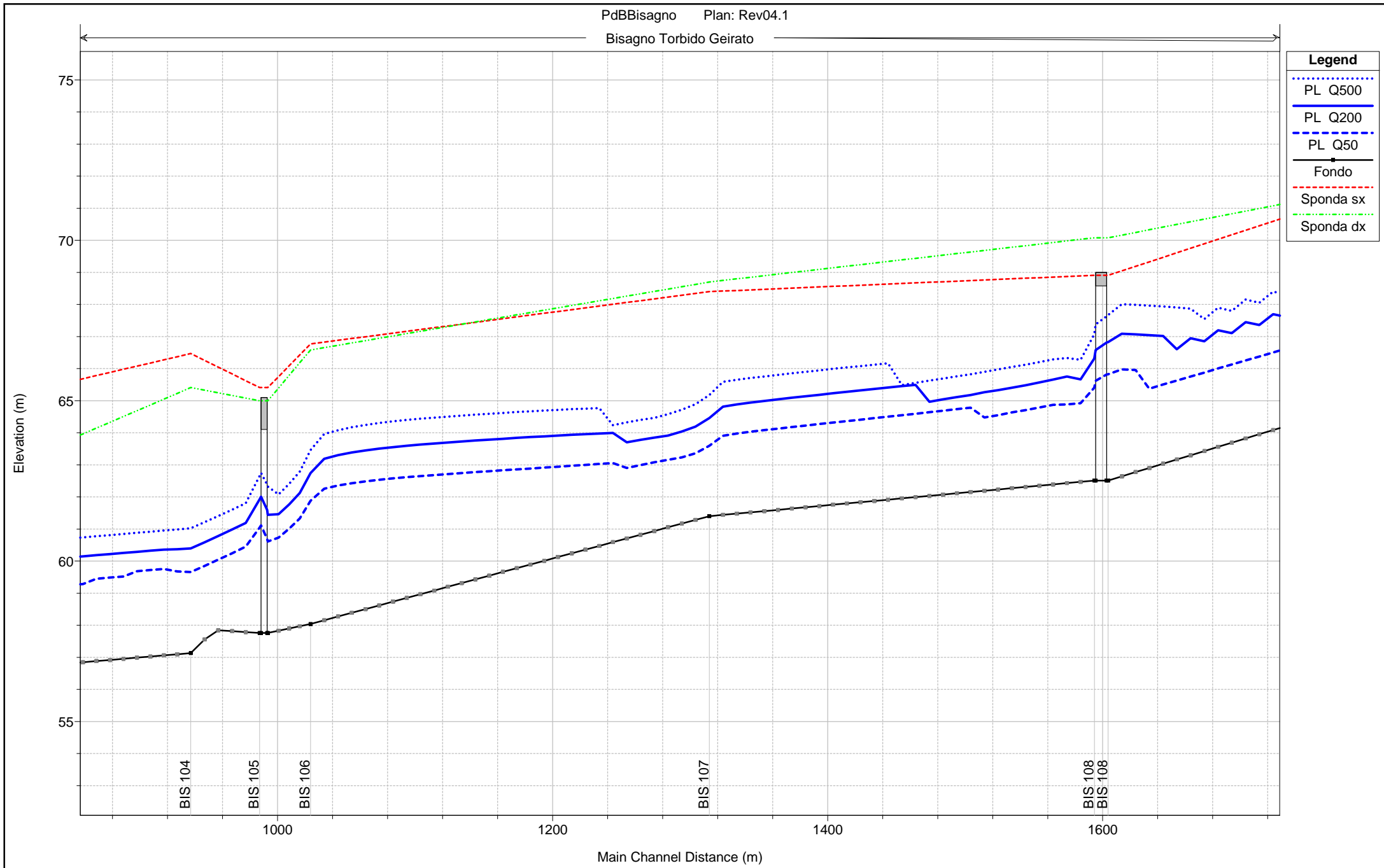
Torrente Bisagno

- tratto compreso tra il rio Torbido e il t. Geirato -

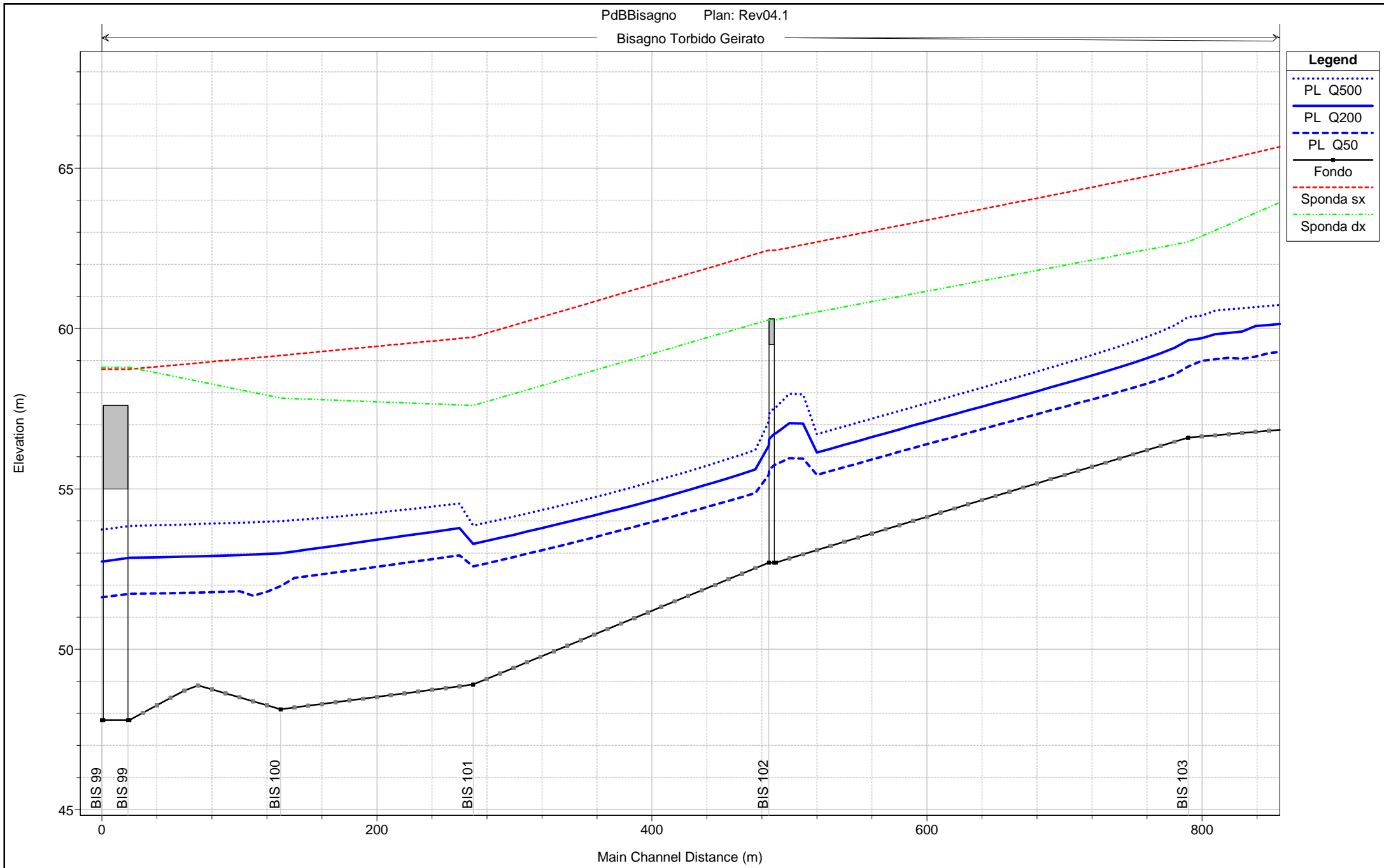
- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo



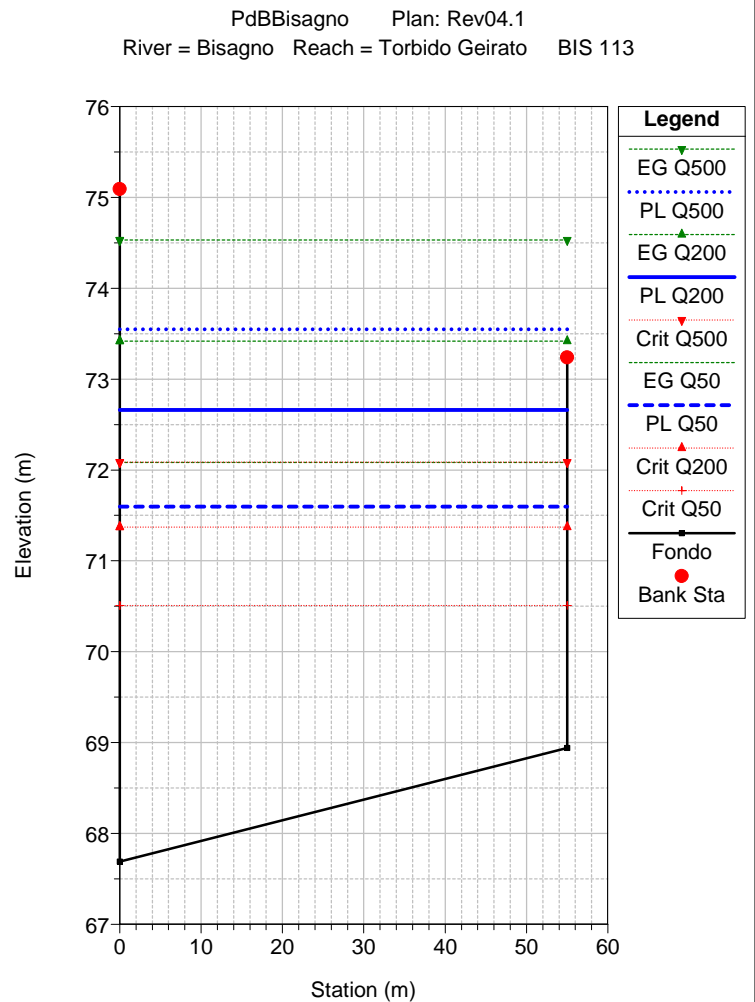
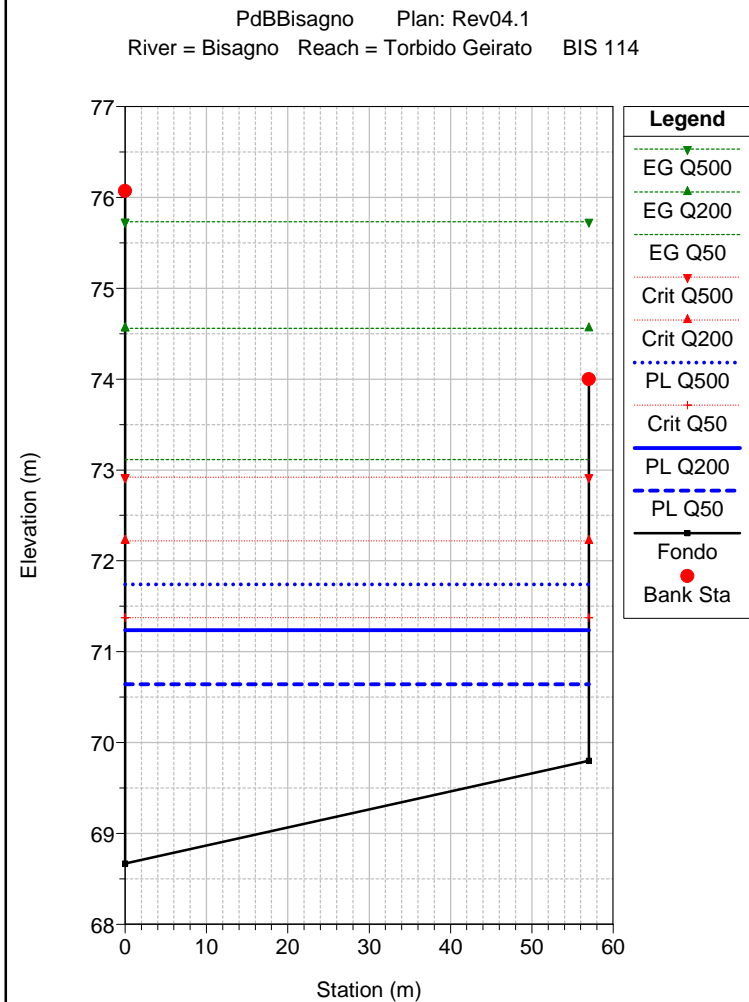
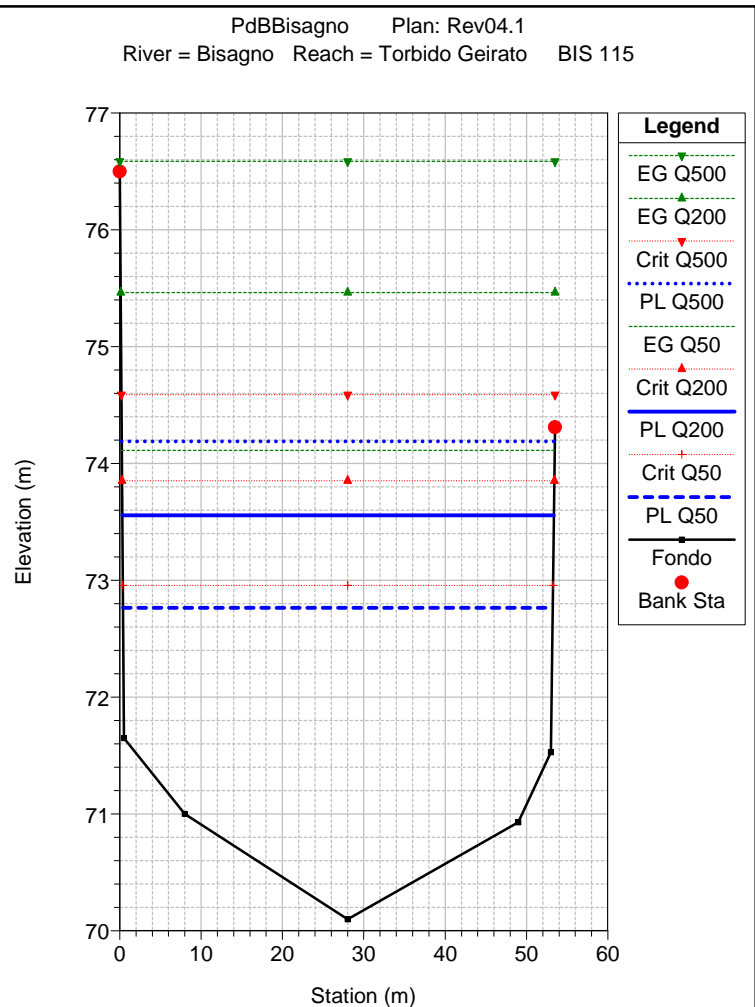
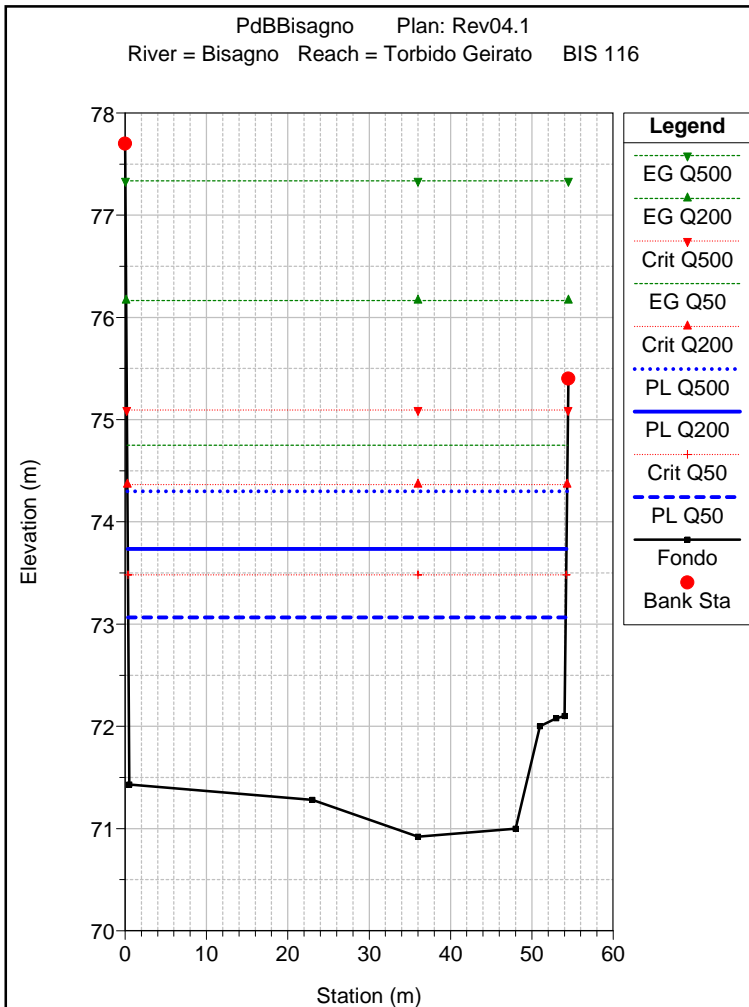
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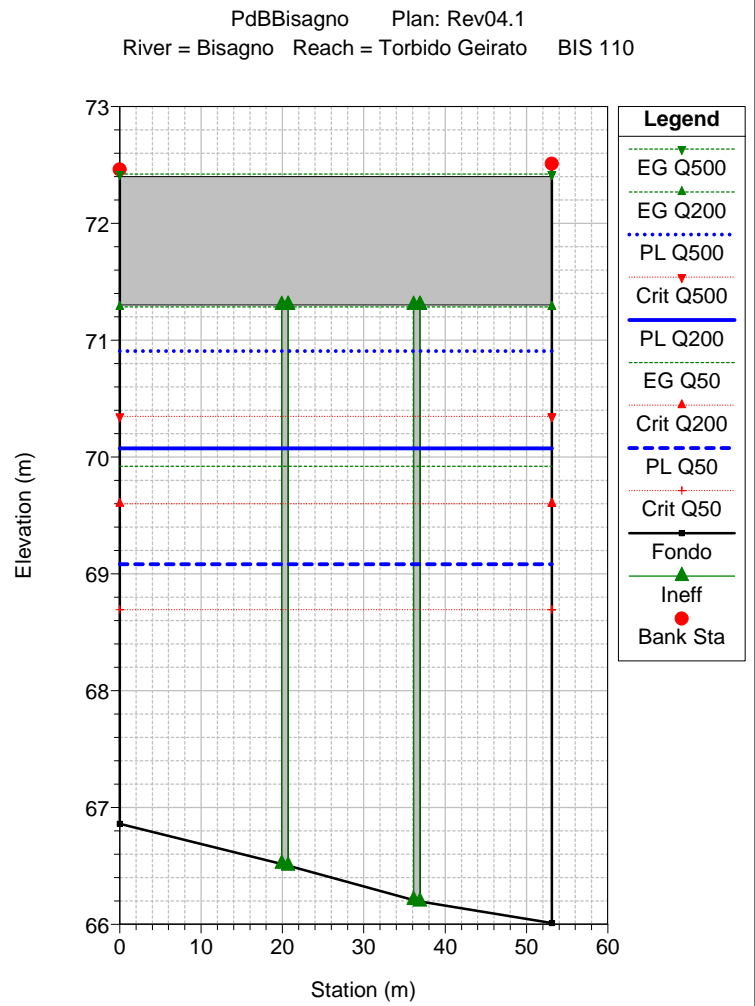
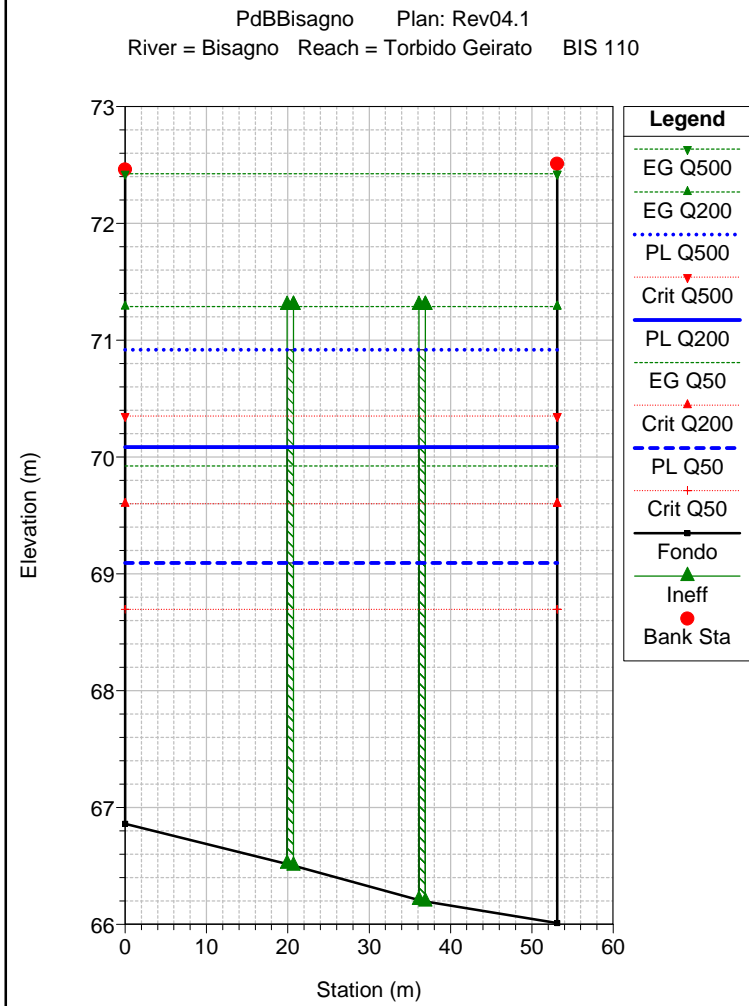
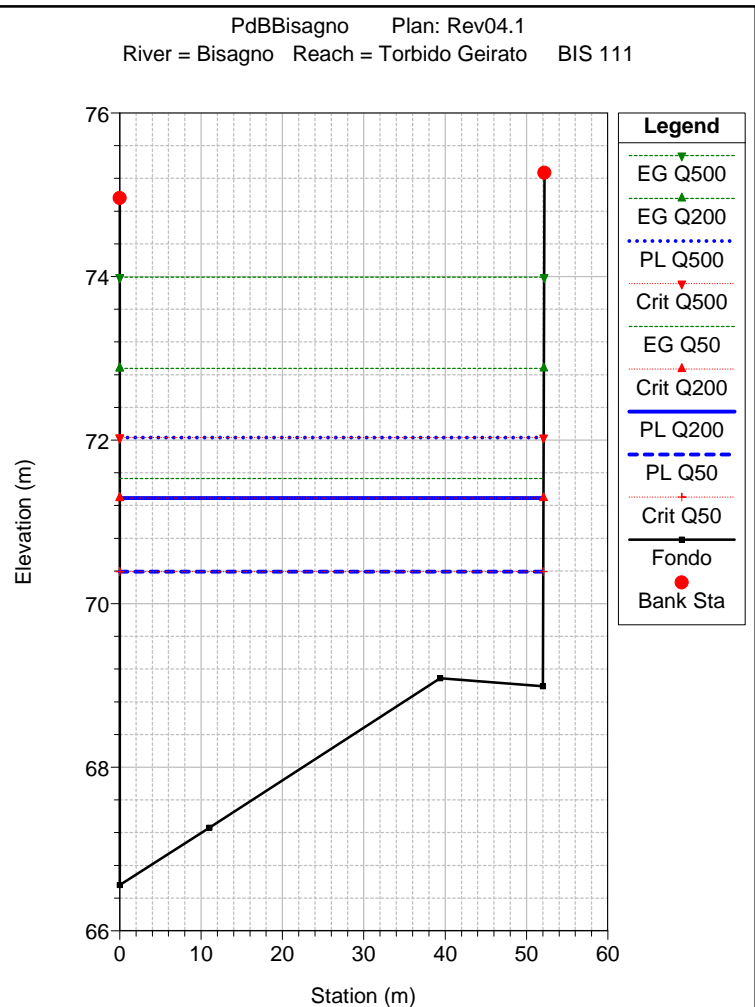
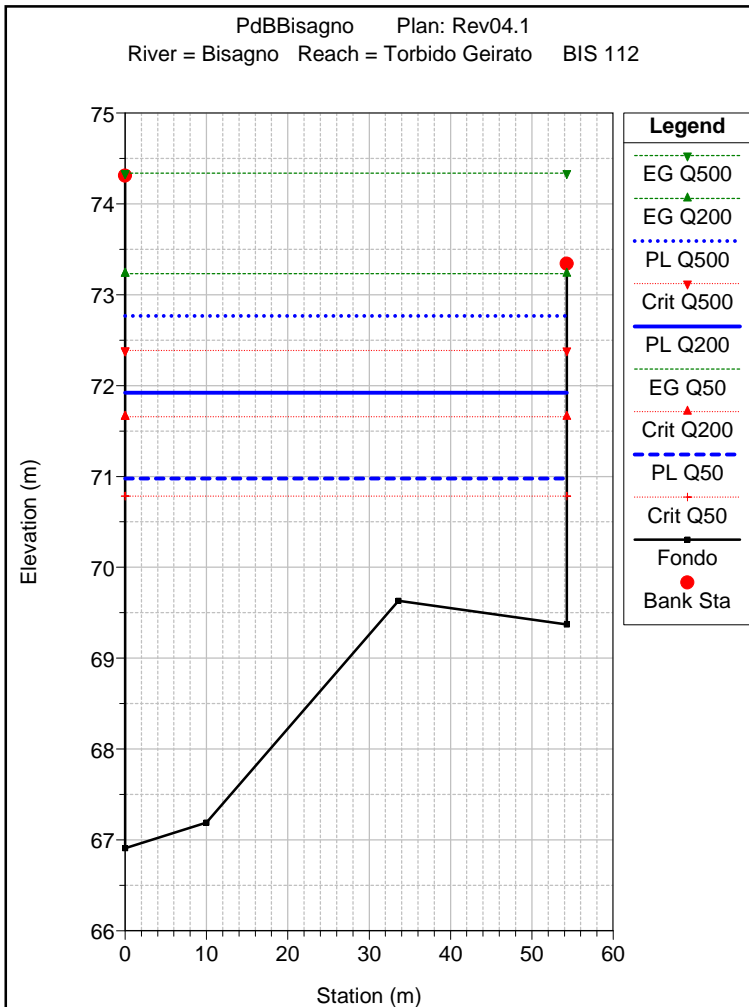


