



**AUTORITÀ DI BACINO REGIONALE**

# **TORRENTE CHIARAVAGNA**

**PIANO DI BACINO STRALCIO  
PER LA TUTELA DAL RISCHIO IDROGEOLOGICO**  
(ai sensi dell'art. 1, comma1, del D.L. 180/1998 convertito in L. 267/1998)



## **VERIFICHE IDRAULICHE** *Modello monodimensionale*

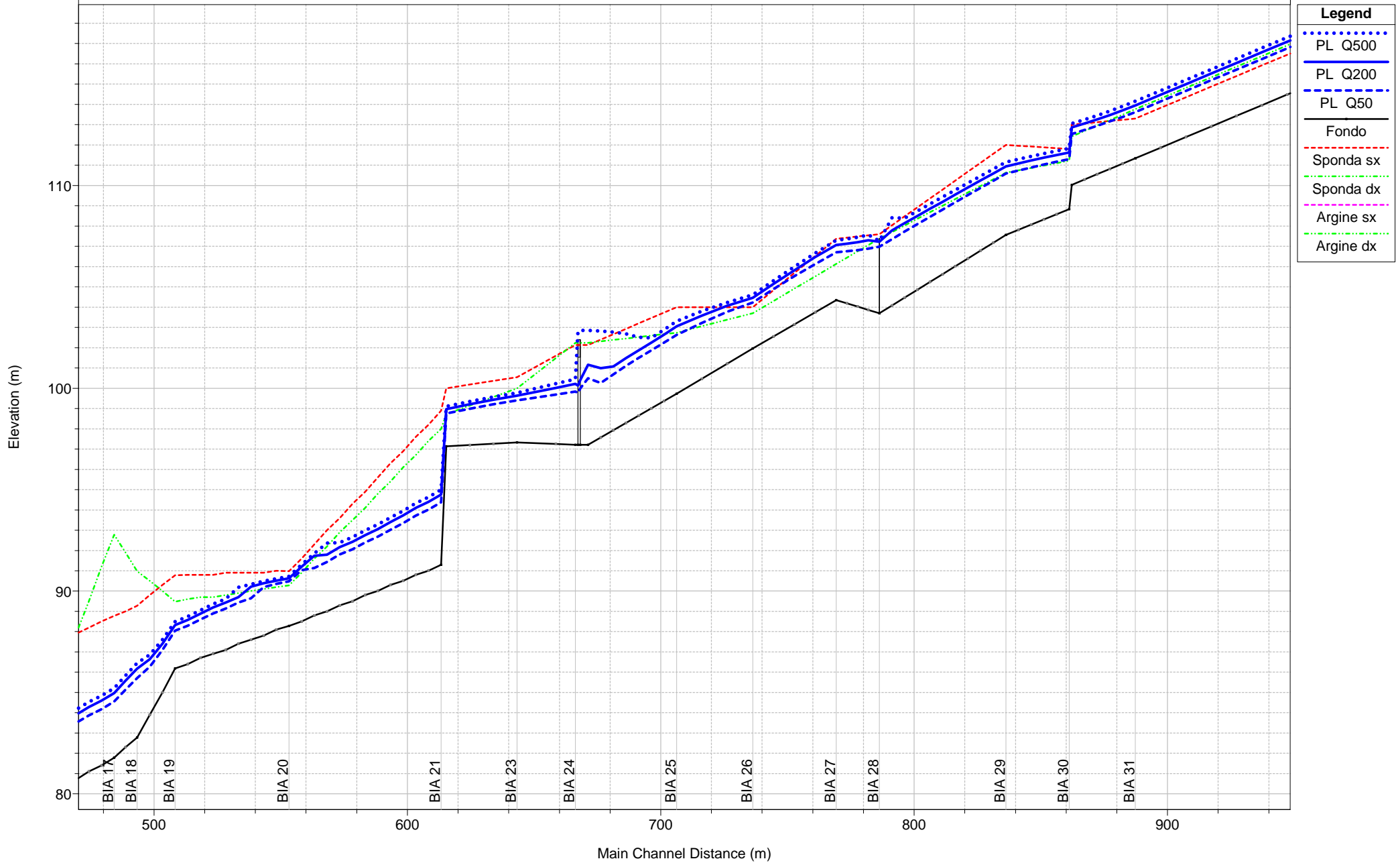
PRIMA APPROVAZIONE DEL PIANO	Delibera del Consiglio Provinciale di Genova n. 68 del 12/12/2002
ULTIMA MODIFICA DELL'ELABORATO	Decreto digitale del Direttore Generale n. 177 del 25/06/2018
ENTRATA IN VIGORE	BURL n. 28 del 11/07/2018 – parte II

## **Allegato A**

### **Verifiche idrauliche**

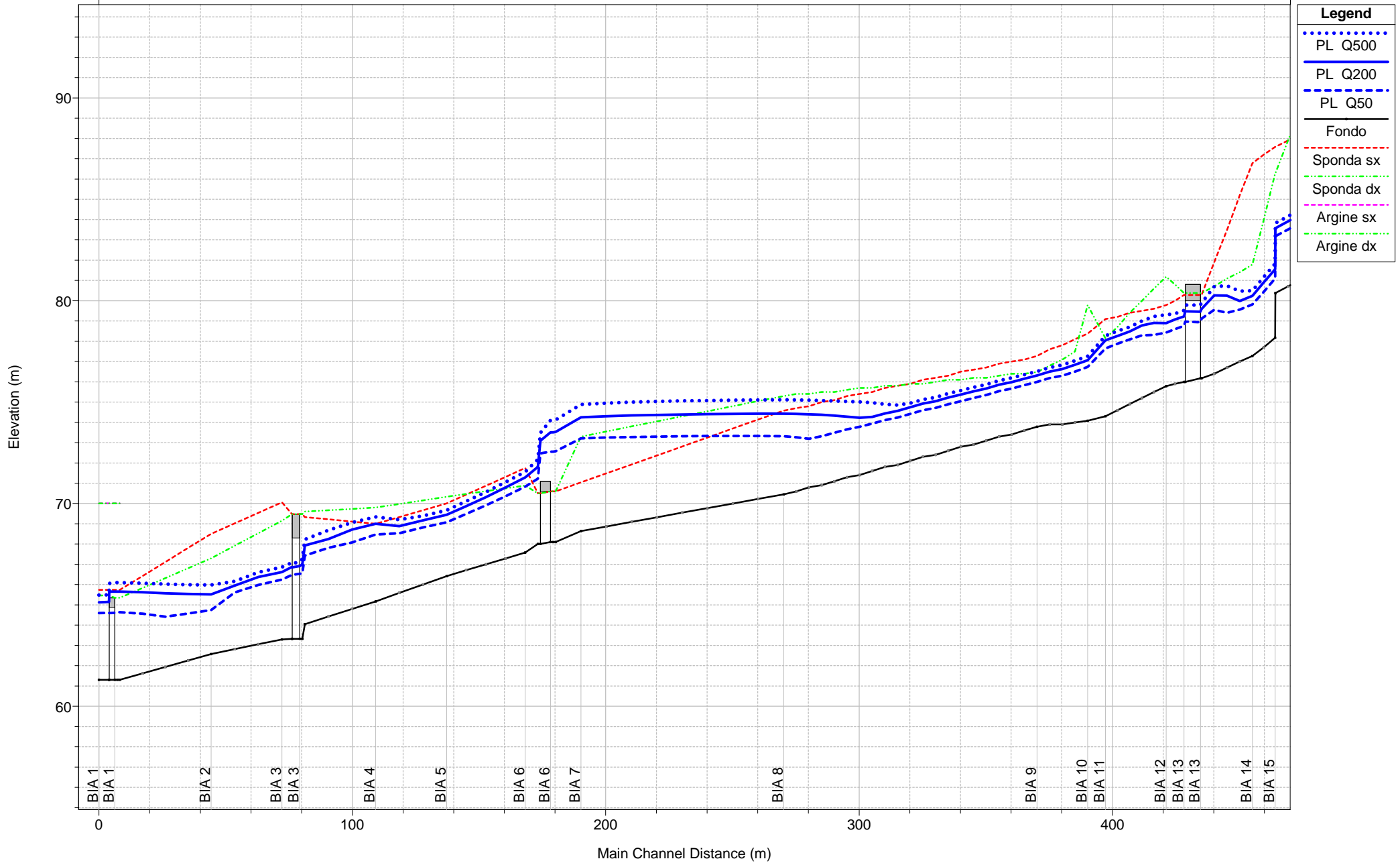
#### **Rio Bianchetta**

- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo



1 cm Horiz. = 20 m 1 cm Vert. = 2.5 m

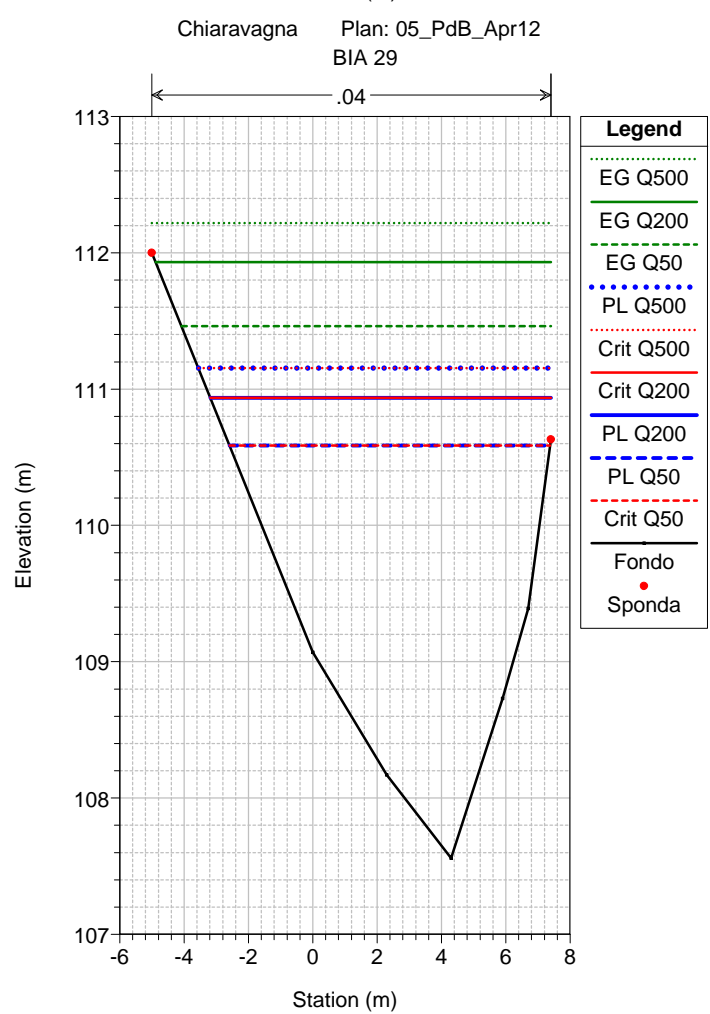
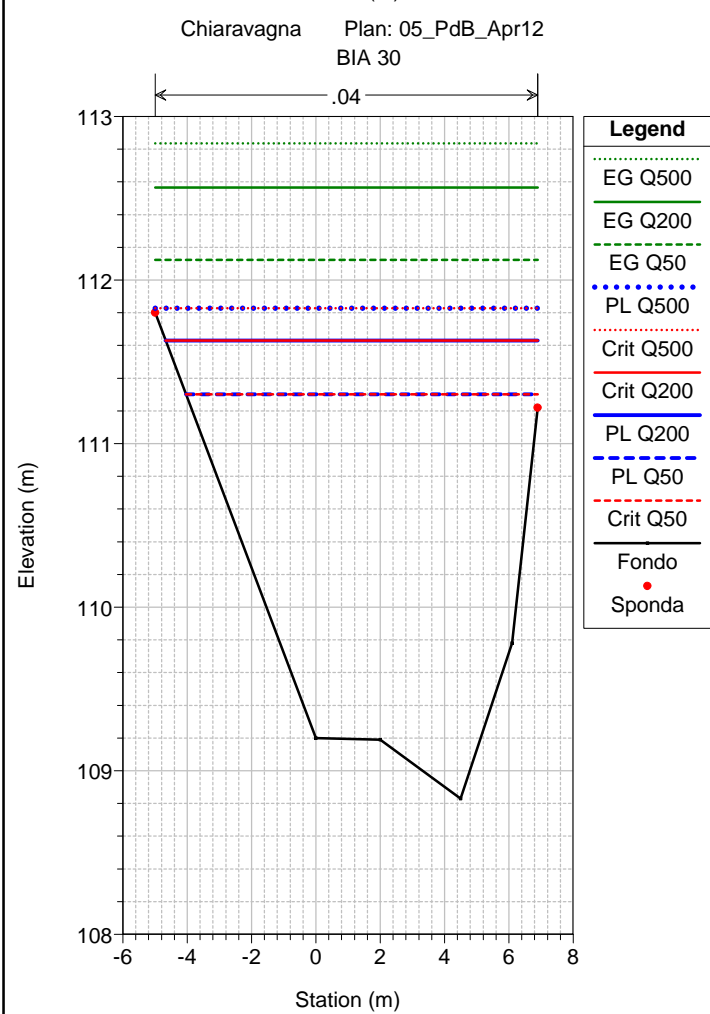
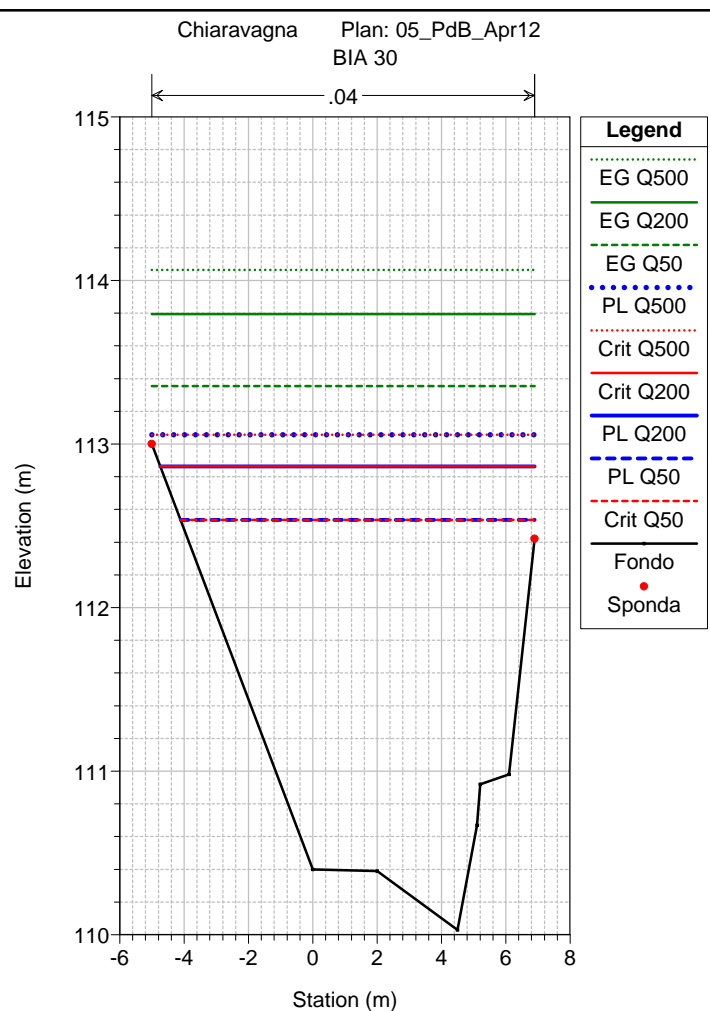
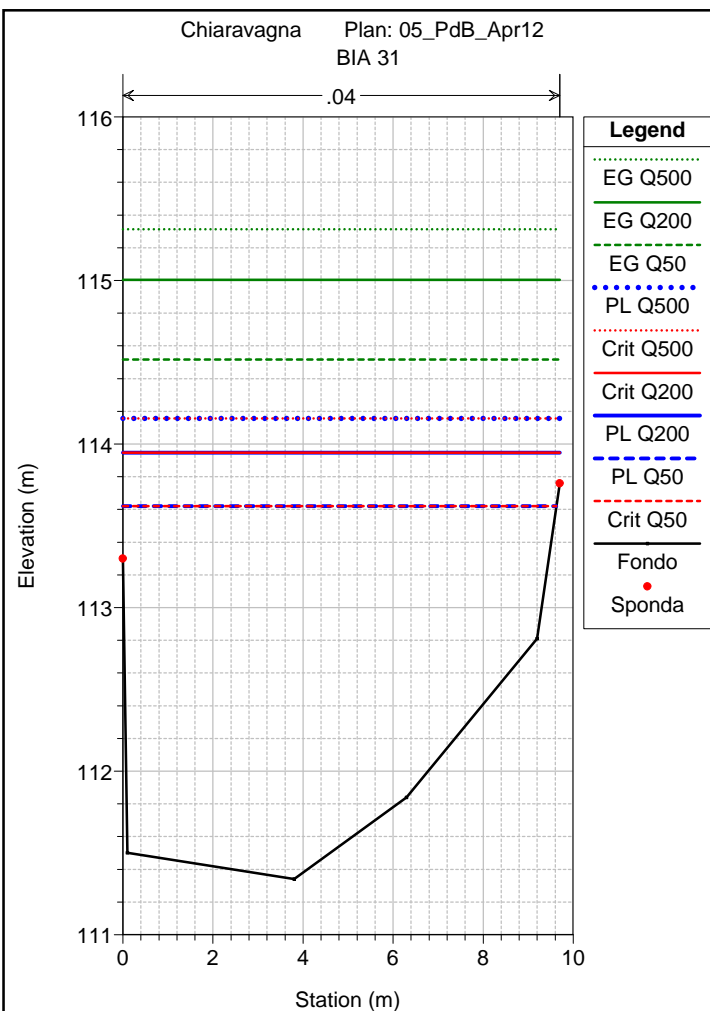
Bianchetta unico

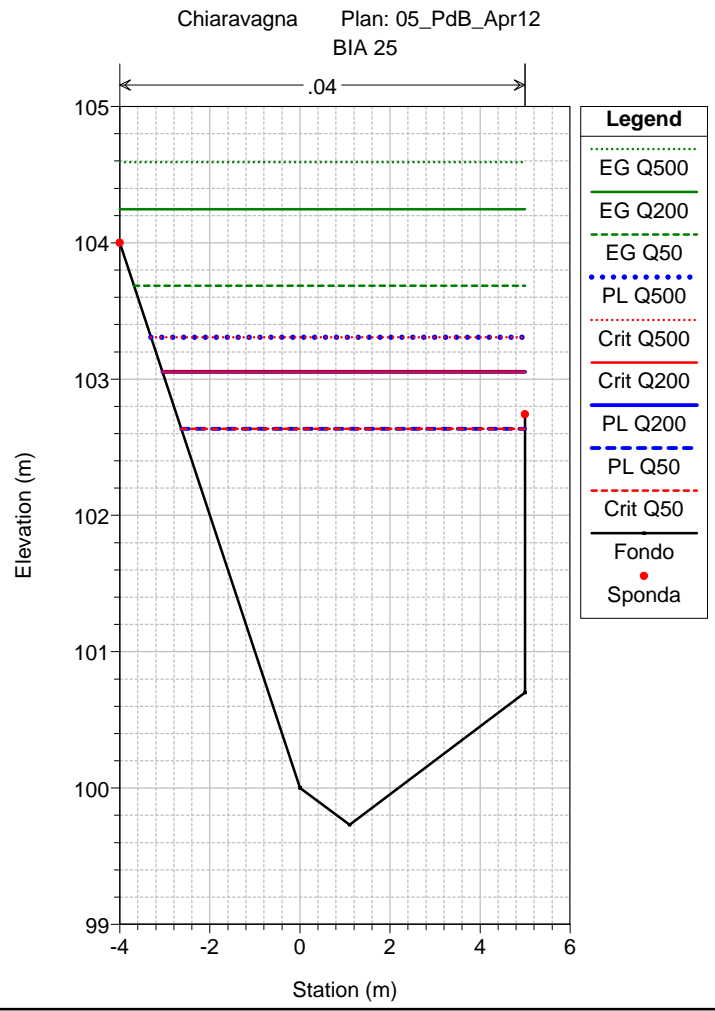
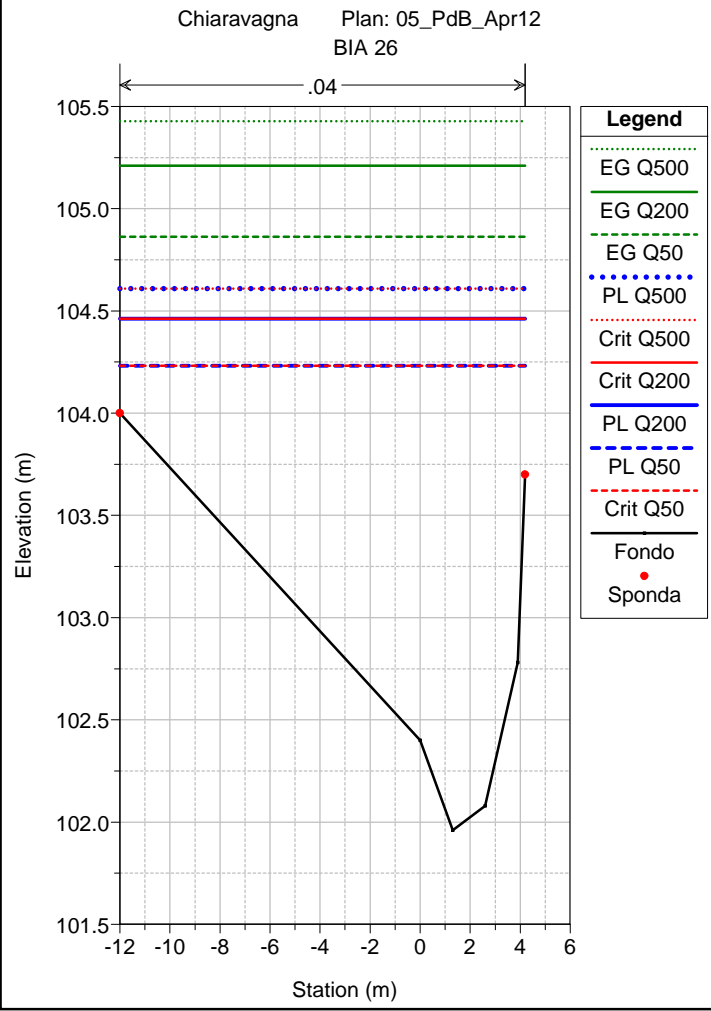
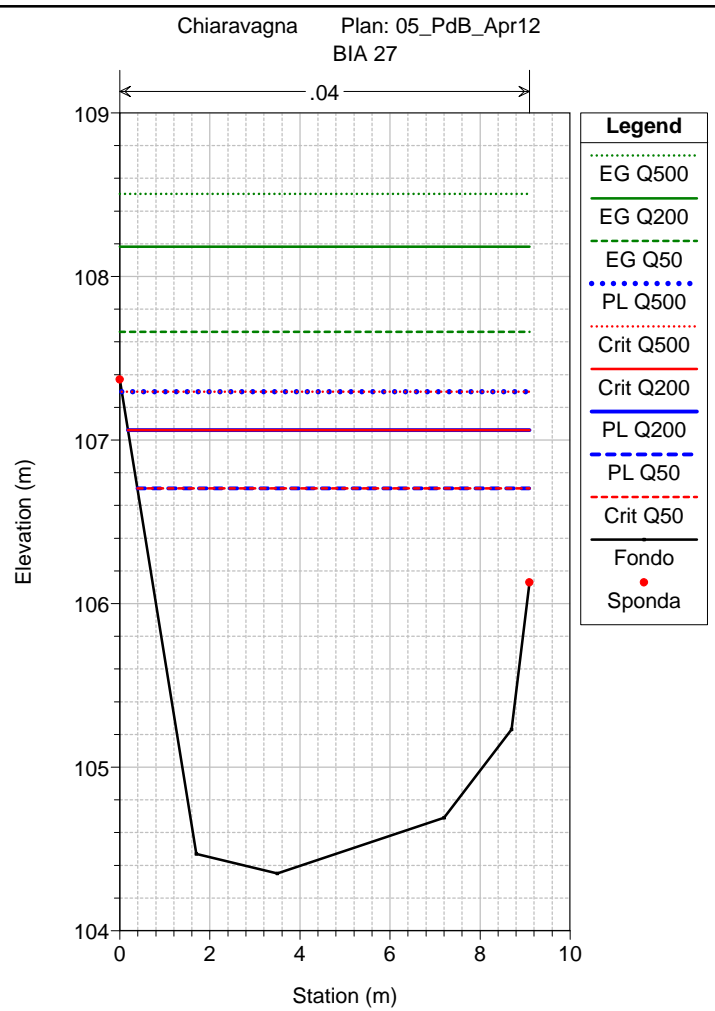
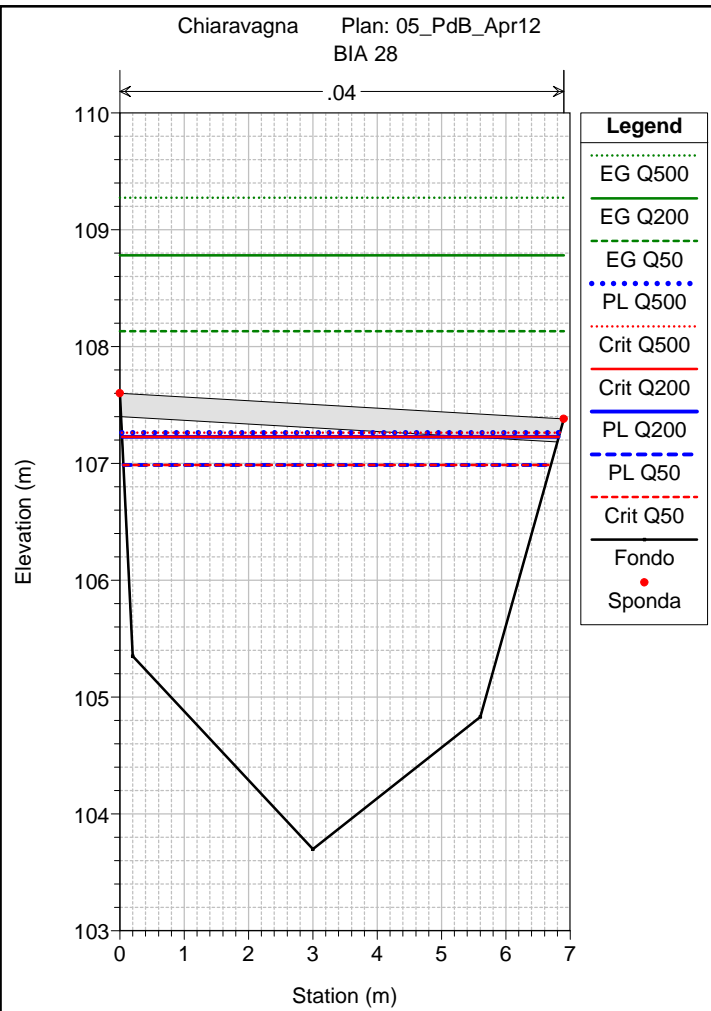


**Legend**

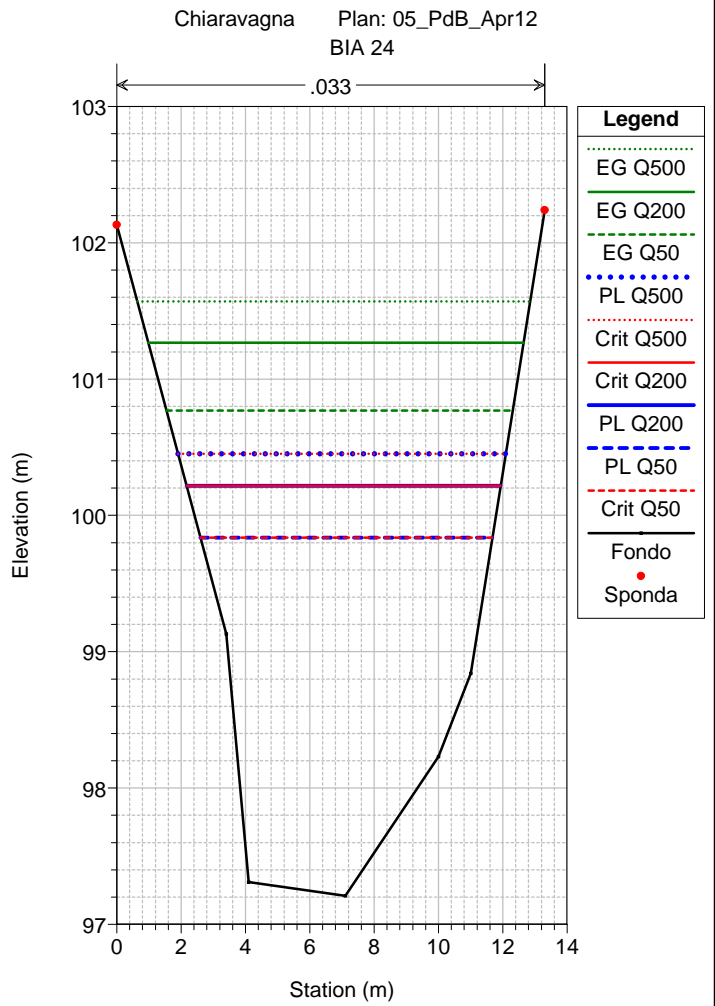
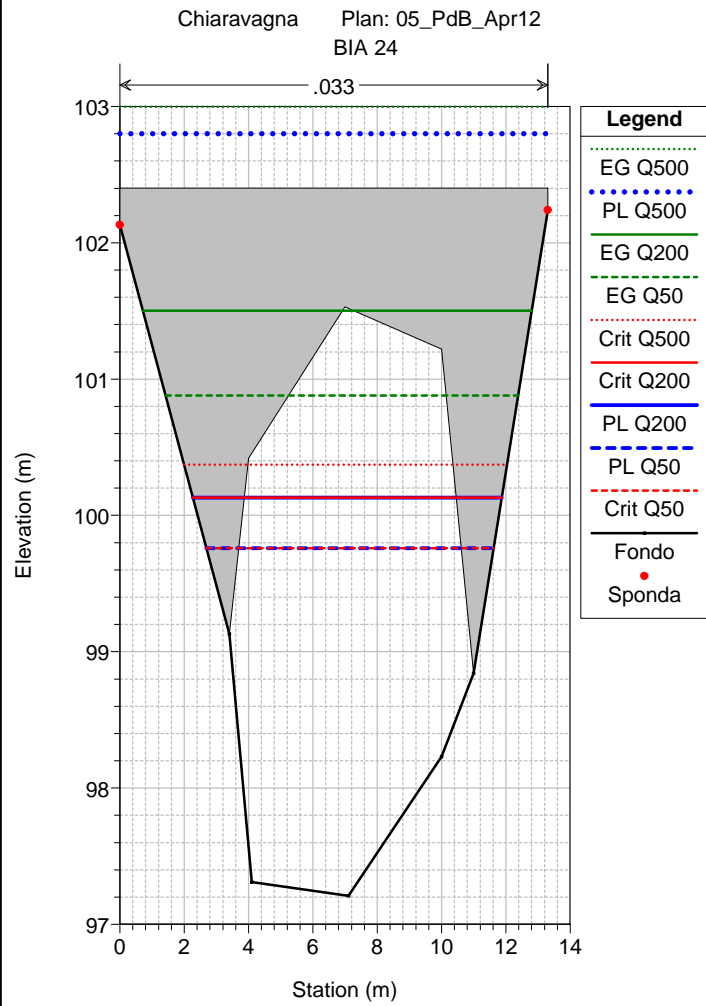
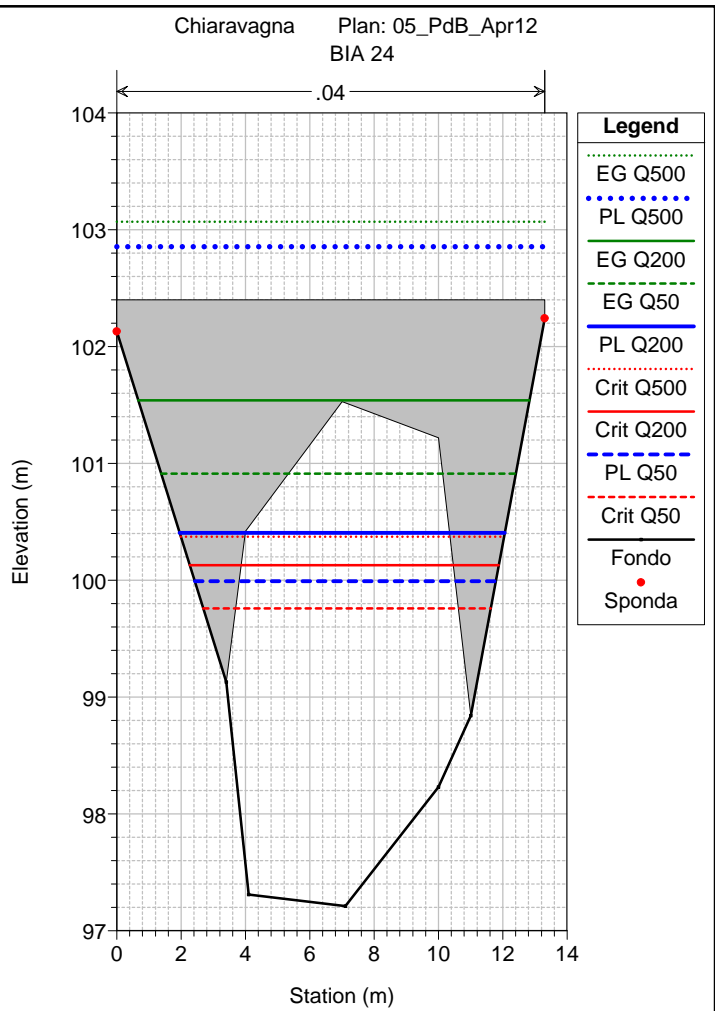
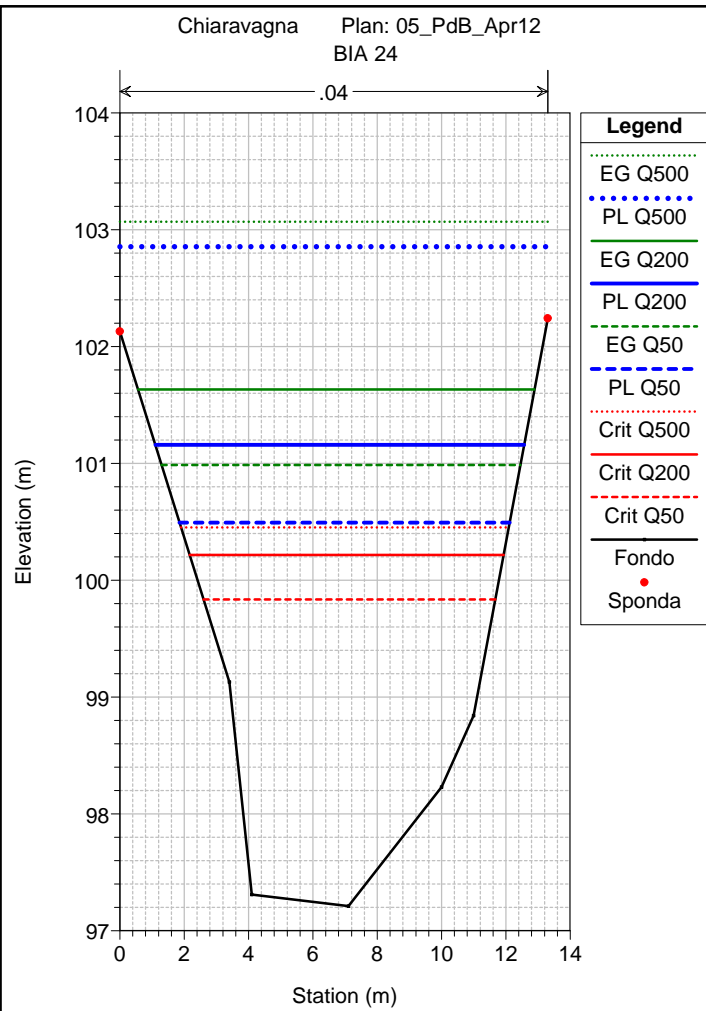
- PL Q500
- PL Q200
- PL Q50
- Fondo
- Sponda sx
- Sponda dx
- Argine sx
- Argine dx

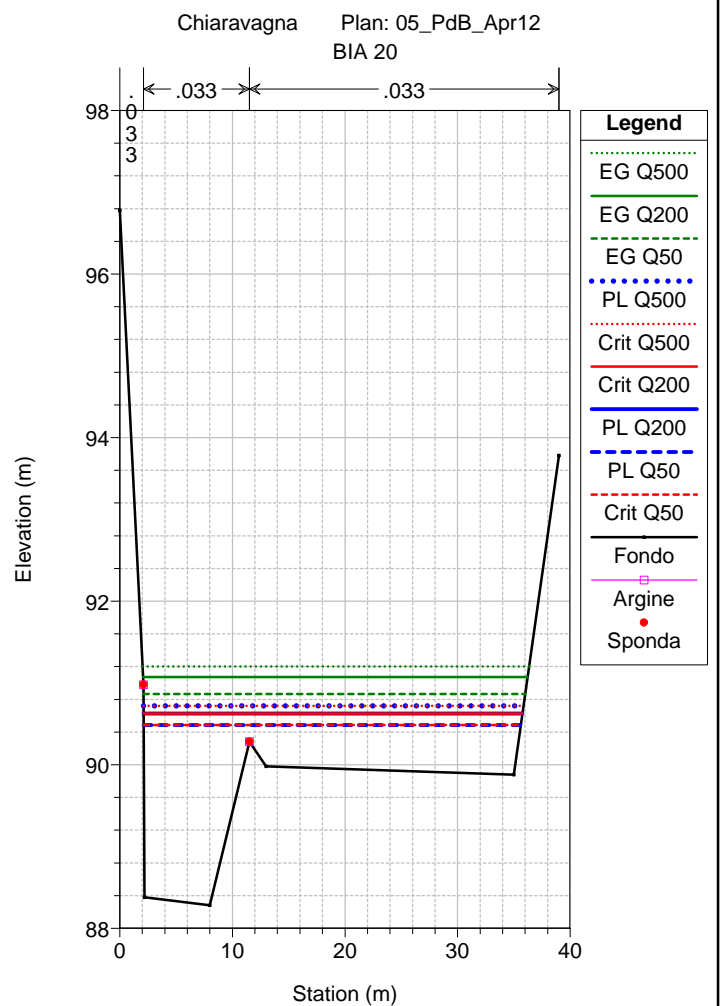
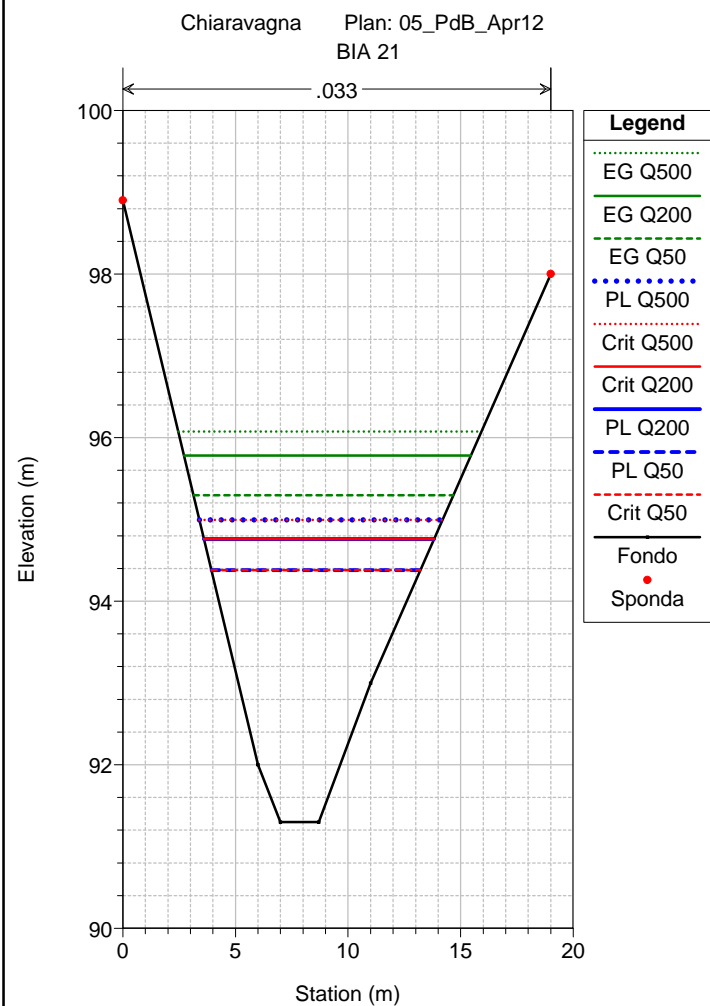
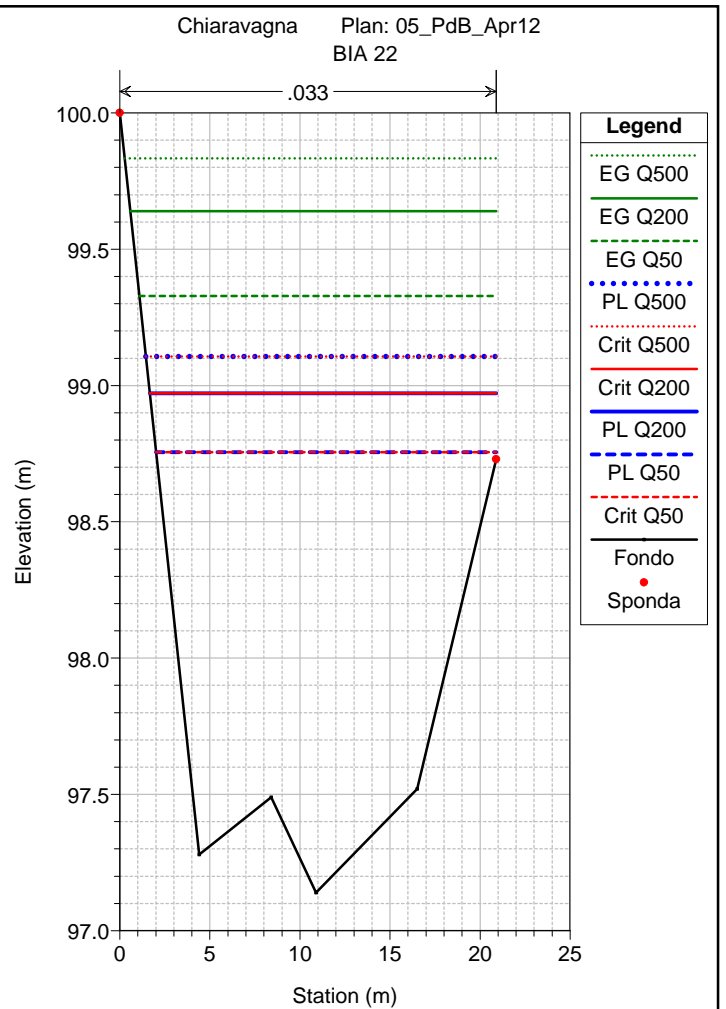
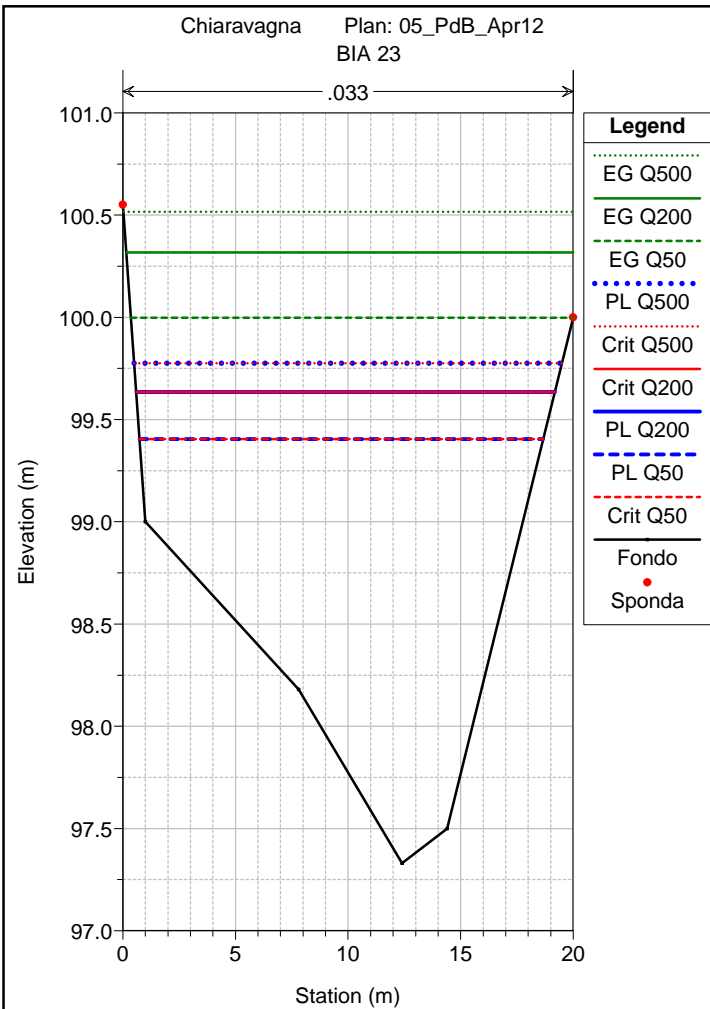
1 cm Horiz. = 20 m 1 cm Vert. = 2.5 m



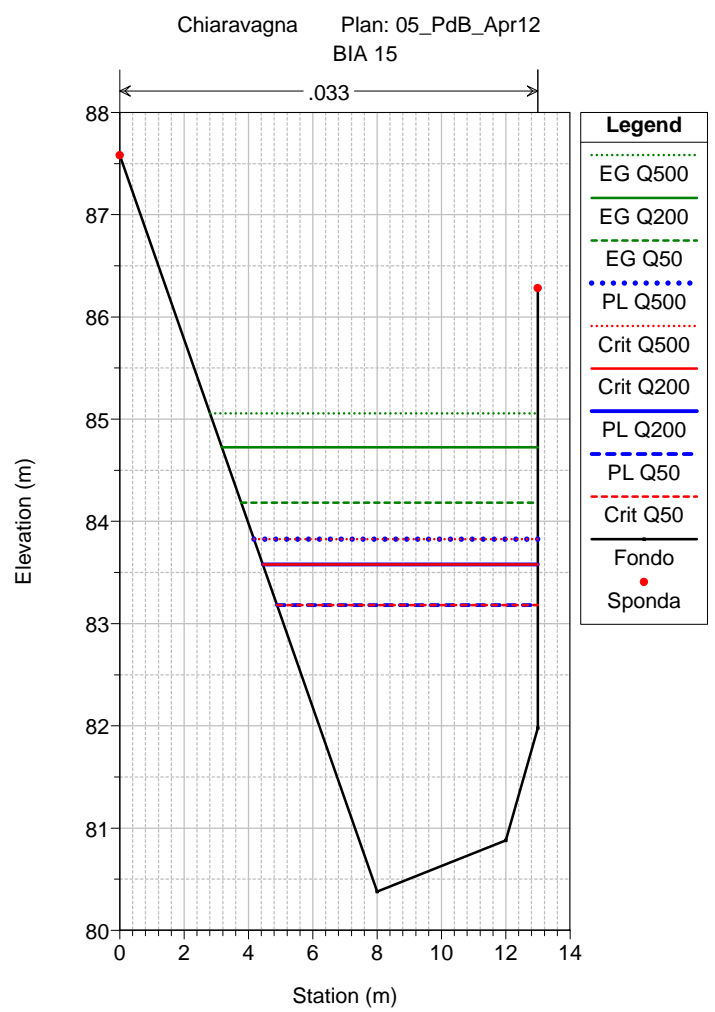
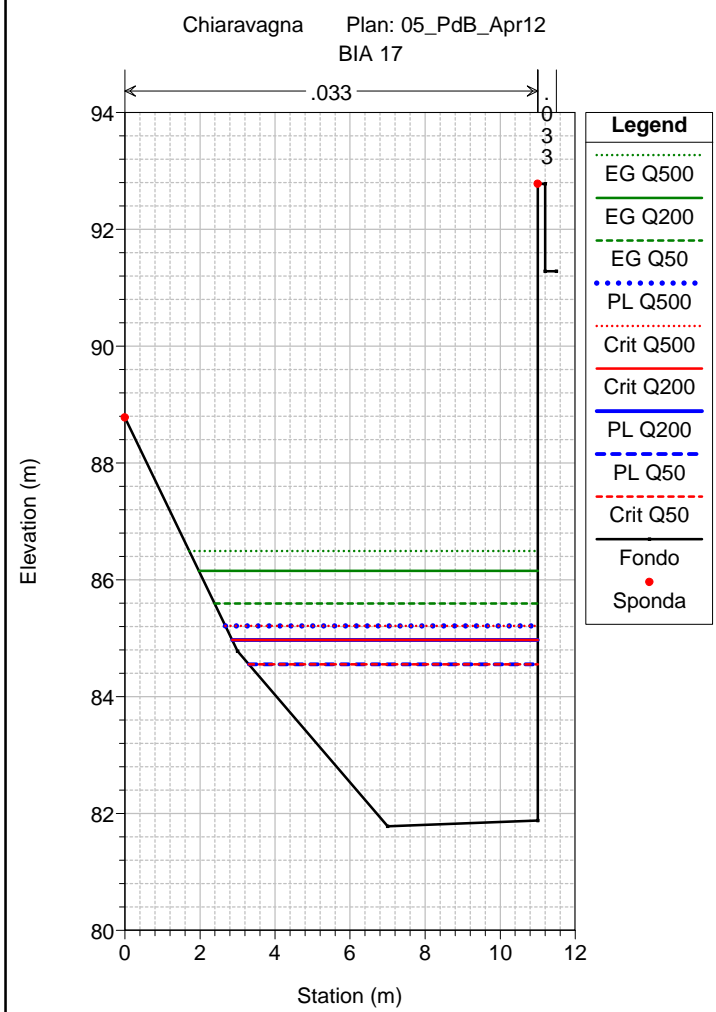
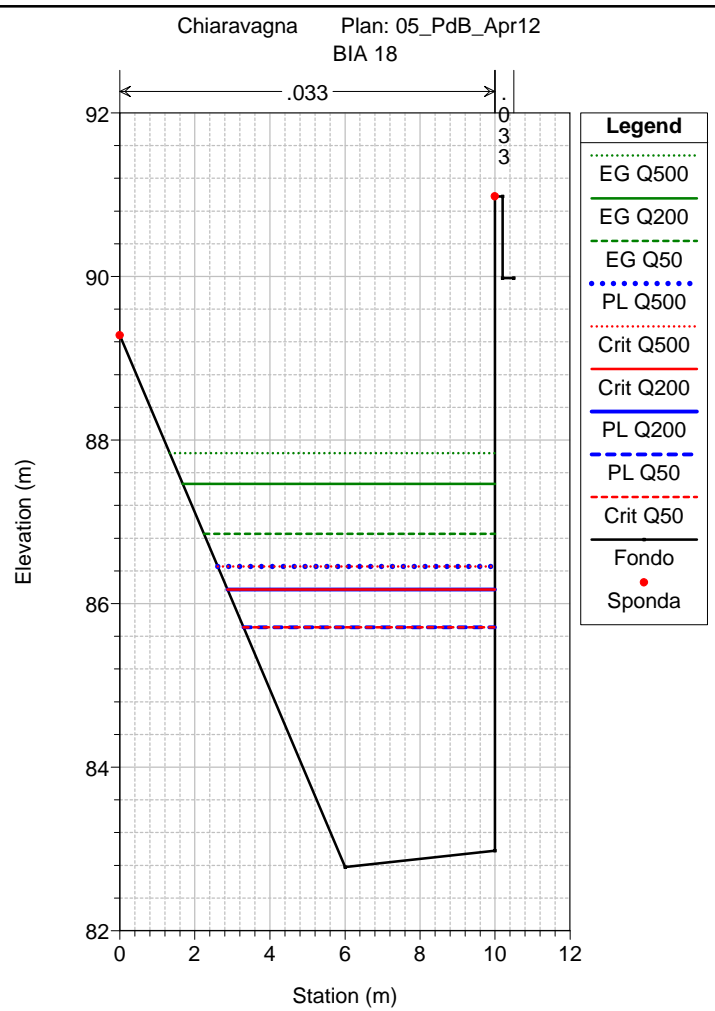
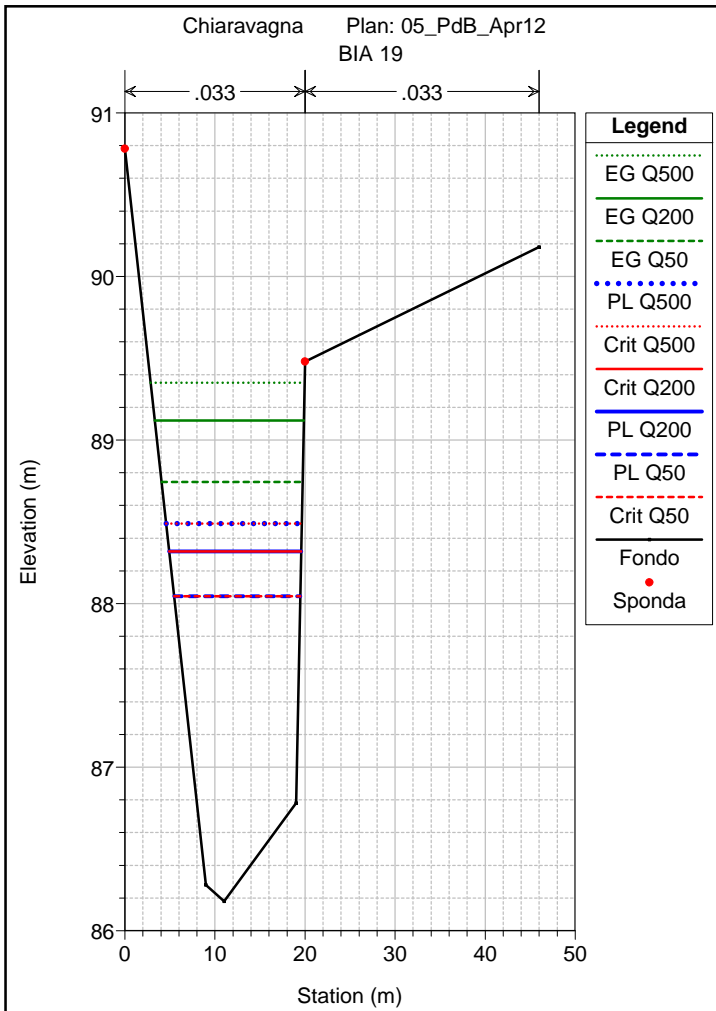


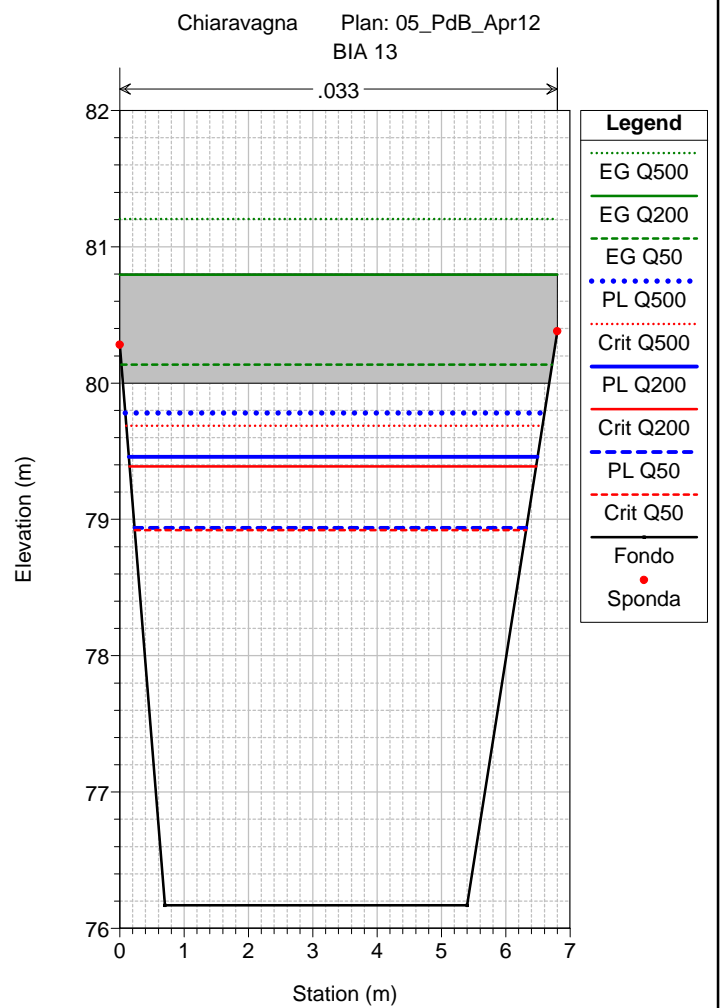
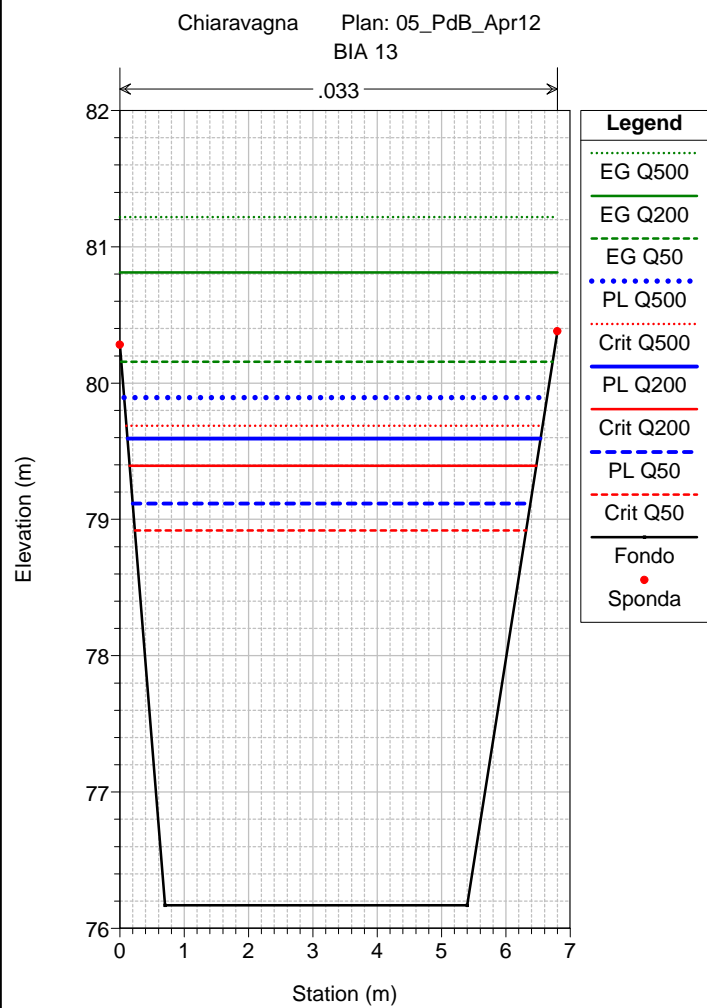
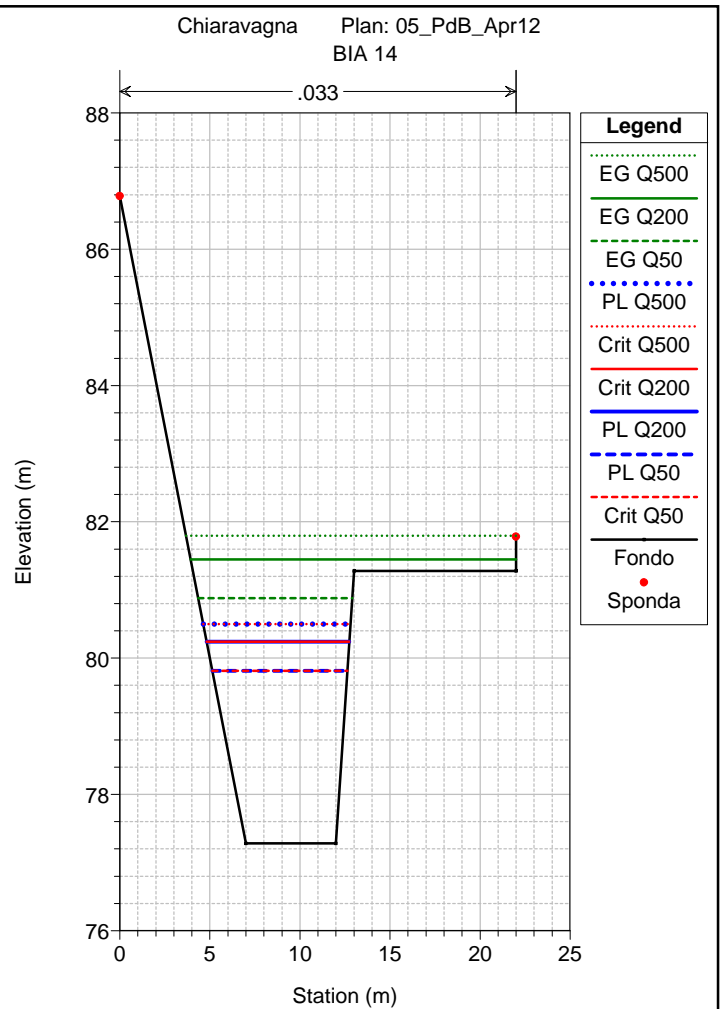
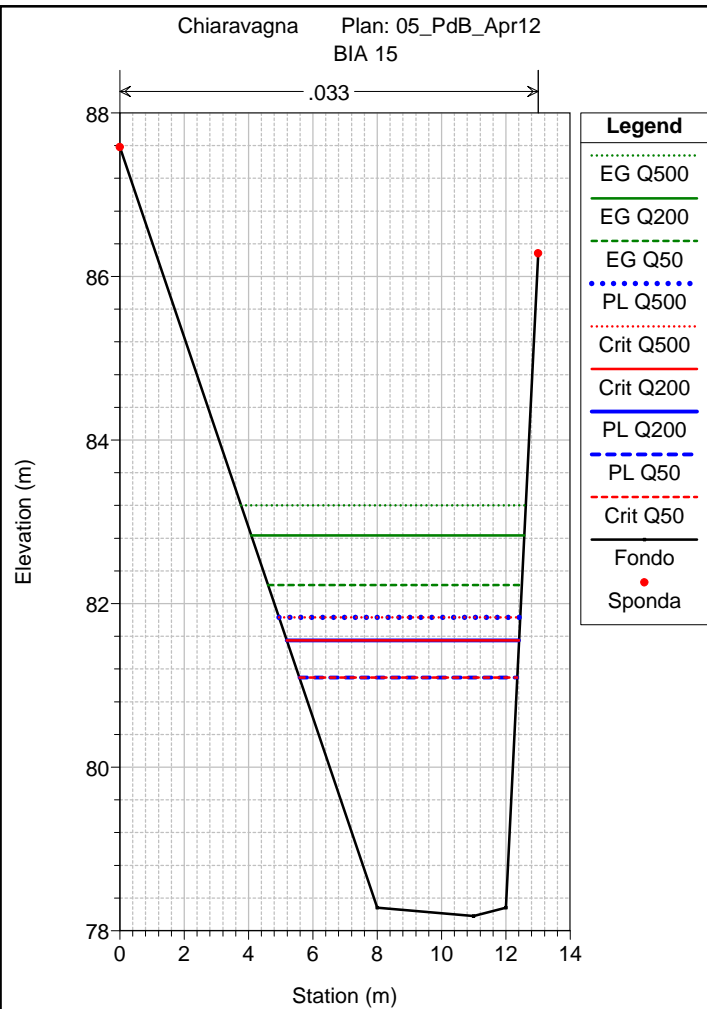




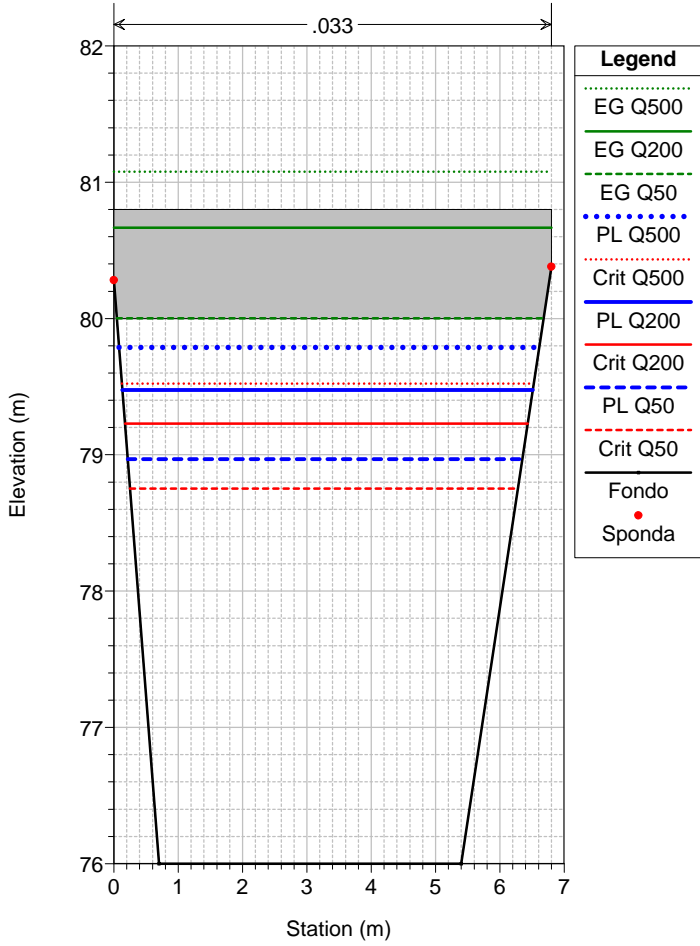




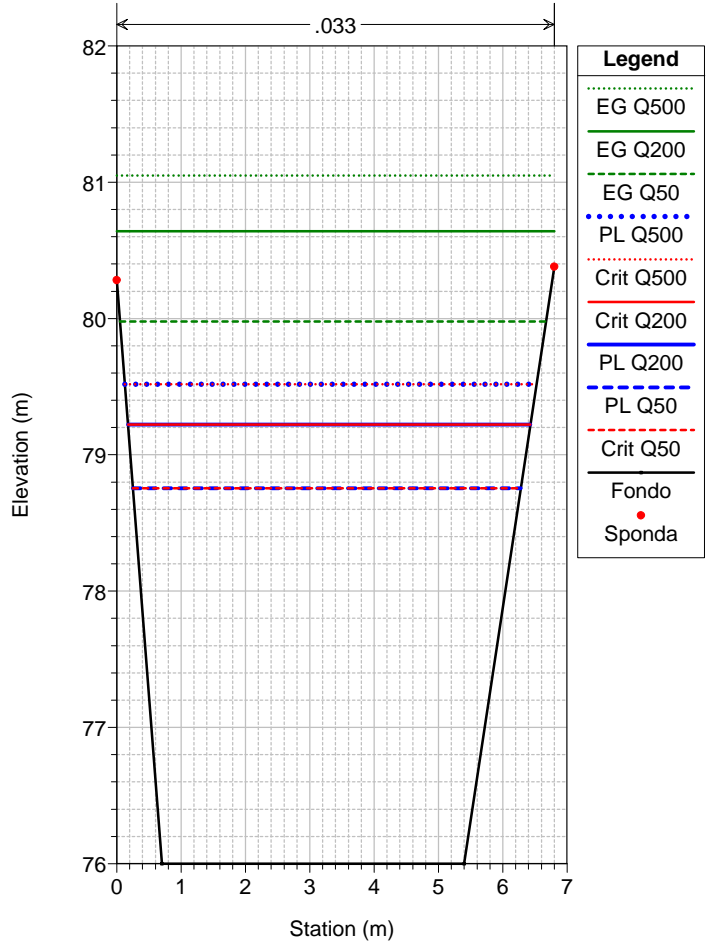




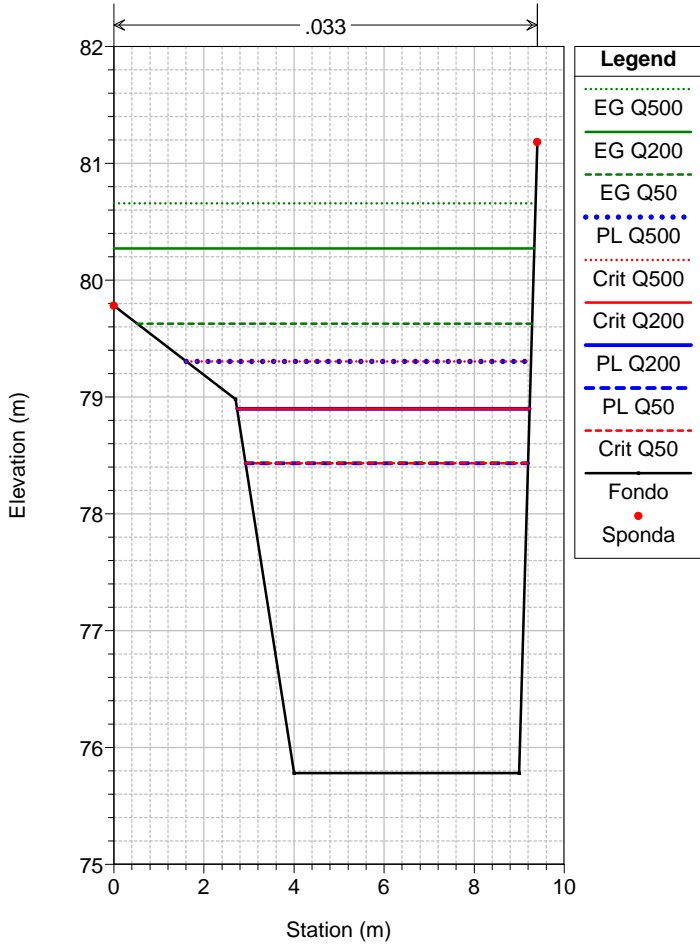
Chiaravagna Plan: 05\_PdB\_Apr12  
BIA 13



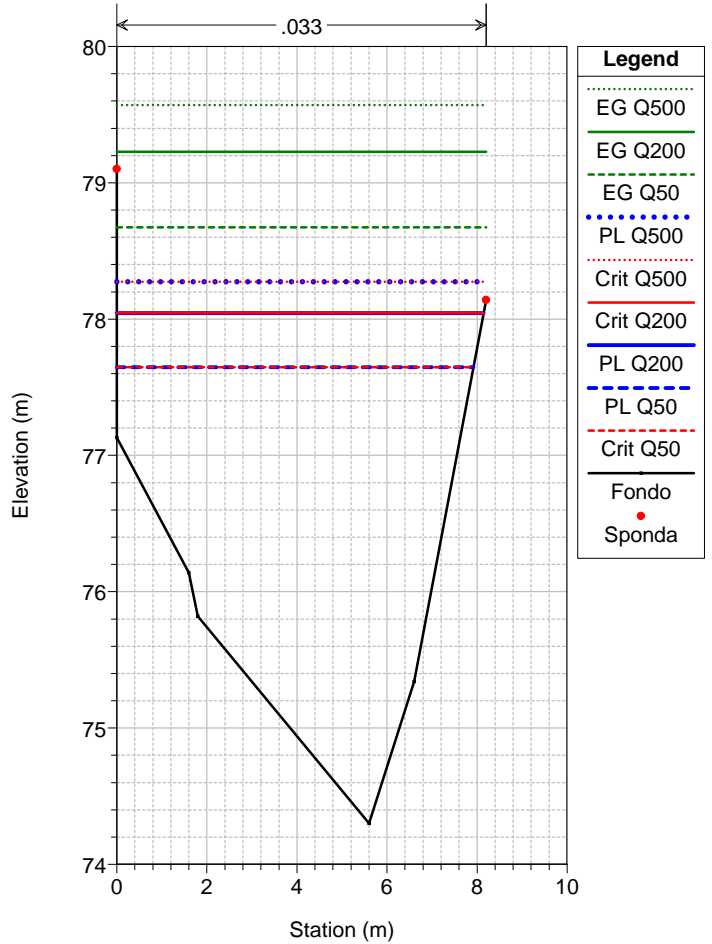
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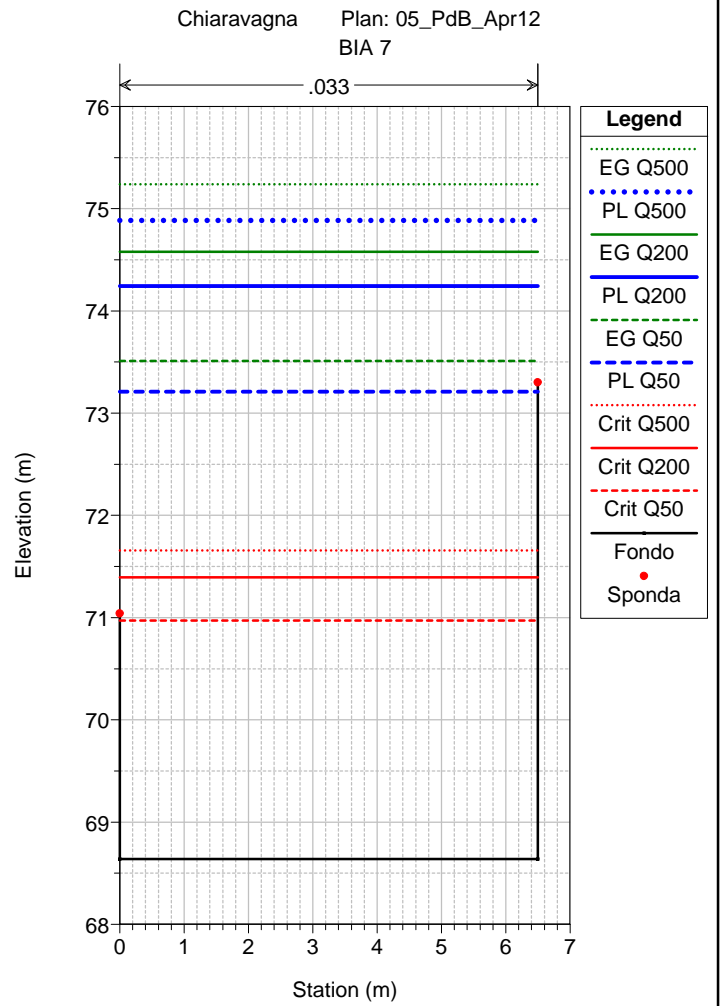
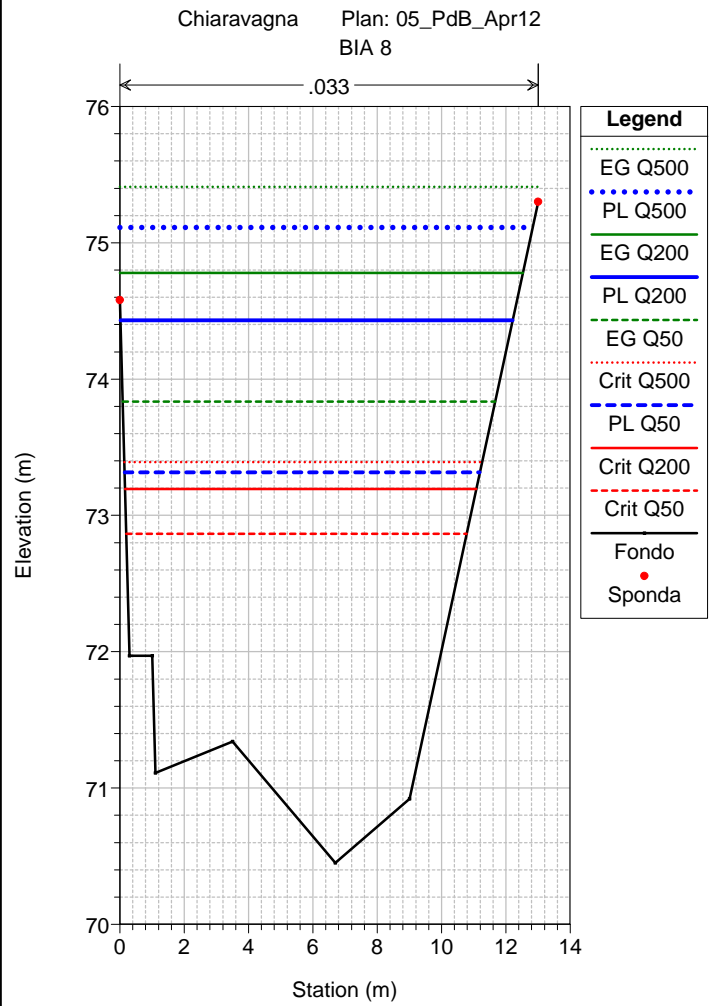
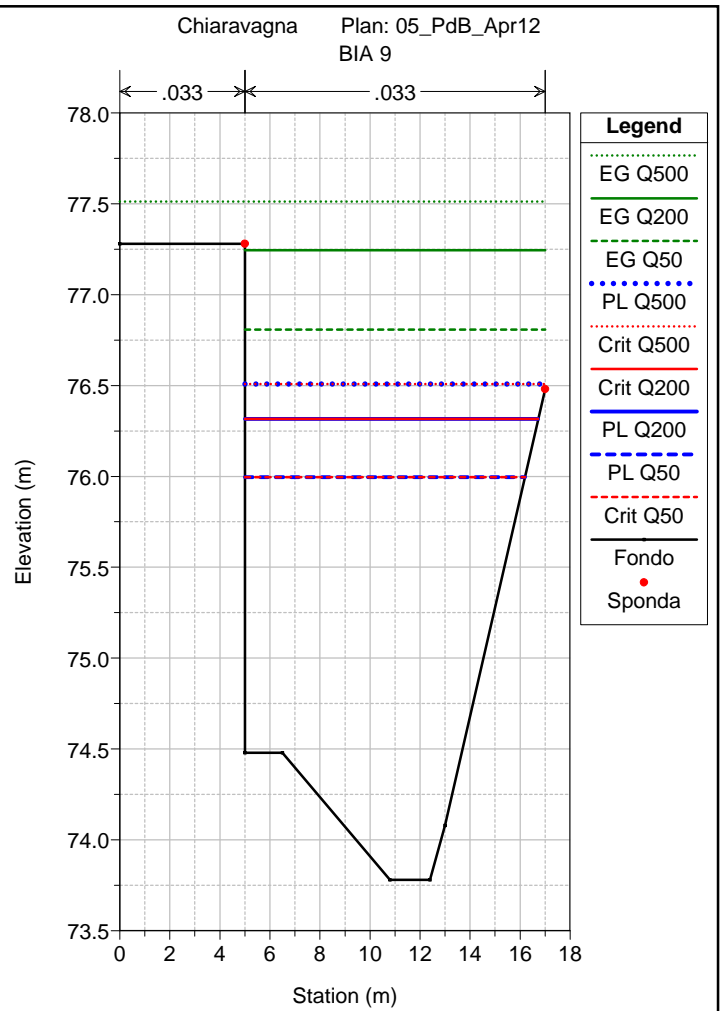
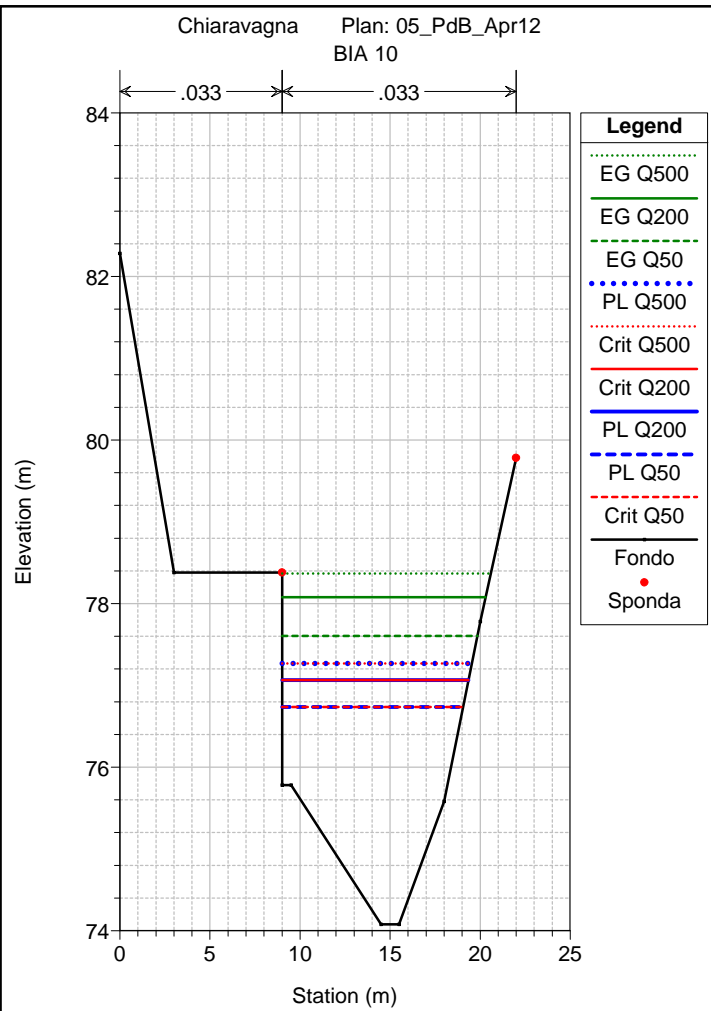