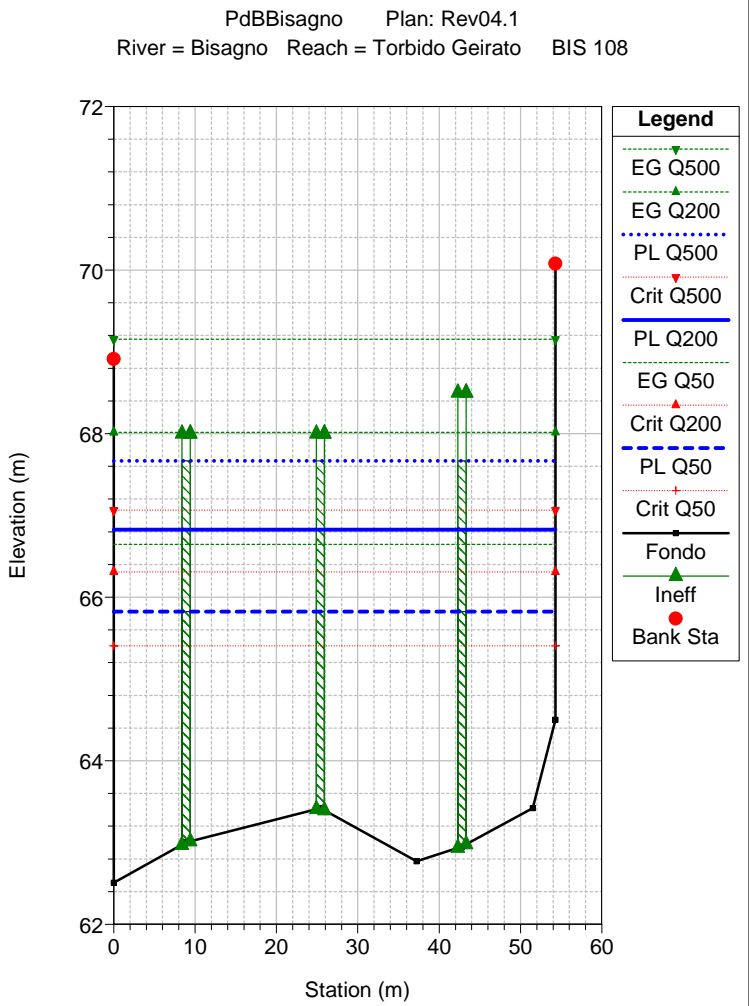
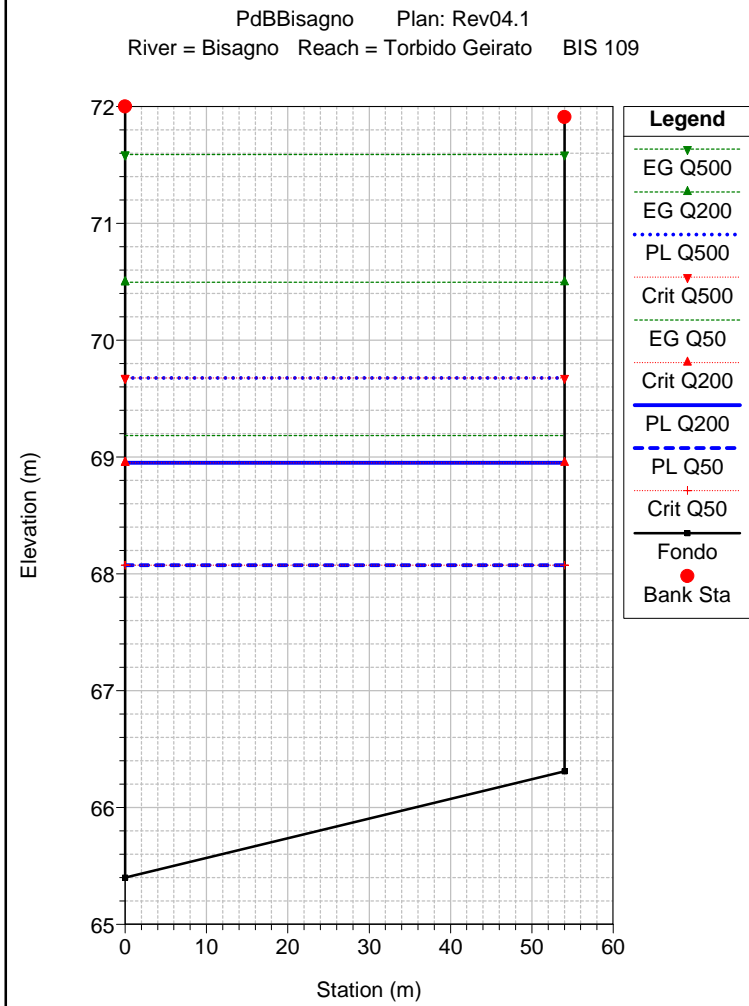
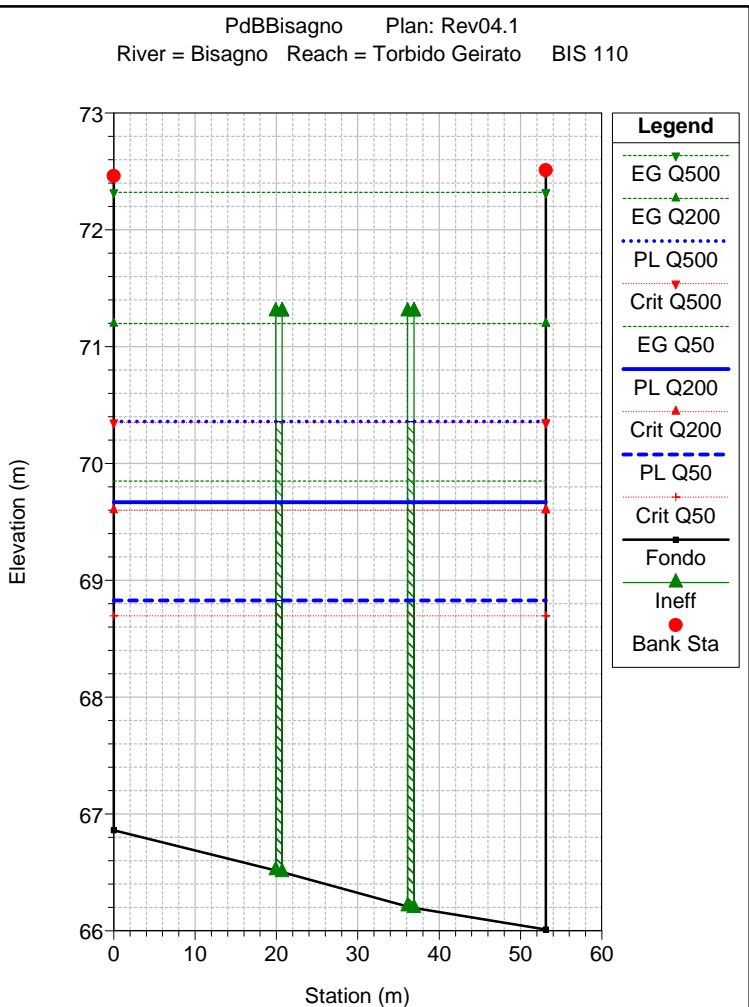
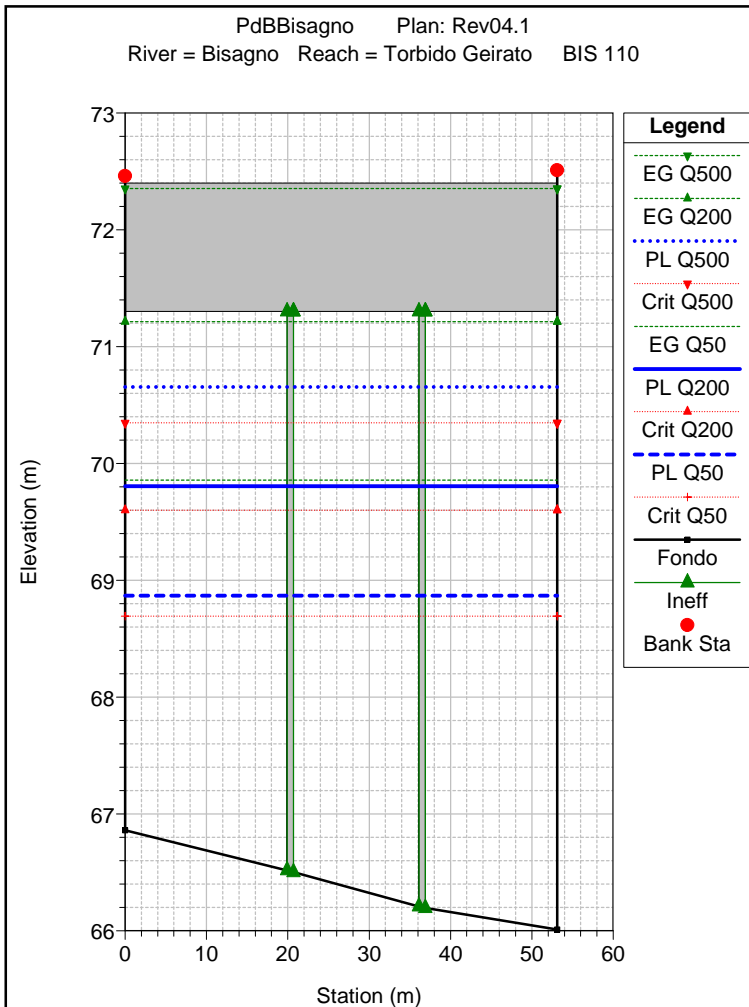
1 cm Horiz. = 35 m 1 cm Vert. = 1.5 m

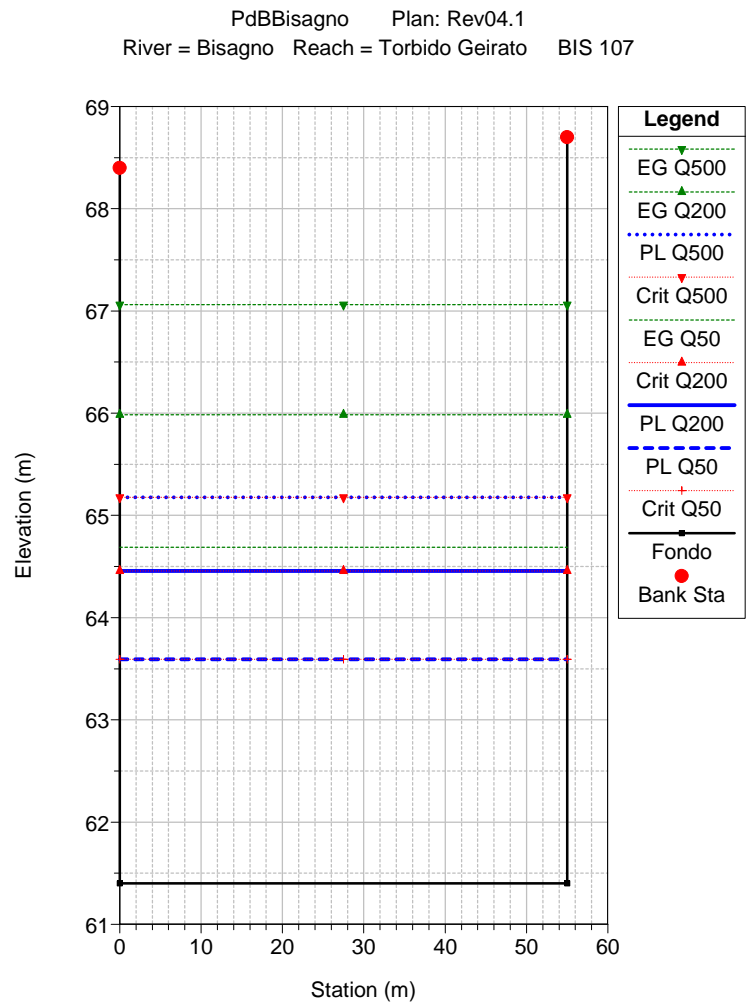
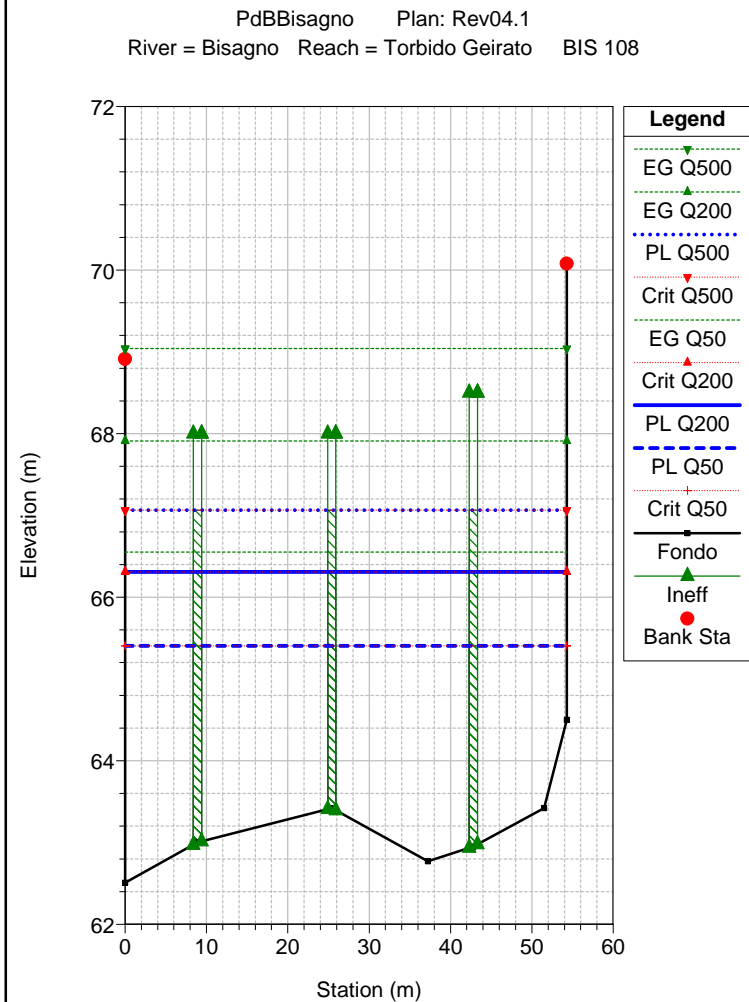
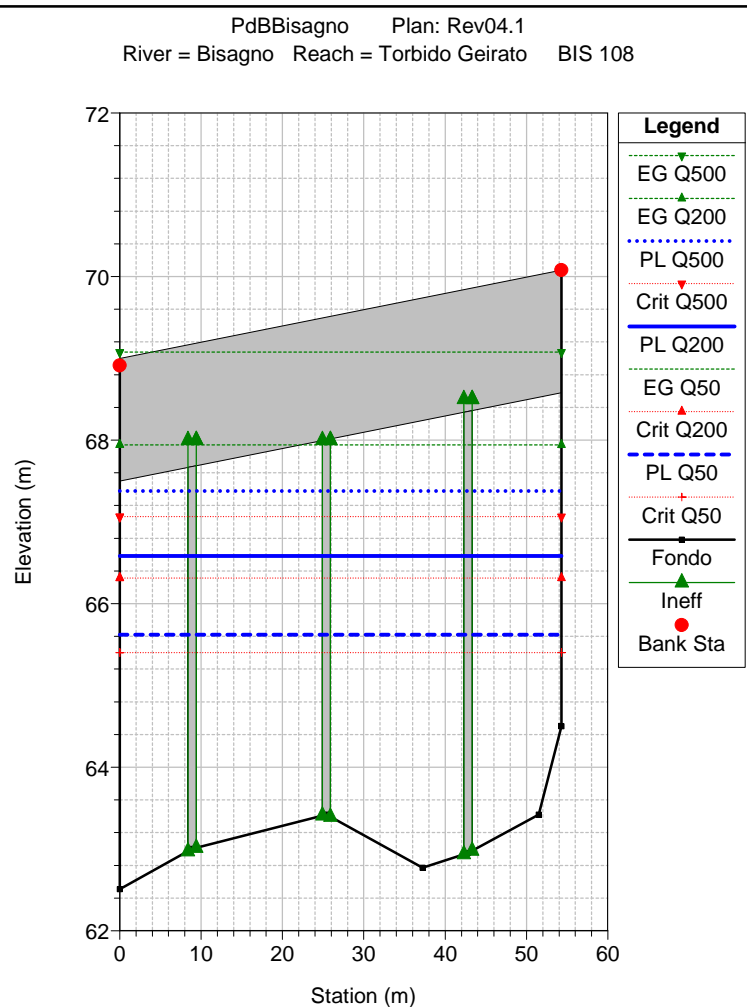
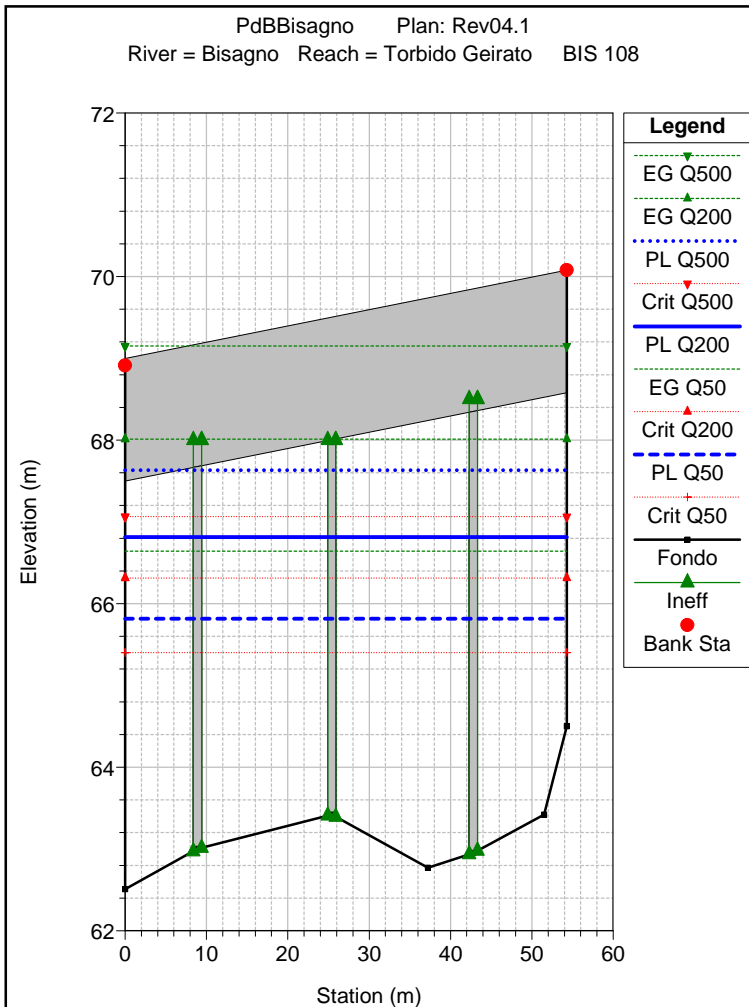


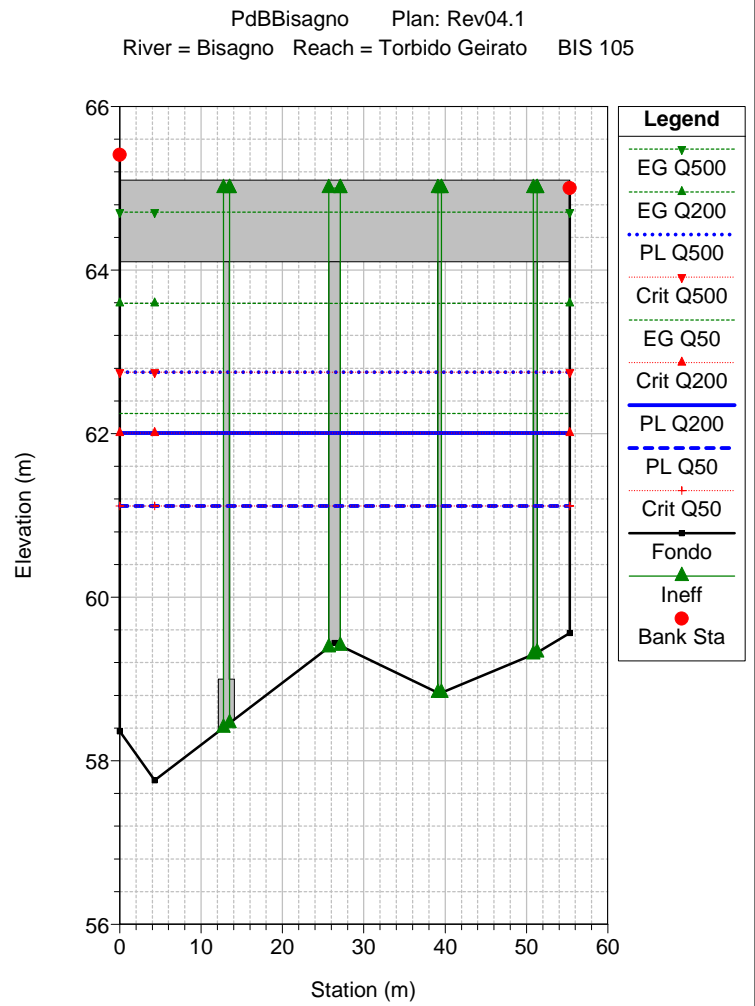
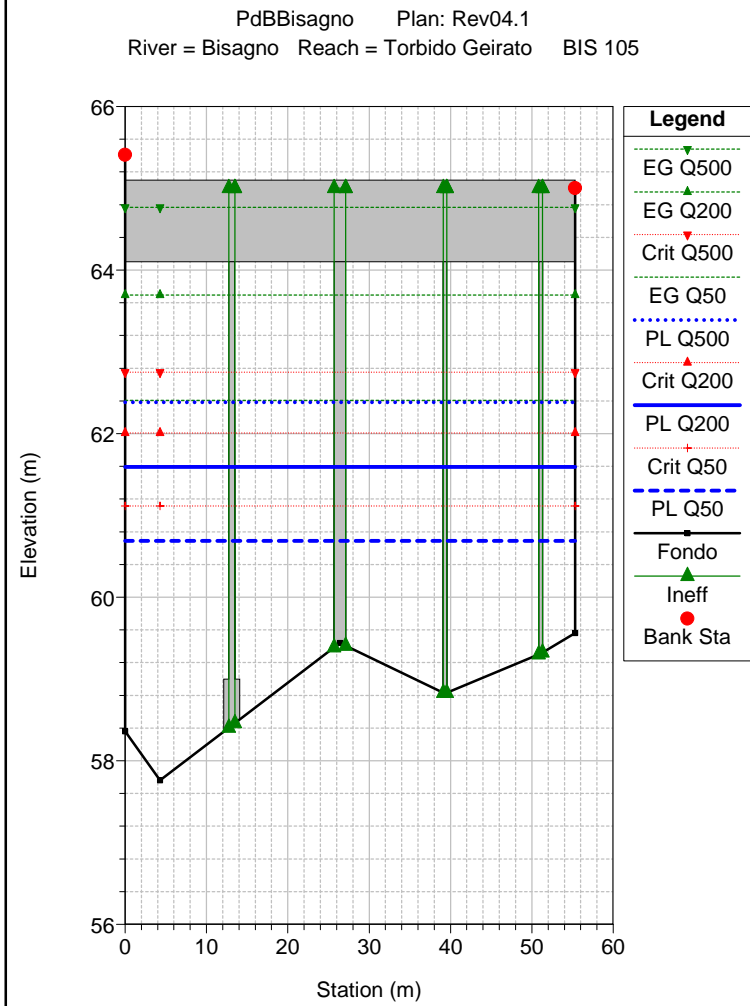
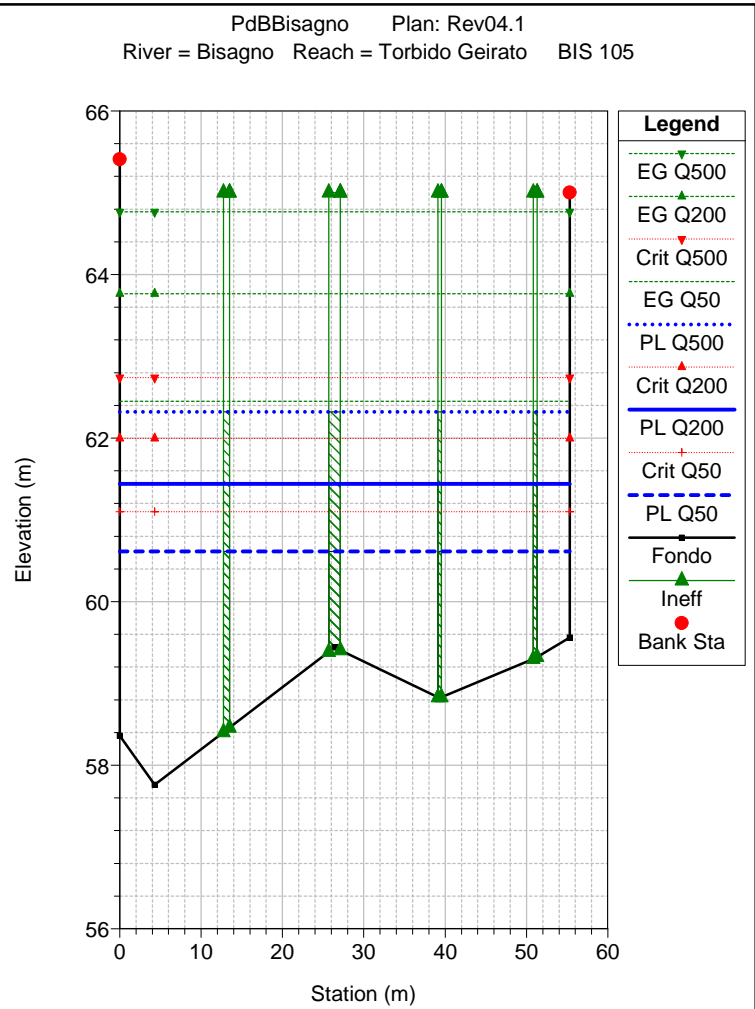
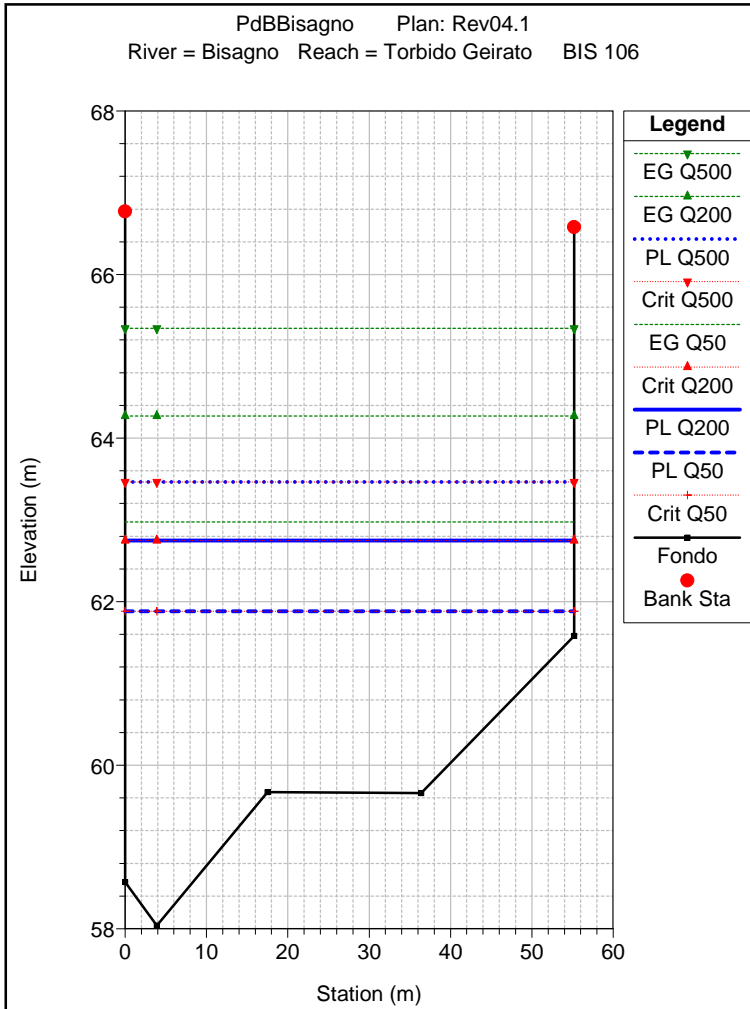
1 cm Horiz. = 35 m 1 cm Vert. = 1.5 m

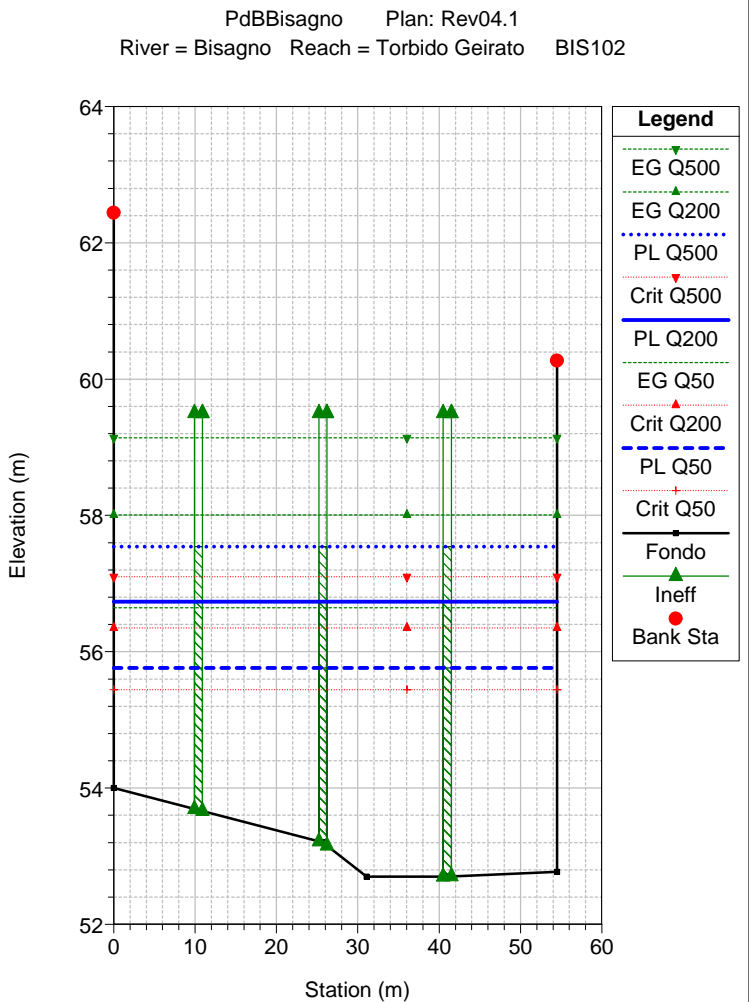
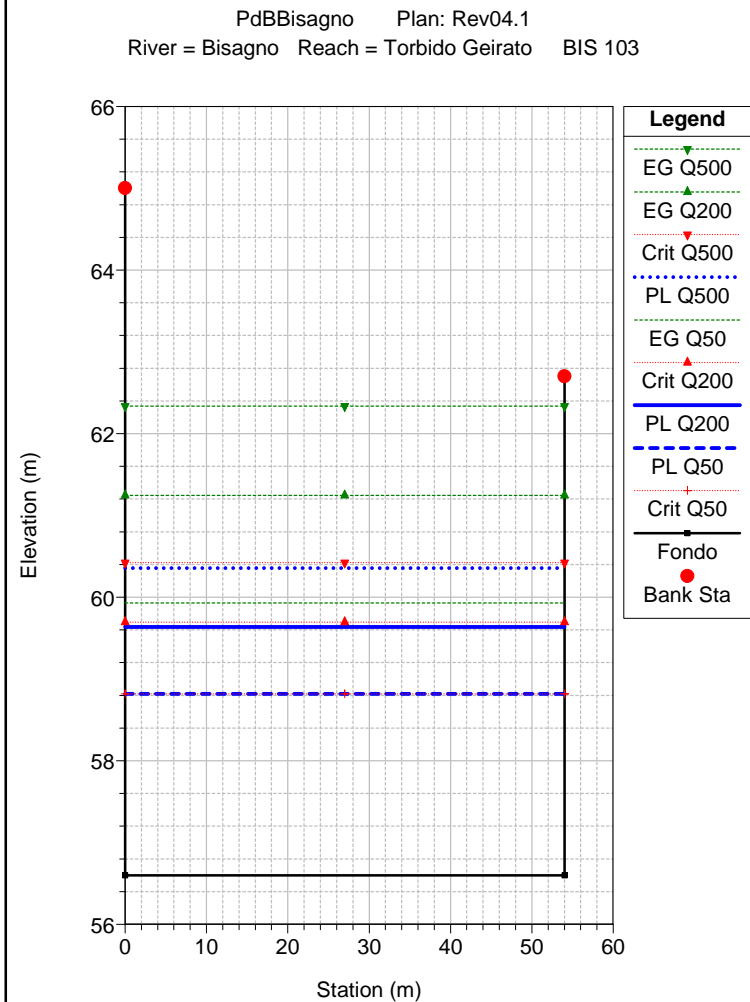
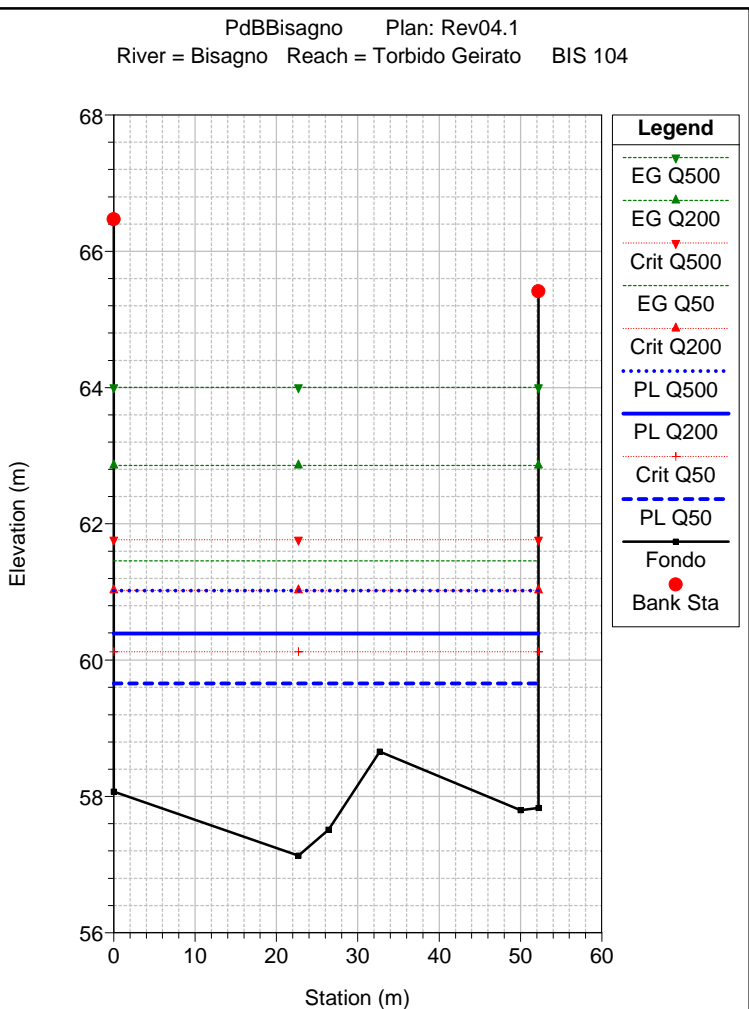
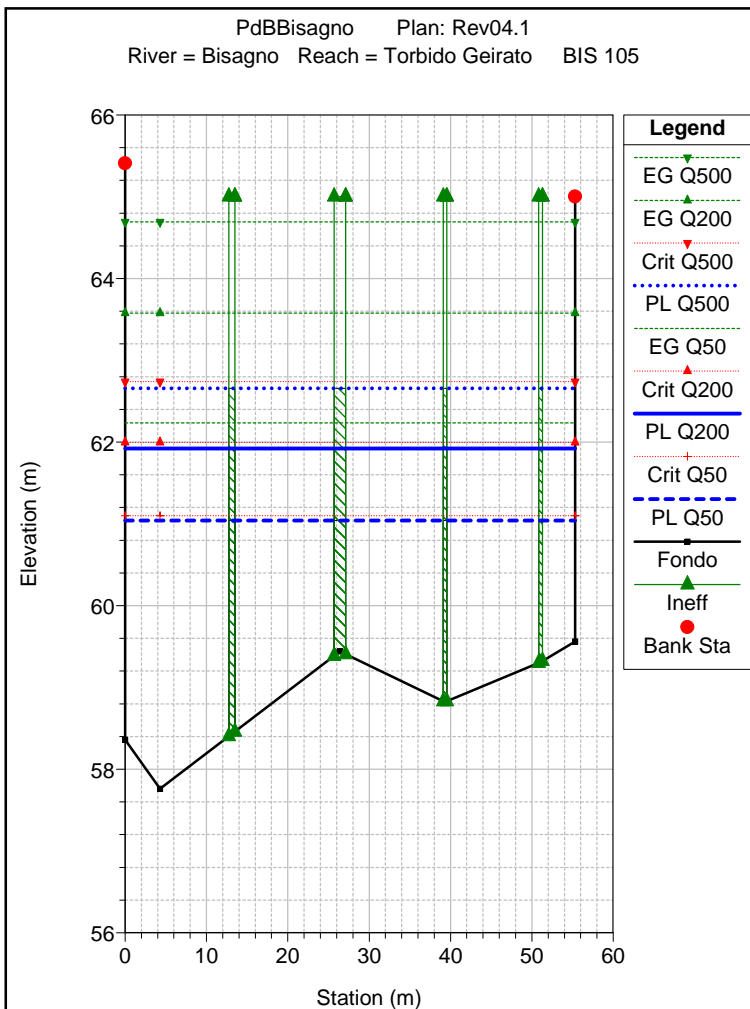


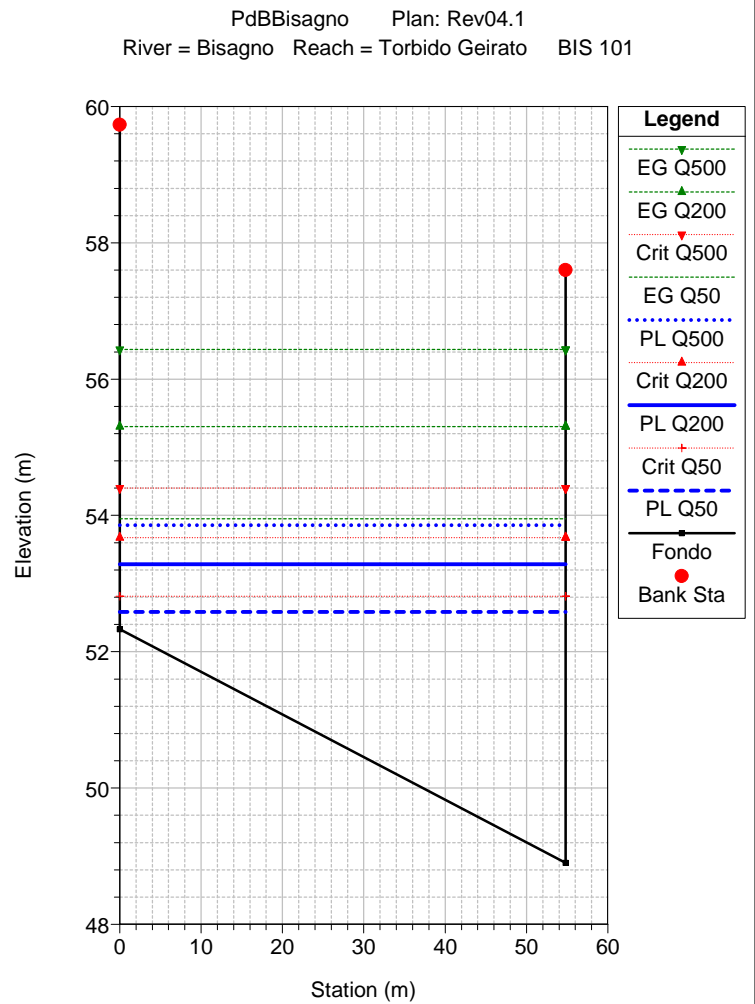
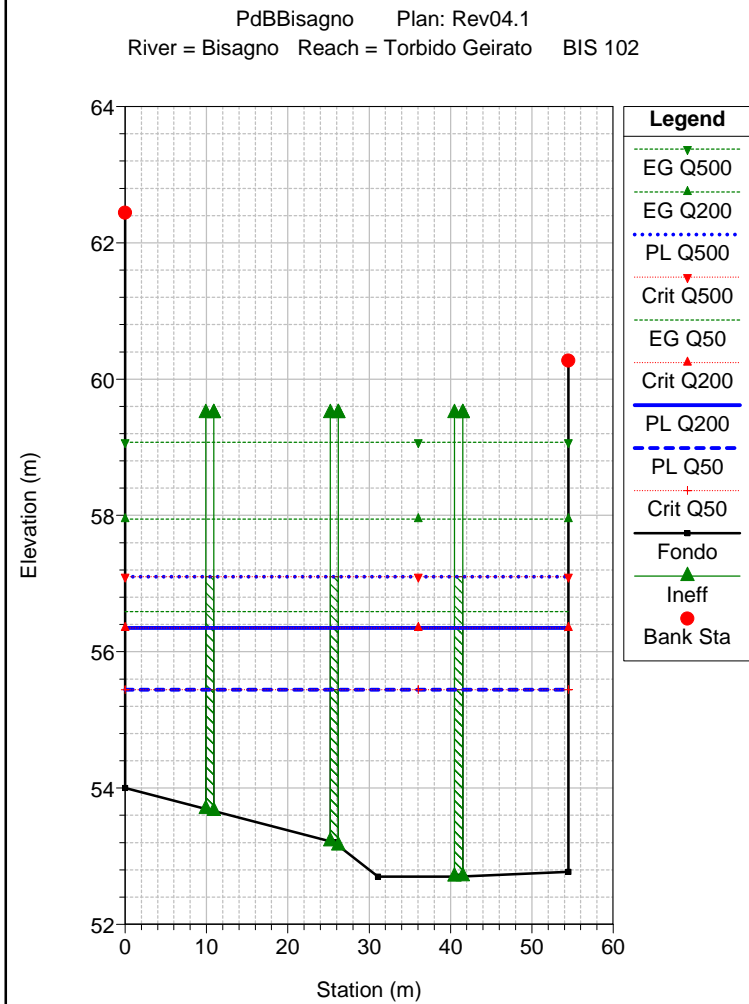
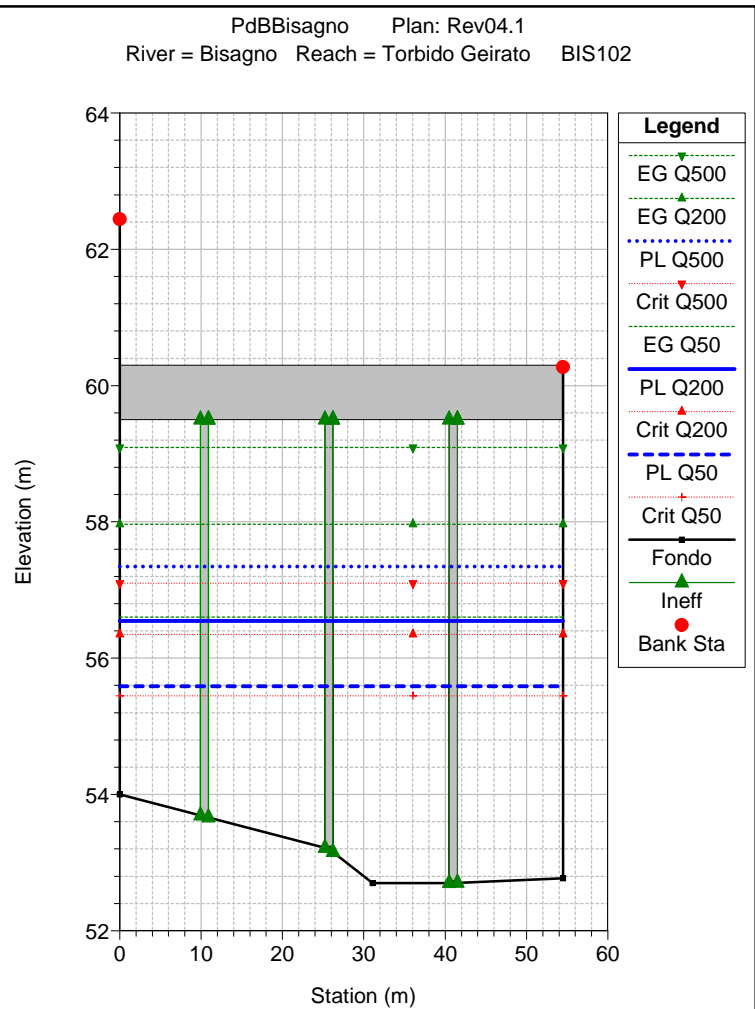
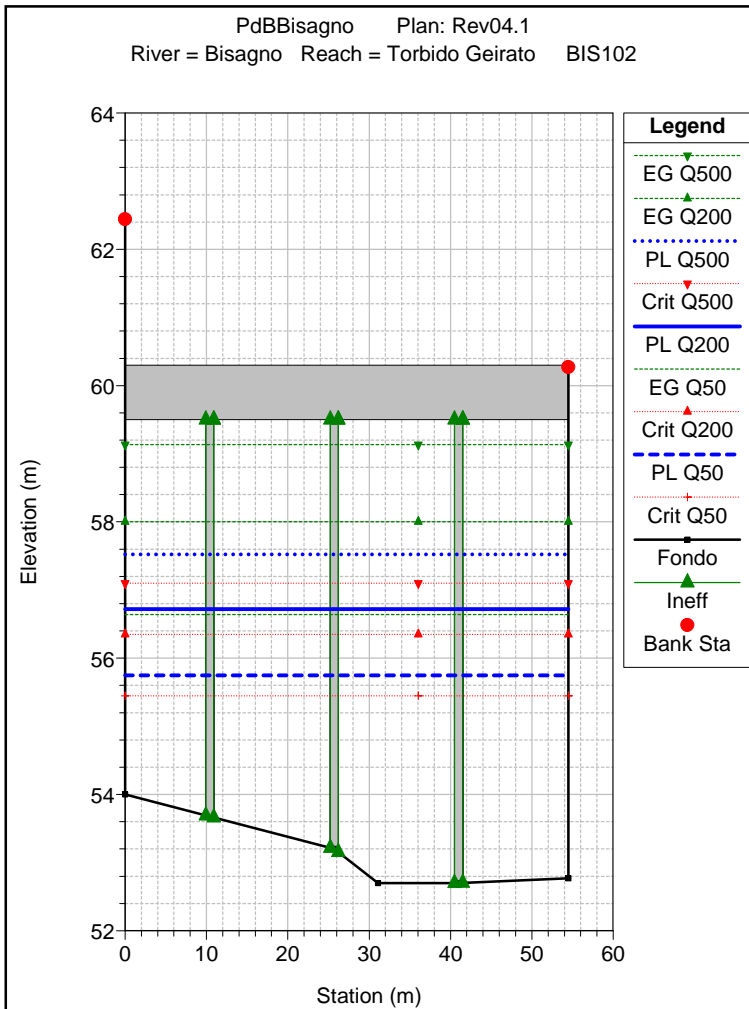