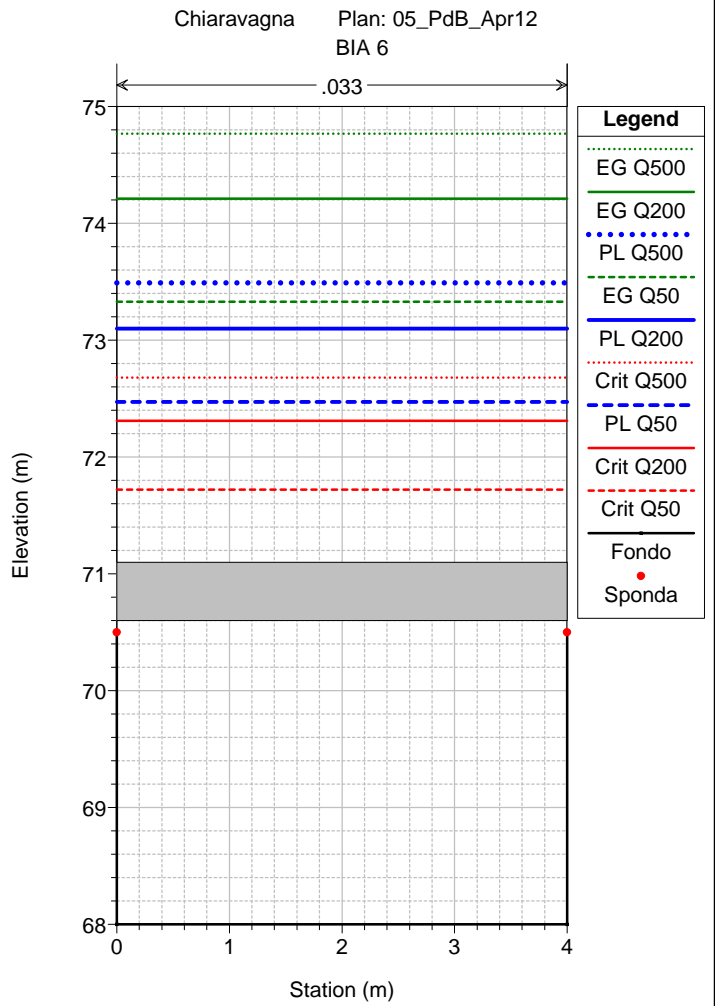
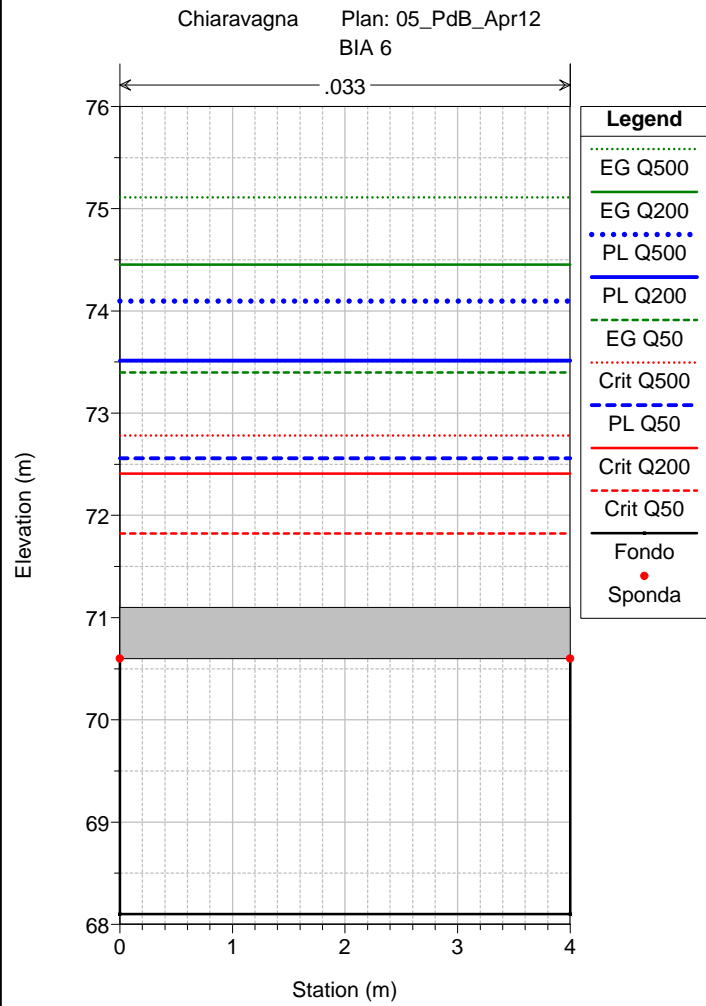
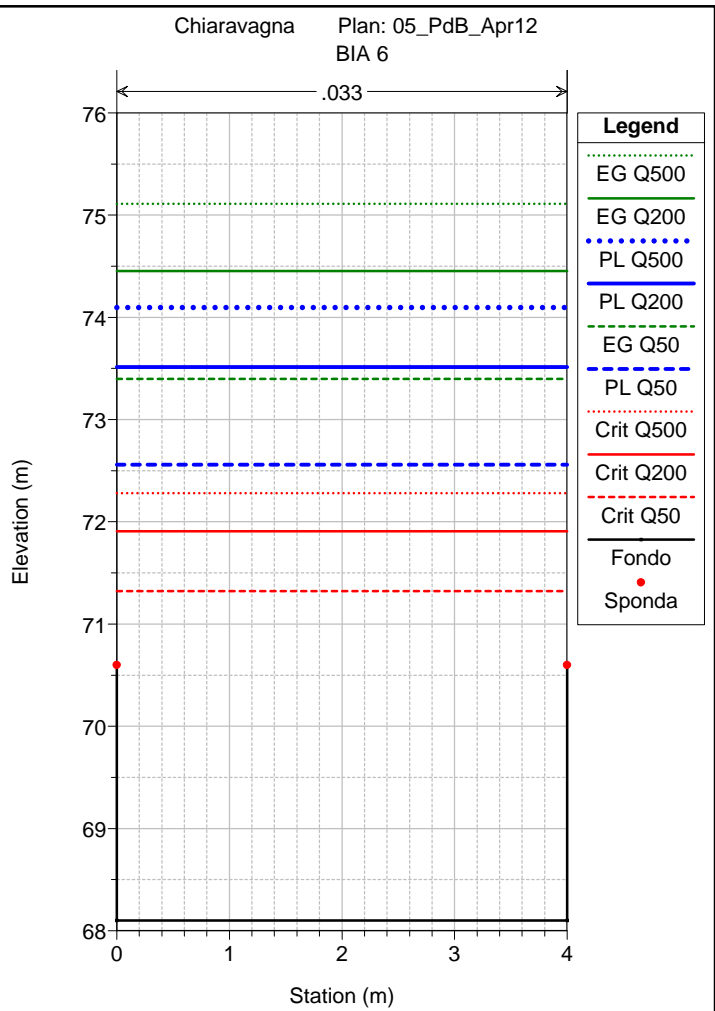
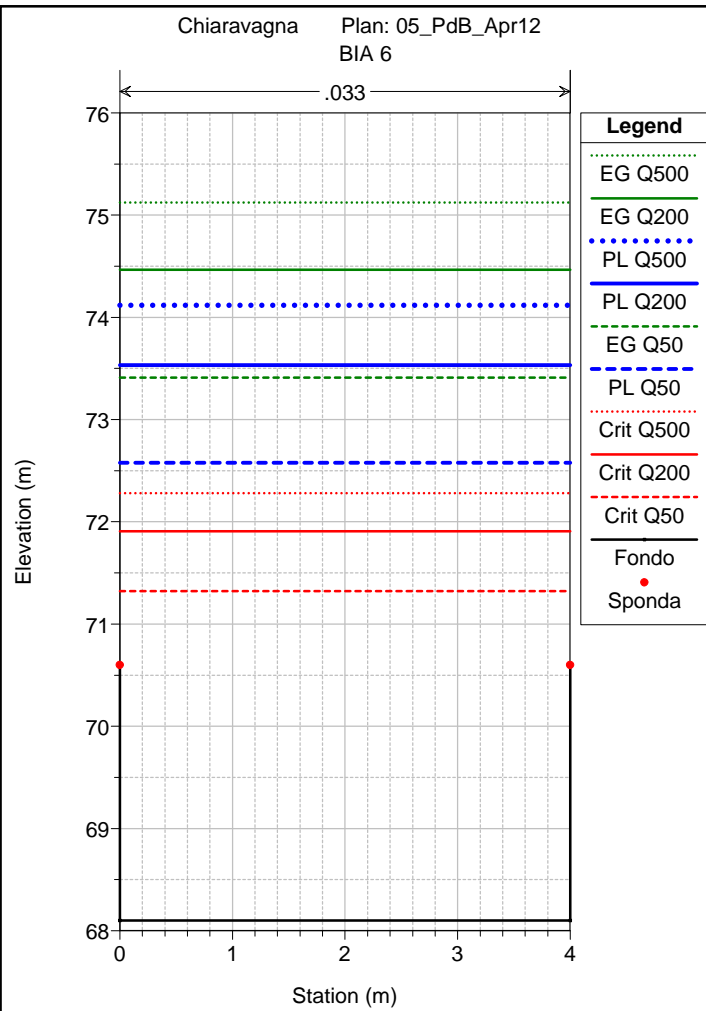
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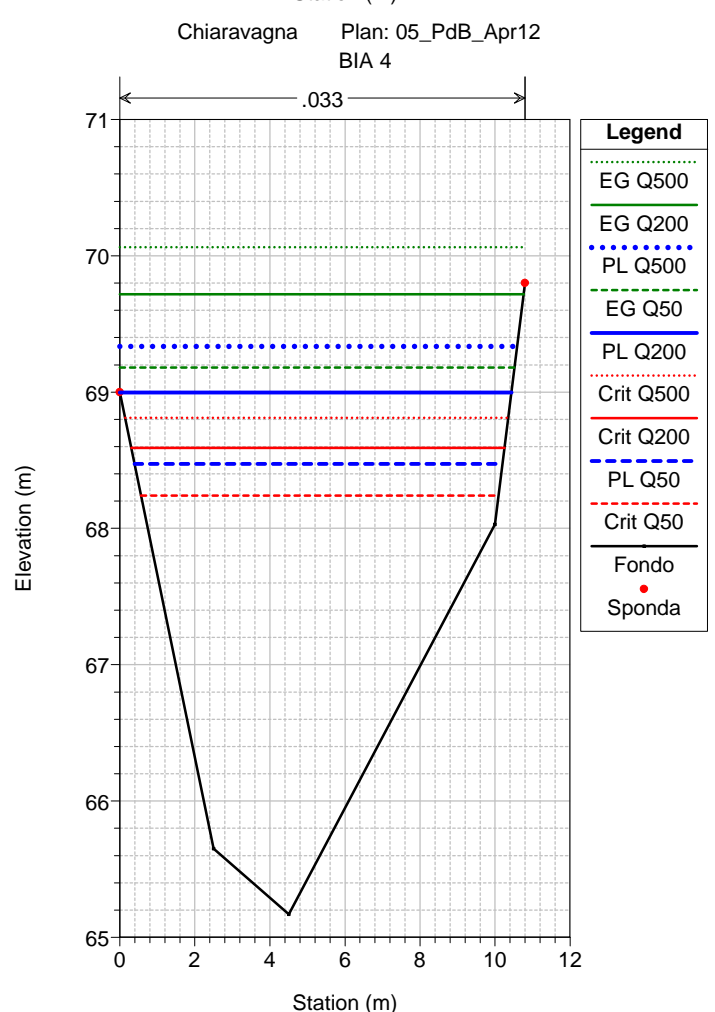
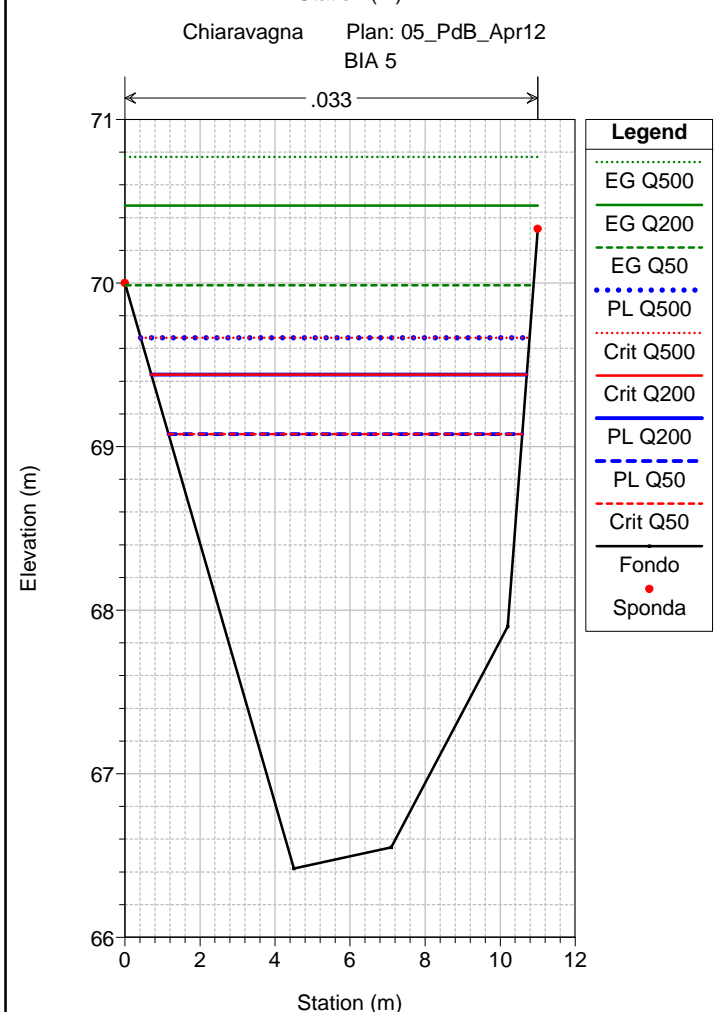
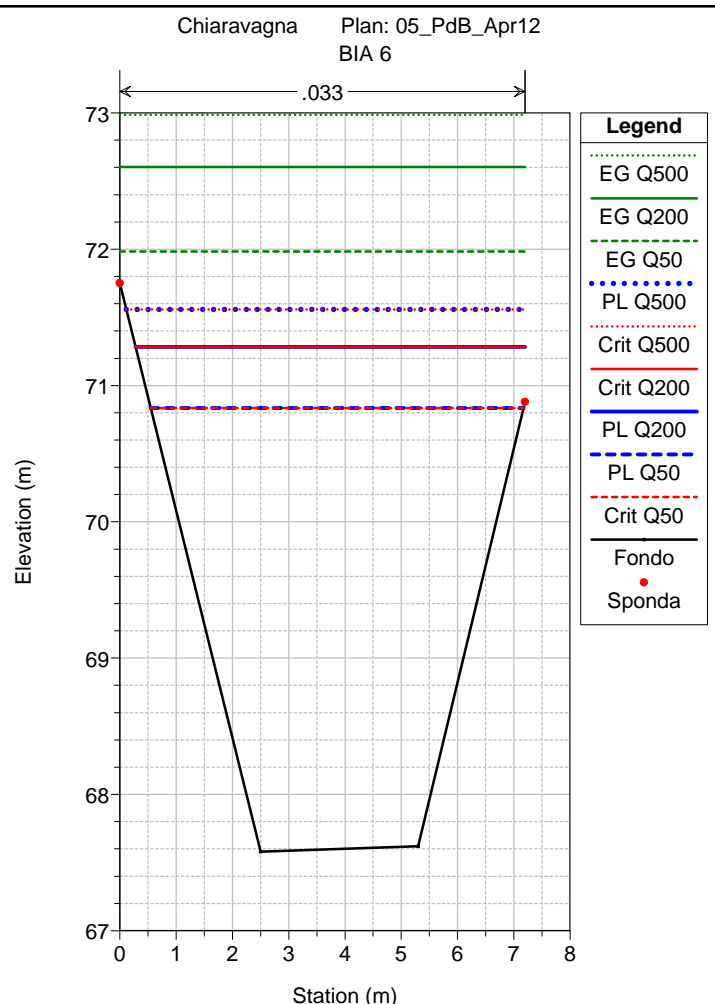
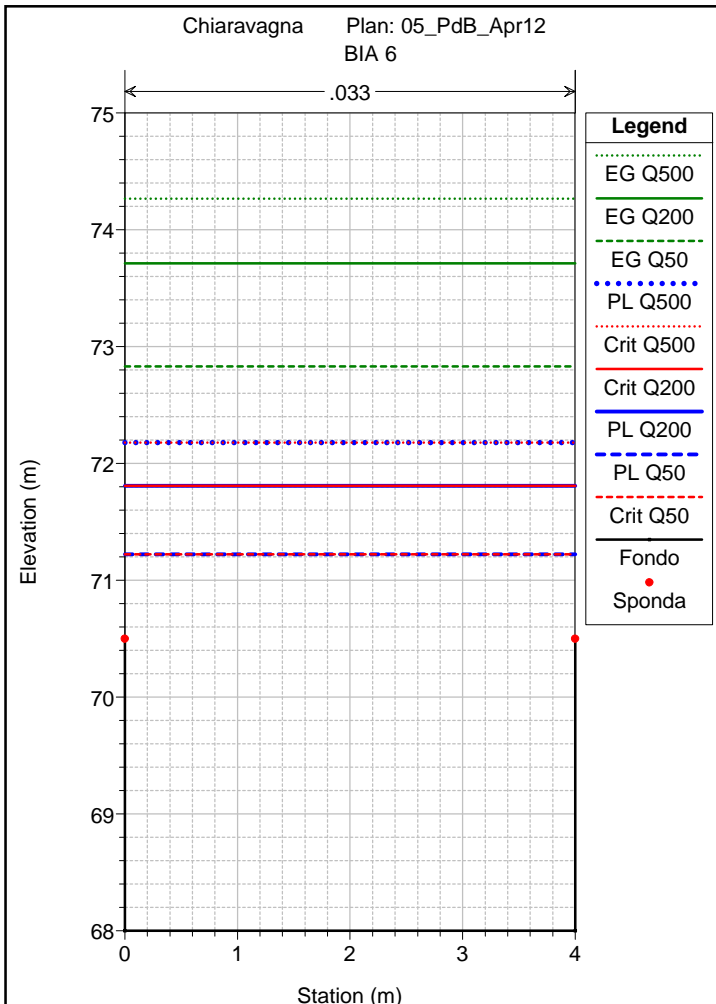


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BIA 11

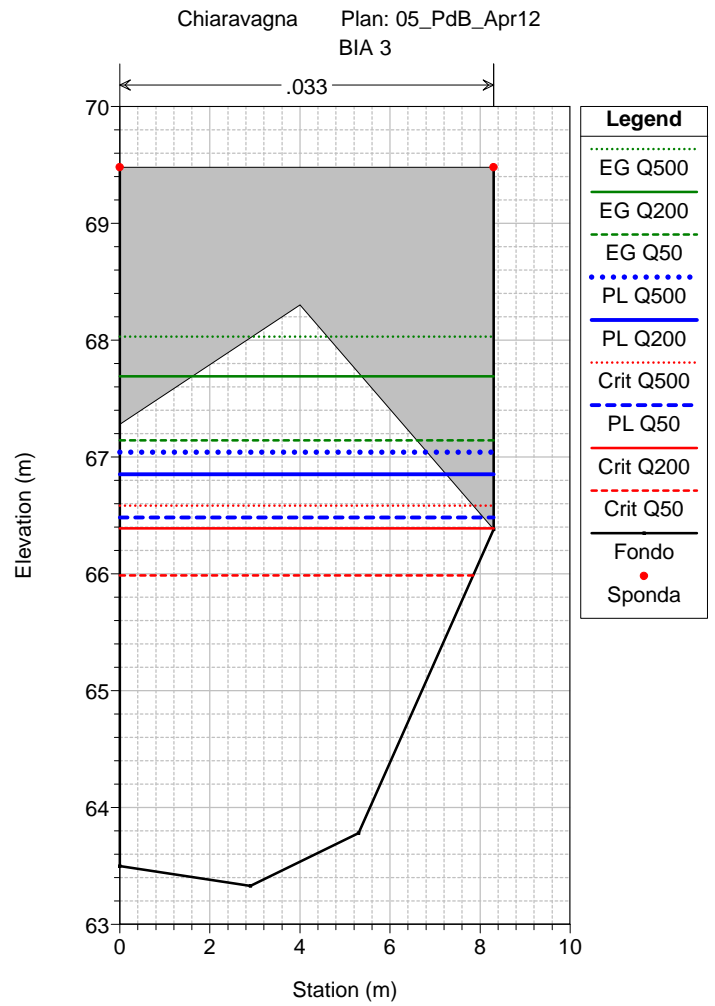
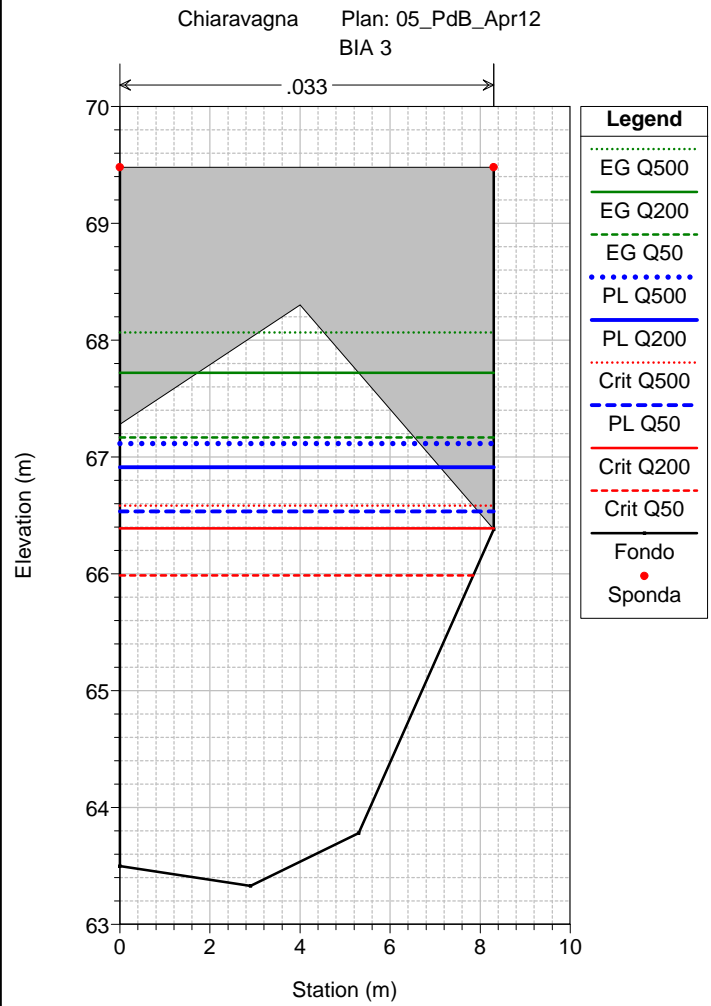
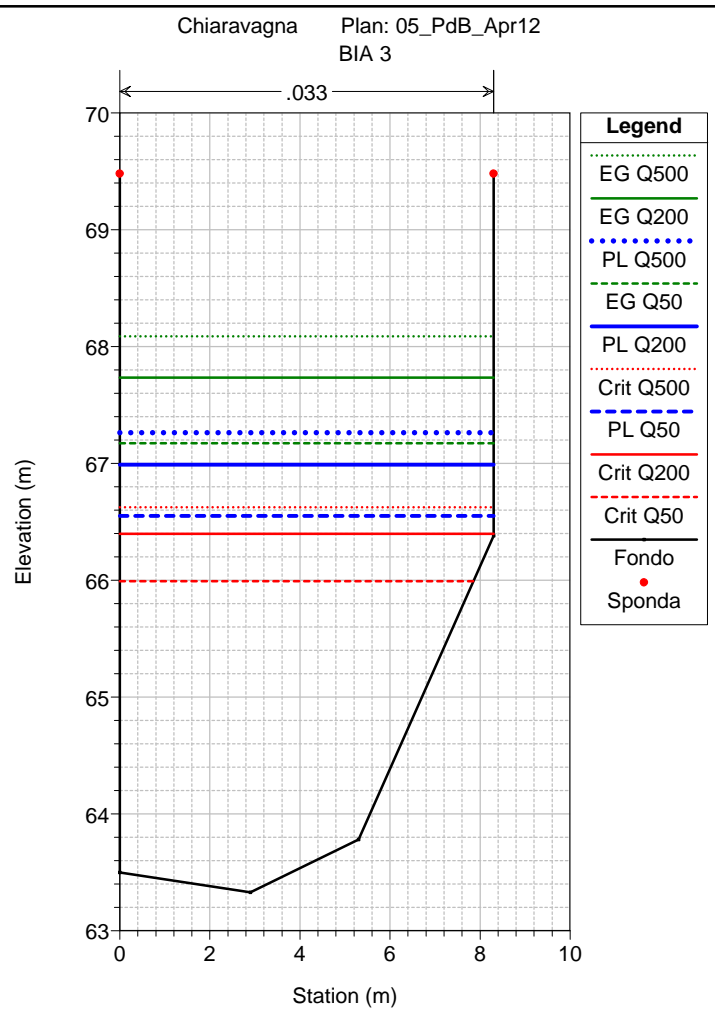
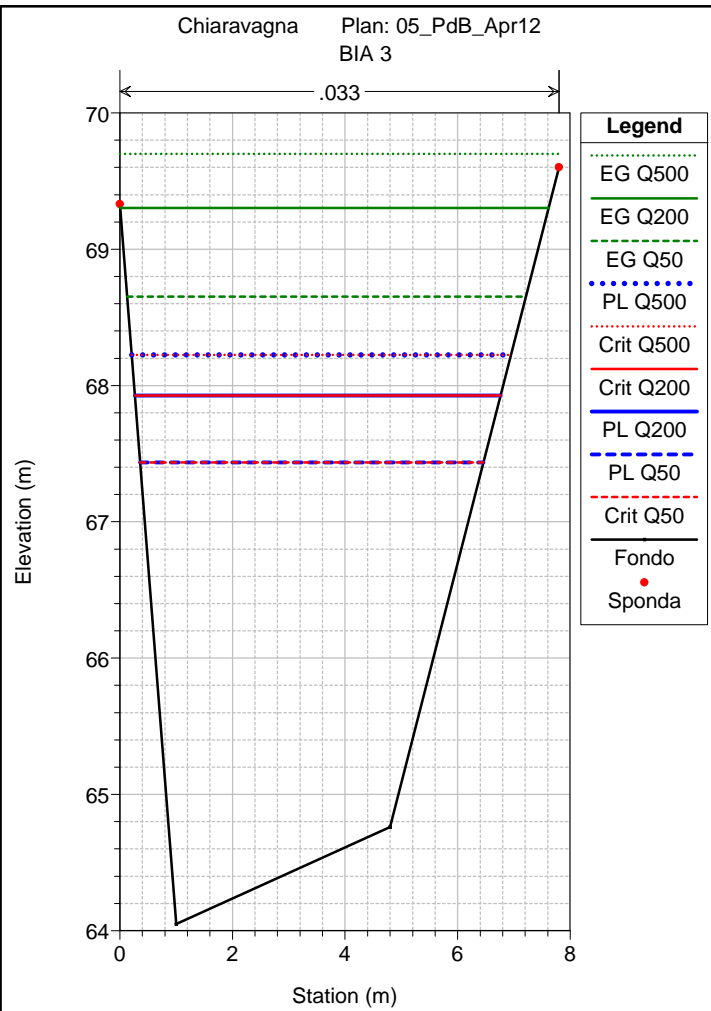




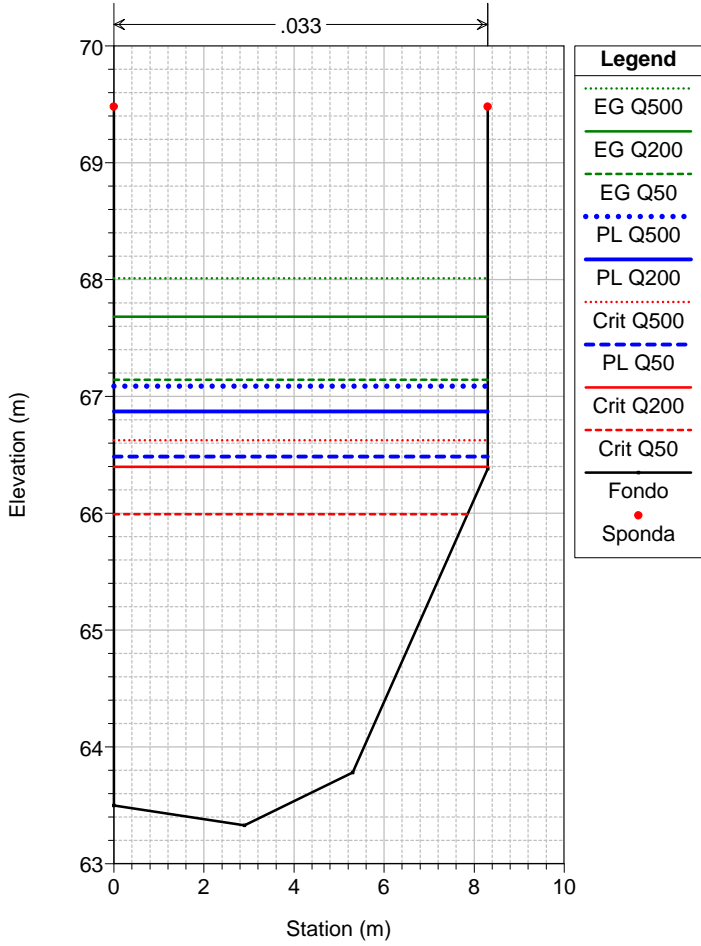




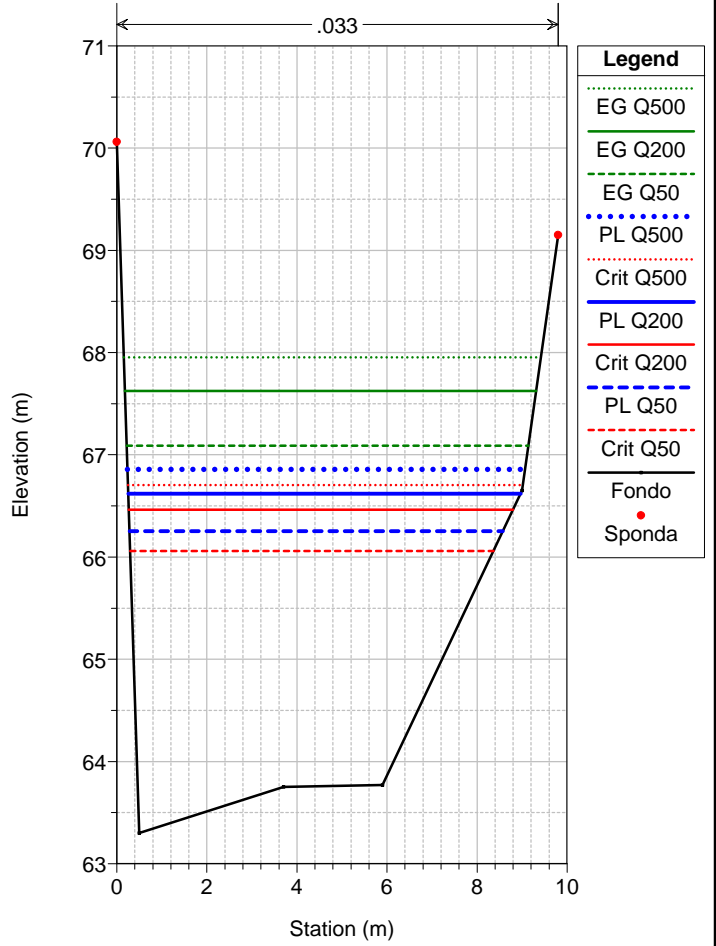




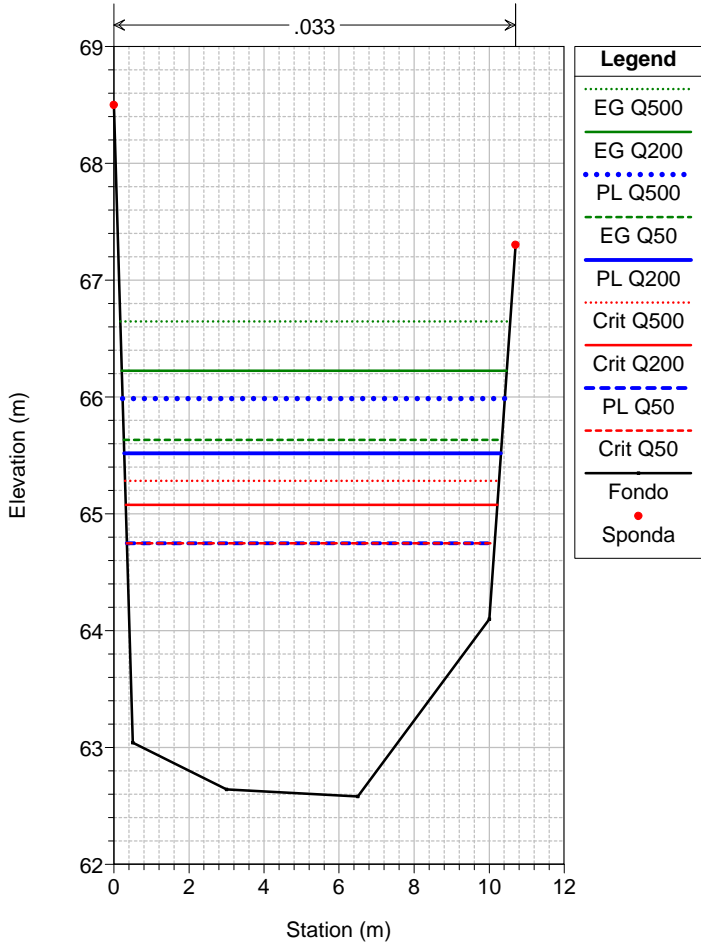
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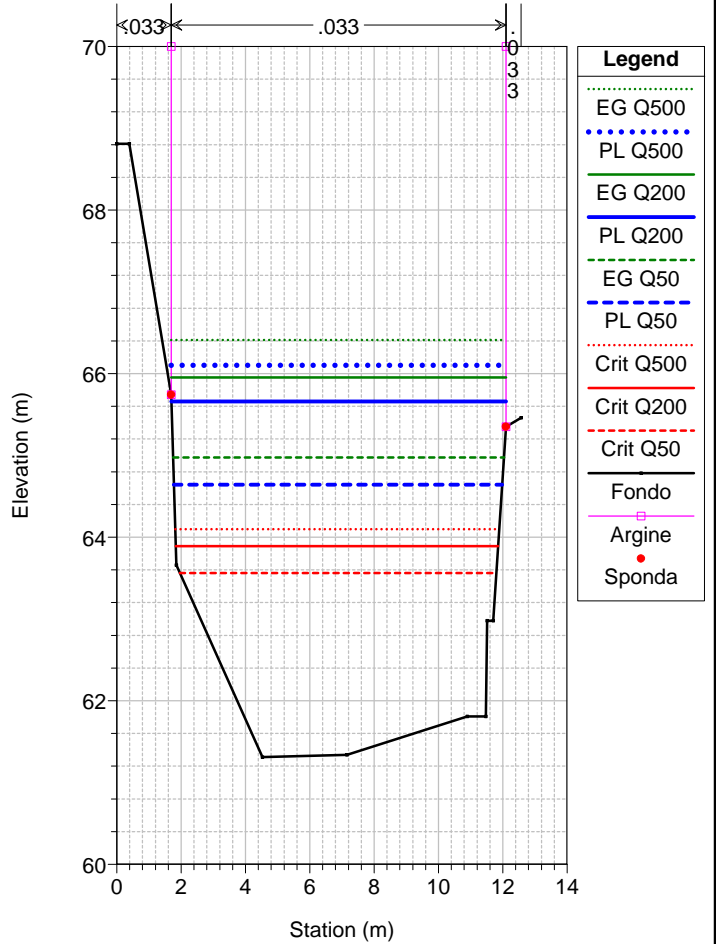
Chiaravagna Plan: 05\_PdB\_Apr12  
BIA 3

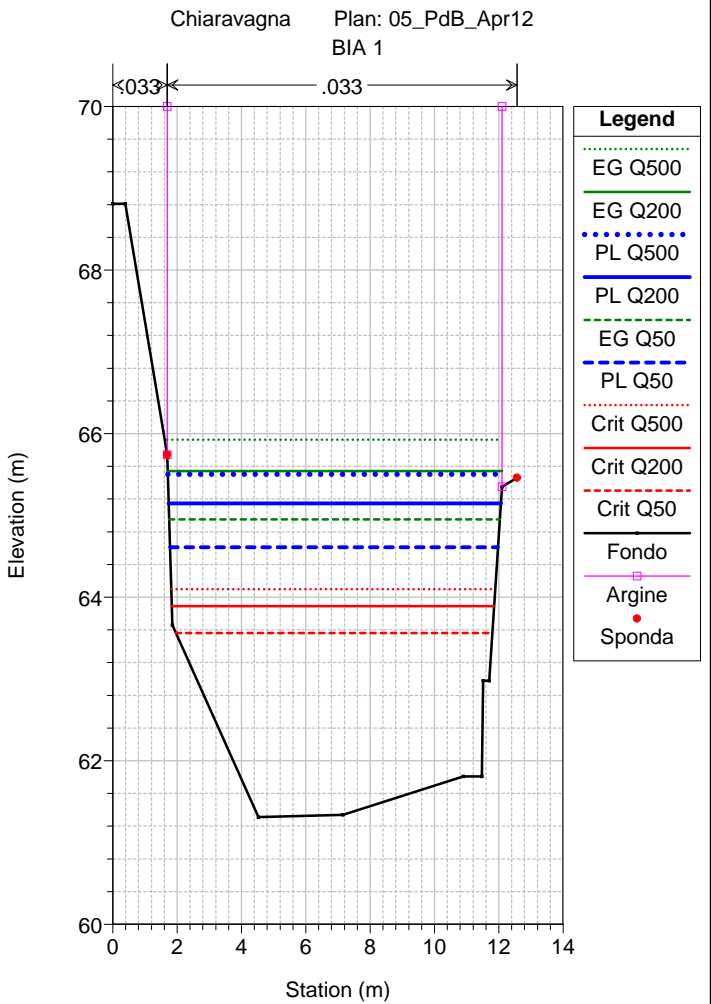
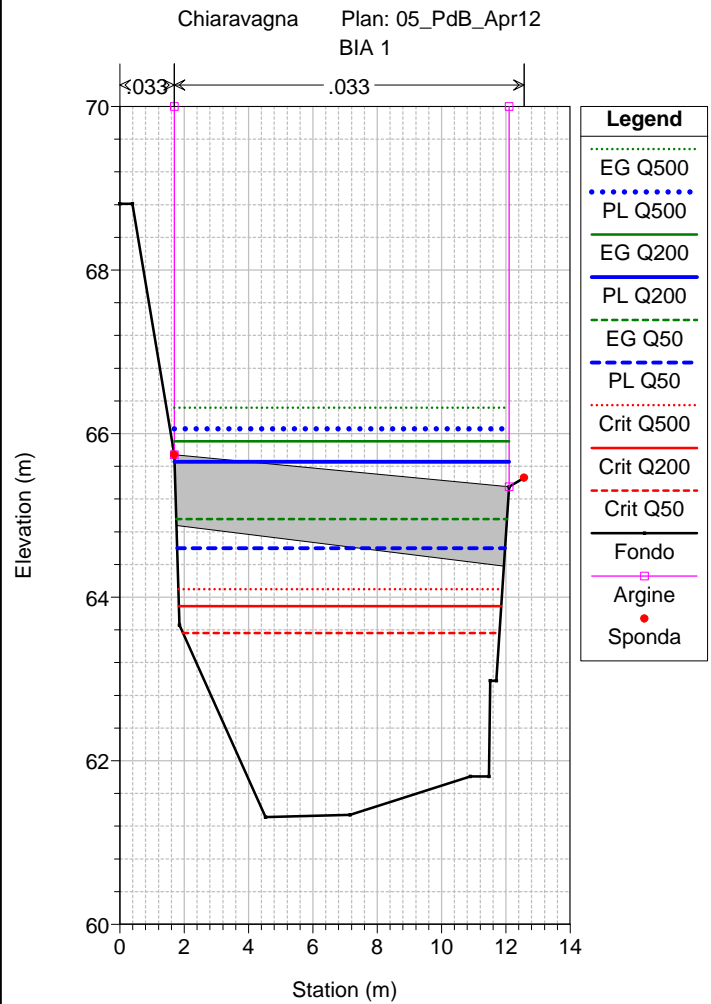
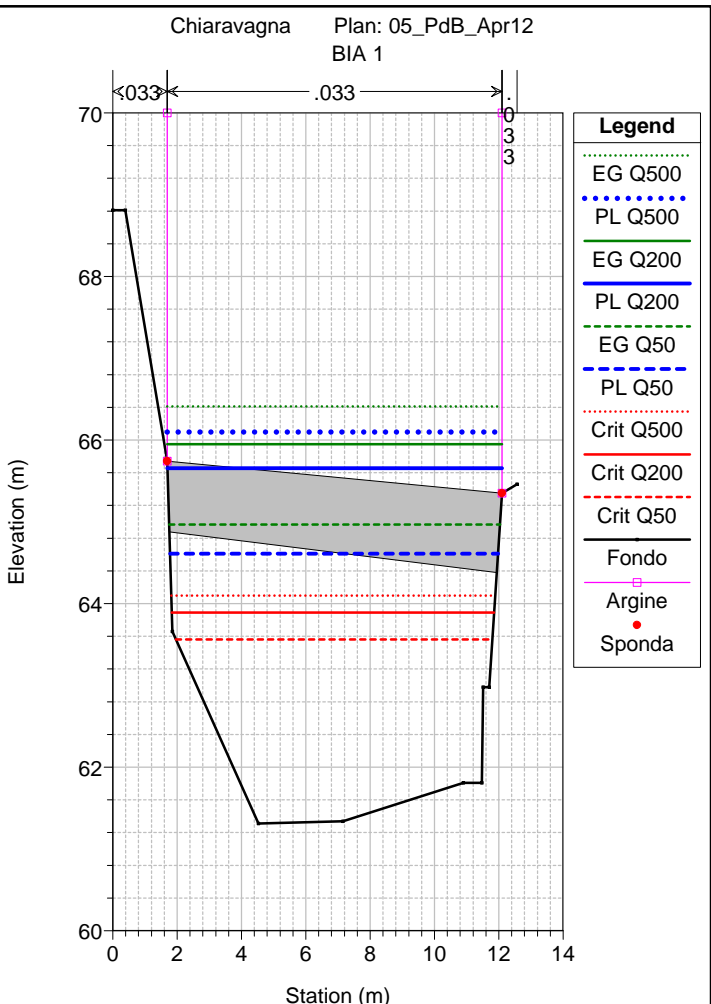
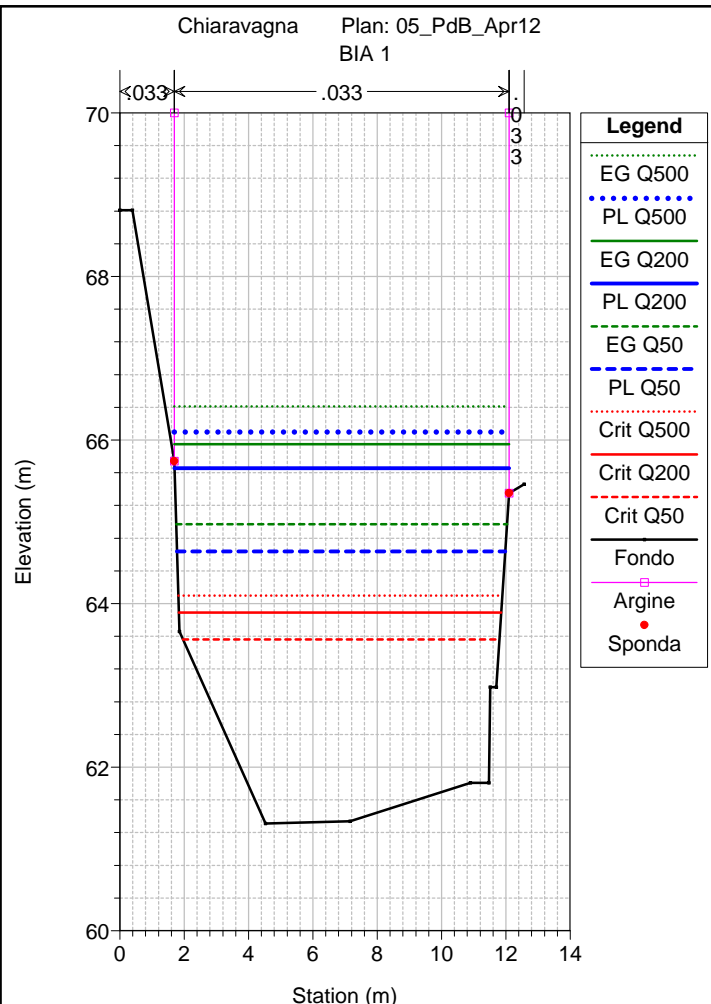


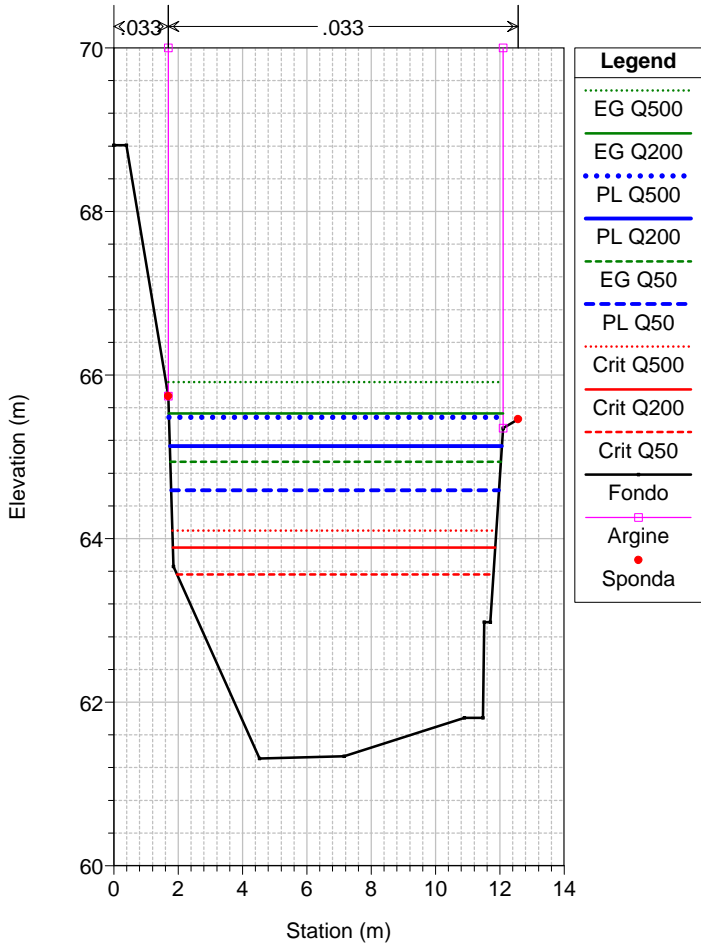
Chiaravagna Plan: 05\_PdB\_Apr12  
BIA 2



Chiaravagna Plan: 05\_PdB\_Apr12  
BIA 1







HEC-RAS Plan: 05\_Apr12 River: Bianchetta Reach: unico

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
unico	994.1	Q50	72.40	116.58	118.86	118.54	-0.32	119.00	0.14	118.86	119.76	0.017996	4.19	17.27	9.63	1.00
unico	994.1	Q200	93.10	116.58	119.19	118.54	-0.65	119.00	-0.19	119.19	120.24	0.018161	4.55	20.45	9.70	1.00
unico	994.1	Q500	107.00	116.58	119.40	118.54	-0.86	119.00	-0.40	119.40	120.55	0.018331	4.77	22.45	9.70	1.00
unico	894.1 BIA 31	Q50	72.40	111.34	113.62	113.30	-0.32	113.76	0.14	113.62	114.52	0.017982	4.19	17.27	9.63	1.00
unico	894.1 BIA 31	Q200	93.10	111.34	113.95	113.30	-0.65	113.76	-0.19	113.95	115.00	0.018227	4.56	20.43	9.70	1.00
unico	894.1 BIA 31	Q500	107.00	111.34	114.16	113.30	-0.86	113.76	-0.40	114.16	115.31	0.018291	4.76	22.47	9.70	1.00
unico	869.1 BIA 30	Q50	72.40	110.03	112.54	113.00	0.46	112.42	-0.12	112.54	113.35	0.016493	4.01	18.07	11.01	1.00
unico	869.1 BIA 30	Q200	93.10	110.03	112.86	113.00	0.14	112.42	-0.44	112.86	113.79	0.016262	4.28	21.76	11.64	1.00
unico	869.1 BIA 30	Q500	107.00	110.03	113.06	113.00	-0.06	112.42	-0.64	113.06	114.06	0.016189	4.45	24.06	11.90	1.00
unico	868.1 BIA 30	Q50	72.40	108.83	111.30	111.80	0.50	111.22	-0.08	111.30	112.12	0.016127	4.02	18.03	10.94	1.00
unico	868.1 BIA 30	Q200	93.10	108.83	111.63	111.80	0.17	111.22	-0.41	111.63	112.57	0.015909	4.29	21.72	11.57	1.00
unico	868.1 BIA 30	Q500	107.00	108.83	111.83	111.80	-0.03	111.22	-0.61	111.83	112.84	0.015845	4.45	24.05	11.90	1.00
unico	843.1 BIA 29	Q50	72.40	107.56	110.59	112.00	1.41	110.63	0.04	110.59	111.46	0.016610	4.15	17.46	9.96	1.00
unico	843.1 BIA 29	Q200	93.10	107.56	110.94	112.00	1.06	110.63	-0.31	110.94	111.93	0.016452	4.42	21.05	10.58	1.00
unico	843.1 BIA 29	Q500	107.00	107.56	111.15	112.00	0.85	110.63	-0.52	111.15	112.22	0.016303	4.57	23.40	10.96	1.00
unico	793.1 BIA 28	Q50	72.40	103.70	106.99	107.40	0.41	107.18	0.20	106.99	108.13	0.020853	4.74	15.27	6.64	1.00
unico	793.1 BIA 28	Q200	93.10	103.70	107.23	107.40	0.17	107.18	-0.04	107.23	108.78	0.030955	5.52	16.86	5.40	0.94
unico	793.1 BIA 28	Q500	107.00	103.70	107.26	107.40	0.14	107.18	-0.08	107.26	109.27	0.044738	6.28	17.03	4.27	1.06
unico	776.1 BIA 27	Q50	72.40	104.35	106.70	107.37	0.67	106.13	-0.57	106.70	107.66	0.017778	4.33	16.70	8.71	1.00
unico	776.1 BIA 27	Q200	93.10	104.35	107.06	107.37	0.31	106.13	-0.93	107.06	108.18	0.018061	4.69	19.85	8.92	1.00
unico	776.1 BIA 27	Q500	107.00	104.35	107.29	107.37	0.08	106.13	-1.16	107.29	108.51	0.018032	4.88	21.95	9.06	1.00
unico	743.2 BIA 26	Q50	72.40	101.96	104.23	104.00	-0.23	103.70	-0.53	104.23	104.86	0.016619	3.52	20.55	16.20	1.00
unico	743.2 BIA 26	Q200	93.10	101.96	104.46	104.00	-0.46	103.70	-0.76	104.46	105.21	0.016302	3.83	24.29	16.20	1.00
unico	743.2 BIA 26	Q500	107.00	101.96	104.61	104.00	-0.61	103.70	-0.91	104.61	105.43	0.016087	4.01	26.67	16.20	1.00
unico	713.2 BIA 25	Q50	72.40	99.73	102.64	104.00	1.36	102.74	0.10	102.64	103.68	0.019579	4.54	15.96	7.64	1.00
unico	713.2 BIA 25	Q200	93.10	99.73	103.05	104.00	0.95	102.74	-0.31	103.05	104.25	0.019590	4.84	19.23	8.05	1.00
unico	713.2 BIA 25	Q500	107.00	99.73	103.31	104.00	0.69	102.74	-0.57	103.31	104.59	0.019643	5.02	21.32	8.31	1.00
unico	678.2 BIA 24	Q50	72.40	97.21	100.49	102.13	1.64	102.24	1.75	99.84	100.99	0.007317	3.11	23.26	10.26	0.66
unico	678.2 BIA 24	Q200	93.10	97.21	101.16	102.13	0.97	102.24	1.08	100.22	101.63	0.005818	3.05	30.50	11.47	0.60
unico	678.2 BIA 24	Q500	107.00	97.21	102.85	102.13	-0.72	102.24	-0.61	100.45	103.07	0.001779	2.05	52.11	13.30	0.33
unico	674.7 BIA 24		Bridge													
unico	673.2 BIA 24	Q50	72.40	97.21	99.84	102.13	2.29	102.24	2.40	99.84	100.77	0.011867	4.28	16.92	9.08	1.00
unico	673.2 BIA 24	Q200	93.10	97.21	100.22	102.13	1.91	102.24	2.02	100.22	101.27	0.011612	4.54	20.50	9.76	1.00
unico	673.2 BIA 24	Q500	107.00	97.21	100.45	102.13	1.68	102.24	1.79	100.45	101.57	0.011437	4.69	22.84	10.19	1.00
unico	650.2 BIA 23	Q50	72.40	97.33	99.40	100.55	1.15	100.00	0.60	99.40	100.00	0.010695	3.41	21.22	17.93	1.00
unico	650.2 BIA 23	Q200	93.10	97.33	99.64	100.55	0.91	100.00	0.36	99.64	100.32	0.010257	3.66	25.44	18.59	1.00
unico	650.2 BIA 23	Q500	107.00	97.33	99.78	100.55	0.77	100.00	0.22	99.78	100.52	0.010082	3.81	28.08	19.00	1.00

HEC-RAS Plan: 05\_Apr12 River: Bianchetta Reach: unico (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
unico	622.2 BIA 22	Q50	72.40	97.14	98.76	100.00	1.24	98.73	-0.03	98.76	99.33	0.010697	3.35	21.60	18.89	1.00
unico	622.2 BIA 22	Q200	93.10	97.14	98.97	100.00	1.03	98.73	-0.24	98.97	99.64	0.010318	3.62	25.72	19.24	1.00
unico	622.2 BIA 22	Q500	107.00	97.14	99.11	100.00	0.89	98.73	-0.38	99.11	99.83	0.010119	3.78	28.34	19.46	1.00
unico	620.2 BIA 21	Q50	72.40	91.30	94.38	98.90	4.52	98.00	3.62	94.38	95.30	0.011628	4.24	17.06	9.27	1.00
unico	620.2 BIA 21	Q200	93.10	91.30	94.76	98.90	4.14	98.00	3.24	94.76	95.78	0.011388	4.48	20.79	10.22	1.00
unico	620.2 BIA 21	Q500	107.00	91.30	95.00	98.90	3.90	98.00	3.00	95.00	96.07	0.011177	4.60	23.26	10.80	1.00
unico	551.3 BIA 20	Q50	72.40	88.28	90.48	90.98	0.50	90.28	-0.20	90.48	90.87	0.006545	3.08	29.71	33.50	0.73
unico	551.3 BIA 20	Q200	93.10	88.28	90.63	90.98	0.35	90.28	-0.35	90.63	91.07	0.007171	3.36	34.52	33.65	0.77
unico	551.3 BIA 20	Q500	107.00	88.28	90.72	90.98	0.26	90.28	-0.44	90.72	91.20	0.007424	3.51	37.62	33.75	0.79
unico	506.3 BIA 19	Q50	72.40	86.18	88.04	90.78	2.74	89.48	1.44	88.04	88.74	0.010787	3.70	19.55	14.00	1.00
unico	506.3 BIA 19	Q200	93.10	86.18	88.32	90.78	2.46	89.48	1.16	88.32	89.12	0.010444	3.96	23.49	14.65	1.00
unico	506.3 BIA 19	Q500	107.00	86.18	88.49	90.78	2.29	89.48	0.99	88.49	89.35	0.010259	4.11	26.03	15.05	1.00
unico	491.3 BIA 18	Q50	72.40	82.78	85.71	89.28	3.57	90.98	5.27	85.71	86.85	0.015208	4.73	15.29	6.71	1.00
unico	491.3 BIA 18	Q200	93.10	82.78	86.17	89.28	3.11	90.98	4.81	86.17	87.47	0.015227	5.04	18.48	7.13	1.00
unico	491.3 BIA 18	Q500	107.00	82.78	86.45	89.28	2.83	90.98	4.53	86.45	87.84	0.015246	5.21	20.52	7.39	1.00
unico	482.3 BIA 17	Q50	72.40	81.78	84.56	88.78	4.22	92.78	8.22	84.56	85.59	0.013915	4.51	16.04	7.70	1.00
unico	482.3 BIA 17	Q200	93.10	81.78	84.97	88.78	3.81	92.78	7.81	84.97	86.15	0.013884	4.82	19.32	8.14	1.00
unico	482.3 BIA 17	Q500	107.00	81.78	85.21	88.78	3.57	92.78	7.57	85.21	86.49	0.014017	5.02	21.31	8.32	1.00
unico	462.3 BIA 15	Q50	72.40	80.38	83.18	87.58	4.40	86.28	3.10	83.18	84.18	0.012536	4.44	16.31	8.11	1.00
unico	462.3 BIA 15	Q200	93.10	80.38	83.58	87.58	4.00	86.28	2.70	83.58	84.72	0.012579	4.74	19.62	8.55	1.00
unico	462.3 BIA 15	Q500	107.00	80.38	83.82	87.58	3.76	86.28	2.46	83.82	85.06	0.012579	4.92	21.77	8.83	1.00
unico	462.2 BIA 15	Q50	72.40	78.18	81.10	87.58	6.48	86.28	5.18	81.10	82.23	0.014658	4.71	15.37	6.77	1.00
unico	462.2 BIA 15	Q200	93.10	78.18	81.55	87.58	6.03	86.28	4.73	81.55	82.83	0.014692	5.02	18.55	7.22	1.00
unico	462.2 BIA 15	Q500	107.00	78.18	81.83	87.58	5.75	86.28	4.45	81.83	83.20	0.014701	5.19	20.61	7.50	1.00
unico	453.2 BIA 14	Q50	72.40	77.28	79.82	86.78	6.96	81.78	1.96	79.82	80.88	0.013560	4.57	15.85	7.50	1.00
unico	453.2 BIA 14	Q200	93.10	77.28	80.24	86.78	6.54	81.78	1.54	80.24	81.45	0.013459	4.87	19.12	7.92	1.00
unico	453.2 BIA 14	Q500	107.00	77.28	80.50	86.78	6.28	81.78	1.28	80.50	81.80	0.013452	5.05	21.20	8.18	1.00
unico	433.2 BIA 13	Q50	72.40	76.17	79.12	80.28	1.16	80.38	1.26	78.92	80.16	0.013102	4.52	16.03	6.18	0.89
unico	433.2 BIA 13	Q200	93.10	76.17	79.59	80.28	0.69	80.38	0.79	79.39	80.81	0.013743	4.89	19.03	6.42	0.91
unico	433.2 BIA 13	Q500	107.00	76.17	79.89	80.28	0.39	80.38	0.49	79.69	81.22	0.014036	5.10	20.99	6.57	0.91
unico	433 BIA 13		Bridge													
unico	428.2 BIA 13	Q50	72.40	76.00	78.75	80.28	1.53	80.38	1.63	78.75	79.98	0.016335	4.90	14.77	6.03	1.00
unico	428.2 BIA 13	Q200	93.10	76.00	79.22	80.28	1.06	80.38	1.16	79.22	80.64	0.016791	5.27	17.66	6.26	1.00
unico	428.2 BIA 13	Q500	107.00	76.00	79.52	80.28	0.76	80.38	0.86	79.52	81.05	0.016998	5.48	19.53	6.40	1.00
unico	421.2 BIA 12	Q50	72.40	75.78	78.43	79.78	1.35	81.18	2.75	78.43	79.63	0.015989	4.84	14.95	6.27	1.00
unico	421.2 BIA 12	Q200	93.10	75.78	78.90	79.78	0.88	81.18	2.28	78.90	80.27	0.016245	5.19	17.92	6.50	1.00



HEC-RAS Plan: 05\_Apr12 River: Bianchetta Reach: unico (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
unico	421.2 BIA 12	Q500	107.00	75.78	79.30	79.78	0.48	81.18	1.88	79.30	80.66	0.015714	5.16	20.75	7.65	1.00
unico	397.2 BIA 11	Q50	72.40	74.30	77.65	79.10	1.45	78.14	0.49	77.65	78.67	0.013113	4.49	16.13	7.92	1.00
unico	397.2 BIA 11	Q200	93.10	74.30	78.04	79.10	1.06	78.14	0.10	78.04	79.23	0.013132	4.82	19.32	8.15	1.00
unico	397.2 BIA 11	Q500	107.00	74.30	78.27	79.10	0.83	78.14	-0.13	78.27	79.57	0.013407	5.05	21.21	8.20	1.00
unico	390.2 BIA 10	Q50	72.40	74.08	76.73	78.38	1.65	79.78	3.05	76.73	77.60	0.011492	4.13	17.52	10.05	1.00
unico	390.2 BIA 10	Q200	93.10	74.08	77.07	78.38	1.31	79.78	2.71	77.07	78.08	0.011452	4.45	20.91	10.35	1.00
unico	390.2 BIA 10	Q500	107.00	74.08	77.27	78.38	1.11	79.78	2.51	77.27	78.37	0.011498	4.65	23.03	10.54	1.00
unico	370.2 BIA 9	Q50	72.40	73.78	76.00	77.28	1.28	76.48	0.48	76.00	76.81	0.011554	3.99	18.14	11.19	1.00
unico	370.2 BIA 9	Q200	93.10	73.78	76.32	77.28	0.96	76.48	0.16	76.32	77.24	0.011317	4.27	21.81	11.73	1.00
unico	370.2 BIA 9	Q500	107.00	73.78	76.51	77.28	0.77	76.48	-0.03	76.51	77.51	0.011254	4.44	24.10	12.00	1.00
unico	270.2 BIA 8	Q50	72.40	70.45	73.32	74.58	1.26	75.30	1.98	72.86	73.84	0.005990	3.20	22.66	11.04	0.71
unico	270.2 BIA 8	Q200	93.10	70.45	74.43	74.58	0.15	75.30	0.87	73.19	74.78	0.002749	2.61	35.62	12.19	0.49
unico	270.2 BIA 8	Q500	107.00	70.45	75.11	74.58	-0.53	75.30	0.19	73.39	75.41	0.002005	2.42	44.14	12.83	0.42
unico	190.2 BIA 7	Q50	72.40	68.64	73.21	71.04	-2.17	73.30	0.09	70.97	73.51	0.002751	2.44	29.70	6.50	0.36
unico	190.2 BIA 7	Q200	93.10	68.64	74.24	71.04	-3.20	73.30	-0.94	71.39	74.58	0.002719	2.56	36.43	6.50	0.34
unico	190.2 BIA 7	Q500	107.00	68.64	74.89	71.04	-3.85	73.30	-1.59	71.66	75.24	0.002746	2.64	40.60	6.50	0.34
unico	180.2 BIA 6	Q50	72.40	68.10	72.58	70.60	-1.98	70.60	-1.98	71.32	73.41	0.011561	4.04	17.91	4.00	0.61
unico	180.2 BIA 6	Q200	93.10	68.10	73.53	70.60	-2.93	70.60	-2.93	71.91	74.47	0.012055	4.29	21.73	4.00	0.59
unico	180.2 BIA 6	Q500	107.00	68.10	74.12	70.60	-3.52	70.60	-3.52	72.28	75.12	0.012522	4.45	24.07	4.00	0.58
unico	179.2 BIA 6	Q50	72.40	68.10	72.56	70.60	-1.96	70.60	-1.96	71.32	73.40	0.011676	4.06	17.83	4.00	0.61
unico	179.2 BIA 6	Q200	93.10	68.10	73.51	70.60	-2.91	70.60	-2.91	71.91	74.45	0.012155	4.30	21.65	4.00	0.59
unico	179.2 BIA 6	Q500	107.00	68.10	74.10	70.60	-3.50	70.60	-3.50	72.28	75.11	0.012618	4.46	23.99	4.00	0.58
unico	176.2 BIA 6		Bridge													
unico	173.2 BIA 6	Q50	72.40	68.00	71.22	70.50	-0.72	70.50	-0.72	71.22	72.83	0.025988	5.62	12.88	4.00	1.00
unico	173.2 BIA 6	Q200	93.10	68.00	71.81	70.50	-1.31	70.50	-1.31	71.81	73.71	0.028347	6.11	15.23	4.00	1.00
unico	173.2 BIA 6	Q500	107.00	68.00	72.18	70.50	-1.68	70.50	-1.68	72.18	74.27	0.029827	6.40	16.72	4.00	1.00
unico	168.2 BIA 6	Q50	72.40	67.58	70.84	71.75	0.91	70.88	0.04	70.84	71.98	0.014575	4.75	15.25	6.63	1.00
unico	168.2 BIA 6	Q200	93.10	67.58	71.28	71.75	0.47	70.88	-0.40	71.28	72.60	0.014829	5.09	18.29	6.92	1.00
unico	168.2 BIA 6	Q500	107.00	67.58	71.56	71.75	0.19	70.88	-0.68	71.56	72.99	0.015042	5.29	20.21	7.09	1.00
unico	137.2 BIA 5	Q50	72.40	66.42	69.08	70.00	0.92	70.33	1.25	69.08	69.99	0.011399	4.22	17.14	9.43	1.00
unico	137.2 BIA 5	Q200	93.10	66.42	69.44	70.00	0.56	70.33	0.89	69.44	70.47	0.011227	4.50	20.68	10.00	1.00
unico	137.2 BIA 5	Q500	107.00	66.42	69.66	70.00	0.34	70.33	0.67	69.66	70.77	0.011138	4.66	22.96	10.36	1.00
unico	109.2 BIA 4	Q50	72.40	65.17	68.47	69.00	0.53	69.80	1.33	68.24	69.18	0.008162	3.72	19.45	9.81	0.84
unico	109.2 BIA 4	Q200	93.10	65.17	69.00	69.00	0.00	69.80	0.80	68.59	69.72	0.006864	3.76	24.75	10.43	0.78
unico	109.2 BIA 4	Q500	107.00	65.17	69.33	69.00	-0.33	69.80	0.47	68.81	70.06	0.006211	3.78	28.30	10.59	0.74
unico	81.2 BIA 3	Q50	72.40	64.05	67.44	69.33	1.89	69.60	2.16	67.44	68.65	0.016334	4.89	14.82	6.10	1.00

HEC-RAS Plan: 05\_Apr12 River: Bianchetta Reach: unico (Continued)

Reach	River Sta		Profile	Q Total	Min Ch El	W.S. Elev	LOB Elev	L. Freeboard	ROB Elev	R. Freeboard	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
unico	81.2	BIA 3	Q200	93.10	64.05	67.93	69.33	1.40	69.60	1.67	67.93	69.30	0.016376	5.20	17.91	6.50	1.00
unico	81.2	BIA 3	Q500	107.00	64.05	68.23	69.33	1.11	69.60	1.37	68.23	69.70	0.016414	5.38	19.89	6.74	1.00
unico	80.2	BIA 3	Q50	72.40	63.33	66.55	69.48	2.93	69.48	2.93	65.99	67.17	0.006837	3.50	20.69	8.30	0.71
unico	80.2	BIA 3	Q200	93.10	63.33	66.99	69.48	2.49	69.48	2.49	66.40	67.73	0.007207	3.83	24.33	8.30	0.71
unico	80.2	BIA 3	Q500	107.00	63.33	67.26	69.48	2.22	69.48	2.22	66.62	68.09	0.007454	4.02	26.61	8.30	0.72
unico	77.7	BIA 3		Bridge													
unico	76.2	BIA 3	Q50	72.40	63.33	66.48	69.48	3.00	69.48	3.00	65.99	67.14	0.007373	3.59	20.14	8.30	0.74
unico	76.2	BIA 3	Q200	93.10	63.33	66.87	69.48	2.61	69.48	2.61	66.40	67.68	0.008066	3.99	23.36	8.30	0.76
unico	76.2	BIA 3	Q500	107.00	63.33	67.09	69.48	2.39	69.48	2.39	66.62	68.01	0.008691	4.25	25.15	8.30	0.78
unico	72.2	BIA 3	Q50	72.40	63.30	66.25	70.06	3.81	69.15	2.90	66.06	67.09	0.010600	4.06	17.85	8.29	0.88
unico	72.2	BIA 3	Q200	93.10	63.30	66.62	70.06	3.44	69.15	2.53	66.46	67.62	0.011267	4.44	20.98	8.71	0.91
unico	72.2	BIA 3	Q500	107.00	63.30	66.86	70.06	3.20	69.15	2.29	66.70	67.95	0.011420	4.64	23.06	8.83	0.92
unico	44.2	BIA 2	Q50	72.40	62.58	64.75	68.50	3.75	67.30	2.55	64.75	65.63	0.011851	4.17	17.37	9.80	1.00
unico	44.2	BIA 2	Q200	93.10	62.58	65.52	68.50	2.98	67.30	1.78	65.08	66.22	0.006839	3.73	24.99	10.04	0.75
unico	44.2	BIA 2	Q500	107.00	62.58	65.99	68.50	2.52	67.30	1.32	65.28	66.65	0.005540	3.60	29.72	10.18	0.67
unico	8.2	BIA 1	Q50	72.40	61.31	64.64	65.74	1.10	65.35	0.71	63.56	64.98	0.002956	2.56	28.25	10.21	0.49
unico	8.2	BIA 1	Q200	93.10	61.31	65.66	65.74	0.08	65.35	-0.31	63.89	65.95	0.002031	2.40	38.75	10.40	0.40
unico	8.2	BIA 1	Q500	107.00	61.31	66.10	65.74	-0.36	65.35	-0.75	64.10	66.41	0.001976	2.47	43.37	10.41	0.39
unico	7.2	BIA 1	Q50	72.40	61.31	64.64	65.74	1.10	65.35	0.71	63.56	64.97	0.002968	2.57	28.21	10.20	0.49
unico	7.2	BIA 1	Q200	93.10	61.31	65.66	65.74	0.08	65.35	-0.31	63.89	65.95	0.002036	2.40	38.72	10.40	0.40
unico	7.2	BIA 1	Q500	107.00	61.31	66.10	65.74	-0.36	65.35	-0.75	64.10	66.41	0.001979	2.47	43.34	10.41	0.39
unico	5.1	BIA 1		Bridge													
unico	4.0	BIA 1	Q50	72.40	61.31	64.61	65.74	1.13	65.46	0.85	63.56	64.95	0.003053	2.59	27.93	10.20	0.50
unico	4.0	BIA 1	Q200	93.10	61.31	65.15	65.74	0.59	65.46	0.31	63.89	65.54	0.003046	2.78	33.45	10.33	0.49
unico	4.0	BIA 1	Q500	107.00	61.31	65.50	65.74	0.24	65.46	-0.04	64.10	65.92	0.003018	2.88	37.13	10.39	0.49
unico	0.0	BIA 1	Q50	72.40	61.31	64.59	65.74	1.15	65.46	0.87	63.56	64.94	0.003108	2.61	27.75	10.19	0.50
unico	0.0	BIA 1	Q200	93.10	61.31	65.13	65.74	0.61	65.46	0.33	63.89	65.53	0.003092	2.80	33.27	10.33	0.50
unico	0.0	BIA 1	Q500	107.00	61.31	65.48	65.74	0.26	65.46	-0.02	64.10	65.91	0.003058	2.90	36.95	10.39	0.49

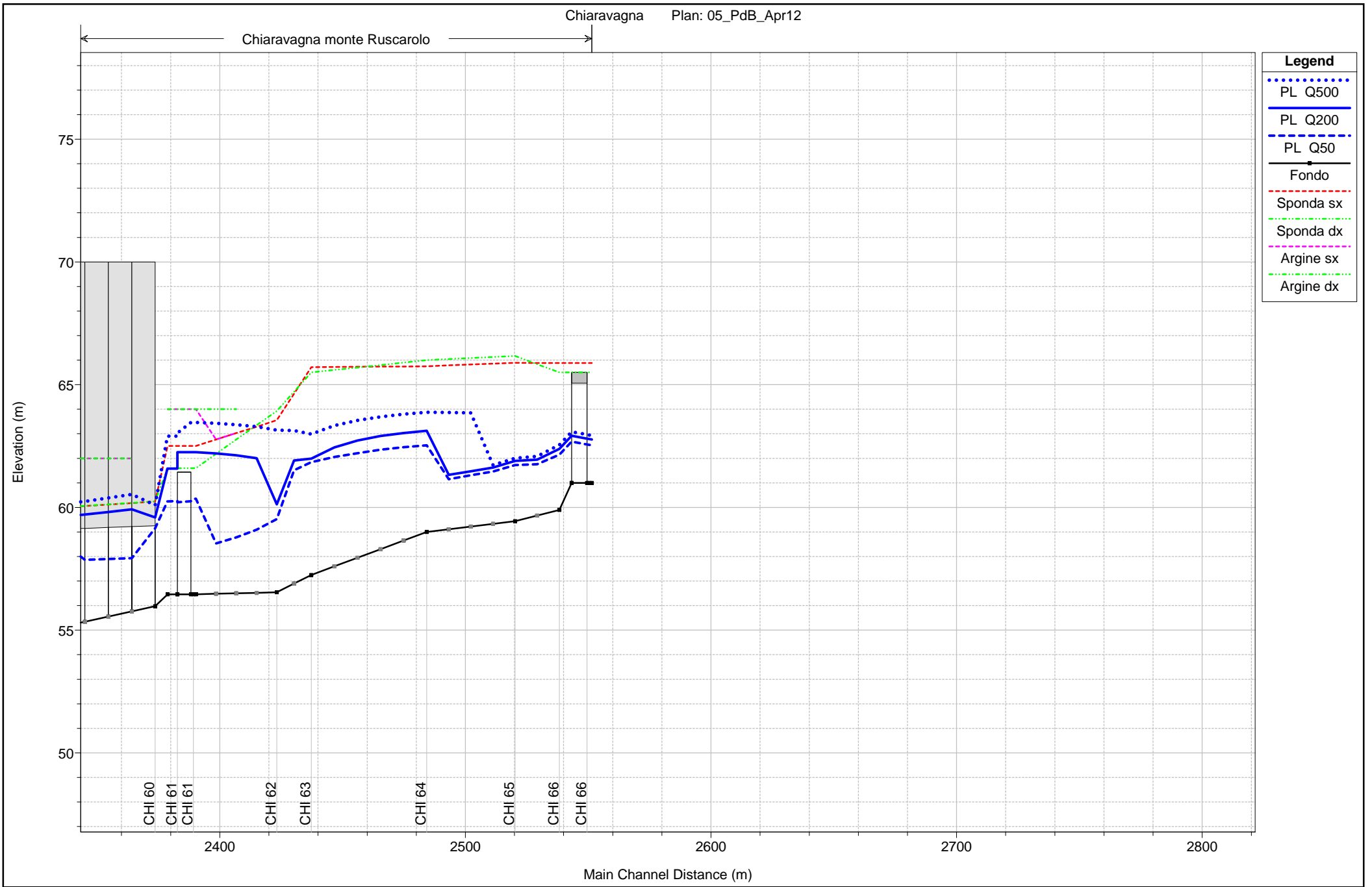
## **Allegato A**

### **Verifiche idrauliche**

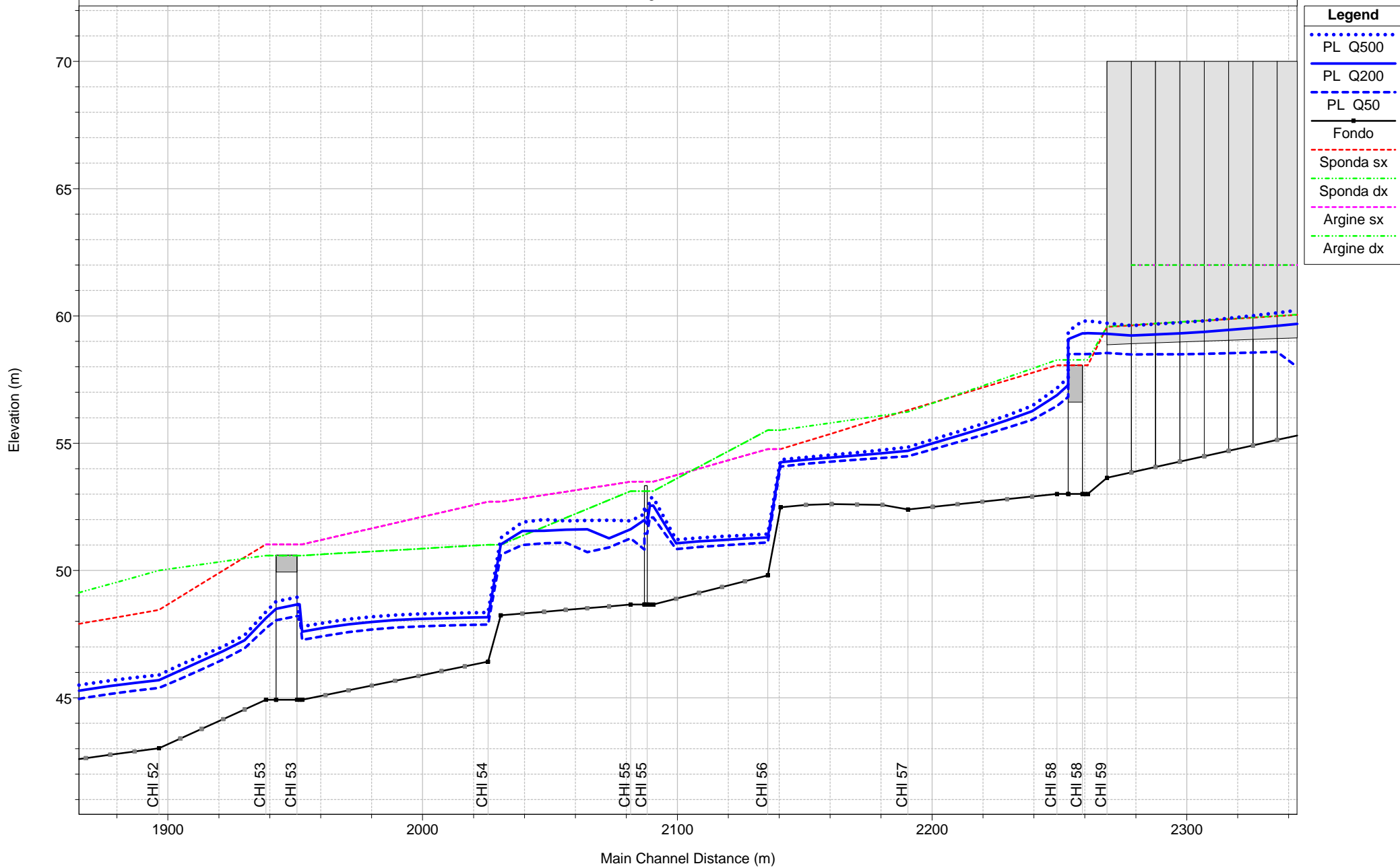
## **Torrente Chiaravagna**

- tratto a monte del viadotto autostradale -

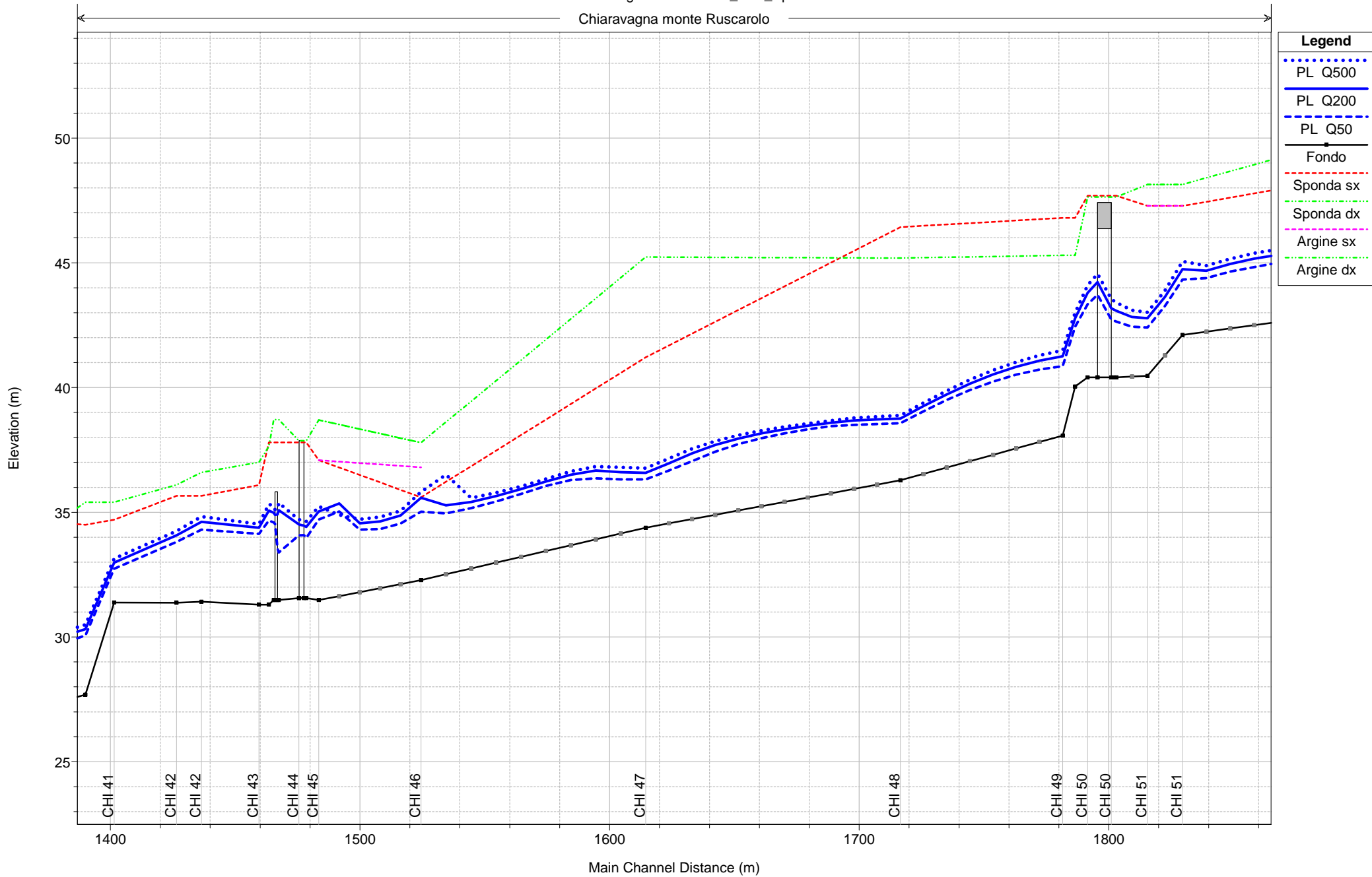
- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo



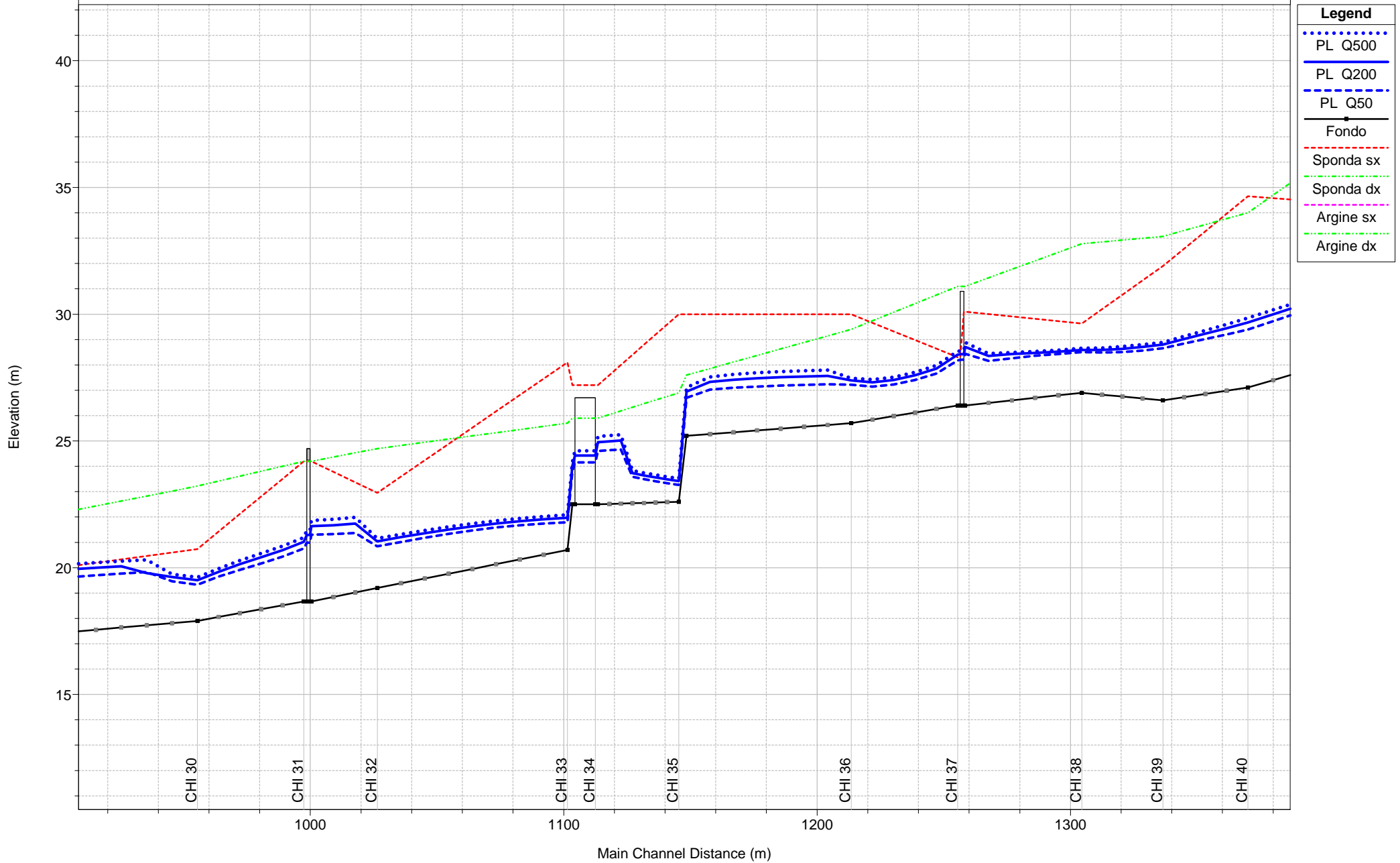
1 cm Horiz. = 20 m    1 cm Vert. = 2 m



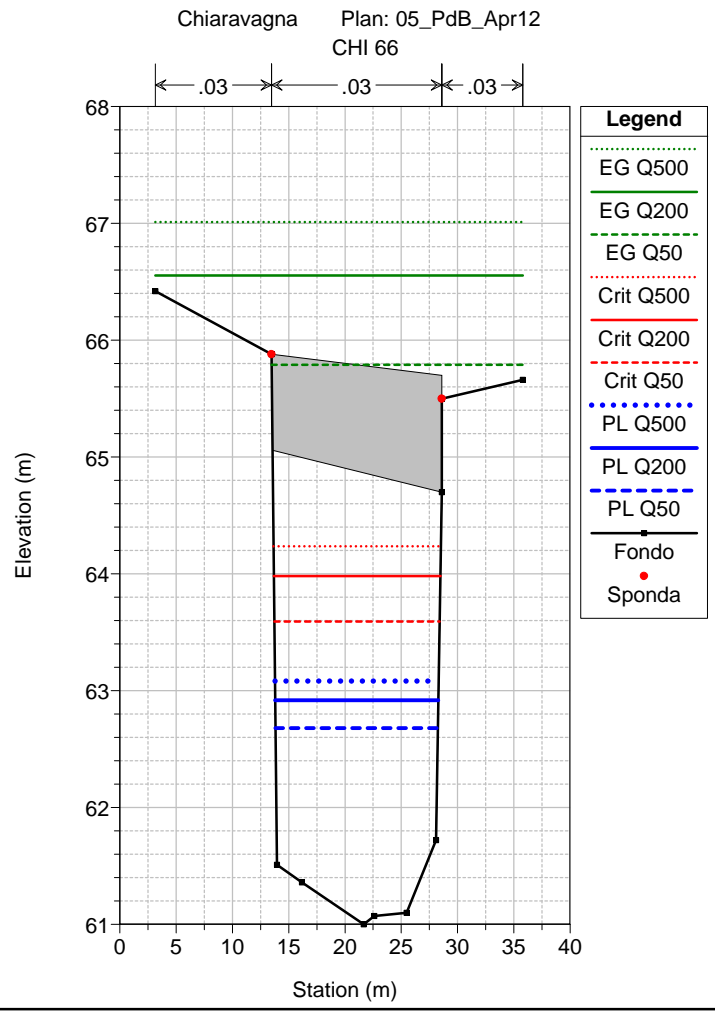
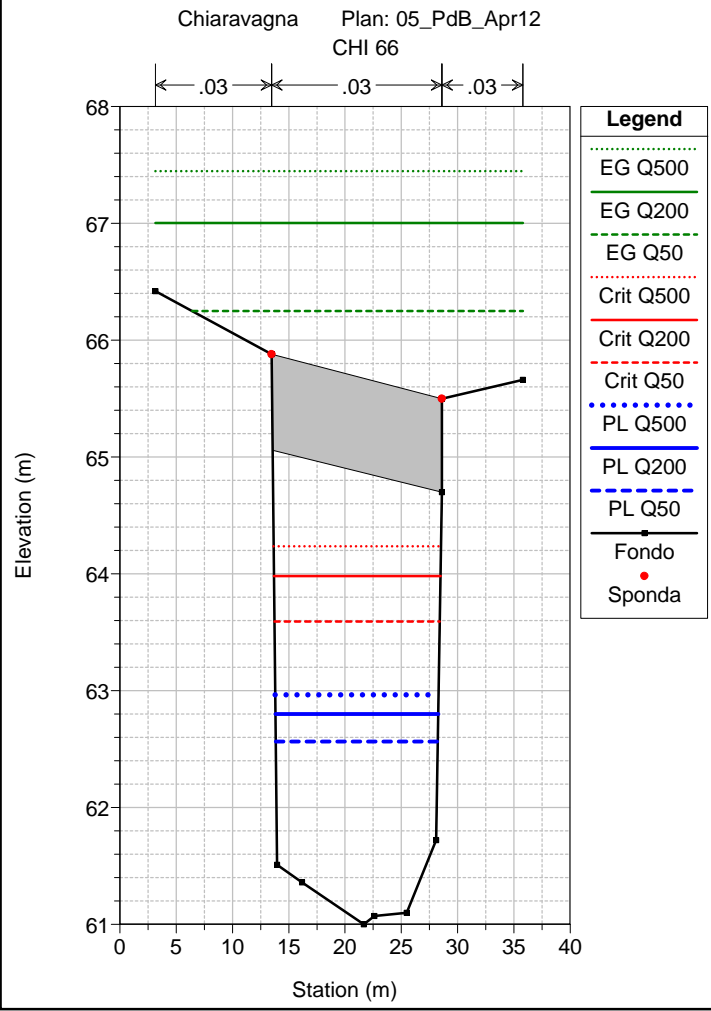
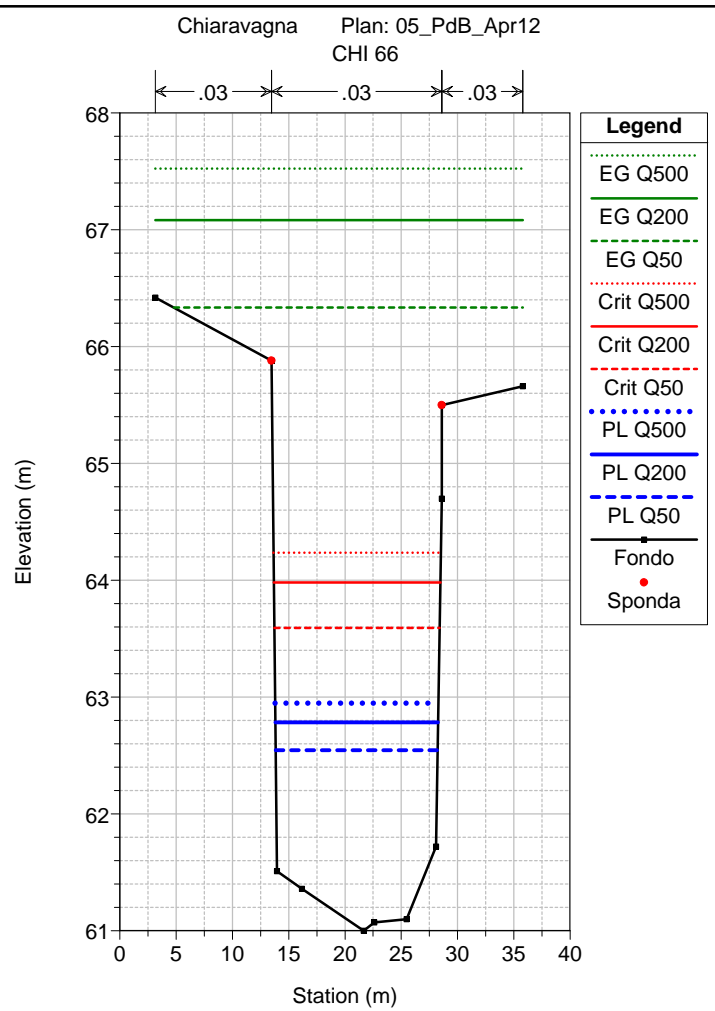
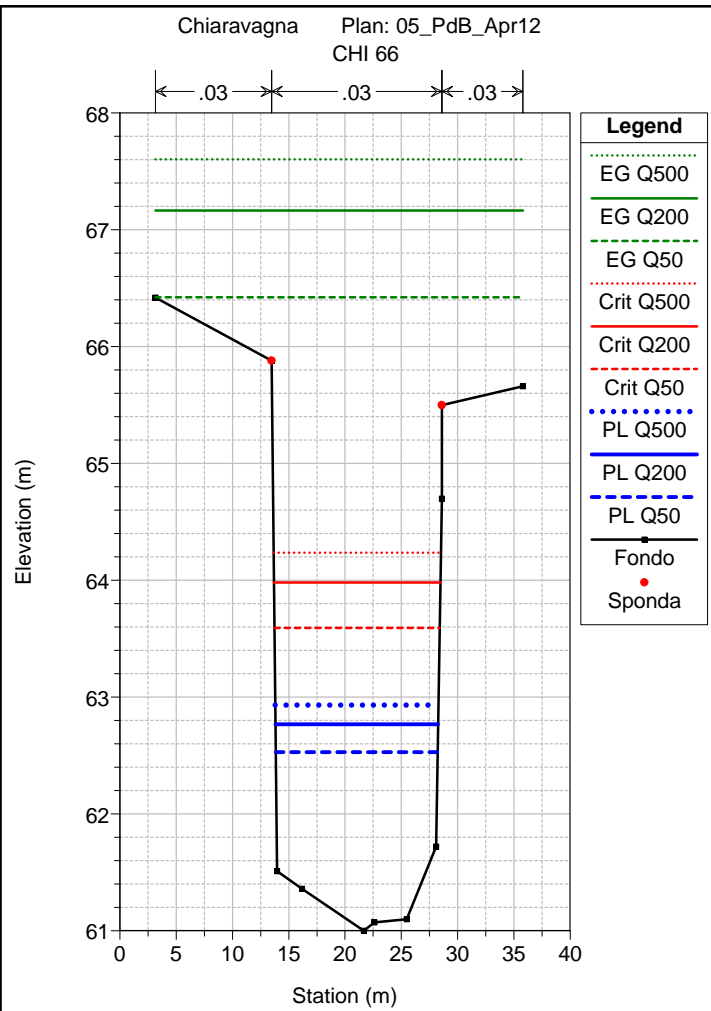
1 cm Horiz. = 20 m 1 cm Vert. = 2 m