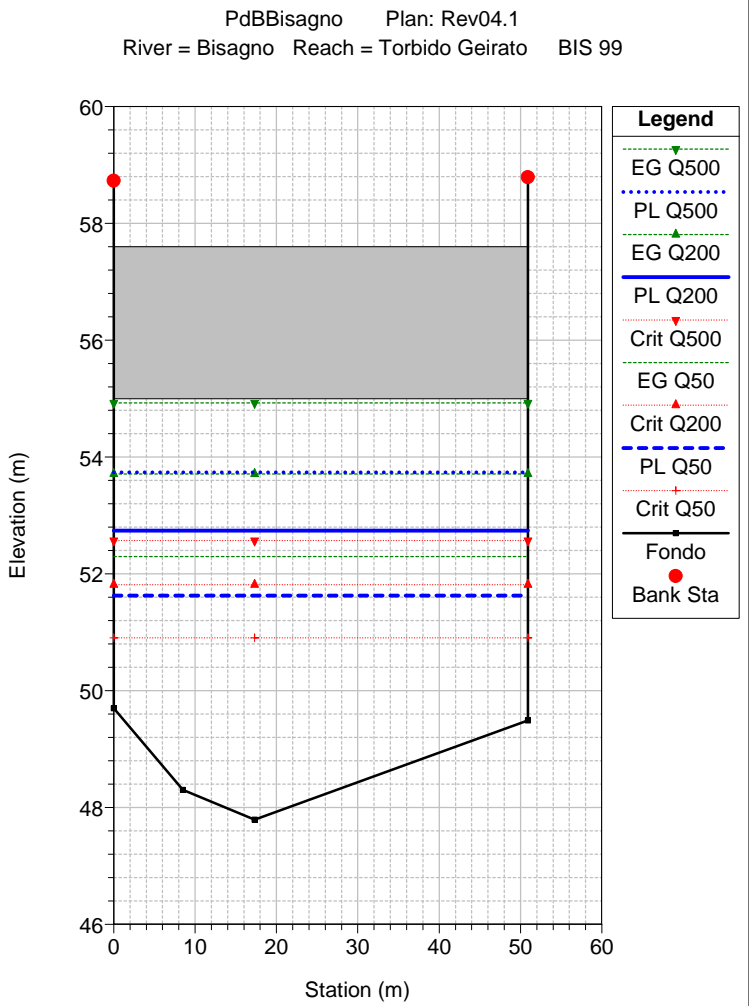
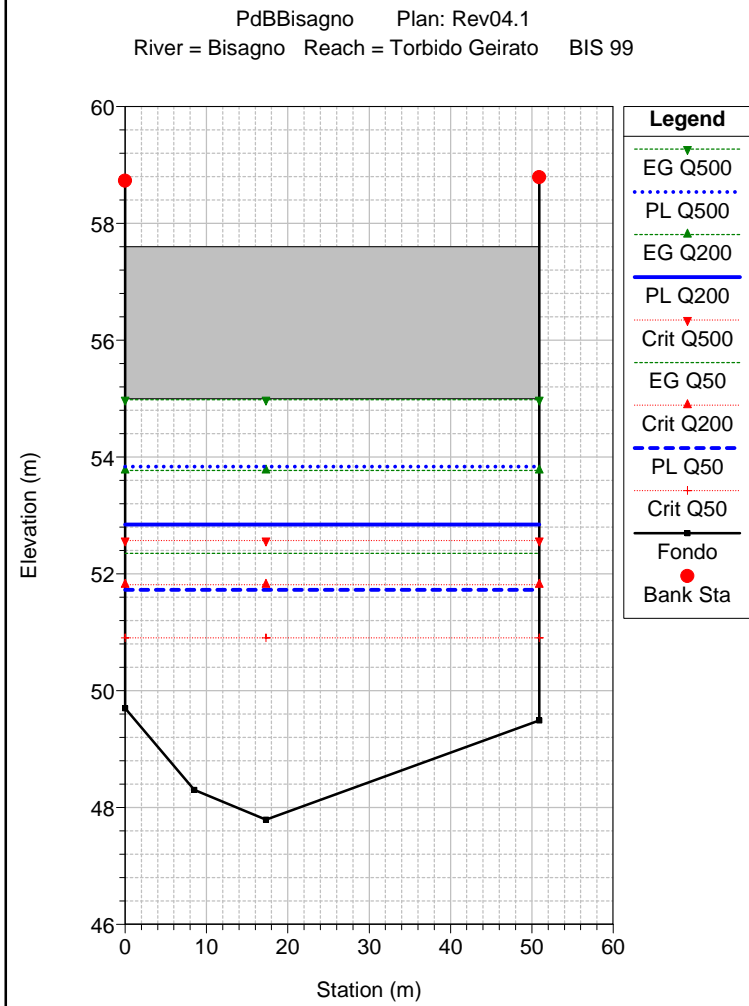
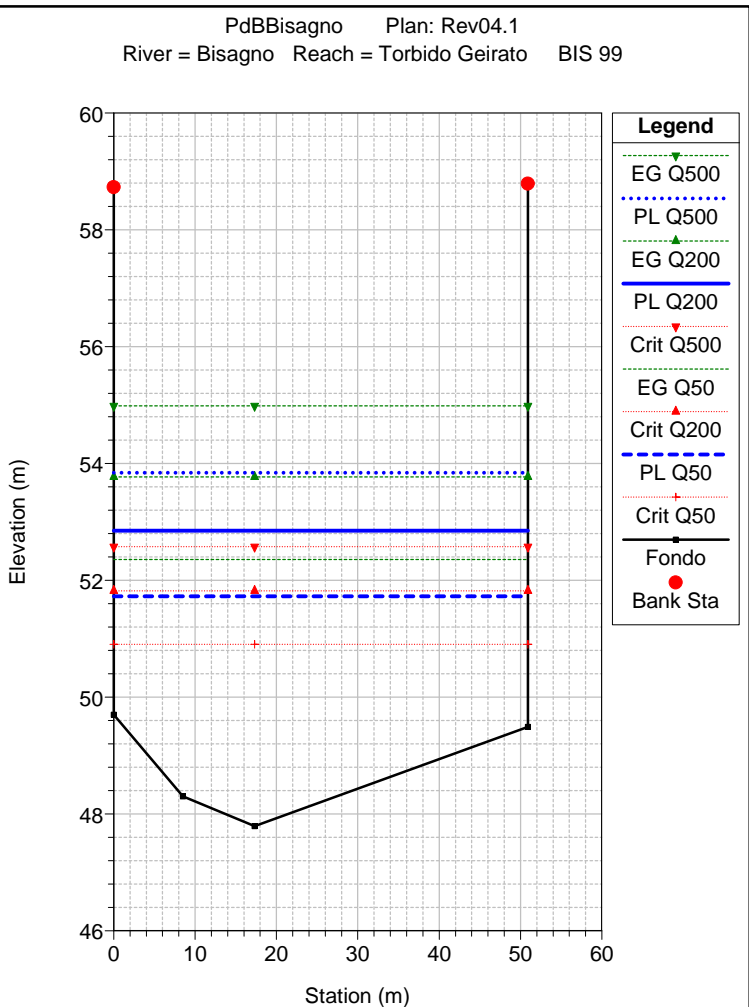
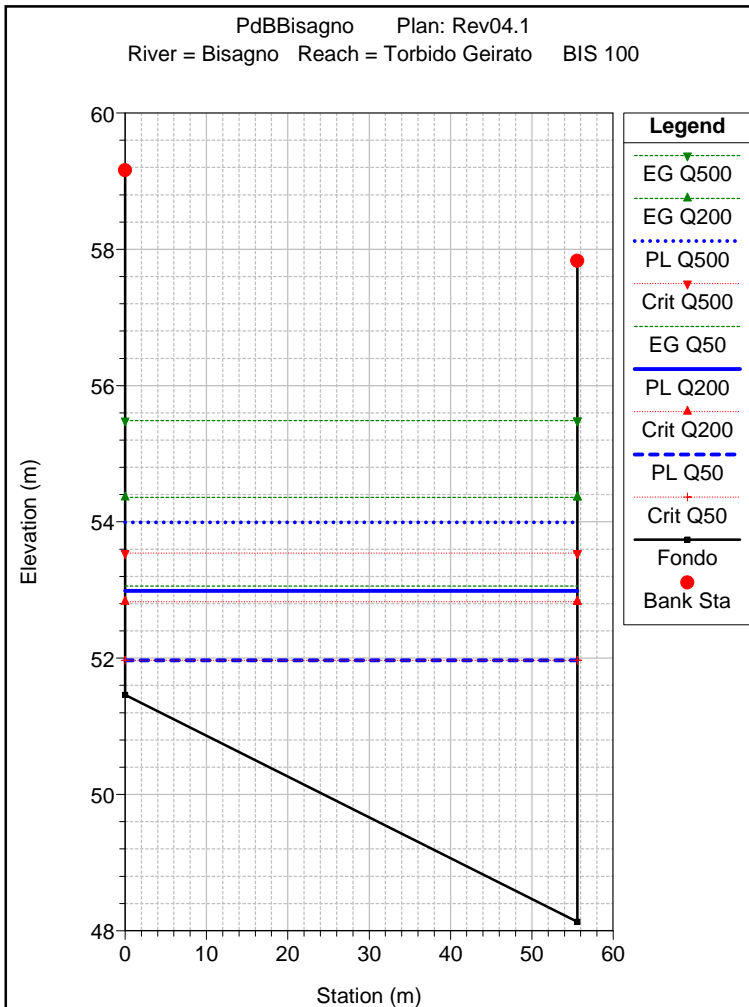






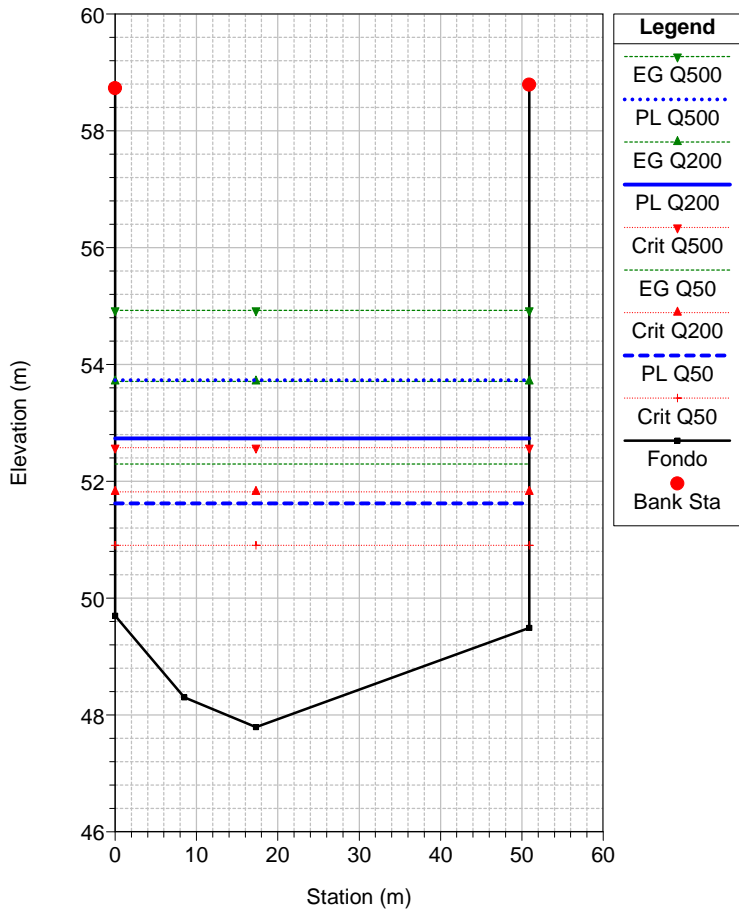






PdBBisagno Plan: Rev04.1

River = Bisagno Reach = Torbido Geirato BIS 99



HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Torbido Geirato

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Torbido Geirato	116.8	Q50	549.00	71.26	73.91	79.31	5.40	78.38	4.47	73.91	75.11	0.007227	4.87	112.75	46.59	1.00
Torbido Geirato	116.8	Q200	903.00	71.26	74.86	79.31	4.44	78.38	3.52	74.86	76.54	0.006768	5.74	157.37	46.82	1.00
Torbido Geirato	116.8	Q500	1240.00	71.26	75.65	79.31	3.65	78.38	2.72	75.65	77.72	0.006551	6.37	194.55	46.95	1.00
Torbido Geirato	116. BIS 116	Q50	559.00	70.92	73.07	77.70	4.63	75.40	2.33	73.48	74.75	0.014332	5.75	97.27	53.78	1.36
Torbido Geirato	116. BIS 116	Q200	921.00	70.92	73.74	77.70	3.96	75.40	1.66	74.36	76.17	0.014028	6.91	133.36	53.93	1.40
Torbido Geirato	116. BIS 116	Q500	1264.00	70.92	74.30	77.70	3.40	75.40	1.10	75.10	77.34	0.013692	7.72	163.70	54.06	1.42
Torbido Geirato	115. BIS 115	Q50	559.00	70.10	72.76	76.50	3.74	74.31	1.55	72.96	74.11	0.009616	5.15	108.62	52.84	1.15
Torbido Geirato	115. BIS 115	Q200	921.00	70.10	73.56	76.50	2.94	74.31	0.75	73.85	75.46	0.009139	6.12	150.53	53.06	1.16
Torbido Geirato	115. BIS 115	Q500	1264.00	70.10	74.19	76.50	2.31	74.31	0.12	74.59	76.59	0.009046	6.86	184.23	53.24	1.18
Torbido Geirato	114. BIS 114	Q50	559.00	68.67	70.64	76.07	5.43	74.00	3.36	71.38	73.11	0.029474	6.96	80.29	57.00	1.87
Torbido Geirato	114. BIS 114	Q200	921.00	68.67	71.24	76.07	4.83	74.00	2.76	72.22	74.56	0.025500	8.08	114.03	57.00	1.82
Torbido Geirato	114. BIS 114	Q500	1264.00	68.67	71.74	76.07	4.33	74.00	2.26	72.92	75.73	0.023213	8.85	142.76	57.00	1.79
Torbido Geirato	113. BIS 113	Q50	559.00	67.69	71.60	75.09	3.49	73.24	1.64	70.51	72.08	0.002060	3.10	180.43	55.00	0.55
Torbido Geirato	113. BIS 113	Q200	921.00	67.69	72.66	75.09	2.43	73.24	0.58	71.37	73.42	0.002293	3.85	239.00	55.00	0.59
Torbido Geirato	113. BIS 113	Q500	1264.00	67.69	73.55	75.09	1.54	73.24	-0.31	72.09	74.53	0.002413	4.39	287.75	55.00	0.61
Torbido Geirato	112. BIS 112	Q50	559.00	66.91	70.98	74.31	3.33	73.34	2.36	70.78	71.91	0.005889	4.29	130.40	54.30	0.88
Torbido Geirato	112. BIS 112	Q200	921.00	66.91	71.92	74.31	2.39	73.34	1.42	71.66	73.23	0.005514	5.07	181.69	54.30	0.88
Torbido Geirato	112. BIS 112	Q500	1264.00	66.91	72.77	74.31	1.54	73.34	0.57	72.38	74.34	0.005081	5.55	227.59	54.30	0.87
Torbido Geirato	111. BIS 111	Q50	559.00	66.56	70.39	74.96	4.57	75.27	4.88	70.39	71.53	0.007630	4.72	118.38	52.04	1.00
Torbido Geirato	111. BIS 111	Q200	921.00	66.56	71.29	74.96	3.67	75.27	3.98	71.29	72.88	0.007123	5.58	165.09	52.07	1.00
Torbido Geirato	111. BIS 111	Q500	1264.00	66.56	72.03	74.96	2.93	75.27	3.24	72.03	73.99	0.006876	6.20	203.75	52.10	1.00
Torbido Geirato	110.1 BIS 110	Q50	559.00	66.01	69.09	72.46	3.37	72.51	3.42	68.70	69.92	0.004470	4.04	138.50	53.10	0.79
Torbido Geirato	110.1 BIS 110	Q200	921.00	66.01	70.09	72.46	2.37	72.51	2.42	69.60	71.29	0.004458	4.86	189.61	53.10	0.81
Torbido Geirato	110.1 BIS 110	Q500	1264.00	66.01	70.92	72.46	1.54	72.51	1.59	70.35	72.42	0.004419	5.44	232.47	53.10	0.82
Torbido Geirato	110. BIS 110		Bridge													
Torbido Geirato	109.9 BIS 110	Q50	559.00	66.01	68.83	72.46	3.63	72.51	3.68	68.70	69.85	0.006244	4.48	124.82	53.10	0.92
Torbido Geirato	109.9 BIS 110	Q200	921.00	66.01	69.67	72.46	2.79	72.51	2.84	69.60	71.20	0.006526	5.48	168.16	53.10	0.97
Torbido Geirato	109.9 BIS 110	Q500	1264.00	66.01	70.36	72.46	2.10	72.51	2.15	70.35	72.32	0.006704	6.21	203.61	53.10	1.00
Torbido Geirato	109. BIS 109	Q50	559.00	65.40	68.07	72.00	3.93	71.91	3.84	68.07	69.18	0.007513	4.66	119.86	54.00	1.00
Torbido Geirato	109. BIS 109	Q200	921.00	65.40	68.95	72.00	3.05	71.91	2.96	68.95	70.50	0.006990	5.51	167.23	54.00	1.00
Torbido Geirato	109. BIS 109	Q500	1264.00	65.40	69.68	72.00	2.32	71.91	2.23	69.68	71.59	0.006748	6.13	206.32	54.00	1.00
Torbido Geirato	108.1 BIS 108	Q50	559.00	62.51	65.82	68.91	3.09	70.08	4.25	65.40	66.64	0.004313	4.01	139.36	54.30	0.78
Torbido Geirato	108.1 BIS 108	Q200	921.00	62.51	66.83	68.91	2.08	70.08	3.25	66.31	68.01	0.004312	4.83	190.71	54.30	0.80
Torbido Geirato	108.1 BIS 108	Q500	1264.00	62.51	67.67	68.91	1.24	70.08	2.41	67.07	69.16	0.004268	5.40	233.97	54.30	0.81
Torbido Geirato	108. BIS 108		Bridge													
Torbido Geirato	107.9 BIS 108	Q50	559.00	62.51	65.40	68.91	3.51	70.08	4.68	65.40	66.55	0.007416	4.75	117.74	54.30	1.00
Torbido Geirato	107.9 BIS 108	Q200	921.00	62.51	66.31	68.91	2.60	70.08	3.77	66.31	67.91	0.006921	5.61	164.30	54.30	1.00

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Torbido Geirato (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Torbido Geirato	107.9 BIS 108	Q500	1264.00	62.51	67.07	68.91	1.84	70.08	3.01	67.07	69.04	0.006667	6.23	203.00	54.30	1.00
Torbido Geirato	107. BIS 107	Q50	559.00	61.40	63.59	68.40	4.81	68.70	5.11	63.59	64.69	0.007526	4.64	120.57	55.00	1.00
Torbido Geirato	107. BIS 107	Q200	921.00	61.40	64.46	68.40	3.94	68.70	4.24	64.46	65.99	0.006999	5.48	168.18	55.00	1.00
Torbido Geirato	107. BIS 107	Q500	1264.00	61.40	65.18	68.40	3.22	68.70	3.52	65.18	67.06	0.006724	6.08	207.75	55.00	1.00
Torbido Geirato	106. BIS 106	Q50	559.00	58.04	61.88	66.77	4.89	66.58	4.70	61.88	62.97	0.007429	4.63	120.76	55.20	1.00
Torbido Geirato	106. BIS 106	Q200	921.00	58.04	62.75	66.77	4.02	66.58	3.83	62.75	64.27	0.006909	5.47	168.46	55.20	1.00
Torbido Geirato	106. BIS 106	Q500	1264.00	58.04	63.46	66.77	3.31	66.58	3.12	63.46	65.34	0.006650	6.08	207.97	55.20	1.00
Torbido Geirato	105.1 BIS 105	Q50	559.00	57.76	60.61	65.41	4.80	65.00	4.39	61.10	62.45	0.016346	6.00	93.11	55.30	1.44
Torbido Geirato	105.1 BIS 105	Q200	921.00	57.76	61.44	65.41	3.97	65.00	3.56	62.00	63.77	0.012953	6.76	136.30	55.30	1.34
Torbido Geirato	105.1 BIS 105	Q500	1264.00	57.76	62.32	65.41	3.09	65.00	2.68	62.74	64.77	0.009611	6.93	182.45	55.30	1.18
Torbido Geirato	105. BIS 105		Bridge													
Torbido Geirato	104.9 BIS 105	Q50	559.00	57.76	61.04	65.41	4.37	65.00	3.96	61.10	62.23	0.008145	4.84	115.45	55.30	1.04
Torbido Geirato	104.9 BIS 105	Q200	921.00	57.76	61.92	65.41	3.49	65.00	3.08	62.00	63.58	0.007517	5.70	161.55	55.30	1.03
Torbido Geirato	104.9 BIS 105	Q500	1264.00	57.76	62.66	65.41	2.75	65.00	2.34	62.74	64.69	0.007187	6.32	199.98	55.30	1.03
Torbido Geirato	104. BIS 104	Q50	559.00	57.13	59.66	66.47	6.81	65.41	5.75	60.12	61.46	0.015887	5.95	93.97	52.20	1.42
Torbido Geirato	104. BIS 104	Q200	921.00	57.13	60.39	66.47	6.08	65.41	5.02	61.02	62.86	0.014245	6.96	132.39	52.20	1.39
Torbido Geirato	104. BIS 104	Q500	1264.00	57.13	61.02	66.47	5.45	65.41	4.39	61.77	64.00	0.013191	7.65	165.25	52.20	1.37
Torbido Geirato	103. BIS 103	Q50	559.00	56.60	58.82	65.00	6.18	62.70	3.88	58.82	59.93	0.007542	4.67	119.71	54.00	1.00
Torbido Geirato	103. BIS 103	Q200	921.00	56.60	59.63	65.00	5.37	62.70	3.07	59.70	61.24	0.007457	5.62	163.88	54.00	1.03
Torbido Geirato	103. BIS 103	Q500	1264.00	56.60	60.35	65.00	4.65	62.70	2.35	60.42	62.33	0.007132	6.23	202.73	54.00	1.03
Torbido Geirato	102.1 BIS102	Q50	559.00	52.70	55.76	62.44	6.68	60.27	4.51	55.44	56.65	0.004897	4.16	134.24	54.50	0.82
Torbido Geirato	102.1 BIS102	Q200	921.00	52.70	56.73	62.44	5.71	60.27	3.54	56.35	58.01	0.004845	5.00	184.21	54.50	0.84
Torbido Geirato	102.1 BIS102	Q500	1264.00	52.70	57.54	62.44	4.90	60.27	2.73	57.10	59.14	0.004803	5.60	225.77	54.50	0.85
Torbido Geirato	102. BIS102		Bridge													
Torbido Geirato	101.9 BIS 102	Q50	559.00	52.70	55.44	62.44	7.00	60.27	4.83	55.44	56.59	0.007455	4.74	117.81	54.50	1.00
Torbido Geirato	101.9 BIS 102	Q200	921.00	52.70	56.35	62.44	6.09	60.27	3.92	56.35	57.95	0.006936	5.60	164.53	54.50	1.00
Torbido Geirato	101.9 BIS 102	Q500	1264.00	52.70	57.10	62.44	5.34	60.27	3.17	57.10	59.07	0.006689	6.22	203.22	54.50	1.00
Torbido Geirato	101. BIS 101	Q50	559.00	48.90	52.58	59.73	7.15	57.60	5.02	52.81	53.95	0.010792	5.18	107.81	54.80	1.18
Torbido Geirato	101. BIS 101	Q200	921.00	48.90	53.29	59.73	6.44	57.60	4.31	53.67	55.30	0.010920	6.29	146.33	54.80	1.23
Torbido Geirato	101. BIS 101	Q500	1264.00	48.90	53.86	59.73	5.87	57.60	3.74	54.40	56.44	0.011060	7.12	177.60	54.80	1.26
Torbido Geirato	100. BIS 100	Q50	559.00	48.13	51.97	59.16	7.19	57.83	5.86	51.97	53.06	0.007557	4.62	120.95	55.60	1.00
Torbido Geirato	100. BIS 100	Q200	921.00	48.13	52.99	59.16	6.17	57.83	4.84	52.83	54.36	0.005956	5.18	177.65	55.60	0.93
Torbido Geirato	100. BIS 100	Q500	1264.00	48.13	53.99	59.16	5.17	57.83	3.84	53.54	55.49	0.004717	5.42	233.32	55.60	0.84
Torbido Geirato	99.1 BIS 99	Q50	559.00	47.79	51.73	58.73	7.00	58.79	7.06	50.91	52.35	0.002704	3.51	159.33	50.90	0.63
Torbido Geirato	99.1 BIS 99	Q200	921.00	47.79	52.85	58.73	5.88	58.79	5.94	51.82	53.77	0.002790	4.26	216.40	50.90	0.66
Torbido Geirato	99.1 BIS 99	Q500	1264.00	47.79	53.84	58.73	4.89	58.79	4.95	52.57	54.98	0.002731	4.74	266.94	50.90	0.66

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Torbido Geirato (Continued)

Reach	River Sta		Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Torbido Geirato	99.	BIS 99		Bridge													
Torbido Geirato	98.9	BIS 99	Q50	559.00	47.79	51.62	58.73	7.11	58.79	7.17	50.91	52.29	0.003015	3.63	153.99	50.90	0.67
Torbido Geirato	98.9	BIS 99	Q200	921.00	47.79	52.74	58.73	5.99	58.79	6.05	51.82	53.71	0.003037	4.37	210.62	50.90	0.69
Torbido Geirato	98.9	BIS 99	Q500	1264.00	47.79	53.73	58.73	5.00	58.79	5.06	52.57	54.92	0.002916	4.84	261.36	50.90	0.68

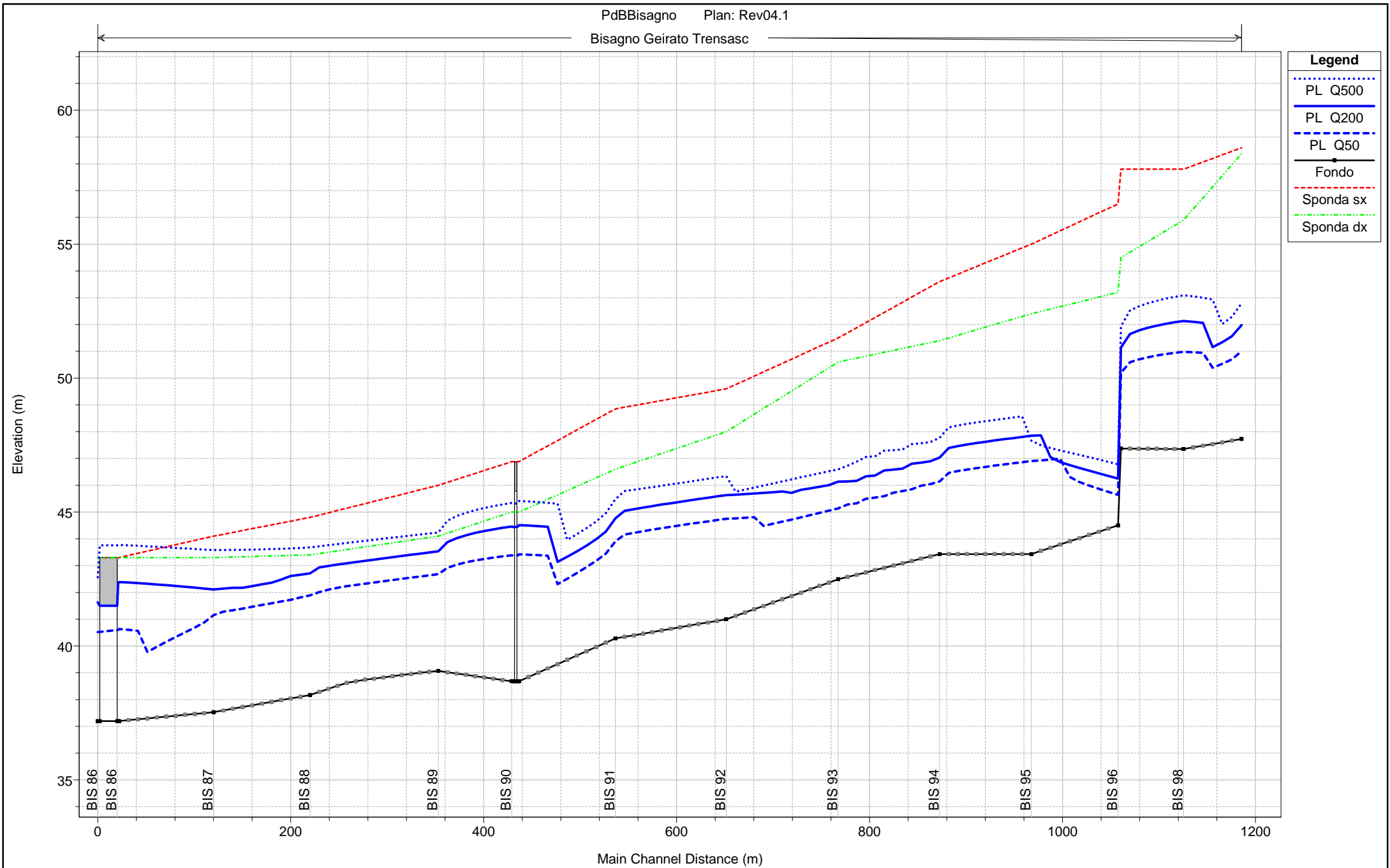
Allegato

Verifiche idrauliche

Torrente Bisagno

- tratto compreso tra il t. Geirato e il rio Trensasco -

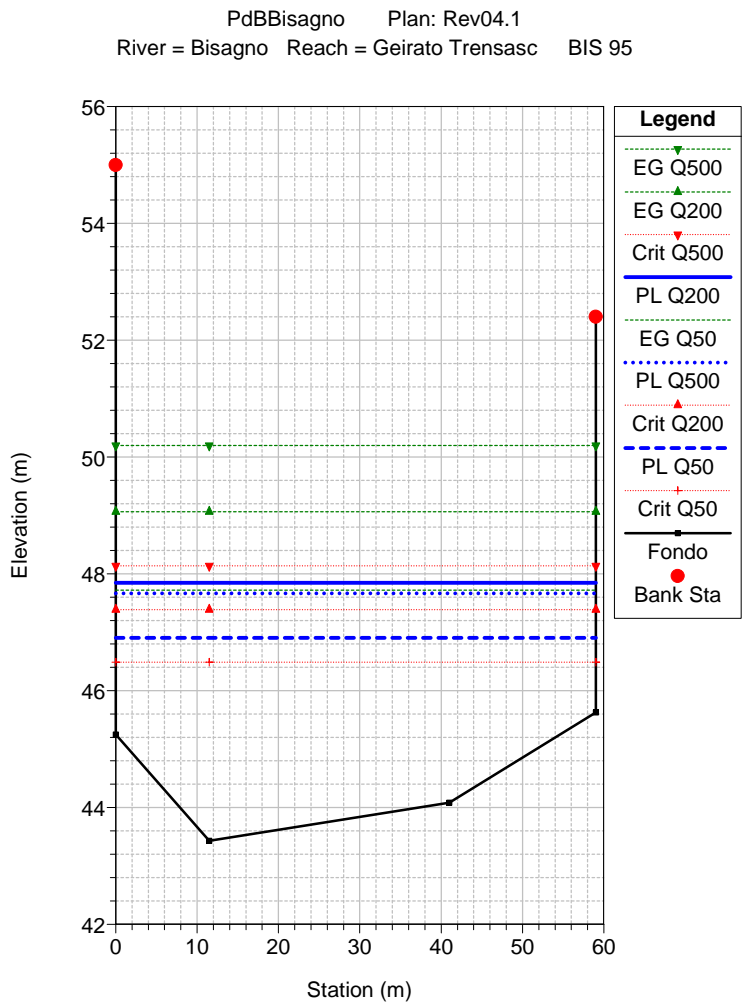
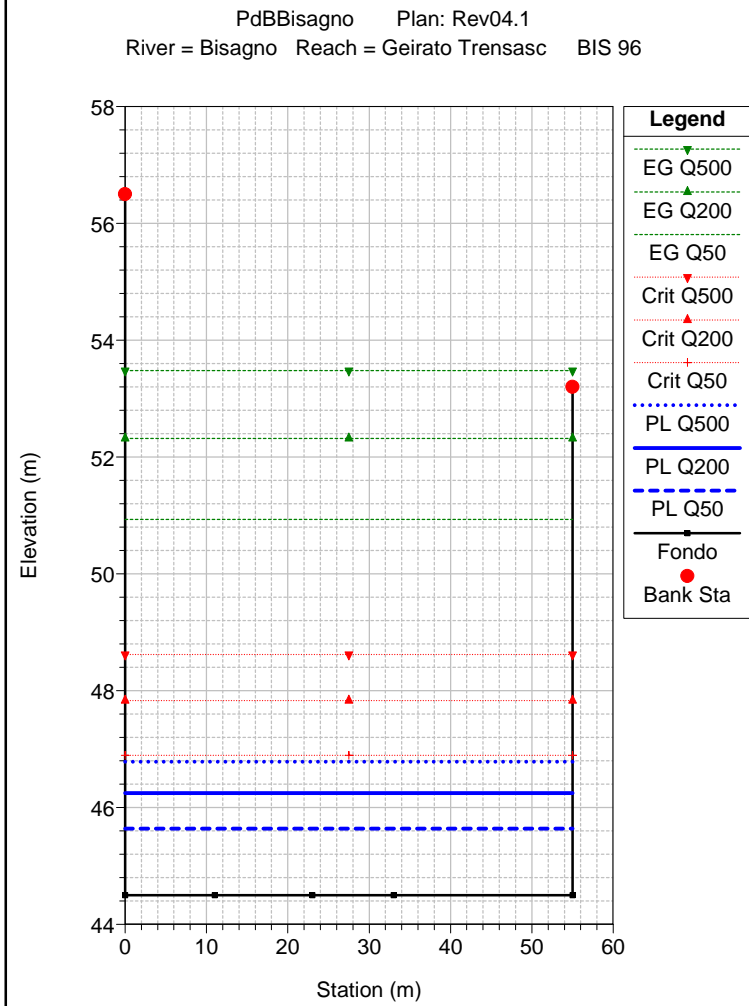
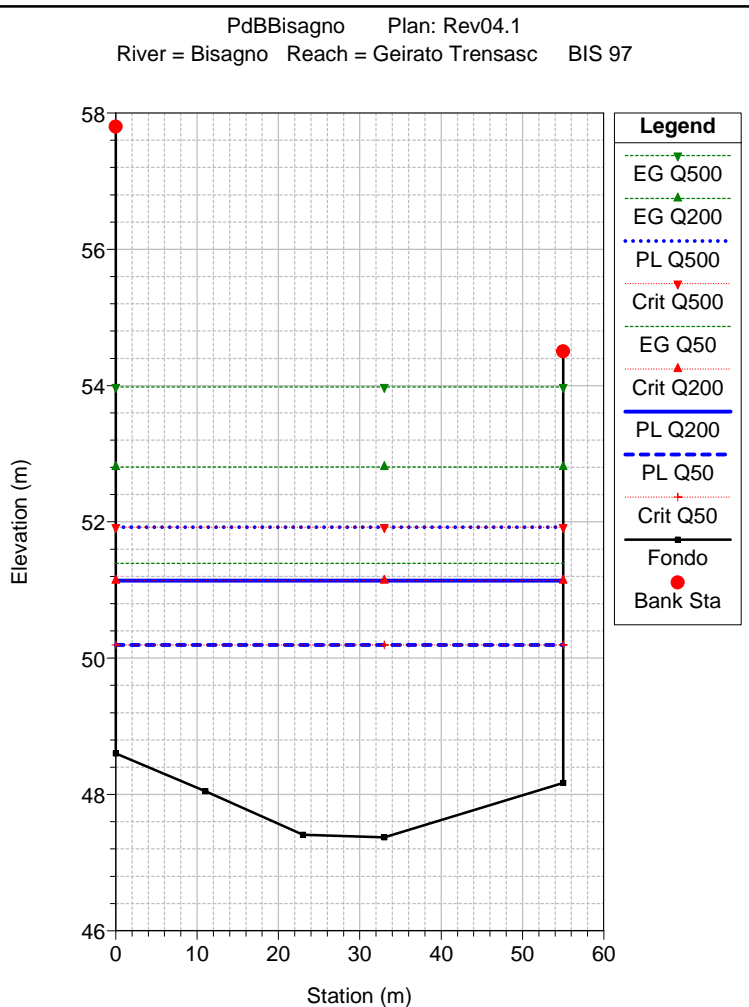
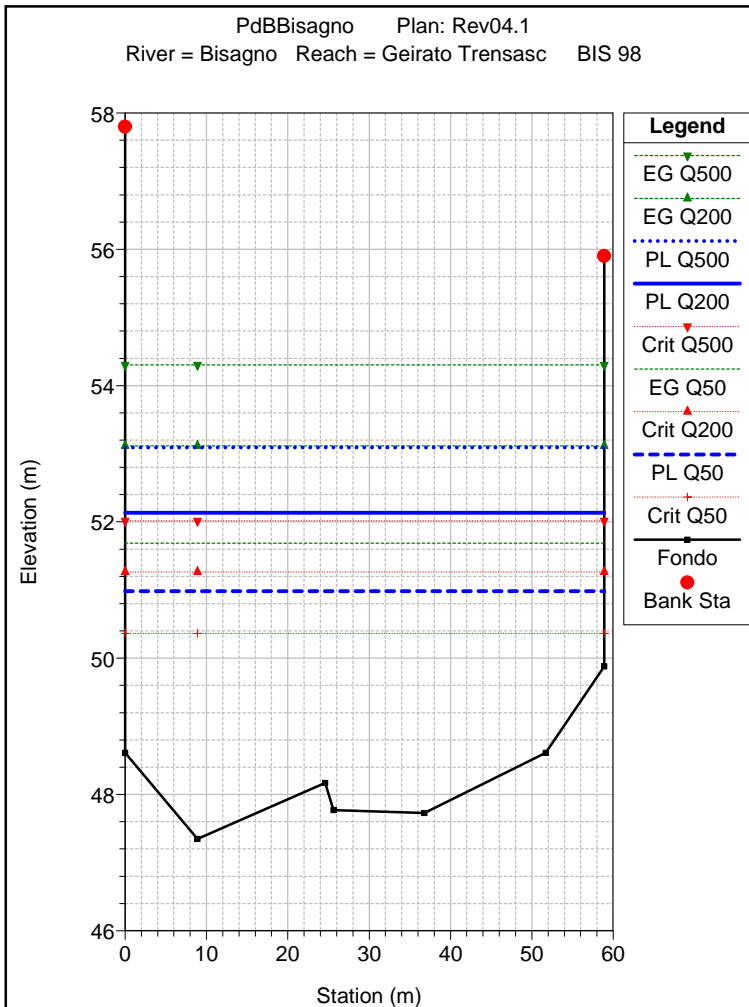
- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo

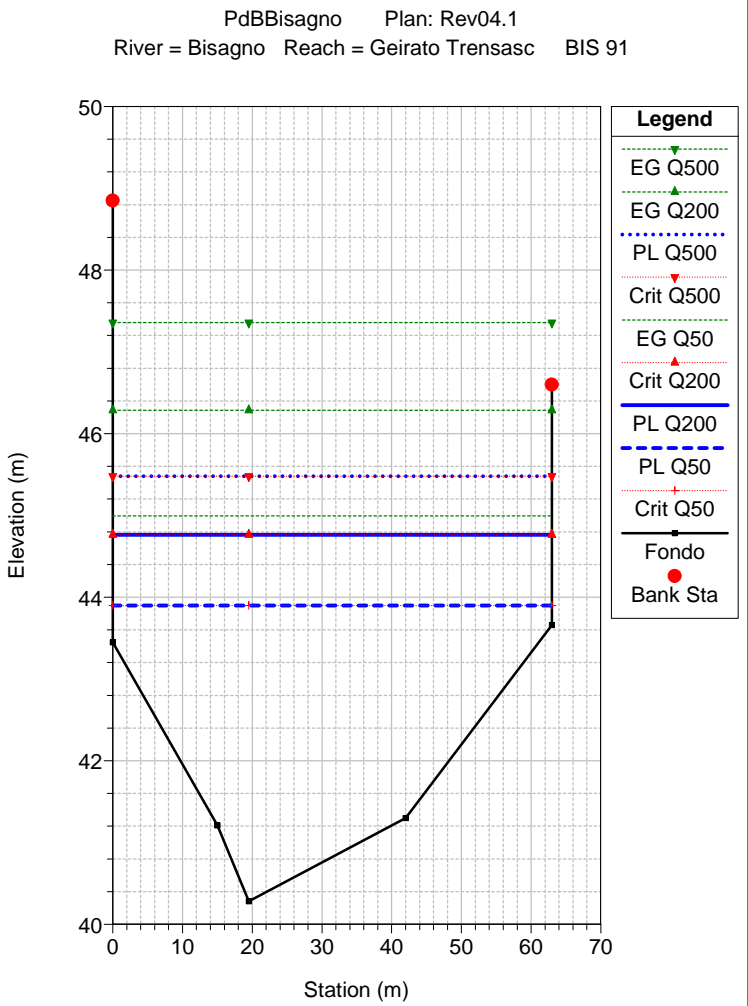
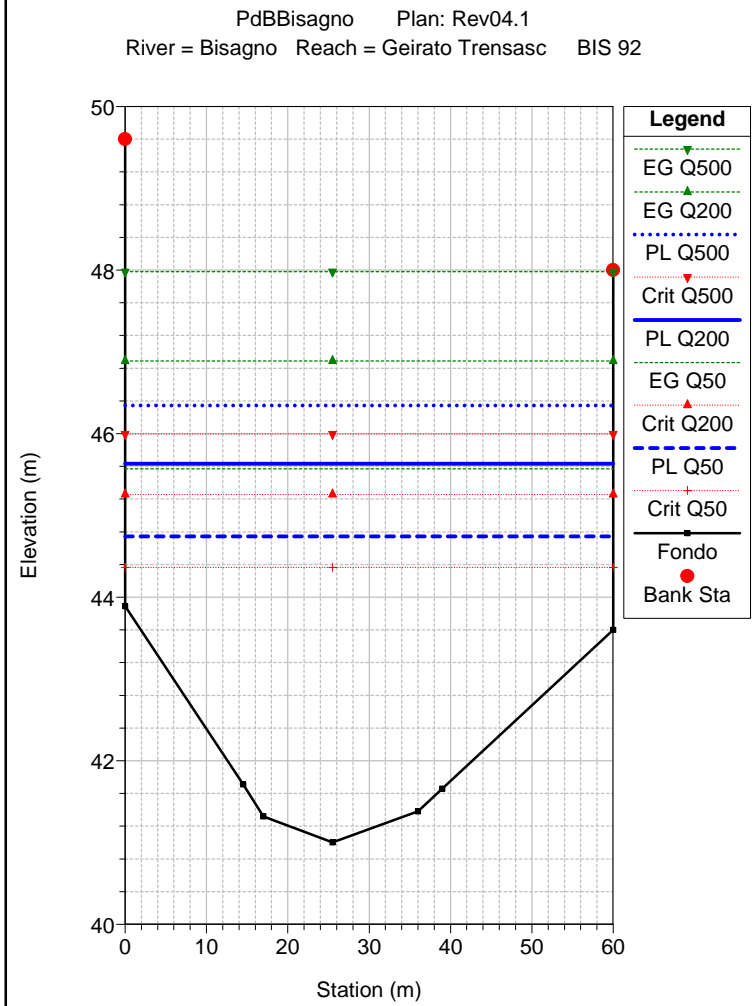
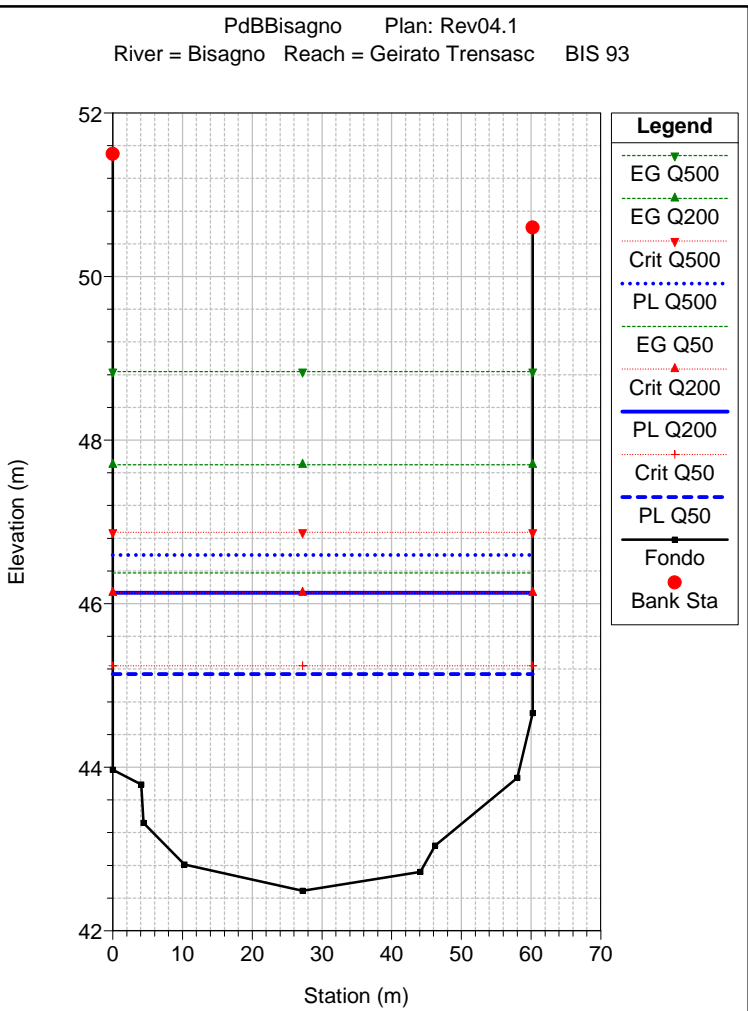
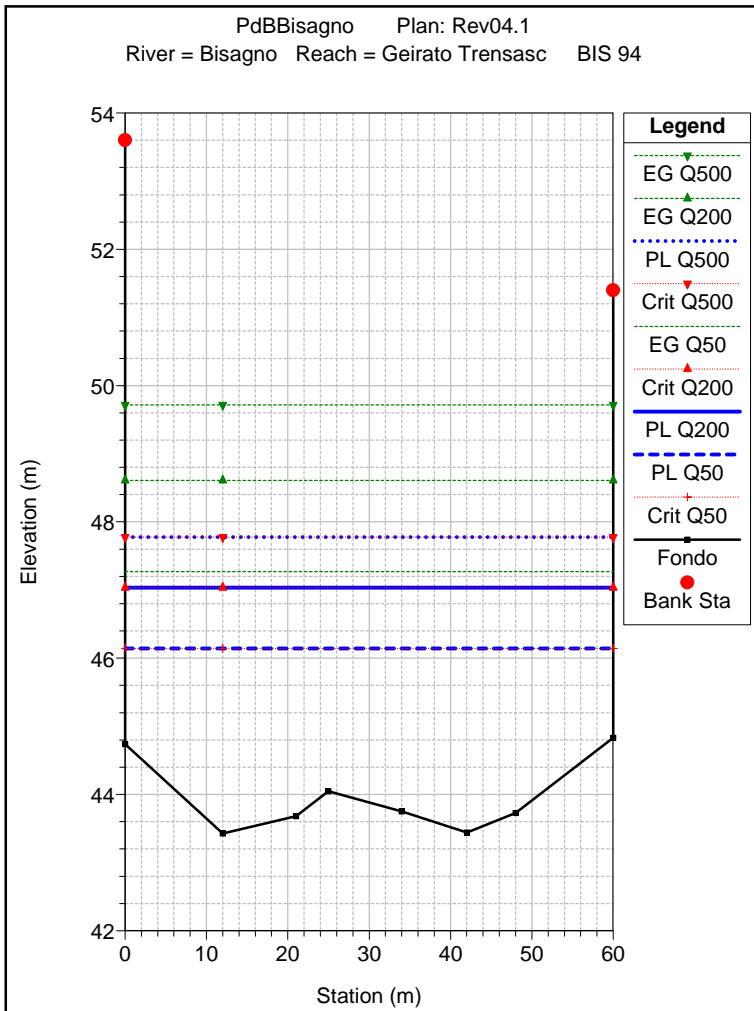