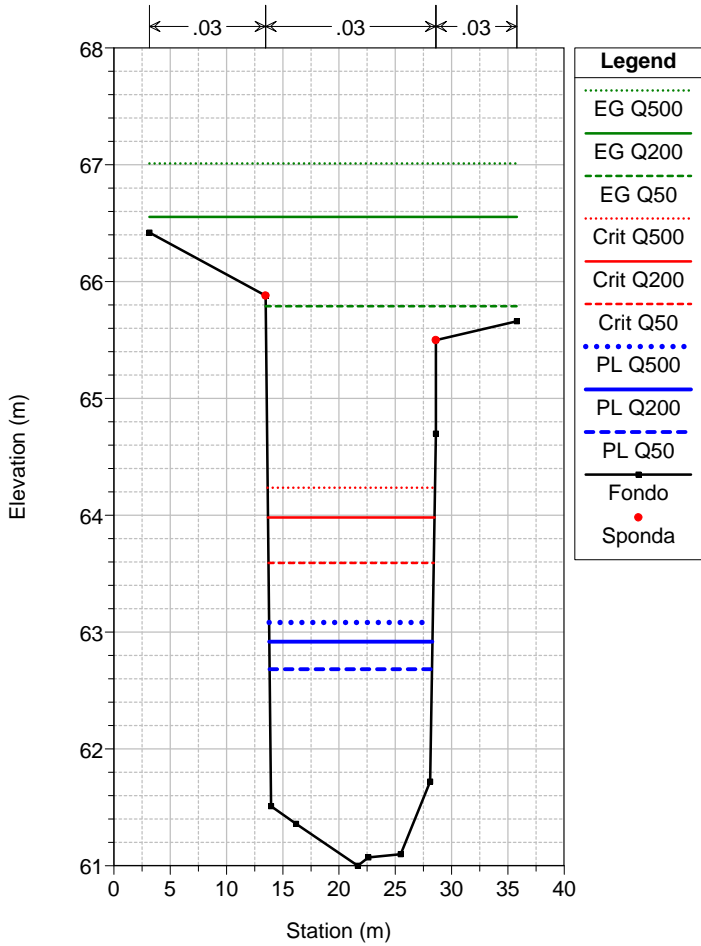




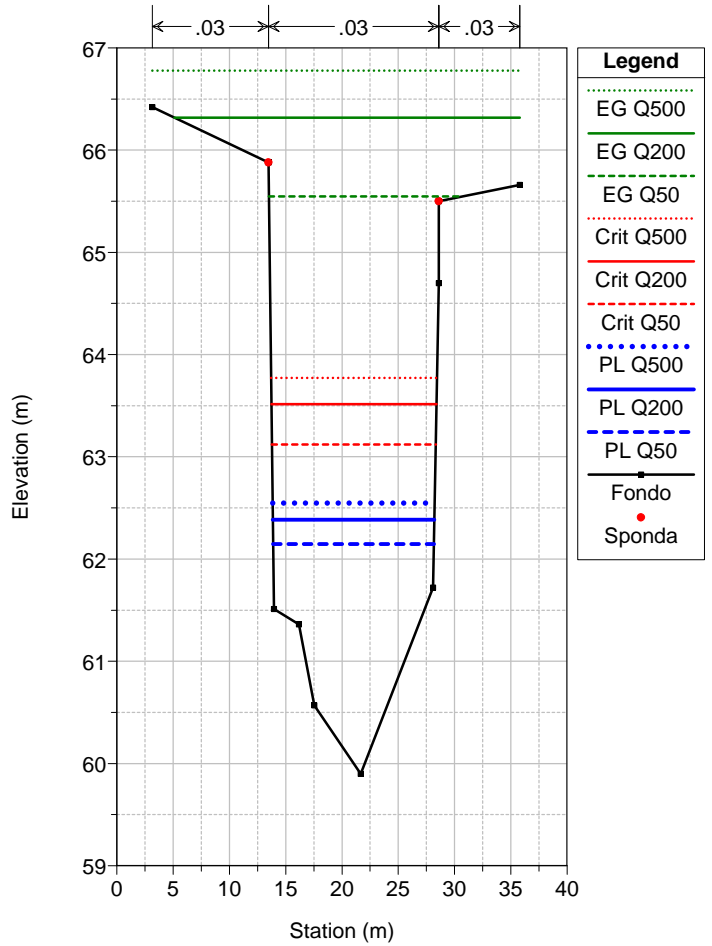
1 cm Horiz. = 20 m 1 cm Vert. = 2 m



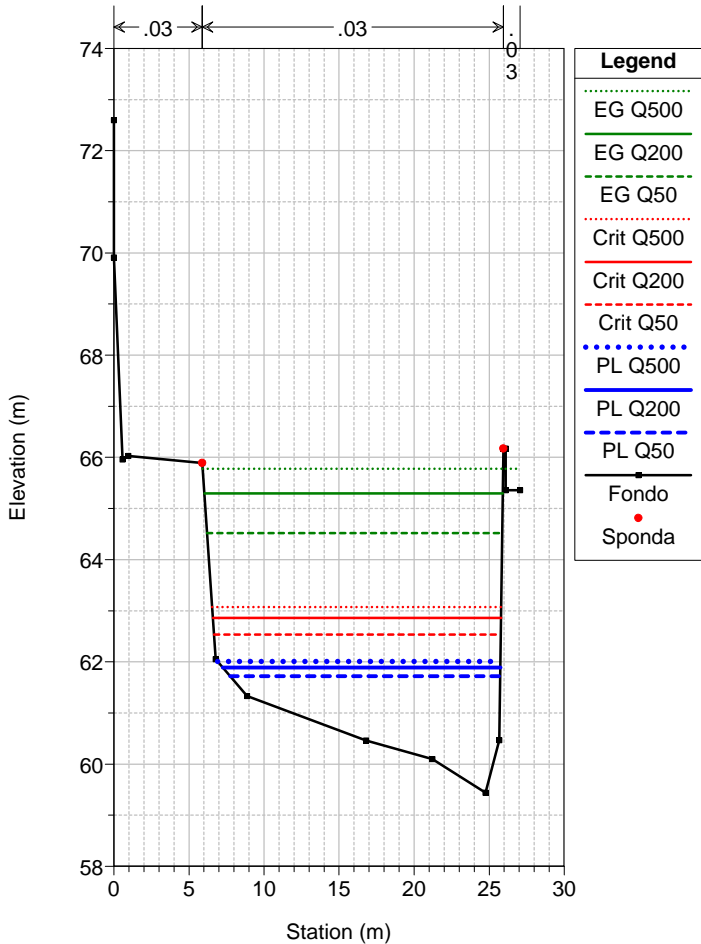
Chiaravagna Plan: 05\_PdB\_Apr12  
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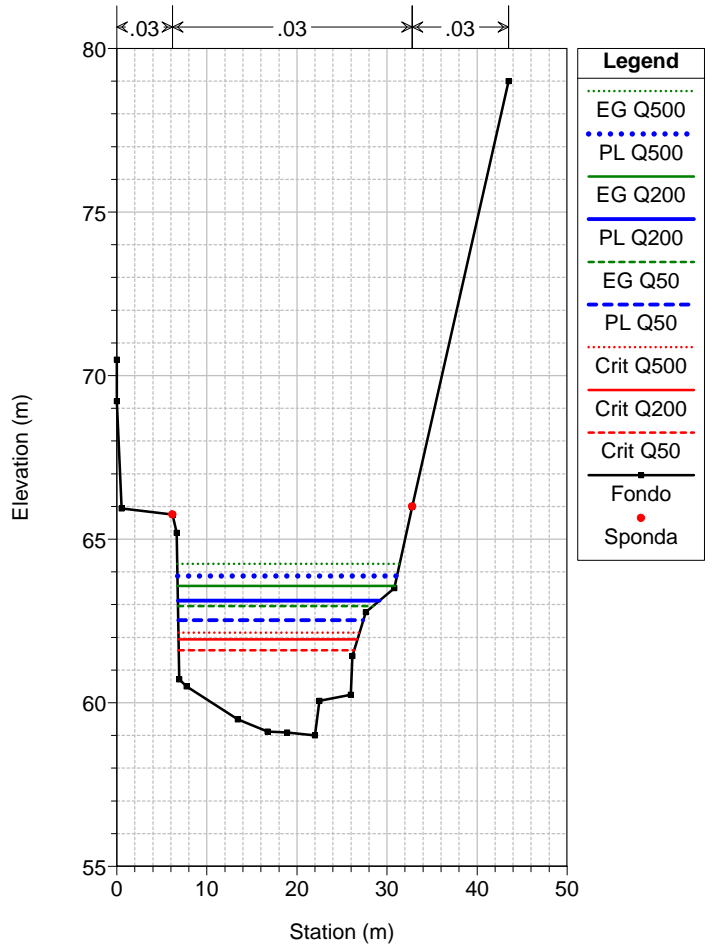
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 66

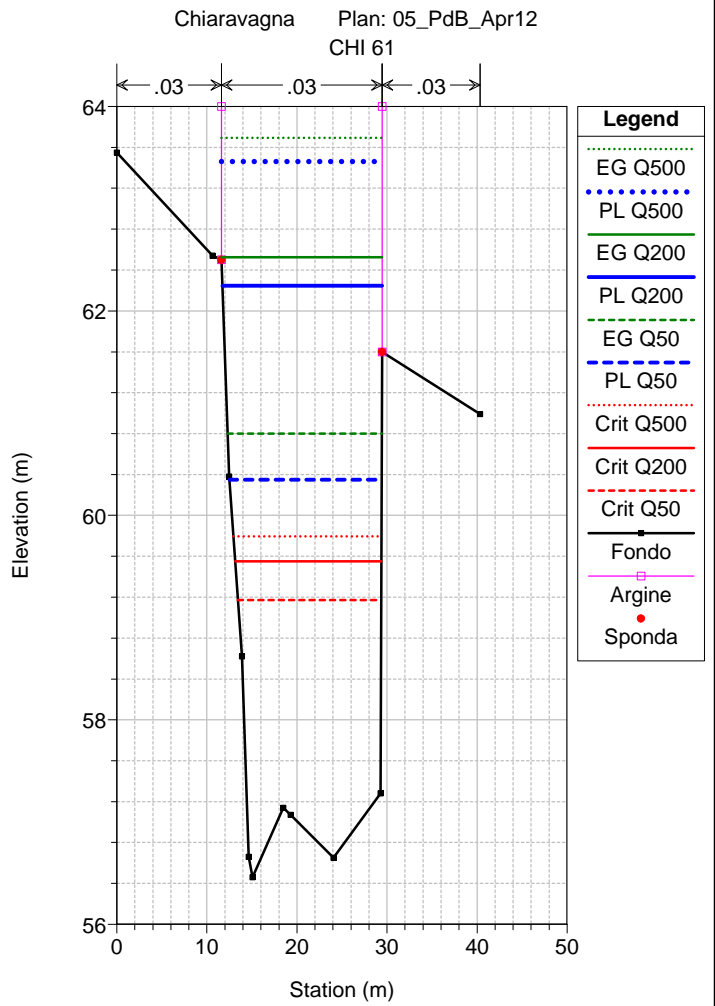
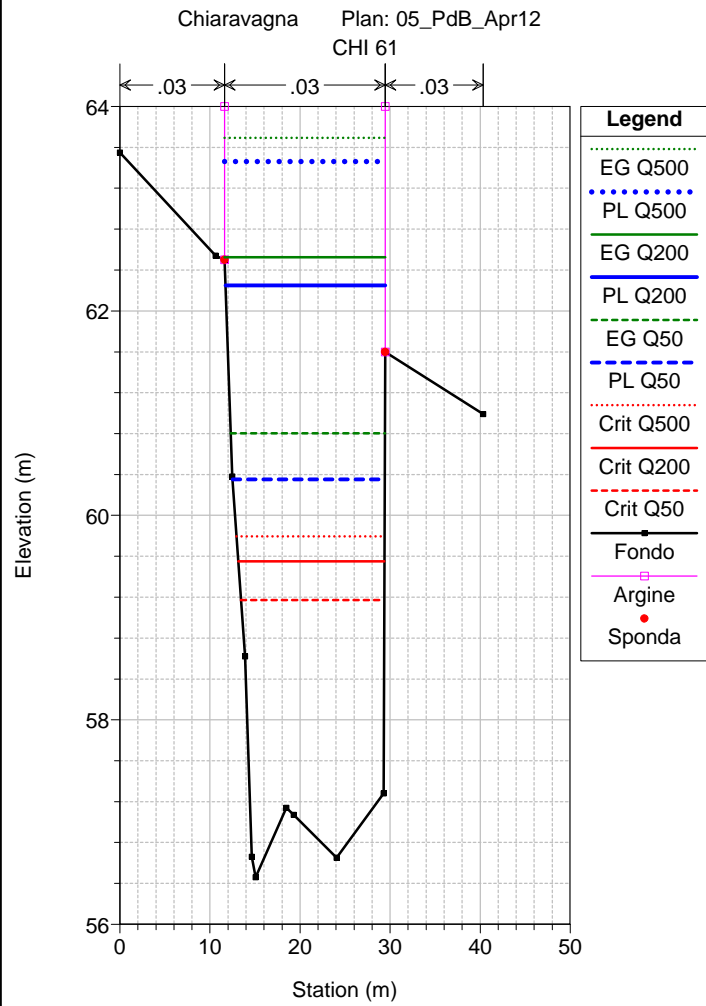
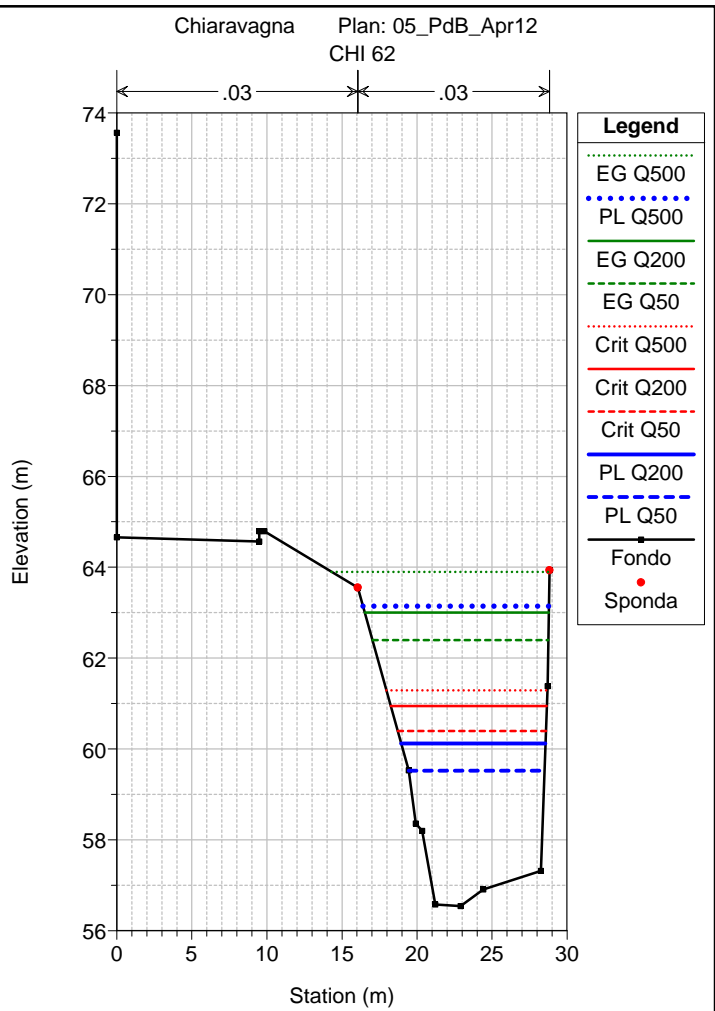
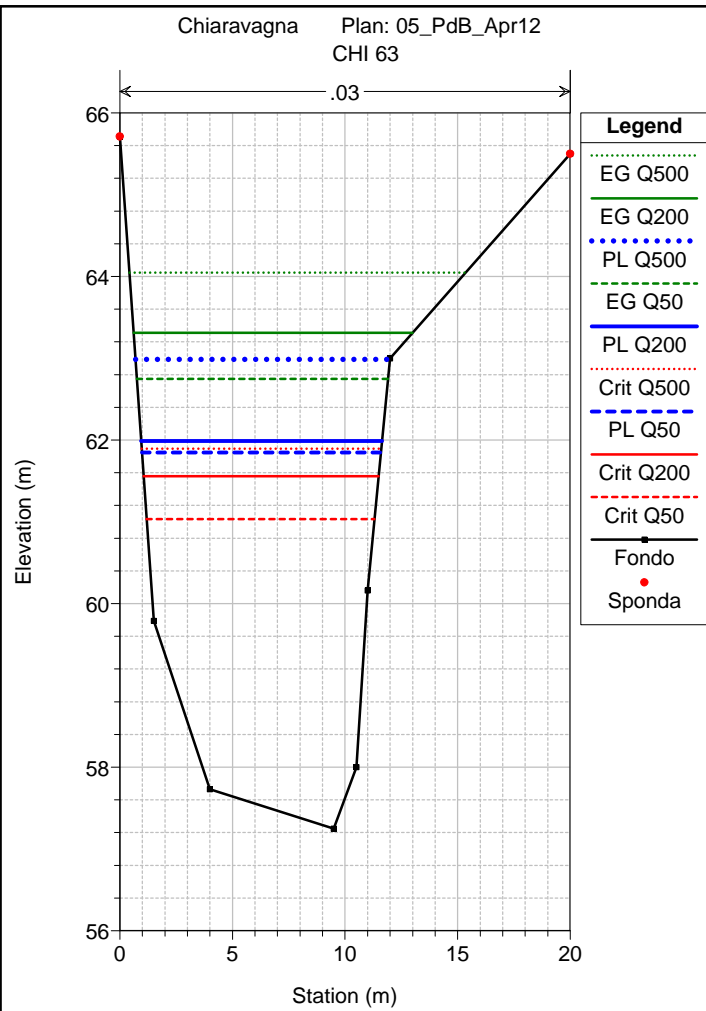


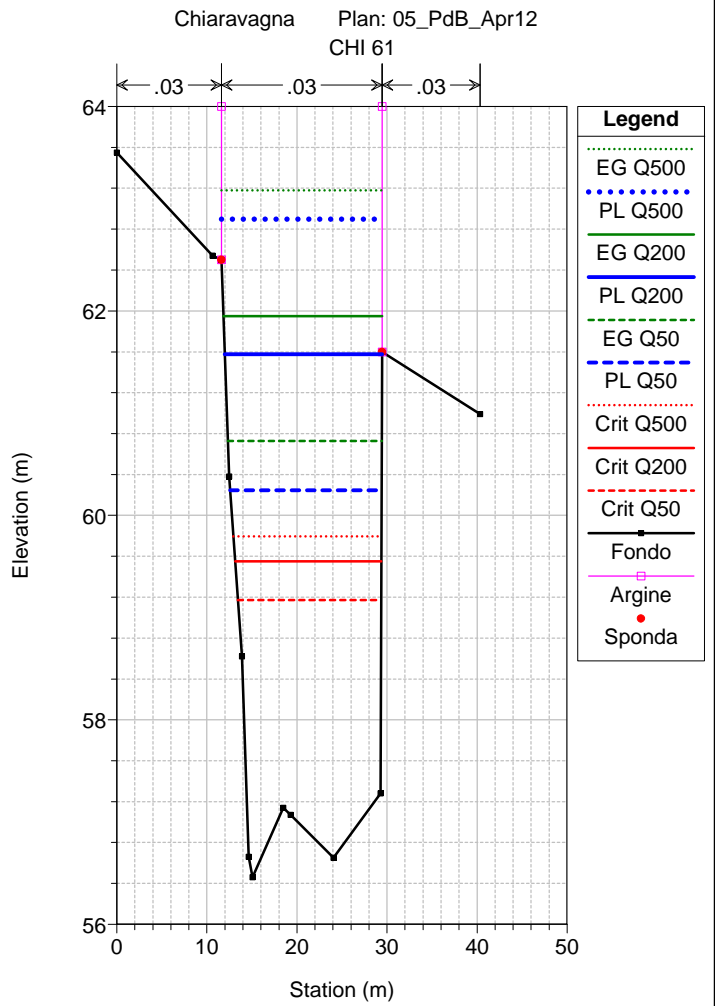
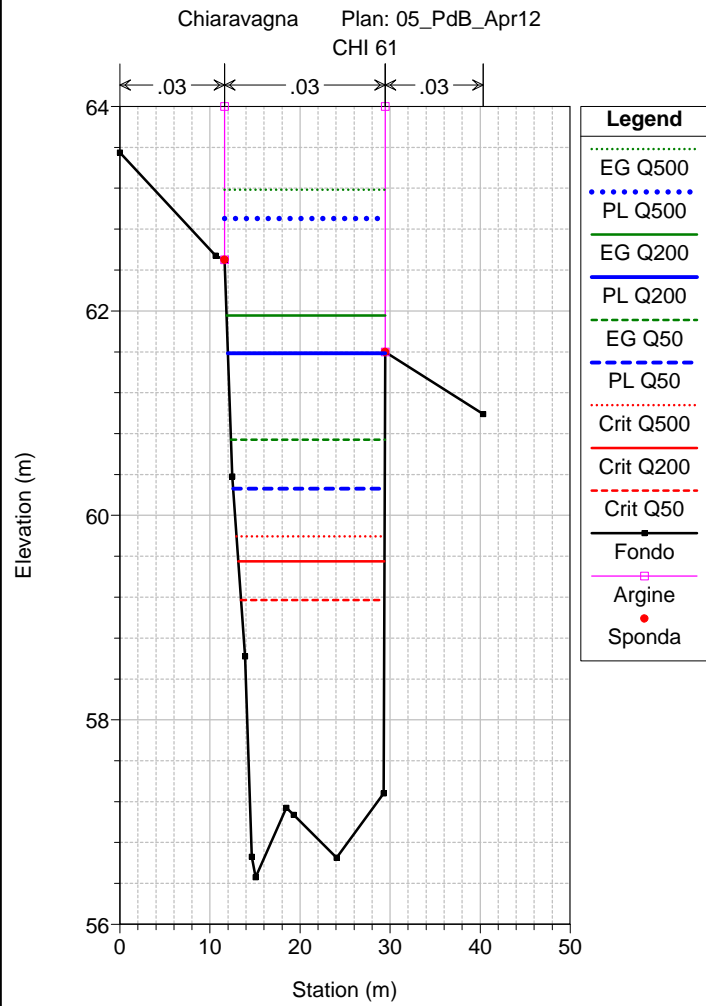
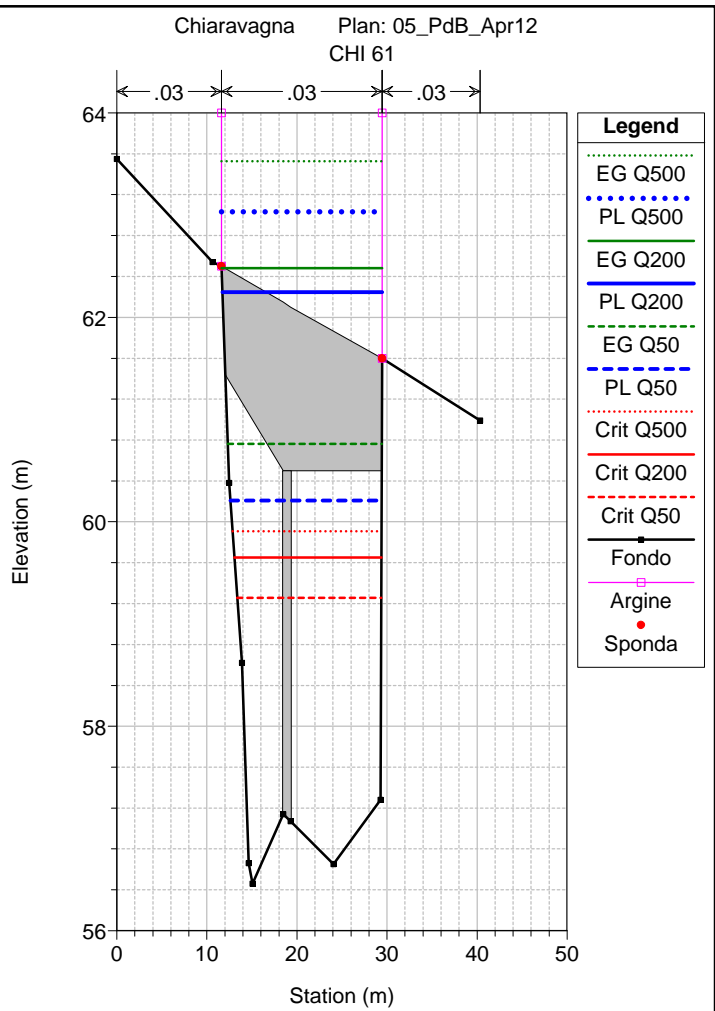
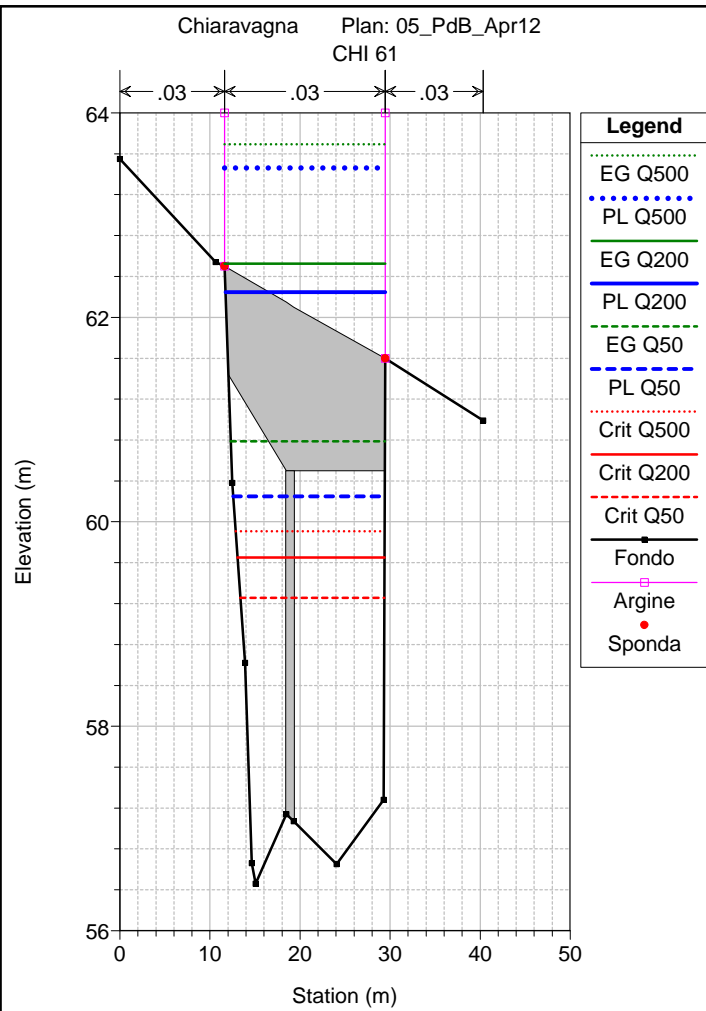
Chiaravagna Plan: 05\_PdB\_Apr12  
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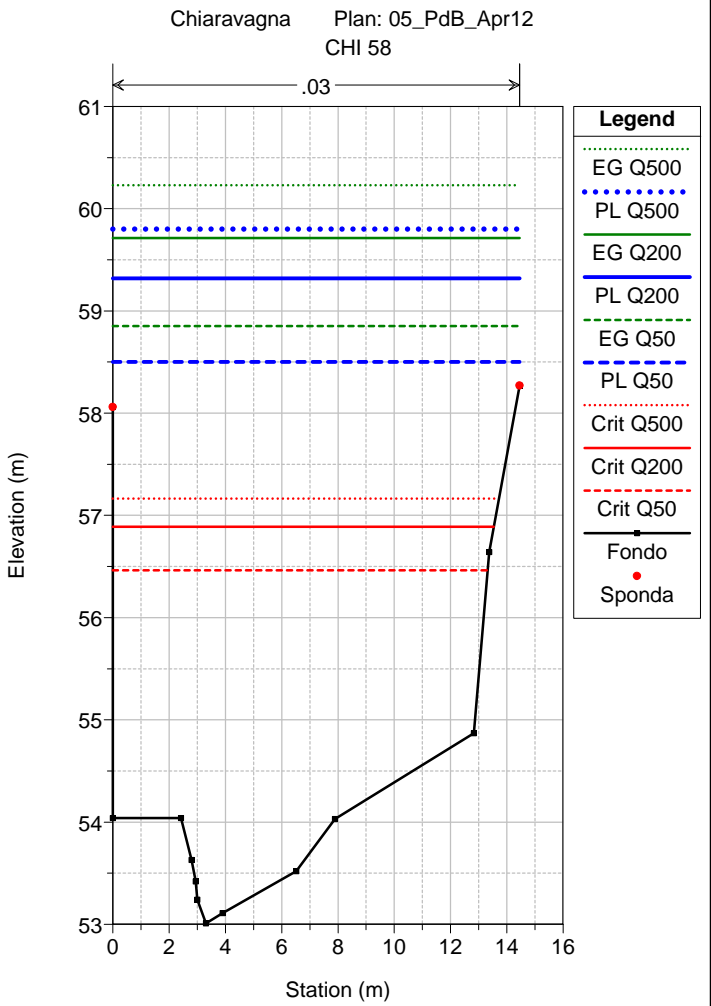
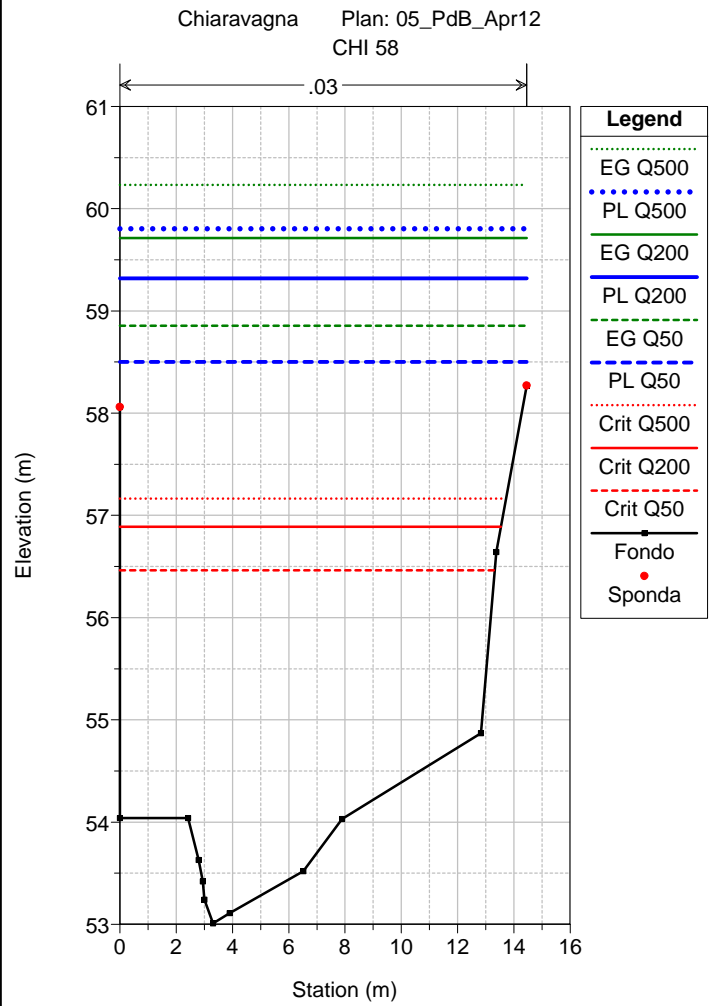
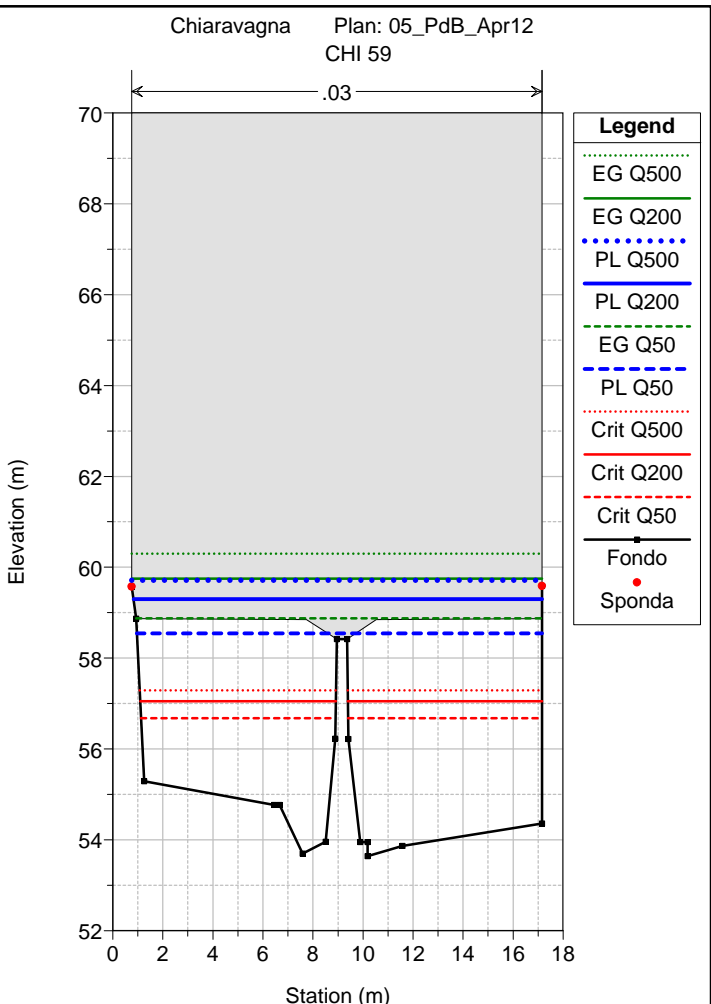
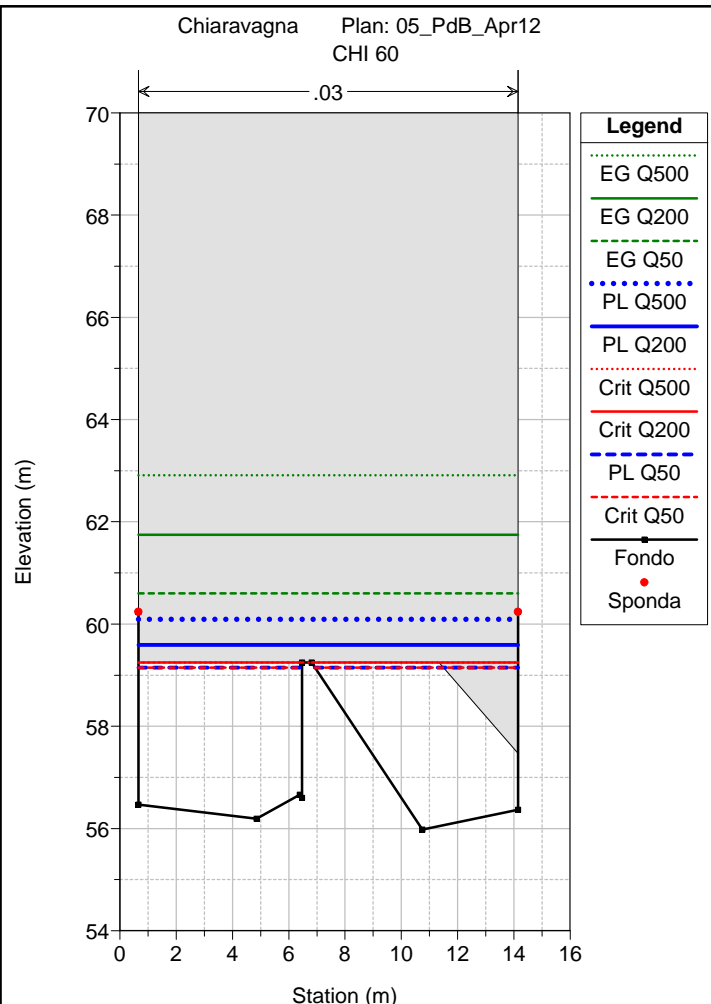


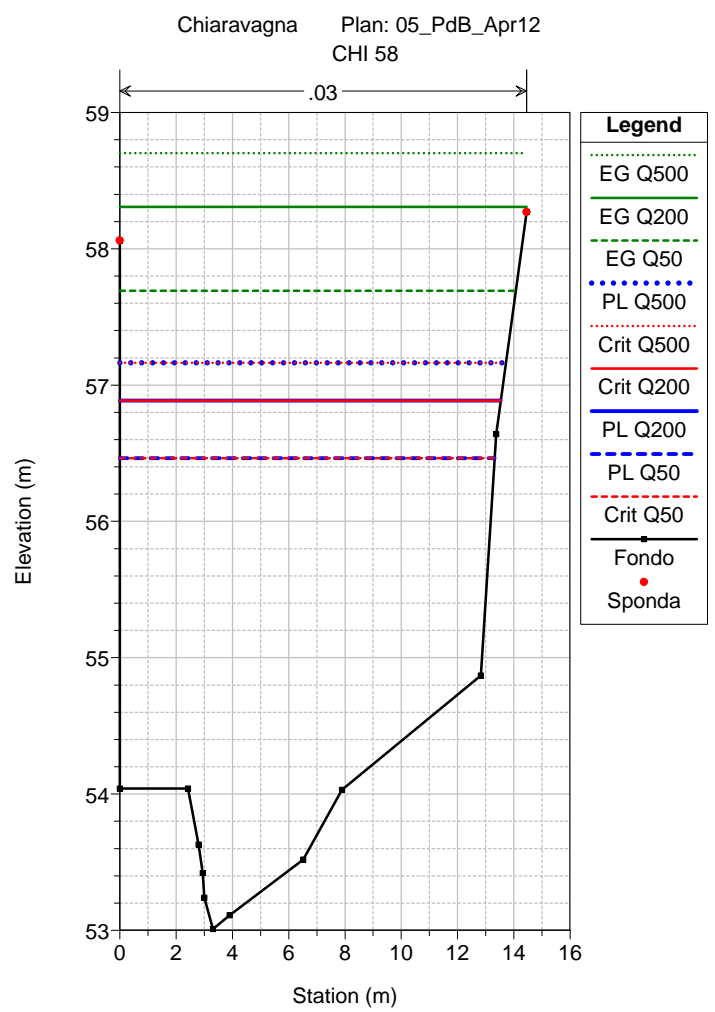
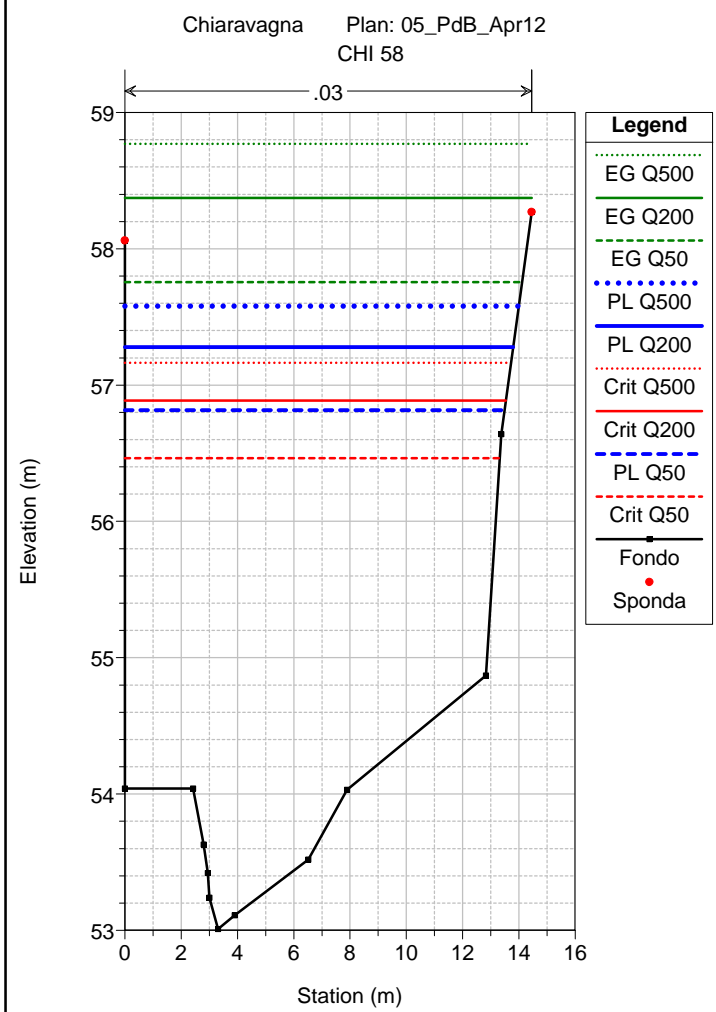
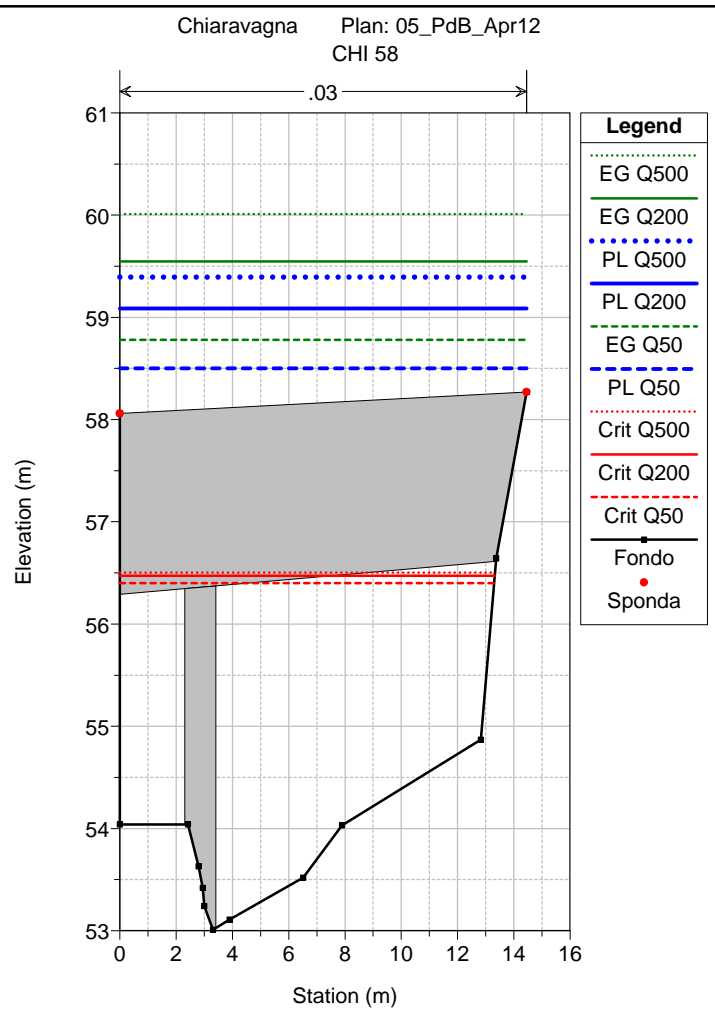
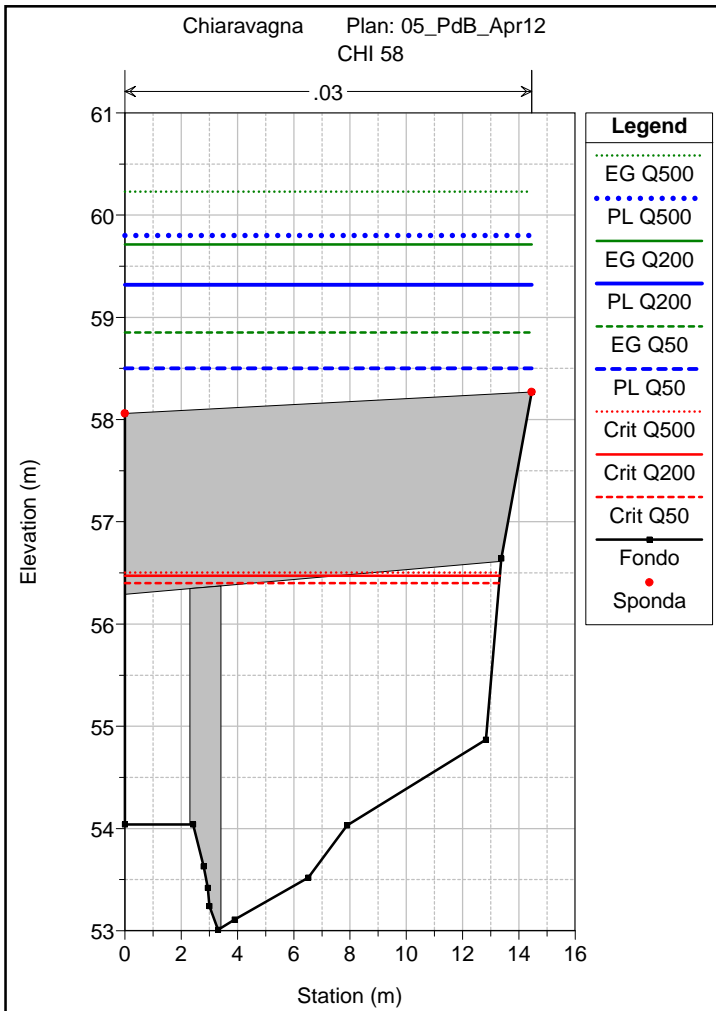
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 64





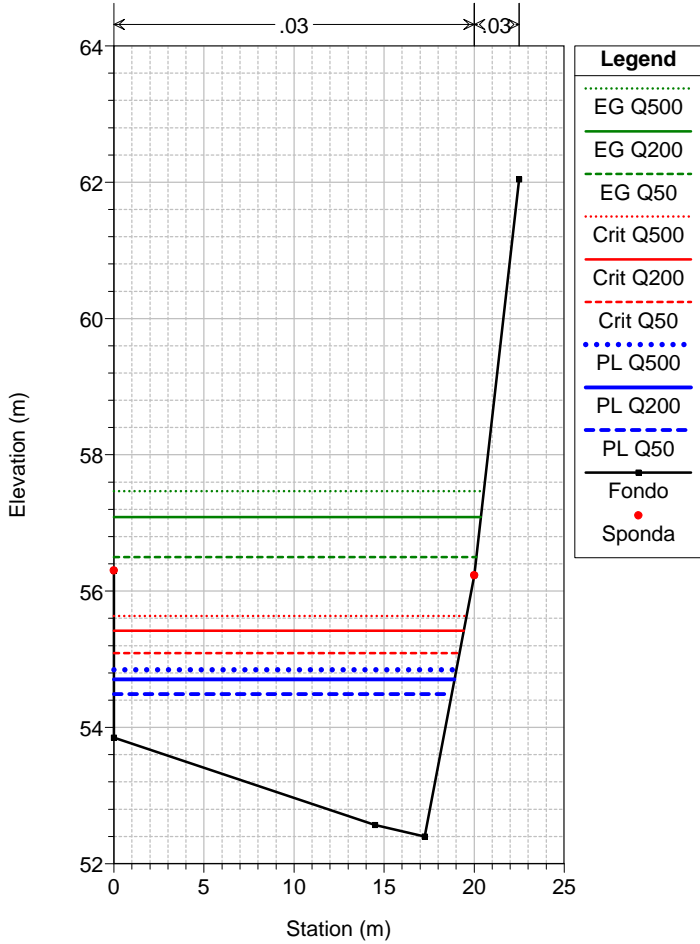




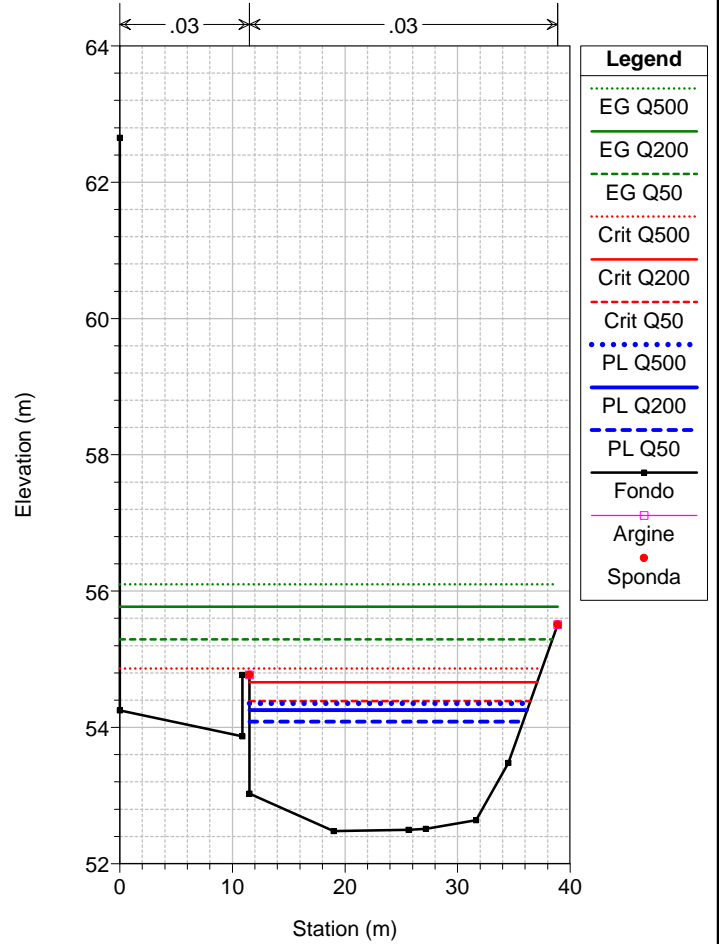




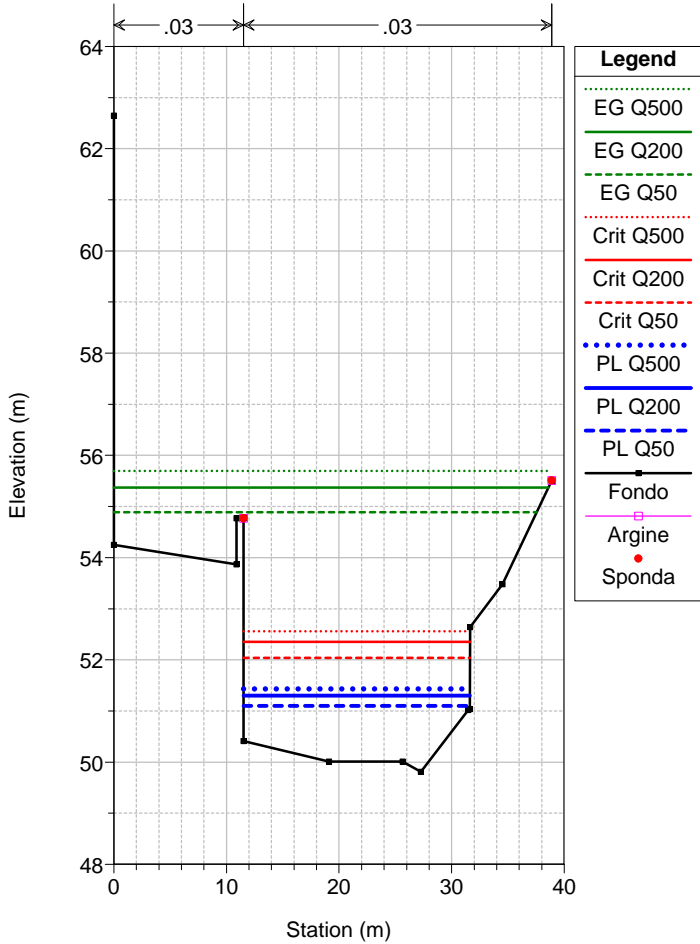
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 57



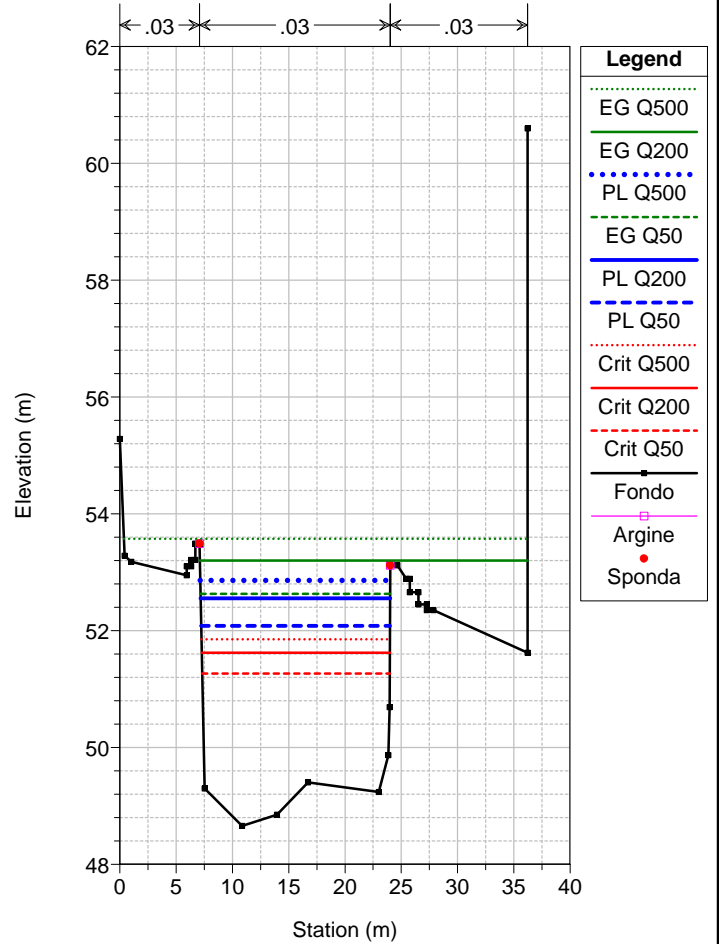
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 56

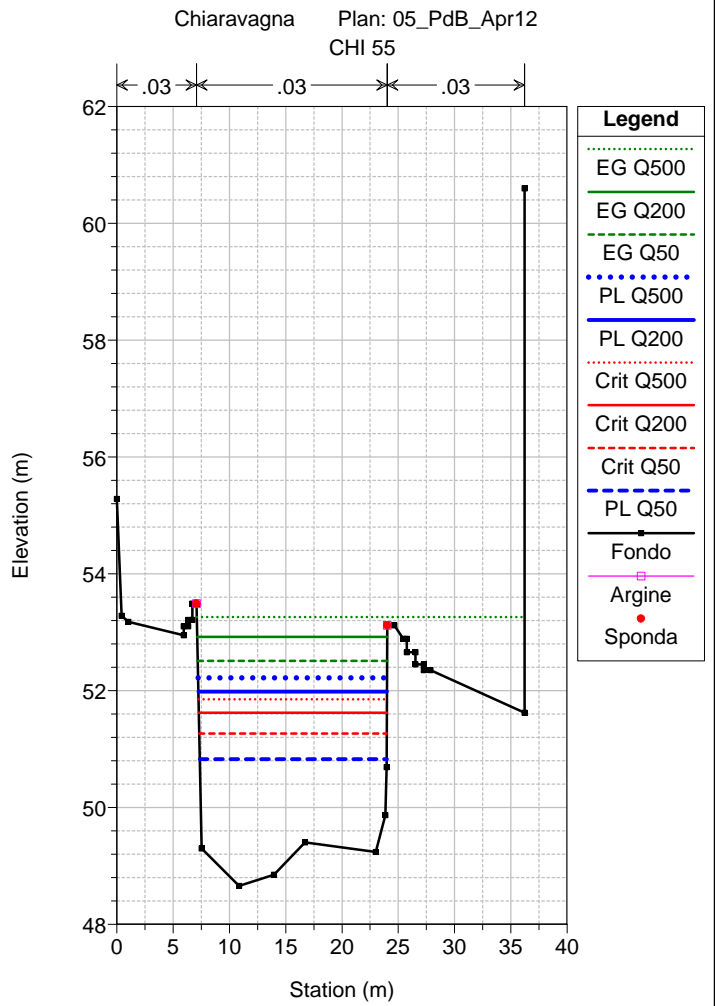
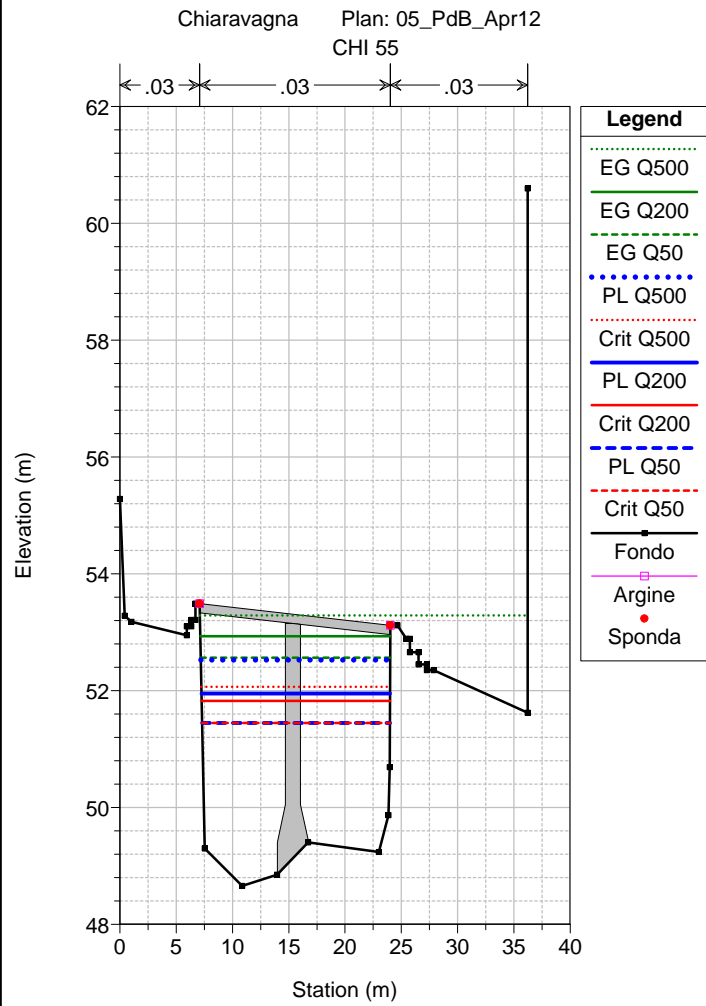
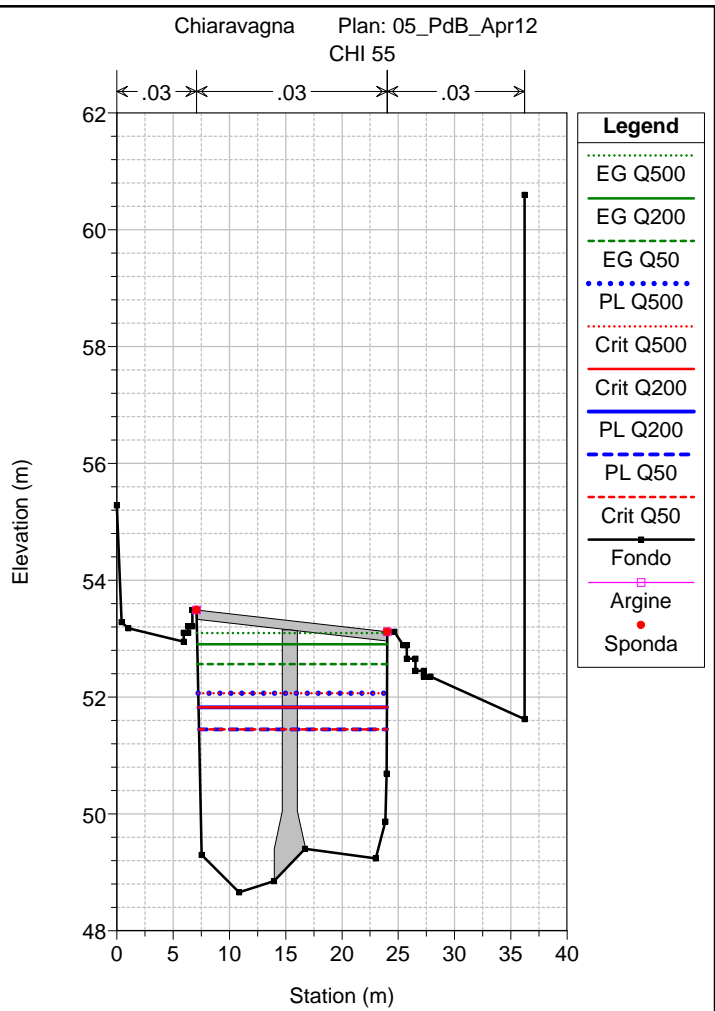
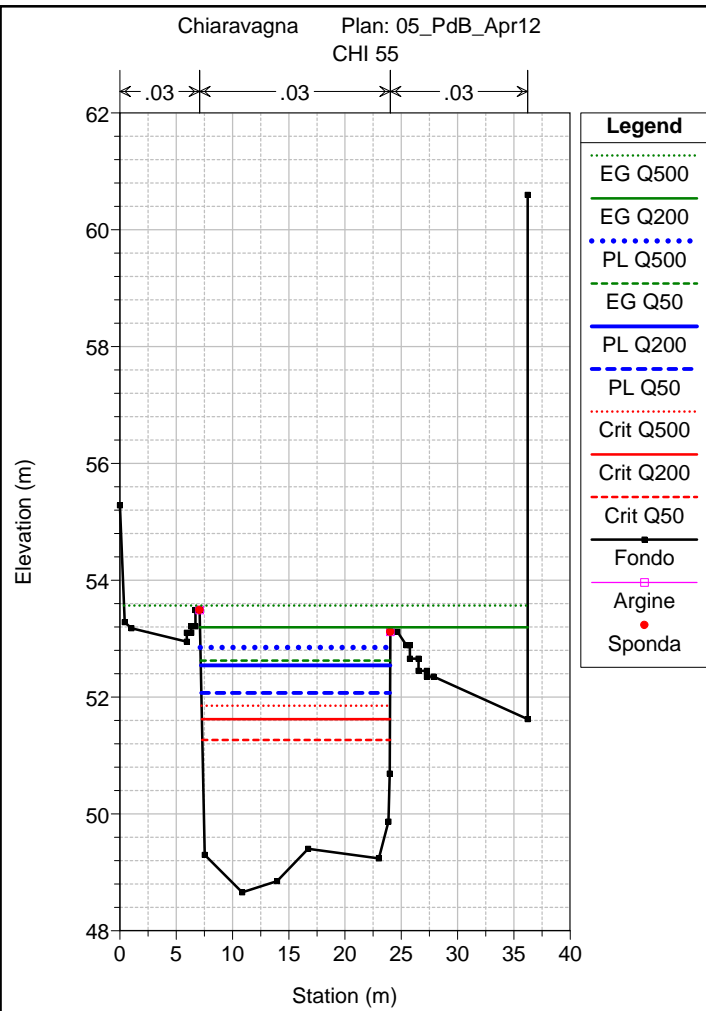


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CHI 56

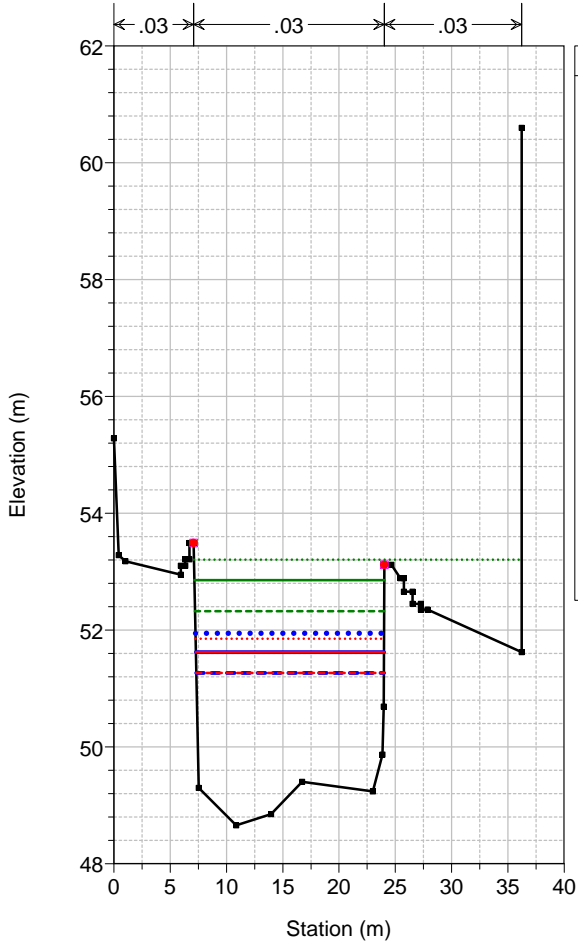


Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 55

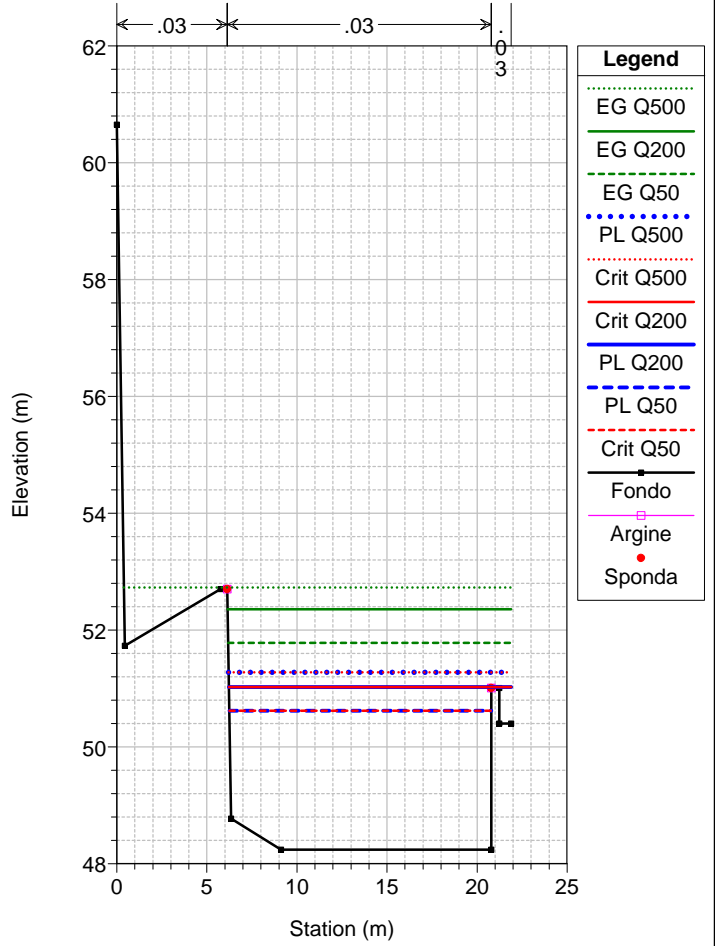




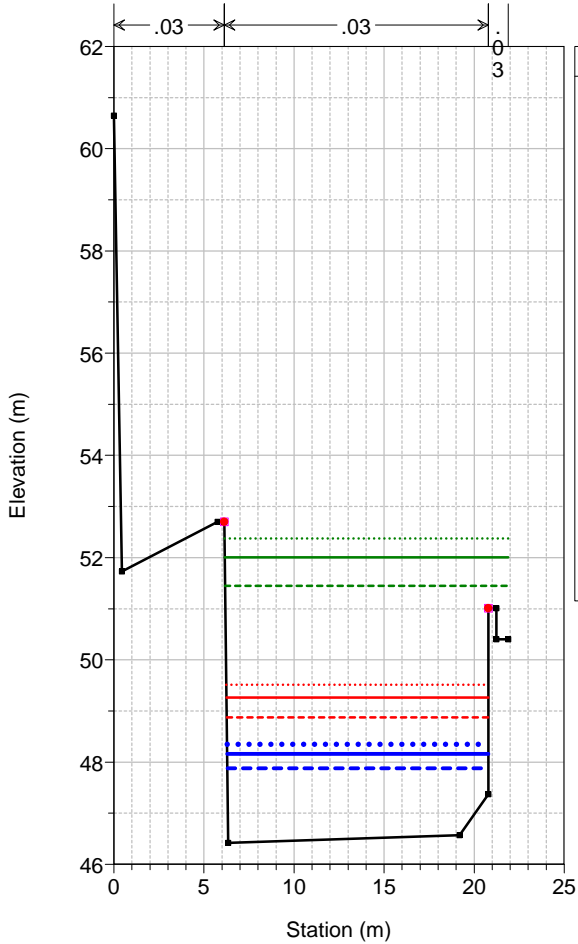
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 55



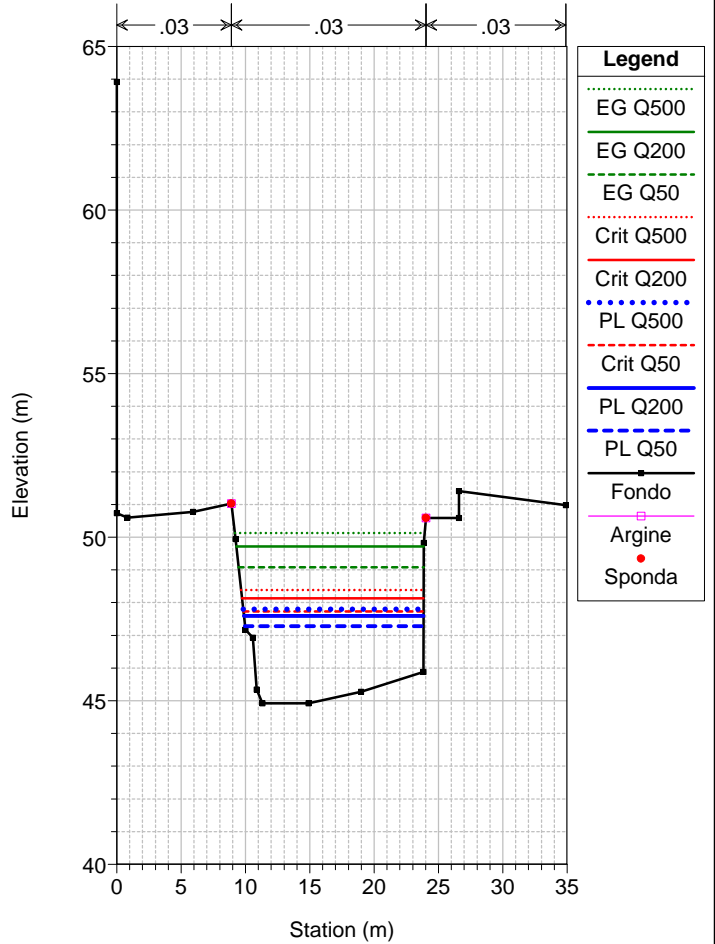
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 54

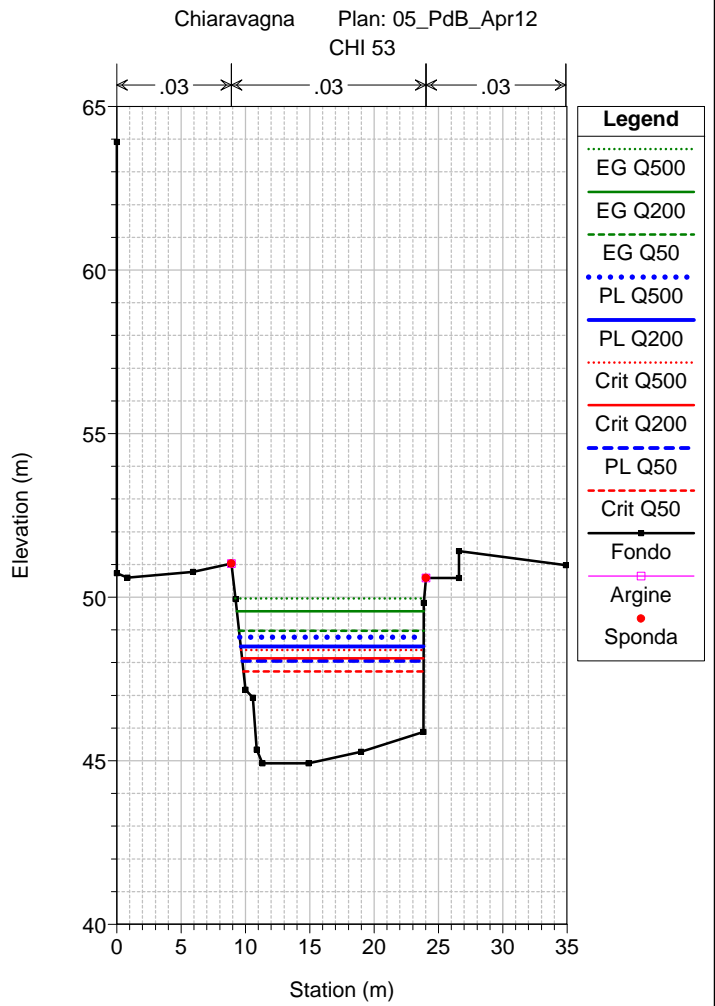
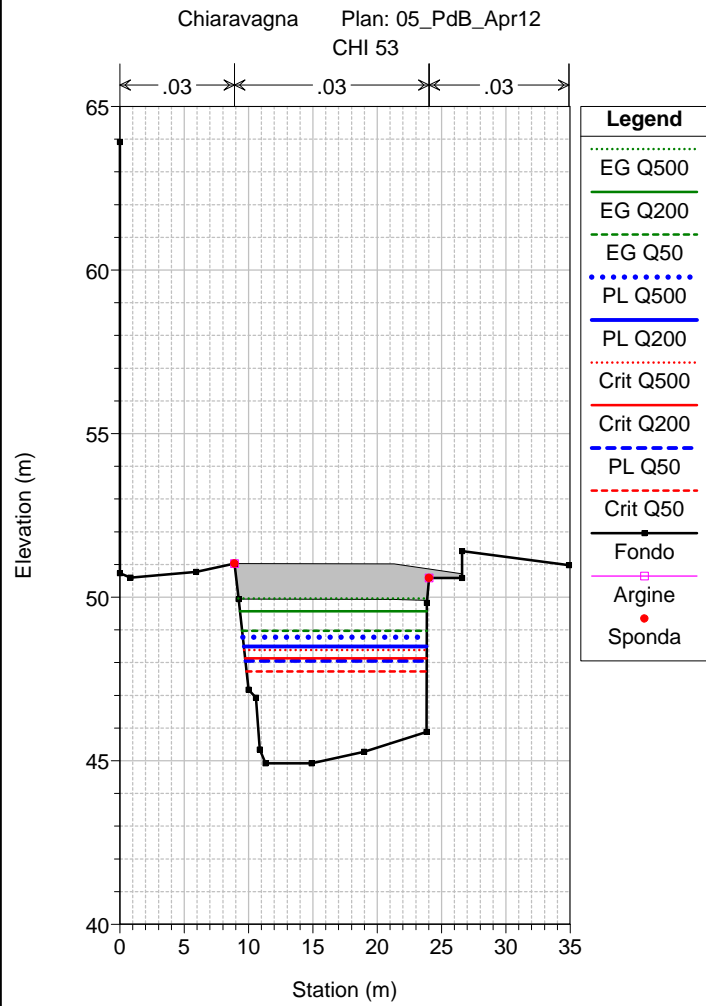
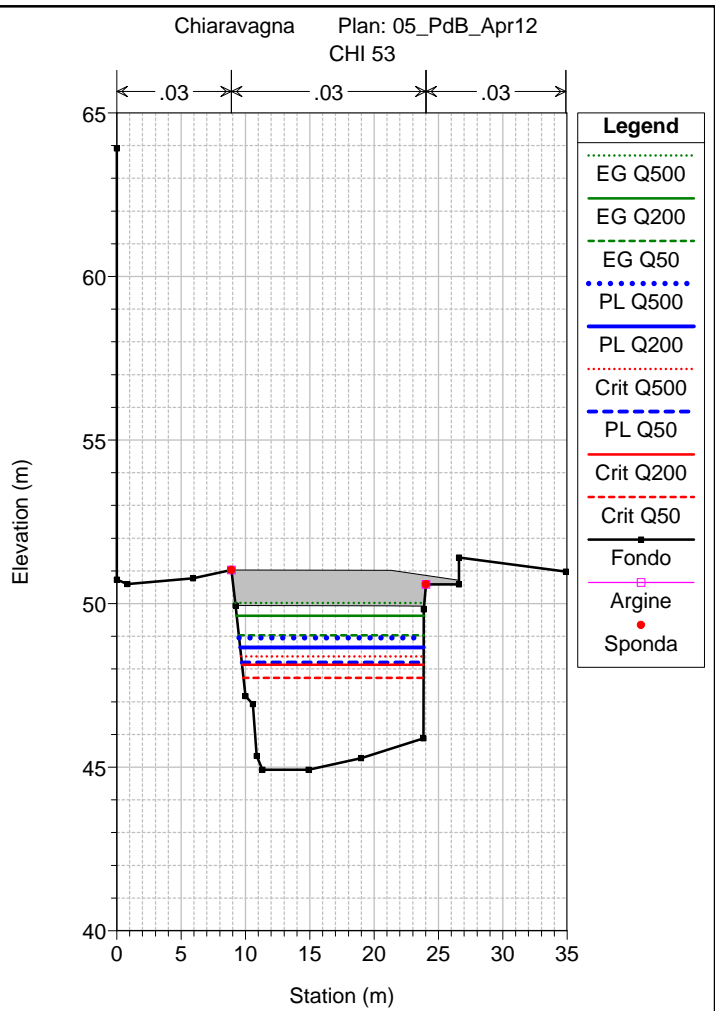
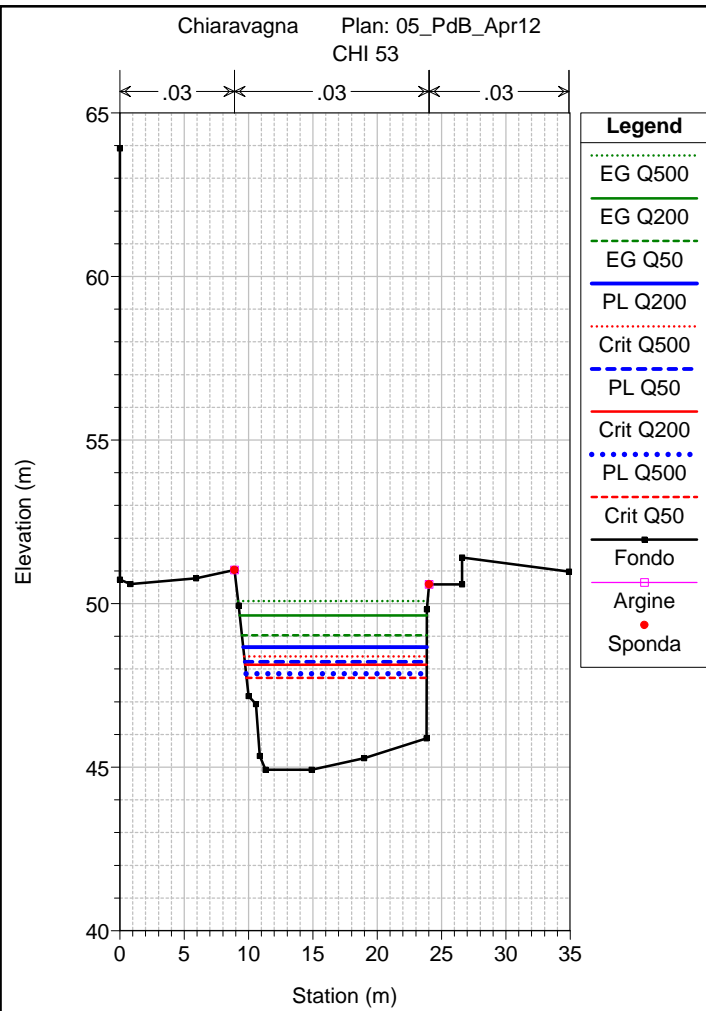