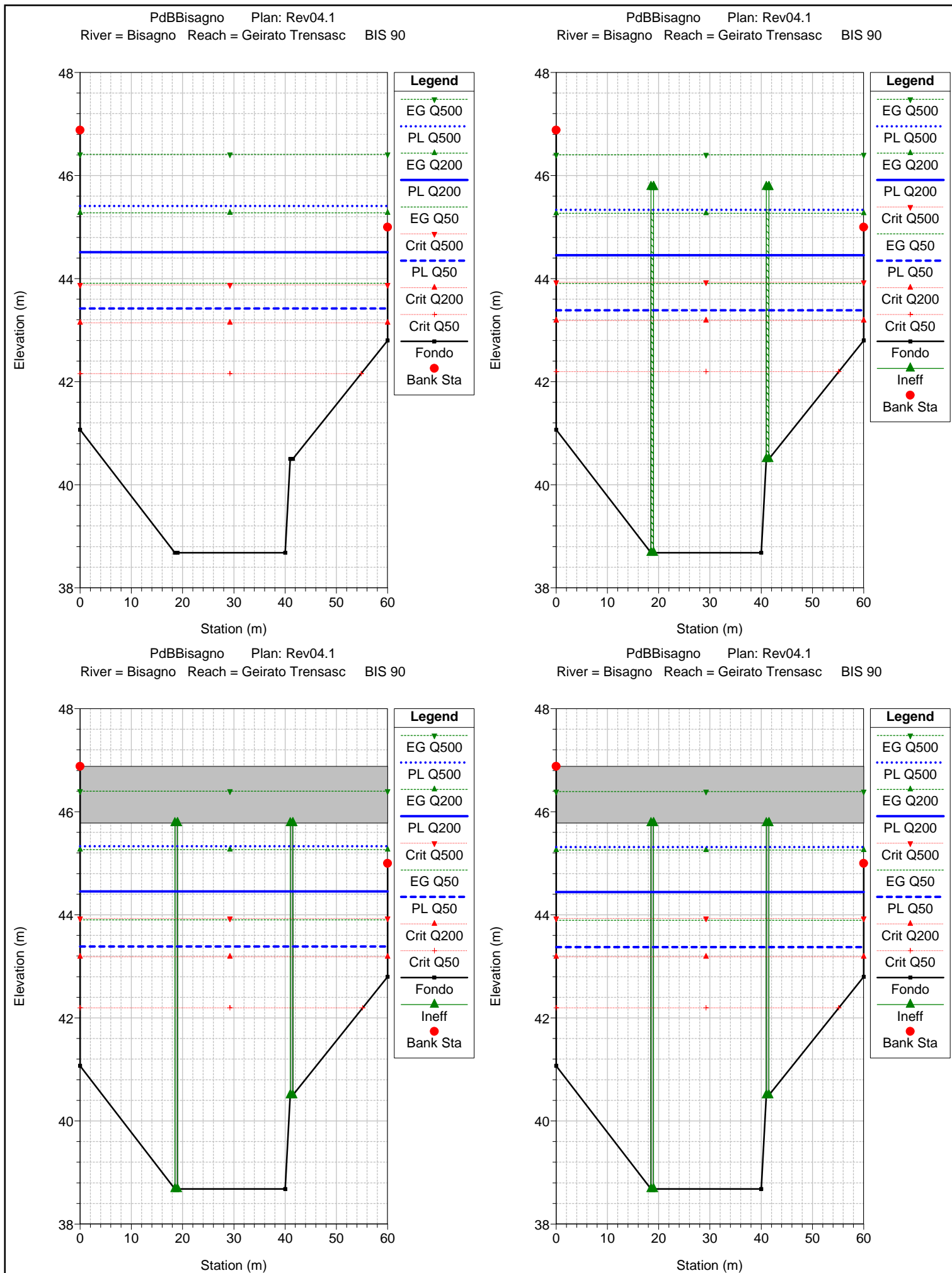
Legend

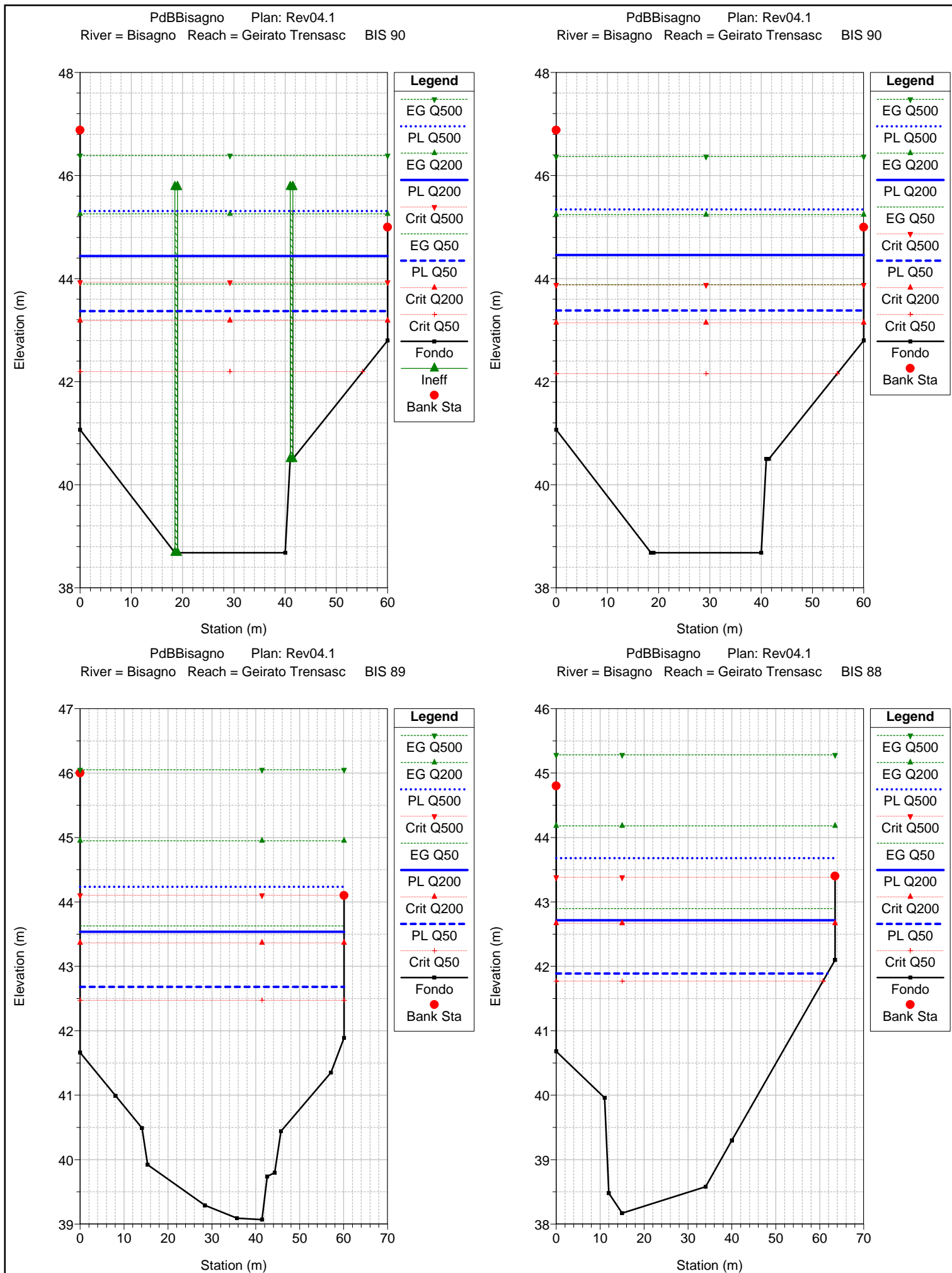
- PL Q500 (Dotted Blue Line)
- PL Q200 (Solid Blue Line)
- PL Q50 (Dashed Blue Line)
- Fondo (Solid Black Line)
- Sponda sx (Dashed Red Line)
- Sponda dx (Dotted Green Line)

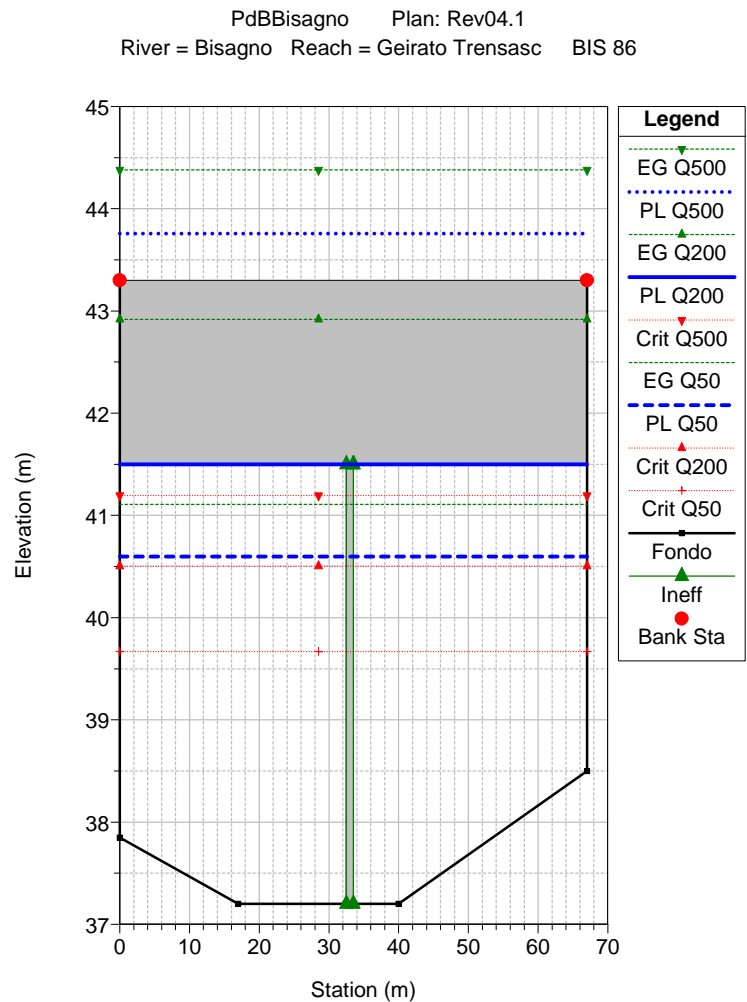
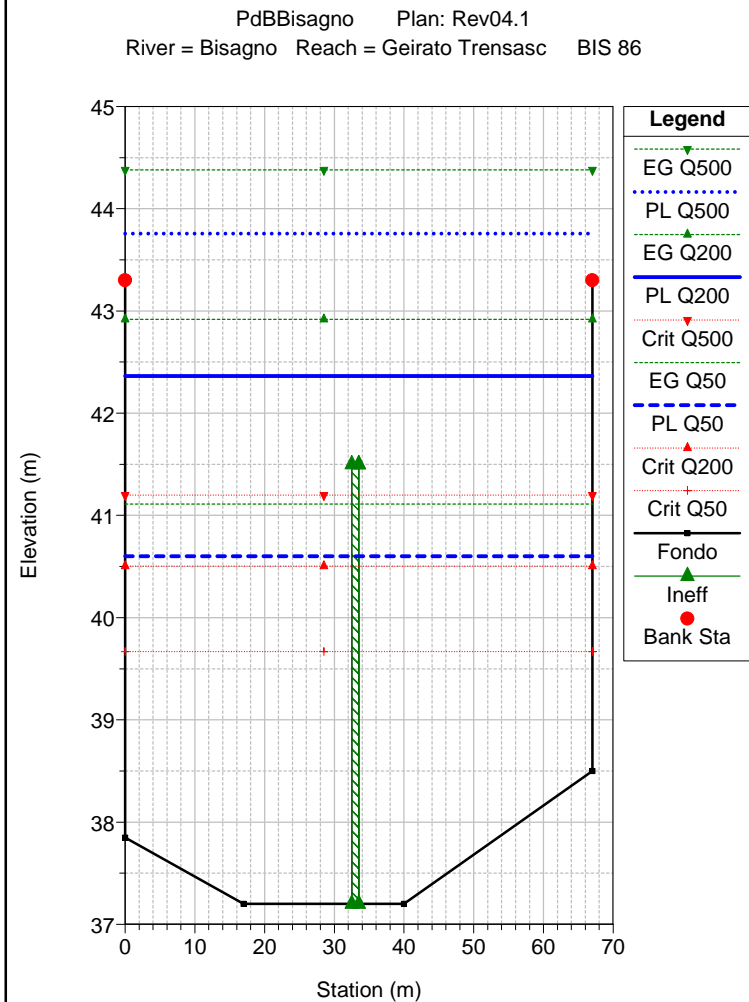
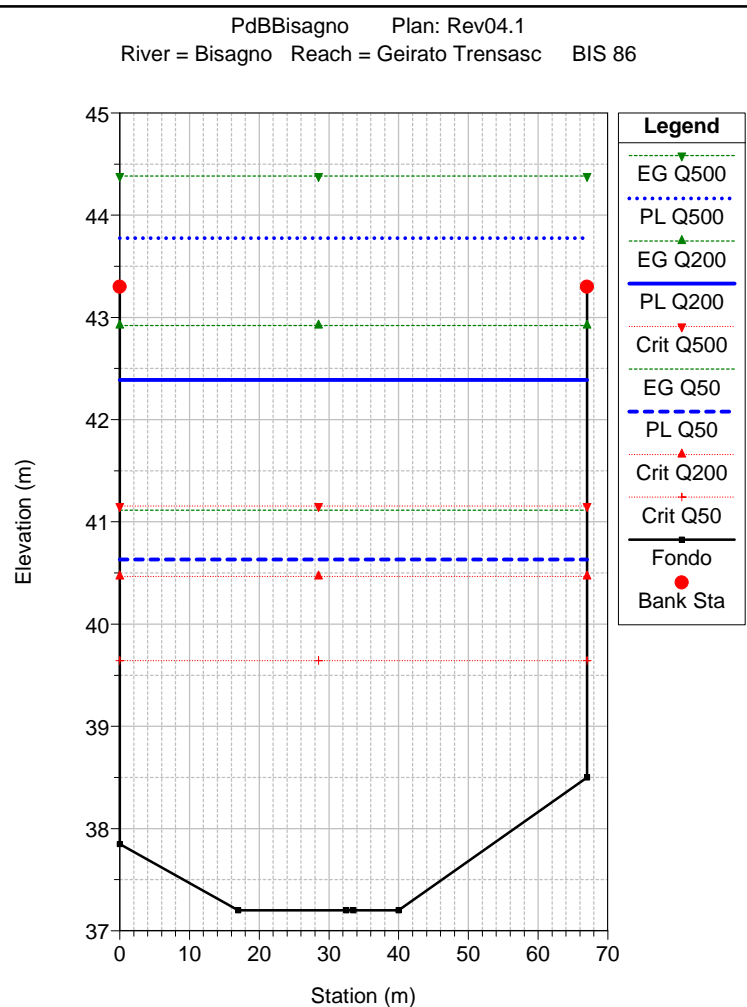
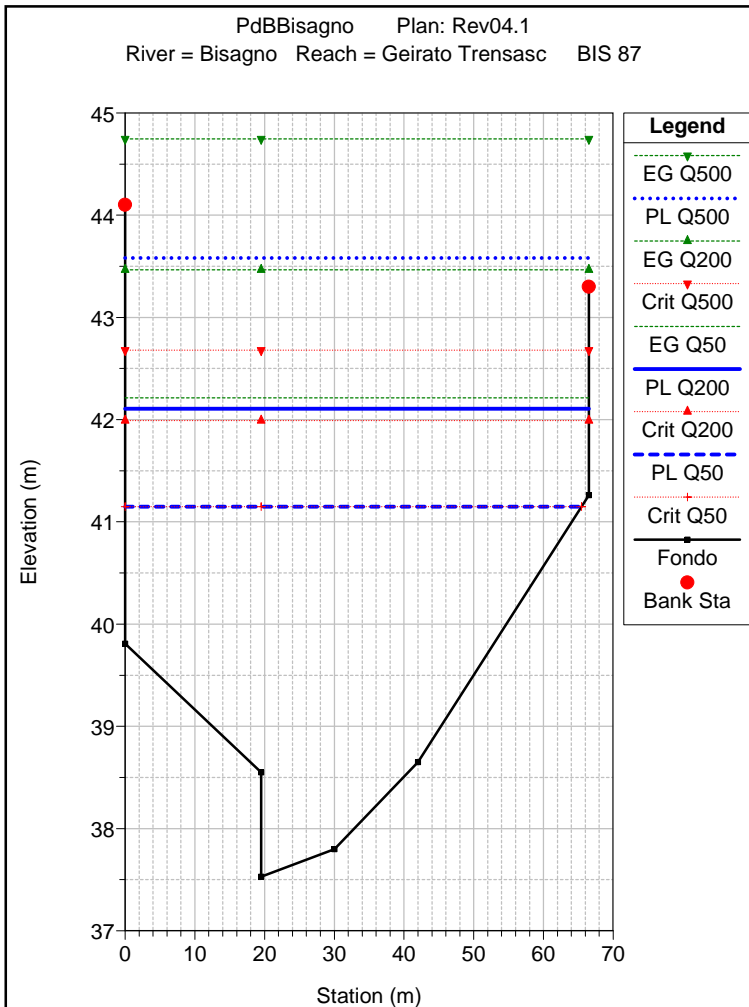
1 cm Horiz. = 50 m 1 cm Vert. = 1.8 m