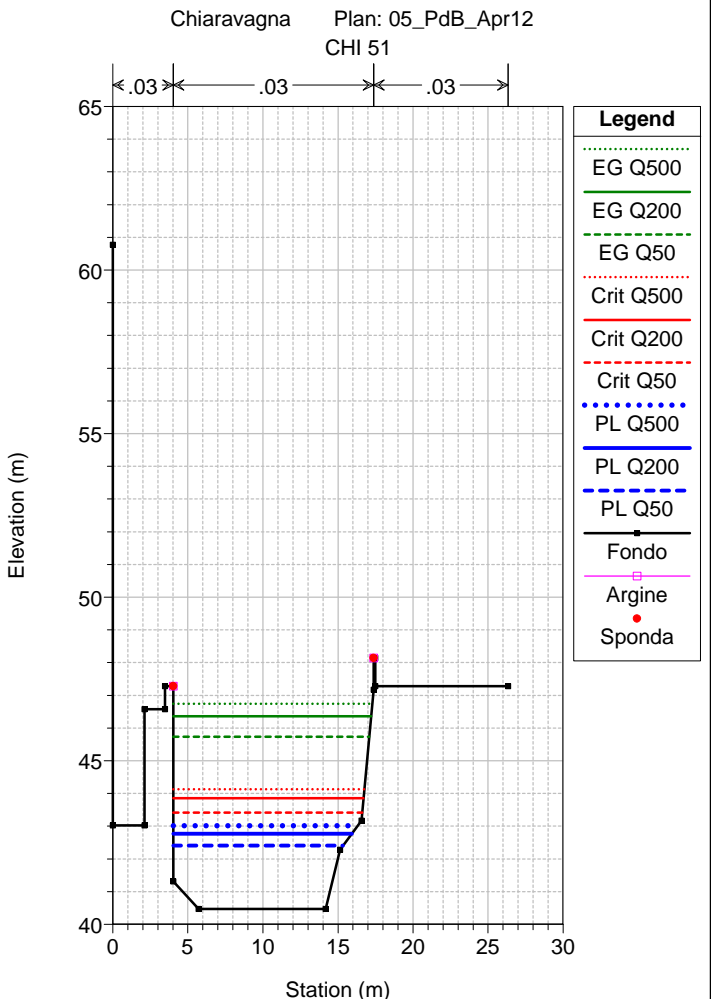
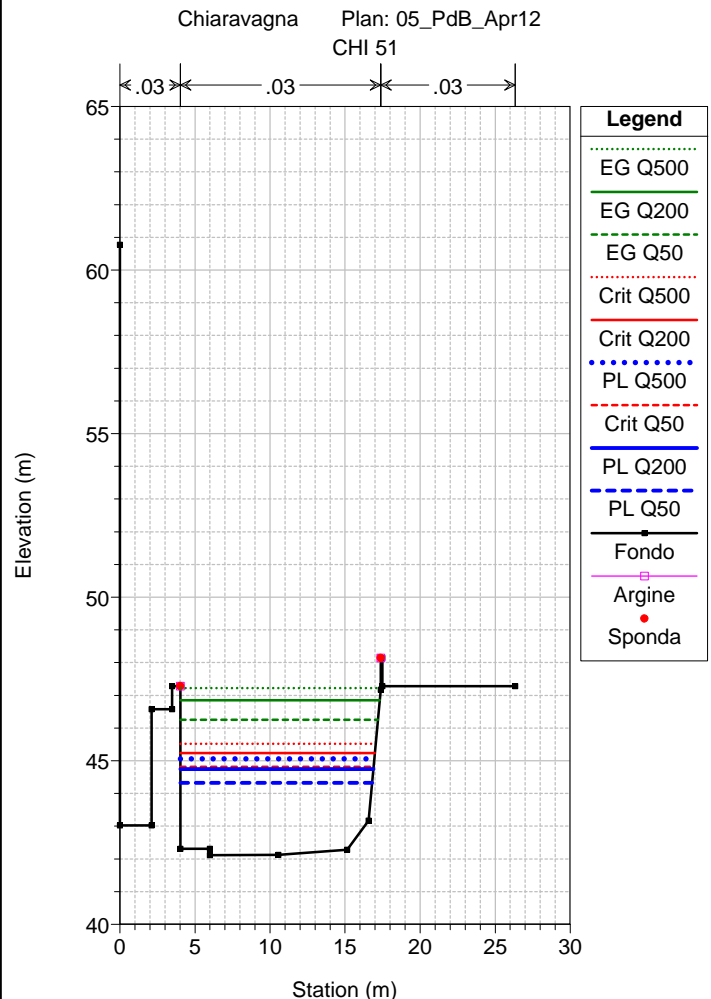
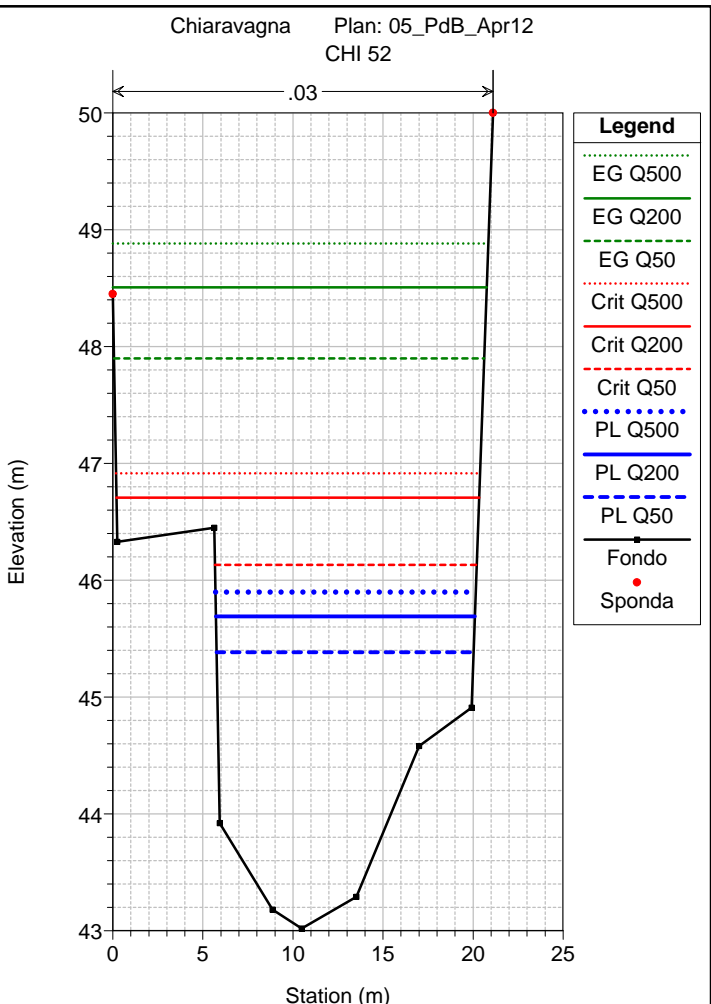
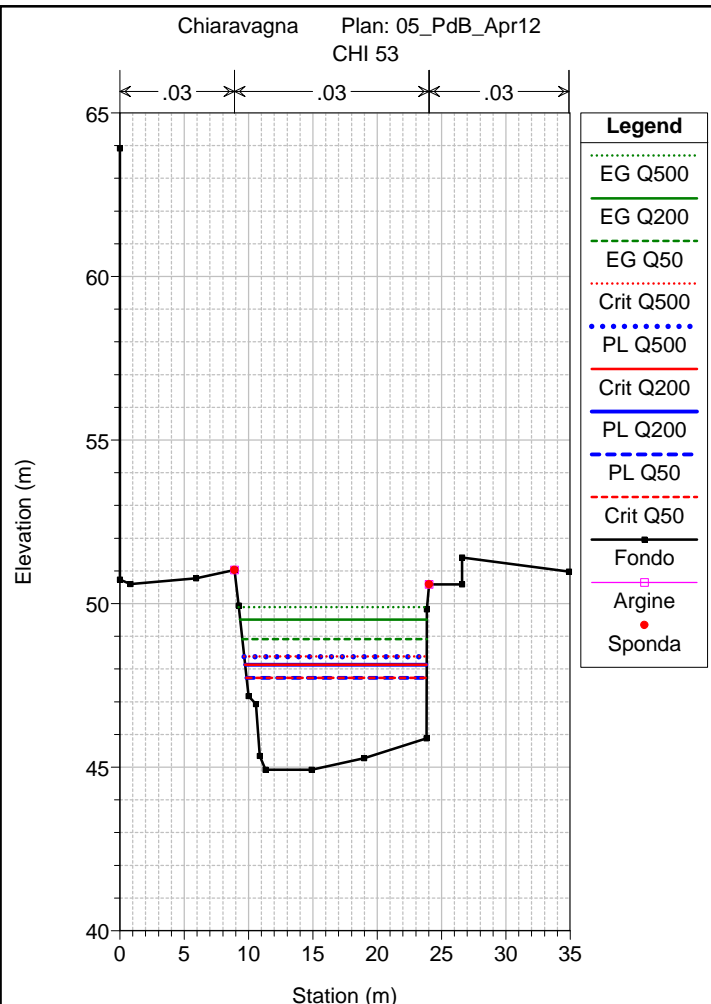
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 54

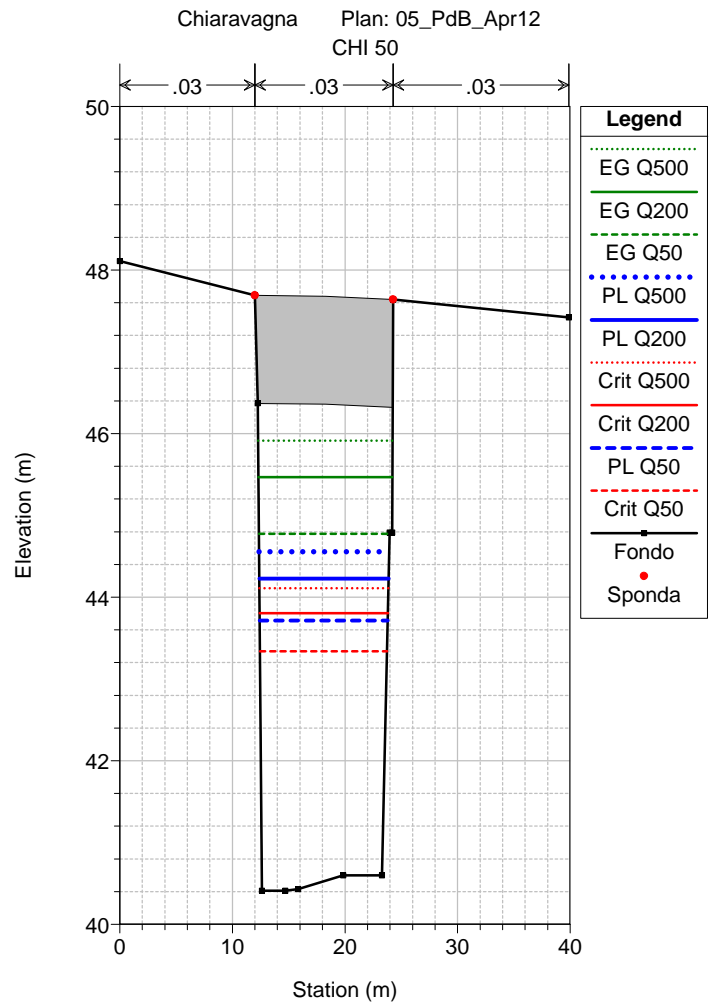
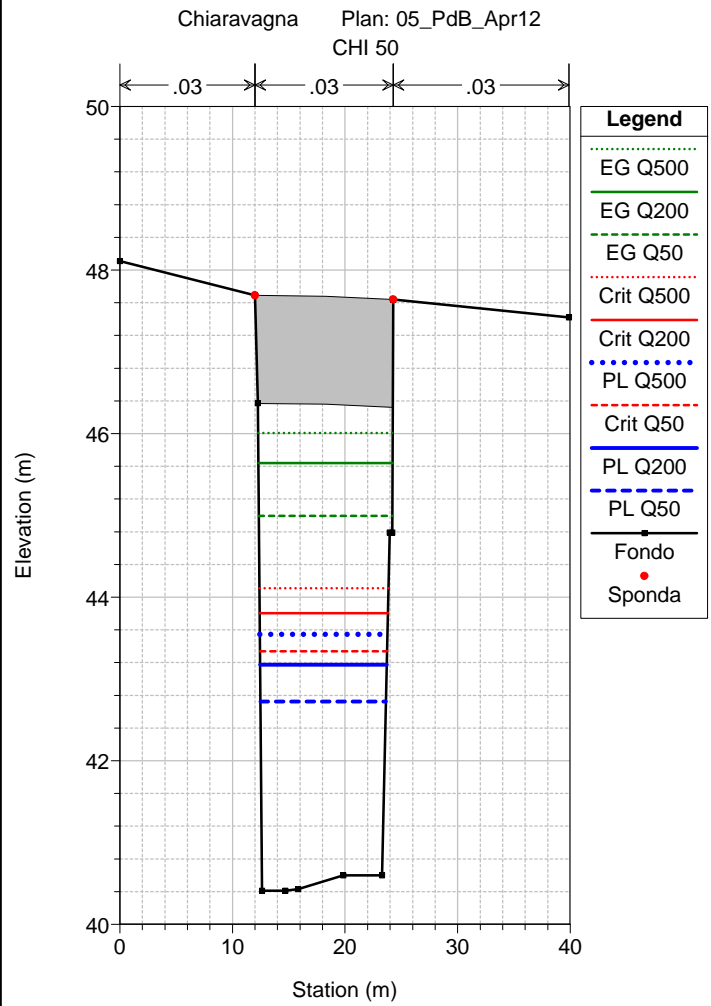
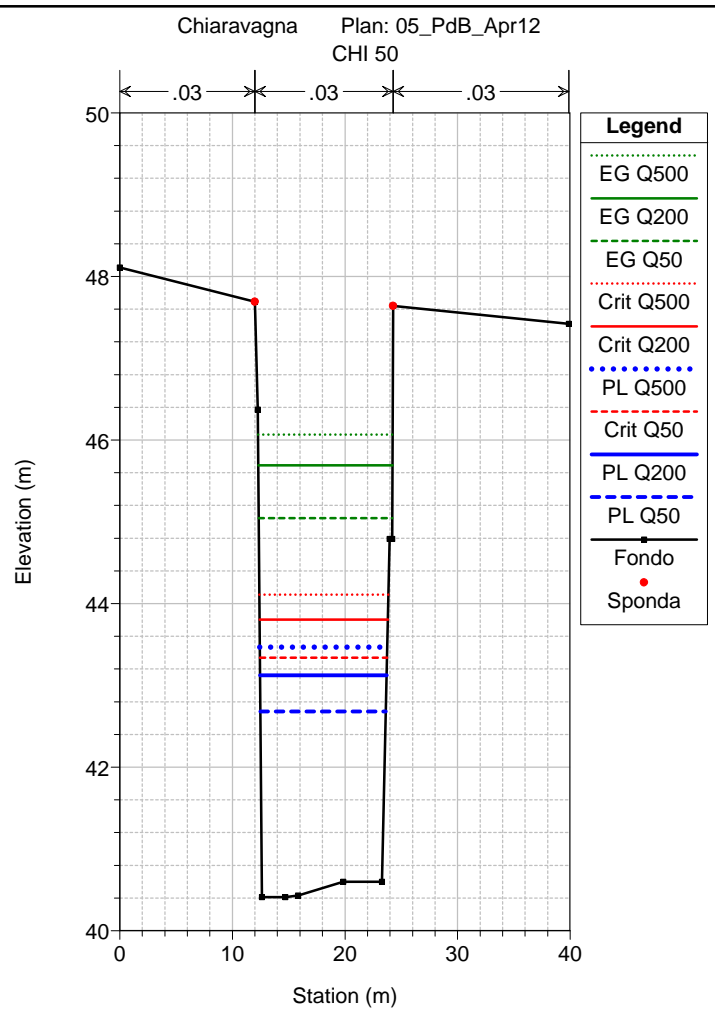
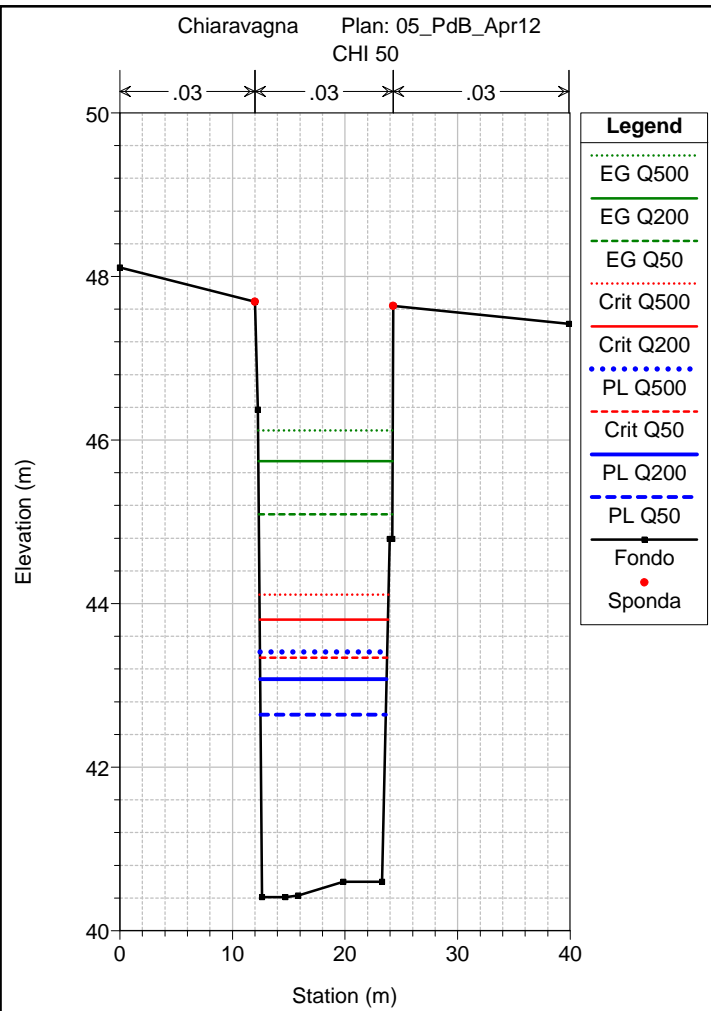


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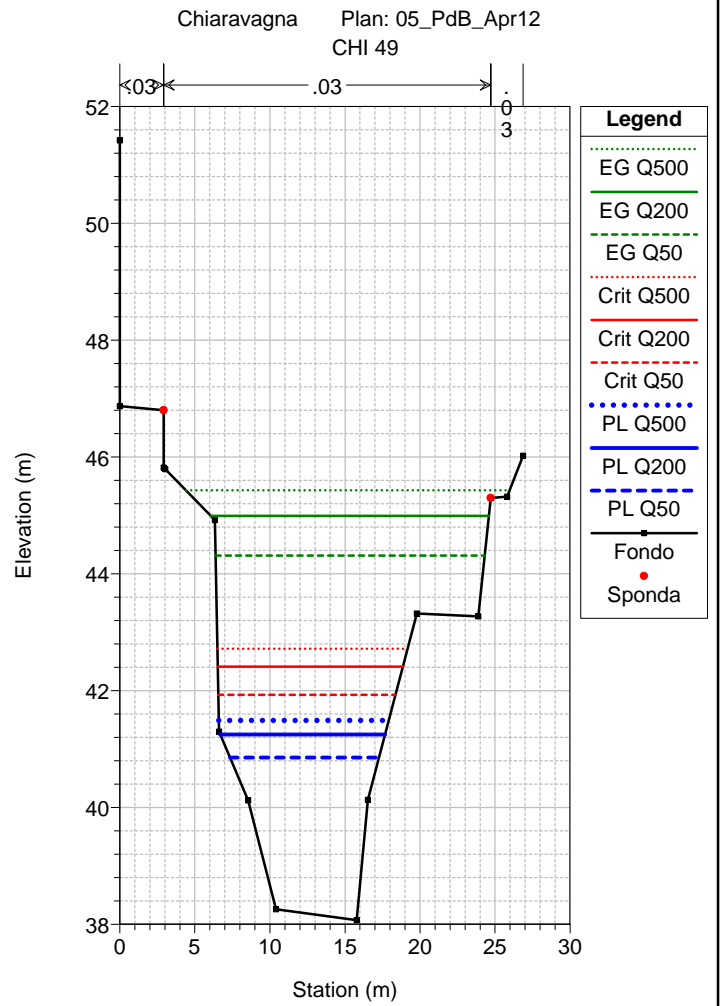
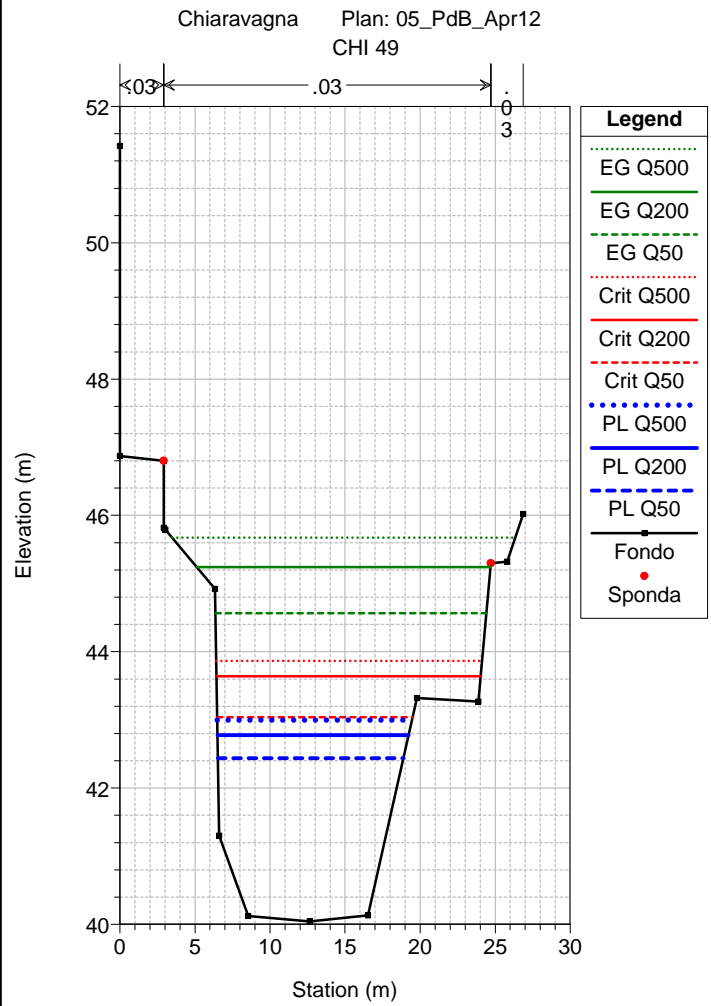
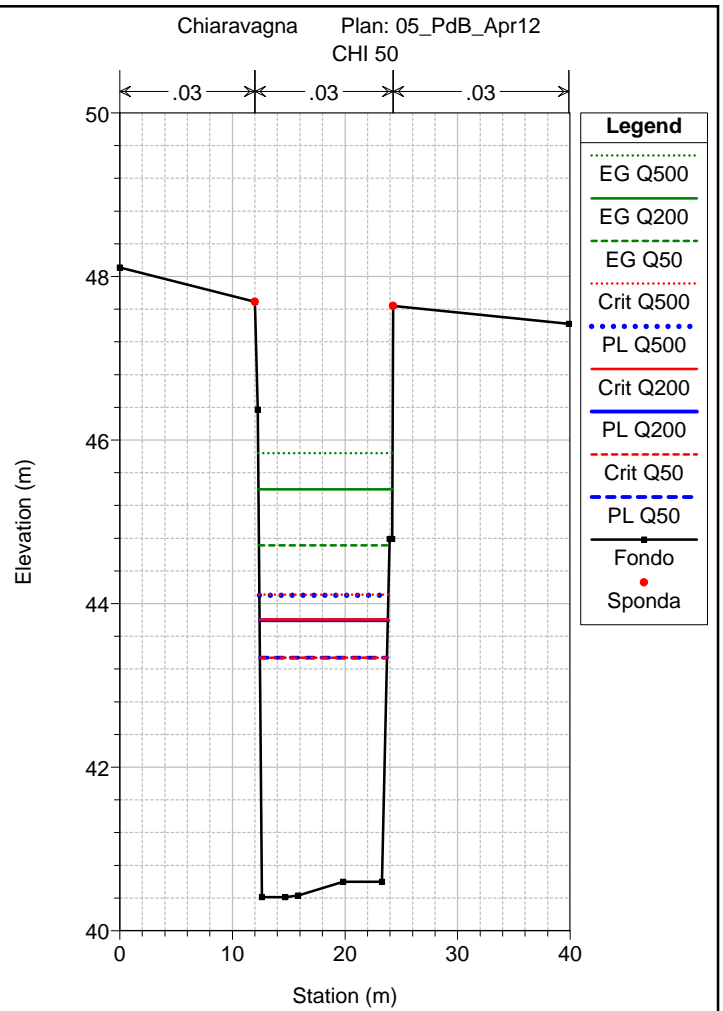
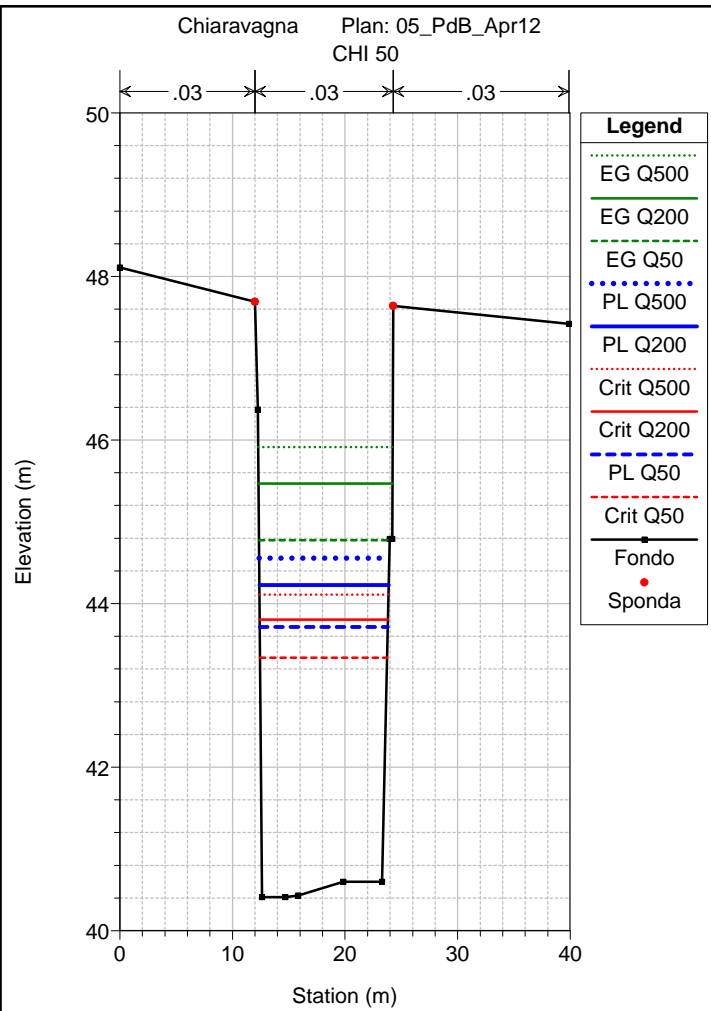




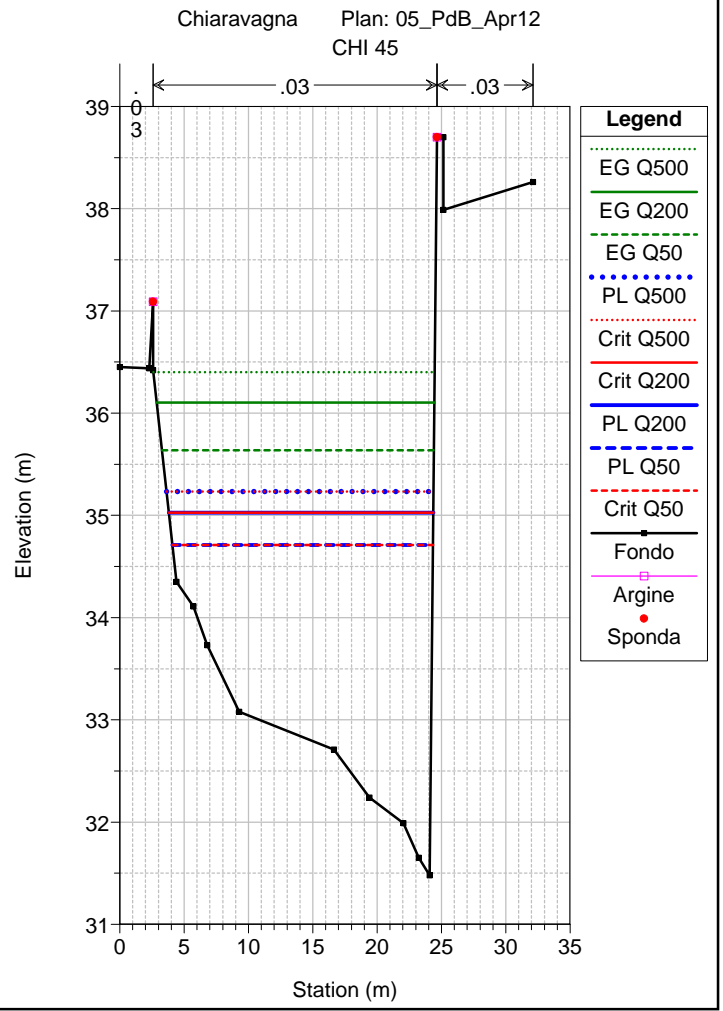
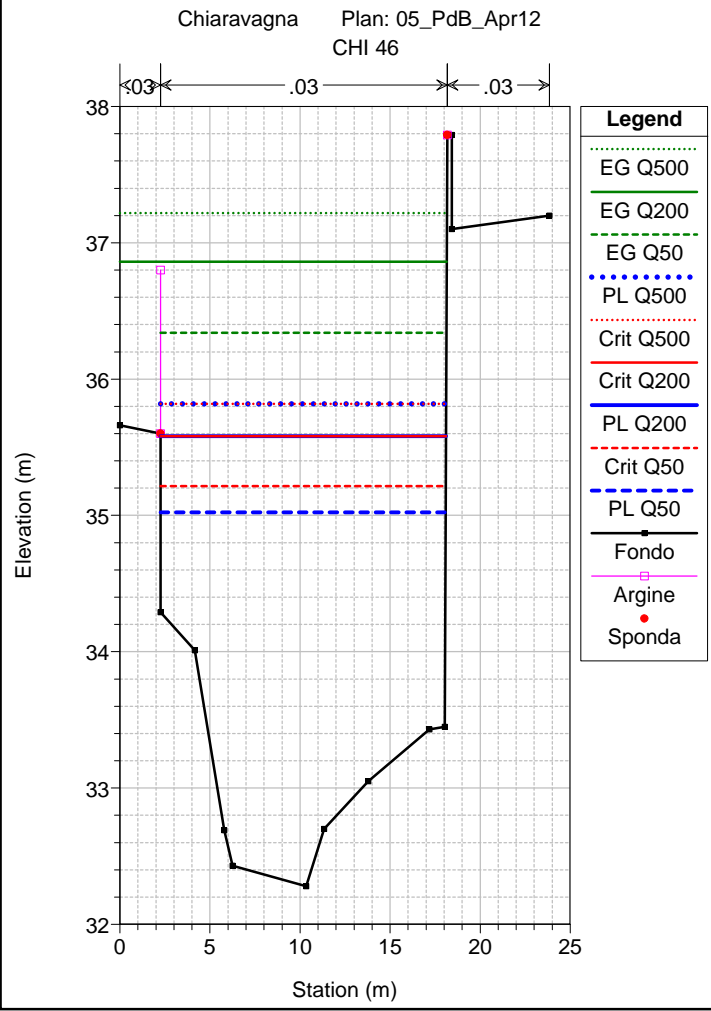
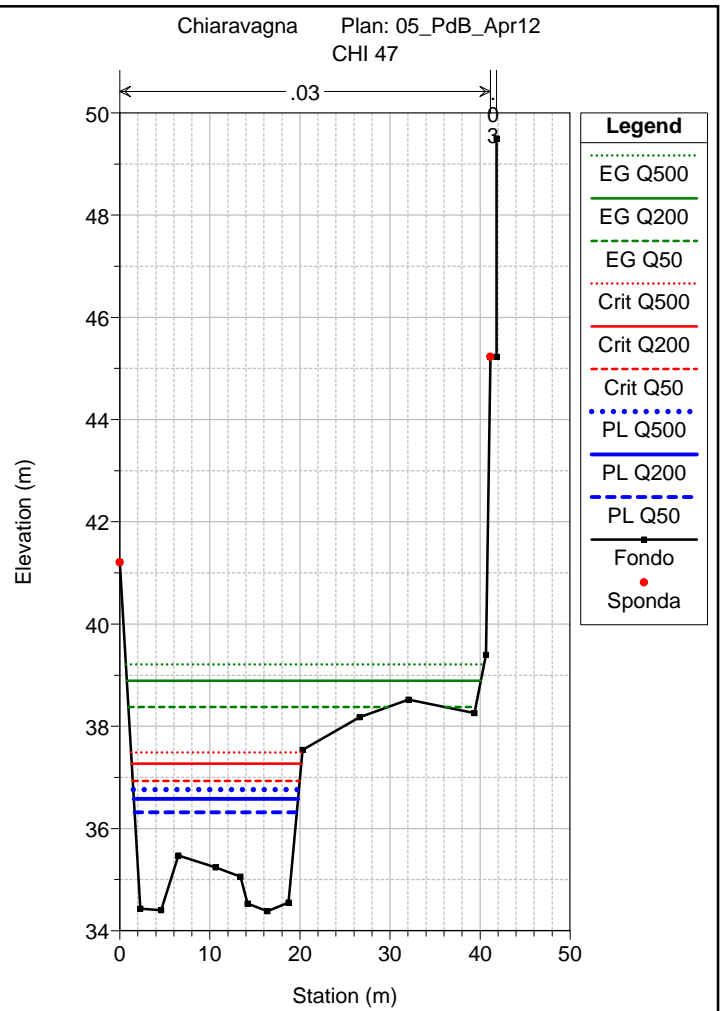
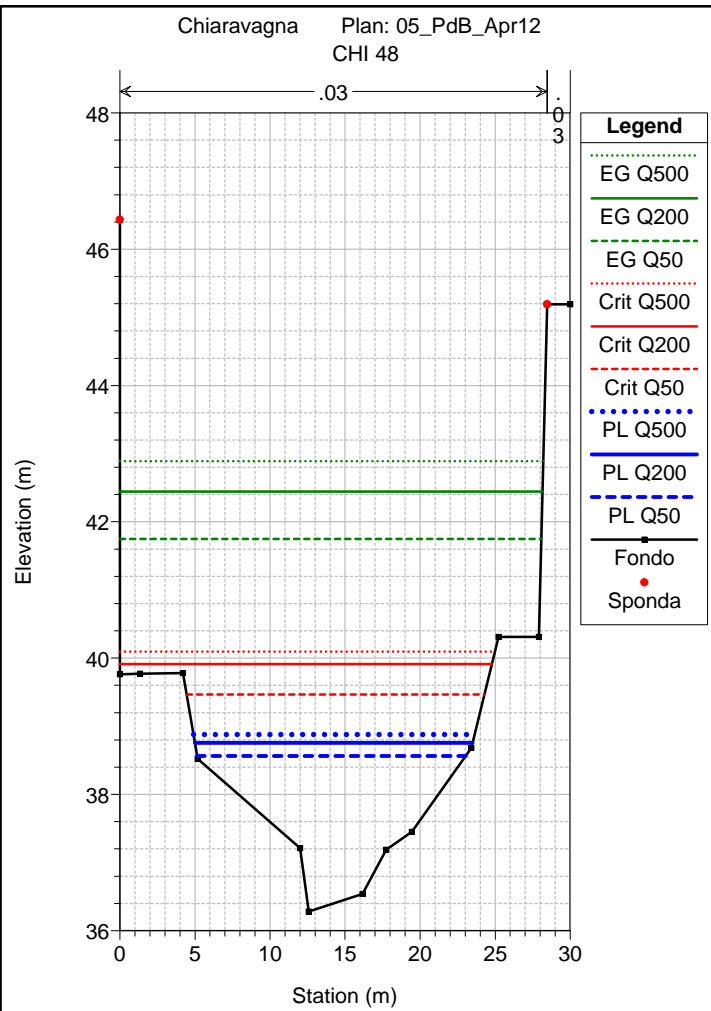


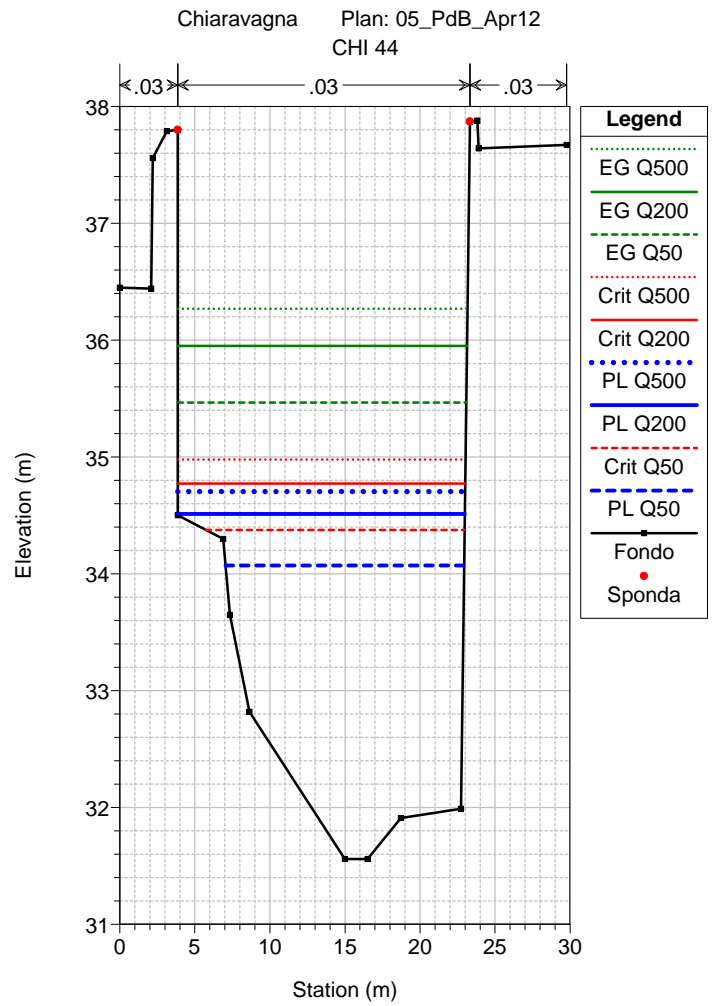
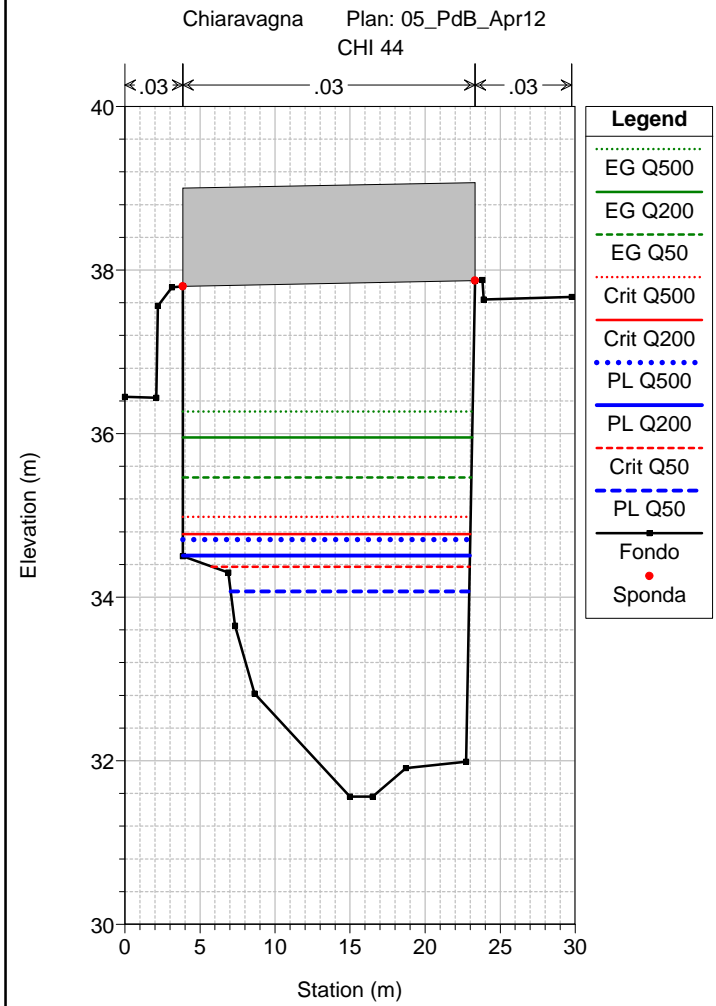
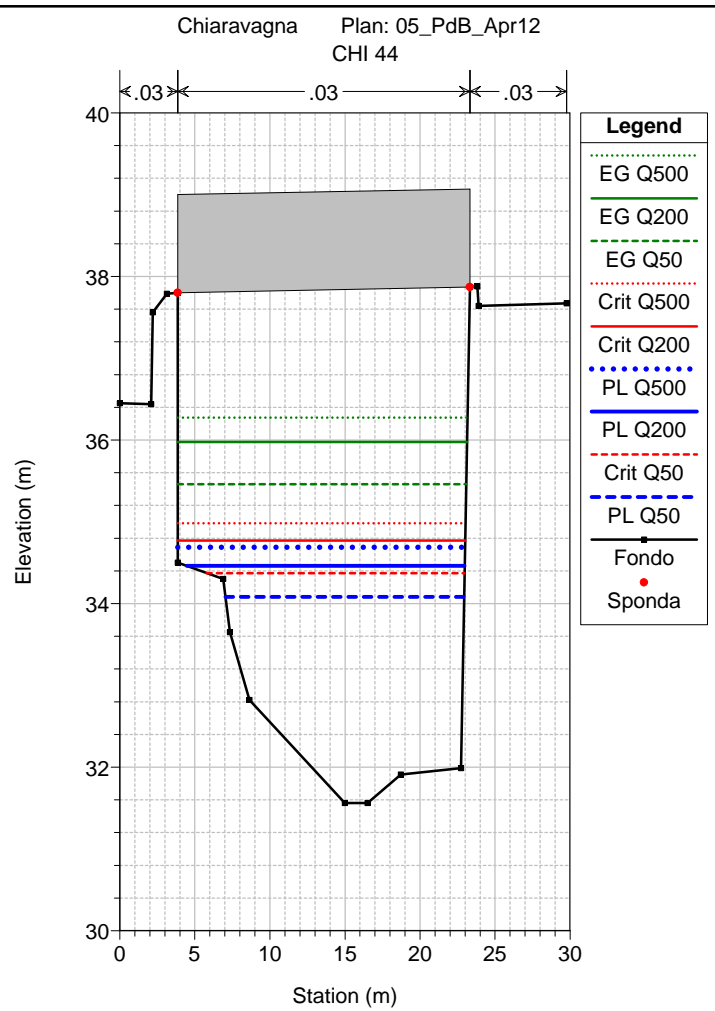
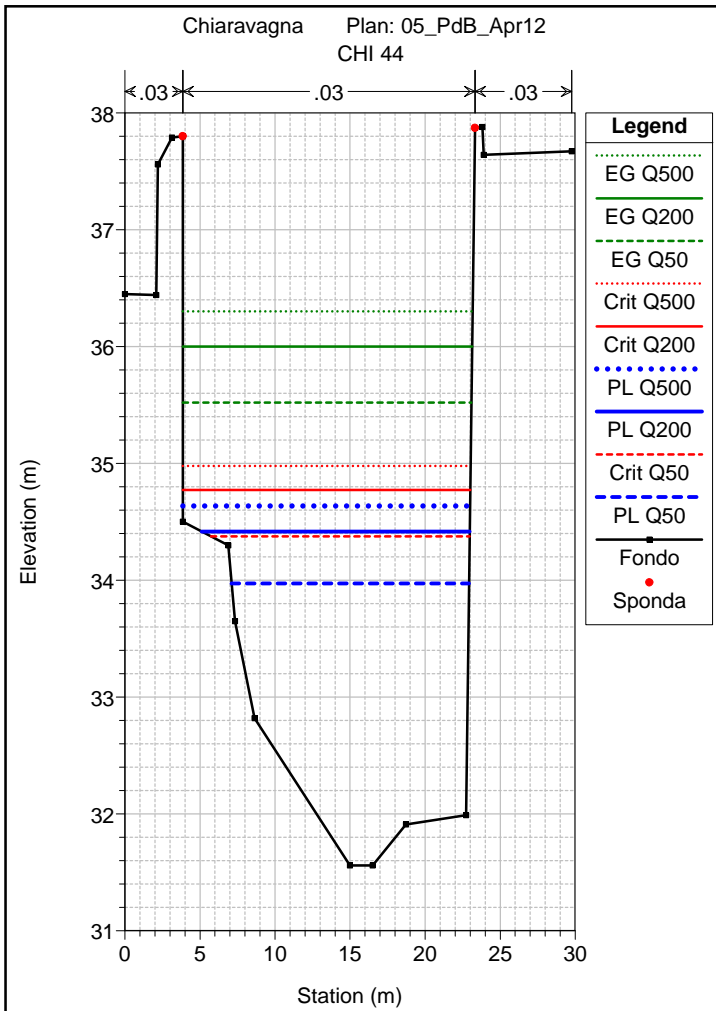




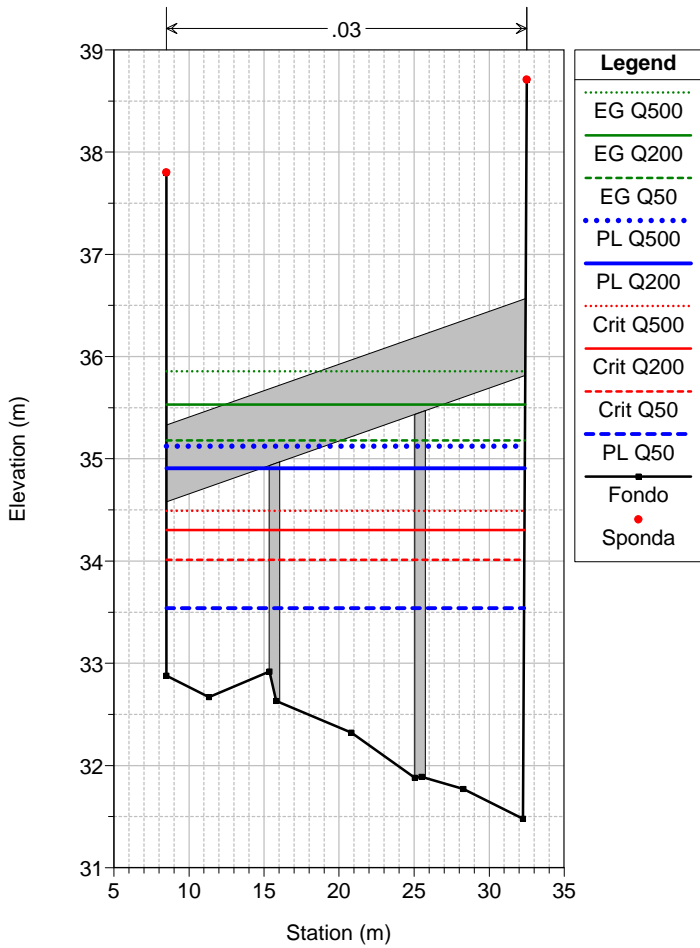




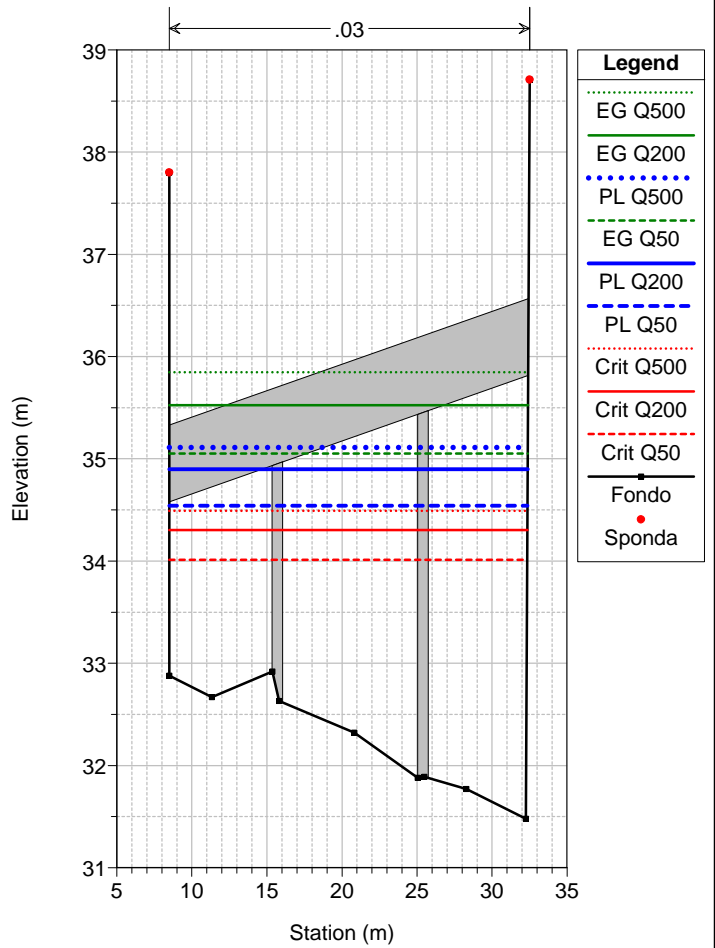




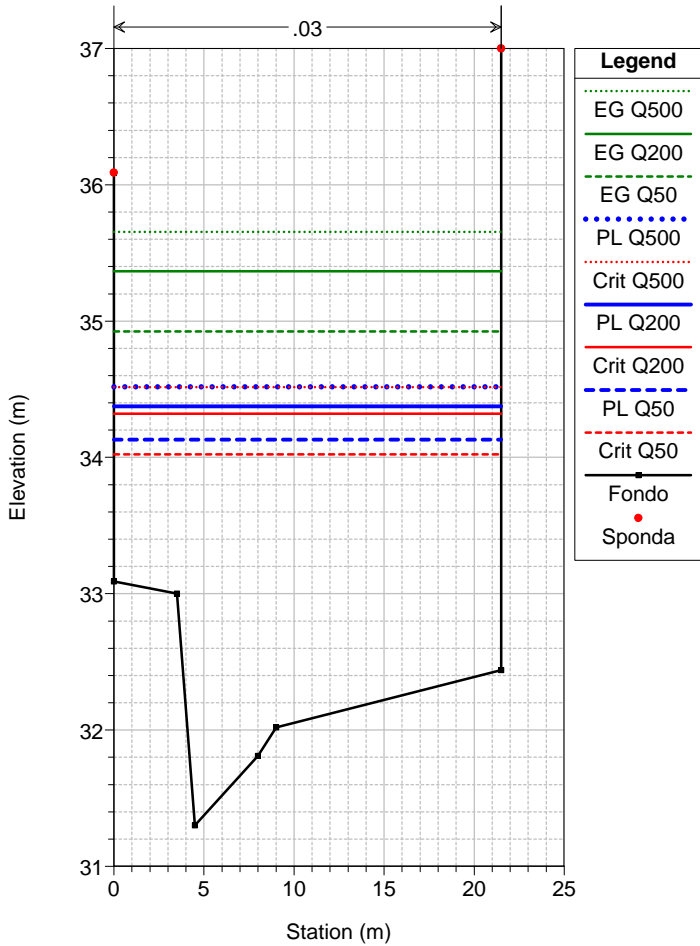
Chiaravagna Plan: 05\_PdB\_Apr12



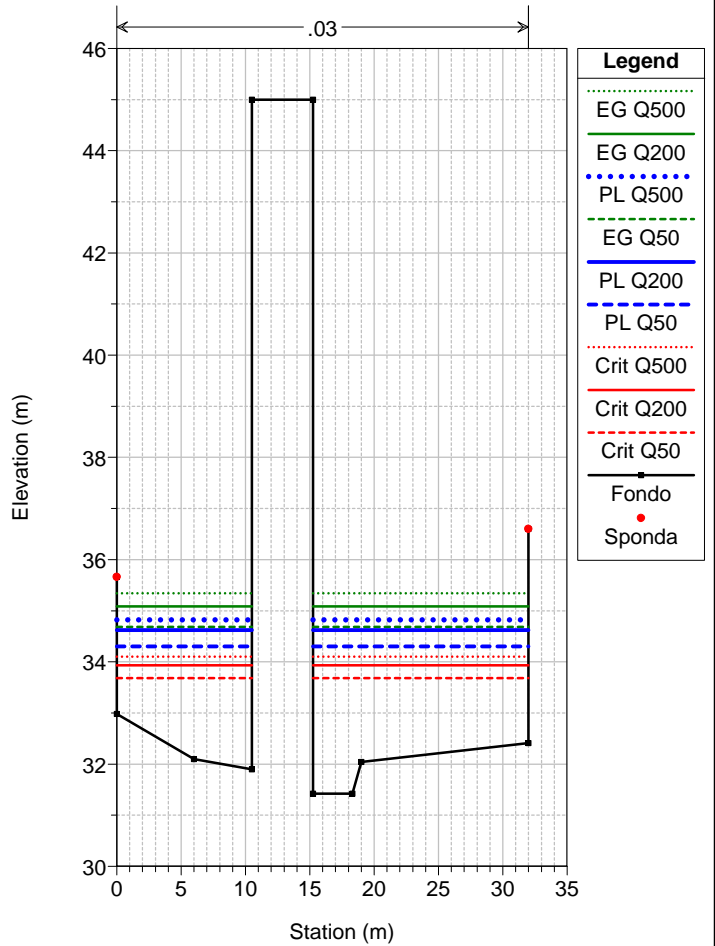
Chiaravagna Plan: 05\_PdB\_Apr12

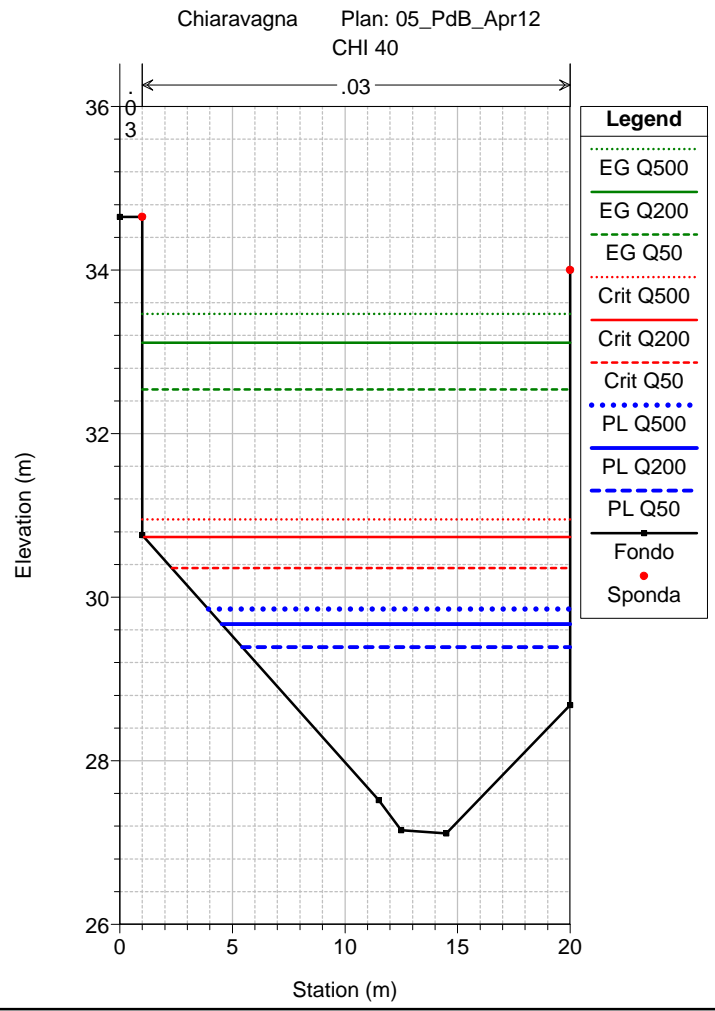
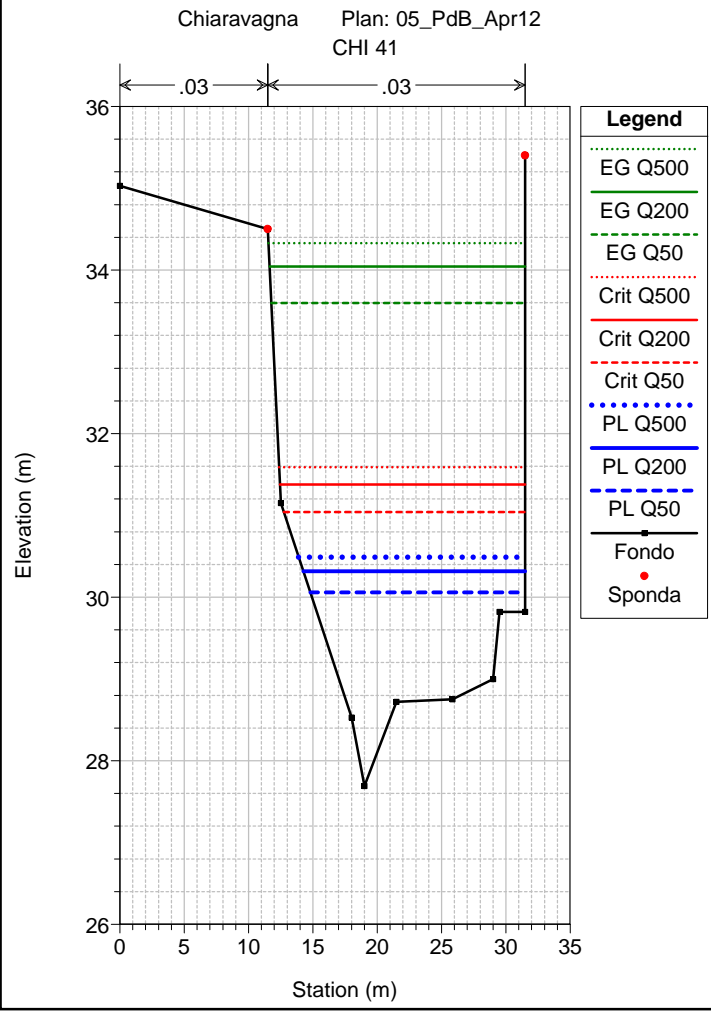
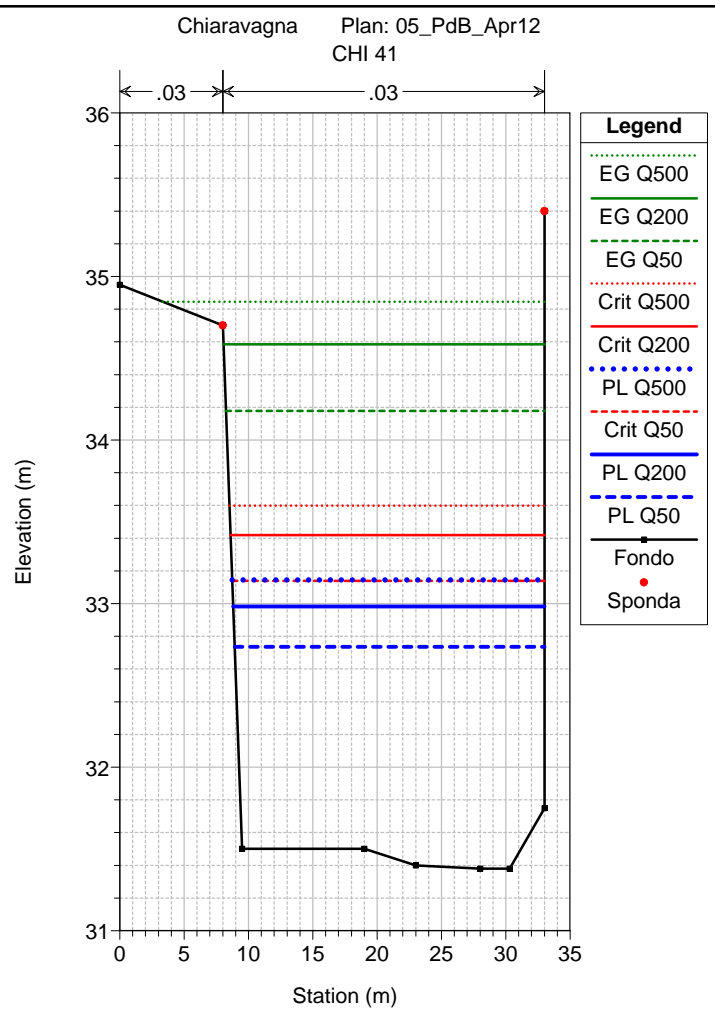
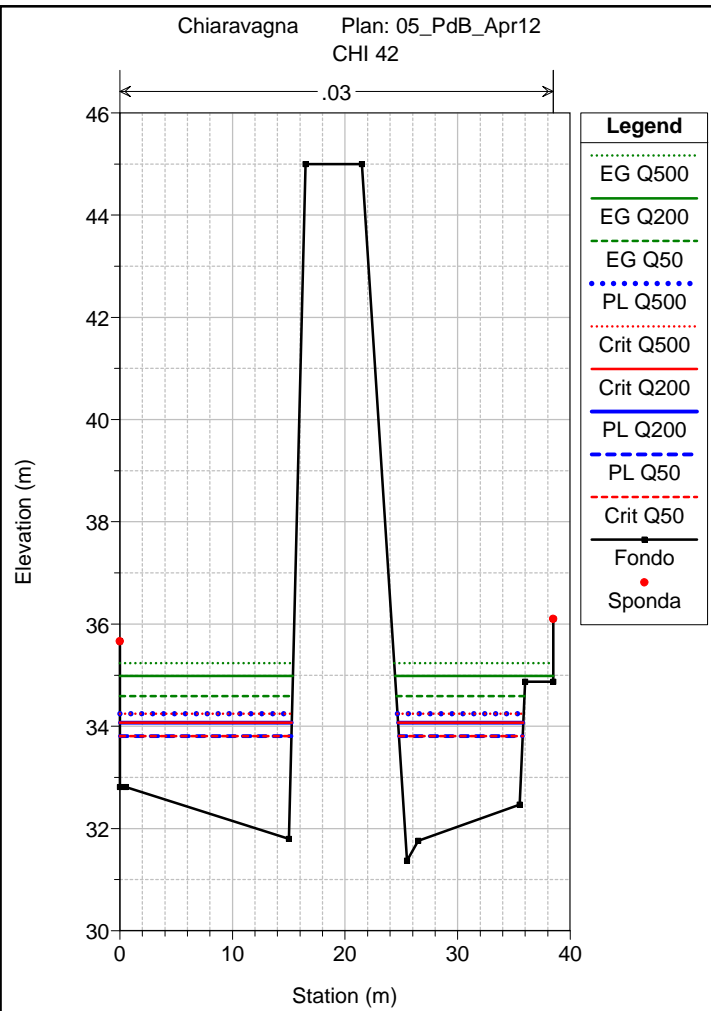


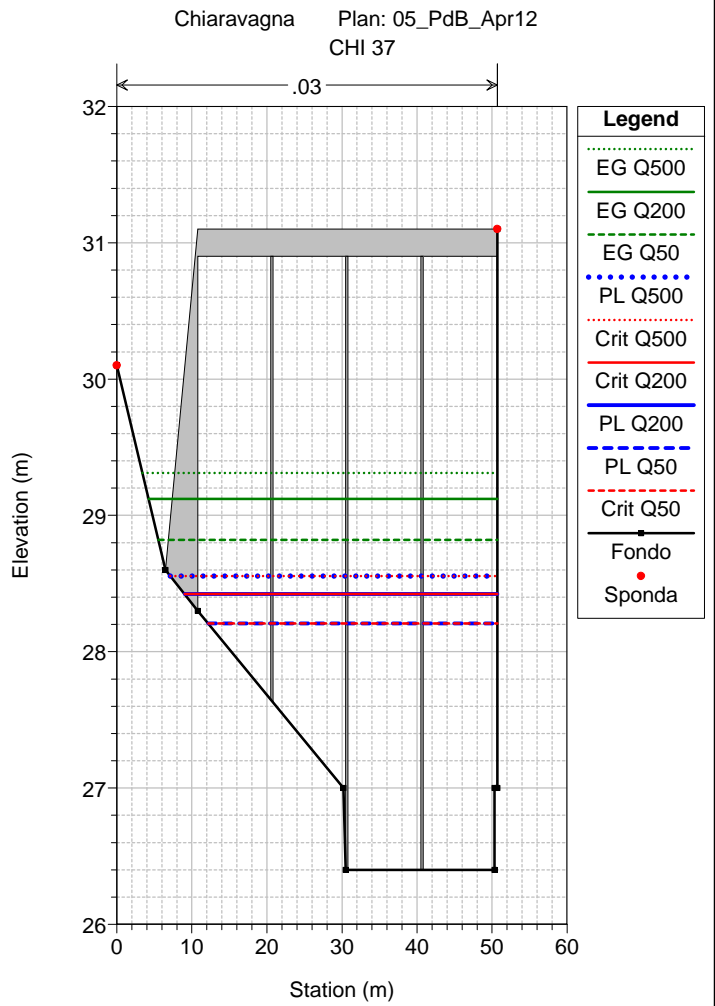
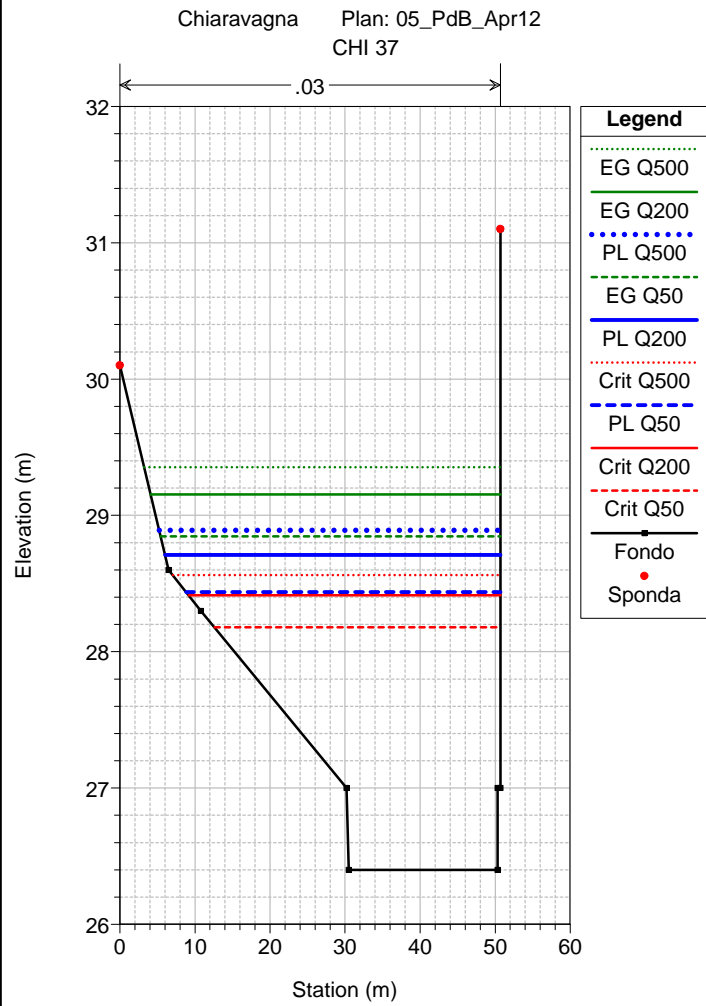
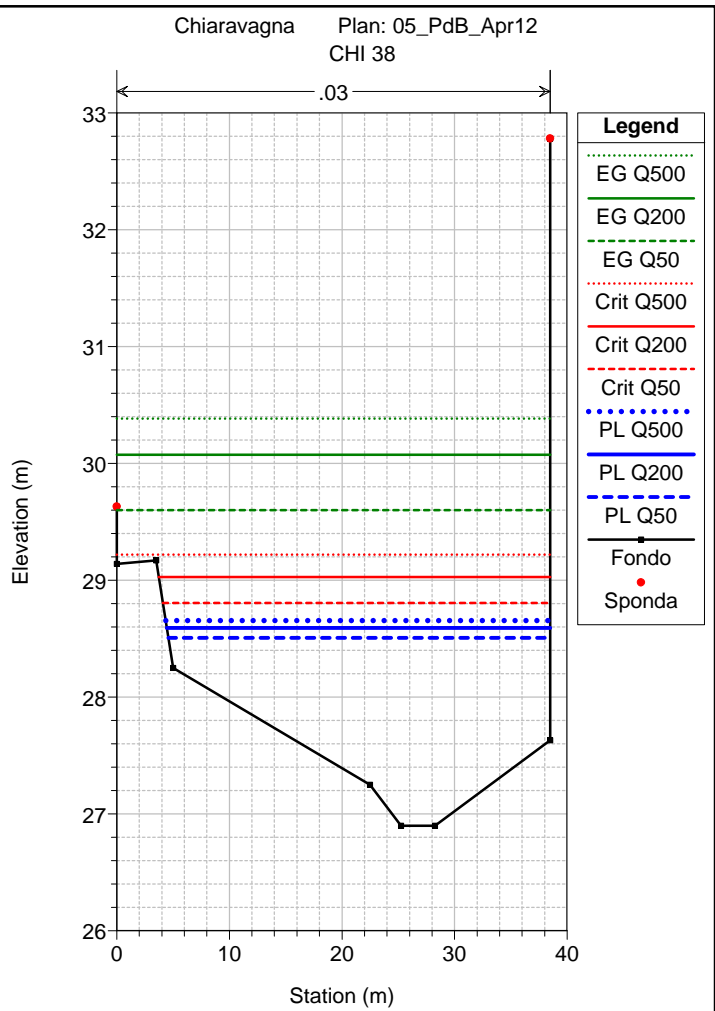
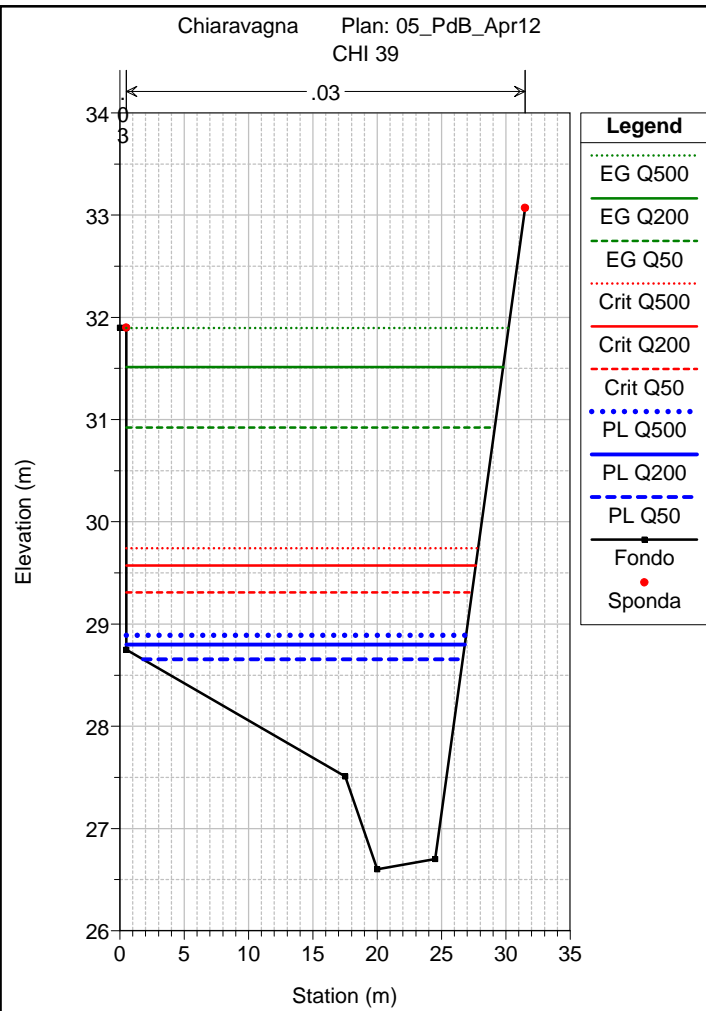
Chiaravagna Plan: 05\_PdB\_Apr12  
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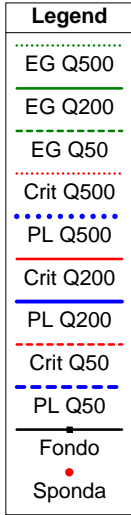
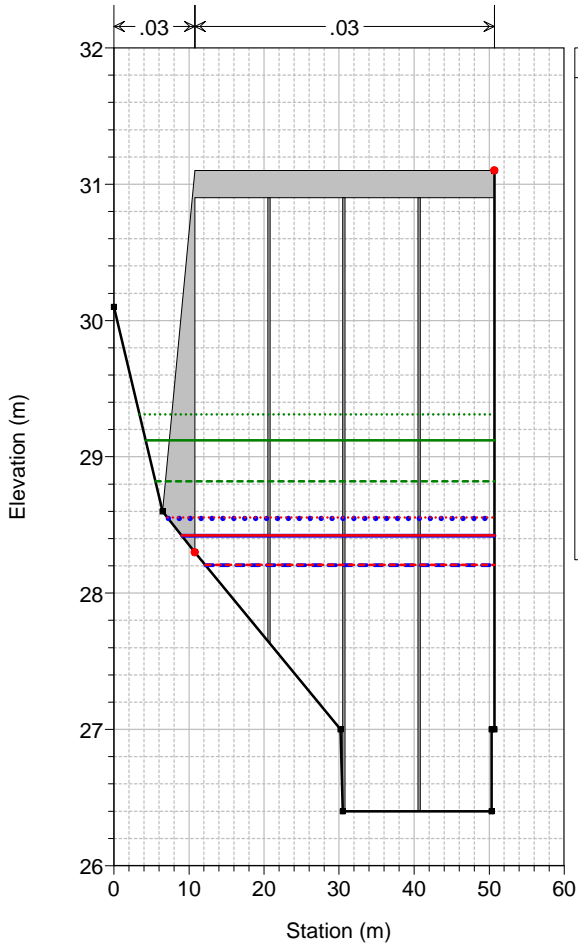




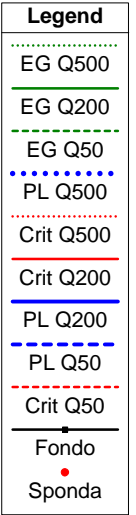
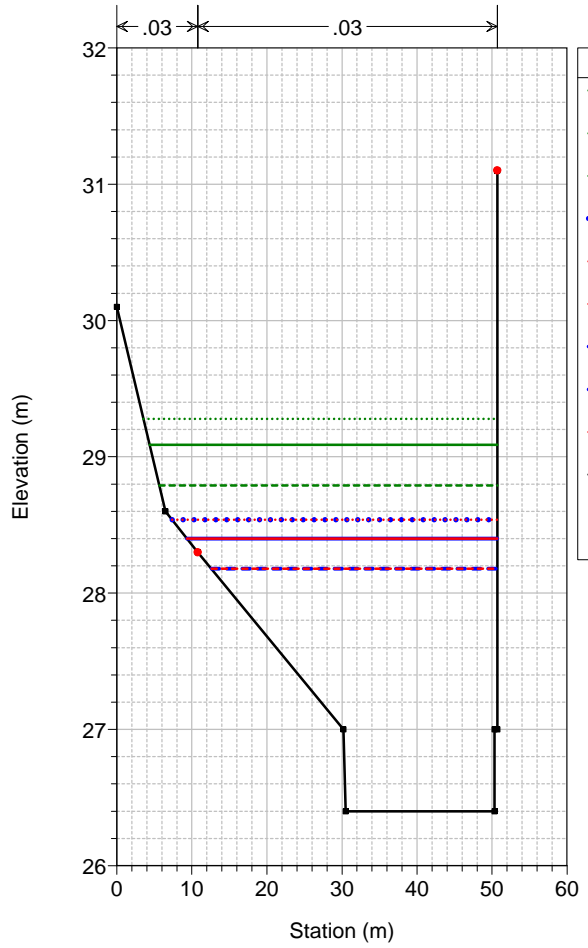




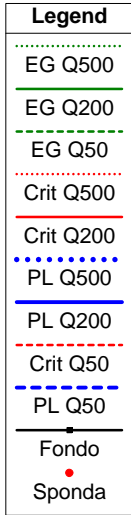
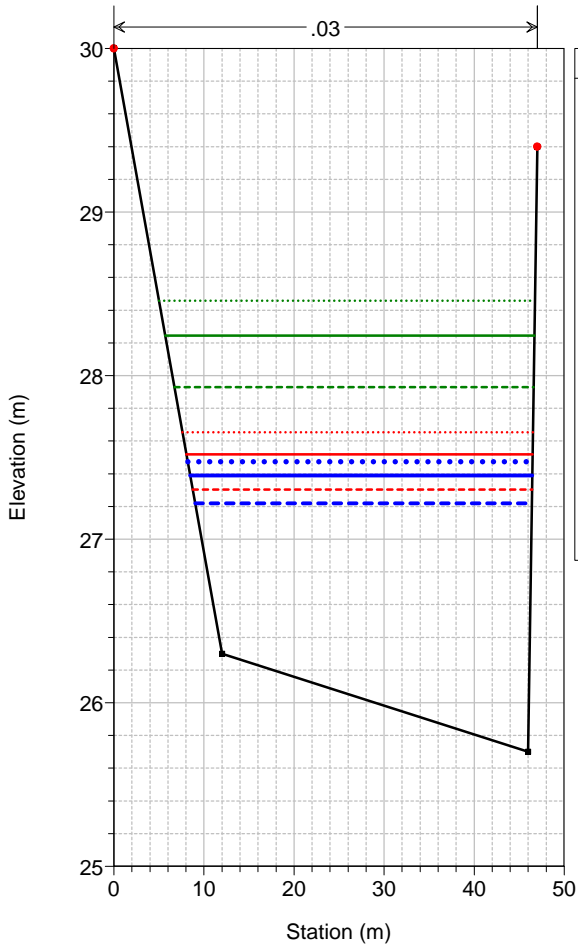
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 37



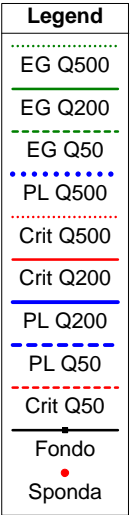
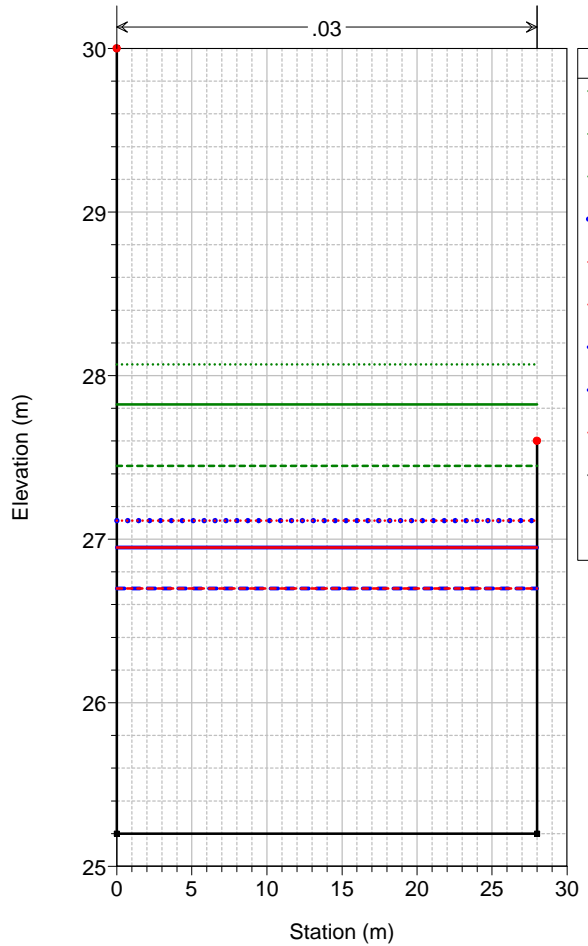
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 37



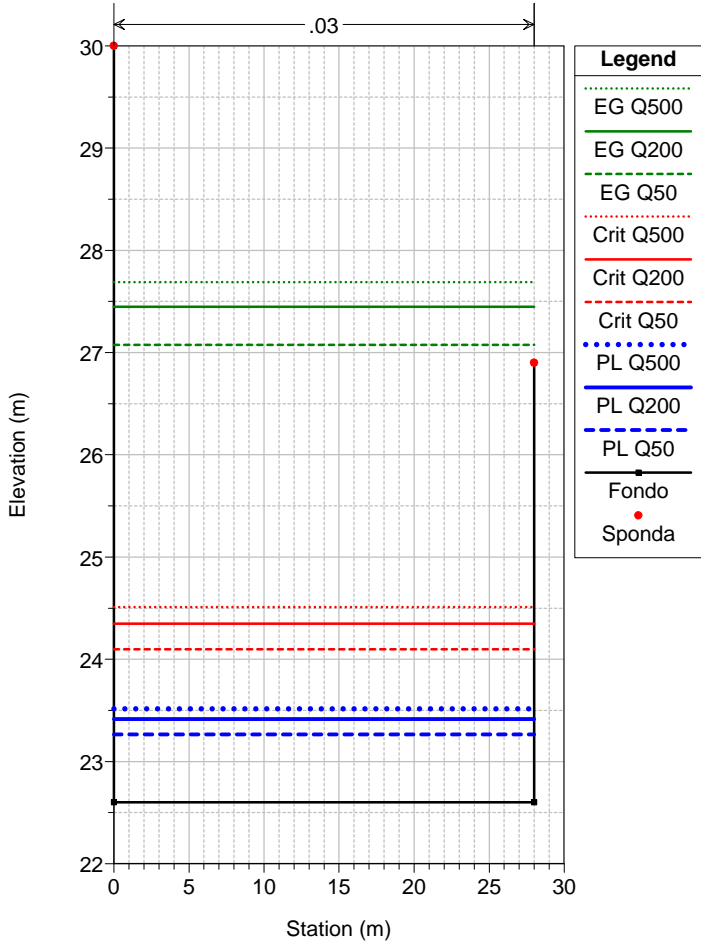
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 36



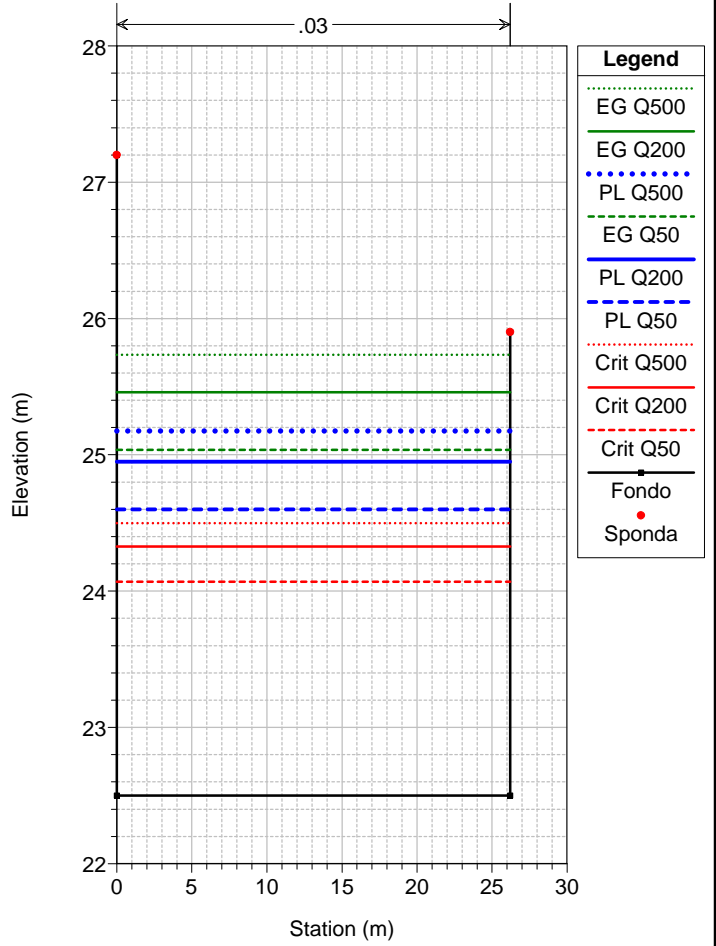
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 35



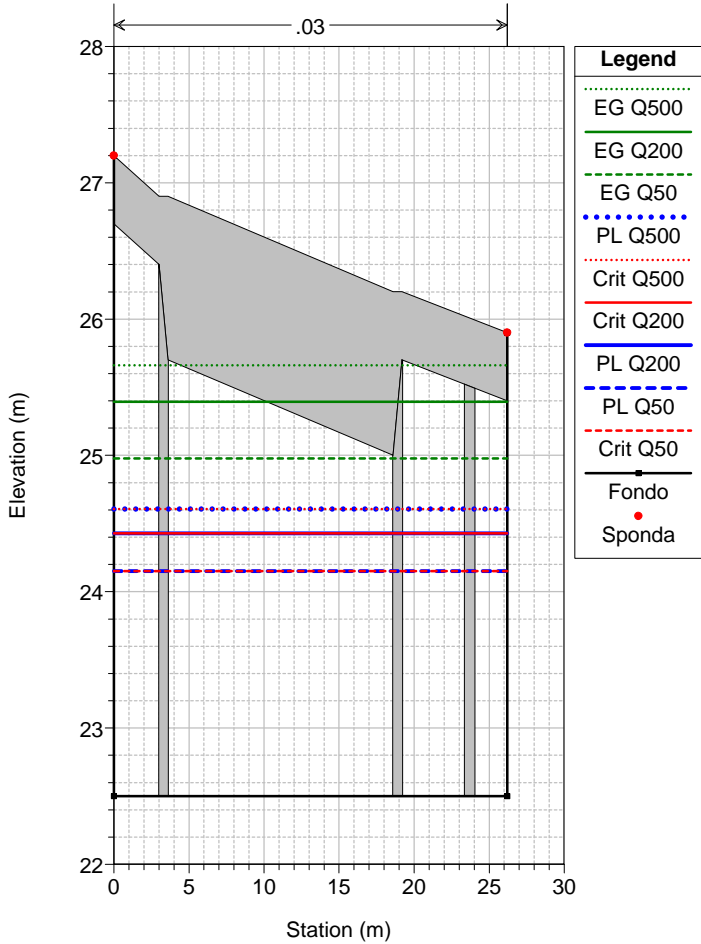
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 35



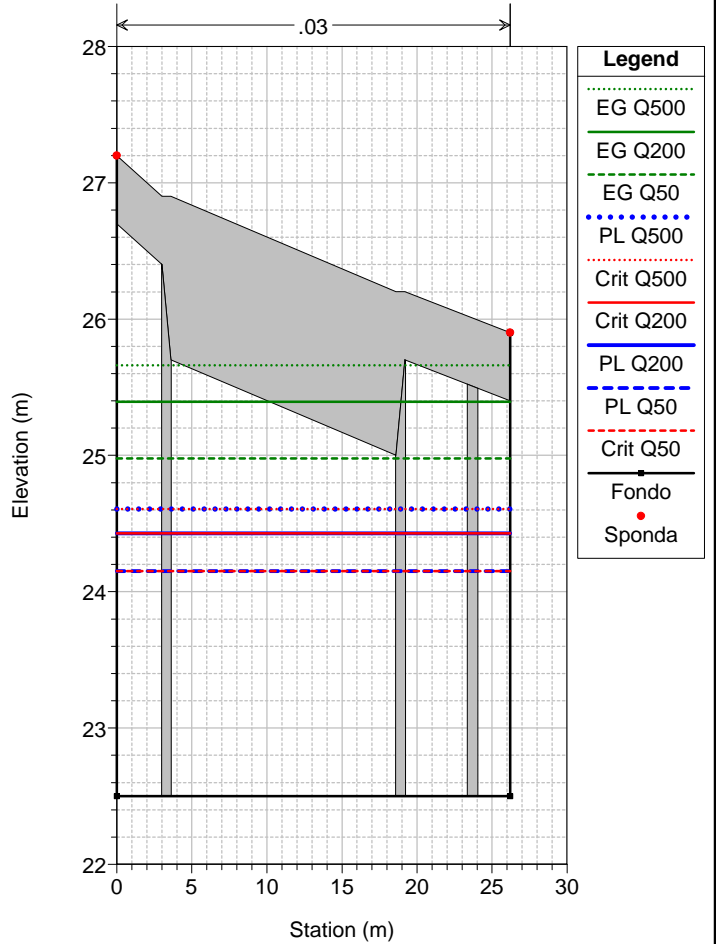
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 34



Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 34

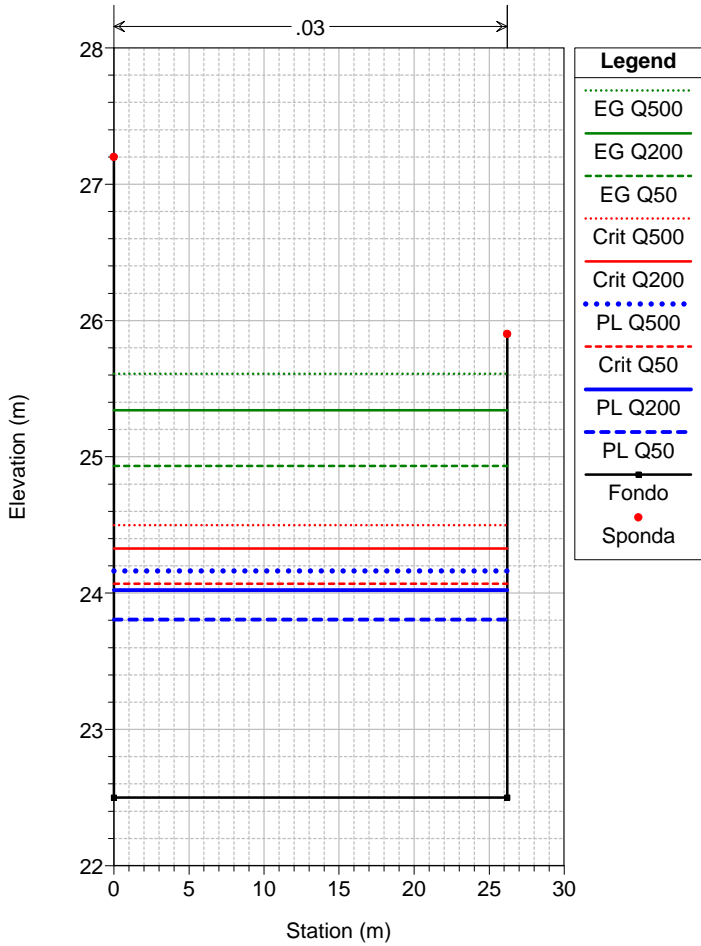


Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 34

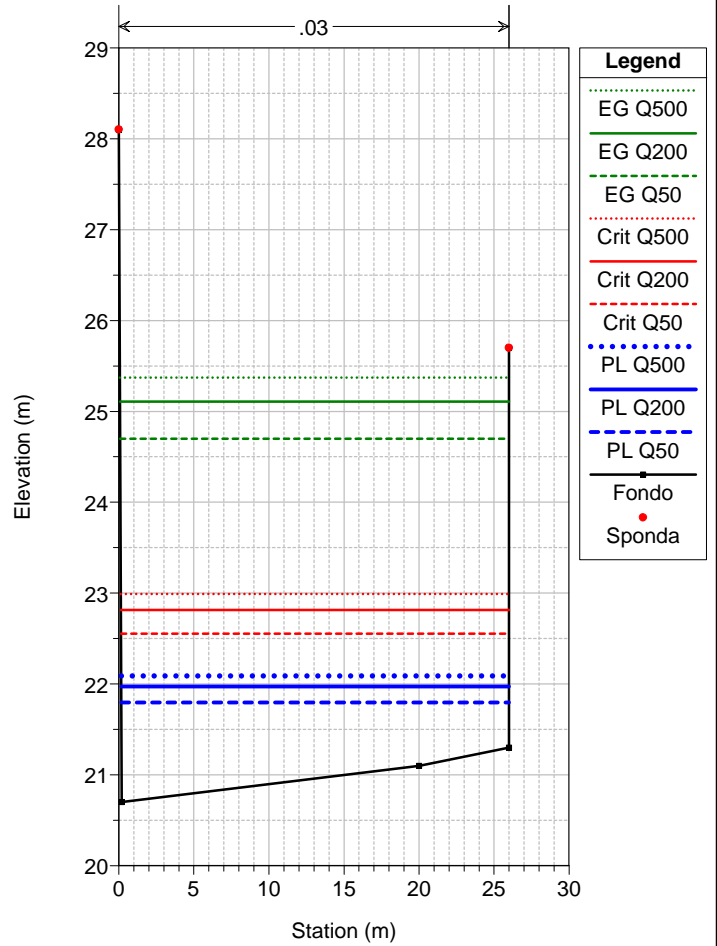




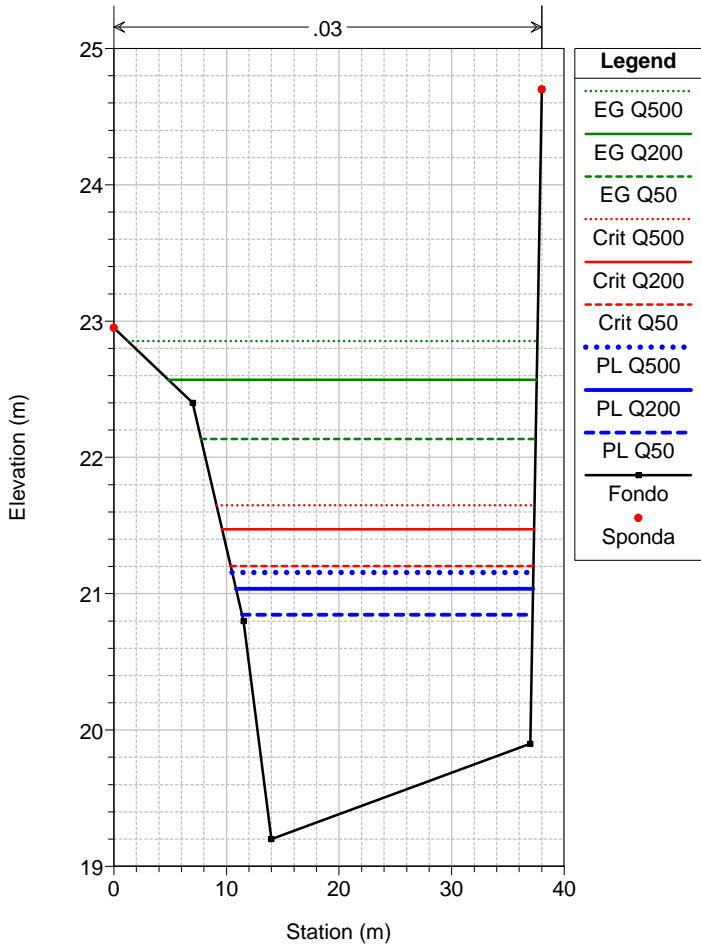
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 34



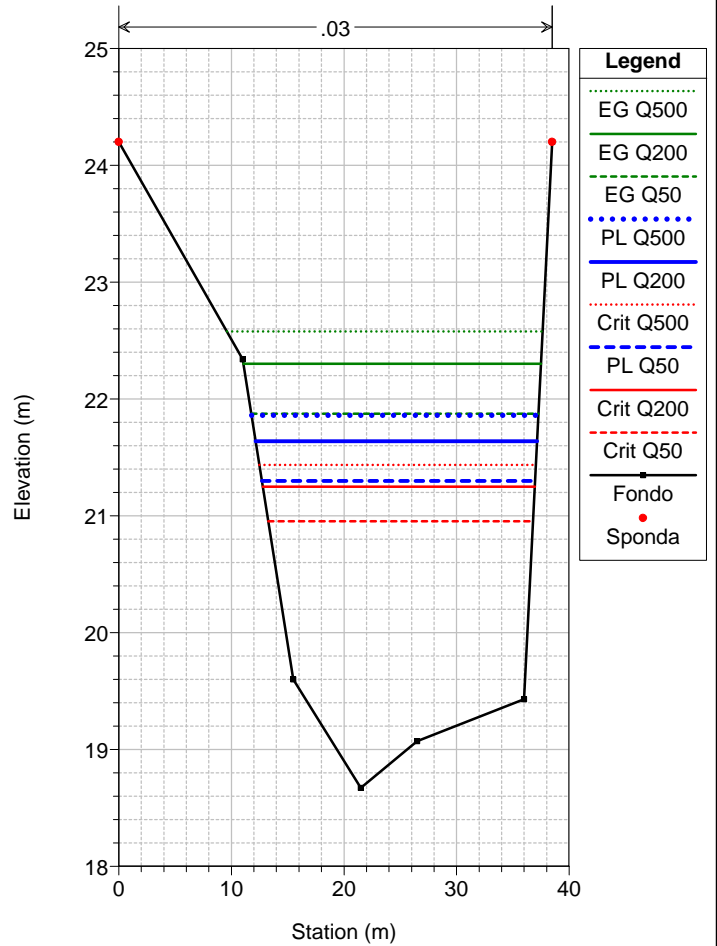
Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 33

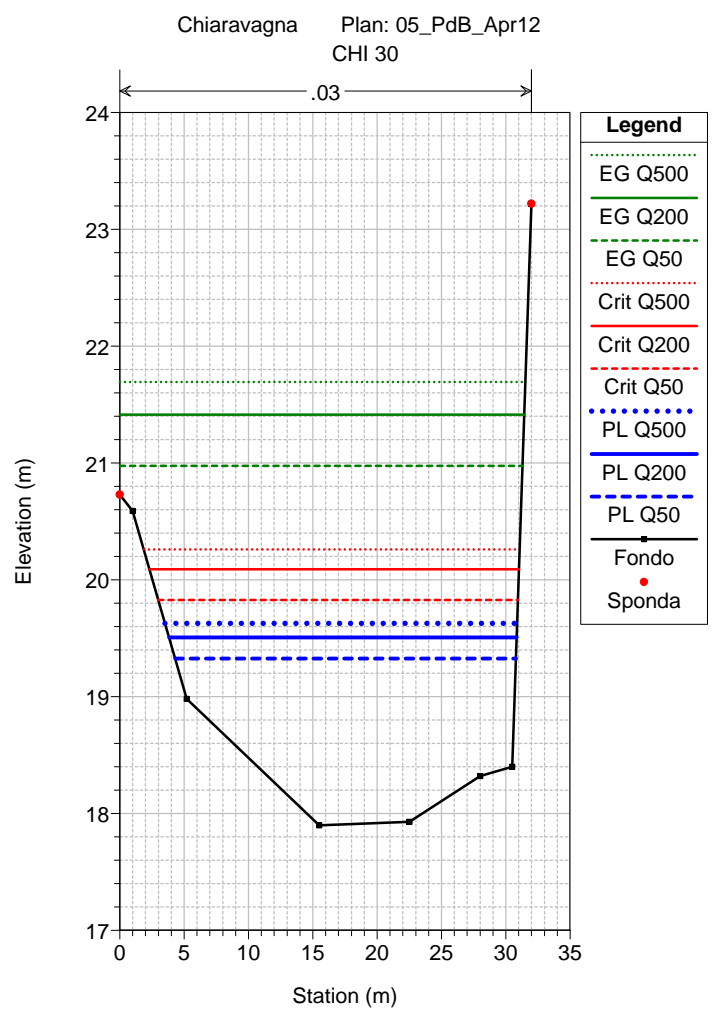
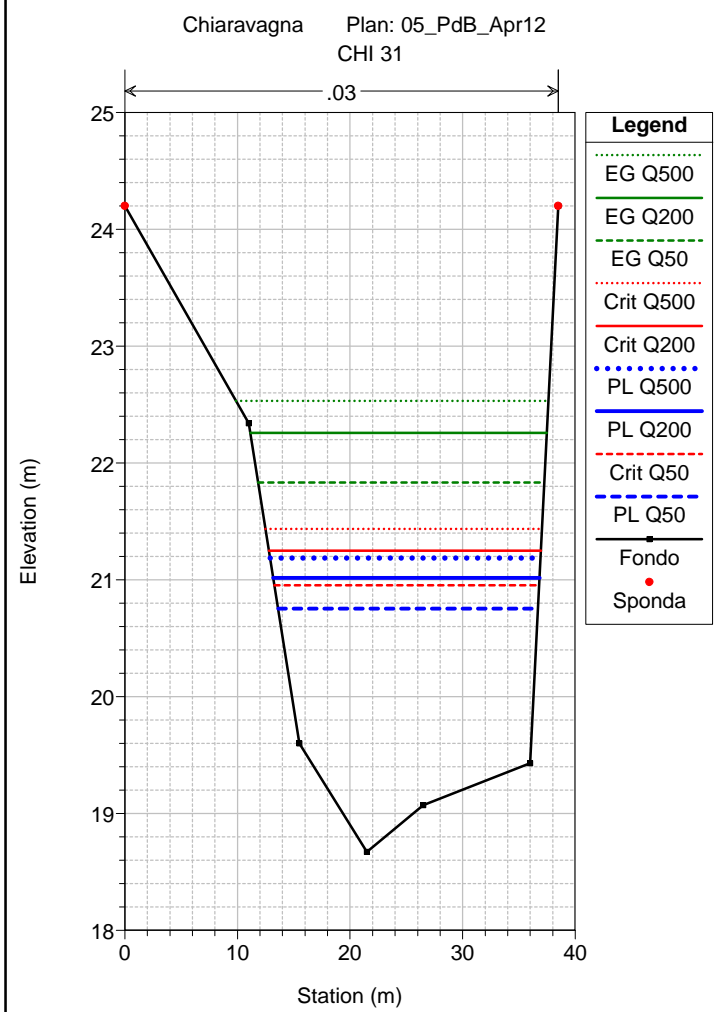
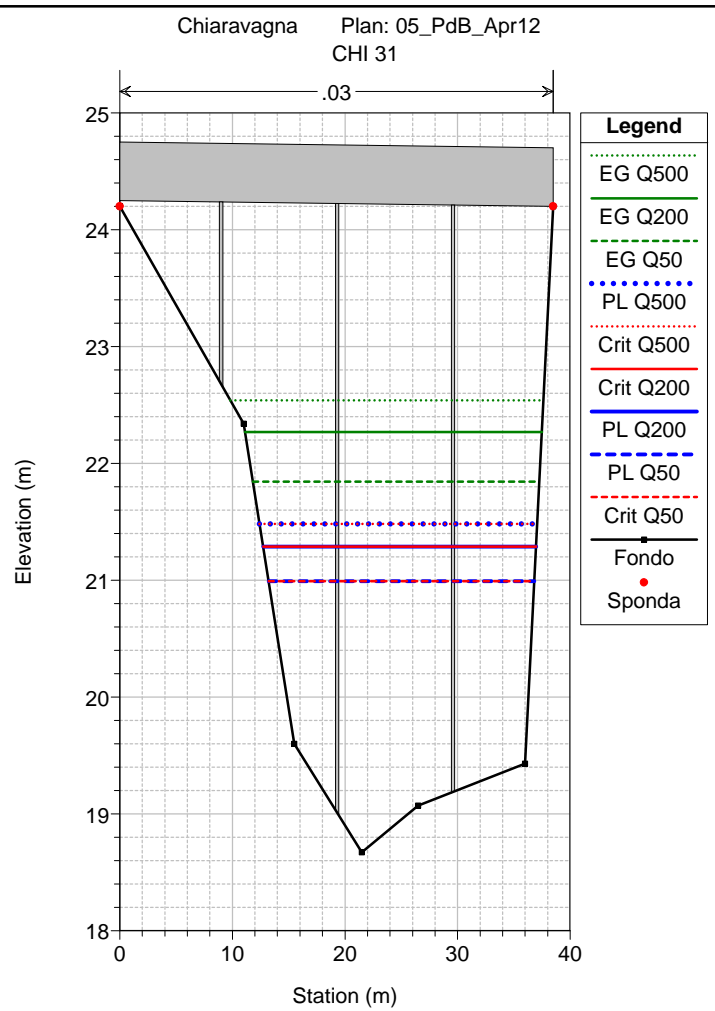
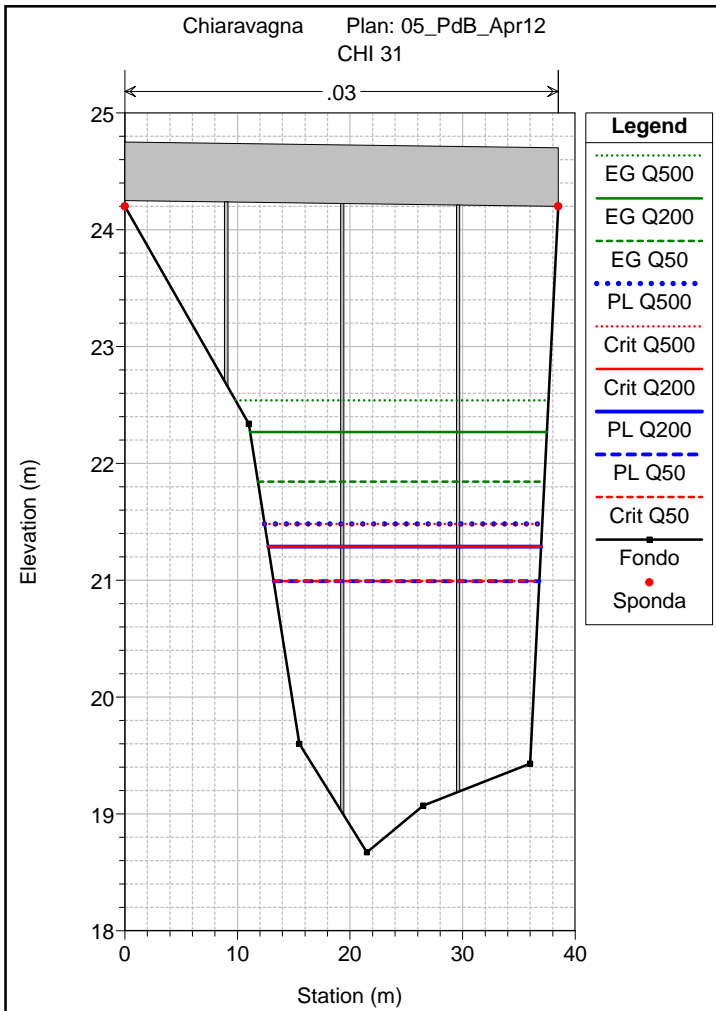


Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 32



Chiaravagna Plan: 05\_PdB\_Apr12  
CHI 31





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 Ruscarolo	3337.63 CHI 66	Q50	161.00	61.00	62.53	65.88	3.35	65.50	2.97	63.59	66.42	0.057360	8.74	18.42	14.39	2.47
monte Ruscarolo	3337.63 CHI 66	Q200	203.00	61.00	62.77	65.88	3.11	65.50	2.73	63.98	67.17	0.053707	9.29	21.84	14.46	2.41
monte Ruscarolo	3337.63 CHI 66	Q500	232.00	61.00	62.93	65.88	2.95	65.50	2.57	64.24	67.60	0.051020	9.58	24.23	14.50	2.37
monte Ruscarolo	3336.63 CHI 66	Q50	161.00	61.00	62.55	65.88	3.33	65.50	2.95	63.59	66.33	0.054961	8.62	18.67	14.40	2.42
monte Ruscarolo	3336.63 CHI 66	Q200	203.00	61.00	62.78	65.88	3.10	65.50	2.72	63.98	67.08	0.051830	9.19	22.10	14.46	2.37
monte Ruscarolo	3336.63 CHI 66	Q500	232.00	61.00	62.95	65.88	2.93	65.50	2.55	64.24	67.52	0.049411	9.48	24.48	14.51	2.33
monte Ruscarolo	3332.49 CHI 66		Bridge													
monte Ruscarolo	3329.35 CHI 66	Q50	161.00	61.00	62.68	65.88	3.20	65.50	2.82	63.59	65.79	0.040413	7.81	20.62	14.43	2.09
monte Ruscarolo	3329.35 CHI 66	Q200	203.00	61.00	62.92	65.88	2.96	65.50	2.58	63.98	66.55	0.040065	8.45	24.03	14.50	2.10
monte Ruscarolo	3329.35 CHI 66	Q500	232.00	61.00	63.08	65.88	2.80	65.50	2.42	64.24	67.01	0.039142	8.78	26.42	14.55	2.08
monte Ruscarolo	3324.35 CHI 66	Q50	161.00	59.90	62.15	65.88	3.73	65.50	3.35	63.12	65.55	0.044506	8.17	19.71	14.28	2.22
monte Ruscarolo	3324.35 CHI 66	Q200	203.00	59.90	62.38	65.88	3.50	65.50	3.12	63.51	66.32	0.043326	8.79	23.11	14.35	2.21
monte Ruscarolo	3324.35 CHI 66	Q500	232.00	59.90	62.55	65.88	3.33	65.50	2.95	63.77	66.78	0.042074	9.11	25.46	14.40	2.19
monte Ruscarolo	3306.35 CHI 65	Q50	161.00	59.44	61.72	65.89	4.17	66.17	4.45	62.53	64.52	0.043838	7.41	21.72	18.00	2.15
monte Ruscarolo	3306.35 CHI 65	Q200	203.00	59.44	61.89	65.89	4.00	66.17	4.28	62.86	65.30	0.046729	8.18	24.83	18.50	2.25
monte Ruscarolo	3306.35 CHI 65	Q500	232.00	59.44	62.01	65.89	3.88	66.17	4.16	63.07	65.78	0.047726	8.60	26.97	18.84	2.30
monte Ruscarolo	3270.35 CHI 64	Q50	161.00	59.00	62.53	65.75	3.22	66.00	3.47	61.60	62.95	0.002535	2.90	55.59	20.54	0.56
monte Ruscarolo	3270.35 CHI 64	Q200	203.00	59.00	63.12	65.75	2.63	66.00	2.88	61.94	63.57	0.002322	2.98	68.22	22.38	0.54
monte Ruscarolo	3270.35 CHI 64	Q500	232.00	59.00	63.87	65.75	1.88	66.00	2.12	62.14	64.24	0.001601	2.69	86.10	24.37	0.46
monte Ruscarolo	3223.35 CHI 63	Q50	161.00	57.25	61.85	65.71	3.86	65.50	3.65	61.03	62.75	0.005015	4.20	38.32	10.61	0.71
monte Ruscarolo	3223.35 CHI 63	Q200	203.00	57.25	61.99	65.71	3.72	65.50	3.51	61.56	63.31	0.007182	5.10	39.83	10.70	0.84
monte Ruscarolo	3223.35 CHI 63	Q500	232.00	57.25	62.99	65.71	2.72	65.50	2.51	61.89	64.05	0.004885	4.57	50.81	11.31	0.69
monte Ruscarolo	3209.35 CHI 62	Q50	161.00	56.54	59.52	63.55	4.03	63.93	4.41	60.39	62.40	0.025775	7.51	21.43	9.05	1.56
monte Ruscarolo	3209.35 CHI 62	Q200	203.00	56.54	60.12	63.55	3.43	63.93	3.81	60.94	63.00	0.021734	7.52	26.99	9.61	1.43
monte Ruscarolo	3209.35 CHI 62	Q500	232.00	56.54	63.15	63.55	0.40	63.93	0.78	61.29	63.90	0.003309	3.84	60.34	12.39	0.56
monte Ruscarolo	3176.35 CHI 61	Q50	161.00	56.46	60.35	62.50	2.15	61.60	1.25	59.17	60.80	0.002428	2.97	54.12	16.91	0.53
monte Ruscarolo	3176.35 CHI 61	Q200	203.00	56.46	62.25	62.50	0.25	61.60	-0.65	59.55	62.53	0.000987	2.33	87.00	17.73	0.34
monte Ruscarolo	3176.35 CHI 61	Q500	232.00	56.46	63.46	62.50	-0.96	61.60	-1.86	59.80	63.69	0.000693	2.14	108.63	17.83	0.28
monte Ruscarolo	3175.35 CHI 61	Q50	161.00	56.46	60.35	62.50	2.15	61.60	1.25	59.17	60.80	0.002435	2.98	54.06	16.91	0.53
monte Ruscarolo	3175.35 CHI 61	Q200	203.00	56.46	62.25	62.50	0.25	61.60	-0.65	59.55	62.52	0.000987	2.33	86.98	17.73	0.34
monte Ruscarolo	3175.35 CHI 61	Q500	232.00	56.46	63.46	62.50	-0.96	61.60	-1.86	59.80	63.69	0.000693	2.14	108.61	17.83	0.28
monte Ruscarolo	3171.59 CHI 61		Bridge													
monte Ruscarolo	3168.83 CHI 61	Q50	161.00	56.46	60.26	62.50	2.24	61.60	1.34	59.17	60.74	0.002636	3.06	52.60	16.83	0.55
monte Ruscarolo	3168.83 CHI 61	Q200	203.00	56.46	61.59	62.50	0.91	61.60	0.01	59.55	61.96	0.001484	2.69	75.33	17.46	0.41
monte Ruscarolo	3168.83 CHI 61	Q500	232.00	56.46	62.90	62.50	-0.40	61.60	-1.30	59.80	63.18	0.000905	2.35	98.66	17.83	0.32
monte Ruscarolo	3164.83 CHI 61	Q50	161.00	56.46	60.24	62.50	2.26	61.60	1.36	59.17	60.73	0.002679	3.08	52.32	16.82	0.56
monte Ruscarolo	3164.83 CHI 61	Q200	203.00	56.46	61.58	62.50	0.92	61.60	0.02	59.55	61.95	0.001491	2.70	75.20	17.46	0.42



HEC-RAS Plan: 05\_Apr12 River: Chiaravagna Reach: monte Ruscarolo (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
monte Ruscarolo	2873.19 CHI 55	Q50	161.00	48.66	50.83	53.49	2.66	53.12	2.29	51.27	52.51	0.017953	5.75	27.99	16.62	1.41
monte Ruscarolo	2873.19 CHI 55	Q200	203.00	48.66	51.98	53.49	1.51	53.12	1.14	51.62	52.92	0.005788	4.29	47.29	16.76	0.82
monte Ruscarolo	2873.19 CHI 55	Q500	232.00	48.66	52.22	53.49	1.27	53.12	0.90	51.85	53.26	0.005957	4.53	51.23	16.79	0.83
monte Ruscarolo	2867.79 CHI 55	Q50	161.00	48.66	51.27	53.49	2.22	53.12	1.85	51.27	52.32	0.008763	4.56	35.34	16.68	1.00
monte Ruscarolo	2867.79 CHI 55	Q200	203.00	48.66	51.62	53.49	1.87	53.12	1.50	51.62	52.85	0.008698	4.92	41.28	16.72	1.00
monte Ruscarolo	2867.79 CHI 55	Q500	232.00	48.66	51.95	53.49	1.54	53.12	1.17	51.85	53.20	0.007837	4.97	46.72	16.76	0.95
monte Ruscarolo	2816.79 CHI 54	Q50	161.00	48.24	50.62	52.70	2.08	51.01	0.39	50.62	51.78	0.009346	4.77	33.74	14.54	1.00
monte Ruscarolo	2816.79 CHI 54	Q200	203.00	48.24	51.02	52.70	1.68	51.01	-0.01	51.02	52.36	0.010948	5.12	40.03	15.67	0.99
monte Ruscarolo	2816.79 CHI 54	Q500	232.00	48.24	51.28	52.70	1.42	51.01	-0.27	51.28	52.73	0.010760	5.34	44.00	15.68	0.99
monte Ruscarolo	2811.79 CHI 54	Q50	161.00	46.42	47.88	52.70	4.82	51.01	3.13	48.87	51.45	0.051821	8.37	19.23	14.49	2.32
monte Ruscarolo	2811.79 CHI 54	Q200	203.00	46.42	48.16	52.70	4.54	51.01	2.85	49.27	52.01	0.045026	8.69	23.37	14.50	2.18
monte Ruscarolo	2811.79 CHI 54	Q500	232.00	46.42	48.35	52.70	4.35	51.01	2.66	49.52	52.38	0.041871	8.89	26.10	14.51	2.12
monte Ruscarolo	2738.83 CHI 53	Q50	161.00	44.92	47.28	51.03	3.75	50.59	3.31	47.73	49.08	0.017107	5.96	27.03	13.88	1.36
monte Ruscarolo	2738.83 CHI 53	Q200	203.00	44.92	47.60	51.03	3.43	50.59	2.99	48.13	49.71	0.017165	6.44	31.51	13.97	1.37
monte Ruscarolo	2738.83 CHI 53	Q500	232.00	44.92	47.80	51.03	3.23	50.59	2.79	48.39	50.12	0.017344	6.75	34.35	14.02	1.38
monte Ruscarolo	2737.83 CHI 53	Q50	161.00	44.92	48.21	51.03	2.82	50.59	2.38	47.73	49.03	0.005264	4.01	40.18	14.14	0.76
monte Ruscarolo	2737.83 CHI 53	Q200	203.00	44.92	48.67	51.03	2.36	50.59	1.92	48.13	49.63	0.005421	4.35	46.66	14.27	0.77
monte Ruscarolo	2737.83 CHI 53	Q500	232.00	44.92	47.86	51.03	3.17	50.59	2.73	48.39	50.08	0.016212	6.60	35.14	14.04	1.33
monte Ruscarolo	2732.72 CHI 53		Bridge													
monte Ruscarolo	2728.60 CHI 53	Q50	161.00	44.92	48.05	51.03	2.98	50.59	2.54	47.73	48.97	0.006279	4.26	37.84	14.10	0.83
monte Ruscarolo	2728.60 CHI 53	Q200	203.00	44.92	48.49	51.03	2.54	50.59	2.10	48.13	49.57	0.006359	4.60	44.16	14.22	0.83
monte Ruscarolo	2728.60 CHI 53	Q500	232.00	44.92	48.78	51.03	2.25	50.59	1.81	48.39	49.96	0.006436	4.81	48.23	14.30	0.84
monte Ruscarolo	2724.60 CHI 53	Q50	161.00	44.92	47.73	51.03	3.30	50.59	2.86	47.73	48.92	0.009113	4.83	33.36	14.00	1.00
monte Ruscarolo	2724.60 CHI 53	Q200	203.00	44.92	48.13	51.03	2.90	50.59	2.46	48.13	49.51	0.009123	5.20	39.02	14.12	1.00
monte Ruscarolo	2724.60 CHI 53	Q500	232.00	44.92	48.38	51.03	2.65	50.59	2.21	48.39	49.90	0.009267	5.46	42.52	14.19	1.01
monte Ruscarolo	2682.60 CHI 52	Q50	161.00	43.02	45.38	48.45	3.07	50.00	4.62	46.13	47.90	0.028272	7.03	22.91	14.27	1.77
monte Ruscarolo	2682.60 CHI 52	Q200	203.00	43.02	45.69	48.45	2.76	50.00	4.31	46.71	48.51	0.026342	7.44	27.30	14.38	1.72
monte Ruscarolo	2682.60 CHI 52	Q500	232.00	43.02	45.90	48.45	2.55	50.00	4.10	46.92	48.88	0.025046	7.65	30.32	14.45	1.69
monte Ruscarolo	2615.61 CHI 51	Q50	161.00	42.11	44.33	47.28	2.95	48.14	3.81	44.81	46.25	0.017905	6.15	26.19	12.76	1.37
monte Ruscarolo	2615.61 CHI 51	Q200	203.00	42.11	44.74	47.28	2.54	48.14	3.40	45.23	46.85	0.016371	6.43	31.55	12.85	1.31
monte Ruscarolo	2615.61 CHI 51	Q500	232.00	42.11	45.06	47.28	2.22	48.14	3.08	45.51	47.22	0.015011	6.52	35.60	12.91	1.25
monte Ruscarolo	2601.61 CHI 51	Q50	161.00	40.47	42.41	47.28	4.87	48.14	5.73	43.42	45.73	0.035740	8.08	19.93	11.30	1.94
monte Ruscarolo	2601.61 CHI 51	Q200	203.00	40.47	42.77	47.28	4.51	48.14	5.37	43.85	46.36	0.032834	8.39	24.20	11.89	1.88
monte Ruscarolo	2601.61 CHI 51	Q500	232.00	40.47	43.02	47.28	4.26	48.14	5.12	44.13	46.74	0.031167	8.55	27.13	12.28	1.84
monte Ruscarolo	2589.11 CHI 50	Q50	161.00	40.41	42.64	47.69	5.05	47.64	5.00	43.34	45.09	0.024134	6.94	23.21	11.14	1.53
monte Ruscarolo	2589.11 CHI 50	Q200	203.00	40.41	43.08	47.69	4.61	47.64	4.56	43.80	45.74	0.021980	7.23	28.06	11.23	1.46
monte Ruscarolo	2589.11 CHI 50	Q500	232.00	40.41	43.41	47.69	4.28	47.64	4.23	44.11	46.12	0.019983	7.29	31.81	11.31	1.39

HEC-RAS Plan: 05\_Apr12 River: Chiaravagna Reach: monte Ruscarolo (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
monte Ruscarolo	2588.11 CHI 50	Q50	161.00	40.41	42.68	47.69	5.01	47.64	4.96	43.34	45.04	0.022863	6.81	23.64	11.14	1.49
monte Ruscarolo	2588.11 CHI 50	Q200	203.00	40.41	43.12	47.69	4.57	47.64	4.52	43.80	45.69	0.020838	7.10	28.58	11.25	1.42
monte Ruscarolo	2588.11 CHI 50	Q500	232.00	40.41	43.47	47.69	4.22	47.64	4.17	44.11	46.07	0.018792	7.14	32.49	11.32	1.35
monte Ruscarolo	2584.36 CHI 50		Bridge													
monte Ruscarolo	2581.61 CHI 50	Q50	161.00	40.41	43.71	47.69	3.98	47.64	3.93	43.34	44.78	0.007153	4.56	35.28	11.38	0.83
monte Ruscarolo	2581.61 CHI 50	Q200	203.00	40.41	44.23	47.69	3.46	47.64	3.41	43.80	45.47	0.007373	4.94	41.13	11.50	0.83
monte Ruscarolo	2581.61 CHI 50	Q500	232.00	40.41	44.55	47.69	3.14	47.64	3.09	44.11	45.91	0.007531	5.17	44.92	11.57	0.84
monte Ruscarolo	2577.61 CHI 50	Q50	161.00	40.41	43.34	47.69	4.35	47.64	4.30	43.34	44.71	0.010362	5.19	31.00	11.29	1.00
monte Ruscarolo	2577.61 CHI 50	Q200	203.00	40.41	43.80	47.69	3.89	47.64	3.84	43.80	45.40	0.010543	5.60	36.23	11.40	1.00
monte Ruscarolo	2577.61 CHI 50	Q500	232.00	40.41	44.10	47.69	3.59	47.64	3.54	44.11	45.84	0.010626	5.84	39.71	11.47	1.00
monte Ruscarolo	2572.61 CHI 49	Q50	161.00	40.04	42.44	46.80	4.36	45.30	2.86	43.04	44.57	0.018627	6.47	24.90	12.37	1.45
monte Ruscarolo	2572.61 CHI 49	Q200	203.00	40.04	42.78	46.80	4.02	45.30	2.52	43.64	45.24	0.018776	6.96	29.18	12.74	1.47
monte Ruscarolo	2572.61 CHI 49	Q500	232.00	40.04	43.00	46.80	3.80	45.30	2.30	43.87	45.68	0.018879	7.25	31.99	12.98	1.47
monte Ruscarolo	2567.61 CHI 49	Q50	161.00	38.07	40.85	46.80	5.95	45.30	4.45	41.93	44.31	0.034175	8.24	19.55	9.92	1.87
monte Ruscarolo	2567.61 CHI 49	Q200	203.00	38.07	41.25	46.80	5.55	45.30	4.05	42.41	44.99	0.032721	8.57	23.69	10.99	1.86
monte Ruscarolo	2567.61 CHI 49	Q500	232.00	38.07	41.49	46.80	5.31	45.30	3.81	42.72	45.43	0.031620	8.79	26.39	11.33	1.84
monte Ruscarolo	2502.58 CHI 48	Q50	161.00	36.28	38.57	46.43	7.86	45.19	6.62	39.47	41.75	0.050855	7.90	20.37	17.90	2.36
monte Ruscarolo	2502.58 CHI 48	Q200	203.00	36.28	38.76	46.43	7.67	45.19	6.43	39.91	42.44	0.050226	8.51	23.86	18.50	2.39
monte Ruscarolo	2502.58 CHI 48	Q500	232.00	36.28	38.88	46.43	7.55	45.19	6.31	40.10	42.89	0.049443	8.87	26.16	18.73	2.40
monte Ruscarolo	2400.61 CHI 47	Q50	161.00	34.38	36.32	41.21	4.89	45.23	8.91	36.93	38.38	0.028205	6.36	25.32	18.02	1.71
monte Ruscarolo	2400.61 CHI 47	Q200	203.00	34.38	36.58	41.21	4.63	45.23	8.65	37.27	38.89	0.025979	6.73	30.15	18.25	1.67
monte Ruscarolo	2400.61 CHI 47	Q500	232.00	34.38	36.76	41.21	4.45	45.23	8.47	37.49	39.21	0.024540	6.93	33.47	18.40	1.64
monte Ruscarolo	2310.61 CHI 46	Q50	161.00	32.28	35.02	35.60	0.58	37.79	2.77	35.22	36.34	0.011620	5.09	31.65	15.84	1.15
monte Ruscarolo	2310.61 CHI 46	Q200	203.00	32.28	35.58	35.60	0.02	37.79	2.21	35.58	36.86	0.008753	5.01	40.52	15.85	1.00
monte Ruscarolo	2310.61 CHI 46	Q500	232.00	32.28	35.82	35.60	-0.22	37.79	1.97	35.82	37.22	0.008779	5.24	44.28	15.86	1.00
monte Ruscarolo	2269.61 CHI 45	Q50	161.00	31.48	34.71	37.09	2.38	38.70	3.99	34.71	35.64	0.008813	4.27	37.74	20.26	1.00
monte Ruscarolo	2269.61 CHI 45	Q200	203.00	31.48	35.03	37.09	2.06	38.70	3.67	35.03	36.10	0.008621	4.59	44.19	20.56	1.00
monte Ruscarolo	2269.61 CHI 45	Q500	232.00	31.48	35.23	37.09	1.86	38.70	3.47	35.23	36.40	0.008519	4.79	48.43	20.76	1.00
monte Ruscarolo	2264.61 CHI 44	Q50	161.00	31.56	33.97	37.80	3.83	37.87	3.90	34.38	35.52	0.014508	5.51	29.21	15.82	1.29
monte Ruscarolo	2264.61 CHI 44	Q200	203.00	31.56	34.42	37.80	3.38	37.87	3.45	34.77	36.00	0.013241	5.58	36.41	17.84	1.25
monte Ruscarolo	2264.61 CHI 44	Q500	232.00	31.56	34.64	37.80	3.16	37.87	3.23	34.98	36.30	0.013339	5.72	40.57	19.14	1.25
monte Ruscarolo	2262.71 CHI 44		Bridge													
monte Ruscarolo	2261.61 CHI 44	Q50	161.00	31.56	34.07	37.80	3.73	37.87	3.80	34.38	35.47	0.012399	5.23	30.77	15.89	1.20
monte Ruscarolo	2261.61 CHI 44	Q200	203.00	31.56	34.51	37.80	3.29	37.87	3.36	34.77	35.95	0.012314	5.32	38.18	19.13	1.20
monte Ruscarolo	2261.61 CHI 44	Q500	232.00	31.56	34.70	37.80	3.10	37.87	3.17	34.98	36.27	0.012106	5.54	41.87	19.15	1.20
monte Ruscarolo	2253.61	Q50	161.00	31.48	33.39	37.80	4.41	38.71	5.32	33.95	35.27	0.032830	6.07	26.52	23.82	1.84
monte Ruscarolo	2253.61	Q200	203.00	31.48	35.08	37.80	2.72	38.71	3.63	34.23	35.55	0.002819	3.04	66.81	23.88	0.58





HEC-RAS Plan: 05\_Apr12 River: Chiaravagna Reach: monte Ruscarolo (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
monte Ruscarolo	2041.59 CHI 37	Q50	161.00	26.40	28.18	28.30	0.12	31.10	2.92	28.18	28.79	0.008901	3.46	46.52	38.10	1.00
monte Ruscarolo	2041.59 CHI 37	Q200	203.00	26.40	28.40	28.30	-0.10	31.10	2.70	28.40	29.09	0.008507	3.67	55.33	41.35	1.00
monte Ruscarolo	2041.59 CHI 37	Q500	232.00	26.40	28.54	28.30	-0.24	31.10	2.56	28.54	29.28	0.008139	3.82	61.11	43.30	0.99
monte Ruscarolo	1999.59 CHI 36	Q50	161.00	25.70	27.22	30.00	2.78	29.40	2.18	27.30	27.93	0.010875	3.74	43.10	37.39	1.11
monte Ruscarolo	1999.59 CHI 36	Q200	203.00	25.70	27.39	30.00	2.61	29.40	2.01	27.52	28.24	0.011130	4.09	49.58	37.99	1.14
monte Ruscarolo	1999.59 CHI 36	Q500	232.00	25.70	27.47	30.00	2.53	29.40	1.93	27.65	28.46	0.011954	4.40	52.77	38.29	1.20
monte Ruscarolo	1934.56 CHI 35	Q50	161.00	25.20	26.70	30.00	3.30	27.60	0.90	26.70	27.45	0.008851	3.84	41.96	28.00	1.00
monte Ruscarolo	1934.56 CHI 35	Q200	203.00	25.20	26.95	30.00	3.05	27.60	0.65	26.95	27.82	0.008592	4.15	48.96	28.00	1.00
monte Ruscarolo	1934.56 CHI 35	Q500	232.00	25.20	27.11	30.00	2.89	27.60	0.49	27.11	28.07	0.008435	4.33	53.56	28.00	1.00
monte Ruscarolo	1931.56 CHI 35	Q50	161.00	22.60	23.26	30.00	6.74	26.90	3.64	24.10	27.08	0.123479	8.65	18.61	28.00	3.39
monte Ruscarolo	1931.56 CHI 35	Q200	203.00	22.60	23.41	30.00	6.58	26.90	3.49	24.35	27.45	0.100905	8.90	22.82	28.00	3.15
monte Ruscarolo	1931.56 CHI 35	Q500	232.00	22.60	23.52	30.00	6.48	26.90	3.38	24.51	27.69	0.090276	9.05	25.63	28.00	3.02
monte Ruscarolo	1899.57 CHI 34	Q50	161.00	22.50	24.60	27.20	2.60	25.90	1.30	24.07	25.04	0.003496	2.93	55.01	26.20	0.64
monte Ruscarolo	1899.57 CHI 34	Q200	203.00	22.50	24.95	27.20	2.25	25.90	0.95	24.33	25.46	0.003430	3.16	64.16	26.20	0.65
monte Ruscarolo	1899.57 CHI 34	Q500	232.00	22.50	25.18	27.20	2.02	25.90	0.72	24.50	25.73	0.003399	3.31	70.11	26.20	0.65
monte Ruscarolo	1894.57 CHI 34		Bridge													
monte Ruscarolo	1889.57 CHI 34	Q50	161.00	22.50	23.81	27.20	3.39	25.90	2.09	24.07	24.93	0.015840	4.70	34.22	26.20	1.31
monte Ruscarolo	1889.57 CHI 34	Q200	203.00	22.50	24.02	27.20	3.18	25.90	1.88	24.33	25.34	0.015440	5.09	39.86	26.20	1.32
monte Ruscarolo	1889.57 CHI 34	Q500	232.00	22.50	24.16	27.20	3.04	25.90	1.74	24.50	25.61	0.015222	5.33	43.54	26.20	1.32
monte Ruscarolo	1887.57 CHI 33	Q50	161.00	20.70	21.80	28.10	6.30	25.70	3.90	22.55	24.70	0.071625	7.55	21.33	25.83	2.65
monte Ruscarolo	1887.57 CHI 33	Q200	203.00	20.70	21.97	28.10	6.13	25.70	3.73	22.82	25.11	0.060858	7.85	25.87	25.83	2.50
monte Ruscarolo	1887.57 CHI 33	Q500	232.00	20.70	22.09	28.10	6.01	25.70	3.61	22.99	25.37	0.055572	8.03	28.90	25.84	2.42
monte Ruscarolo	1812.53 CHI 32	Q50	161.00	19.20	20.85	22.95	2.10	24.70	3.86	21.20	22.14	0.018247	5.03	31.99	25.82	1.44
monte Ruscarolo	1812.53 CHI 32	Q200	203.00	19.20	21.04	22.95	1.91	24.70	3.66	21.47	22.57	0.018552	5.49	37.00	26.40	1.48
monte Ruscarolo	1812.53 CHI 32	Q500	232.00	19.20	21.16	22.95	1.79	24.70	3.54	21.65	22.85	0.018809	5.77	40.19	26.77	1.50
monte Ruscarolo	1786.52 CHI 31	Q50	161.00	18.67	21.30	24.20	2.90	24.20	2.90	20.95	21.87	0.004504	3.36	47.87	24.27	0.76
monte Ruscarolo	1786.52 CHI 31	Q200	203.00	18.67	21.64	24.20	2.56	24.20	2.56	21.25	22.30	0.004403	3.61	56.27	25.01	0.77
monte Ruscarolo	1786.52 CHI 31	Q500	232.00	18.67	21.86	24.20	2.34	24.20	2.34	21.44	22.58	0.004342	3.75	61.82	25.48	0.77
monte Ruscarolo	1785.37 CHI 31		Bridge													
monte Ruscarolo	1783.52 CHI 31	Q50	161.00	18.67	20.75	24.20	3.45	24.20	3.45	20.95	21.83	0.011723	4.60	34.99	23.09	1.19
monte Ruscarolo	1783.52 CHI 31	Q200	203.00	18.67	21.02	24.20	3.18	24.20	3.18	21.25	22.26	0.011358	4.94	41.13	23.66	1.20
monte Ruscarolo	1783.52 CHI 31	Q500	232.00	18.67	21.19	24.20	3.01	24.20	3.01	21.44	22.53	0.011155	5.14	45.17	24.03	1.20
monte Ruscarolo	1741.52 CHI 30	Q50	161.00	17.90	19.32	20.73	1.41	23.22	3.90	19.83	20.98	0.027813	5.69	28.29	26.49	1.76
monte Ruscarolo	1741.52 CHI 30	Q200	203.00	17.90	19.51	20.73	1.22	23.22	3.71	20.09	21.41	0.026849	6.12	33.19	27.02	1.76
monte Ruscarolo	1741.52 CHI 30	Q500	232.00	17.90	19.63	20.73	1.10	23.22	3.59	20.26	21.69	0.026255	6.37	36.44	27.37	1.76
monte Ruscarolo	1641.52 CHI 29	Q50	161.00	17.03	19.13	19.38	0.25	21.25	2.12	19.13	19.93	0.008514	3.95	40.71	25.50	1.00
monte Ruscarolo	1641.52 CHI 29	Q200	203.00	17.03	19.40	19.38	-0.02	21.25	1.85	19.40	20.33	0.008294	4.27	47.52	25.53	1.00

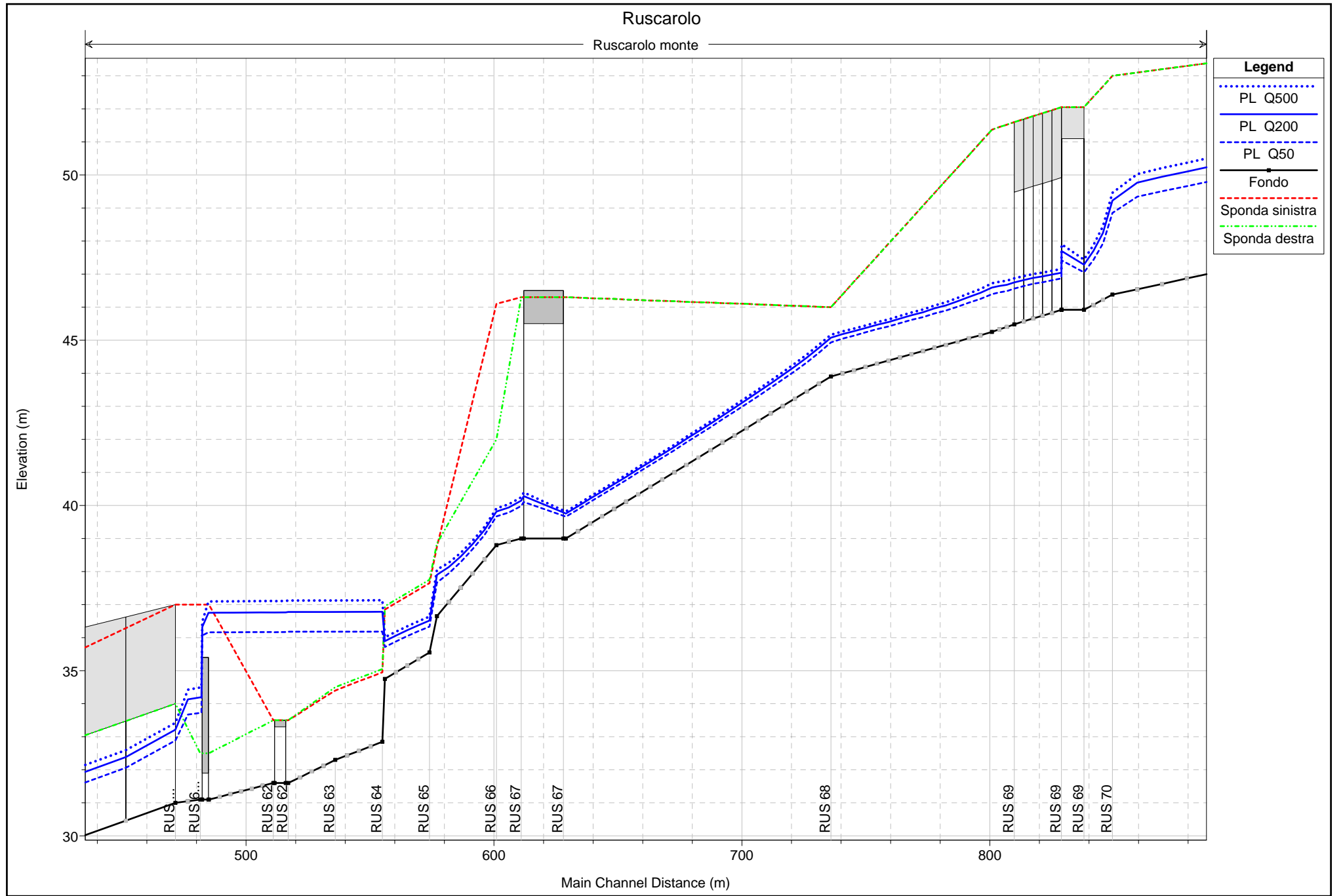
## **Allegato A**

### **Verifiche idrauliche**

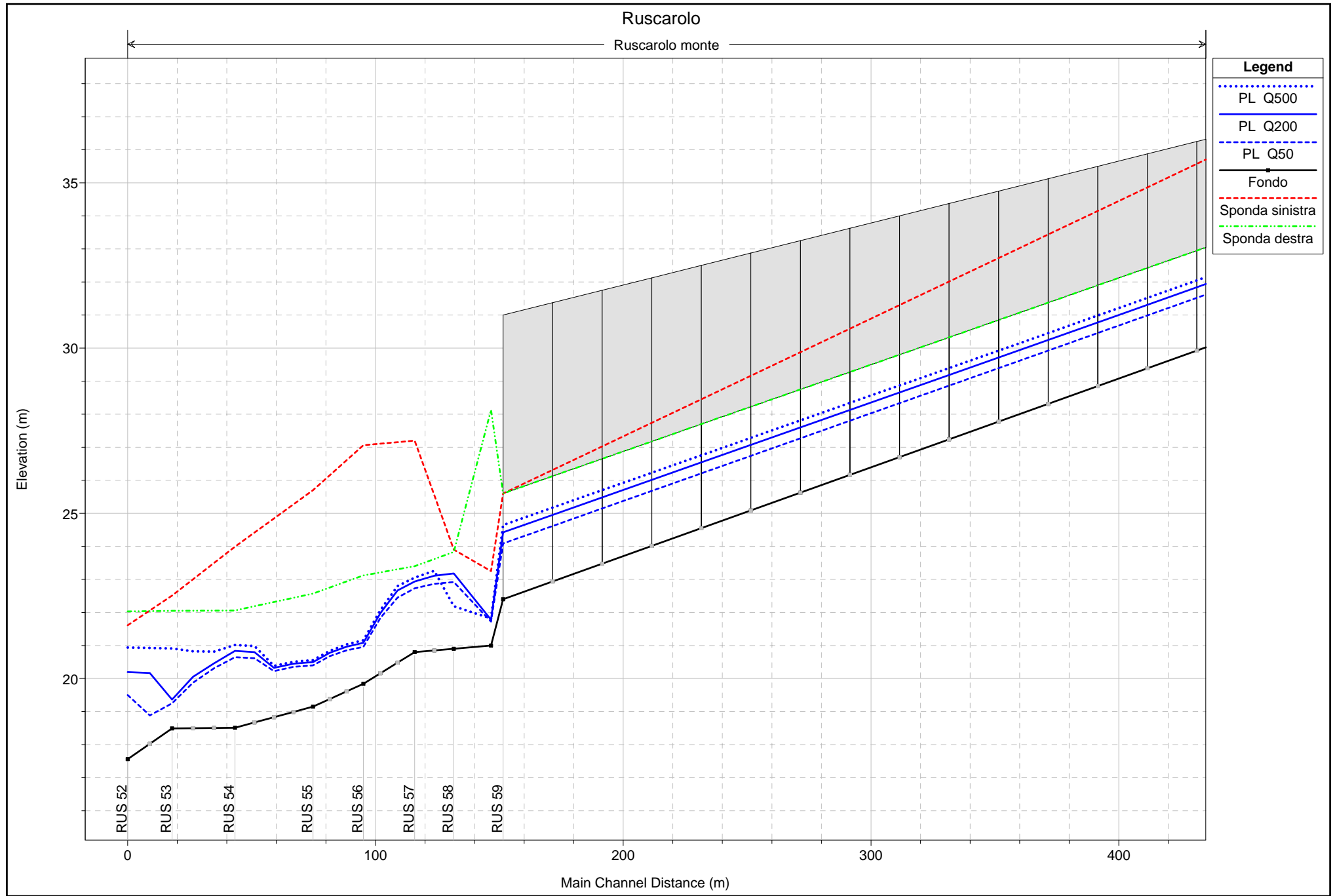
#### **Rio Ruscarolo**

- tratto a monte del fosso Battestu -

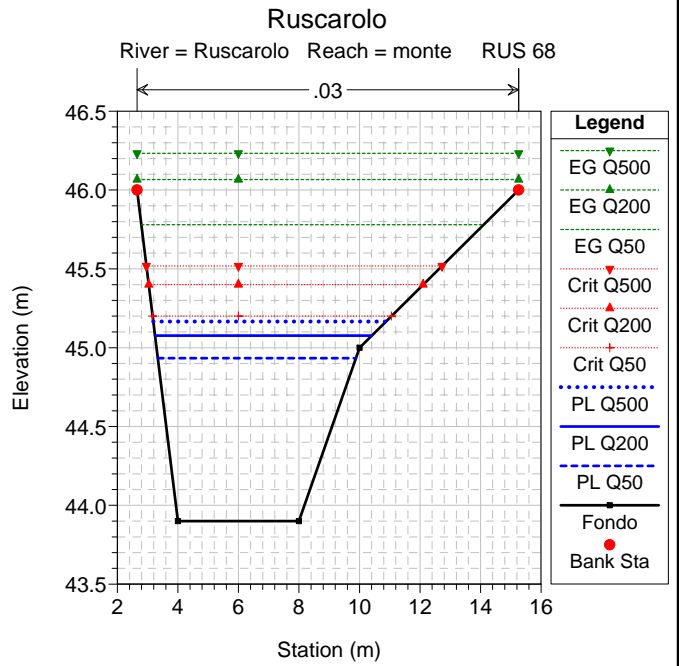
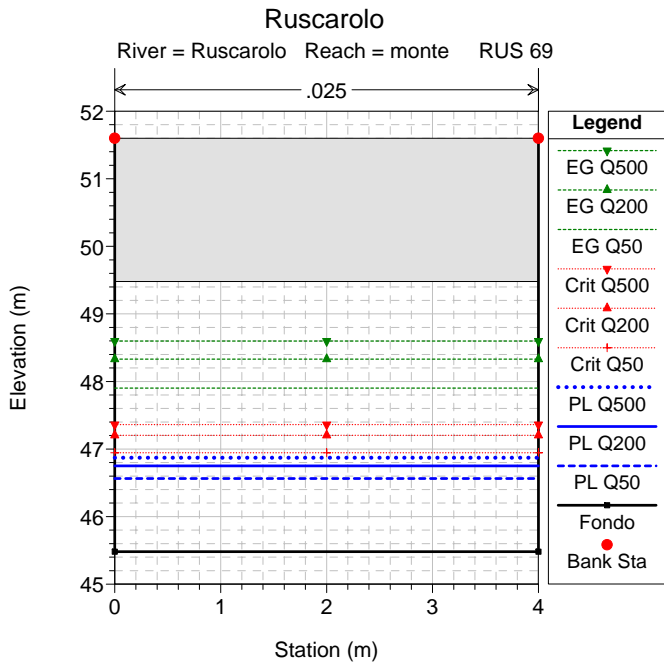
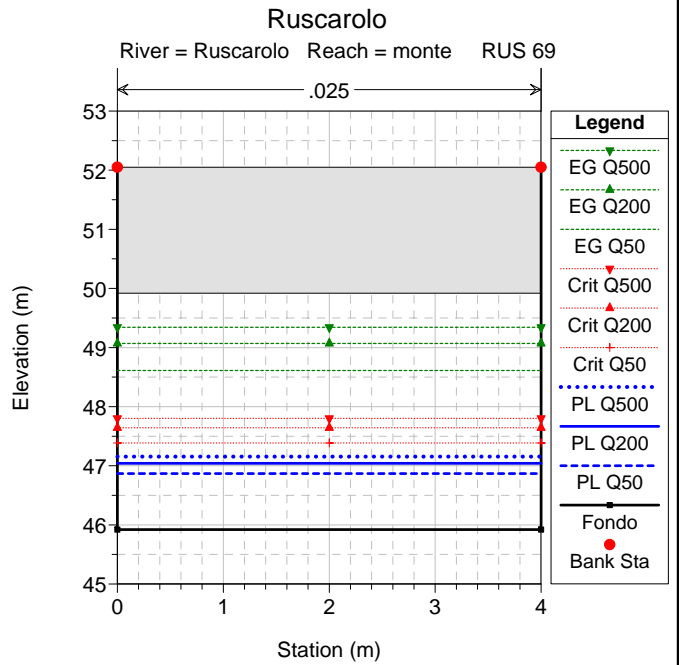
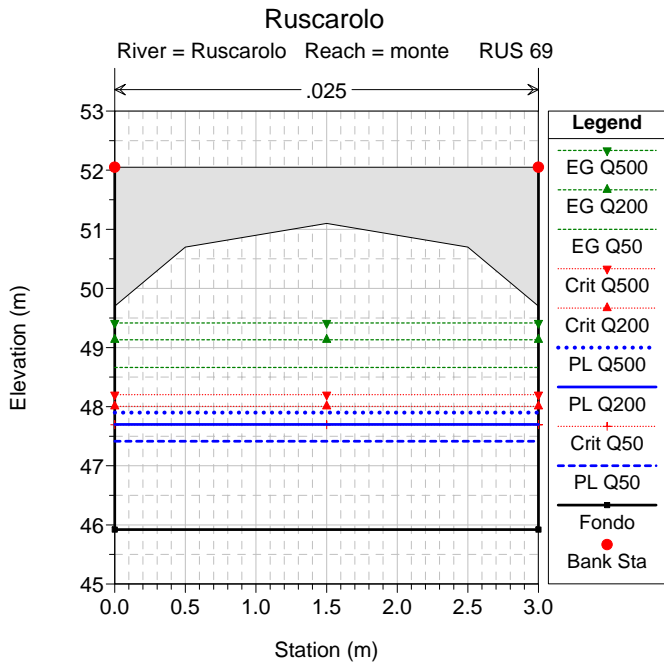
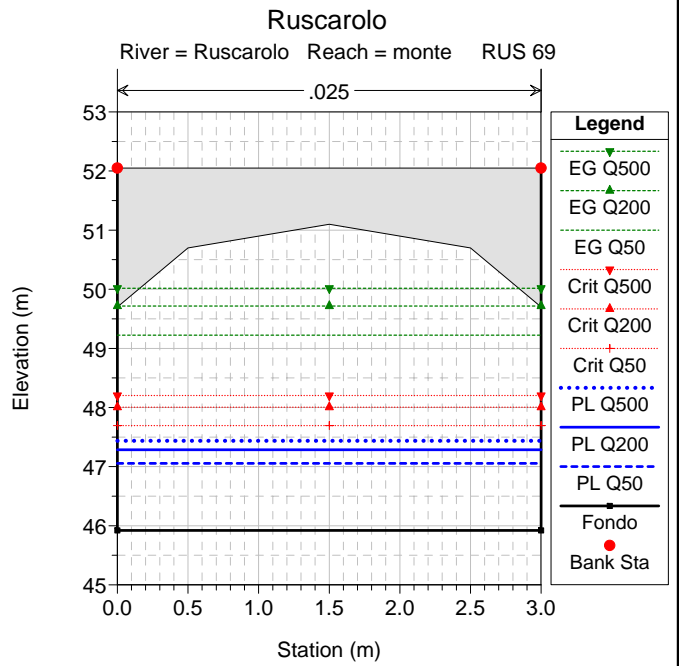
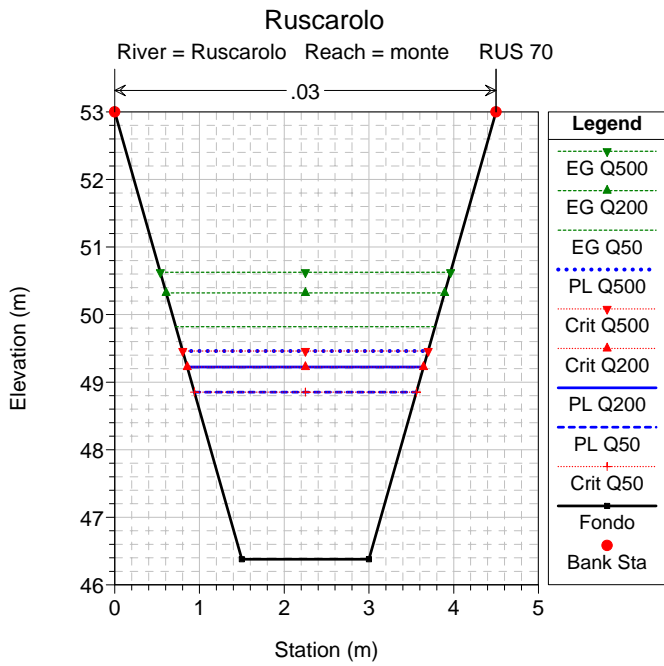
- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo

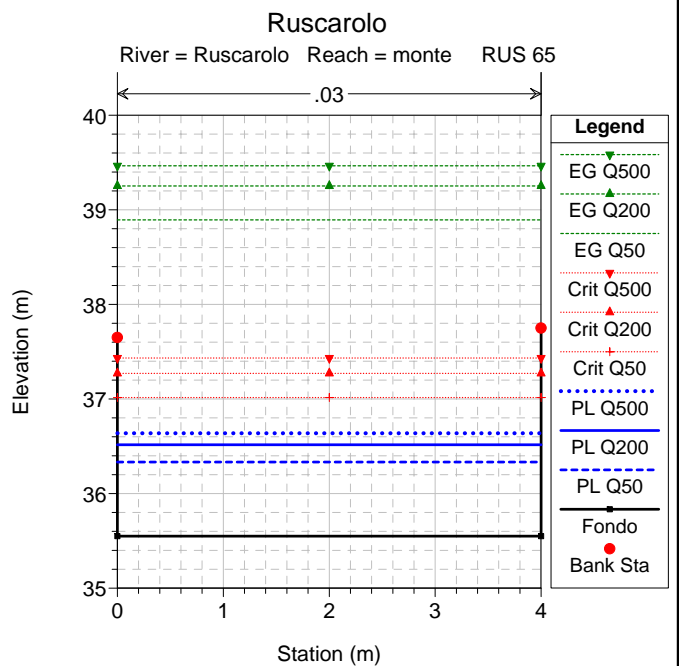
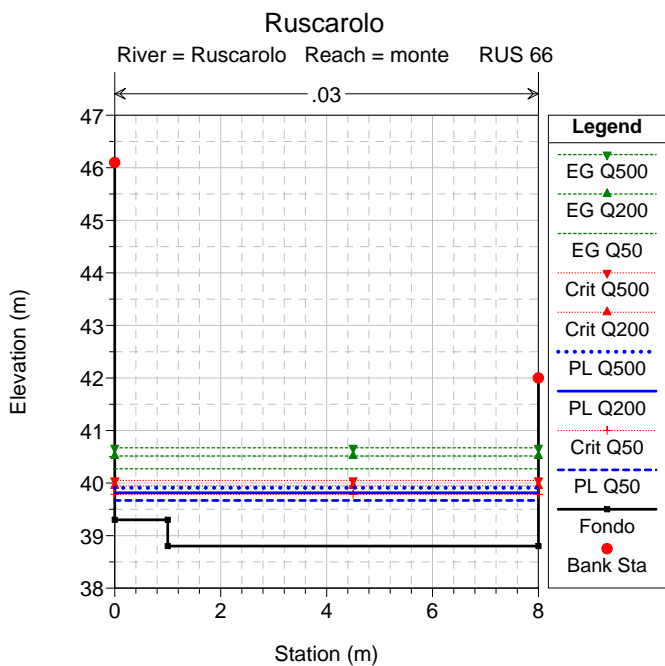
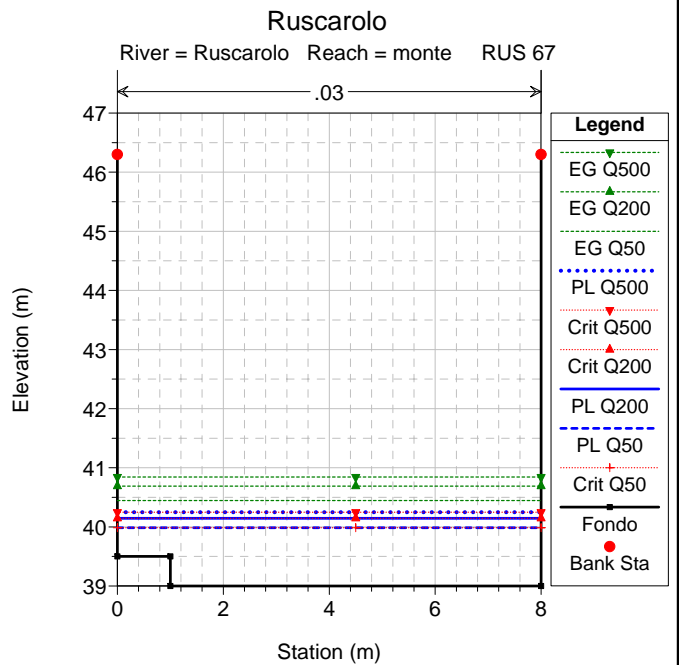
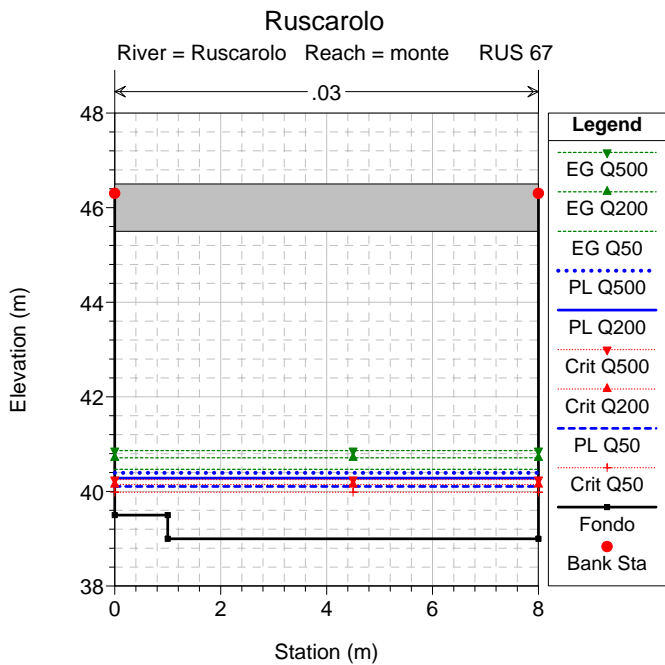
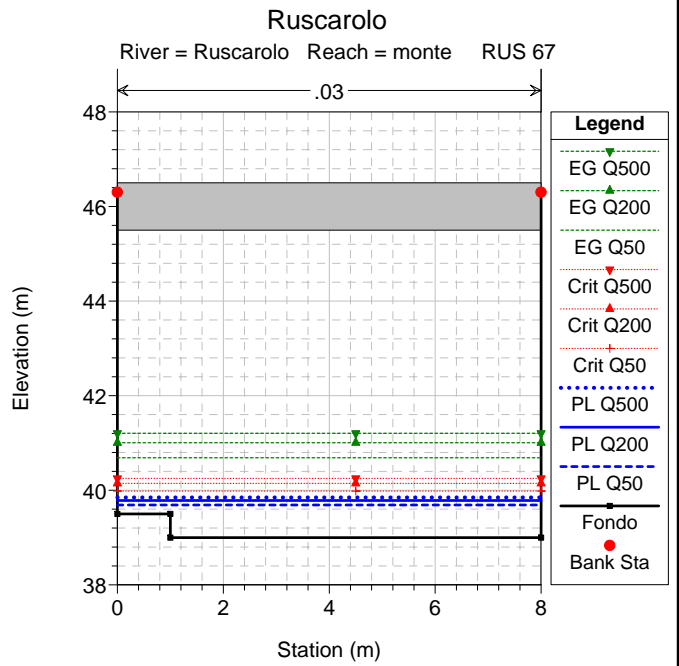
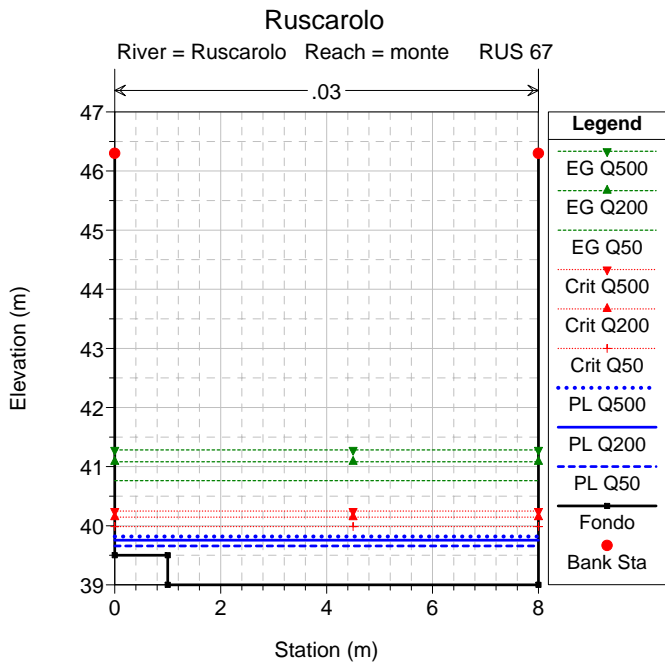


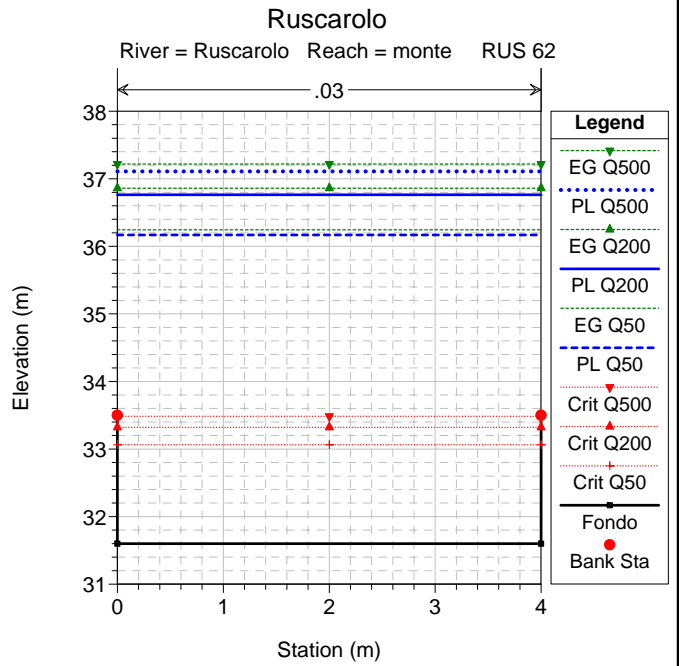
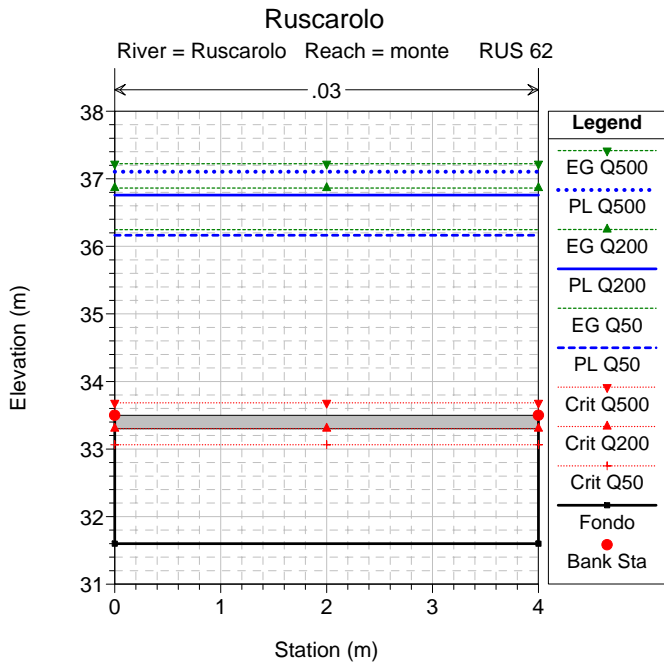
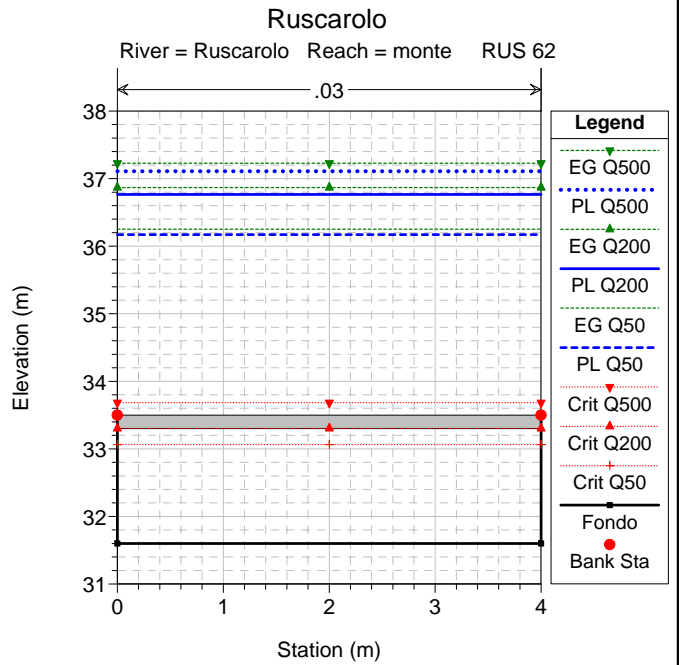
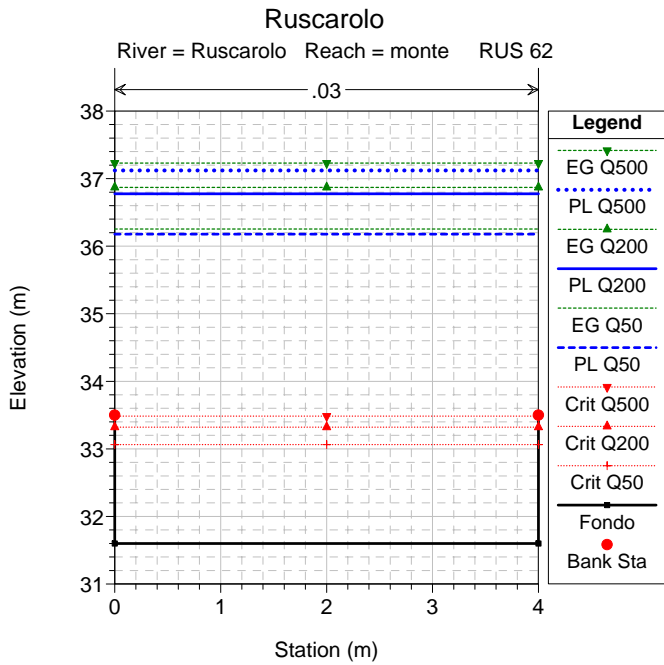
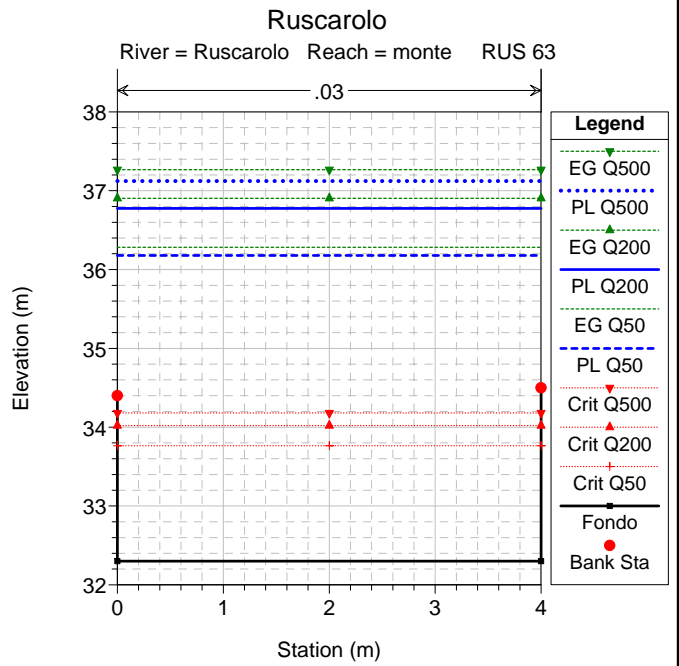
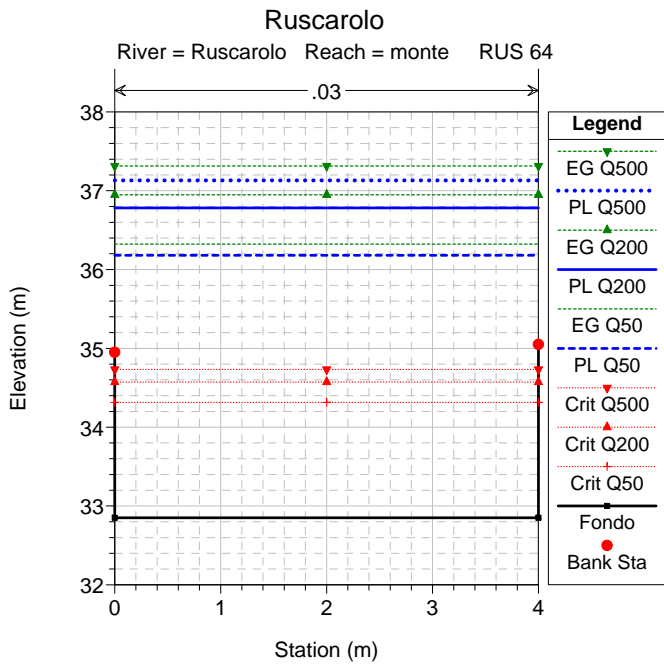
1 cm Horiz. = 20 m    1 cm Vert. = 1.5 m



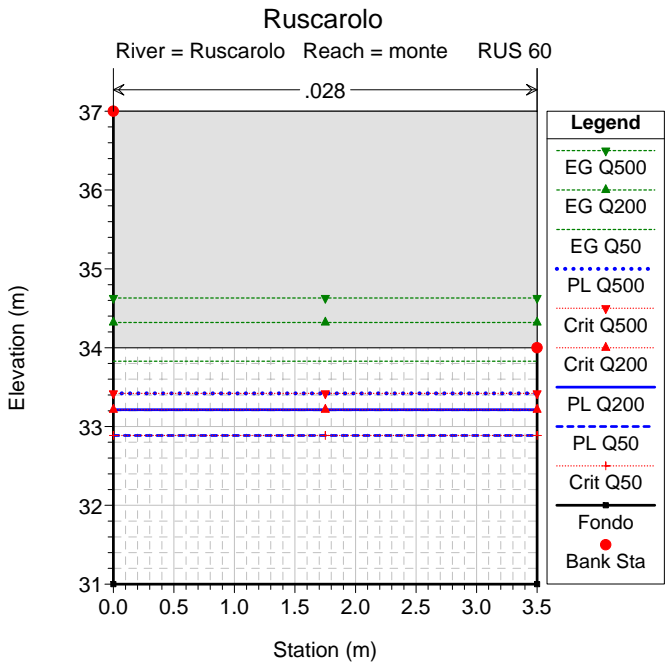
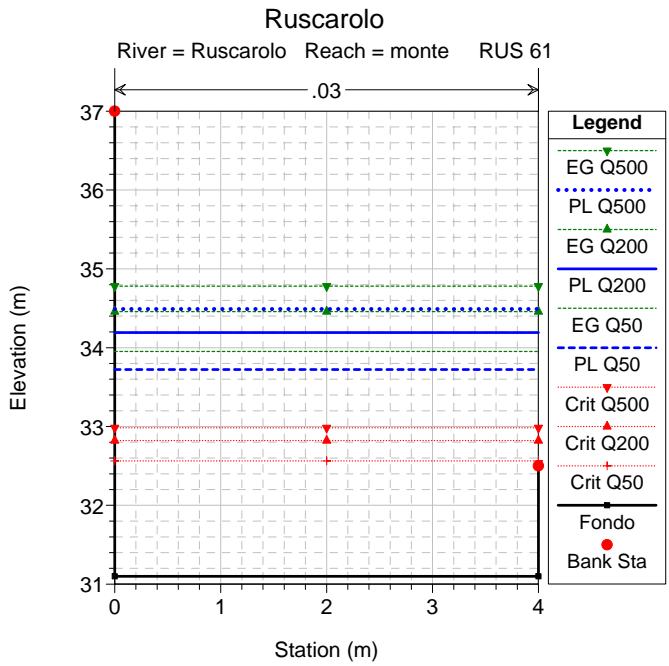
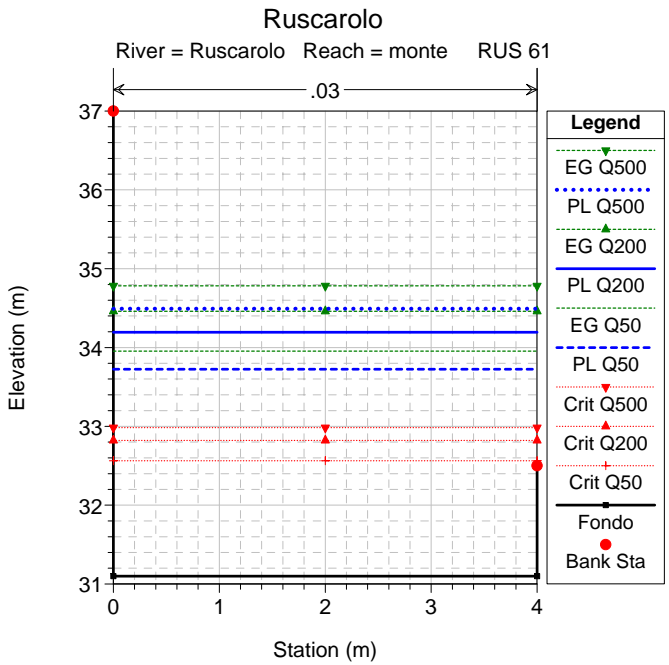
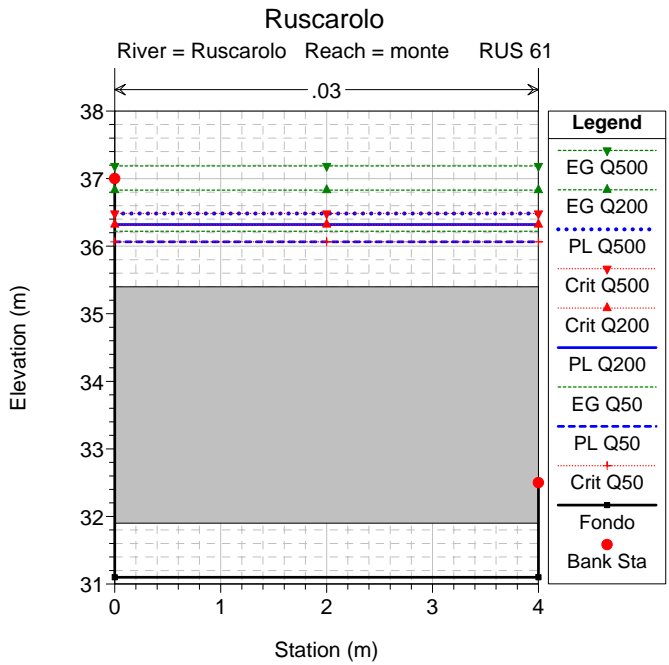
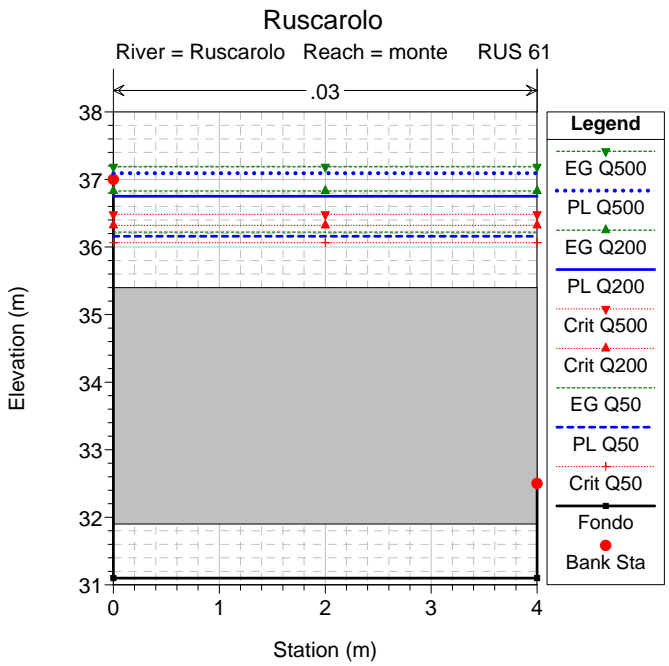
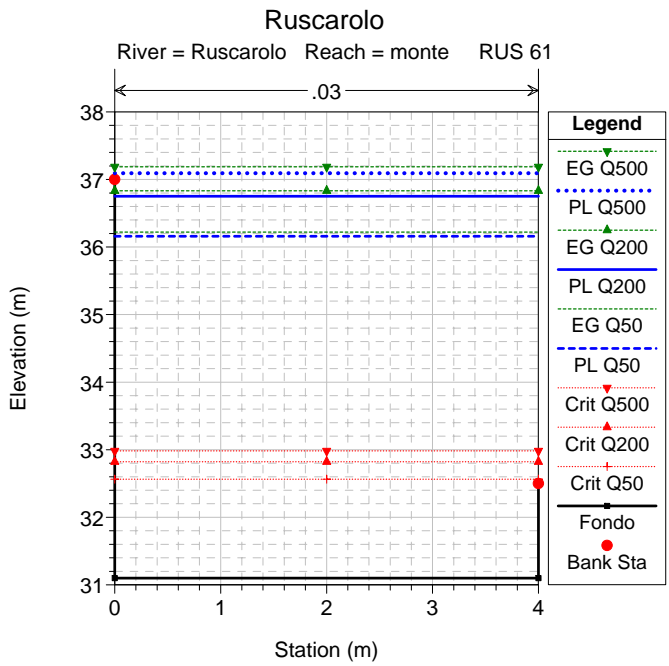
1 cm Horiz. = 20 m    1 cm Vert. = 1.5 m