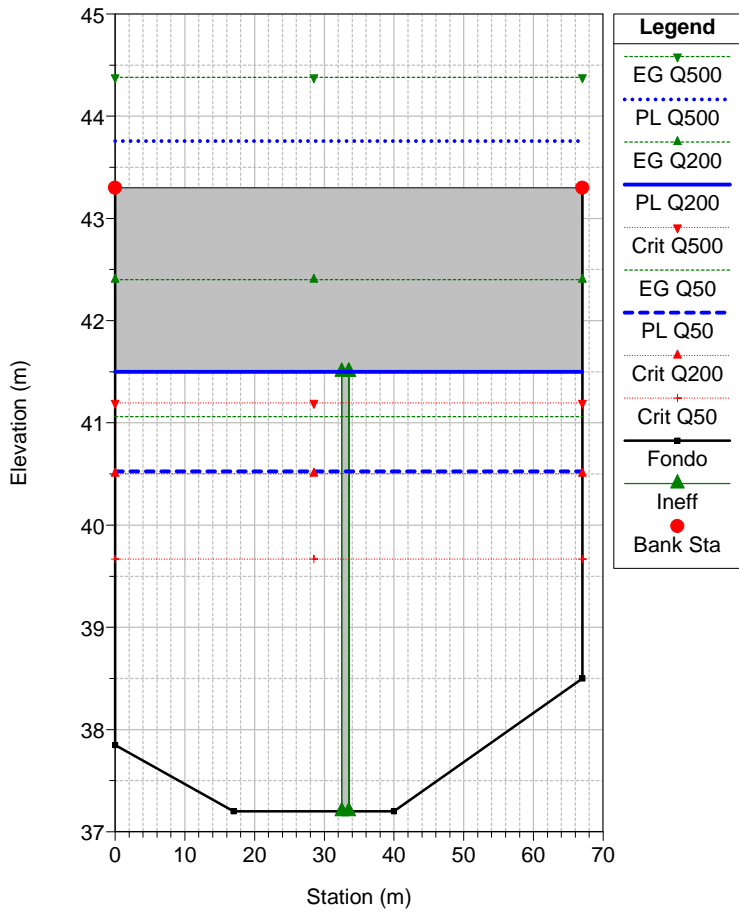






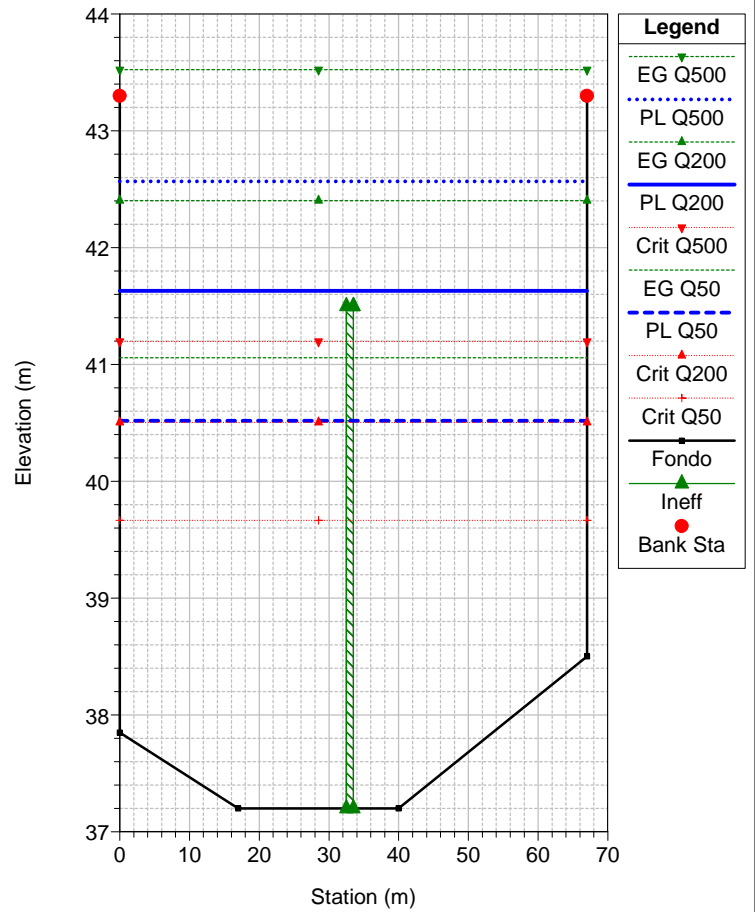
PdBBisagno Plan: Rev04.1

River = Bisagno Reach = Geirato Trensasc BIS 86



PdBBisagno Plan: Rev04.1

River = Bisagno Reach = Geirato Trensasc BIS 86



HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Geirato Trensasc

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Geirato Trensasc	98.8	Q50	636.00	47.73	51.00	58.60	7.59	58.38	7.37	51.00	52.24	0.007035	4.93	129.04	52.04	1.00
Geirato Trensasc	98.8	Q200	1047.00	47.73	51.98	58.60	6.62	58.38	6.40	51.98	53.71	0.006615	5.82	179.76	52.04	1.00
Geirato Trensasc	98.8	Q500	1437.00	47.73	52.79	58.60	5.80	58.38	5.58	52.79	54.92	0.006388	6.47	222.14	52.04	1.00
Geirato Trensasc	98. BIS 98	Q50	637.00	47.35	50.98	57.80	6.82	55.90	4.92	50.36	51.69	0.003286	3.73	170.87	58.90	0.70
Geirato Trensasc	98. BIS 98	Q200	1049.00	47.35	52.13	57.80	5.67	55.90	3.77	51.27	53.12	0.003066	4.39	238.74	58.90	0.70
Geirato Trensasc	98. BIS 98	Q500	1440.00	47.35	53.09	57.80	4.71	55.90	2.81	52.02	54.30	0.002959	4.88	295.25	58.90	0.70
Geirato Trensasc	97. BIS 97	Q50	637.00	47.37	50.20	57.80	7.60	54.50	4.30	50.20	51.39	0.007186	4.84	131.57	55.00	1.00
Geirato Trensasc	97. BIS 97	Q200	1049.00	47.37	51.14	57.80	6.66	54.50	3.36	51.14	52.80	0.006711	5.72	183.47	55.00	1.00
Geirato Trensasc	97. BIS 97	Q500	1440.00	47.37	51.92	57.80	5.88	54.50	2.58	51.92	53.98	0.006477	6.36	226.56	55.00	1.00
Geirato Trensasc	96. BIS 96	Q50	637.00	44.50	45.64	56.50	10.86	53.20	7.56	46.89	50.93	0.083232	10.19	62.50	55.00	3.05
Geirato Trensasc	96. BIS 96	Q200	1049.00	44.50	46.25	56.50	10.25	53.20	6.95	47.83	52.32	0.055354	10.92	96.08	55.00	2.64
Geirato Trensasc	96. BIS 96	Q500	1440.00	44.50	46.78	56.50	9.72	53.20	6.42	48.62	53.48	0.043718	11.46	125.63	55.00	2.42
Geirato Trensasc	95. BIS 95	Q50	637.00	43.43	46.90	55.00	8.10	52.40	5.50	46.49	47.72	0.004110	4.00	159.21	59.00	0.78
Geirato Trensasc	95. BIS 95	Q200	1049.00	43.43	47.85	55.00	7.15	52.40	4.55	47.38	49.06	0.004267	4.88	214.90	59.00	0.82
Geirato Trensasc	95. BIS 95	Q500	1440.00	43.43	47.66	55.00	7.34	52.40	4.74	48.14	50.20	0.009472	7.05	204.14	59.00	1.21
Geirato Trensasc	94. BIS 94	Q50	637.00	43.43	46.14	53.60	7.46	51.40	5.26	46.14	47.27	0.007173	4.71	135.34	60.00	1.00
Geirato Trensasc	94. BIS 94	Q200	1049.00	43.43	47.03	53.60	6.57	51.40	4.37	47.03	48.61	0.006652	5.55	188.85	60.00	1.00
Geirato Trensasc	94. BIS 94	Q500	1440.00	43.43	47.78	53.60	5.82	51.40	3.62	47.78	49.72	0.006383	6.17	233.33	60.00	1.00
Geirato Trensasc	93. BIS 93	Q50	637.00	42.49	45.14	51.50	6.36	50.60	5.46	45.24	46.38	0.008261	4.93	129.28	60.20	1.07
Geirato Trensasc	93. BIS 93	Q200	1049.00	42.49	46.13	51.50	5.37	50.60	4.47	46.13	47.70	0.006580	5.55	189.05	60.20	1.00
Geirato Trensasc	93. BIS 93	Q500	1440.00	42.49	46.59	51.50	4.91	50.60	4.01	46.87	48.84	0.007992	6.64	216.92	60.20	1.12
Geirato Trensasc	92. BIS 92	Q50	637.00	41.00	44.75	49.60	4.86	48.00	3.25	44.37	45.57	0.004216	4.03	158.17	60.00	0.79
Geirato Trensasc	92. BIS 92	Q200	1049.00	41.00	45.63	49.60	3.97	48.00	2.37	45.26	46.89	0.004512	4.96	211.42	60.00	0.84
Geirato Trensasc	92. BIS 92	Q500	1440.00	41.00	46.34	49.60	3.26	48.00	1.66	46.00	47.98	0.004744	5.67	254.07	60.00	0.88
Geirato Trensasc	91. BIS 91	Q50	637.00	40.28	43.90	48.85	4.95	46.60	2.70	43.90	44.99	0.006976	4.63	137.54	63.00	1.00
Geirato Trensasc	91. BIS 91	Q200	1049.00	40.28	44.76	48.85	4.09	46.60	1.84	44.76	46.29	0.006457	5.47	191.91	63.00	1.00
Geirato Trensasc	91. BIS 91	Q500	1440.00	40.28	45.48	48.85	3.37	46.60	1.12	45.48	47.36	0.006192	6.07	237.06	63.00	1.00
Geirato Trensasc	90.3 BIS 90	Q50	637.00	38.68	43.42	46.88	3.46	45.00	1.58	42.16	43.91	0.001837	3.10	205.57	60.00	0.53
Geirato Trensasc	90.3 BIS 90	Q200	1049.00	38.68	44.51	46.88	2.37	45.00	0.49	43.14	45.27	0.002073	3.87	271.00	60.00	0.58
Geirato Trensasc	90.3 BIS 90	Q500	1440.00	38.68	45.41	46.88	1.47	45.00	-0.41	43.88	46.41	0.002210	4.43	324.92	60.00	0.61
Geirato Trensasc	90.2 BIS 90	Q50	637.00	38.68	43.39	46.88	3.49	45.00	1.61	42.19	43.91	0.001977	3.19	199.75	60.00	0.55
Geirato Trensasc	90.2 BIS 90	Q200	1049.00	38.68	44.46	46.88	2.42	45.00	0.54	43.18	45.27	0.002245	3.99	262.82	60.00	0.60
Geirato Trensasc	90.2 BIS 90	Q500	1440.00	38.68	45.33	46.88	1.55	45.00	-0.33	43.93	46.40	0.002405	4.58	314.64	60.00	0.63
Geirato Trensasc	90.11 BIS 90		Bridge													
Geirato Trensasc	90.1 BIS 90	Q50	637.00	38.68	43.37	46.88	3.51	45.00	1.63	42.19	43.89	0.002007	3.20	198.81	60.00	0.56
Geirato Trensasc	90.1 BIS 90	Q200	1049.00	38.68	44.44	46.88	2.44	45.00	0.56	43.18	45.26	0.002274	4.01	261.73	60.00	0.61
Geirato Trensasc	90.1 BIS 90	Q500	1440.00	38.68	45.31	46.88	1.57	45.00	-0.31	43.93	46.39	0.002438	4.60	313.28	60.00	0.64

HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Geirato Trensasc (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Geirato Trensasc	90. BIS 90	Q50	637.00	38.68	43.38	46.88	3.50	45.00	1.62	42.16	43.88	0.001902	3.13	203.32	60.00	0.54
Geirato Trensasc	90. BIS 90	Q200	1049.00	38.68	44.46	46.88	2.42	45.00	0.54	43.14	45.24	0.002150	3.92	267.87	60.00	0.59
Geirato Trensasc	90. BIS 90	Q500	1440.00	38.68	45.34	46.88	1.54	45.00	-0.34	43.88	46.37	0.002300	4.49	320.82	60.00	0.62
Geirato Trensasc	89. BIS 89	Q50	637.00	39.07	42.68	46.00	3.32	44.10	1.42	42.47	43.63	0.005286	4.30	147.97	60.10	0.88
Geirato Trensasc	89. BIS 89	Q200	1049.00	39.07	43.54	46.00	2.46	44.10	0.56	43.37	44.95	0.005514	5.27	199.21	60.10	0.92
Geirato Trensasc	89. BIS 89	Q500	1440.00	39.07	44.24	46.00	1.76	44.10	-0.14	44.10	46.05	0.005644	5.97	241.32	60.10	0.95
Geirato Trensasc	88. BIS 88	Q50	637.00	38.17	41.89	44.80	2.91	43.40	1.51	41.77	42.90	0.006078	4.45	143.23	61.73	0.93
Geirato Trensasc	88. BIS 88	Q200	1049.00	38.17	42.71	44.80	2.09	43.40	0.68	42.67	44.18	0.006241	5.37	195.47	63.50	0.98
Geirato Trensasc	88. BIS 88	Q500	1440.00	38.17	43.68	44.80	1.12	43.40	-0.28	43.38	45.28	0.004923	5.61	256.71	63.50	0.89
Geirato Trensasc	87. BIS 87	Q50	637.00	37.53	41.15	44.10	2.95	43.30	2.15	41.15	42.21	0.007240	4.57	139.27	65.44	1.00
Geirato Trensasc	87. BIS 87	Q200	1049.00	37.53	42.11	44.10	1.99	43.30	1.19	41.99	43.47	0.005899	5.16	203.10	66.50	0.94
Geirato Trensasc	87. BIS 87	Q500	1440.00	37.53	43.58	44.10	0.52	43.30	-0.28	42.68	44.75	0.003161	4.78	301.05	66.50	0.72
Geirato Trensasc	86.3 BIS 86	Q50	637.00	37.20	40.63	43.30	2.67	43.30	2.67	39.64	41.12	0.002086	3.08	206.91	67.00	0.56
Geirato Trensasc	86.3 BIS 86	Q200	1049.00	37.20	42.39	43.30	0.91	43.30	0.91	40.47	42.92	0.001345	3.23	324.53	67.00	0.47
Geirato Trensasc	86.3 BIS 86	Q500	1440.00	37.20	43.78	43.30	-0.48	43.30	-0.48	41.16	44.38	0.001148	3.45	417.50	67.00	0.44
Geirato Trensasc	86.2 BIS 86	Q50	637.00	37.20	40.60	43.30	2.70	43.30	2.70	39.67	41.11	0.002239	3.16	201.38	67.00	0.58
Geirato Trensasc	86.2 BIS 86	Q200	1049.00	37.20	42.36	43.30	0.93	43.30	0.93	40.50	42.92	0.001428	3.29	318.68	67.00	0.48
Geirato Trensasc	86.2 BIS 86	Q500	1440.00	37.20	43.76	43.30	-0.46	43.30	-0.46	41.20	44.38	0.001200	3.50	411.90	67.00	0.45
Geirato Trensasc	86.11 BIS 86		Bridge													
Geirato Trensasc	86.1 BIS 86	Q50	637.00	37.20	40.52	43.30	2.78	43.30	2.78	39.67	41.06	0.002447	3.25	195.90	67.00	0.60
Geirato Trensasc	86.1 BIS 86	Q200	1049.00	37.20	41.63	43.30	1.67	43.30	1.67	40.50	42.40	0.002432	3.89	269.47	67.00	0.62
Geirato Trensasc	86.1 BIS 86	Q500	1440.00	37.20	42.57	43.30	0.73	43.30	0.73	41.20	43.52	0.002360	4.34	332.14	67.00	0.62

Allegato

Verifiche idrauliche

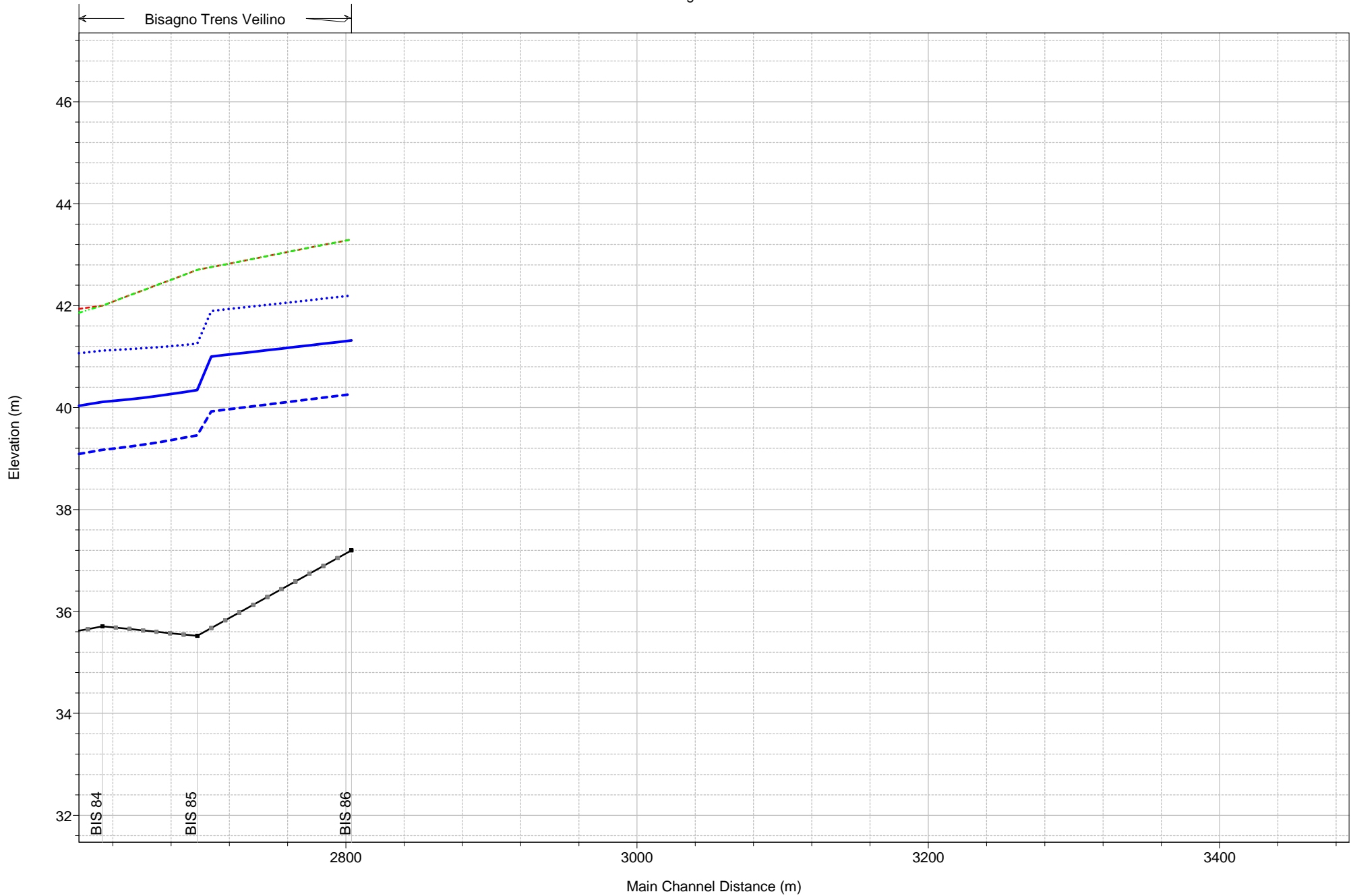
Torrente Bisagno

- tratto compreso tra rio Trensasco ponte Feritore -

- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo

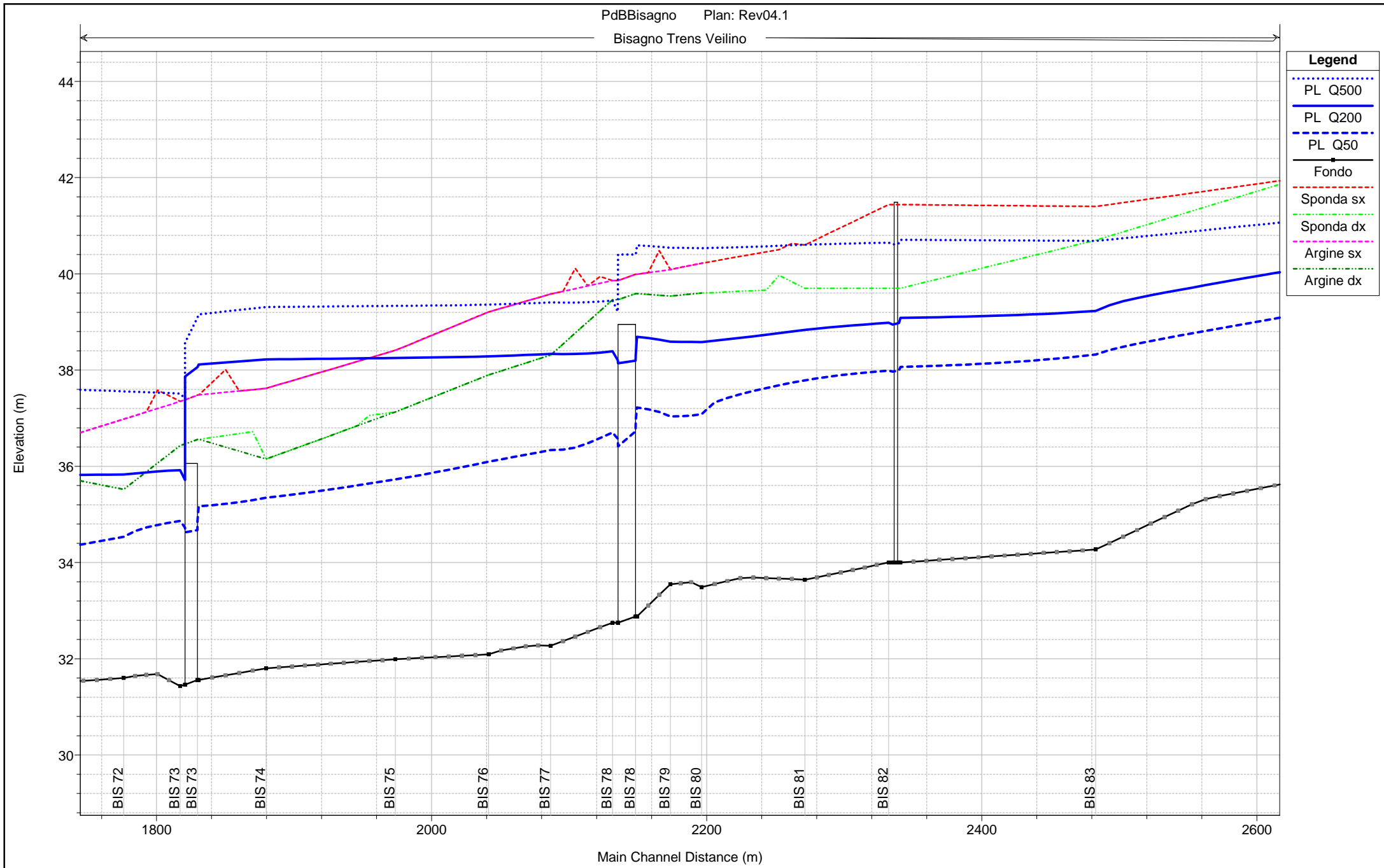
PdBBisagno Plan: Rev04.1

Bisagno Trens Veilino



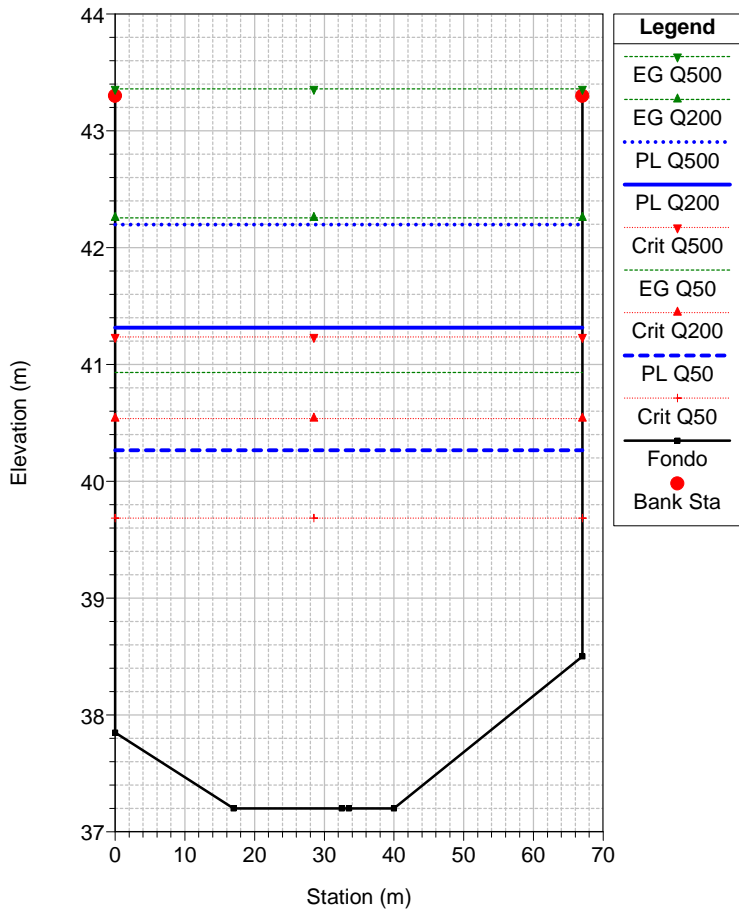
Legend	
PL Q500	(Dotted blue line)
PL Q200	(Solid blue line)
PL Q50	(Dashed blue line)
Fondo	(Solid black line with square markers)
Sponda sx	(Dashed red line)
Sponda dx	(Dashed green line)
Argine sx	(Dashed magenta line)
Argine dx	(Dashed cyan line)

1 cm Horiz. = 35 m 1 cm Vert. = 1 m

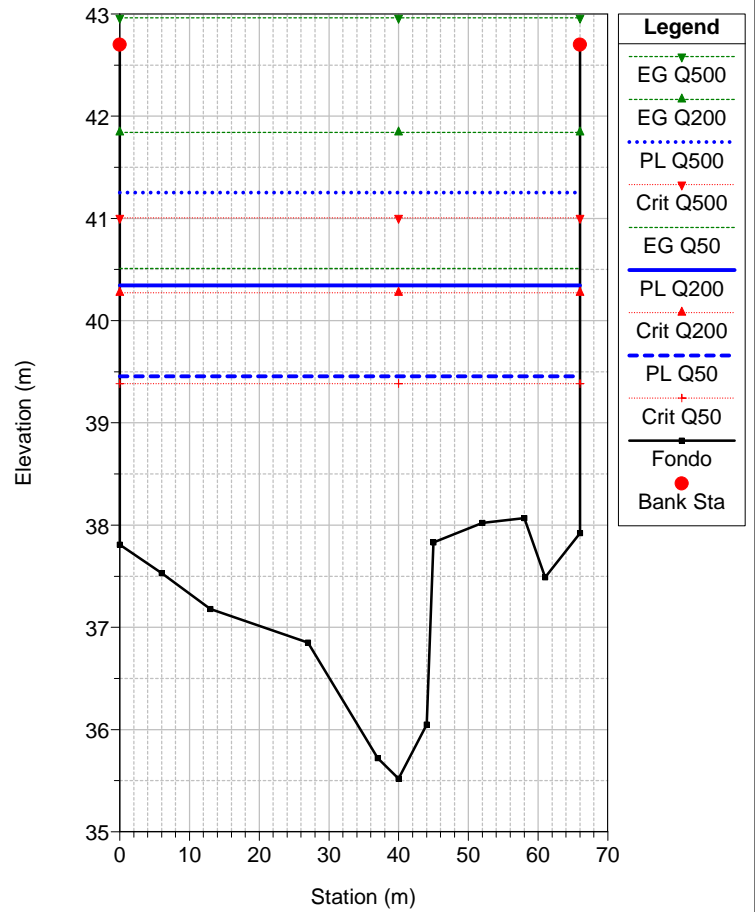


1 cm Horiz. = 35 m 1 cm Vert. = 1 m

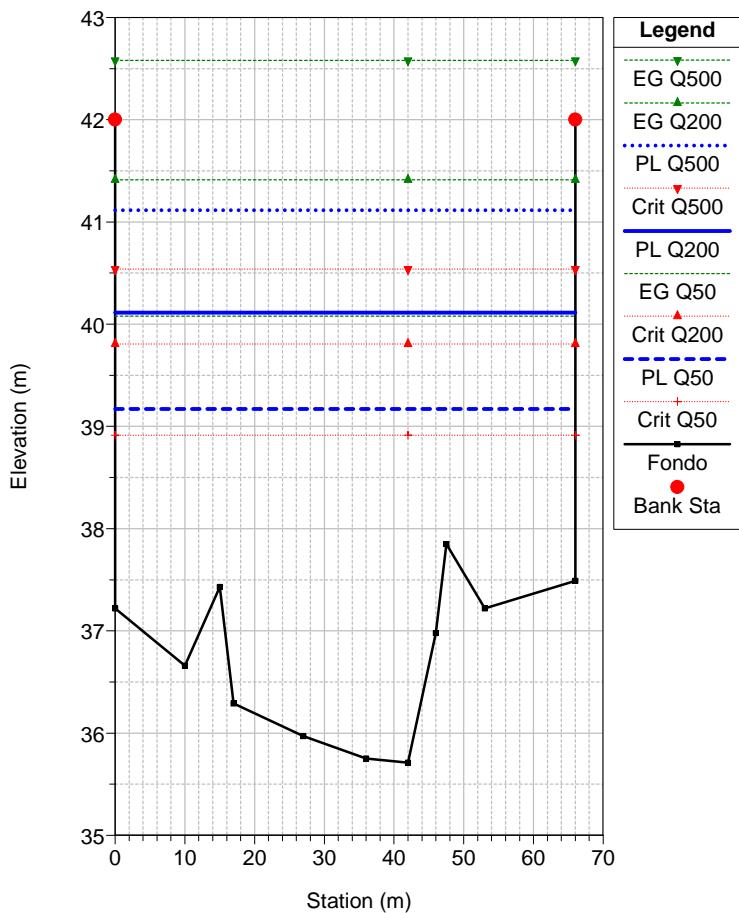
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 86



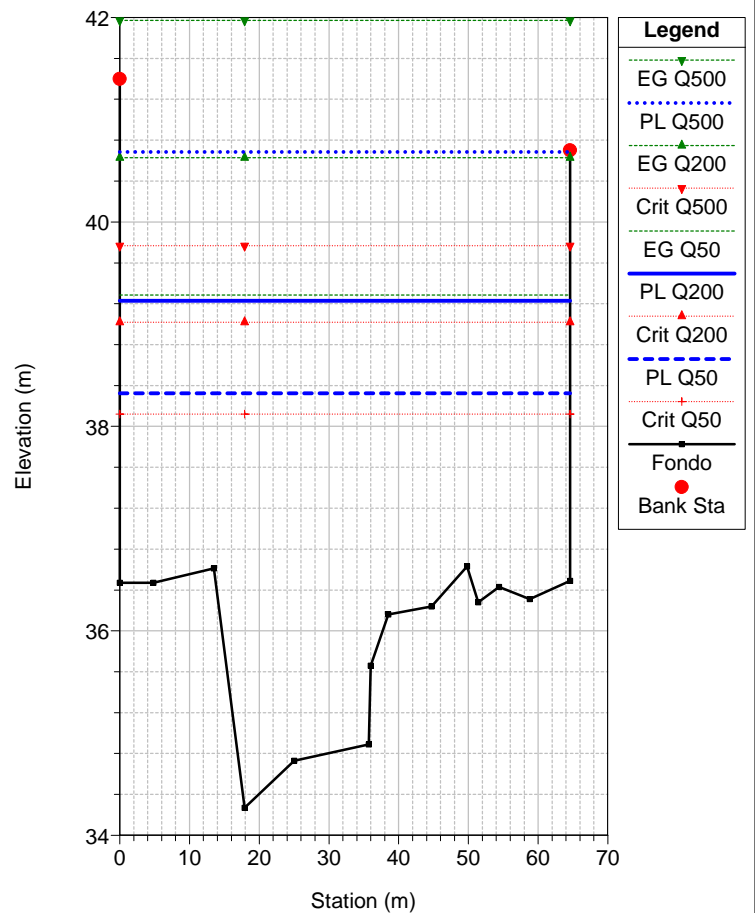
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 85