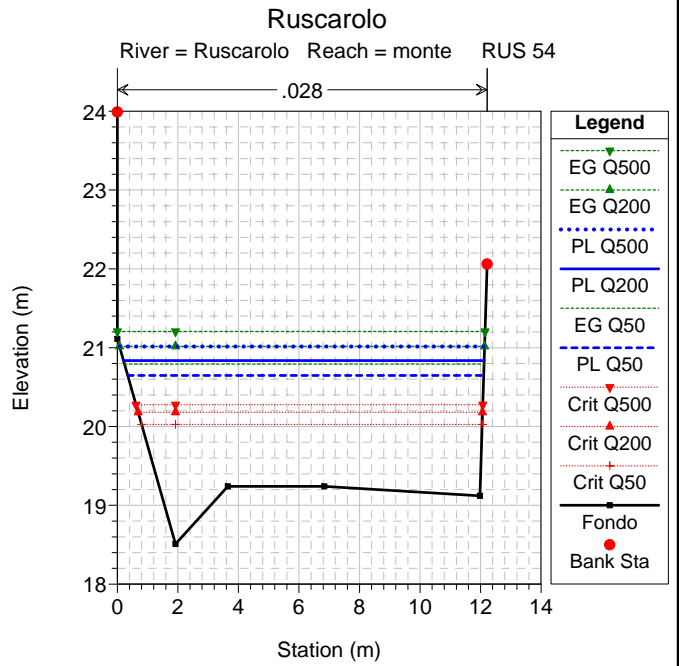
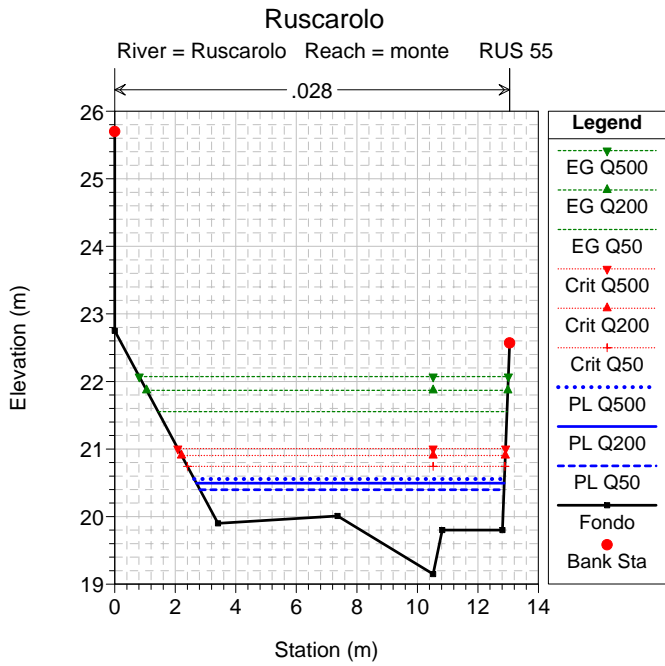
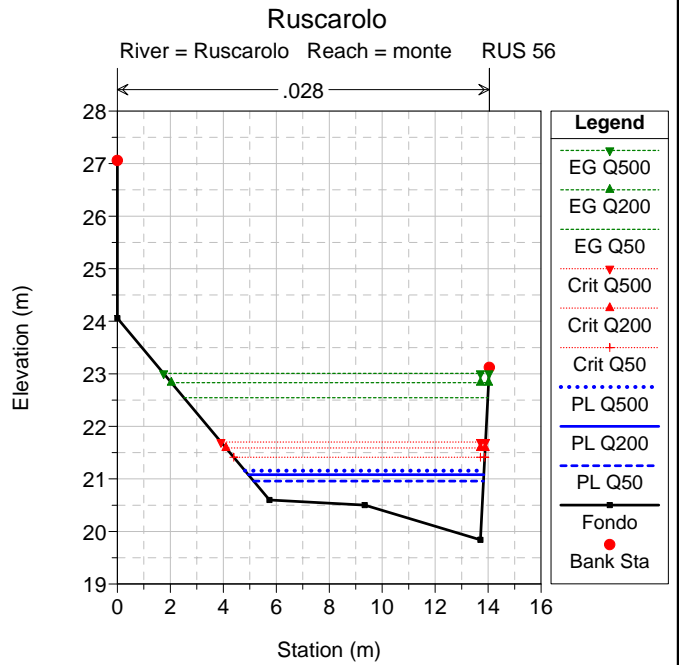
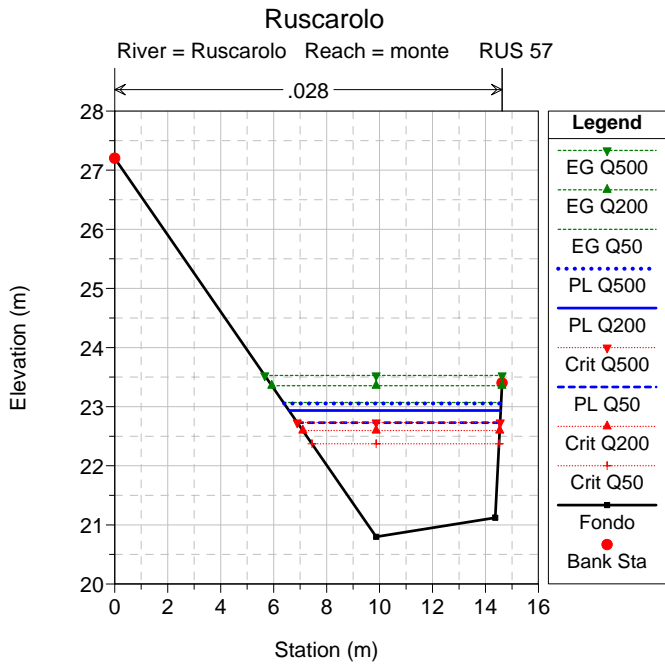
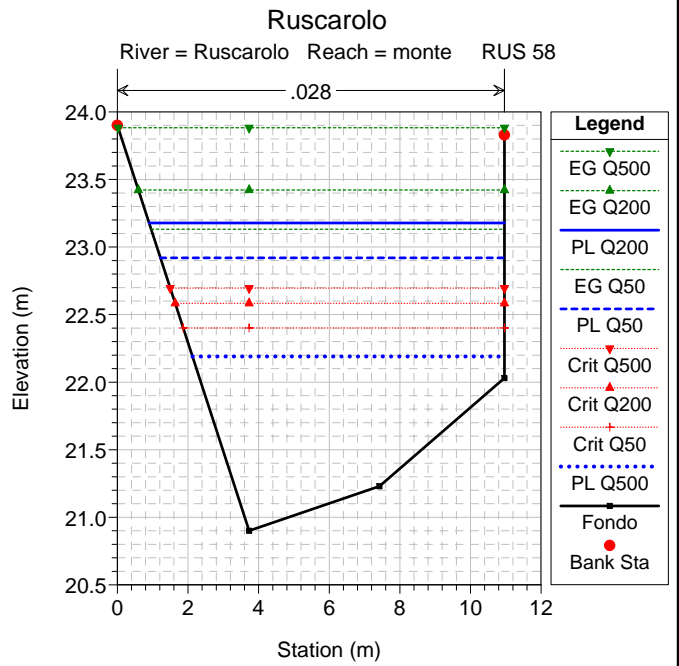
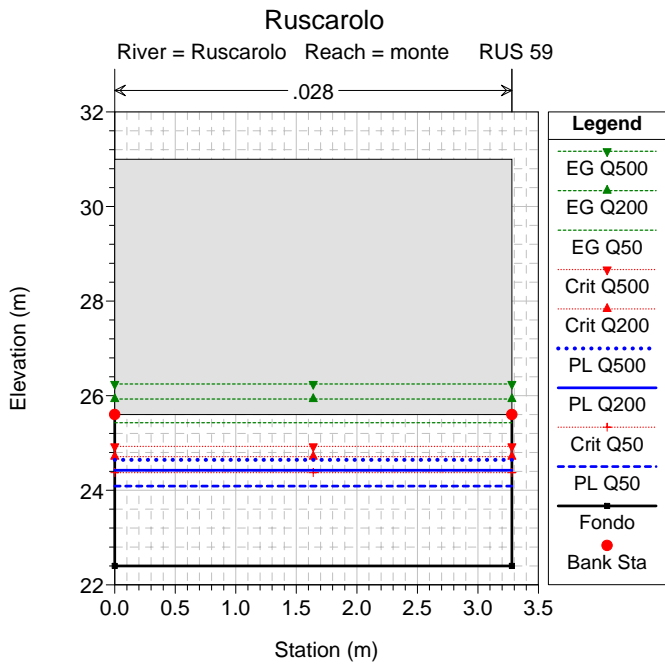






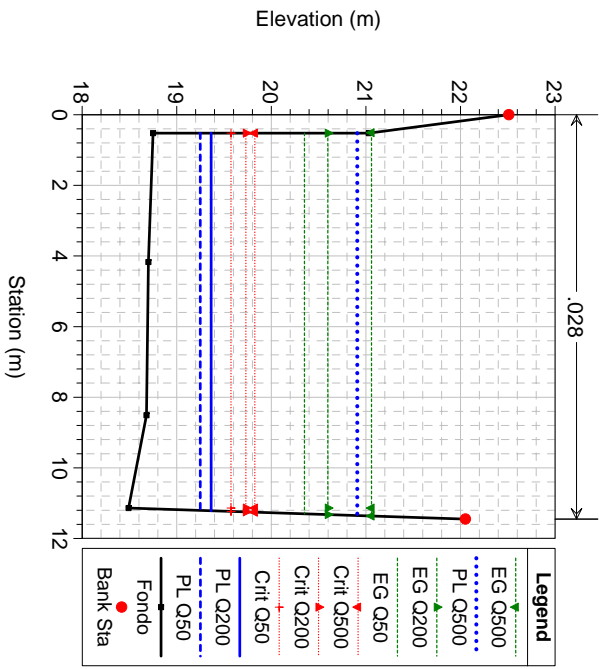






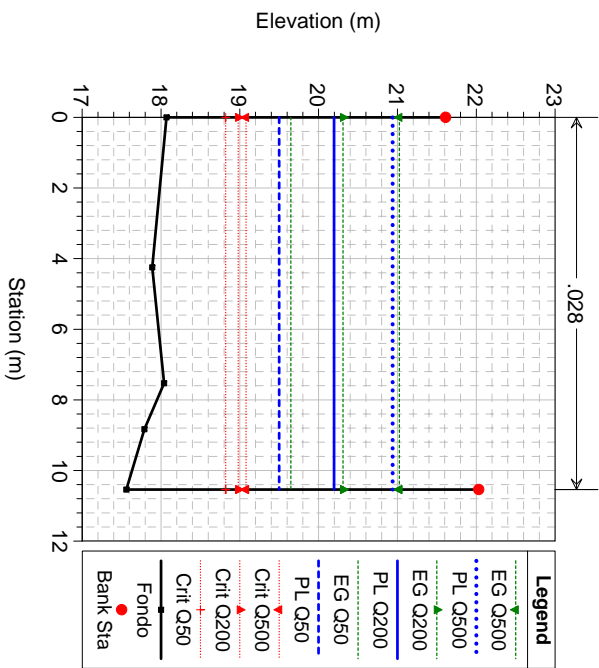
### Ruscarolo

River = Ruscarolo Reach = monte RUS 53



### Ruscarolo

River = Ruscarolo Reach = monte RUS 52



HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: monte

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	2209.47	Q50	22.20	48.00	50.76	54.00	3.24	54.00	3.24	50.44	51.45	0.015275	3.67	6.05	2.88	0.81
monte	2209.47	Q200	28.30	48.00	51.20	54.00	2.80	54.00	2.80	50.81	51.95	0.015110	3.85	7.36	3.10	0.80
monte	2209.47	Q500	32.40	48.00	51.47	54.00	2.53	54.00	2.53	51.04	52.26	0.015020	3.95	8.21	3.23	0.79
monte	2109.47 RUS 70	Q50	22.20	46.38	48.85	53.00	4.15	53.00	4.15	48.85	49.82	0.024031	4.36	5.09	2.62	1.00
monte	2109.47 RUS 70	Q200	28.30	46.38	49.22	53.00	3.78	53.00	3.78	49.22	50.32	0.024756	4.64	6.10	2.79	1.00
monte	2109.47 RUS 70	Q500	32.40	46.38	49.46	53.00	3.54	53.00	3.54	49.46	50.63	0.024938	4.78	6.77	2.90	1.00
monte	2097.98 RUS 69	Q50	22.20	45.92	47.05	49.70	2.65	49.70	2.65	47.69	49.22	0.047711	6.53	3.40	3.00	1.96
monte	2097.98 RUS 69	Q200	28.30	45.92	47.29	49.70	2.41	49.70	2.41	48.01	49.72	0.046693	6.91	4.10	3.00	1.89
monte	2097.98 RUS 69	Q500	32.40	45.92	47.44	49.70	2.26	49.70	2.26	48.20	50.02	0.046099	7.12	4.55	3.00	1.84
monte	2088.98 RUS 69	Q50	22.20	45.92	47.41	49.70	2.29	49.70	2.29	47.69	48.66	0.022539	4.95	4.48	3.00	1.29
monte	2088.98 RUS 69	Q200	28.30	45.92	47.70	49.70	2.00	49.70	2.00	48.01	49.13	0.023131	5.30	5.34	3.00	1.27
monte	2088.98 RUS 69	Q500	32.40	45.92	47.90	49.70	1.80	49.70	1.80	48.20	49.42	0.022944	5.45	5.94	3.00	1.24
monte	2088.88 RUS 69	Q50	22.20	45.92	46.87	49.92	3.05	49.92	3.05	47.38	48.61	0.038432	5.85	3.80	4.00	1.92
monte	2088.88 RUS 69	Q200	28.30	45.92	47.04	49.92	2.88	49.92	2.88	47.64	49.07	0.038607	6.31	4.49	4.00	1.90
monte	2088.88 RUS 69	Q500	32.40	45.92	47.16	49.92	2.76	49.92	2.76	47.80	49.34	0.038431	6.55	4.94	4.00	1.88
monte	2069.88 RUS 69	Q50	22.20	45.48	46.56	49.48	2.92	49.48	2.92	46.95	47.90	0.026316	5.13	4.33	4.00	1.57
monte	2069.88 RUS 69	Q200	28.30	45.48	46.75	49.48	2.73	49.48	2.73	47.20	48.33	0.027172	5.57	5.08	4.00	1.58
monte	2069.88 RUS 69	Q500	32.40	45.48	46.87	49.48	2.61	49.48	2.61	47.36	48.60	0.027547	5.82	5.57	4.00	1.57
monte	2060.88	Q50	22.20	45.25	46.39	51.37	4.98	51.37	4.98	46.72	47.59	0.032427	4.85	4.57	4.00	1.45
monte	2060.88	Q200	28.30	45.25	46.59	51.37	4.78	51.37	4.78	46.97	48.01	0.033377	5.26	5.38	4.00	1.45
monte	2060.88	Q500	32.40	45.25	46.72	51.37	4.65	51.37	4.65	47.13	48.26	0.033904	5.50	5.89	4.00	1.45
monte	1995.92 RUS 68	Q50	22.20	43.90	44.93	46.00	1.07	46.00	1.07	45.20	45.78	0.022402	4.08	5.45	6.54	1.43
monte	1995.92 RUS 68	Q200	28.30	43.90	45.08	46.00	0.92	46.00	0.92	45.40	46.07	0.023785	4.41	6.42	7.16	1.49
monte	1995.92 RUS 68	Q500	32.40	43.90	45.17	46.00	0.83	46.00	0.83	45.52	46.23	0.024707	4.58	7.08	7.68	1.52
monte	1889.00 RUS 67	Q50	22.20	39.00	39.66	46.30	6.64	46.30	6.64	39.98	40.76	0.047702	4.66	4.77	8.00	1.93
monte	1889.00 RUS 67	Q200	28.30	39.00	39.76	46.30	6.54	46.30	6.54	40.15	41.08	0.048140	5.10	5.54	8.00	1.96
monte	1889.00 RUS 67	Q500	32.40	39.00	39.82	46.30	6.48	46.30	6.48	40.25	41.28	0.048219	5.36	6.04	8.00	1.97
monte	1880.00 RUS 67		Bridge													
monte	1871.00 RUS 67	Q50	22.20	39.00	39.98	46.30	6.32	46.30	6.32	39.98	40.45	0.012193	3.01	7.37	8.00	1.00
monte	1871.00 RUS 67	Q200	28.30	39.00	40.15	46.30	6.15	46.30	6.15	40.15	40.69	0.012055	3.26	8.67	8.00	1.00
monte	1871.00 RUS 67	Q500	32.40	39.00	40.25	46.30	6.05	46.30	6.05	40.25	40.84	0.012017	3.42	9.49	8.00	1.00
monte	1861.00 RUS 66	Q50	22.20	38.80	39.67	46.10	6.43	42.00	2.33	39.78	40.27	0.018439	3.44	6.45	8.00	1.22
monte	1861.00 RUS 66	Q200	28.30	38.80	39.82	46.10	6.28	42.00	2.18	39.95	40.52	0.017842	3.71	7.63	8.00	1.21
monte	1861.00 RUS 66	Q500	32.40	38.80	39.91	46.10	6.19	42.00	2.09	40.05	40.67	0.017564	3.87	8.37	8.00	1.21
monte	1837.00	Q50	22.20	36.65	37.66	38.75	1.09	38.85	1.19	38.11	39.19	0.045744	5.47	4.06	4.00	1.74
monte	1837.00	Q200	28.30	36.65	37.90	38.75	0.85	38.85	0.95	38.37	39.53	0.041017	5.67	5.00	4.00	1.62
monte	1837.00	Q500	32.40	36.65	38.06	38.75	0.69	38.85	0.79	38.53	39.74	0.038267	5.74	5.64	4.00	1.54
monte	1834.00 RUS 65	Q50	22.20	35.55	36.33	37.65	1.32	37.75	1.42	37.01	38.89	0.097411	7.09	3.13	4.00	2.56
monte	1834.00 RUS 65	Q200	28.30	35.55	36.52	37.65	1.13	37.75	1.23	37.27	39.25	0.085660	7.33	3.86	4.00	2.38
monte	1834.00 RUS 65	Q500	32.40	35.55	36.64	37.65	1.01	37.75	1.11	37.43	39.47	0.079759	7.45	4.35	4.00	2.28

HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: monte (Continued)

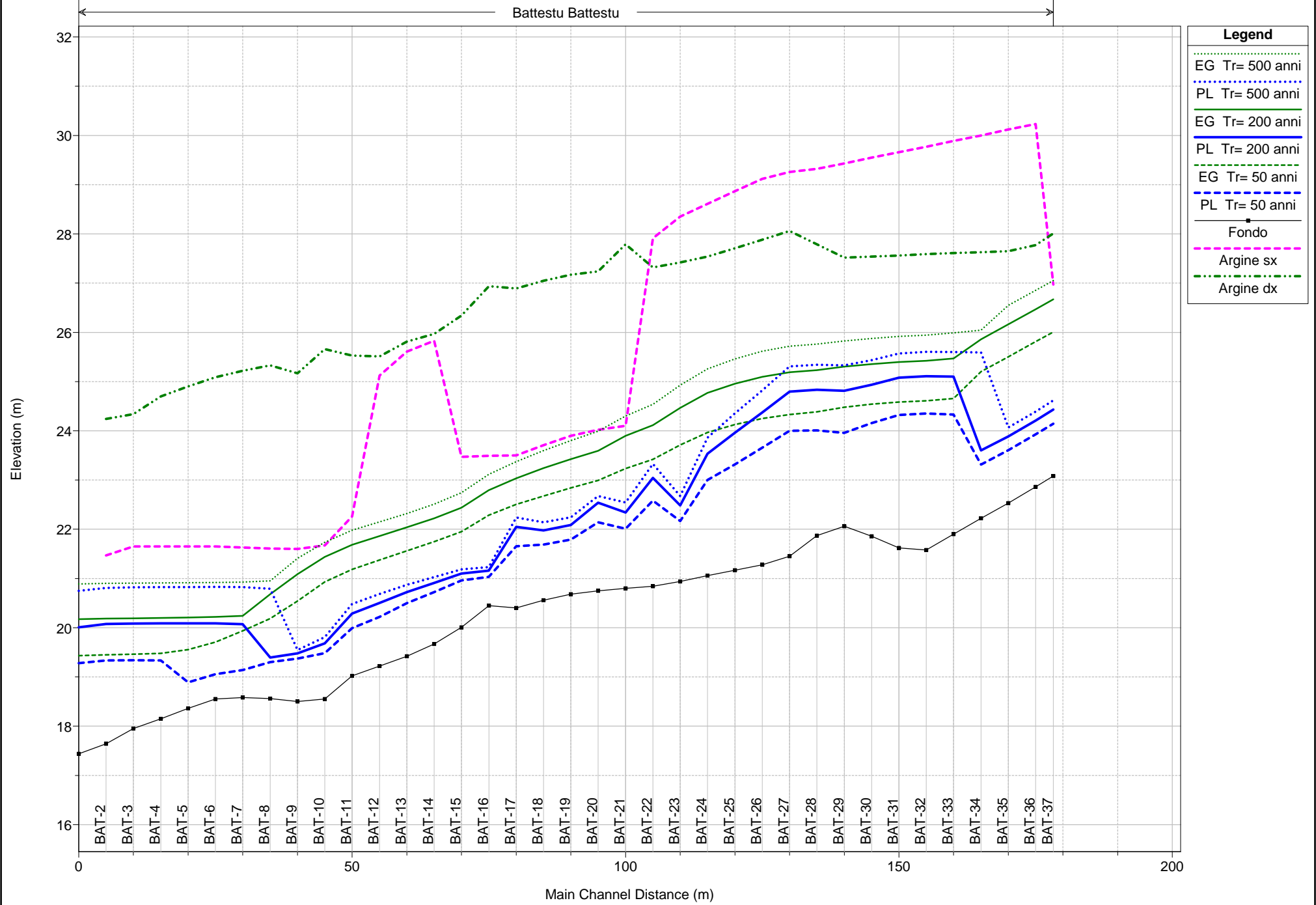
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
monte	1816.00	Q50	22.20	34.75	35.72	36.85	1.13	36.95	1.23	36.21	37.40	0.052558	5.74	3.87	4.00	1.86
monte	1816.00	Q200	28.30	34.75	35.89	36.85	0.96	36.95	1.06	36.47	37.84	0.052677	6.19	4.57	4.00	1.85
monte	1816.00	Q500	32.40	34.75	36.01	36.85	0.84	36.95	0.94	36.63	38.11	0.052372	6.43	5.04	4.00	1.83
monte	1815.00 RUS 64	Q50	22.20	32.85	36.18	34.95	-1.23	35.05	-1.13	34.31	36.32	0.001856	1.67	13.33	4.00	0.29
monte	1815.00 RUS 64	Q200	28.30	32.85	36.78	34.95	-1.83	35.05	-1.73	34.57	36.95	0.002001	1.80	15.73	4.00	0.29
monte	1815.00 RUS 64	Q500	32.40	32.85	37.13	34.95	-2.18	35.05	-2.08	34.73	37.31	0.002132	1.89	17.12	4.00	0.29
monte	1796.00 RUS 63	Q50	22.20	32.30	36.18	34.40	-1.78	34.50	-1.68	33.76	36.28	0.001273	1.43	15.51	4.00	0.23
monte	1796.00 RUS 63	Q200	28.30	32.30	36.78	34.40	-2.38	34.50	-2.28	34.02	36.90	0.001460	1.58	17.90	4.00	0.24
monte	1796.00 RUS 63	Q500	32.40	32.30	37.12	34.40	-2.72	34.50	-2.62	34.18	37.27	0.001600	1.68	19.29	4.00	0.24
monte	1777.00 RUS 62	Q50	22.20	31.60	36.18	33.50	-2.68	33.50	-2.68	33.06	36.25	0.000851	1.21	18.32	4.00	0.18
monte	1777.00 RUS 62	Q200	28.30	31.60	36.78	33.50	-3.28	33.50	-3.28	33.32	36.87	0.001032	1.37	20.70	4.00	0.19
monte	1777.00 RUS 62	Q500	32.40	31.60	37.12	33.50	-3.62	33.50	-3.62	33.48	37.23	0.001161	1.47	22.08	4.00	0.20
monte	1773.75 RUS 62		Bridge													
monte	1771.00 RUS 62	Q50	22.20	31.60	36.17	33.50	-2.67	33.50	-2.67	33.06	36.24	0.000855	1.21	18.27	4.00	0.18
monte	1771.00 RUS 62	Q200	28.30	31.60	36.76	33.50	-3.26	33.50	-3.26	33.32	36.86	0.001037	1.37	20.66	4.00	0.19
monte	1771.00 RUS 62	Q500	32.40	31.60	37.11	33.50	-3.61	33.50	-3.61	33.48	37.22	0.001167	1.47	22.03	4.00	0.20
monte	1745.02 RUS 61	Q50	22.20	31.10	36.16	37.00	0.84	32.50	-3.66	32.56	36.22	0.000670	1.10	20.24	4.00	0.16
monte	1745.02 RUS 61	Q200	28.30	31.10	36.75	37.00	0.25	32.50	-4.25	32.82	36.83	0.000839	1.25	22.60	4.00	0.17
monte	1745.02 RUS 61	Q500	32.40	31.10	37.09	37.00	-0.09	32.50	-4.59	32.98	37.19	0.000958	1.35	23.97	4.00	0.18
monte	1743.57 RUS 61		Bridge													
monte	1742.02 RUS 61	Q50	22.20	31.10	33.73	37.00	3.27	32.50	-1.23	32.56	33.95	0.003395	2.11	10.50	4.00	0.42
monte	1742.02 RUS 61	Q200	28.30	31.10	34.19	37.00	2.81	32.50	-1.69	32.82	34.46	0.003630	2.29	12.38	4.00	0.41
monte	1742.02 RUS 61	Q500	32.40	31.10	34.49	37.00	2.51	32.50	-1.99	32.98	34.78	0.003778	2.39	13.57	4.00	0.41
monte	1741.52 RUS 61	Q50	22.20	31.10	33.72	37.00	3.28	32.50	-1.22	32.56	33.95	0.003402	2.12	10.49	4.00	0.42
monte	1741.52 RUS 61	Q200	28.30	31.10	34.19	37.00	2.81	32.50	-1.69	32.82	34.46	0.003637	2.29	12.37	4.00	0.42
monte	1741.52 RUS 61	Q500	32.40	31.10	34.49	37.00	2.51	32.50	-1.99	32.98	34.78	0.003784	2.39	13.56	4.00	0.41
monte	1731.52 RUS 60	Q50	28.40	31.00	32.89	34.00	1.11	34.00	1.11	32.89	33.83	0.016507	4.30	6.60	3.50	1.00
monte	1731.52 RUS 60	Q200	36.10	31.00	33.21	34.00	0.79	34.00	0.79	33.21	34.32	0.017563	4.66	7.75	3.50	1.00
monte	1731.52 RUS 60	Q500	41.30	31.00	33.42	34.00	0.58	34.00	0.58	33.42	34.63	0.018253	4.88	8.47	3.50	1.00
monte	1411.52 RUS 59	Q50	28.40	22.40	24.09	25.60	1.51	25.60	1.51	24.37	25.43	0.026361	5.13	5.54	3.28	1.26
monte	1411.52 RUS 59	Q200	36.10	22.40	24.42	25.60	1.18	25.60	1.18	24.71	25.93	0.026451	5.44	6.64	3.28	1.22
monte	1411.52 RUS 59	Q500	41.30	22.40	24.64	25.60	0.96	25.60	0.96	24.93	26.25	0.026534	5.61	7.36	3.28	1.20
monte	1406.62	Q50	28.40	21.00	21.72	23.25	1.53	28.13	6.41	22.25	24.94	0.284772	7.94	3.58	12.44	4.73
monte	1406.62	Q200	36.10	21.00	21.78	23.25	1.47	28.13	6.35	22.39	25.42	0.257462	8.45	4.27	12.44	4.61
monte	1406.62	Q500	41.30	21.00	21.82	23.25	1.43	28.13	6.31	22.48	25.72	0.243915	8.76	4.72	12.44	4.54
monte	1391.62 RUS 58	Q50	28.40	20.90	22.92	23.90	0.98	23.83	0.91	22.40	23.13	0.002496	2.04	13.95	9.74	0.54
monte	1391.62 RUS 58	Q200	36.10	20.90	23.18	23.90	0.72	23.83	0.65	22.58	23.42	0.002483	2.19	16.51	10.06	0.55
monte	1391.62 RUS 58	Q500	41.30	20.90	22.19	23.90	1.71	23.83	1.64	22.70	23.88	0.038208	5.76	7.17	8.83	2.04

## **Allegato A**

### **Verifiche idrauliche**

### **Fosso Battestu da BAT-37 a BAT-1**

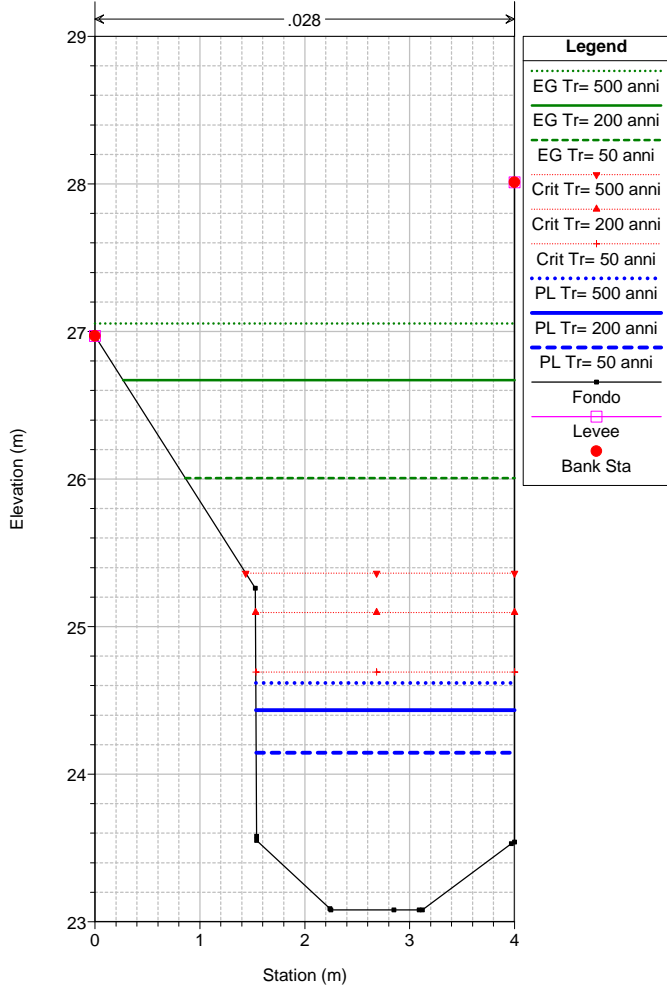
- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo



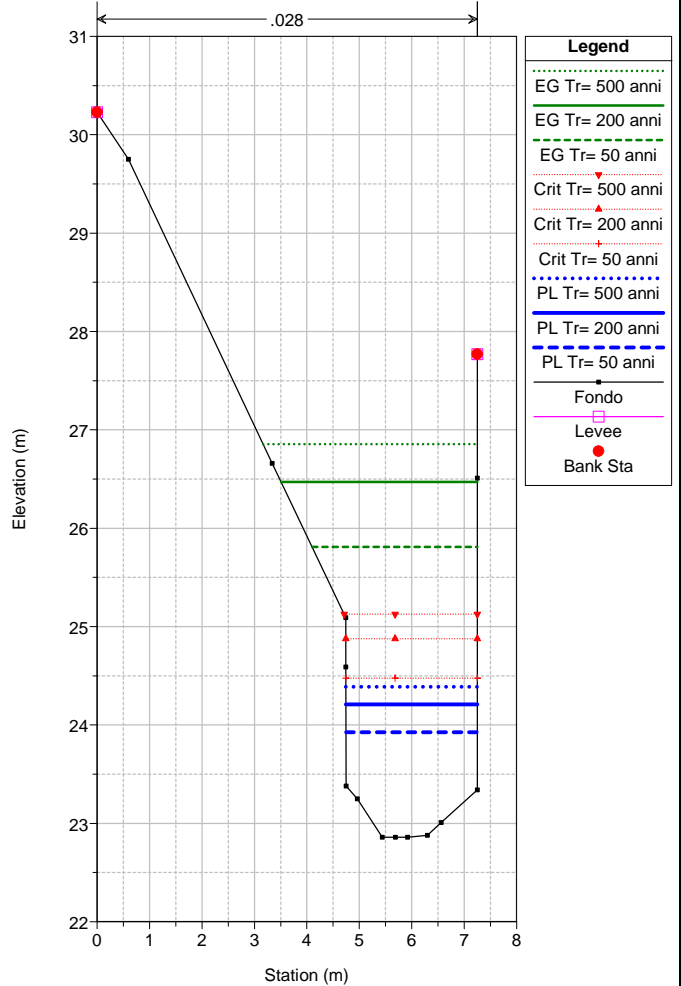
1 cm Horiz. = 9 m 1 cm Vert. = 1 m



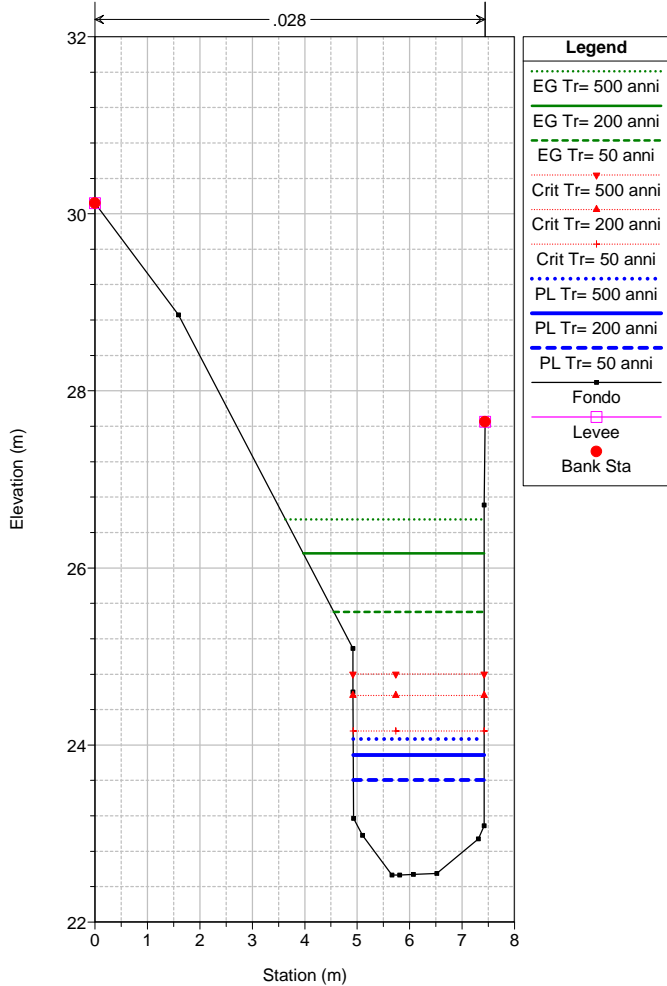
River = Battestu Reach = Battestu BAT-37



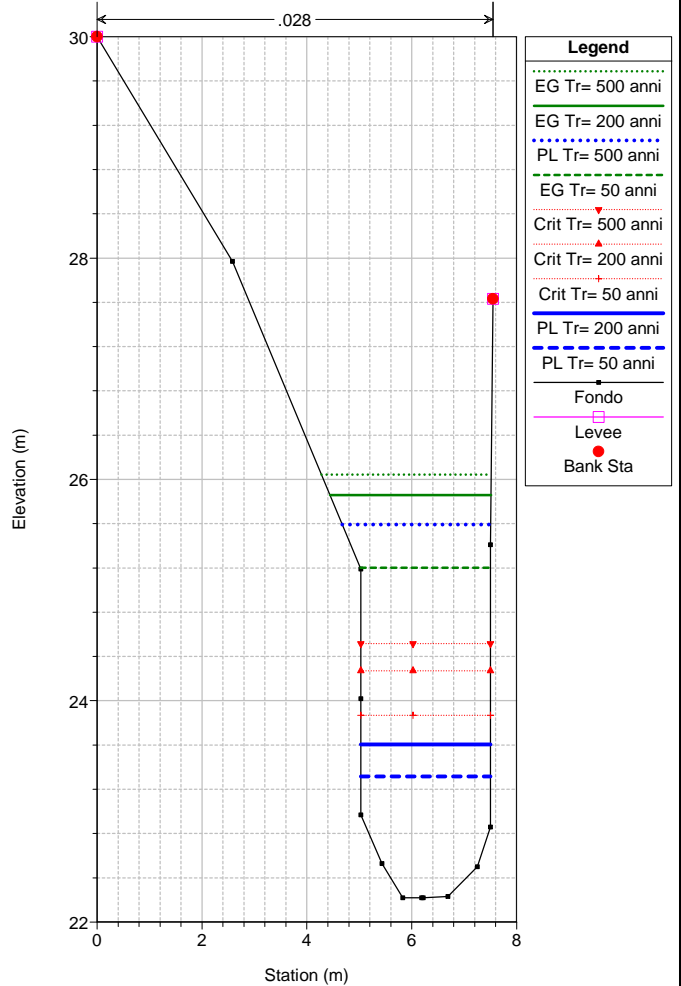
River = Battestu Reach = Battestu BAT-36



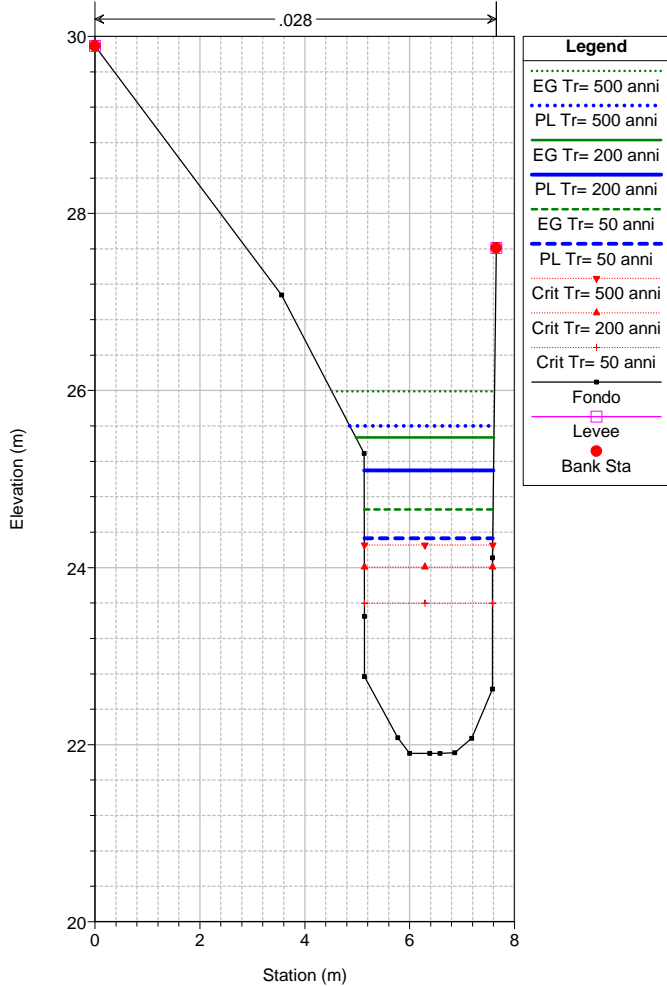
River = Battestu Reach = Battestu BAT-35



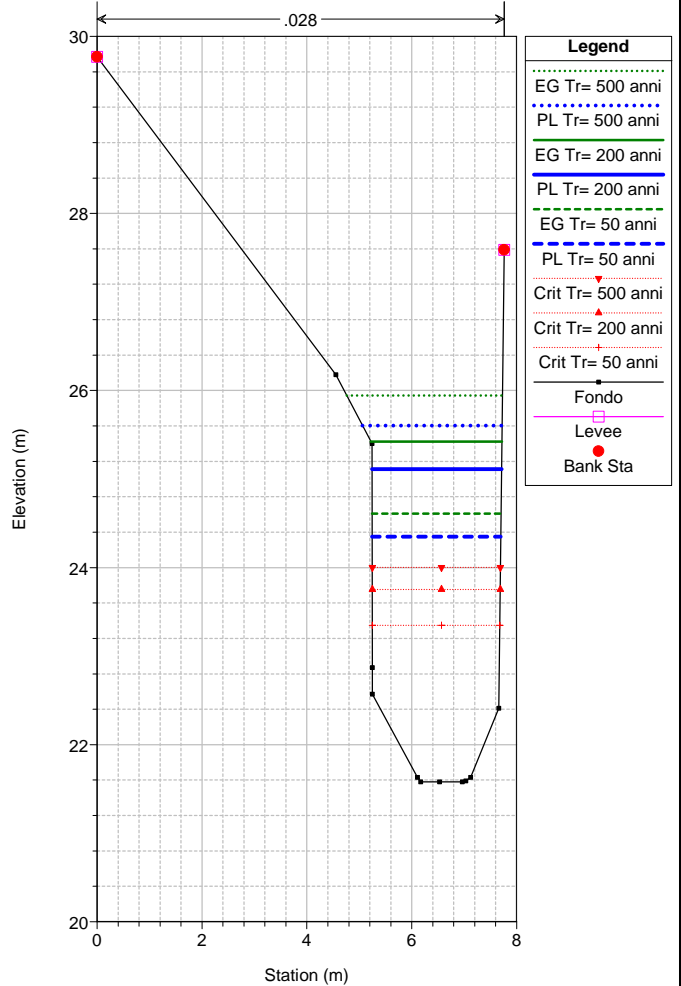
River = Battestu Reach = Battestu BAT-34



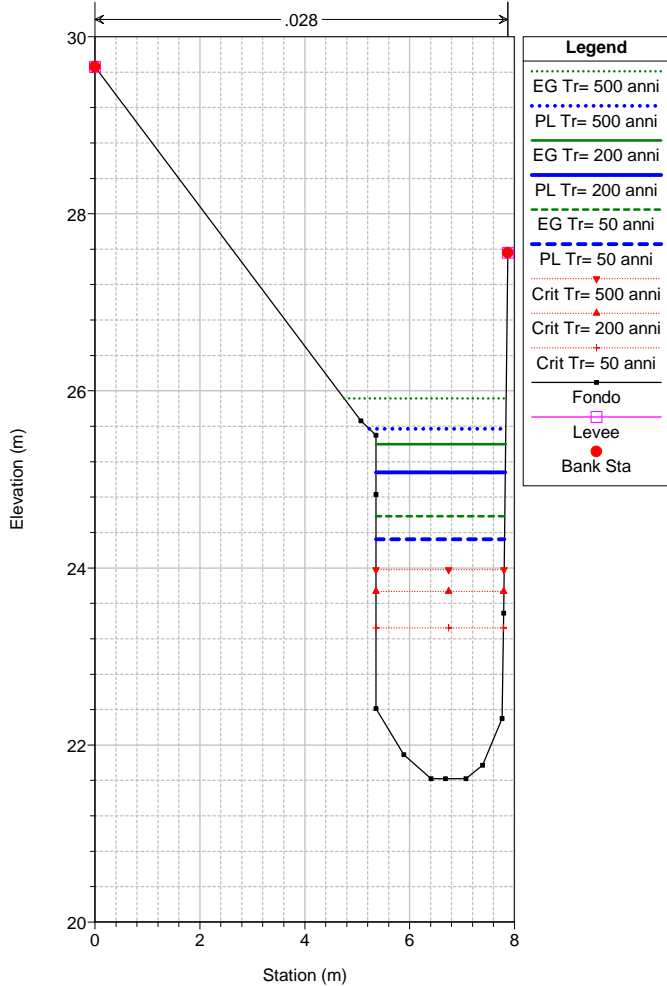
River = Battestu Reach = Battestu BAT-33



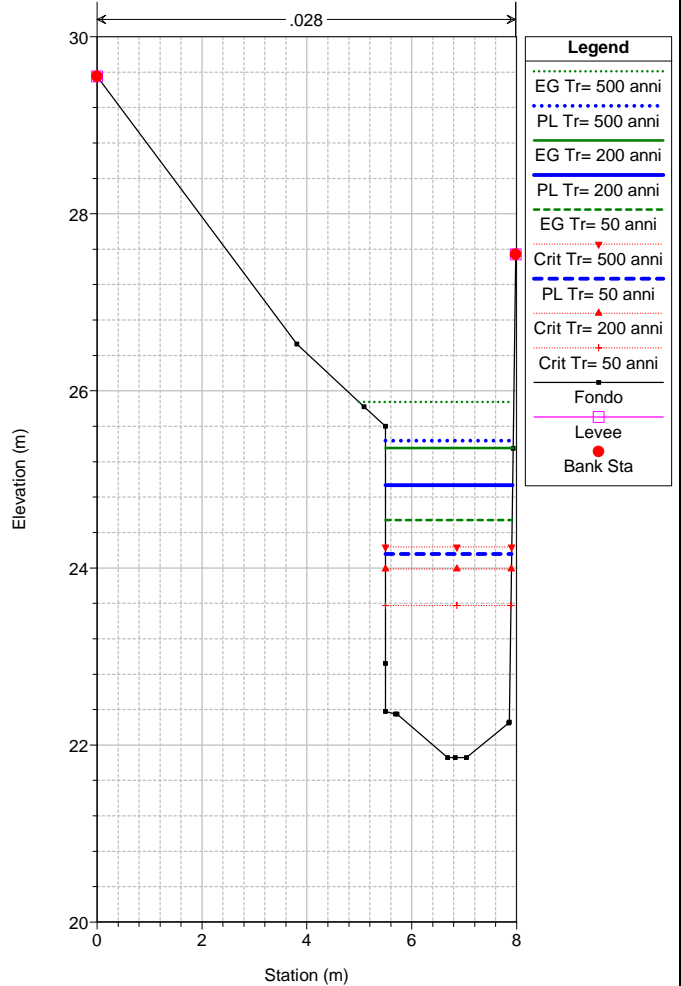
River = Battestu Reach = Battestu BAT-32



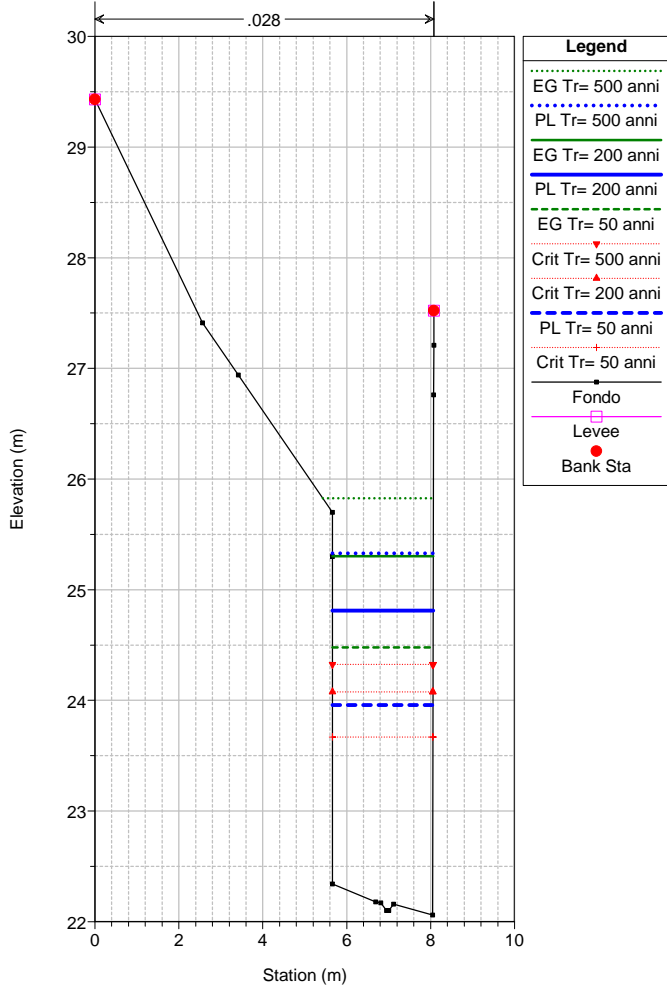
River = Battestu Reach = Battestu BAT-31



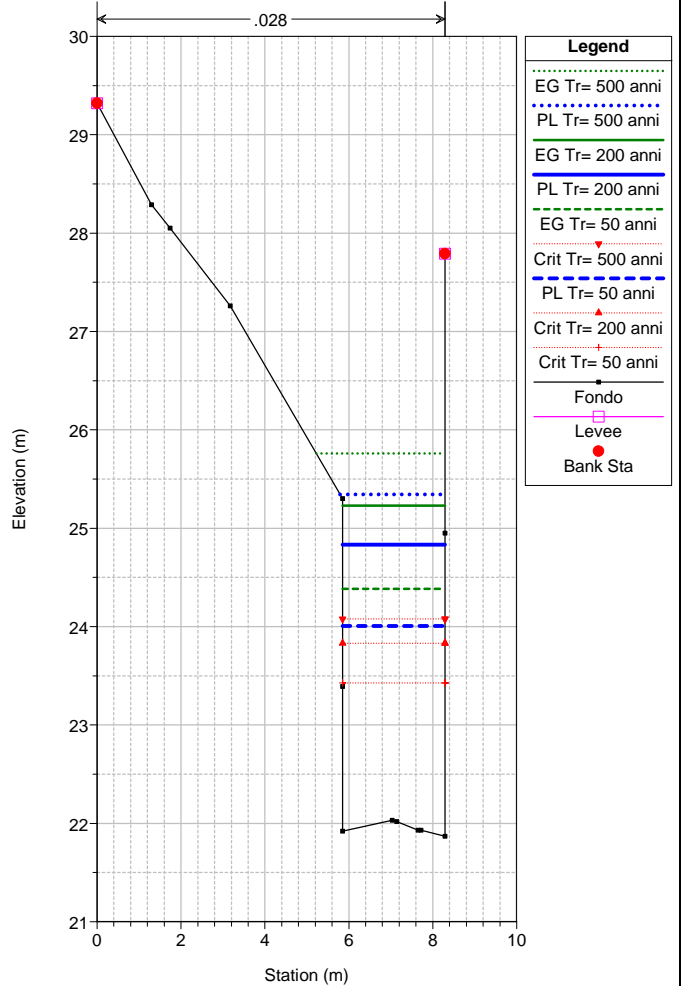
River = Battestu Reach = Battestu BAT-30



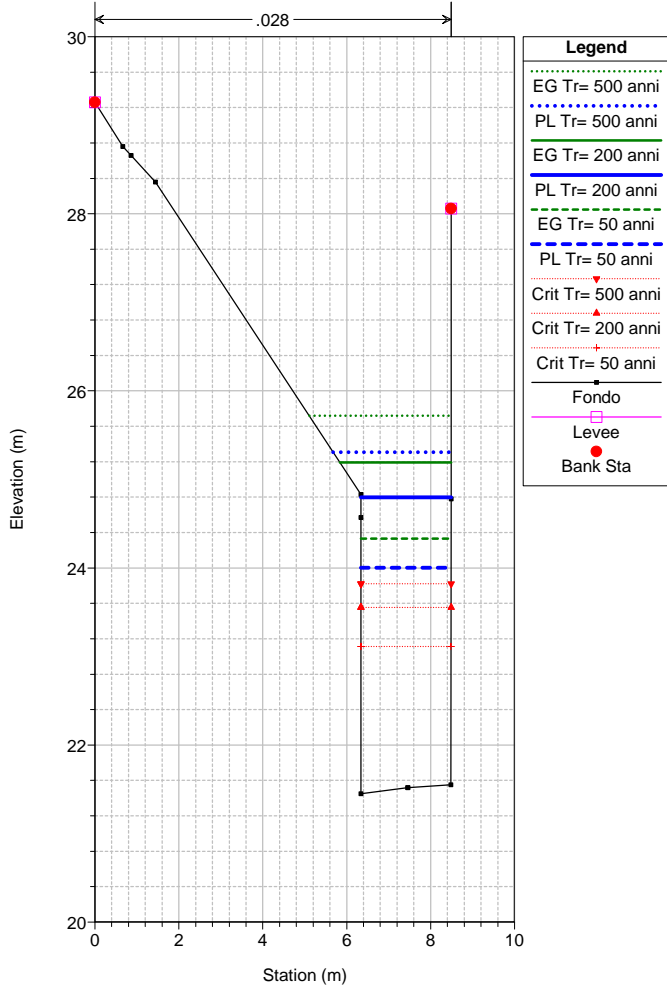
River = Battestu Reach = Battestu BAT-29



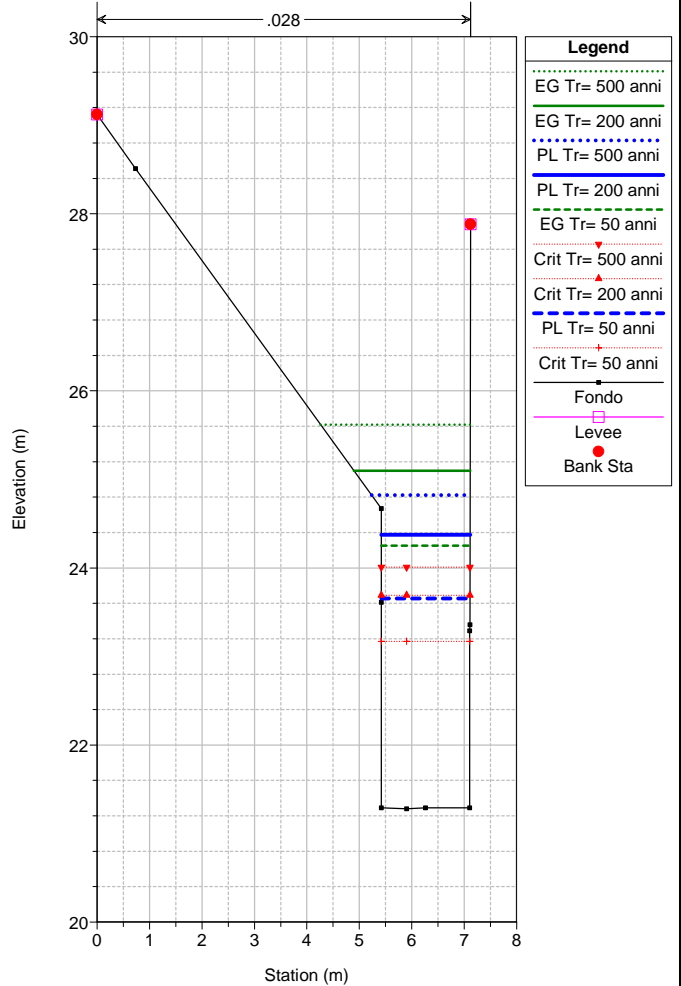
River = Battestu Reach = Battestu BAT-28



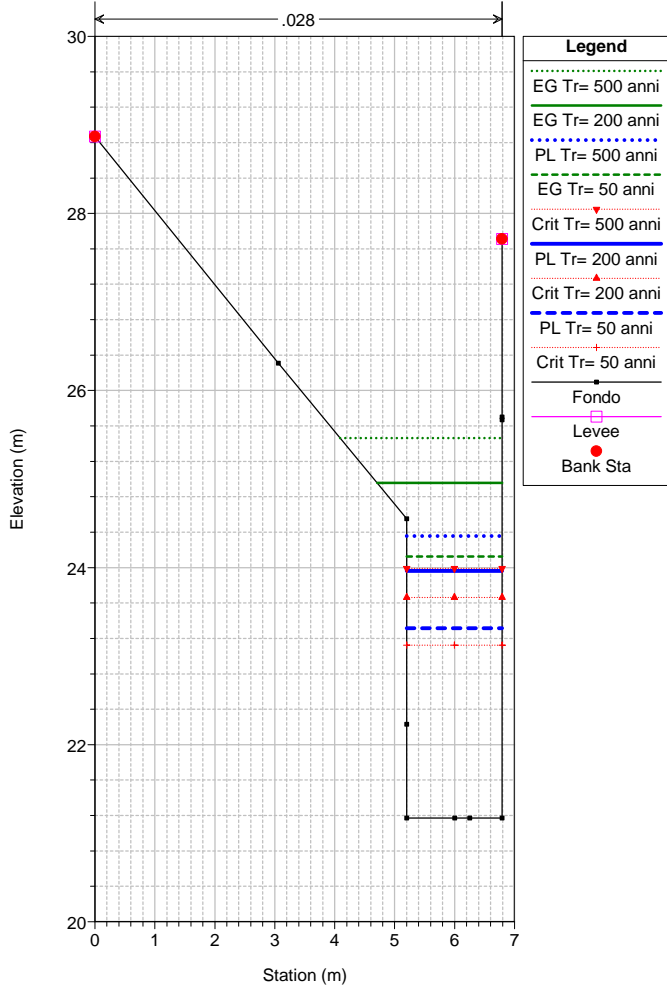
River = Battestu Reach = Battestu BAT-27



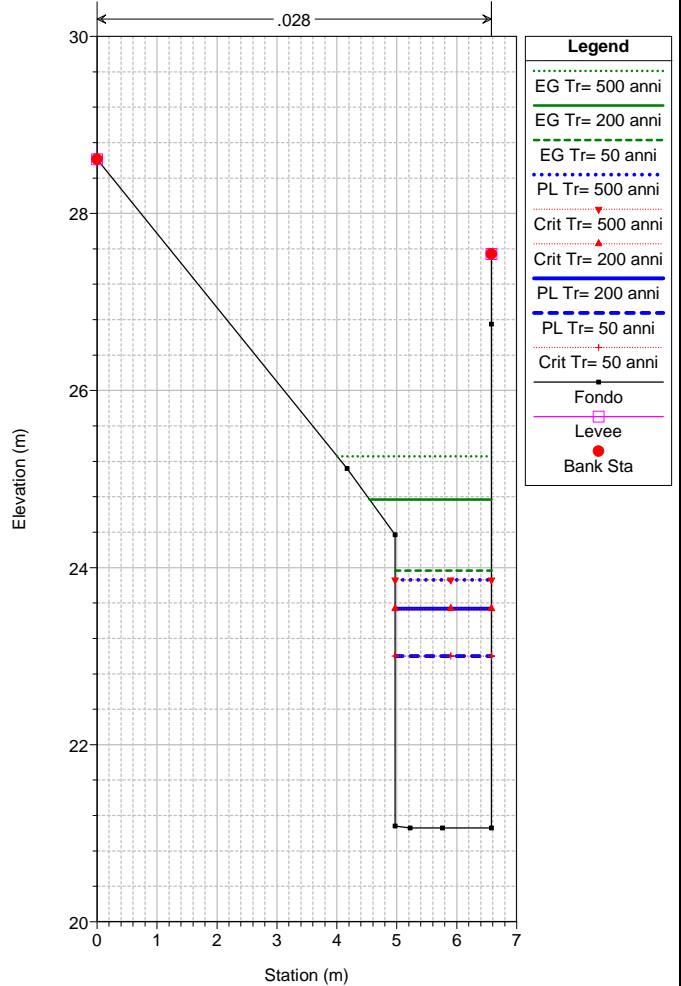
River = Battestu Reach = Battestu BAT-26



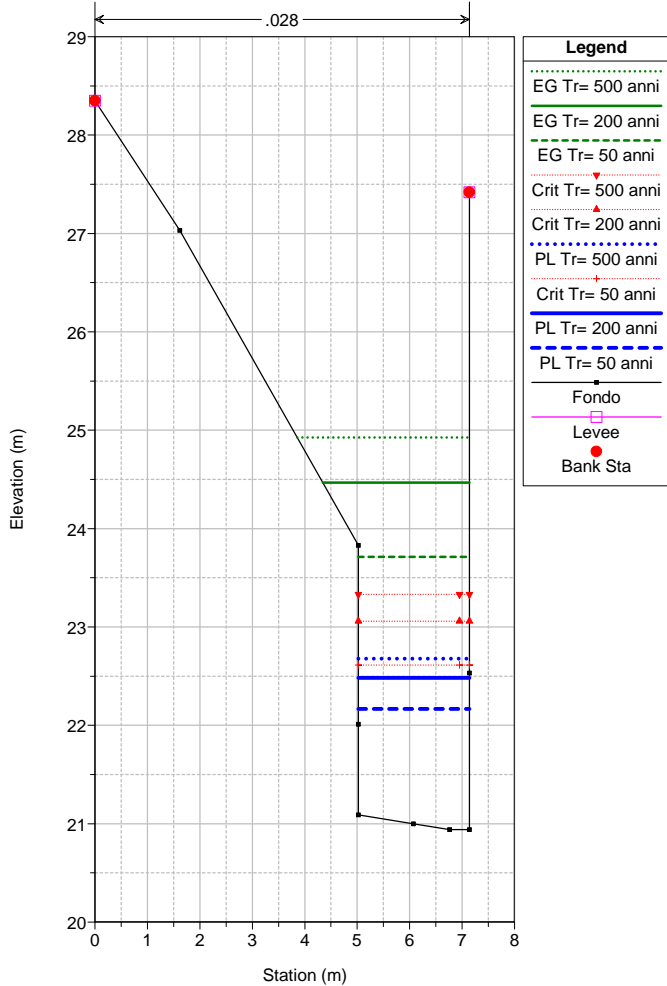
River = Battestu Reach = Battestu BAT-25



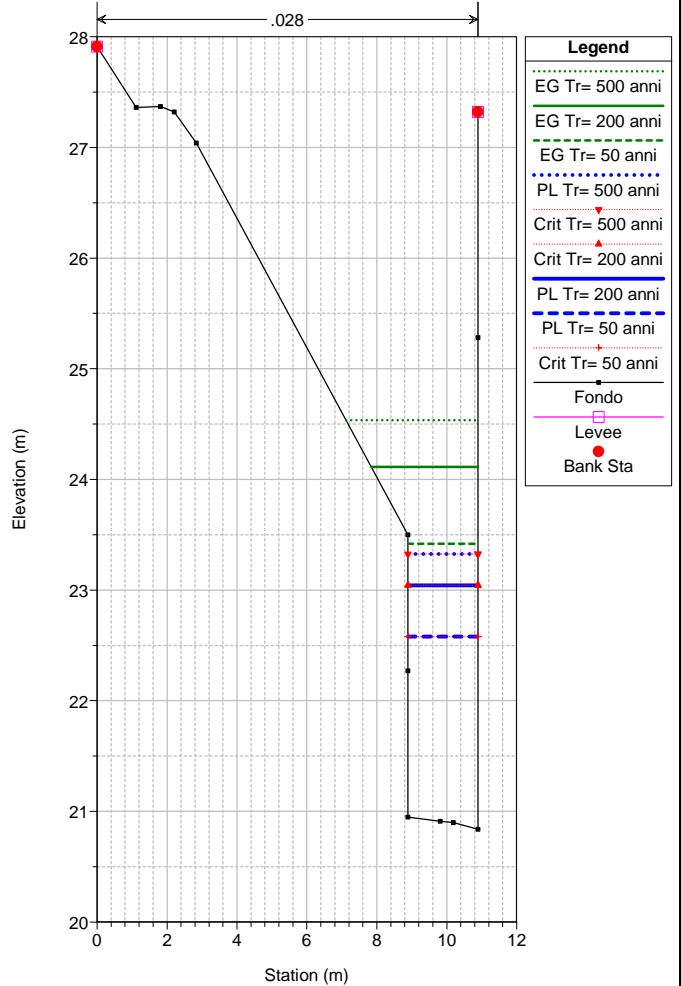
River = Battestu Reach = Battestu BAT-24



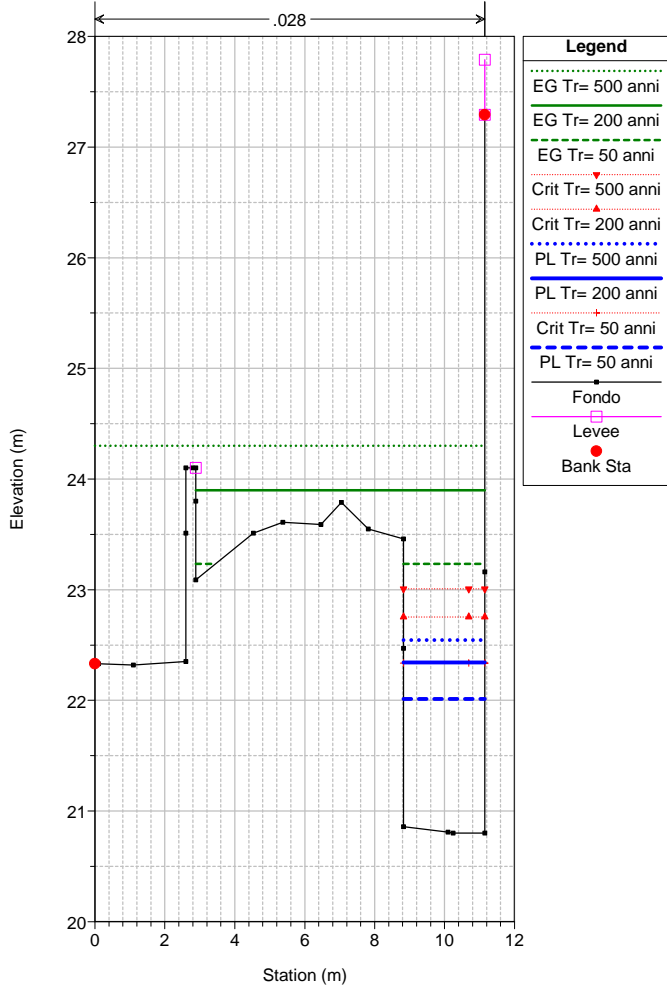
River = Battestu Reach = Battestu BAT-23



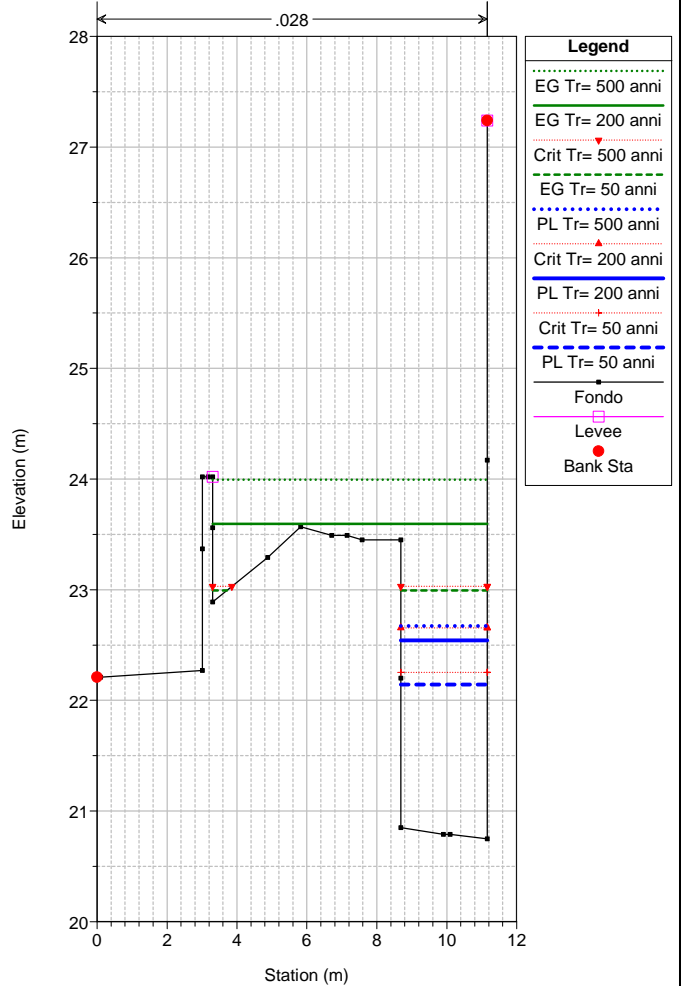
River = Battestu Reach = Battestu BAT-22



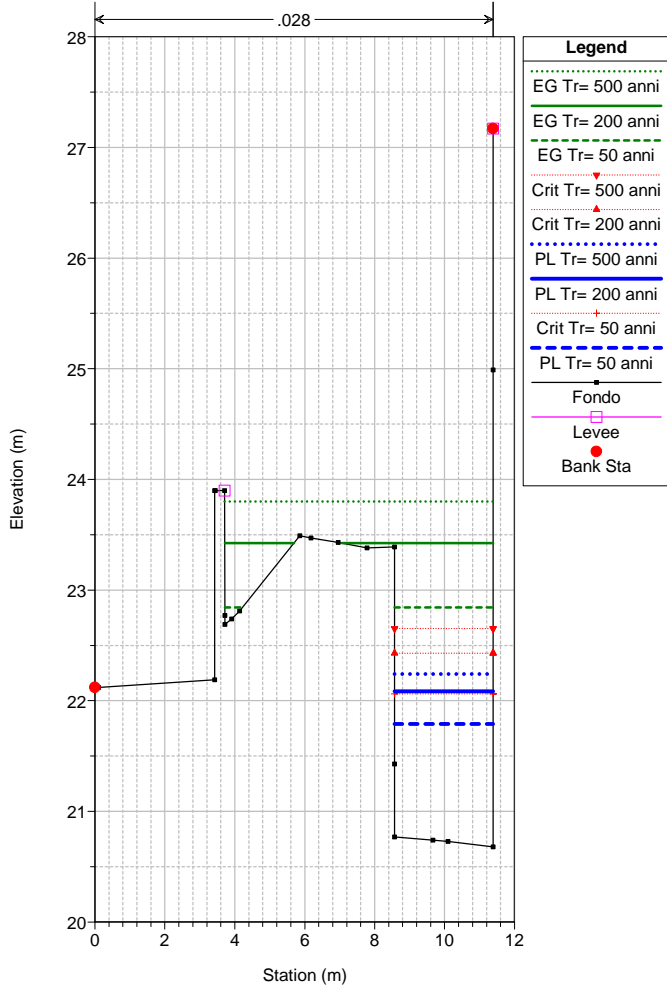
River = Battestu Reach = Battestu BAT-21



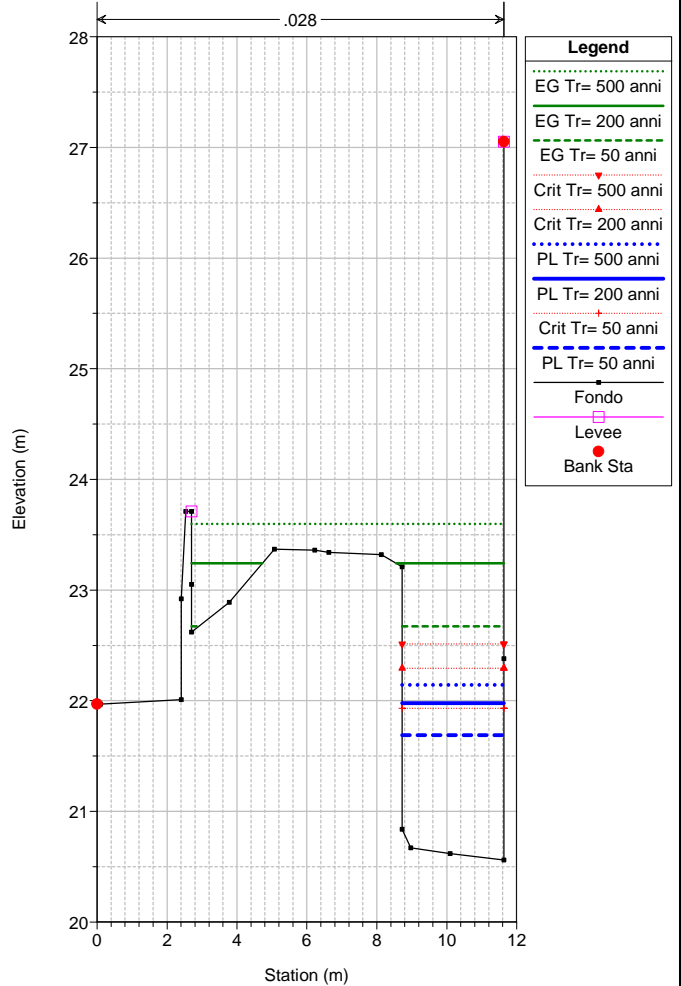
River = Battestu Reach = Battestu BAT-20



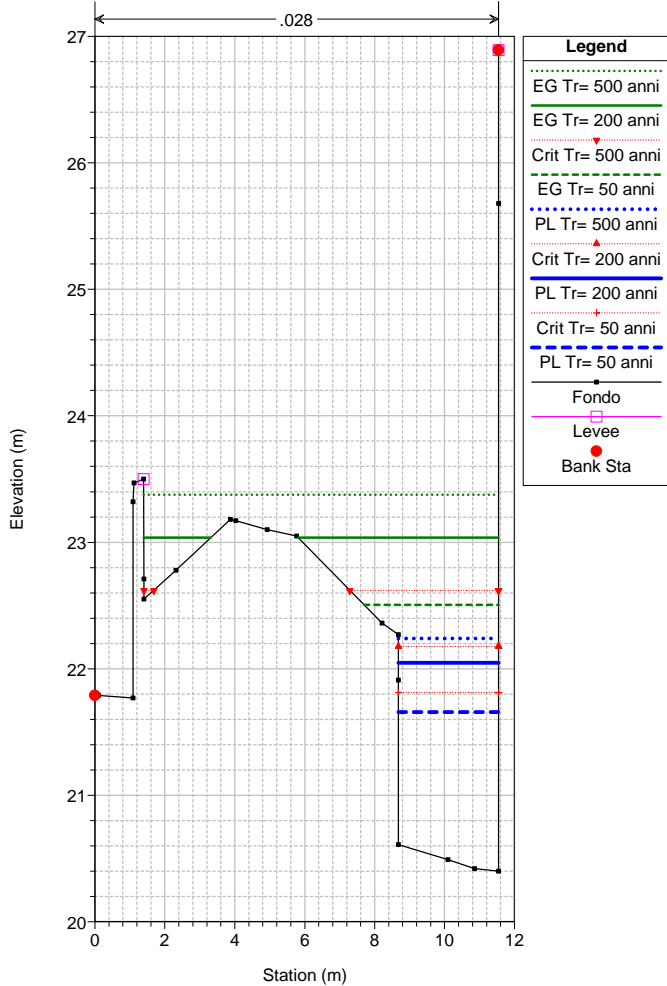
River = Battestu Reach = Battestu BAT-19



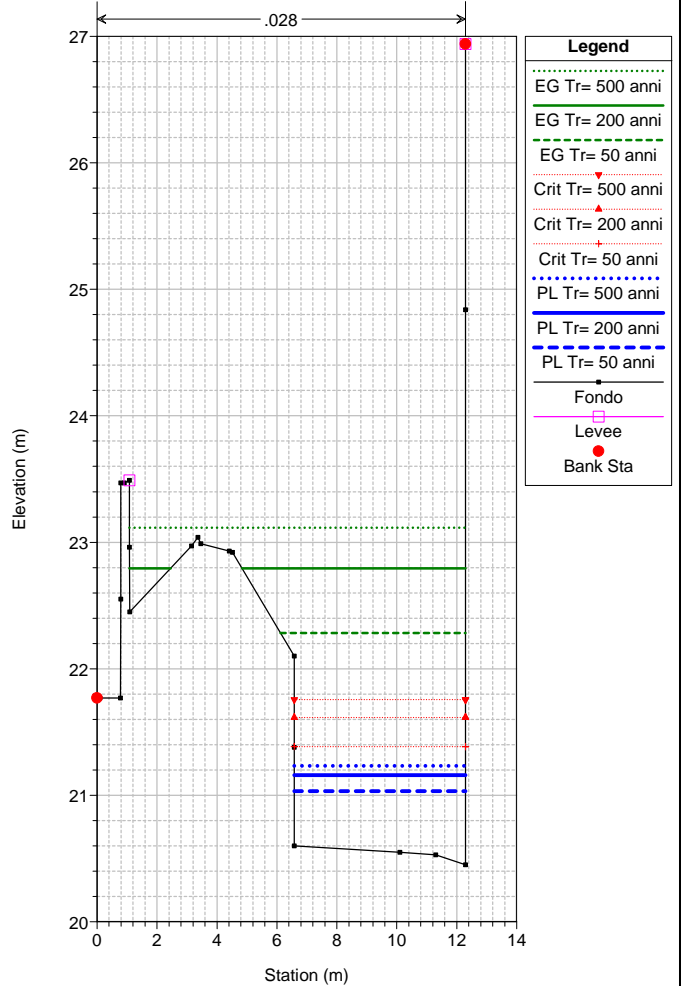
River = Battestu Reach = Battestu BAT-18



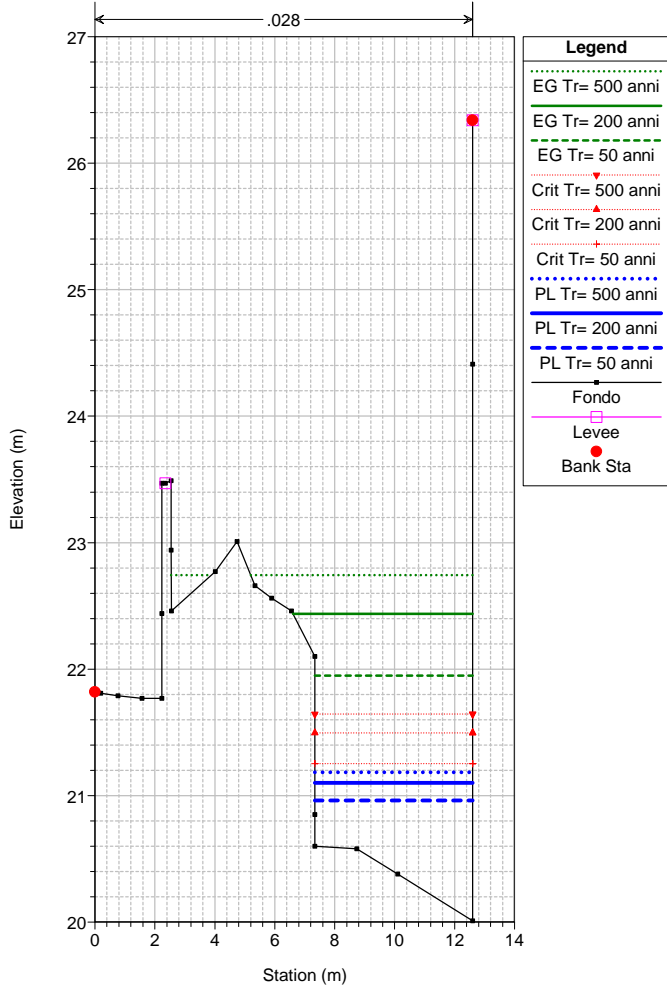
River = Battestu Reach = Battestu BAT-17



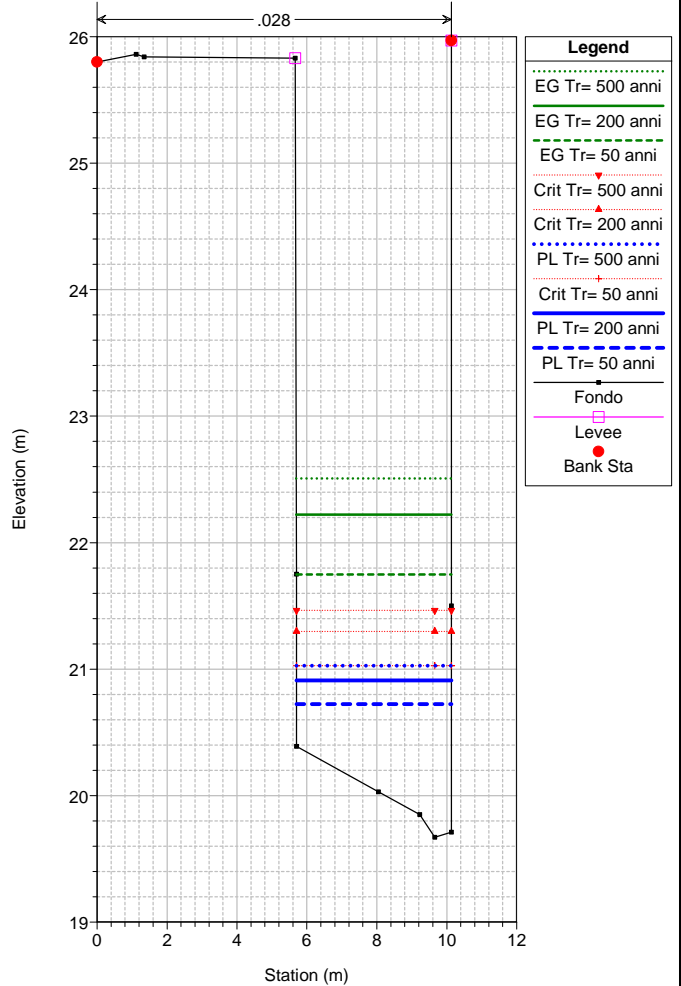
River = Battestu Reach = Battestu BAT-16



River = Battestu Reach = Battestu BAT-15

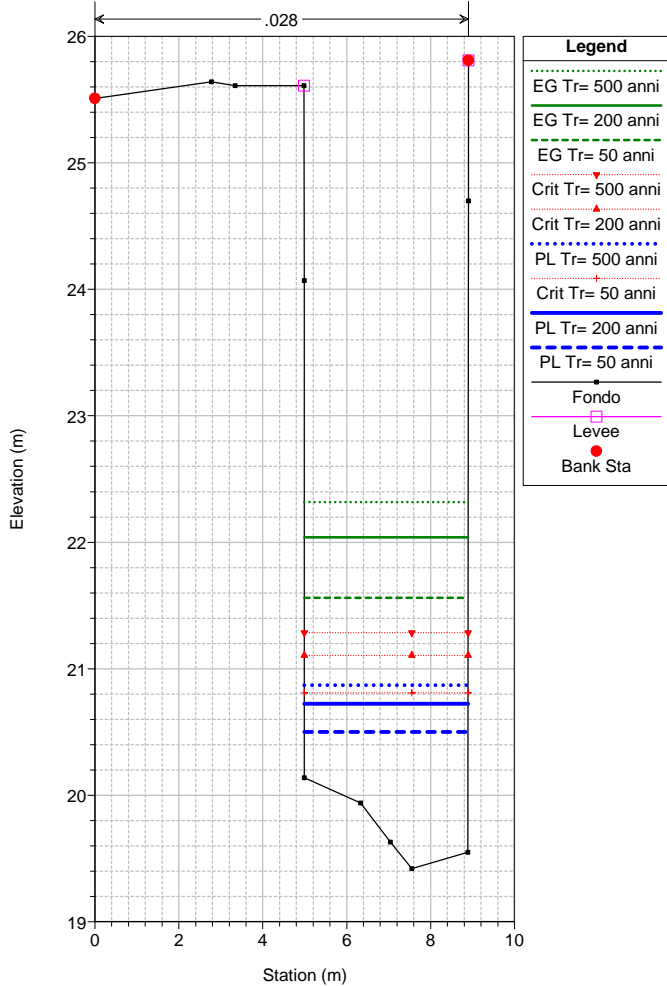


River = Battestu Reach = Battestu BAT-14

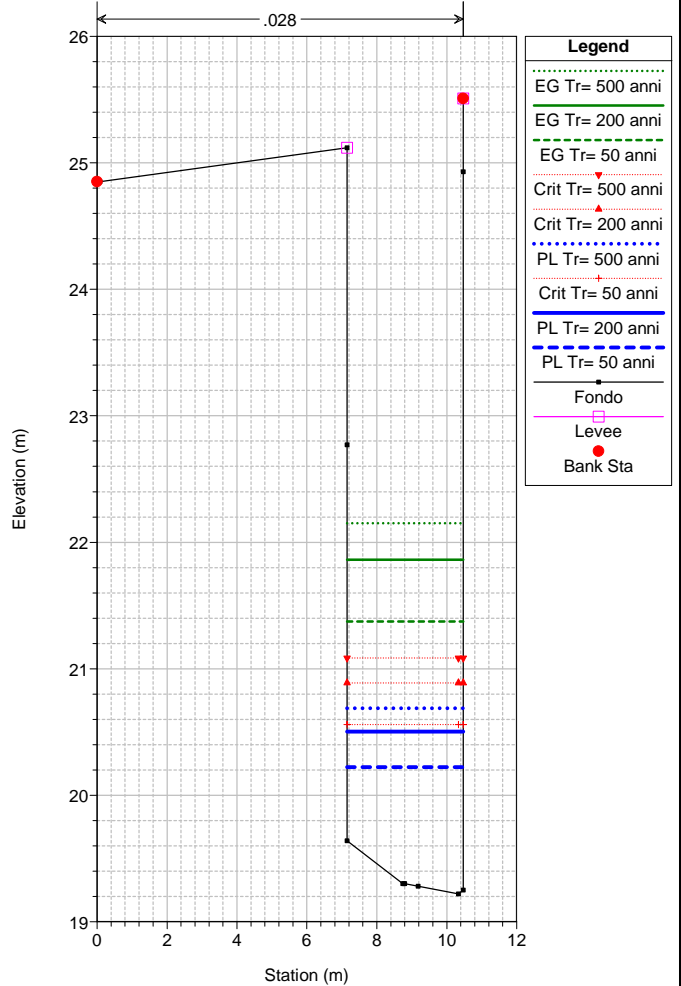




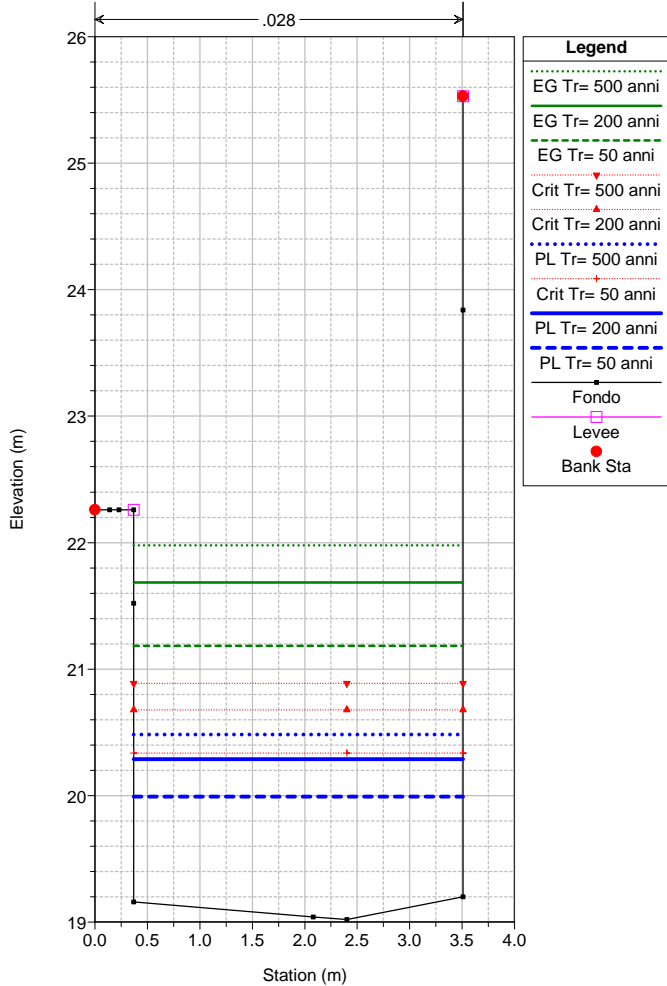
River = Battestu Reach = Battestu BAT-13



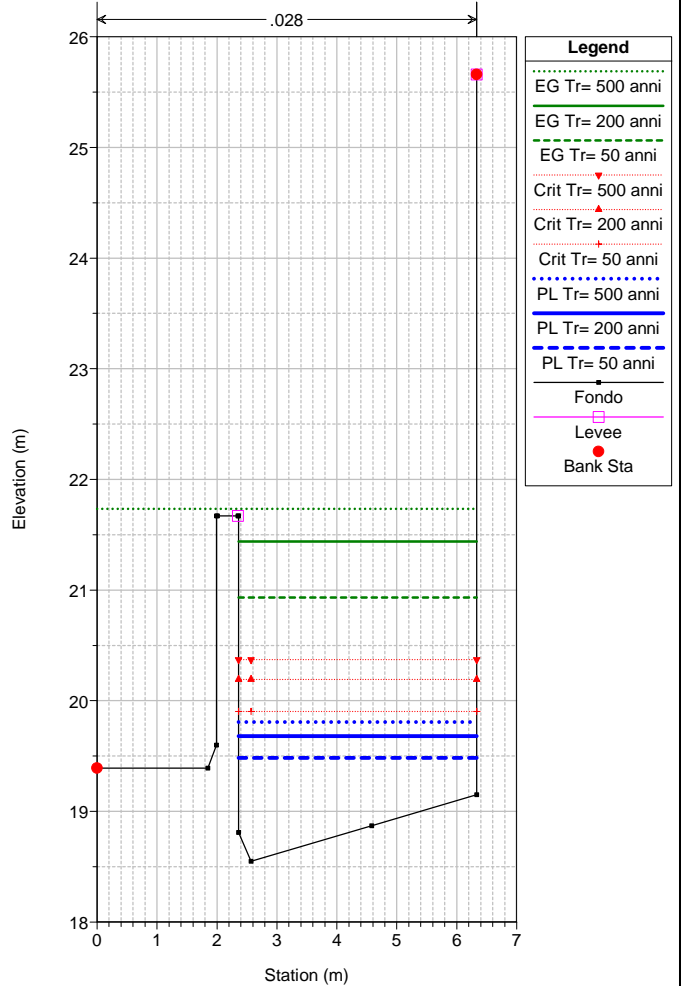
River = Battestu Reach = Battestu BAT-12



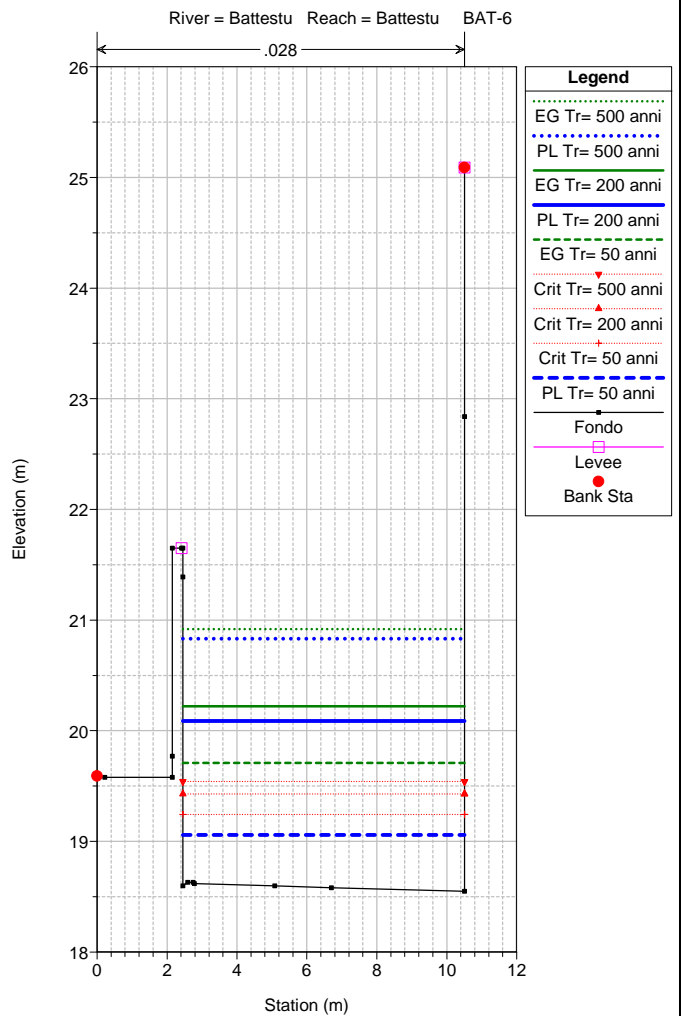
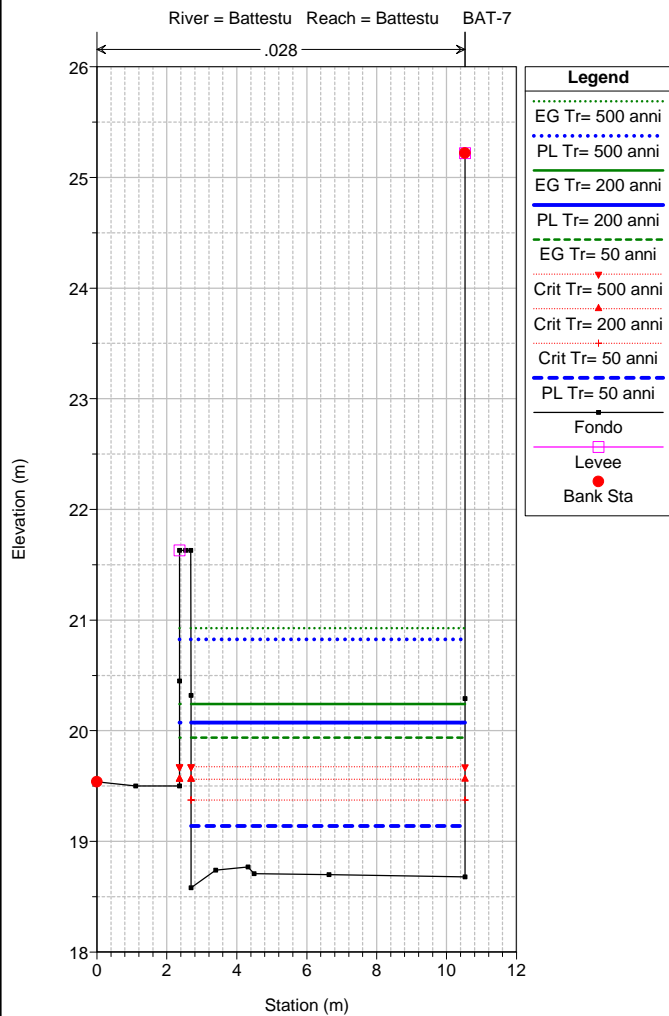
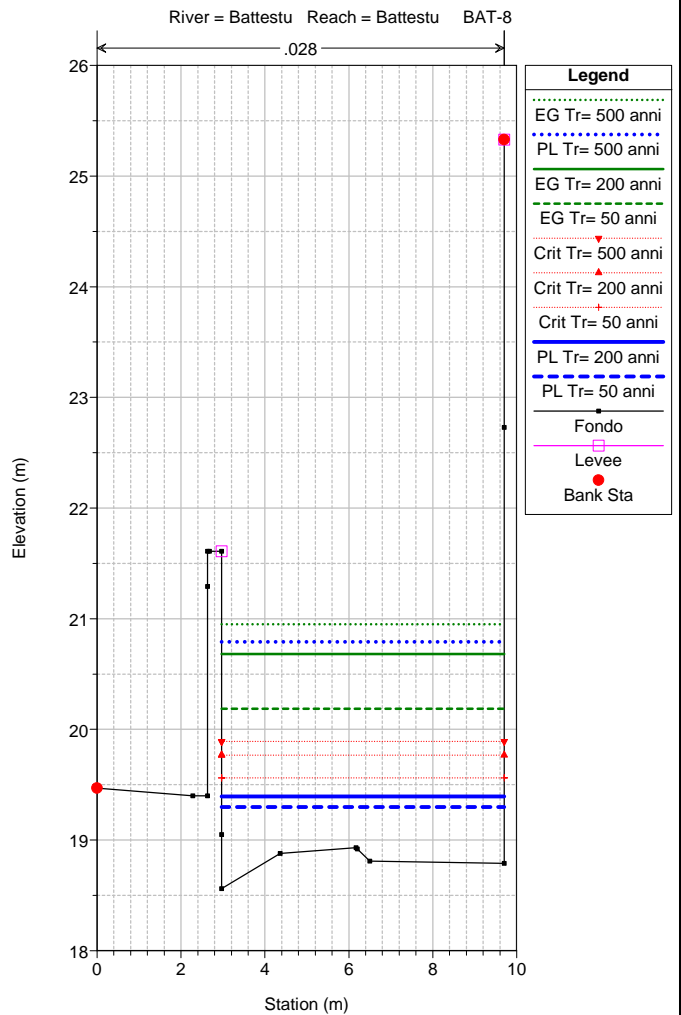
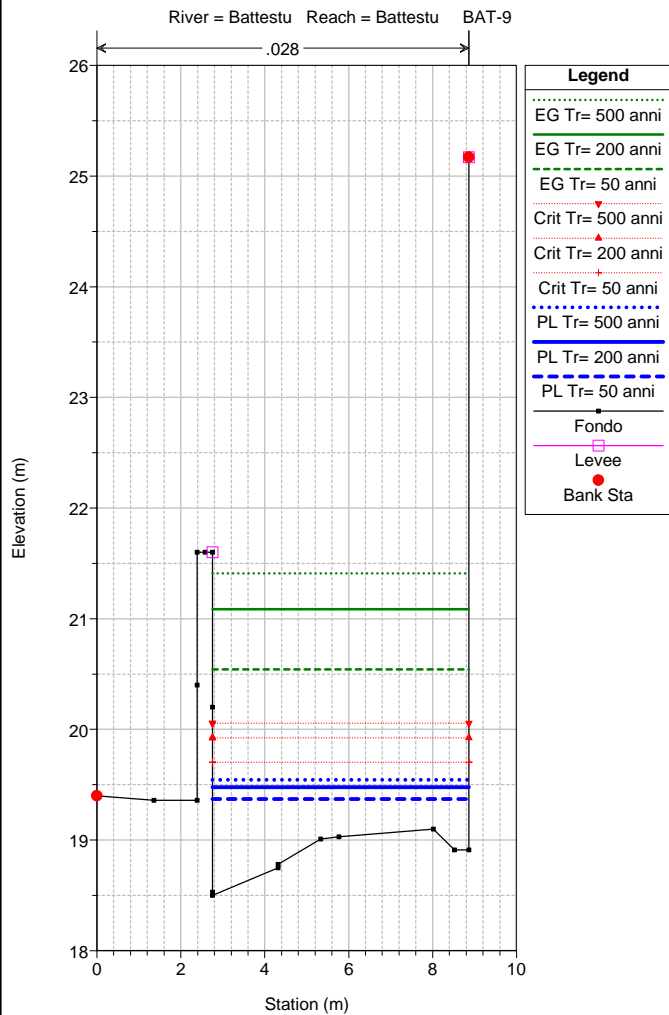
River = Battestu Reach = Battestu BAT-11



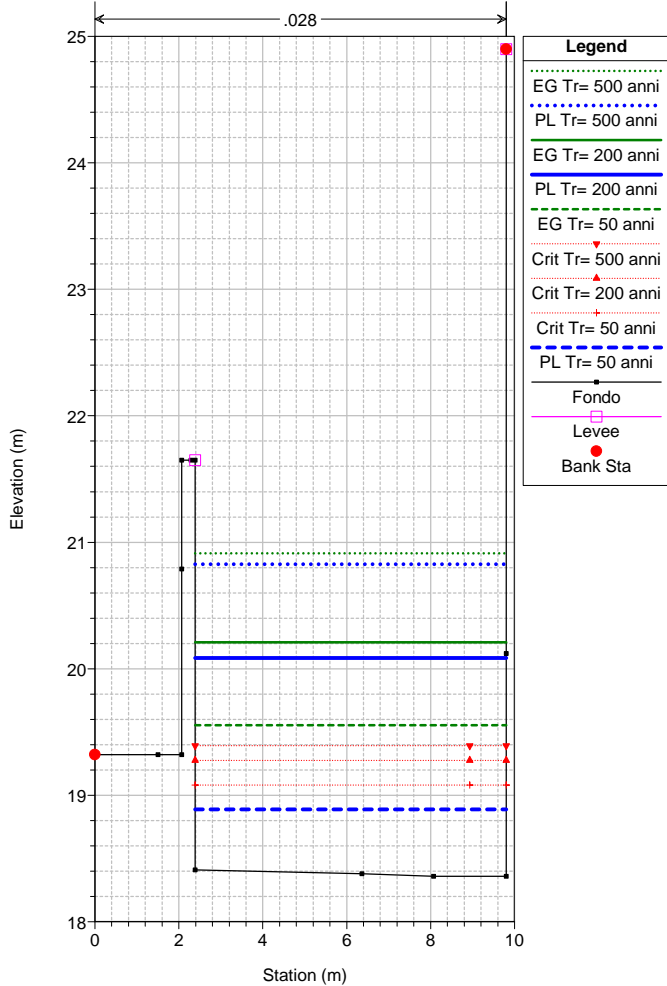
River = Battestu Reach = Battestu BAT-10



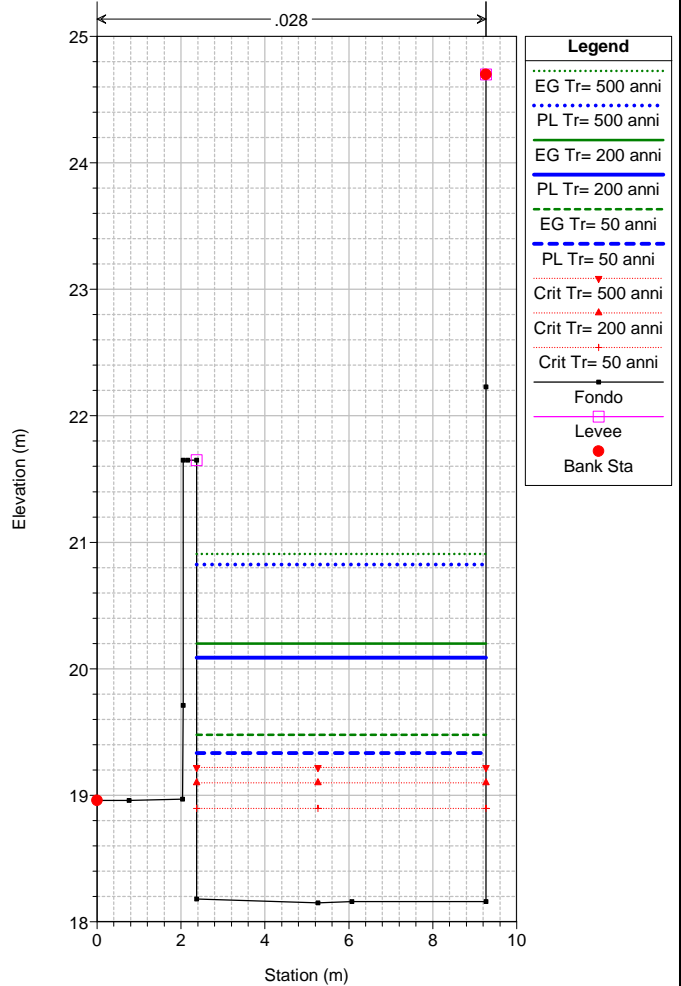




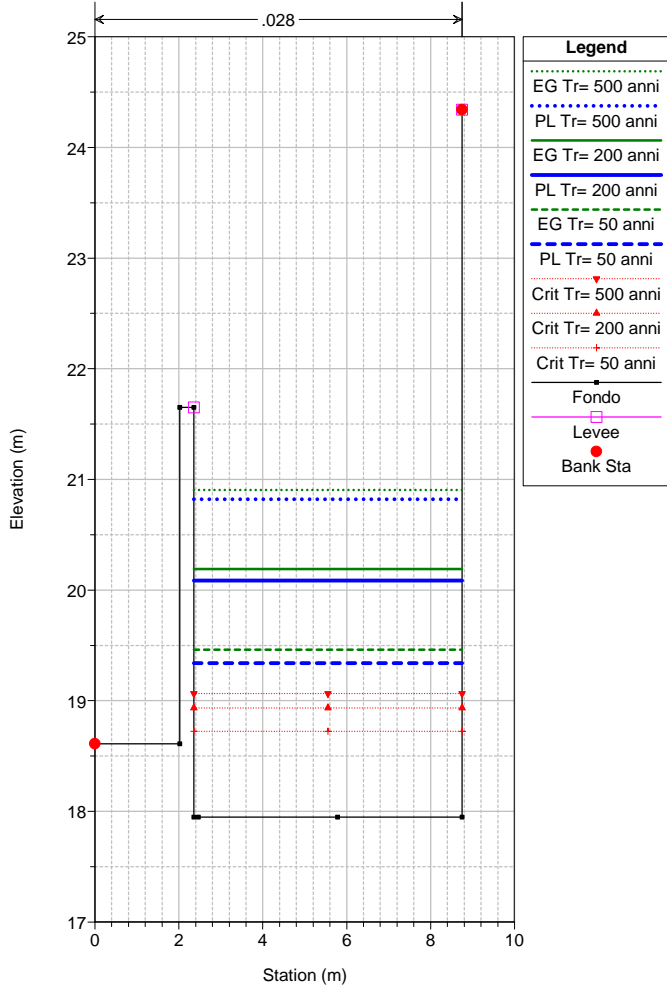
River = Battestu Reach = Battestu BAT-5



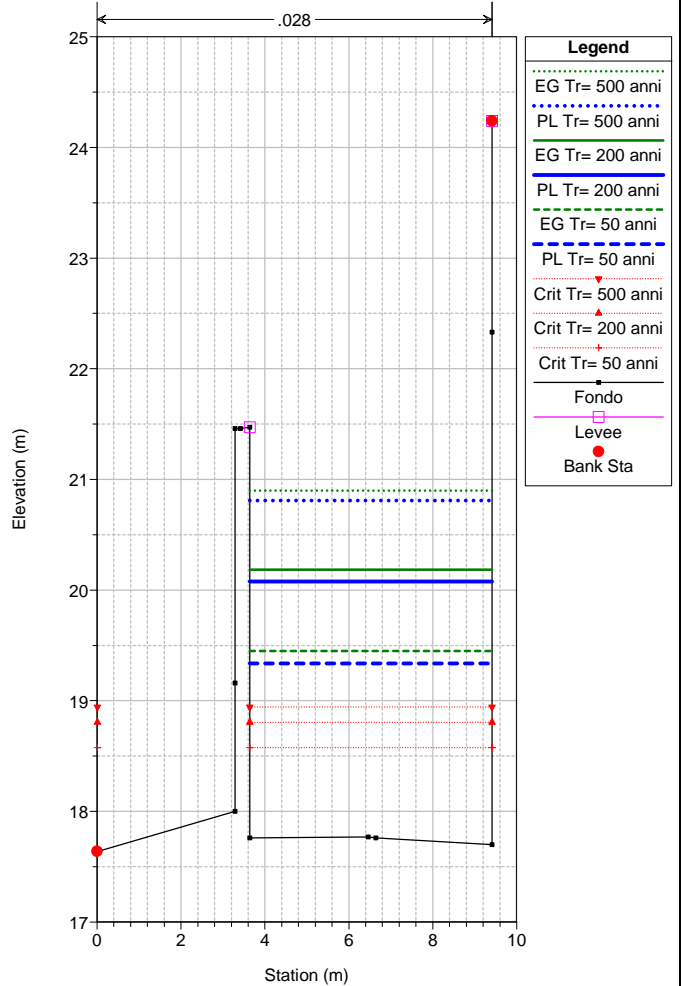
River = Battestu Reach = Battestu BAT-4



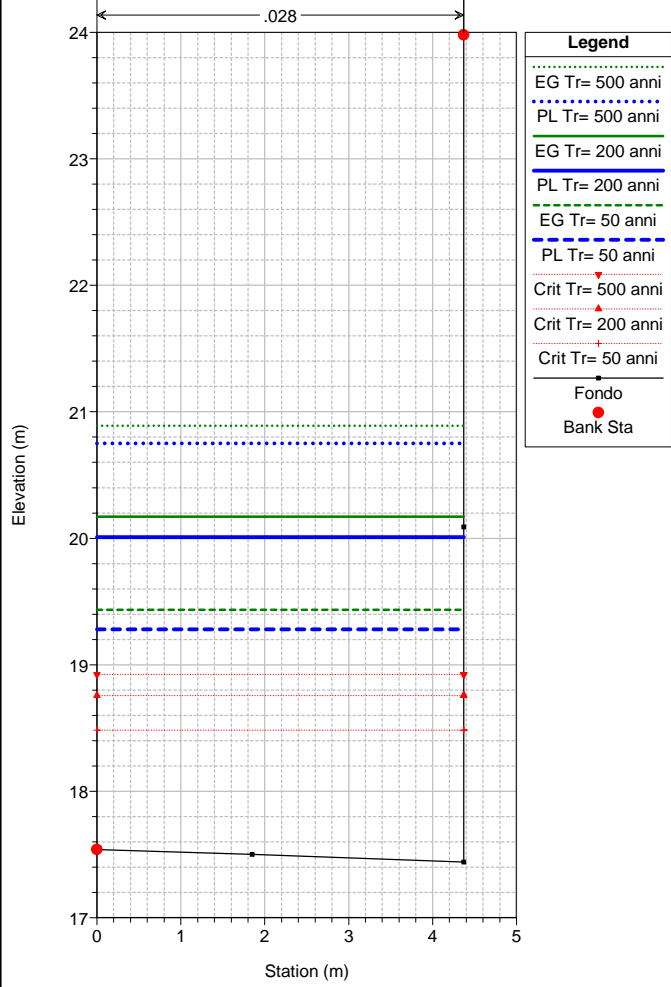
River = Battestu Reach = Battestu BAT-3



River = Battestu Reach = Battestu BAT-2



River = Battestu Reach = Battestu BAT-1



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)	Vel Chnl (m/s)	Vel Head (m)	E.G. Elev (m)	Froude # Chl	
Battestu	37	BAT-37	Tr= 50 anni	13.60	23.08	24.15	26.97	2.82	28.01	3.86	24.69	6.05	1.86	26.01	2.02
Battestu	37	BAT-37	Tr= 200 anni	19.60	23.08	24.43	26.97	2.54	28.01	3.58	25.10	6.63	2.24	26.67	1.93
Battestu	37	BAT-37	Tr= 500 anni	23.60	23.08	24.62	26.97	2.35	28.01	3.39	25.36	6.91	2.44	27.05	1.88
Battestu	36	BAT-36	Tr= 50 anni	13.60	22.86	23.93	30.23	6.30	27.77	3.84	24.47	6.08	1.88	25.81	2.05
Battestu	36	BAT-36	Tr= 200 anni	19.60	22.86	24.21	30.23	6.02	27.77	3.56	24.88	6.66	2.26	26.47	1.96
Battestu	36	BAT-36	Tr= 500 anni	23.60	22.86	24.39	30.23	5.84	27.77	3.38	25.13	6.96	2.47	26.85	1.91
Battestu	35	BAT-35	Tr= 50 anni	13.60	22.53	23.61	30.12	6.51	27.65	4.04	24.16	6.10	1.90	25.50	2.06
Battestu	35	BAT-35	Tr= 200 anni	19.60	22.53	23.89	30.12	6.23	27.65	3.76	24.56	6.69	2.28	26.16	1.97
Battestu	35	BAT-35	Tr= 500 anni	23.60	22.53	24.07	30.12	6.05	27.65	3.58	24.80	6.98	2.48	26.55	1.91
Battestu	34	BAT-34	Tr= 50 anni	13.60	22.22	23.32	30.00	6.68	27.63	4.31	23.87	6.08	1.89	25.20	2.04
Battestu	34	BAT-34	Tr= 200 anni	19.60	22.22	23.60	30.00	6.40	27.63	4.03	24.27	6.65	2.25	25.86	1.94
Battestu	34	BAT-34	Tr= 500 anni	23.60	22.22	25.59	30.00	4.41	27.63	2.04	24.52	2.98	0.45	26.04	0.57
Battestu	33	BAT-33	Tr= 50 anni	13.60	21.90	24.33	29.89	5.56	27.61	3.28	23.60	2.53	0.33	24.66	0.55
Battestu	33	BAT-33	Tr= 200 anni	19.60	21.90	25.10	29.89	4.79	27.61	2.51	24.00	2.70	0.37	25.47	0.50
Battestu	33	BAT-33	Tr= 500 anni	23.60	21.90	25.60	29.89	4.29	27.61	2.01	24.25	2.76	0.39	25.99	0.50
Battestu	32	BAT-32	Tr= 50 anni	13.60	21.58	24.35	29.77	5.42	27.59	3.24	23.35	2.26	0.26	24.61	0.46
Battestu	32	BAT-32	Tr= 200 anni	19.60	21.58	25.11	29.77	4.66	27.59	2.48	23.75	2.48	0.31	25.42	0.44
Battestu	32	BAT-32	Tr= 500 anni	23.60	21.58	25.61	29.77	4.17	27.59	1.98	24.00	2.58	0.34	25.94	0.44
Battestu	31	BAT-31	Tr= 50 anni	13.60	21.62	24.32	29.66	5.34	27.56	3.24	23.32	2.26	0.26	24.58	0.46
Battestu	31	BAT-31	Tr= 200 anni	19.60	21.62	25.08	29.66	4.58	27.56	2.48	23.73	2.49	0.32	25.40	0.44
Battestu	31	BAT-31	Tr= 500 anni	23.60	21.62	25.57	29.66	4.09	27.56	1.99	23.98	2.60	0.34	25.92	0.44
Battestu	30	BAT-30	Tr= 50 anni	13.60	21.86	24.16	29.55	5.39	27.54	3.38	23.57	2.74	0.38	24.54	0.61
Battestu	30	BAT-30	Tr= 200 anni	19.60	21.86	24.94	29.55	4.62	27.54	2.60	23.99	2.87	0.42	25.35	0.55
Battestu	30	BAT-30	Tr= 500 anni	23.60	21.86	25.44	29.55	4.11	27.54	2.10	24.24	2.93	0.44	25.87	0.51
Battestu	29	BAT-29	Tr= 50 anni	13.60	22.06	23.96	29.43	5.47	27.52	3.56	23.67	3.19	0.52	24.48	0.76
Battestu	29	BAT-29	Tr= 200 anni	19.60	22.06	24.81	29.43	4.62	27.52	2.71	24.08	3.11	0.49	25.30	0.61
Battestu	29	BAT-29	Tr= 500 anni	23.60	22.06	25.33	29.43	4.10	27.52	2.19	24.32	3.13	0.50	25.83	0.56
Battestu	28	BAT-28	Tr= 50 anni	13.60	21.87	24.01	29.32	5.31	27.79	3.78	23.43	2.72	0.38	24.38	0.61
Battestu	28	BAT-28	Tr= 200 anni	19.60	21.87	24.83	29.32	4.49	27.79	2.96	23.83	2.79	0.40	25.23	0.53
Battestu	28	BAT-28	Tr= 500 anni	23.60	21.87	25.34	29.32	3.98	27.79	2.45	24.08	2.86	0.42	25.76	0.50
Battestu	27	BAT-27	Tr= 50 anni	13.60	21.45	24.00	29.26	5.26	28.06	4.06	23.11	2.55	0.33	24.33	0.52
Battestu	27	BAT-27	Tr= 200 anni	19.60	21.45	24.80	29.26	4.46	28.06	3.26	23.55	2.78	0.39	25.19	0.49
Battestu	27	BAT-27	Tr= 500 anni	23.60	21.45	25.31	29.26	3.95	28.06	2.75	23.82	2.84	0.41	25.72	0.53
Battestu	26	BAT-26	Tr= 50 anni	13.60	21.28	23.66	29.12	5.46	27.88	4.22	23.17	3.41	0.59	24.25	0.71
Battestu	26	BAT-26	Tr= 200 anni	19.60	21.28	24.37	29.12	4.75	27.88	3.51	23.69	3.77	0.72	25.10	0.69
Battestu	26	BAT-26	Tr= 500 anni	23.60	21.28	24.82	29.12	4.30	27.88	3.06	24.01	3.95	0.80	25.62	0.71
Battestu	25	BAT-25	Tr= 50 anni	13.60	21.17	23.32	28.87	5.55	27.71	4.39	23.12	3.98	0.81	24.13	0.87

HEC-RAS Plan: Current mode River: Battestu Reach: Battestu (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)	Vel Chnl (m/s)	Vel Head (m)	E.G. Elev (m)	Froude # Chl	
Battestu	25	BAT-25	Tr= 200 anni	19.60	21.17	23.96	28.87	4.91	27.71	3.75	23.66	4.41	0.99	24.96	0.84
Battestu	25	BAT-25	Tr= 500 anni	23.60	21.17	24.36	28.87	4.51	27.71	3.35	23.99	4.66	1.10	25.46	0.83
Battestu	24	BAT-24	Tr= 50 anni	13.60	21.06	23.00	28.61	5.61	27.54	4.54	23.00	4.36	0.97	23.97	1.00
Battestu	24	BAT-24	Tr= 200 anni	19.60	21.06	23.53	28.61	5.08	27.54	4.01	23.53	4.92	1.23	24.77	1.00
Battestu	24	BAT-24	Tr= 500 anni	23.60	21.06	23.86	28.61	4.75	27.54	3.68	23.86	5.24	1.40	25.26	1.00
Battestu	23	BAT-23	Tr= 50 anni	13.60	20.94	22.17	28.35	6.18	27.42	5.25	22.61	5.51	1.54	23.71	1.63
Battestu	23	BAT-23	Tr= 200 anni	19.60	20.94	22.48	28.35	5.87	27.42	4.94	23.06	6.24	1.98	24.47	1.64
Battestu	23	BAT-23	Tr= 500 anni	23.60	20.94	22.68	28.35	5.67	27.42	4.74	23.33	6.65	2.25	24.93	1.64
Battestu	22	BAT-22	Tr= 50 anni	13.60	20.84	22.58	27.91	5.33	27.32	4.74	22.58	4.06	0.84	23.42	1.00
Battestu	22	BAT-22	Tr= 200 anni	19.60	20.84	23.04	27.91	4.87	27.32	4.28	23.04	4.58	1.07	24.11	1.00
Battestu	22	BAT-22	Tr= 500 anni	23.60	20.84	23.33	27.91	4.58	27.32	3.99	23.33	4.87	1.21	24.54	1.00
Battestu	21	BAT-21	Tr= 50 anni	13.60	20.80	22.01	22.33	0.32	27.29	5.28	22.34	4.89	1.22	23.23	1.43
Battestu	21	BAT-21	Tr= 200 anni	19.60	20.80	22.34	22.33	-0.01	27.29	4.95	22.75	5.53	1.56	23.90	1.43
Battestu	21	BAT-21	Tr= 500 anni	23.60	20.80	22.54	22.33	-0.21	27.29	4.75	23.01	5.87	1.76	24.30	1.43
Battestu	20	BAT-20	Tr= 50 anni	13.60	20.75	22.14	22.21	0.07	27.24	5.10	22.25	4.09	0.85	22.99	1.13
Battestu	20	BAT-20	Tr= 200 anni	19.60	20.75	22.54	22.21	-0.33	27.24	4.70	22.65	4.55	1.05	23.59	1.10
Battestu	20	BAT-20	Tr= 500 anni	23.60	20.75	22.67	22.21	-0.46	27.24	4.57	23.03	5.09	1.32	23.99	1.19
Battestu	19	BAT-19	Tr= 50 anni	13.60	20.68	21.79	22.12	0.33	27.17	5.38	22.06	4.54	1.05	22.84	1.41
Battestu	19	BAT-19	Tr= 200 anni	19.60	20.68	22.09	22.12	0.03	27.17	5.08	22.43	5.13	1.34	23.42	1.40
Battestu	19	BAT-19	Tr= 500 anni	23.60	20.68	22.24	22.12	-0.12	27.17	4.93	22.65	5.53	1.56	23.80	1.44
Battestu	18	BAT-18	Tr= 50 anni	13.60	20.56	21.69	21.97	0.28	27.05	5.36	21.93	4.40	0.99	22.67	1.36
Battestu	18	BAT-18	Tr= 200 anni	19.60	20.56	21.98	21.97	-0.01	27.05	5.07	22.29	4.98	1.26	23.24	1.37
Battestu	18	BAT-18	Tr= 500 anni	23.60	20.56	22.14	21.97	-0.17	27.05	4.91	22.51	5.35	1.46	23.60	1.39
Battestu	17	BAT-17	Tr= 50 anni	13.60	20.40	21.66	21.79	0.13	26.89	5.23	21.81	4.08	0.85	22.51	1.21
Battestu	17	BAT-17	Tr= 200 anni	19.60	20.40	22.05	21.79	-0.26	26.89	4.84	22.18	4.40	0.99	23.04	1.13
Battestu	17	BAT-17	Tr= 500 anni	23.60	20.40	22.24	21.79	-0.45	26.89	4.65	22.62	4.72	1.14	23.37	1.14
Battestu	16	BAT-16	Tr= 50 anni	13.60	20.45	21.03	21.77	0.74	26.94	5.91	21.39	4.95	1.25	22.28	2.28
Battestu	16	BAT-16	Tr= 200 anni	19.60	20.45	21.16	21.77	0.61	26.94	5.78	21.62	5.66	1.63	22.79	2.32
Battestu	16	BAT-16	Tr= 500 anni	23.60	20.45	21.23	21.77	0.54	26.94	5.71	21.76	6.08	1.88	23.11	2.35
Battestu	15	BAT-15	Tr= 50 anni	13.60	20.01	20.96	21.82	0.86	26.34	5.38	21.25	4.41	0.99	21.95	1.84
Battestu	15	BAT-15	Tr= 200 anni	19.60	20.01	21.10	21.82	0.72	26.34	5.24	21.50	5.12	1.34	22.44	1.92
Battestu	15	BAT-15	Tr= 500 anni	23.60	20.01	21.19	21.82	0.63	26.34	5.15	21.64	5.53	1.56	22.74	1.96
Battestu	14	BAT-14	Tr= 50 anni	13.60	19.67	20.72	25.80	5.08	25.97	5.25	21.03	4.48	1.02	21.75	1.73
Battestu	14	BAT-14	Tr= 200 anni	19.60	19.67	20.91	25.80	4.89	25.97	5.06	21.30	5.07	1.31	22.22	1.73
Battestu	14	BAT-14	Tr= 500 anni	23.60	19.67	21.03	25.80	4.77	25.97	4.94	21.46	5.39	1.48	22.51	1.73
Battestu	13	BAT-13	Tr= 50 anni	13.60	19.42	20.50	25.51	5.01	25.81	5.31	20.81	4.56	1.06	21.56	1.67
Battestu	13	BAT-13	Tr= 200 anni	19.60	19.42	20.72	25.51	4.79	25.81	5.09	21.11	5.08	1.32	22.04	1.63

HEC-RAS Plan: Current mode River: Battestu Reach: Battestu (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)	Vel Chnl (m/s)	Vel Head (m)	E.G. Elev (m)	Froude # Chl	
Battestu	13	BAT-13	Tr= 500 anni	23.60	19.42	20.87	25.51	4.64	25.81	4.94	21.29	5.33	1.45	22.32	1.60
Battestu	12	BAT-12	Tr= 50 anni	13.60	19.22	20.22	24.85	4.63	25.51	5.29	20.56	4.76	1.15	21.37	1.64
Battestu	12	BAT-12	Tr= 200 anni	19.60	19.22	20.50	24.85	4.35	25.51	5.01	20.89	5.16	1.36	21.86	1.54
Battestu	12	BAT-12	Tr= 500 anni	23.60	19.22	20.69	24.85	4.16	25.51	4.82	21.09	5.36	1.46	22.15	1.49
Battestu	11	BAT-11	Tr= 50 anni	13.60	19.02	19.99	22.26	2.27	25.53	5.54	20.34	4.84	1.19	21.18	1.63
Battestu	11	BAT-11	Tr= 200 anni	19.60	19.02	20.29	22.26	1.97	25.53	5.24	20.68	5.24	1.40	21.69	1.53
Battestu	11	BAT-11	Tr= 500 anni	23.60	19.02	20.48	22.26	1.78	25.53	5.05	20.89	5.42	1.50	21.98	1.47
Battestu	10	BAT-10	Tr= 50 anni	13.60	18.55	19.48	19.39	-0.09	25.66	6.18	19.90	5.34	1.45	20.93	2.13
Battestu	10	BAT-10	Tr= 200 anni	19.60	18.55	19.68	19.39	-0.29	25.66	5.98	20.19	5.88	1.76	21.44	2.05
Battestu	10	BAT-10	Tr= 500 anni	23.60	18.55	19.81	19.39	-0.42	25.66	5.85	20.37	6.15	1.93	21.73	2.00
Battestu	9	BAT-9	Tr= 50 anni	13.60	18.50	19.37	19.40	0.03	25.17	5.80	19.70	4.79	1.17	20.54	2.24
Battestu	9	BAT-9	Tr= 200 anni	19.60	18.50	19.48	19.40	-0.08	25.17	5.69	19.92	5.62	1.61	21.09	2.37
Battestu	9	BAT-9	Tr= 500 anni	23.60	18.50	19.55	19.40	-0.15	25.17	5.62	20.06	6.05	1.86	21.41	2.42
Battestu	8	BAT-8	Tr= 50 anni	13.60	18.56	19.30	19.47	0.17	25.33	6.03	19.56	4.17	0.89	20.19	1.91
Battestu	8	BAT-8	Tr= 200 anni	19.60	18.56	19.39	19.47	0.08	25.33	5.94	19.77	5.03	1.29	20.68	2.11
Battestu	8	BAT-8	Tr= 500 anni	23.60	18.56	20.79	19.47	-1.32	25.33	4.54	19.89	1.78	0.16	20.95	0.40
Battestu	7	BAT-7	Tr= 50 anni	13.60	18.58	19.14	19.54	0.40	25.22	6.08	19.37	3.96	0.80	19.94	1.91
Battestu	7	BAT-7	Tr= 200 anni	19.60	18.58	20.07	19.54	-0.53	25.22	5.15	19.56	1.82	0.17	20.24	0.50
Battestu	7	BAT-7	Tr= 500 anni	23.60	18.58	20.82	19.54	-1.28	25.22	4.40	19.67	1.42	0.10	20.93	0.31
Battestu	6	BAT-6	Tr= 50 anni	13.60	18.55	19.06	19.59	0.53	25.09	6.03	19.25	3.57	0.65	19.71	1.66
Battestu	6	BAT-6	Tr= 200 anni	19.60	18.55	20.09	19.59	-0.50	25.09	5.00	19.43	1.62	0.13	20.22	0.42
Battestu	6	BAT-6	Tr= 500 anni	23.60	18.55	20.83	19.59	-1.24	25.09	4.26	19.54	1.30	0.09	20.92	0.28
Battestu	5	BAT-5	Tr= 50 anni	13.60	18.36	18.89	19.32	0.43	24.90	6.01	19.08	3.61	0.66	19.55	1.62
Battestu	5	BAT-5	Tr= 200 anni	19.60	18.36	20.09	19.32	-0.77	24.90	4.81	19.28	1.55	0.12	20.21	0.38
Battestu	5	BAT-5	Tr= 500 anni	23.60	18.36	20.83	19.32	-1.51	24.90	4.07	19.39	1.30	0.09	20.91	0.27
Battestu	4	BAT-4	Tr= 50 anni	13.60	18.15	19.33	18.96	-0.37	24.70	5.37	18.90	1.68	0.14	19.48	0.50
Battestu	4	BAT-4	Tr= 200 anni	19.60	18.15	20.09	18.96	-1.13	24.70	4.61	19.10	1.47	0.11	20.20	0.34
Battestu	4	BAT-4	Tr= 500 anni	23.60	18.15	20.82	18.96	-1.86	24.70	3.88	19.22	1.28	0.08	20.91	0.25
Battestu	3	BAT-3	Tr= 50 anni	13.60	17.95	19.34	18.61	-0.73	24.34	5.00	18.72	1.53	0.12	19.46	0.41
Battestu	3	BAT-3	Tr= 200 anni	19.60	17.95	20.09	18.61	-1.48	24.34	4.25	18.94	1.44	0.11	20.19	0.31
Battestu	3	BAT-3	Tr= 500 anni	23.60	17.95	20.82	18.61	-2.21	24.34	3.52	19.07	1.29	0.08	20.90	0.24
Battestu	2	BAT-2	Tr= 50 anni	13.60	17.64	19.34	17.64	-1.70	24.24	4.90	18.57	1.48	0.11	19.45	0.38
Battestu	2	BAT-2	Tr= 200 anni	19.60	17.64	20.08	17.64	-2.44	24.24	4.16	18.80	1.46	0.11	20.18	0.31
Battestu	2	BAT-2	Tr= 500 anni	23.60	17.64	20.81	17.64	-3.17	24.24	3.43	18.94	1.34	0.09	20.90	0.24
Battestu	1	BAT-1	Tr= 50 anni	13.60	17.44	19.28	17.54	-1.74	23.98	4.70	18.48	1.74	0.15	19.43	0.42
Battestu	1	BAT-1	Tr= 200 anni	19.60	17.44	20.01	17.54	-2.47	23.98	3.97	18.76	1.78	0.16	20.17	0.36
Battestu	1	BAT-1	Tr= 500 anni	23.60	17.44	20.75	17.54	-3.21	23.98	3.23	18.92	1.66	0.14	20.89	0.29

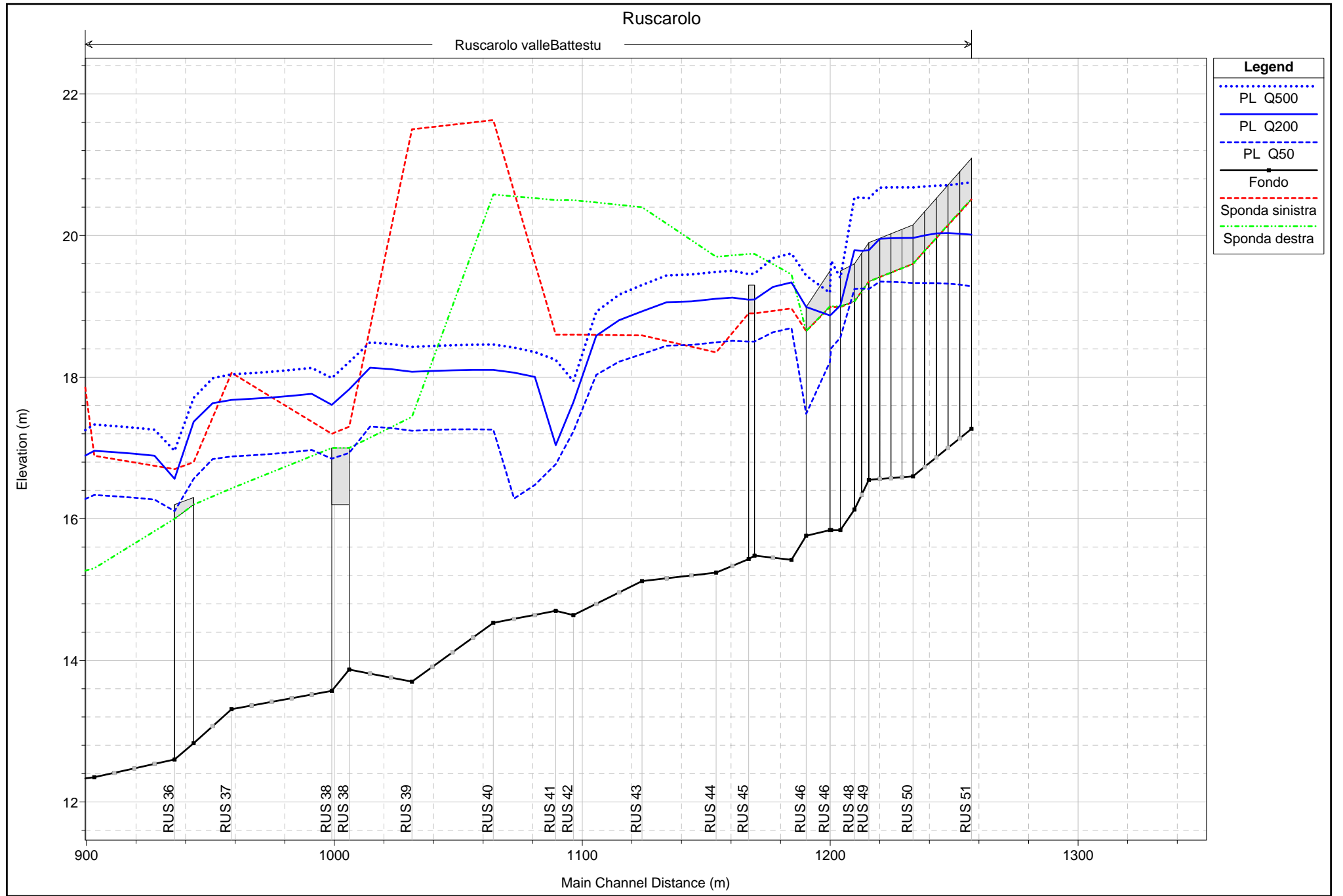
## **Allegato A**

### **Verifiche idrauliche**

#### **Rio Ruscarolo**

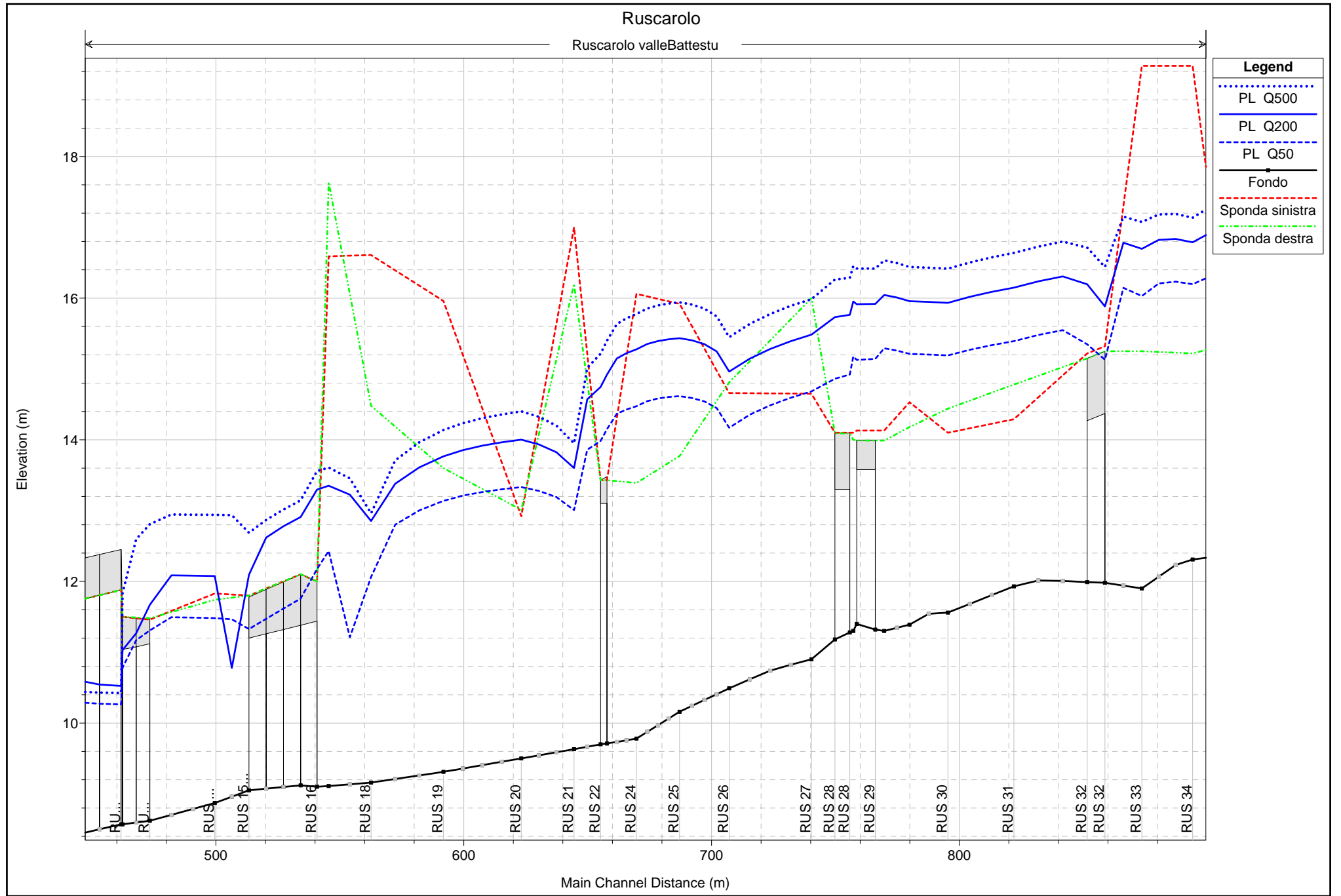
- tratto a valle del fosso Battestu -

- Profilo longitudinale
- Sezioni trasversali
- Tabelle di calcolo



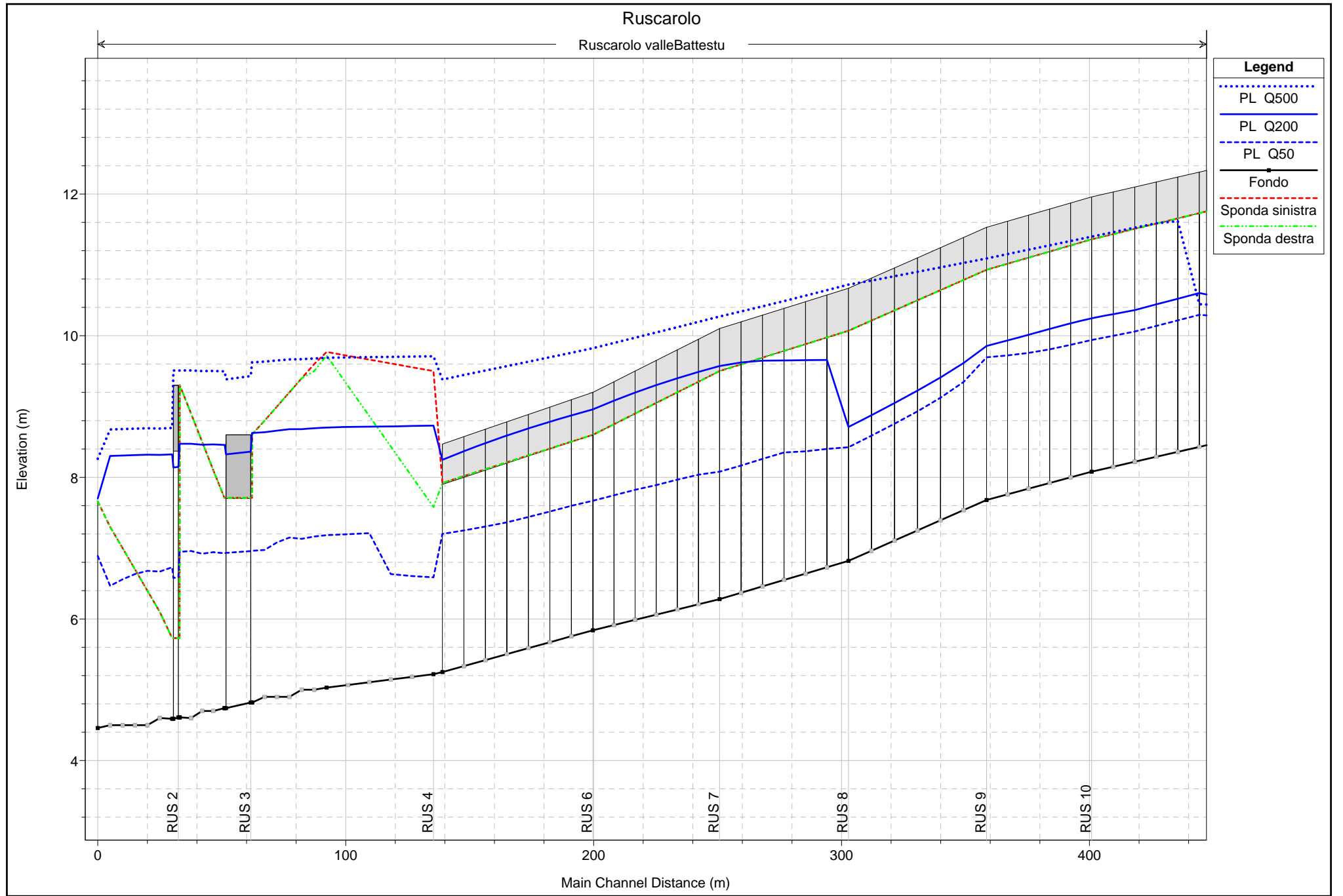
1 cm Horiz. = 20 m    1 cm Vert. = 0.7 m





Legend	
	PL Q500
	PL Q200
	PL Q50
	Fondo
	Sponda sinistra
	Sponda destra

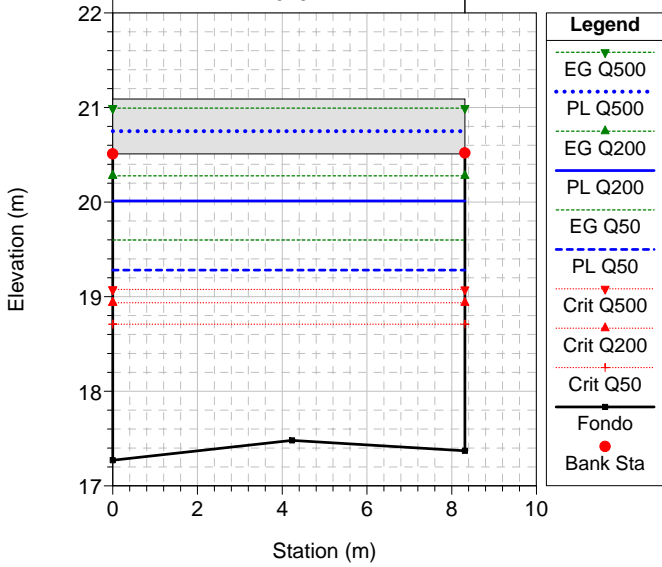
1 cm Horiz. = 20 m    1 cm Vert. = 0.7 m



1 cm Horiz. = 20 m    1 cm Vert. = 0.7 m

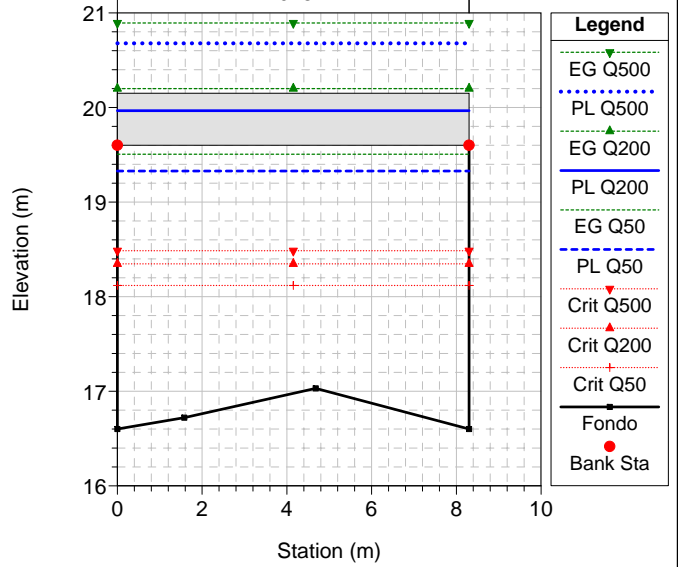
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 51



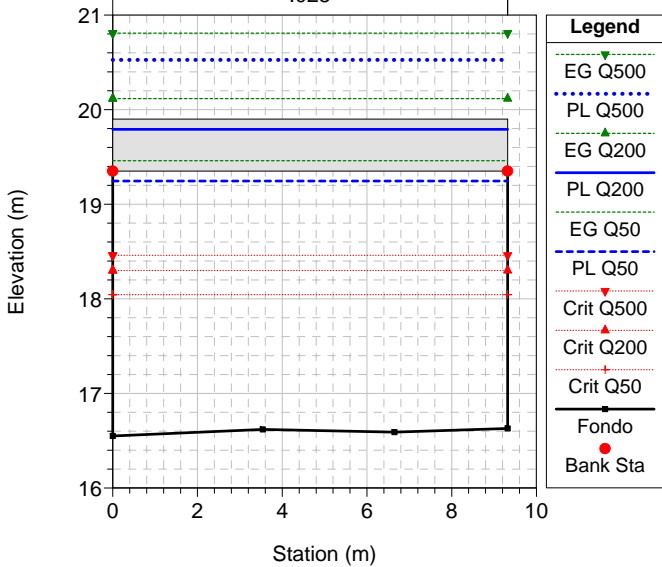
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 50



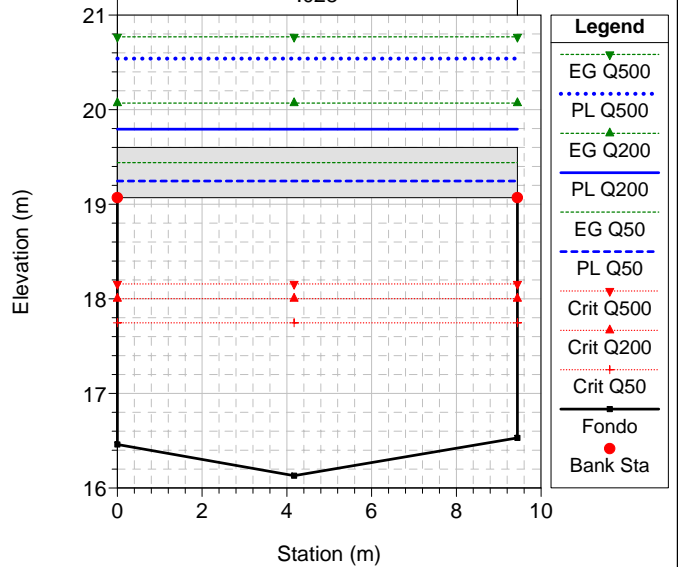
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 49



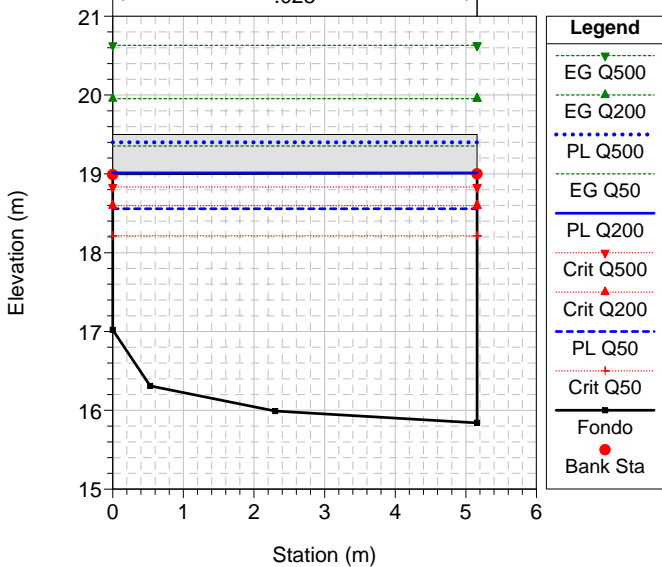
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 48



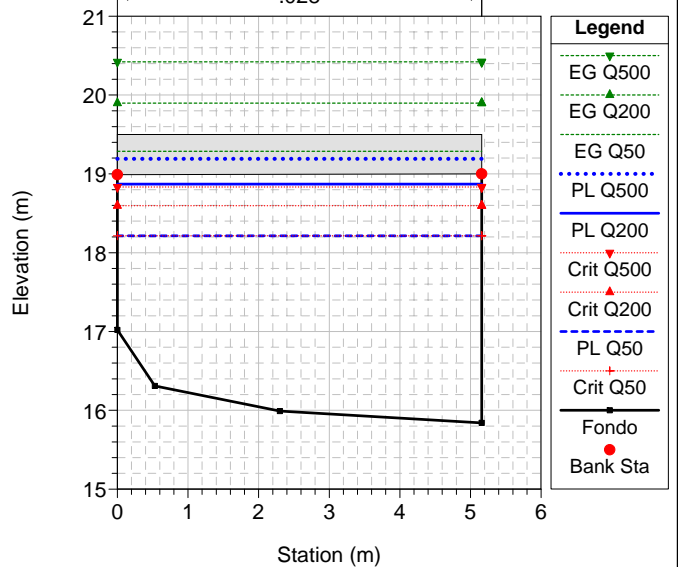
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 47



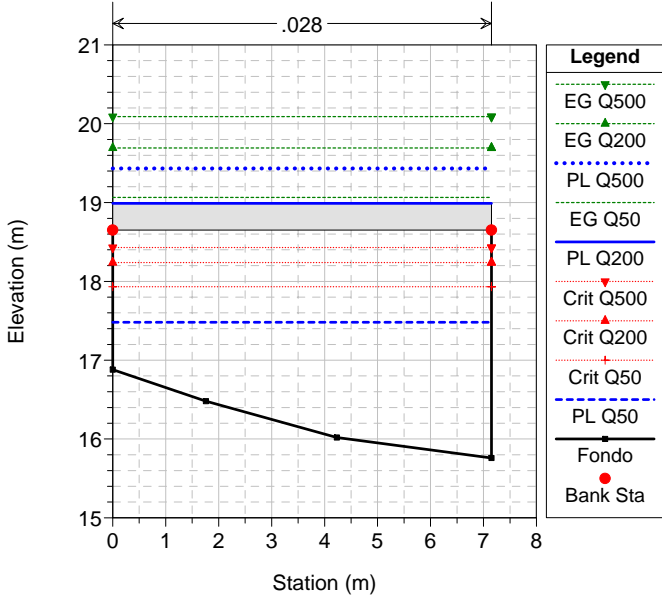
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 46



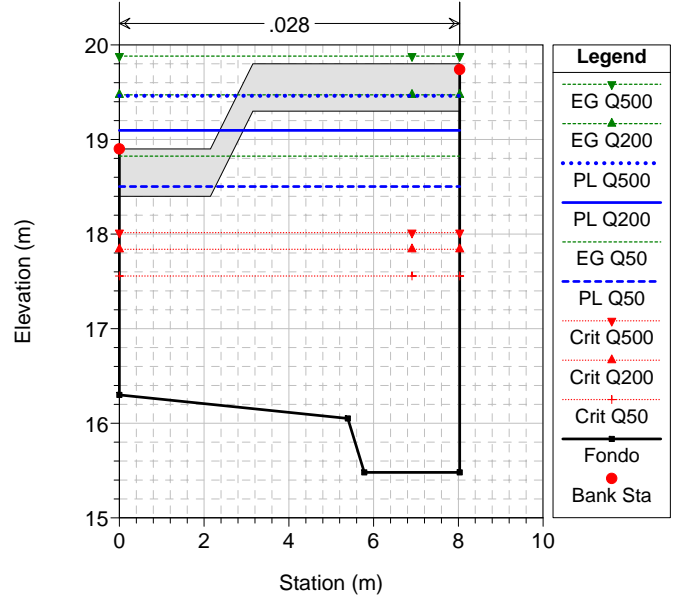
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 46



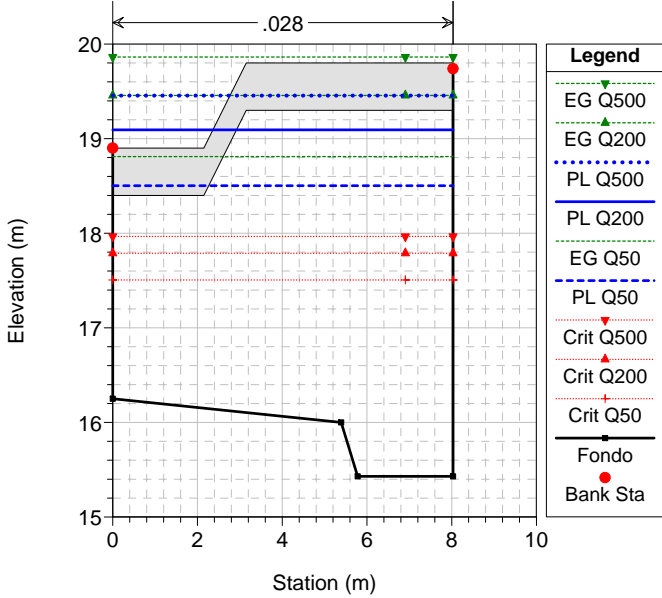
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 45



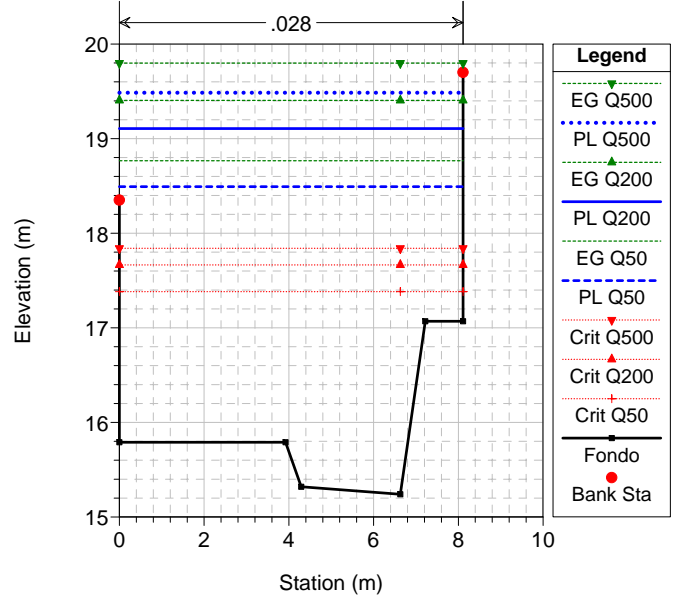
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 45



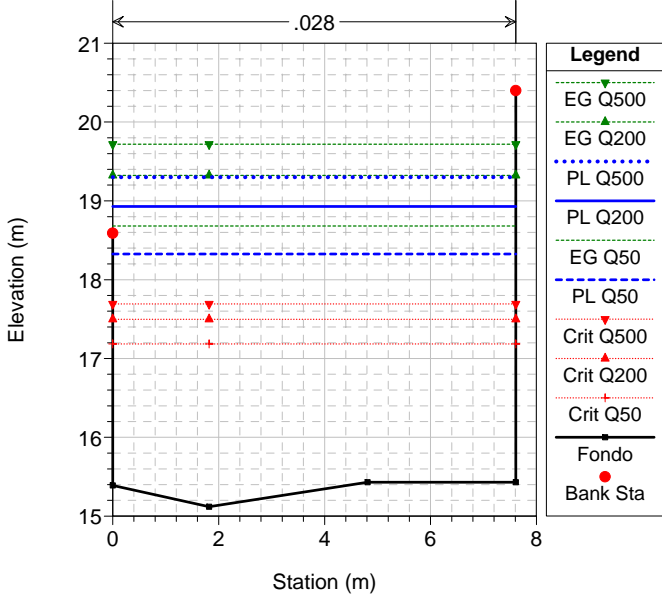
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 44



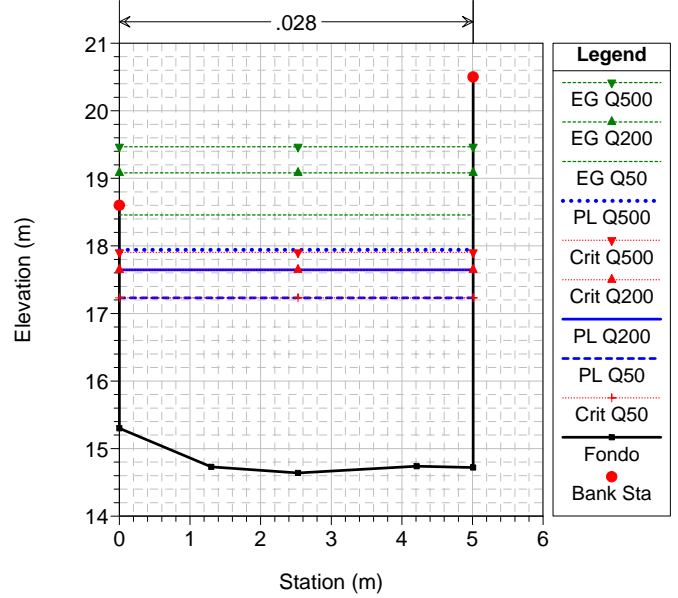
### Ruscarolo

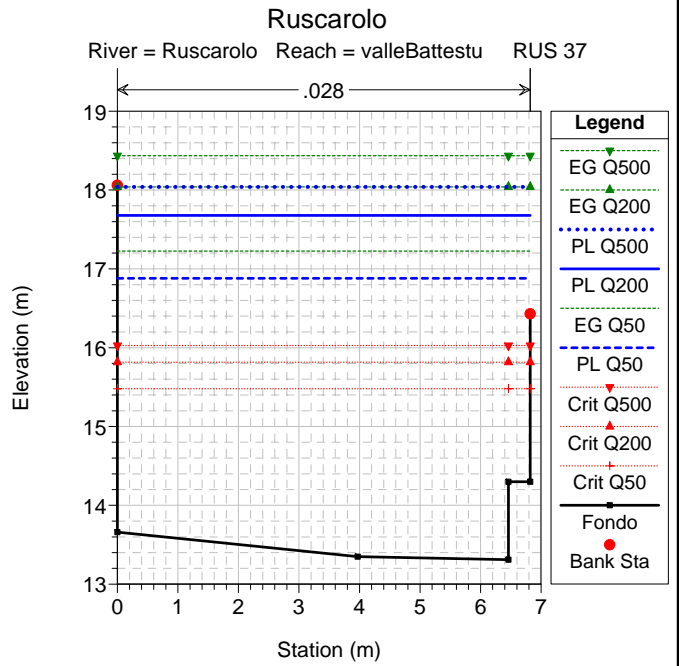
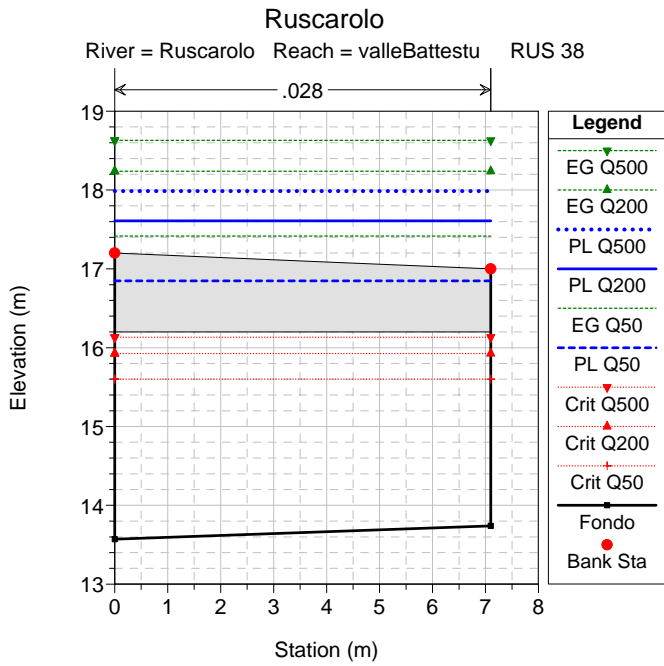
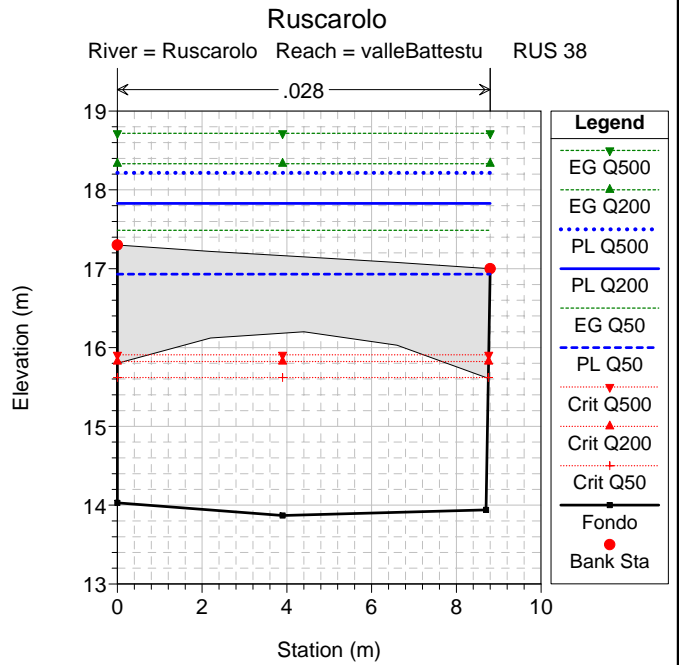
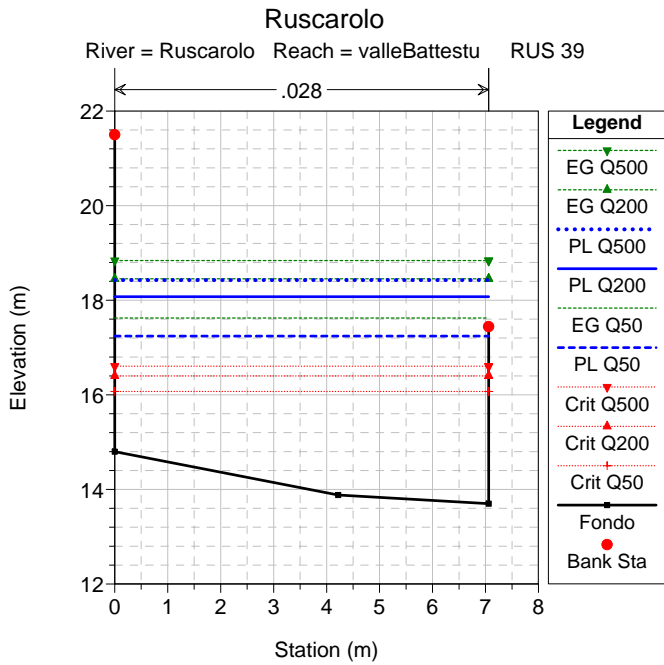
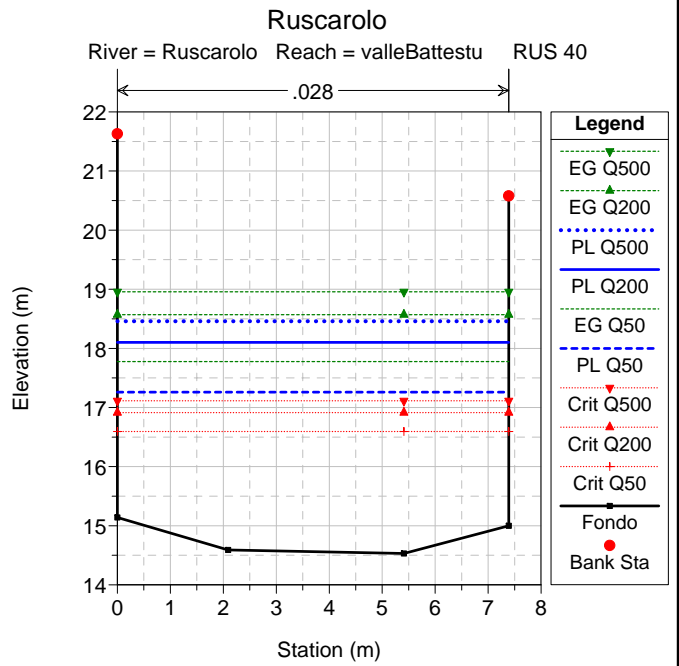
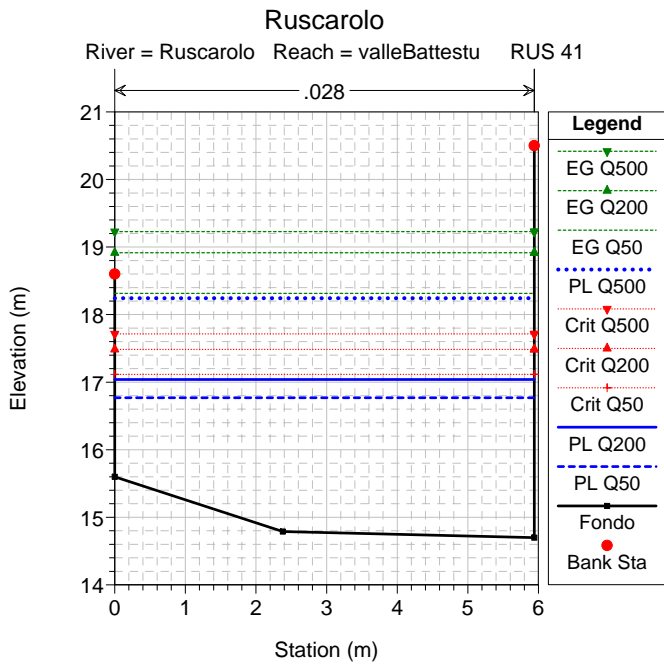
River = Ruscarolo Reach = valleBattestu RUS 43



### Ruscarolo

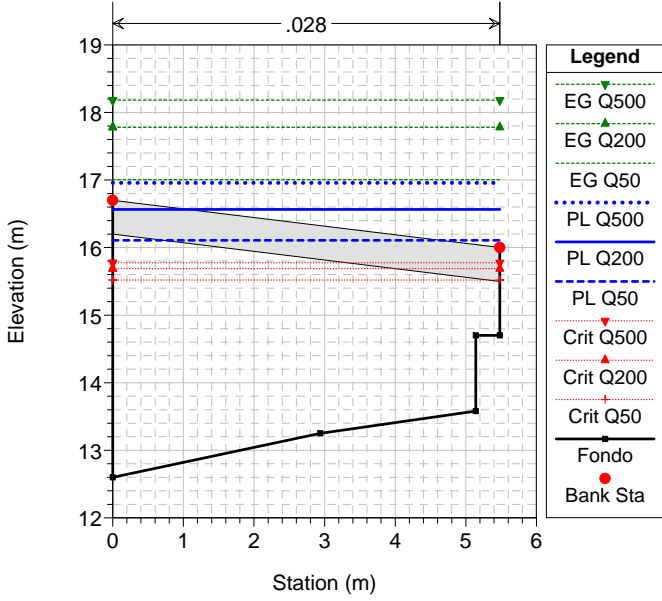
River = Ruscarolo Reach = valleBattestu RUS 42





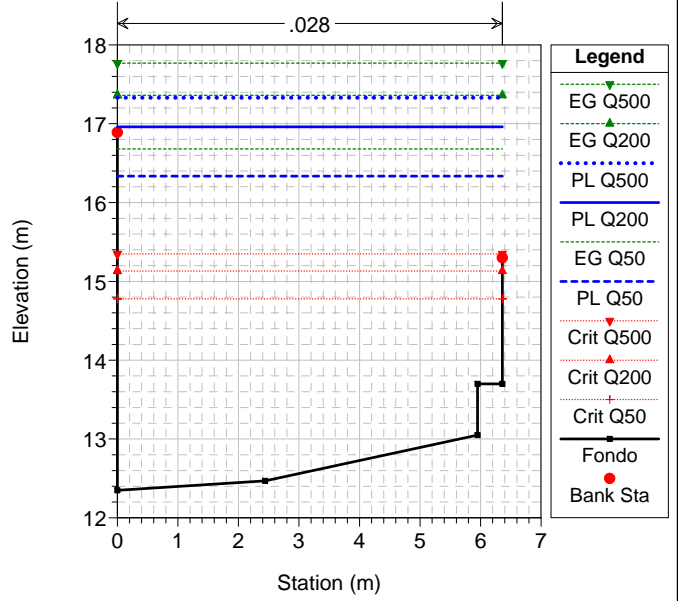
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 36



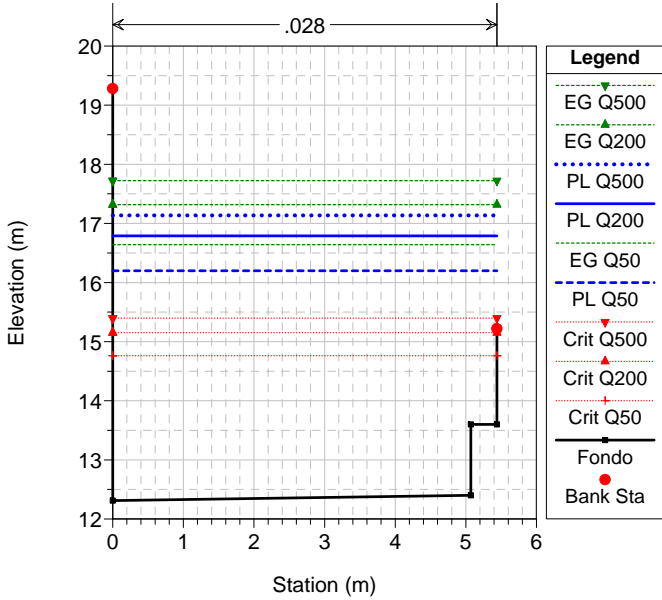
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 35



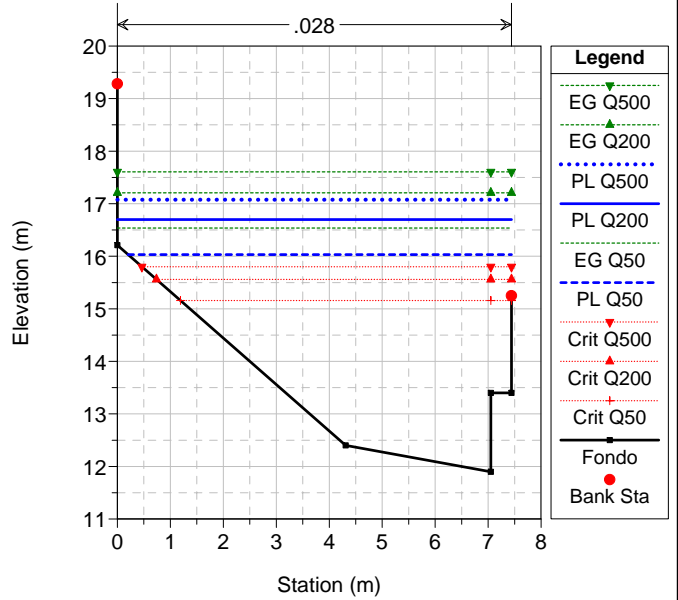
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 34



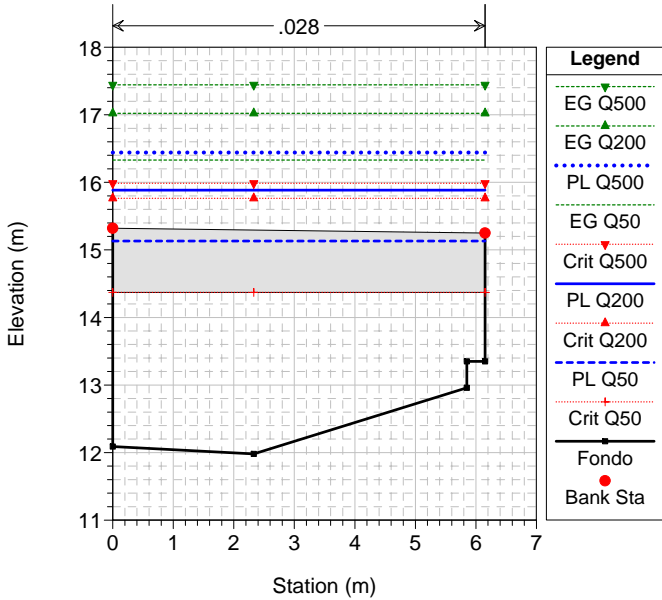
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 33