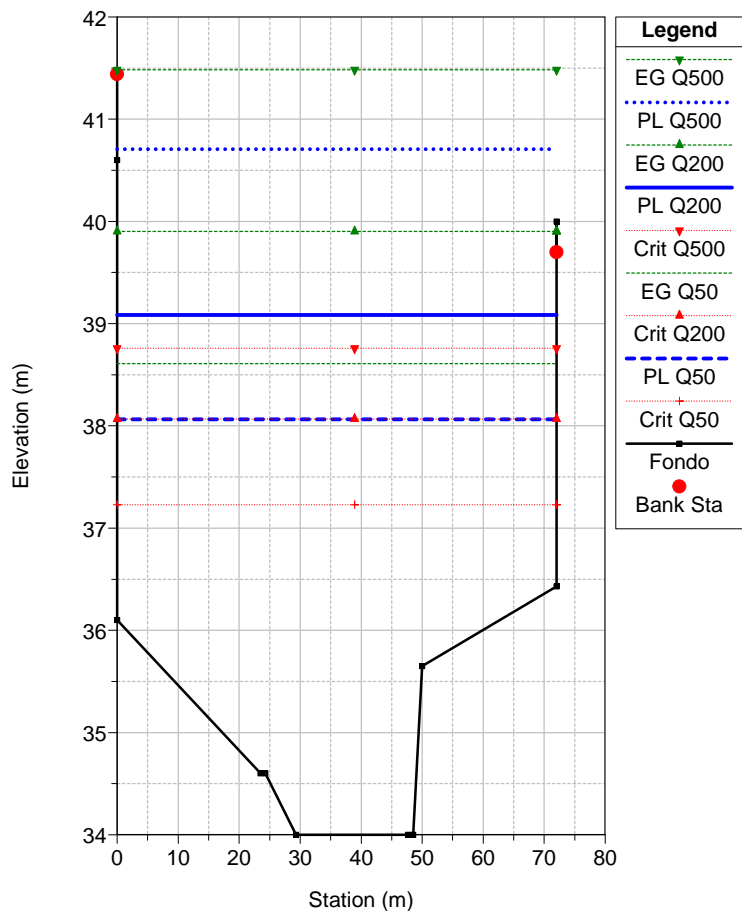
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 84



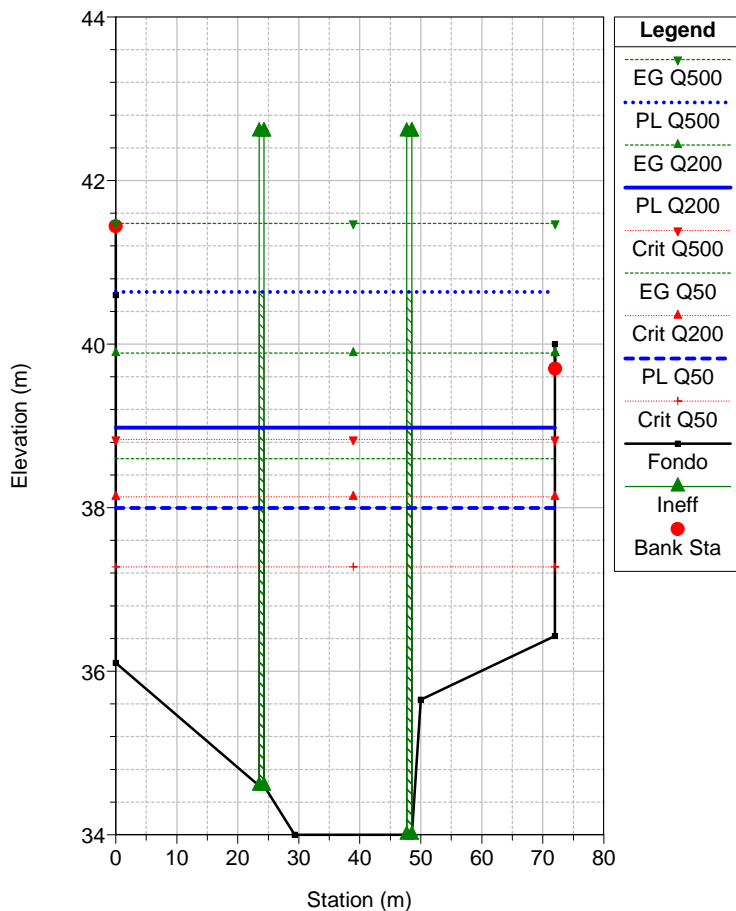
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 83



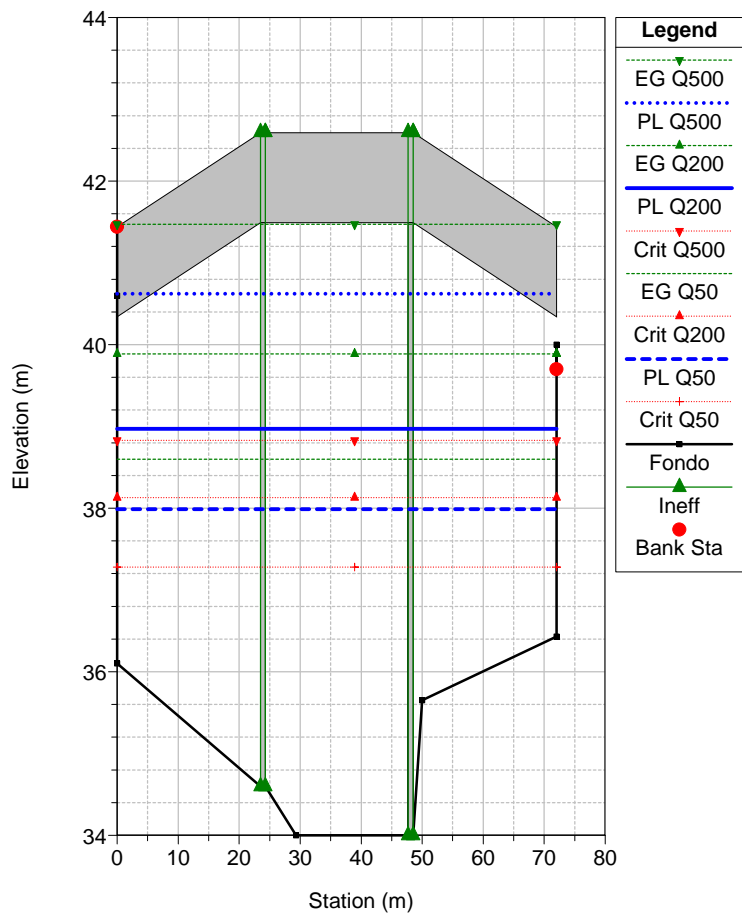
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



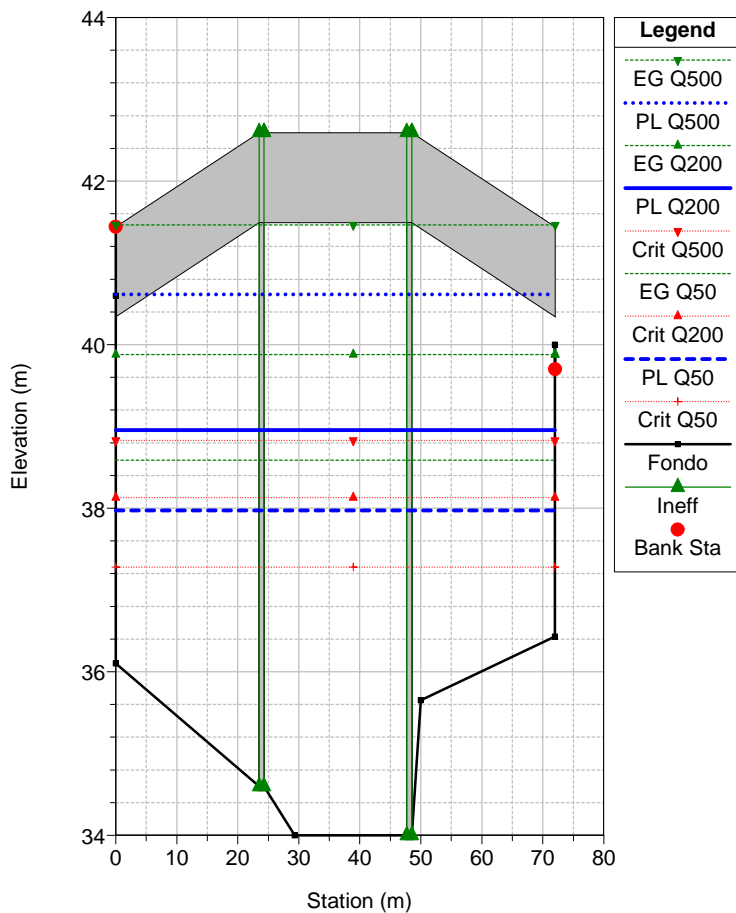
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



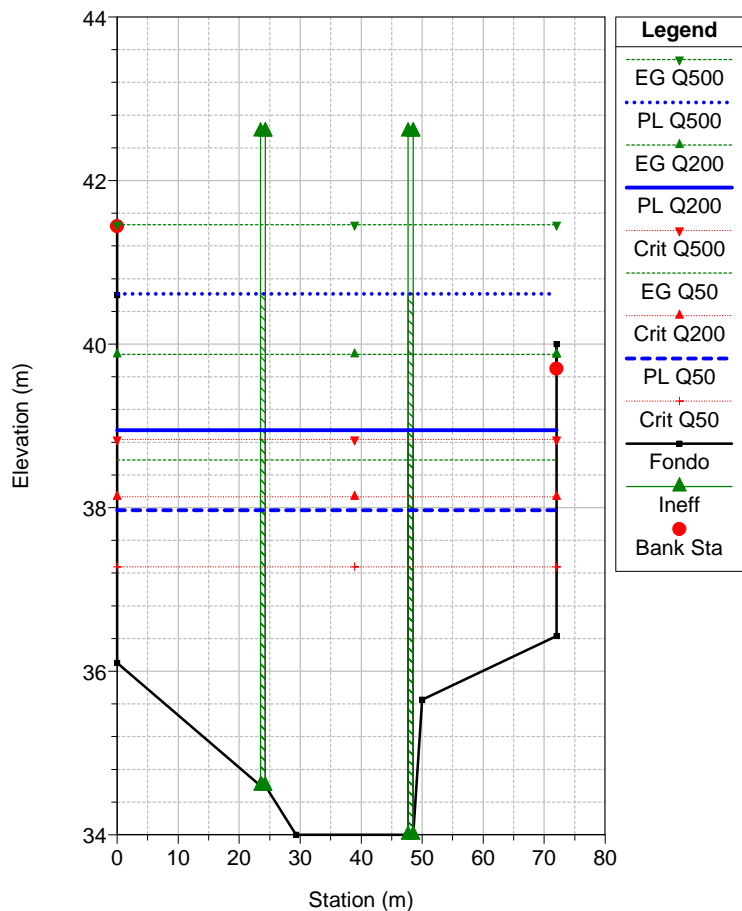
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



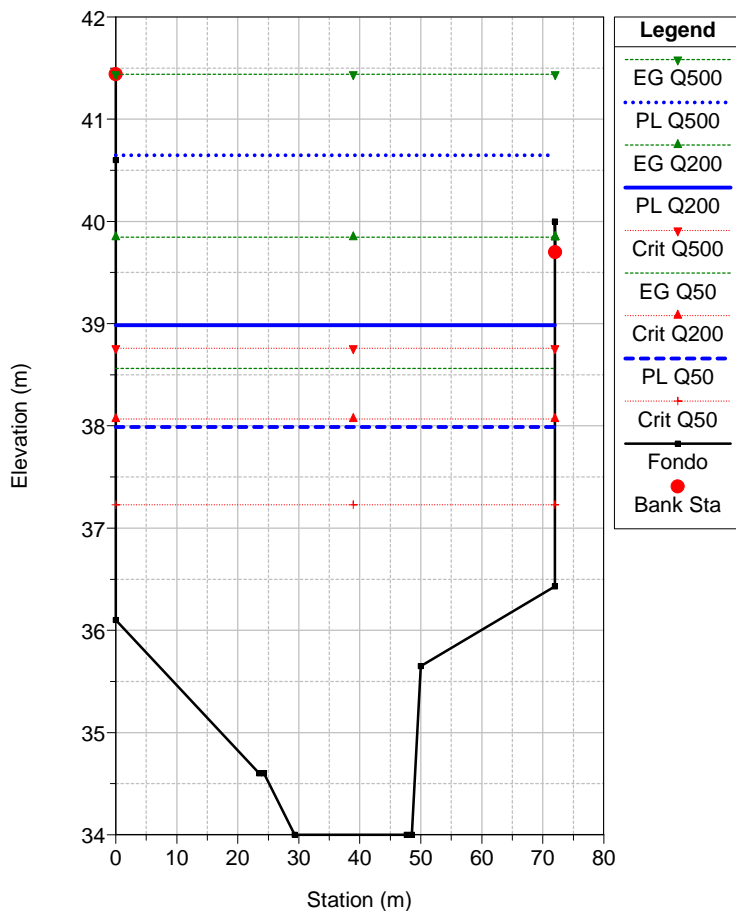
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



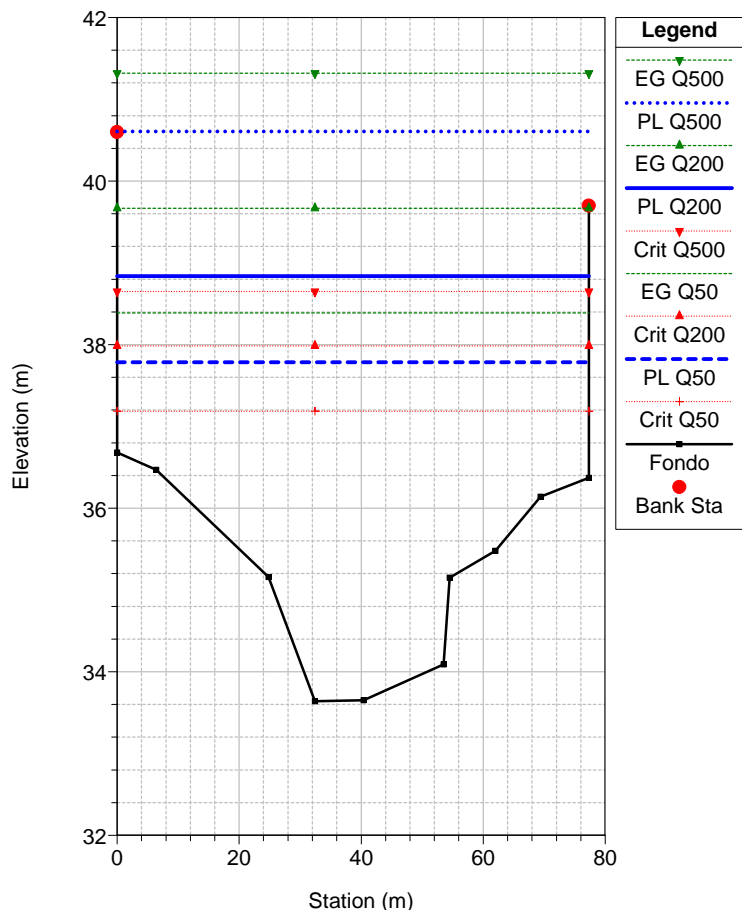
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



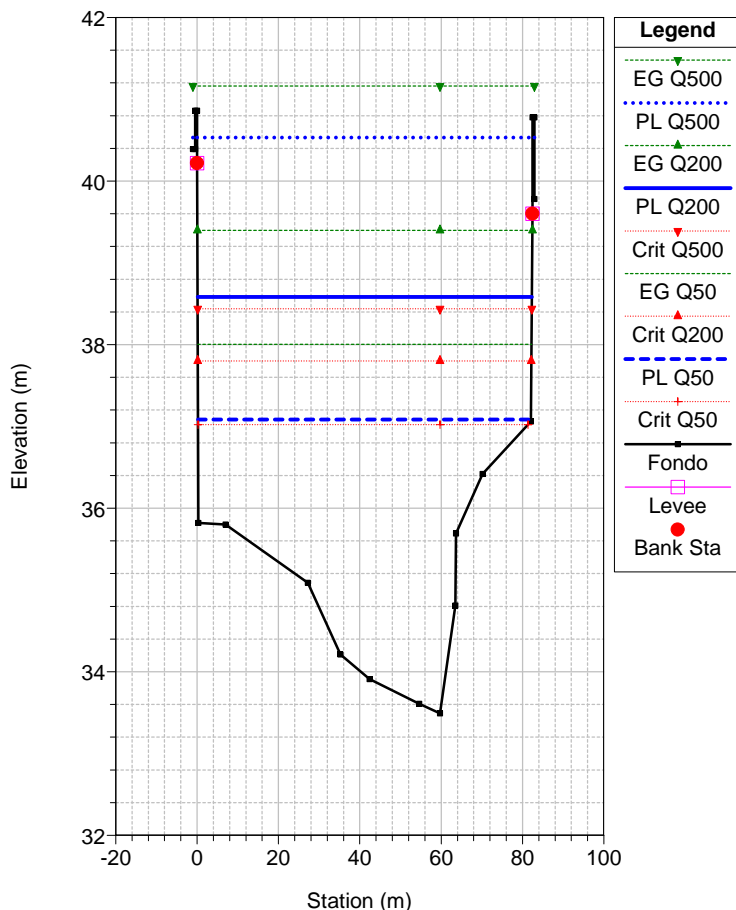
PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 82



PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 81



PdBBisagno Plan: Rev04.1
River = Bisagno Reach = Trens Veilino BIS 80



HEC-RAS Plan: 4.1_qdm River: Bisagno Reach: Trens Veilino

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
Trens Veilino	86. BIS 86	Q50	659.00	37.20	40.26	43.30	3.04	43.30	3.04	39.69	40.93	0.003361	3.62	182.28	67.00	0.70
Trens Veilino	86. BIS 86	Q200	1085.00	37.20	41.32	43.30	1.98	43.30	1.98	40.54	42.25	0.003190	4.29	252.64	67.00	0.71
Trens Veilino	86. BIS 86	Q500	1489.00	37.20	42.20	43.30	1.10	43.30	1.10	41.24	43.36	0.003077	4.78	311.75	67.00	0.71
Trens Veilino	85. BIS 85	Q50	696.00	35.52	39.45	42.70	3.25	42.70	3.25	39.38	40.51	0.006639	4.55	152.86	66.00	0.96
Trens Veilino	85. BIS 85	Q200	1147.00	35.52	40.35	42.70	2.35	42.70	2.35	40.27	41.84	0.006298	5.42	211.68	66.00	0.97
Trens Veilino	85. BIS 85	Q500	1573.00	35.52	41.25	42.70	1.45	42.70	1.45	41.01	42.96	0.005334	5.79	271.60	66.00	0.91
Trens Veilino	84. BIS 84	Q50	696.00	35.71	39.17	42.00	2.83	42.00	2.83	38.91	40.08	0.005162	4.22	164.90	66.00	0.85
Trens Veilino	84. BIS 84	Q200	1147.00	35.71	40.11	42.00	1.89	42.00	1.89	39.81	41.41	0.004998	5.05	227.09	66.00	0.87
Trens Veilino	84. BIS 84	Q500	1573.00	35.71	41.12	42.00	0.88	42.00	0.88	40.54	42.58	0.004153	5.36	293.35	66.00	0.81
Trens Veilino	83. BIS 83	Q50	696.00	34.27	38.32	41.40	3.08	40.70	2.37	38.12	39.29	0.005567	4.34	160.33	64.60	0.88
Trens Veilino	83. BIS 83	Q200	1147.00	34.27	39.23	41.40	2.17	40.70	1.47	39.02	40.63	0.005549	5.24	218.81	64.60	0.91
Trens Veilino	83. BIS 83	Q500	1573.00	34.27	40.68	41.40	0.72	40.70	0.02	39.77	41.97	0.003347	5.03	312.75	64.60	0.73
Trens Veilino	82.3 BIS 82	Q50	696.00	34.00	38.06	41.44	3.38	39.70	1.64	37.23	38.61	0.002459	3.27	212.76	71.99	0.61
Trens Veilino	82.3 BIS 82	Q200	1147.00	34.00	39.09	41.44	2.35	39.70	0.61	38.07	39.90	0.002571	4.01	286.31	71.99	0.64
Trens Veilino	82.3 BIS 82	Q500	1573.00	34.00	40.71	41.44	0.73	39.70	-1.01	38.76	41.48	0.001648	3.90	403.06	72.00	0.53
Trens Veilino	82.2 BIS 82	Q50	696.00	34.00	37.99	41.44	3.45	39.70	1.71	37.28	38.60	0.002842	3.45	201.85	71.99	0.65
Trens Veilino	82.2 BIS 82	Q200	1147.00	34.00	38.98	41.44	2.46	39.70	0.72	38.13	39.89	0.002988	4.23	271.14	71.99	0.69
Trens Veilino	82.2 BIS 82	Q500	1573.00	34.00	40.64	41.44	0.80	39.70	-0.94	38.83	41.48	0.001820	4.06	387.89	72.00	0.55
Trens Veilino	82.11 BIS 82		Bridge													
Trens Veilino	82.1 BIS 82	Q50	696.00	34.00	37.97	41.44	3.47	39.70	1.73	37.28	38.58	0.002932	3.48	199.91	71.99	0.66
Trens Veilino	82.1 BIS 82	Q200	1147.00	34.00	38.95	41.44	2.49	39.70	0.75	38.13	39.87	0.003069	4.27	268.87	71.99	0.70
Trens Veilino	82.1 BIS 82	Q500	1573.00	34.00	40.62	41.44	0.82	39.70	-0.92	38.83	41.46	0.001843	4.07	386.36	72.00	0.55
Trens Veilino	82. BIS 82	Q50	696.00	34.00	37.99	41.44	3.45	39.70	1.71	37.23	38.56	0.002671	3.36	207.37	71.99	0.63
Trens Veilino	82. BIS 82	Q200	1147.00	34.00	38.98	41.44	2.46	39.70	0.72	38.07	39.85	0.002793	4.11	279.00	71.99	0.67
Trens Veilino	82. BIS 82	Q500	1573.00	34.00	40.65	41.44	0.79	39.70	-0.95	38.76	41.44	0.001706	3.95	398.66	72.00	0.54
Trens Veilino	81. BIS 81	Q50	696.00	33.64	37.79	40.60	2.81	39.70	1.91	37.19	38.39	0.003104	3.44	202.60	77.30	0.68
Trens Veilino	81. BIS 81	Q200	1147.00	33.64	38.84	40.60	1.76	39.70	0.86	37.99	39.67	0.002838	4.04	283.76	77.30	0.67
Trens Veilino	81. BIS 81	Q500	1573.00	33.64	40.61	40.60	-0.01	39.70	-0.91	38.65	41.32	0.001521	3.74	420.54	77.30	0.51
Trens Veilino	80. BIS 80	Q50	696.00	33.49	37.08	40.22	3.14	39.60	2.52	37.02	38.00	0.008086	4.25	163.79	81.81	0.96
Trens Veilino	80. BIS 80	Q200	1147.00	33.49	38.58	40.22	1.64	39.60	1.02	37.80	39.40	0.003569	4.00	286.52	82.16	0.68
Trens Veilino	80. BIS 80	Q500	1573.00	33.49	40.53	40.22	-0.31	39.60	-0.93	38.44	41.16	0.001583	3.52	447.41	82.95	0.48
Trens Veilino	79. BIS 79	Q50	696.00	33.55	37.04	40.09	3.05	39.54	2.50	36.80	37.82	0.006096	3.93	177.12	81.17	0.85
Trens Veilino	79. BIS 79	Q200	1147.00	33.55	38.59	40.09	1.50	39.54	0.95	37.59	39.32	0.002844	3.77	304.20	82.02	0.62
Trens Veilino	79. BIS 79	Q500	1573.00	33.55	40.54	40.09	-0.45	39.54	-1.00	38.22	41.13	0.001338	3.38	465.25	83.40	0.45
Trens Veilino	78.4 BIS 78	Q50	696.00	32.88	37.22	39.99	2.77	39.59	2.37	36.24	37.69	0.002754	3.05	228.28	81.89	0.58
Trens Veilino	78.4 BIS 78	Q200	1147.00	32.88	38.69	39.99	1.30	39.59	0.90	37.15	39.24	0.001893	3.29	348.71	81.95	0.51