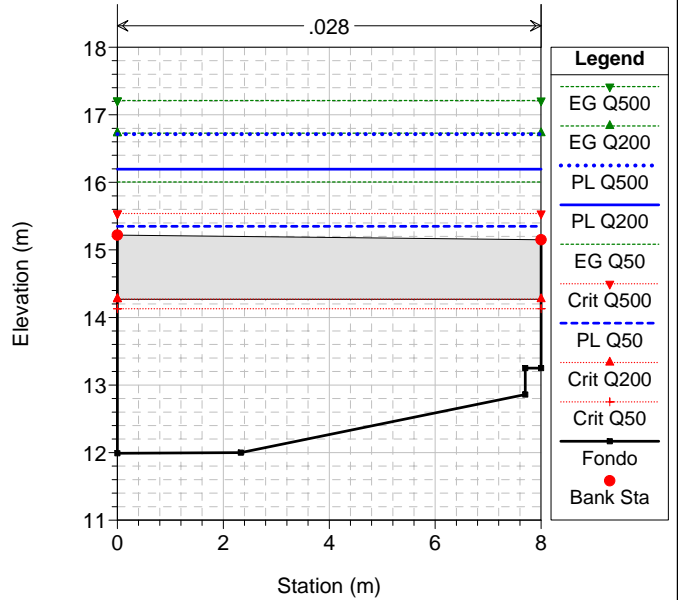
### Ruscarolo

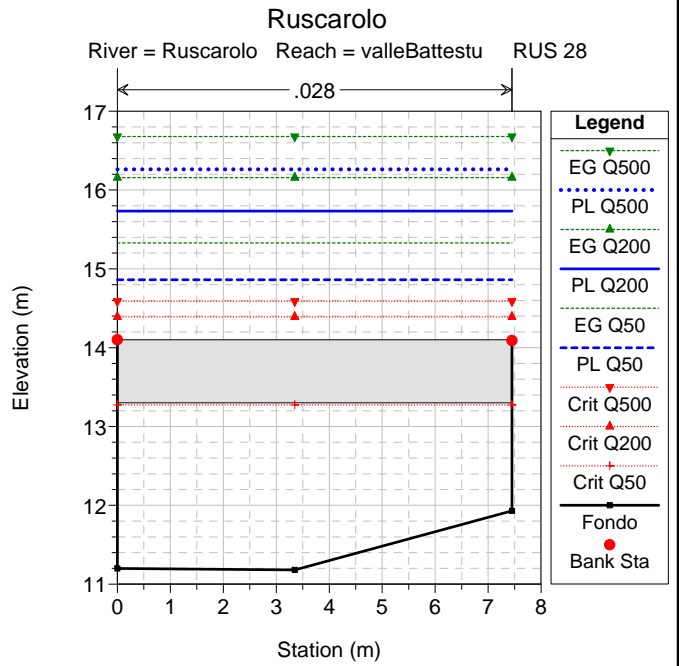
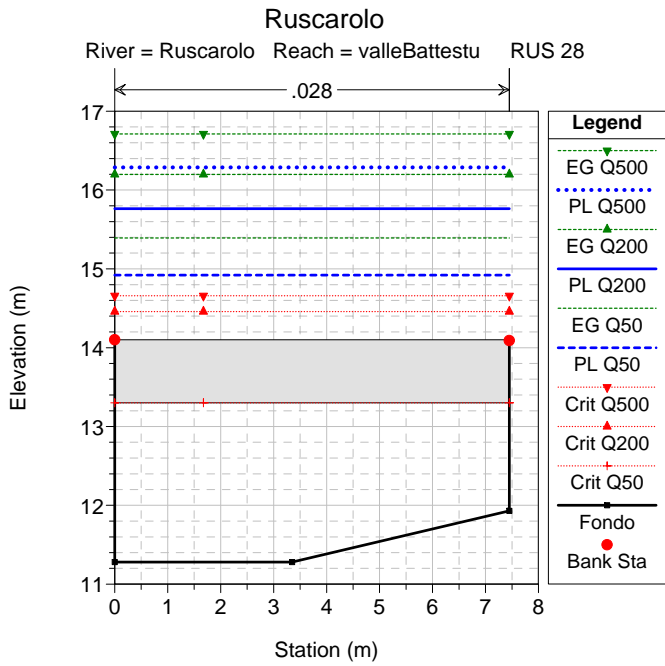
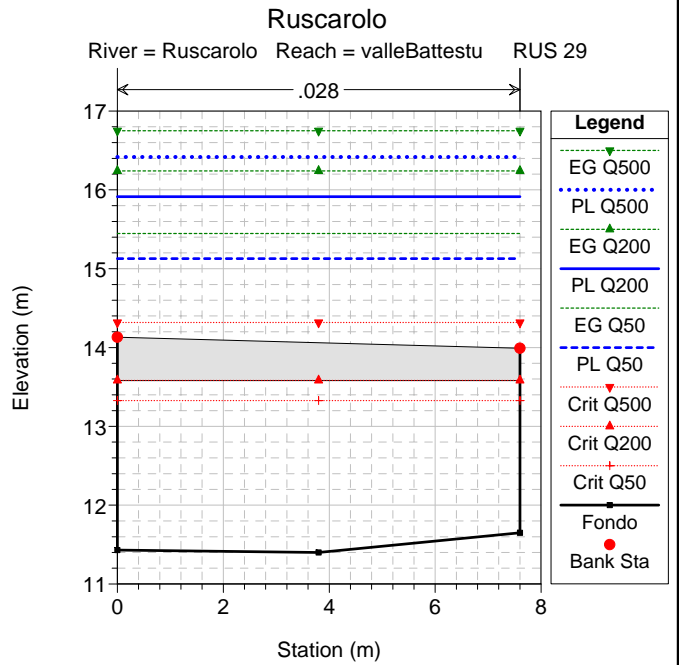
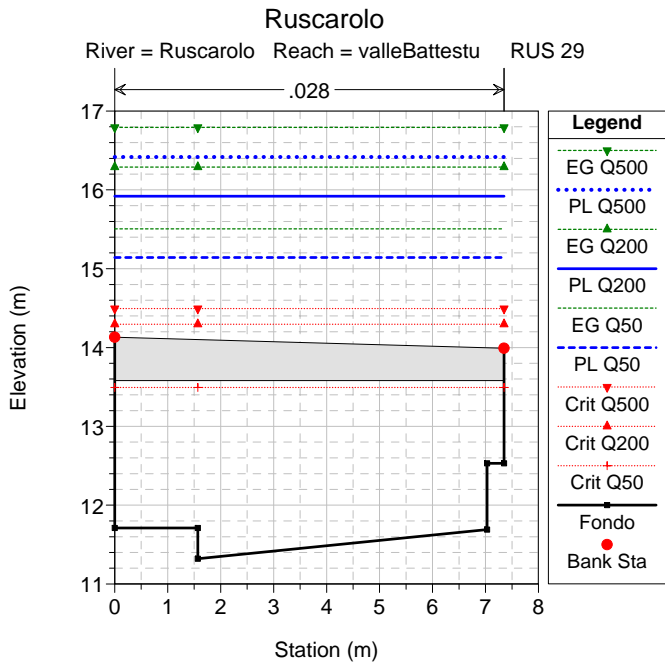
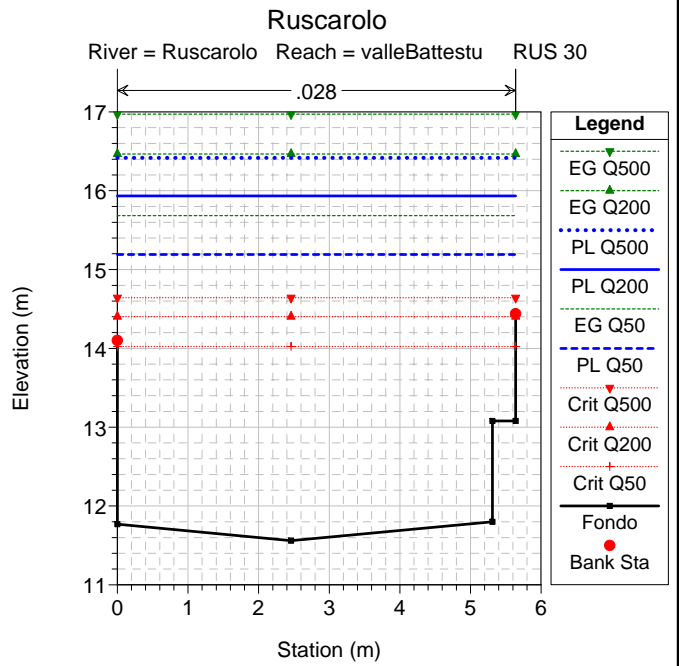
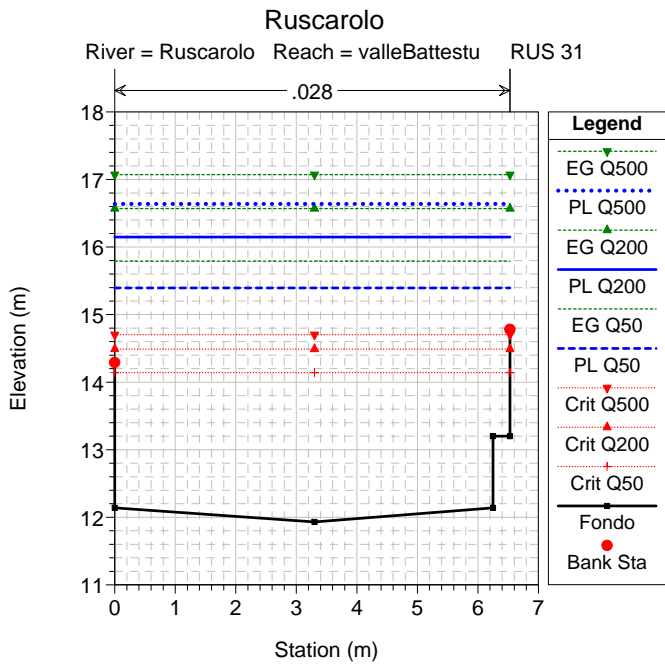
River = Ruscarolo Reach = valleBattestu RUS 32



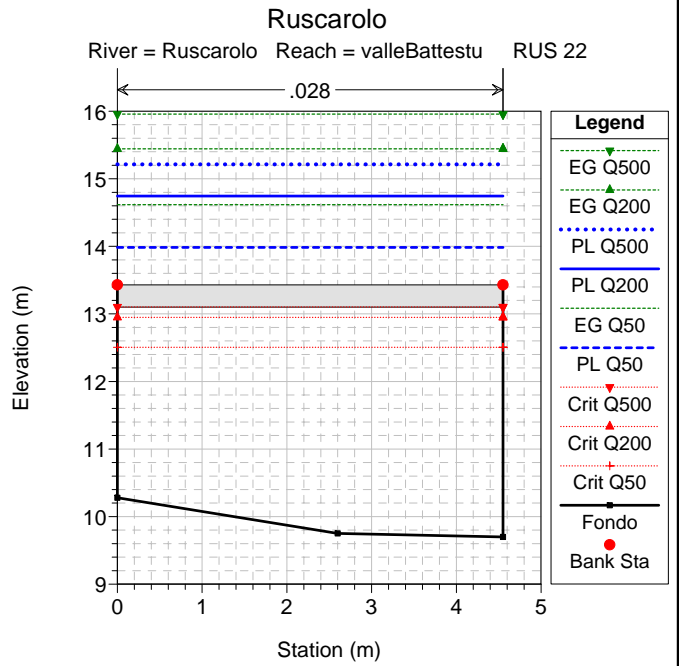
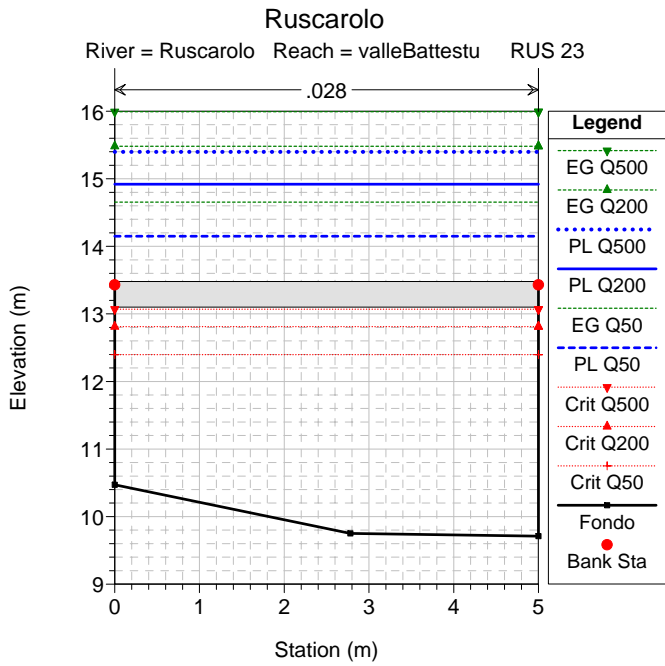
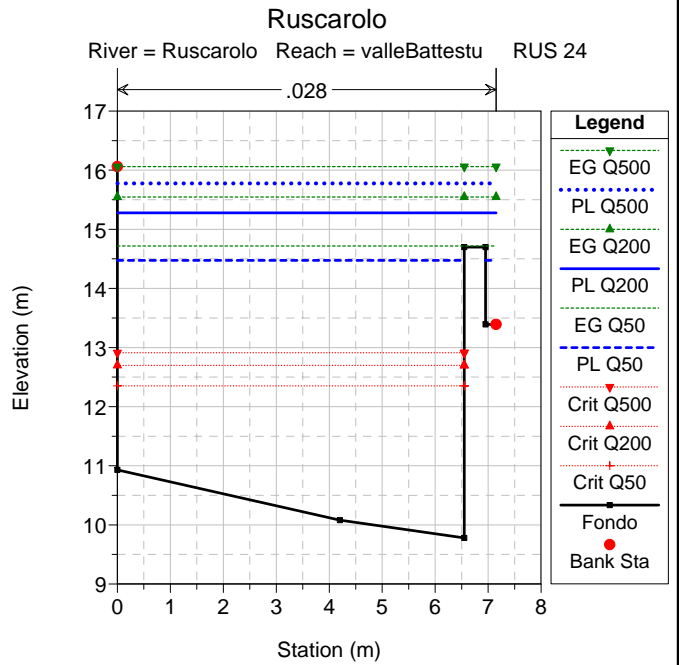
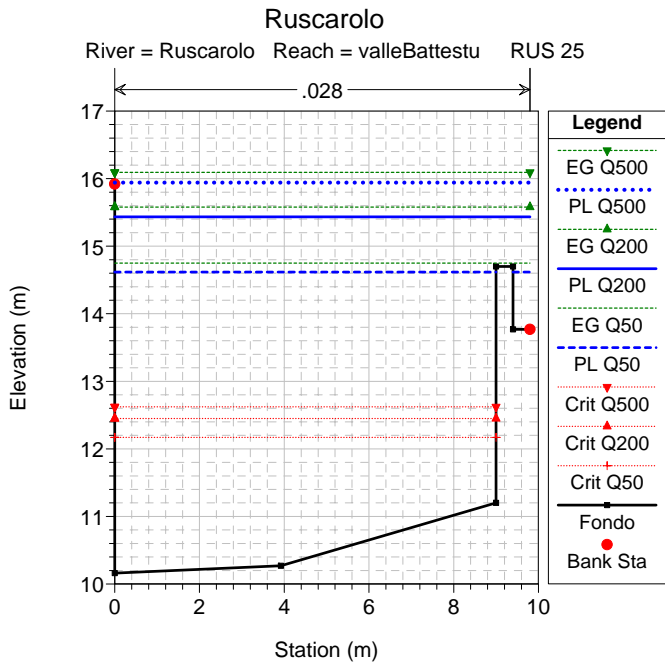
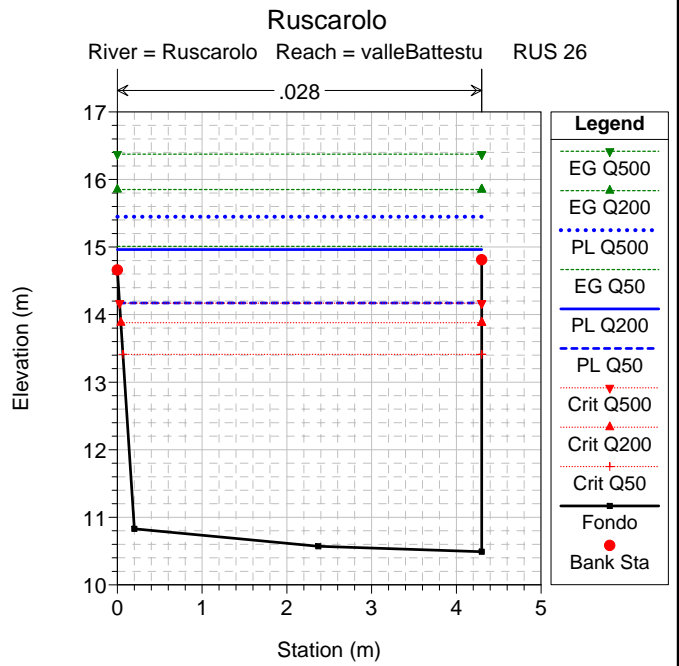
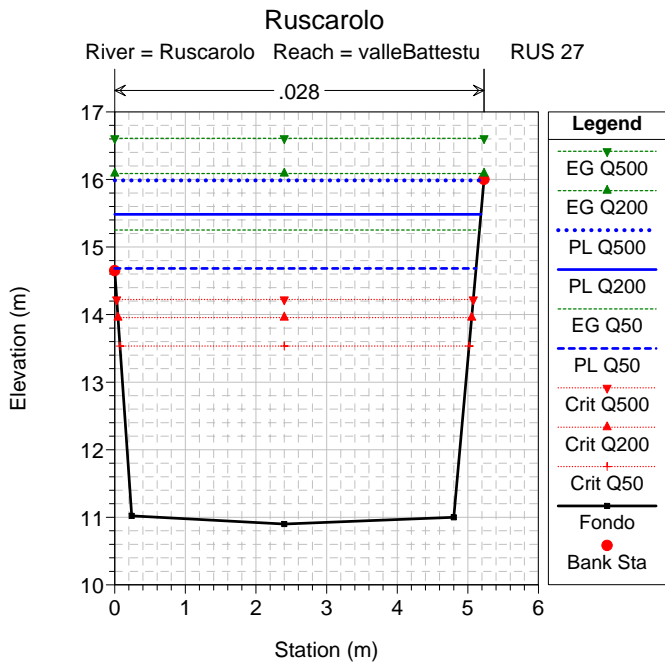
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 32

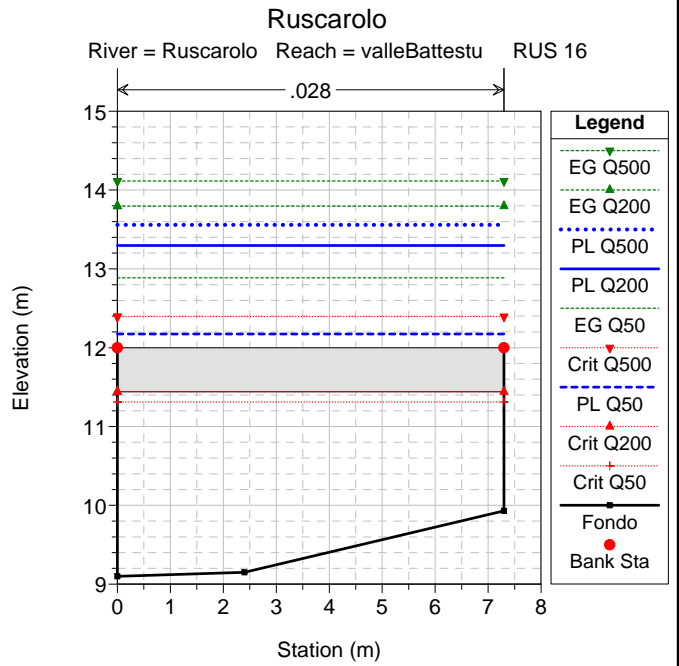
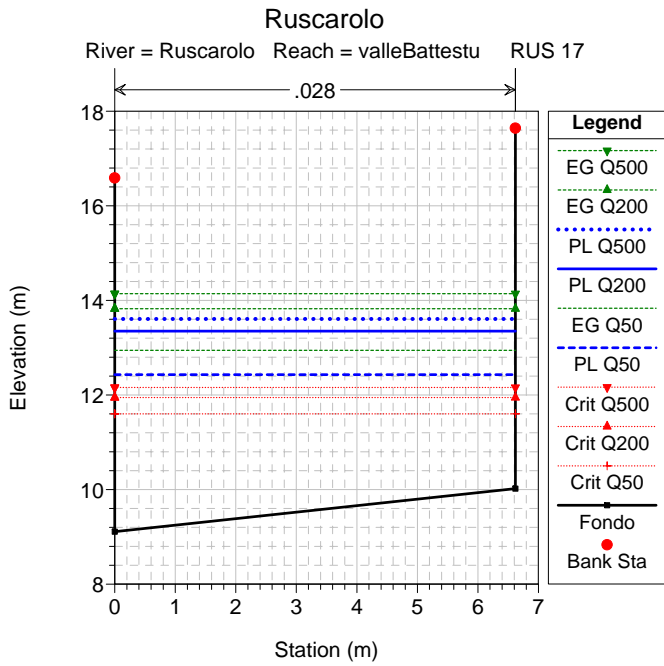
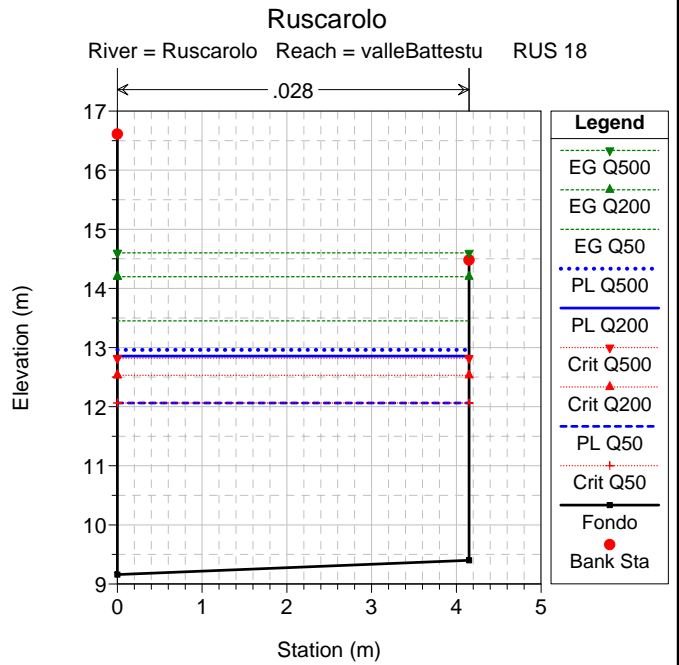
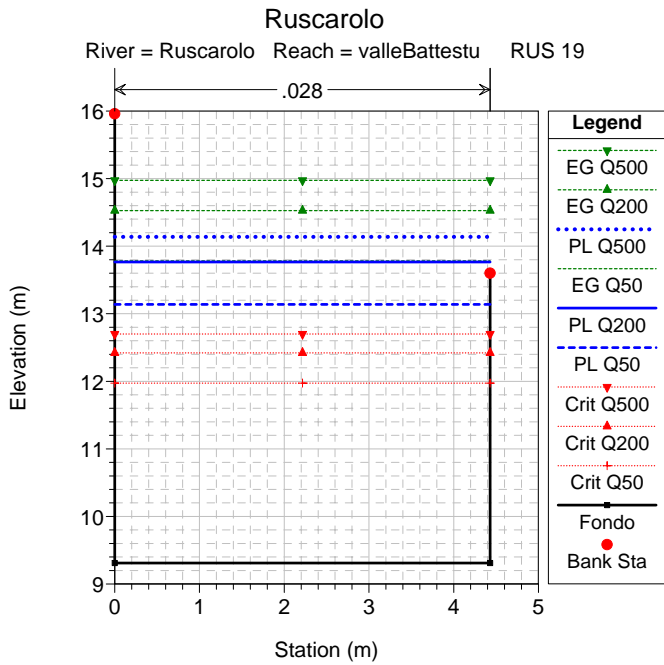
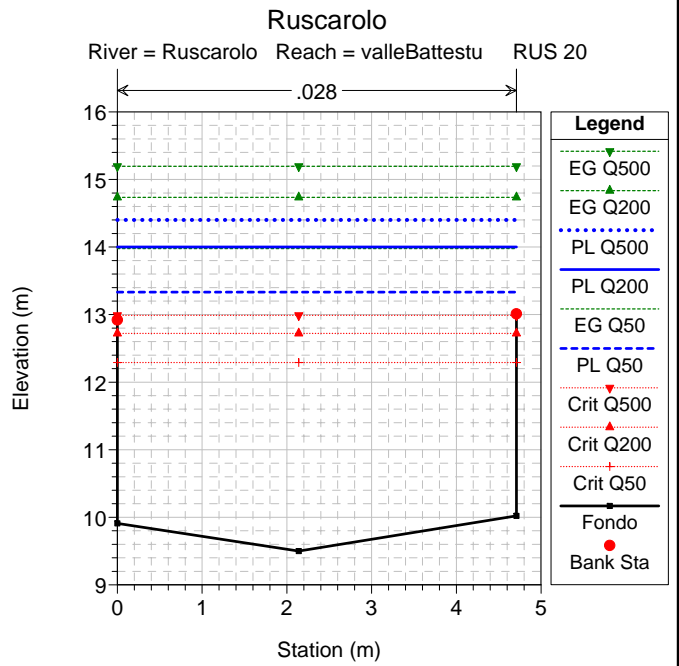
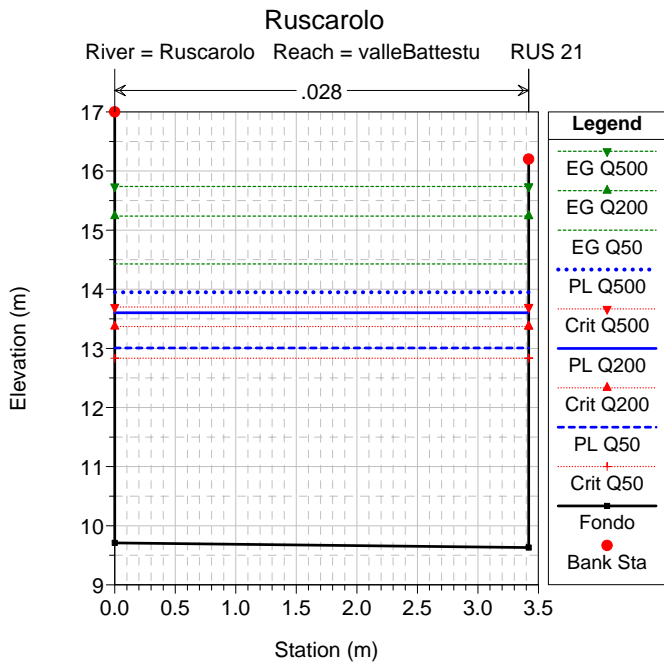






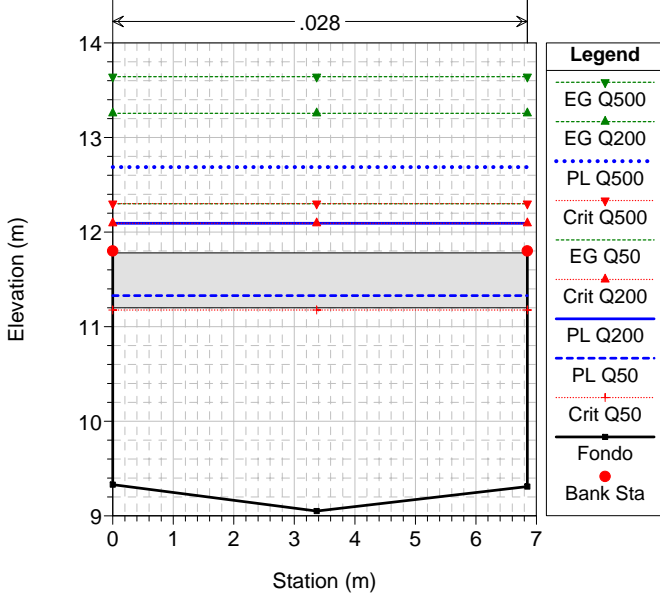






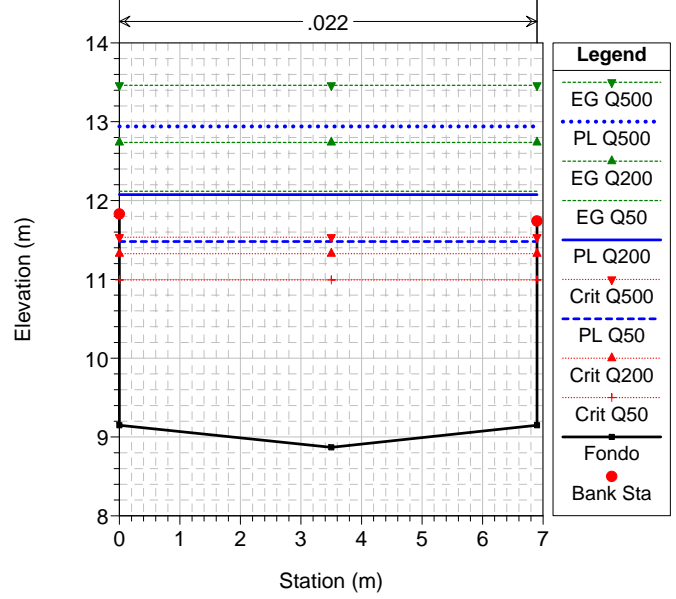
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 15



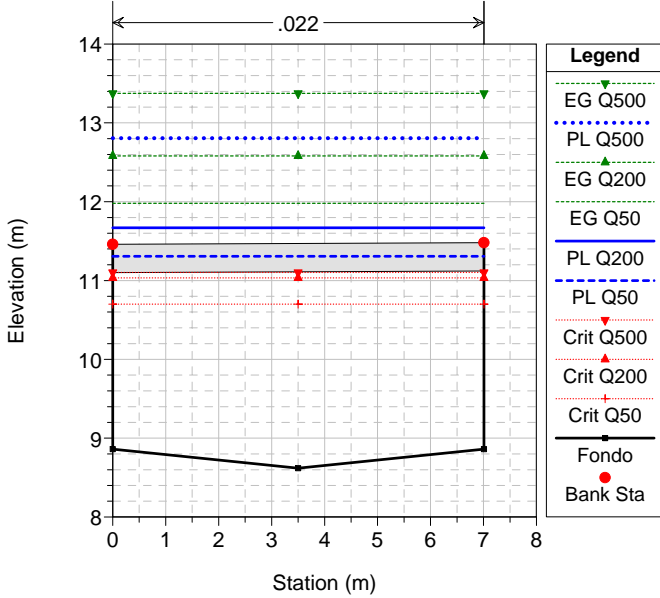
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 14



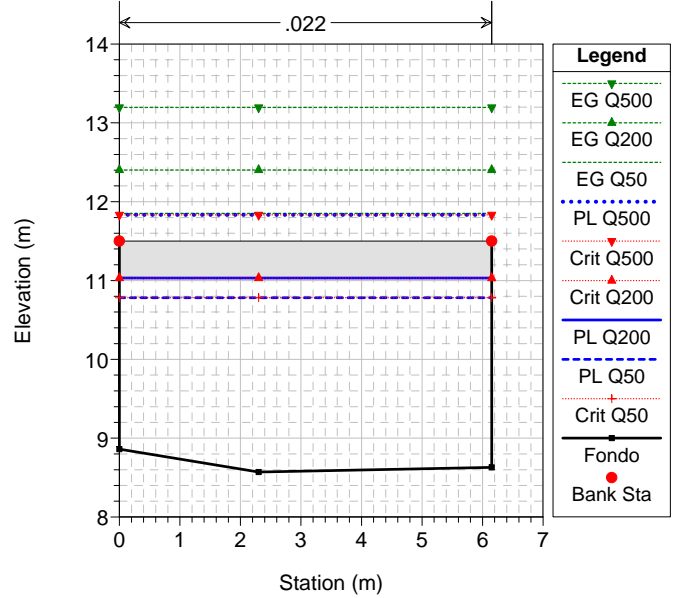
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 13



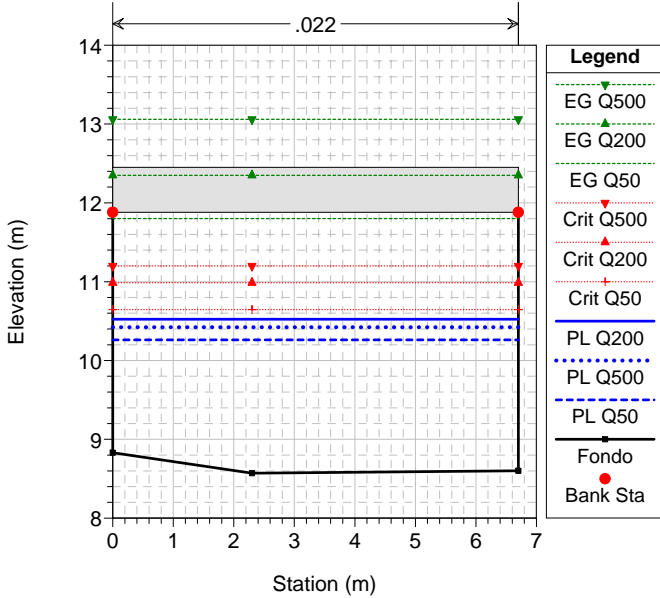
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 12



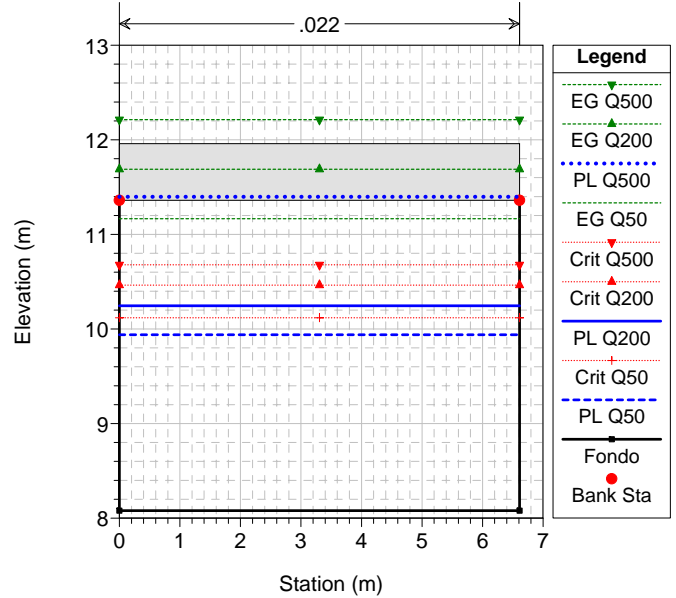
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 11



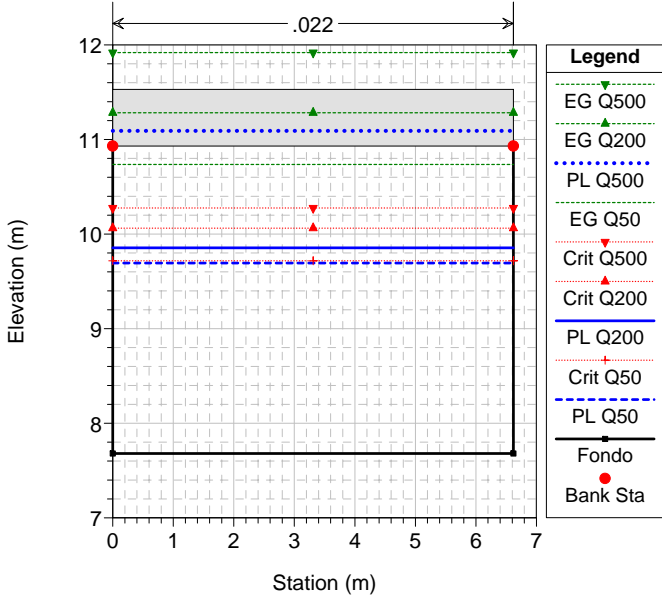
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 10



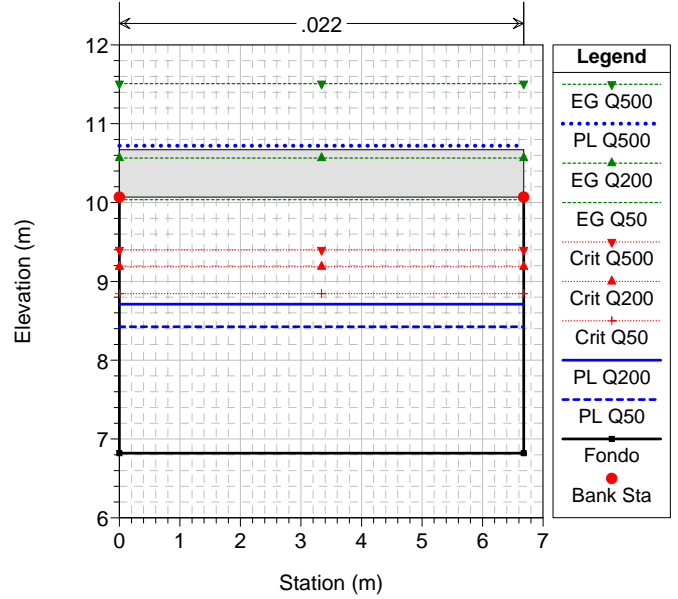
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 9



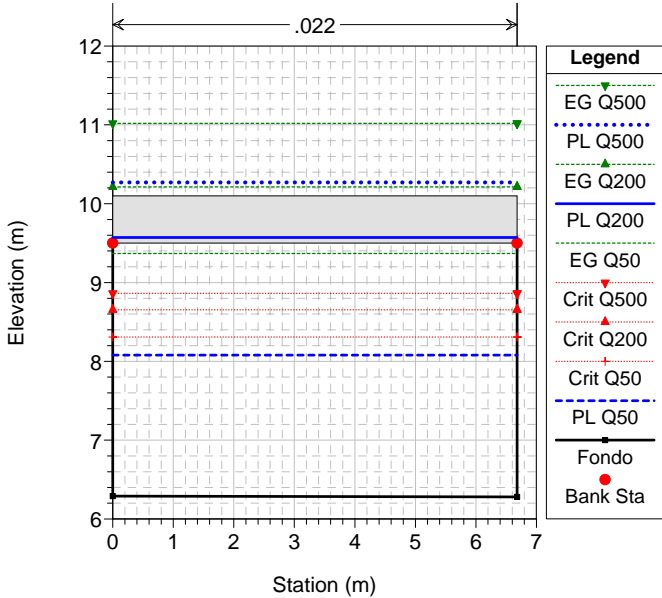
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 8



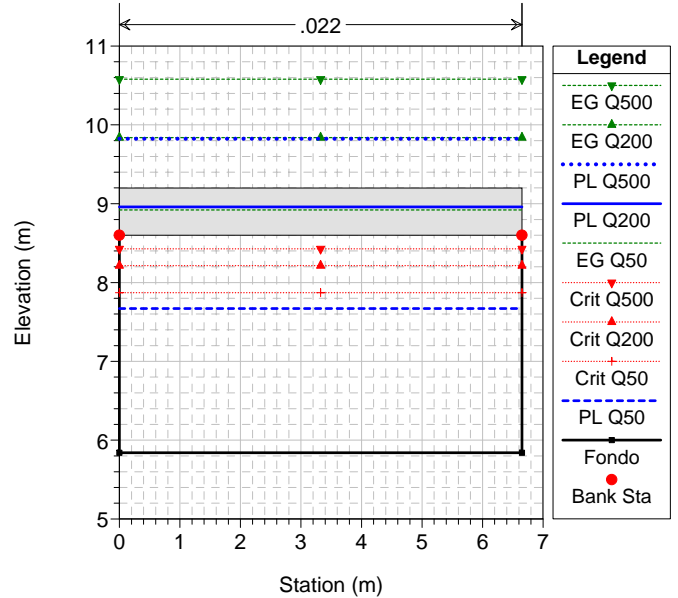
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 7



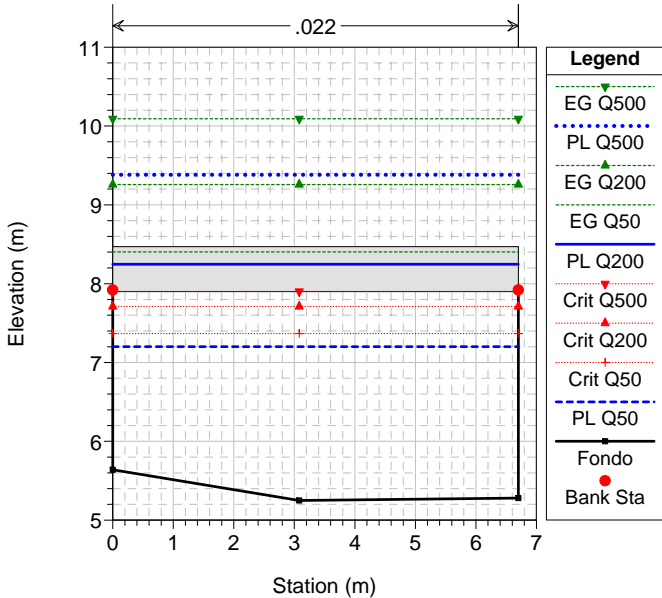
### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 6



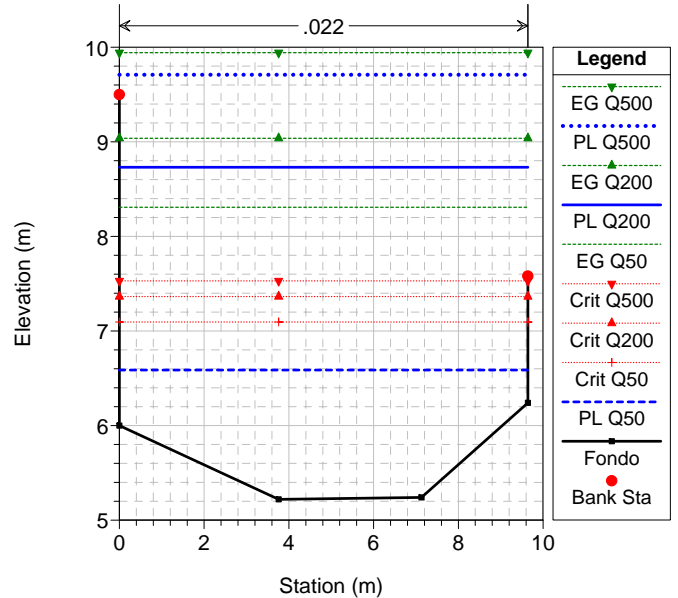
### Ruscarolo

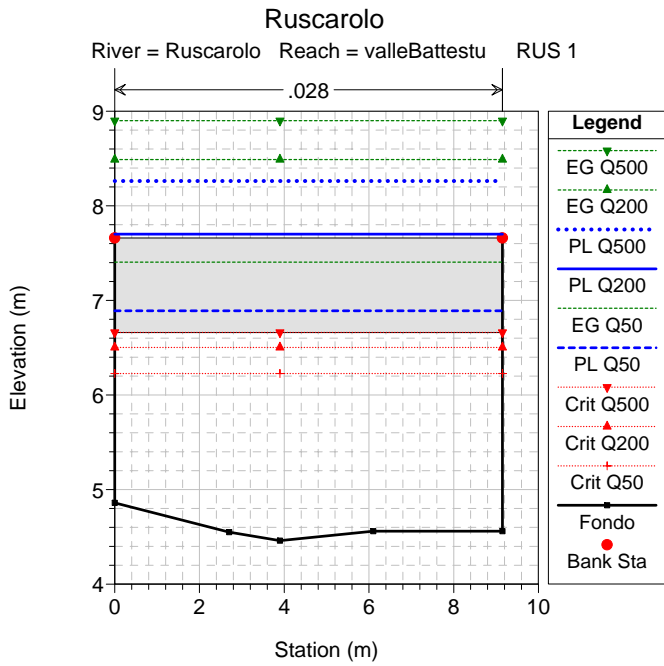
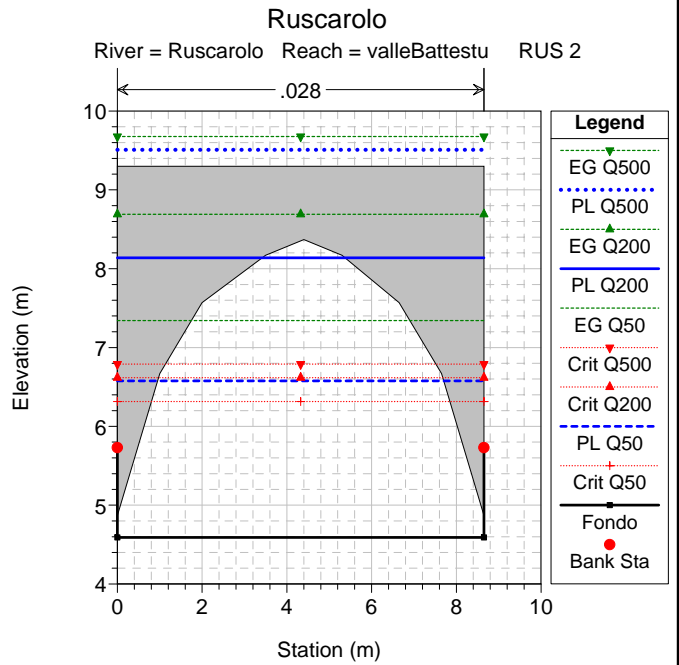
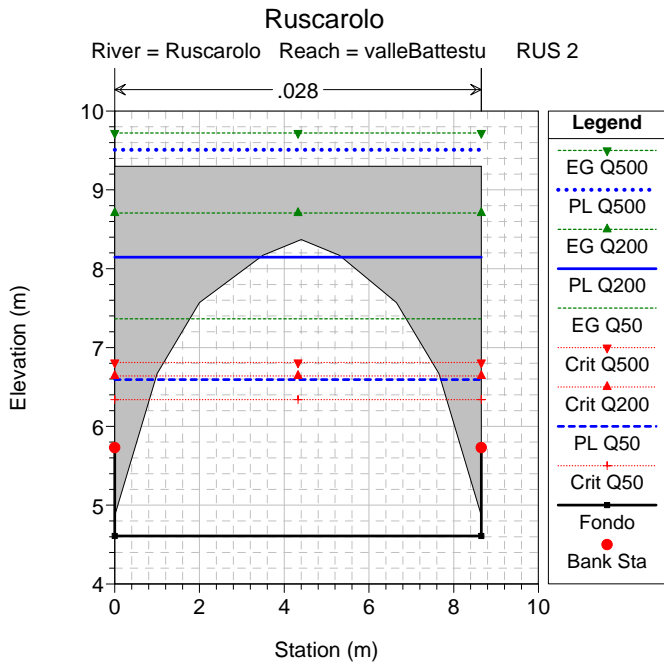
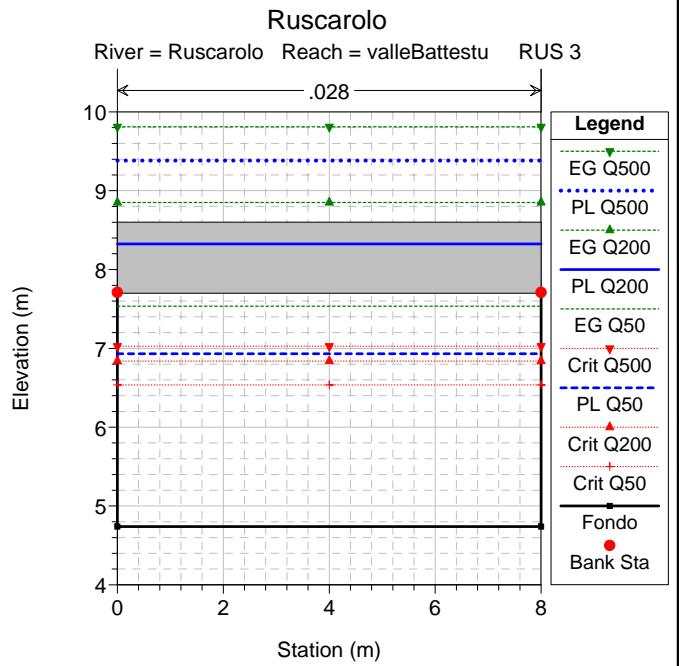
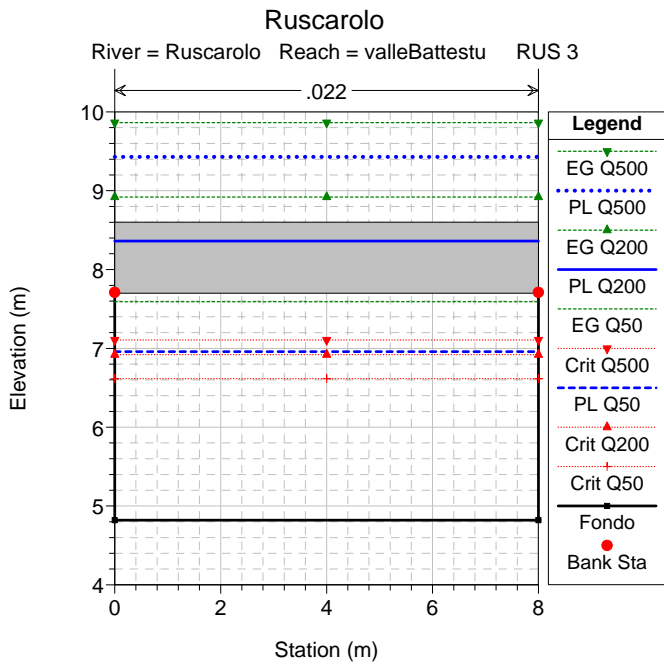
River = Ruscarolo Reach = valleBattestu RUS 5



### Ruscarolo

River = Ruscarolo Reach = valleBattestu RUS 4





HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu

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
valleBattestu	1248.00 RUS 51	Q50	39.10	17.27	19.28	20.51	1.23	20.51	1.23	18.71	19.60	0.003538	2.50	15.63	8.31	0.58
valleBattestu	1248.00 RUS 51	Q200	49.60	17.27	20.01	20.51	0.50	20.51	0.50	18.94	20.28	0.002217	2.29	21.70	8.31	0.45
valleBattestu	1248.00 RUS 51	Q500	56.60	17.27	20.75	20.51	-0.24	20.51	-0.24	19.08	20.99	0.003219	2.19	25.85		0.38
valleBattestu	1224.40 RUS 50	Q50	39.10	16.60	19.33	19.60	0.27	19.60	0.27	18.12	19.51	0.001573	1.87	20.92	8.30	0.38
valleBattestu	1224.40 RUS 50	Q200	49.60	16.60	19.97	19.60	-0.37	19.60	-0.37	18.35	20.20	0.003483	2.14	23.17		0.38
valleBattestu	1224.40 RUS 50	Q500	56.60	16.60	20.68	19.60	-1.08	19.60	-1.08	18.49	20.89	0.003858	2.05	27.56	8.30	0.33
valleBattestu	1206.60 RUS 49	Q50	50.70	16.55	19.24	19.35	0.11	19.35	0.11	18.04	19.46	0.001652	2.06	24.66	9.32	0.40
valleBattestu	1206.60 RUS 49	Q200	64.80	16.55	19.79	19.35	-0.44	19.35	-0.44	18.30	20.12	0.004626	2.53	25.64		0.45
valleBattestu	1206.60 RUS 49	Q500	74.10	16.55	20.53	19.35	-1.18	19.35	-1.18	18.46	20.81	0.004720	2.35	31.47	9.32	0.38
valleBattestu	1200.80 RUS 48	Q50	50.70	16.13	19.25	19.07	-0.18	19.07	-0.18	17.75	19.44	0.002684	1.95	26.01		0.36
valleBattestu	1200.80 RUS 48	Q200	64.80	16.13	19.79	19.07	-0.72	19.07	-0.72	18.00	20.07	0.005436	2.33	27.84	9.44	0.40
valleBattestu	1200.80 RUS 48	Q500	74.10	16.13	20.54	19.07	-1.47	19.07	-1.47	18.16	20.77	0.003351	2.12	34.88	9.44	0.33
valleBattestu	1195.10 RUS 47	Q50	50.70	15.84	18.56	18.99	0.43	19.00	0.44	18.22	19.35	0.008568	3.95	12.82	5.16	0.80
valleBattestu	1195.10 RUS 47	Q200	64.80	15.84	19.01	18.99	-0.02	19.00	-0.01	18.60	19.95	0.015459	4.30	15.08		0.80
valleBattestu	1195.10 RUS 47	Q500	74.10	15.84	19.40	18.99	-0.41	19.00	-0.40	18.83	20.63	0.020215	4.91	15.08		0.86
valleBattestu	1191.40	Q50	50.70	15.84	18.41	18.99	0.58	19.00	0.59	18.22	19.31	0.010111	4.21	12.05	5.16	0.88
valleBattestu	1191.40	Q200	64.80	15.84	18.88	18.99	0.11	19.00	0.12	18.60	19.90	0.010107	4.47	14.51	5.16	0.85
valleBattestu	1191.40	Q500	74.10	15.84	19.64	18.99	-0.65	19.00	-0.64	18.83	20.47	0.007139	4.02	18.43	5.16	0.68
valleBattestu	1190.90 RUS 46	Q50	50.70	15.84	18.22	18.99	0.77	19.00	0.78	18.22	19.29	0.012759	4.59	11.05	5.16	1.00
valleBattestu	1190.90 RUS 46	Q200	64.80	15.84	18.87	18.99	0.12	19.00	0.13	18.60	19.90	0.010237	4.49	14.44	5.16	0.86
valleBattestu	1190.90 RUS 46	Q500	74.10	15.84	19.19	18.99	-0.20	19.00	-0.19	18.83	20.42	0.020215	4.91	15.08		0.89
valleBattestu	1181.30 RUS 46	Q50	50.70	15.76	17.48	18.65	1.17	18.65	1.17	17.93	19.06	0.026080	5.57	9.09	7.15	1.58
valleBattestu	1181.30 RUS 46	Q200	64.80	15.76	18.99	18.65	-0.34	18.65	-0.34	18.24	19.69	0.012148	3.71	17.46		0.71
valleBattestu	1181.30 RUS 46	Q500	74.10	15.76	19.43	18.65	-0.78	18.65	-0.78	18.43	20.09	0.013949	3.59	20.62	7.15	0.64
valleBattestu	1175.40	Q50	50.70	15.42	18.69	18.97	0.28	19.45	0.76	17.44	18.87	0.001264	1.85	27.47	10.70	0.37
valleBattestu	1175.40	Q200	64.80	15.42	19.34	18.97	-0.37	19.45	0.11	17.68	19.52	0.001088	1.89	34.37	10.70	0.34
valleBattestu	1175.40	Q500	74.10	15.42	19.75	18.97	-0.78	19.45	-0.30	17.82	19.93	0.001015	1.91	38.75	10.70	0.32
valleBattestu	1160.50 RUS 45	Q50	50.70	15.48	18.50	18.40	-0.10	19.30	0.80	17.56	18.82	0.003557	2.51	20.18	5.77	0.50
valleBattestu	1160.50 RUS 45	Q200	64.80	15.48	19.10	18.40	-0.70	19.30	0.20	17.84	19.47	0.004478	2.72	23.85	7.47	0.49
valleBattestu	1160.50 RUS 45	Q500	74.10	15.48	19.46	18.40	-1.06	19.30	-0.16	18.02	19.88	0.006395	2.87	25.82	2.77	0.49
valleBattestu	1158.10 RUS 45	Q50	50.70	15.43	18.50	18.40	-0.10	19.30	0.80	17.51	18.81	0.003359	2.46	20.59	5.77	0.49
valleBattestu	1158.10 RUS 45	Q200	64.80	15.43	19.09	18.40	-0.69	19.30	0.21	17.79	19.46	0.004272	2.67	24.24	7.47	0.48
valleBattestu	1158.10 RUS 45	Q500	74.10	15.43	19.46	18.40	-1.06	19.30	-0.16	17.97	19.86	0.006117	2.83	26.20	2.77	0.48
valleBattestu	1145.00 RUS 44	Q50	50.70	15.24	18.49	18.35	-0.14	19.70	1.21	17.38	18.77	0.002290	2.32	21.84	8.11	0.45
valleBattestu	1145.00 RUS 44	Q200	64.80	15.24	19.11	18.35	-0.76	19.70	0.59	17.67	19.40	0.002113	2.42	26.82	8.11	0.42
valleBattestu	1145.00 RUS 44	Q500	74.10	15.24	19.49	18.35	-1.14	19.70	0.21	17.84	19.80	0.002054	2.48	29.90	8.11	0.41
valleBattestu	1115.10 RUS 43	Q50	60.30	15.12	18.33	18.59	0.27	20.40	2.07	17.18	18.68	0.002715	2.64	22.81	7.61	0.49
valleBattestu	1115.10 RUS 43	Q200	76.20	15.12	18.93	18.59	-0.34	20.40	1.47	17.50	19.32	0.002636	2.78	27.41	7.61	0.47
valleBattestu	1115.10 RUS 43	Q500	86.70	15.12	19.30	18.59	-0.71	20.40	1.10	17.69	19.72	0.002628	2.87	30.24	7.61	0.46
valleBattestu	1087.40 RUS 42	Q50	60.30	14.64	17.23	18.60	1.37	20.50	3.27	17.23	18.46	0.013555	4.91	12.29	5.01	1.00
valleBattestu	1087.40 RUS 42	Q200	76.20	14.64	17.65	18.60	0.95	20.50	2.85	17.65	19.08	0.014375	5.31	14.36	5.01	1.00

HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu (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
valleBattestu	1087.40 RUS 42	Q500	86.70	14.64	17.94	18.60	0.66	20.50	2.56	17.90	19.47	0.014427	5.47	15.85	5.01	0.98
valleBattestu	1080.30 RUS 41	Q50	60.30	14.70	16.77	18.60	1.83	20.50	3.73	17.11	18.31	0.019137	5.50	10.95	5.94	1.29
valleBattestu	1080.30 RUS 41	Q200	76.20	14.70	17.04	18.60	1.56	20.50	3.46	17.49	18.91	0.020872	6.07	12.56	5.94	1.33
valleBattestu	1080.30 RUS 41	Q500	86.70	14.70	18.24	18.60	0.36	20.50	2.26	17.72	19.23	0.008057	4.40	19.71	5.94	0.77
valleBattestu	1055.10 RUS 40	Q50	60.30	14.53	17.26	21.63	4.37	20.58	3.32	16.59	17.78	0.004304	3.19	18.90	7.39	0.64
valleBattestu	1055.10 RUS 40	Q200	76.20	14.53	18.10	21.63	3.53	20.58	2.48	16.91	18.57	0.003171	3.03	25.14	7.39	0.52
valleBattestu	1055.10 RUS 40	Q500	86.70	14.53	18.46	21.63	3.17	20.58	2.12	17.11	18.96	0.003150	3.12	27.78	7.39	0.51
valleBattestu	1022.30 RUS 39	Q50	60.30	13.70	17.24	21.50	4.26	17.44	0.20	16.07	17.62	0.002940	2.73	22.06	7.06	0.49
valleBattestu	1022.30 RUS 39	Q200	76.20	13.70	18.08	21.50	3.42	17.44	-0.63	16.40	18.45	0.002505	2.73	27.93	7.06	0.44
valleBattestu	1022.30 RUS 39	Q500	86.70	13.70	18.43	21.50	3.07	17.44	-0.99	16.61	18.84	0.002599	2.85	30.41	7.06	0.44
valleBattestu	997.00 RUS 38	Q50	60.30	13.87	16.93	15.80	-1.13	15.61	-1.32	15.62	17.49	0.010308	3.30	18.25		0.61
valleBattestu	997.00 RUS 38	Q200	76.20	13.87	17.83	15.80	-2.03	15.61	-2.22	15.82	18.33	0.010854	3.15	24.21	8.80	0.51
valleBattestu	997.00 RUS 38	Q500	86.70	13.87	18.22	15.80	-2.42	15.61	-2.61	15.91	18.72	0.009363	3.14	27.62	8.80	0.48
valleBattestu	989.95 RUS 38	Q50	60.30	13.57	16.85	16.20	-0.65	16.20	-0.65	15.60	17.42	0.009526	3.34	18.07		0.60
valleBattestu	989.95 RUS 38	Q200	76.20	13.57	17.61	16.20	-1.41	16.20	-1.41	15.93	18.24	0.012590	3.51	21.68	7.10	0.56
valleBattestu	989.95 RUS 38	Q500	86.70	13.57	17.99	16.20	-1.79	16.20	-1.79	16.13	18.63	0.011051	3.56	24.36	7.10	0.55
valleBattestu	949.55 RUS 37	Q50	60.30	13.31	16.88	18.06	1.18	16.43	-0.45	15.48	17.23	0.002616	2.60	23.17	6.82	0.45
valleBattestu	949.55 RUS 37	Q200	76.20	13.31	17.68	18.06	0.38	16.43	-1.25	15.82	18.04	0.002397	2.66	28.61	6.82	0.42
valleBattestu	949.55 RUS 37	Q500	86.70	13.31	18.04	18.06	0.02	16.43	-1.61	16.03	18.44	0.002507	2.79	31.07	6.82	0.42
valleBattestu	934.25	Q50	60.30	12.83	16.56	16.30	-0.26	15.70	-0.86	15.28	17.14	0.011303	3.37	17.89	3.56	0.58
valleBattestu	934.25	Q200	76.20	12.83	17.37	16.30	-1.07	15.70	-1.67	15.65	17.96	0.009853	3.41	22.36	5.88	0.52
valleBattestu	934.25	Q500	86.70	12.83	17.71	16.30	-1.41	15.70	-2.01	15.77	18.35	0.009605	3.56	24.34	5.88	0.53
valleBattestu	926.55 RUS 36	Q50	60.30	12.60	16.11	16.20	0.09	15.50	-0.61	15.52	17.01	0.016829	4.20	14.36	1.57	0.79
valleBattestu	926.55 RUS 36	Q200	76.20	12.60	16.56	16.20	-0.36	15.50	-1.06	15.69	17.78	0.027968	4.89	15.59	4.42	0.85
valleBattestu	926.55 RUS 36	Q500	86.70	12.60	16.96	16.20	-0.76	15.50	-1.46	15.78	18.18	0.025456	4.90	17.68	5.48	0.81
valleBattestu	894.15 RUS 35	Q50	60.30	12.35	16.34	16.89	0.55	15.30	-1.04	14.78	16.68	0.002616	2.60	23.21	6.36	0.43
valleBattestu	894.15 RUS 35	Q200	76.20	12.35	16.96	16.89	-0.07	15.30	-1.66	15.13	17.36	0.002772	2.80	27.18	6.36	0.43
valleBattestu	894.15 RUS 35	Q500	86.70	12.35	17.33	16.89	-0.44	15.30	-2.03	15.35	17.77	0.002902	2.94	29.53	6.36	0.43
valleBattestu	885.15 RUS 34	Q50	60.30	12.31	16.20	19.28	3.08	15.22	-0.98	14.76	16.64	0.003777	2.95	20.45	5.44	0.49
valleBattestu	885.15 RUS 34	Q200	76.20	12.31	16.79	19.28	2.49	15.22	-1.57	15.15	17.32	0.004159	3.22	23.66	5.44	0.49
valleBattestu	885.15 RUS 34	Q500	86.70	12.31	17.14	19.28	2.14	15.22	-1.92	15.40	17.72	0.004441	3.39	25.55	5.44	0.50
valleBattestu	864.65 RUS 33	Q50	60.30	11.90	16.03	19.28	3.25	15.25	-0.78	15.16	16.54	0.004566	3.15	19.11	7.24	0.62
valleBattestu	864.65 RUS 33	Q200	76.20	11.90	16.70	19.28	2.58	15.25	-1.45	15.56	17.21	0.003900	3.17	24.05	7.44	0.56
valleBattestu	864.65 RUS 33	Q500	86.70	11.90	17.08	19.28	2.20	15.25	-1.83	15.80	17.61	0.003740	3.23	26.87	7.44	0.54
valleBattestu	849.75 RUS 32	Q50	60.30	11.98	15.13	14.37	-0.76	14.37	-0.76	14.37	16.33	0.026070	4.85	12.44		0.93
valleBattestu	849.75 RUS 32	Q200	76.20	11.98	15.88	14.37	-1.51	14.37	-1.51	15.76	17.02	0.026975	4.73	16.12	6.15	0.80
valleBattestu	849.75 RUS 32	Q500	86.70	11.98	16.44	14.37	-2.07	14.37	-2.07	15.99	17.44	0.018340	4.43	19.55	6.15	0.70
valleBattestu	842.60 RUS 32	Q50	60.30	11.99	15.35	14.27	-1.08	14.27	-1.08	14.13	16.01	0.019748	3.59	16.80	8.00	0.66
valleBattestu	842.60 RUS 32	Q200	76.20	11.99	16.20	14.27	-1.93	14.27	-1.93	14.27	16.73	0.010188	3.23	23.57	8.00	0.53
valleBattestu	842.60 RUS 32	Q500	86.70	11.99	16.71	14.27	-2.44	14.27	-2.44	15.54	17.21	0.007688	3.13	27.72	8.00	0.48

HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu (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	
valleBattestu	813.00	RUS 31	Q50	60.30	11.93	15.39	14.29	-1.10	14.78	-0.61	14.14	15.79	0.003119	2.79	21.60	6.53	0.49
valleBattestu	813.00	RUS 31	Q200	76.20	11.93	16.15	14.29	-1.86	14.78	-1.37	14.49	16.57	0.002904	2.87	26.54	6.53	0.45
valleBattestu	813.00	RUS 31	Q500	86.70	11.93	16.64	14.29	-2.35	14.78	-1.86	14.70	17.07	0.002806	2.92	29.74	6.53	0.44
valleBattestu	786.40	RUS 30	Q50	60.30	11.56	15.19	14.10	-1.09	14.44	-0.75	14.02	15.68	0.004217	3.11	19.38	5.64	0.54
valleBattestu	786.40	RUS 30	Q200	76.20	11.56	15.93	14.10	-1.83	14.44	-1.49	14.40	16.47	0.004076	3.23	23.57	5.64	0.50
valleBattestu	786.40	RUS 30	Q500	86.70	11.56	16.42	14.10	-2.32	14.44	-1.98	14.64	16.97	0.004007	3.30	26.29	5.64	0.49
valleBattestu	770.90		Q50	60.30	11.39	15.21	14.53	-0.68	14.18	-1.03	13.73	15.60	0.003081	2.74	22.00	6.03	0.46
valleBattestu	770.90		Q200	76.20	11.39	15.96	14.53	-1.43	14.18	-1.78	14.10	16.38	0.003046	2.88	26.49	6.03	0.44
valleBattestu	770.90		Q500	86.70	11.39	16.44	14.53	-1.91	14.18	-2.26	14.33	16.88	0.003025	2.95	29.40	6.03	0.43
valleBattestu	760.70		Q50	60.30	11.30	15.29	14.13	-1.16	13.99	-1.30	13.39	15.53	0.001587	2.16	27.93	7.35	0.35
valleBattestu	760.70		Q200	76.20	11.30	16.04	14.13	-1.92	13.99	-2.05	13.71	16.31	0.001577	2.28	33.46	7.35	0.34
valleBattestu	760.70		Q500	86.70	11.30	16.53	14.13	-2.40	13.99	-2.54	13.92	16.81	0.001570	2.34	37.05	7.35	0.33
valleBattestu	757.10	RUS 29	Q50	60.30	11.32	15.14	13.58	-1.56	13.58	-1.56	13.49	15.51	0.006845	2.67	22.56	7.35	0.45
valleBattestu	757.10	RUS 29	Q200	76.20	11.32	15.92	13.58	-2.34	13.58	-2.34	14.29	16.29	0.005154	2.70	28.26	7.35	0.41
valleBattestu	757.10	RUS 29	Q500	86.70	11.32	16.42	13.58	-2.84	13.58	-2.84	14.49	16.79	0.004442	2.72	31.93	7.35	0.39
valleBattestu	749.60	RUS 29	Q50	60.30	11.40	15.13	13.58	-1.55	13.58	-1.55	13.33	15.45	0.005638	2.50	24.15	7.60	0.42
valleBattestu	749.60	RUS 29	Q200	76.20	11.40	15.91	13.58	-2.33	13.58	-2.33	13.58	16.24	0.004308	2.53	30.13	7.60	0.38
valleBattestu	749.60	RUS 29	Q500	86.70	11.40	16.42	13.58	-2.84	13.58	-2.84	14.32	16.75	0.003745	2.55	33.96	7.60	0.37
valleBattestu	748.20		Q50	60.30	11.30	15.18	14.10	-1.08	14.00	-1.18	13.36	15.42	0.001607	2.19	27.59	7.45	0.36
valleBattestu	748.20		Q200	76.20	11.30	15.95	14.10	-1.85	14.00	-1.95	13.67	16.22	0.001555	2.28	33.38	7.45	0.34
valleBattestu	748.20		Q500	86.70	11.30	16.45	14.10	-2.35	14.00	-2.45	13.87	16.73	0.001534	2.34	37.09	7.45	0.33
valleBattestu	746.80	RUS 28	Q50	60.30	11.28	14.92	13.30	-1.62	13.30	-1.62	13.30	15.39	0.010288	3.04	19.83	7.45	0.52
valleBattestu	746.80	RUS 28	Q200	76.20	11.28	15.76	13.30	-2.46	13.30	-2.46	14.46	16.20	0.006564	2.92	26.12	7.45	0.45
valleBattestu	746.80	RUS 28	Q500	86.70	11.28	16.29	13.30	-2.99	13.30	-2.99	14.66	16.71	0.005347	2.89	30.01	7.45	0.42
valleBattestu	740.80	RUS 28	Q50	60.30	11.18	14.86	13.30	-1.56	13.30	-1.56	13.27	15.33	0.010225	3.03	19.90	7.45	0.52
valleBattestu	740.80	RUS 28	Q200	76.20	11.18	15.73	13.30	-2.43	13.30	-2.43	14.39	16.16	0.006379	2.89	26.38	7.45	0.44
valleBattestu	740.80	RUS 28	Q500	86.70	11.18	16.26	13.30	-2.96	13.30	-2.96	14.59	16.68	0.005188	2.86	30.33	7.45	0.41
valleBattestu	731.30	RUS 27	Q50	60.30	10.90	14.68	14.65	-0.03	16.00	1.32	13.53	15.25	0.005060	3.34	18.03	5.12	0.57
valleBattestu	731.30	RUS 27	Q200	76.20	10.90	15.48	14.65	-0.83	16.00	0.52	13.96	16.09	0.004809	3.44	22.16	5.19	0.53
valleBattestu	731.30	RUS 27	Q500	86.70	10.90	15.99	14.65	-1.34	16.00	0.01	14.22	16.61	0.004724	3.50	24.77	5.23	0.51
valleBattestu	698.10	RUS 26	Q50	60.30	10.49	14.17	14.66	0.49	14.81	0.64	13.41	15.01	0.008813	4.06	14.85	4.27	0.70
valleBattestu	698.10	RUS 26	Q200	76.20	10.49	14.96	14.66	-0.30	14.81	-0.15	13.88	15.85	0.008452	4.18	18.25	4.30	0.65
valleBattestu	698.10	RUS 26	Q500	86.70	10.49	15.45	14.66	-0.79	14.81	-0.64	14.17	16.37	0.008410	4.26	20.34	4.30	0.63
valleBattestu	658.10	RUS 25	Q50	60.30	10.16	14.62	15.92	1.30	13.77	-0.85	12.17	14.75	0.000836	1.62	37.31	9.40	0.26
valleBattestu	658.10	RUS 25	Q200	76.20	10.16	15.43	15.92	0.49	13.77	-1.66	12.45	15.58	0.000809	1.68	45.29	9.80	0.25
valleBattestu	658.10	RUS 25	Q500	86.70	10.16	15.94	15.92	-0.02	13.77	-2.17	12.62	16.09	0.000788	1.72	50.26	9.80	0.24
valleBattestu	640.70	RUS 24	Q50	60.30	9.78	14.47	16.06	1.59	13.39	-1.08	12.35	14.72	0.002009	2.19	27.57	6.75	0.35
valleBattestu	640.70	RUS 24	Q200	76.20	9.78	15.28	16.06	0.78	13.39	-1.89	12.70	15.55	0.002058	2.29	33.22	7.15	0.34
valleBattestu	640.70	RUS 24	Q500	86.70	9.78	15.78	16.06	0.28	13.39	-2.39	12.91	16.06	0.002025	2.36	36.79	7.15	0.33
valleBattestu	628.80	RUS 23	Q50	60.30	9.71	14.15	13.10	-1.05	13.10	-1.05	12.40	14.66	0.008863	3.15	19.14	5.00	0.49
valleBattestu	628.80	RUS 23	Q200	76.20	9.71	14.92	13.10	-1.82	13.10	-1.82	12.81	15.48	0.007680	3.31	23.00	5.00	0.47

HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu (Continued)

Reach	River Sta		Profile	Q Total	Min Ch El	W.S. Elev	LOB Elev	L. Freeboard	ROB Elev	R. Freeboard	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
valleBattestu	628.80	RUS 23	Q500	86.70	9.71	15.40	13.10	-2.30	13.10	-2.30	13.07	15.99	0.007153	3.42	25.38	5.00	0.47
valleBattestu	626.20	RUS 22	Q50	60.30	9.70	13.98	13.10	-0.88	13.10	-0.88	12.51	14.62	0.011896	3.52	17.12	4.55	0.56
valleBattestu	626.20	RUS 22	Q200	76.20	9.70	14.74	13.10	-1.64	13.10	-1.64	12.95	15.44	0.010285	3.70	20.59	4.55	0.54
valleBattestu	626.20	RUS 22	Q500	86.70	9.70	15.21	13.10	-2.11	13.10	-2.11	13.10	15.96	0.009581	3.82	22.72	4.55	0.53
valleBattestu	615.50	RUS 21	Q50	60.30	9.63	13.01	17.00	3.99	16.20	3.19	12.83	14.43	0.018578	5.28	11.41	3.42	0.92
valleBattestu	615.50	RUS 21	Q200	76.20	9.63	13.60	17.00	3.40	16.20	2.60	13.37	15.24	0.019926	5.67	13.45	3.42	0.91
valleBattestu	615.50	RUS 21	Q500	86.70	9.63	13.95	17.00	3.05	16.20	2.25	13.70	15.74	0.021073	5.92	14.63	3.42	0.91
valleBattestu	594.20	RUS 20	Q50	60.30	9.50	13.33	12.92	-0.41	13.01	-0.32	12.29	13.98	0.005949	3.56	16.94	4.71	0.60
valleBattestu	594.20	RUS 20	Q200	76.20	9.50	14.00	12.92	-1.08	13.01	-0.99	12.72	14.73	0.006225	3.79	20.10	4.71	0.59
valleBattestu	594.20	RUS 20	Q500	86.70	9.50	14.40	12.92	-1.48	13.01	-1.39	12.99	15.19	0.006480	3.94	21.98	4.71	0.58
valleBattestu	562.80	RUS 19	Q50	60.30	9.31	13.14	15.96	2.82	13.60	0.46	11.97	13.78	0.006310	3.56	16.96	4.43	0.58
valleBattestu	562.80	RUS 19	Q200	76.20	9.31	13.77	15.96	2.19	13.60	-0.17	12.42	14.53	0.006928	3.86	19.74	4.43	0.58
valleBattestu	562.80	RUS 19	Q500	86.70	9.31	14.14	15.96	1.82	13.60	-0.54	12.70	14.97	0.007384	4.05	21.39	4.43	0.59
valleBattestu	533.60	RUS 18	Q50	60.30	9.16	12.06	16.61	4.55	14.48	2.42	12.06	13.45	0.017002	5.22	11.55	4.15	1.00
valleBattestu	533.60	RUS 18	Q200	76.20	9.16	12.85	16.61	3.76	14.48	1.63	12.53	14.20	0.014410	5.14	14.83	4.15	0.87
valleBattestu	533.60	RUS 18	Q500	86.70	9.16	12.96	16.61	3.65	14.48	1.52	12.82	14.60	0.017323	5.67	15.28	4.15	0.94
valleBattestu	516.50	RUS 17	Q50	60.30	9.11	12.43	16.59	4.16	17.64	5.21	11.60	12.94	0.004506	3.18	18.96	6.62	0.60
valleBattestu	516.50	RUS 17	Q200	76.20	9.11	13.35	16.59	3.24	17.64	4.29	11.95	13.82	0.003413	3.04	25.07	6.62	0.50
valleBattestu	516.50	RUS 17	Q500	86.70	9.11	13.61	16.59	2.98	17.64	4.03	12.16	14.14	0.003725	3.24	26.76	6.62	0.51
valleBattestu	511.80	RUS 16	Q50	60.30	9.10	12.17	11.44	-0.73	11.44	-0.73	11.31	12.89	0.020464	3.74	16.14	7.30	0.72
valleBattestu	511.80	RUS 16	Q200	76.20	9.10	13.30	11.44	-1.86	11.44	-1.86	11.44	13.80	0.008321	3.13	24.33	7.30	0.51
valleBattestu	511.80	RUS 16	Q500	86.70	9.10	13.56	11.44	-2.12	11.44	-2.12	12.39	14.11	0.008375	3.30	26.24	7.30	0.52
valleBattestu	505.20		Q50	60.30	9.12	11.76	11.38	-0.38	11.38	-0.38	11.36	12.73	0.020170	4.36	13.84		0.90
valleBattestu	505.20		Q200	76.20	9.12	12.91	11.38	-1.53	11.38	-1.53	12.41	13.69	0.016243	3.92	19.43	6.90	0.67
valleBattestu	505.20		Q500	86.70	9.12	13.14	11.38	-1.76	11.38	-1.76	12.62	14.01	0.016099	4.12	21.05	6.90	0.68
valleBattestu	484.30	RUS 15	Q50	60.30	9.05	11.33	11.20	-0.13	11.20	-0.13	11.18	12.30	0.020507	4.37	13.80		0.95
valleBattestu	484.30	RUS 15	Q200	76.20	9.05	12.09	11.20	-0.89	11.20	-0.89	12.09	13.26	0.031499	4.78	15.95	6.85	0.89
valleBattestu	484.30	RUS 15	Q500	86.70	9.05	12.69	11.20	-1.49	11.20	-1.49	12.30	13.64	0.019133	4.33	20.01	6.85	0.74
valleBattestu	470.50	RUS 14	Q50	60.30	8.87	11.48	11.83	0.35	11.74	0.26	10.99	12.12	0.003616	3.54	17.05	6.90	0.72
valleBattestu	470.50	RUS 14	Q200	76.20	8.87	12.08	11.83	-0.25	11.74	-0.34	11.33	12.74	0.003205	3.60	21.16	6.90	0.66
valleBattestu	470.50	RUS 14	Q500	86.70	8.87	12.94	11.83	-1.11	11.74	-1.20	11.53	13.46	0.002147	3.20	27.12	6.90	0.51
valleBattestu	444.30	RUS 13	Q50	60.30	8.62	11.31	11.10	-0.21	11.12	-0.19	10.70	11.98	0.007378	3.63	16.61		0.72
valleBattestu	444.30	RUS 13	Q200	76.20	8.62	11.67	11.10	-0.57	11.12	-0.55	11.03	12.58	0.013800	4.23	18.01	7.01	0.79
valleBattestu	444.30	RUS 13	Q500	86.70	8.62	12.81	11.10	-1.71	11.12	-1.69	11.10	13.37	0.005267	3.34	25.99	7.01	0.53
valleBattestu	433.30	RUS 12	Q50	60.30	8.57	10.78	11.04	0.26	11.03	0.25	10.78	11.85	0.007286	4.58	13.15	6.15	1.00
valleBattestu	433.30	RUS 12	Q200	76.20	8.57	11.03	11.04	0.01	11.03	0.00	11.03	12.40	0.008586	5.19	14.69	6.15	1.07
valleBattestu	433.30	RUS 12	Q500	86.70	8.57	11.83	11.04	-0.79	11.03	-0.80	11.83	13.20	0.019785	5.17	16.77	6.15	0.92
valleBattestu	432.70	RUS 11	Q50	60.30	8.57	10.26	11.88	1.62	11.88	1.62	10.65	11.80	0.012572	5.49	10.98	6.70	1.37
valleBattestu	432.70	RUS 11	Q200	76.20	8.57	10.52	11.88	1.36	11.88	1.36	10.99	12.35	0.013139	5.99	12.73	6.70	1.39
valleBattestu	432.70	RUS 11	Q500	86.70	8.57	10.42	11.88	1.46	11.88	1.46	11.20	13.06	0.019878	7.19	12.05	6.70	1.71



HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu (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
valleBattestu	371.90 RUS 10	Q50	60.30	8.08	9.94	11.36	1.42	11.36	1.42	10.12	11.17	0.009242	4.91	12.29	6.61	1.15
valleBattestu	371.90 RUS 10	Q200	76.20	8.08	10.25	11.36	1.11	11.36	1.11	10.46	11.69	0.009590	5.32	14.31	6.61	1.15
valleBattestu	371.90 RUS 10	Q500	86.70	8.08	11.40	11.36	-0.04	11.36	-0.04	10.68	12.21	0.006849	4.00	21.68		0.70
valleBattestu	329.50 RUS 9	Q50	60.30	7.68	9.69	10.93	1.24	10.93	1.24	9.72	10.74	0.007331	4.52	13.34	6.62	1.02
valleBattestu	329.50 RUS 9	Q200	76.20	7.68	9.85	10.93	1.08	10.93	1.08	10.06	11.28	0.009445	5.29	14.39	6.62	1.15
valleBattestu	329.50 RUS 9	Q500	86.70	7.68	11.09	10.93	-0.16	10.93	-0.16	10.28	11.92	0.007007	4.03	21.52		0.70
valleBattestu	273.80 RUS 8	Q50	60.30	6.82	8.42	10.07	1.65	10.07	1.65	8.84	10.04	0.013760	5.63	10.72	6.68	1.42
valleBattestu	273.80 RUS 8	Q200	76.20	6.82	8.71	10.07	1.36	10.07	1.36	9.19	10.56	0.013687	6.03	12.64	6.68	1.40
valleBattestu	273.80 RUS 8	Q500	86.70	6.82	10.72	10.07	-0.65	10.07	-0.65	9.40	11.51	0.009573	3.93	22.06	6.68	0.64
valleBattestu	221.80 RUS 7	Q50	60.30	6.28	8.08	9.50	1.42	9.50	1.42	8.31	9.37	0.009972	5.03	11.98	6.68	1.20
valleBattestu	221.80 RUS 7	Q200	76.20	6.28	9.57	9.50	-0.07	9.50	-0.07	8.65	10.21	0.005464	3.55	21.48		0.62
valleBattestu	221.80 RUS 7	Q500	86.70	6.28	10.27	9.50	-0.77	9.50	-0.77	8.86	11.02	0.008772	3.83	22.62	6.68	0.61
valleBattestu	170.70 RUS 6	Q50	60.30	5.84	7.67	8.60	0.93	8.60	0.93	7.87	8.92	0.009538	4.96	12.16	6.65	1.17
valleBattestu	170.70 RUS 6	Q200	76.20	5.84	8.96	8.60	-0.36	8.60	-0.36	8.21	9.84	0.008626	4.15	18.35		0.75
valleBattestu	170.70 RUS 6	Q500	86.70	5.84	9.82	8.60	-1.22	8.60	-1.22	8.43	10.58	0.008476	3.85	22.50	6.65	0.62
valleBattestu	110.00 RUS 5	Q50	60.30	5.25	7.20	7.90	0.70	7.90	0.70	7.37	8.40	0.008784	4.86	12.42	6.70	1.14
valleBattestu	110.00 RUS 5	Q200	76.20	5.25	8.25	7.90	-0.35	7.90	-0.35	7.71	9.26	0.010521	4.46	17.10		0.84
valleBattestu	110.00 RUS 5	Q500	86.70	5.25	9.38	7.90	-1.48	7.90	-1.48	7.90	10.09	0.007466	3.74	23.20	6.70	0.59
valleBattestu	106.40 RUS 4	Q50	60.30	5.22	6.59	9.50	2.91	7.58	0.99	7.10	8.31	0.017324	5.81	10.38	9.64	1.79
valleBattestu	106.40 RUS 4	Q200	76.20	5.22	8.73	9.50	0.77	7.58	-1.15	7.36	9.04	0.001120	2.46	31.03	9.64	0.44
valleBattestu	106.40 RUS 4	Q500	86.70	5.22	9.71	9.50	-0.21	7.58	-2.13	7.53	9.94	0.000704	2.14	40.47	9.64	0.33
valleBattestu	63.30	Q50	60.30	5.03	7.18	9.77	2.59	9.72	2.54	6.81	7.72	0.003077	3.26	18.48	9.24	0.74
valleBattestu	63.30	Q200	76.20	5.03	8.70	9.77	1.07	9.72	1.02	7.09	8.98	0.000996	2.34	32.55	9.24	0.40
valleBattestu	63.30	Q500	86.70	5.03	9.69	9.77	0.08	9.72	0.03	7.26	9.91	0.000664	2.08	41.64	9.24	0.31
valleBattestu	33.30	Q50	60.30	4.82	6.96	8.61	1.65	8.61	1.65	6.62	7.59	0.003844	3.52	17.14	8.00	0.77
valleBattestu	33.30	Q200	76.20	4.82	8.63	8.61	-0.02	8.61	-0.02	6.92	8.95	0.001244	2.50	30.45	8.00	0.41
valleBattestu	33.30	Q500	86.70	4.82	9.62	8.61	-1.01	8.61	-1.01	7.11	9.88	0.000870	2.26	38.43	8.00	0.33
valleBattestu	33.20	Q50	60.30	4.82	6.96	7.71	0.75	7.71	0.75	6.62	7.59	0.003848	3.52	17.13	8.00	0.77
valleBattestu	33.20	Q200	76.20	4.82	8.63	7.71	-0.92	7.71	-0.92	6.92	8.95	0.001244	2.50	30.45	8.00	0.41
valleBattestu	33.20	Q500	86.70	4.82	9.62	7.71	-1.91	7.71	-1.91	7.11	9.88	0.000870	2.26	38.43	8.00	0.33
valleBattestu	33 RUS 3		Bridge													
valleBattestu	22.20	Q50	60.30	4.74	6.93	7.71	0.78	7.71	0.78	6.54	7.53	0.005858	3.44	17.51	8.00	0.74
valleBattestu	22.20	Q200	76.20	4.74	8.46	7.71	-0.75	7.71	-0.75	6.84	8.79	0.002147	2.56	29.74	8.00	0.42
valleBattestu	22.20	Q500	86.70	4.74	9.50	7.71	-1.79	7.71	-1.79	7.03	9.76	0.001447	2.28	38.05	8.00	0.33
valleBattestu	22.10	Q50	60.30	4.74	6.93	7.71	0.78	7.71	0.78	6.54	7.53	0.005865	3.45	17.50	8.00	0.74
valleBattestu	22.10	Q200	76.20	4.74	8.46	7.71	-0.75	7.71	-0.75	6.84	8.79	0.002147	2.56	29.74	8.00	0.42
valleBattestu	22.10	Q500	86.70	4.74	9.50	7.71	-1.79	7.71	-1.79	7.03	9.76	0.001447	2.28	38.05	8.00	0.33
valleBattestu	4.10	Q50	60.30	4.61	6.95	9.30	2.35	9.30	2.35	6.31	7.40	0.003977	2.98	20.26	8.67	0.62
valleBattestu	4.10	Q200	76.20	4.61	8.47	9.30	0.83	9.30	0.83	6.60	8.74	0.001566	2.28	33.49	8.67	0.37
valleBattestu	4.10	Q500	86.70	4.61	9.51	9.30	-0.21	9.30	-0.21	6.78	9.72	0.001076	2.04	42.48	8.67	0.29

HEC-RAS Plan: 1\_Ruscarolo River: Ruscarolo Reach: valleBattestu (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	
valleBattestu	4.00	Q50	60.30	4.61	6.94	5.73	-1.21	5.73	-1.21	6.31	7.40	0.004021	2.99	20.18	8.65	0.62	
valleBattestu	4.00	Q200	76.20	4.61	8.47	5.73	-2.74	5.73	-2.74	6.60	8.74	0.001577	2.28	33.40	8.65	0.37	
valleBattestu	4.00	Q500	86.70	4.61	9.51	5.73	-3.78	5.73	-3.78	6.78	9.72	0.001083	2.05	42.37	8.65	0.30	
valleBattestu	3	RUS 2	Bridge														
valleBattestu	1.00	Q50	60.30	4.59	6.73	5.73	-1.00	5.73	-1.00	6.29	7.27	0.005154	3.26	18.51	8.65	0.71	
valleBattestu	1.00	Q200	76.20	4.59	8.32	5.73	-2.59	5.73	-2.59	6.58	8.61	0.001726	2.36	32.31	8.65	0.39	
valleBattestu	1.00	Q500	86.70	4.59	8.70	5.73	-2.97	5.73	-2.97	6.76	9.00	0.001729	2.44	35.53	8.65	0.38	
valleBattestu	0.00	RUS 1	Q50	60.30	4.46	6.89	6.66	-0.23	6.66	-0.23	6.23	7.40	0.009735	3.17	19.00	0.67	
valleBattestu	0.00	RUS 1	Q200	76.20	4.46	7.70	6.66	-1.04	6.66	-1.04	6.50	8.49	0.023101	3.94	19.36	9.15	0.86
valleBattestu	0.00	RUS 1	Q500	86.70	4.46	8.26	6.66	-1.60	6.66	-1.60	6.66	8.90	0.013644	3.54	24.50	9.15	0.69