

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

- Sistema borro San Cipriano, borro Forestello e borro Vacchereccia
- Sistema borro della Madonna e borro dei Barulli
- Sistema borro dei Frati, borro della Quercia, borro della Rigiaia e borro del Quercio
- Sistema borro Riofi e borro delle Ville
- Sistema fossi zona Pruneto

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

**BORRO SAN CIPRIANO, BORRO FORESTELLO e BORRO VACCHERECCIA**

- Tempo di pioggia critico – Scenario A1
- Tempo di pioggia affluente – Scenario A2
- Tempo di pioggia 18 h – Scenario B
- Tempo di pioggia 24 h – Scenario C

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

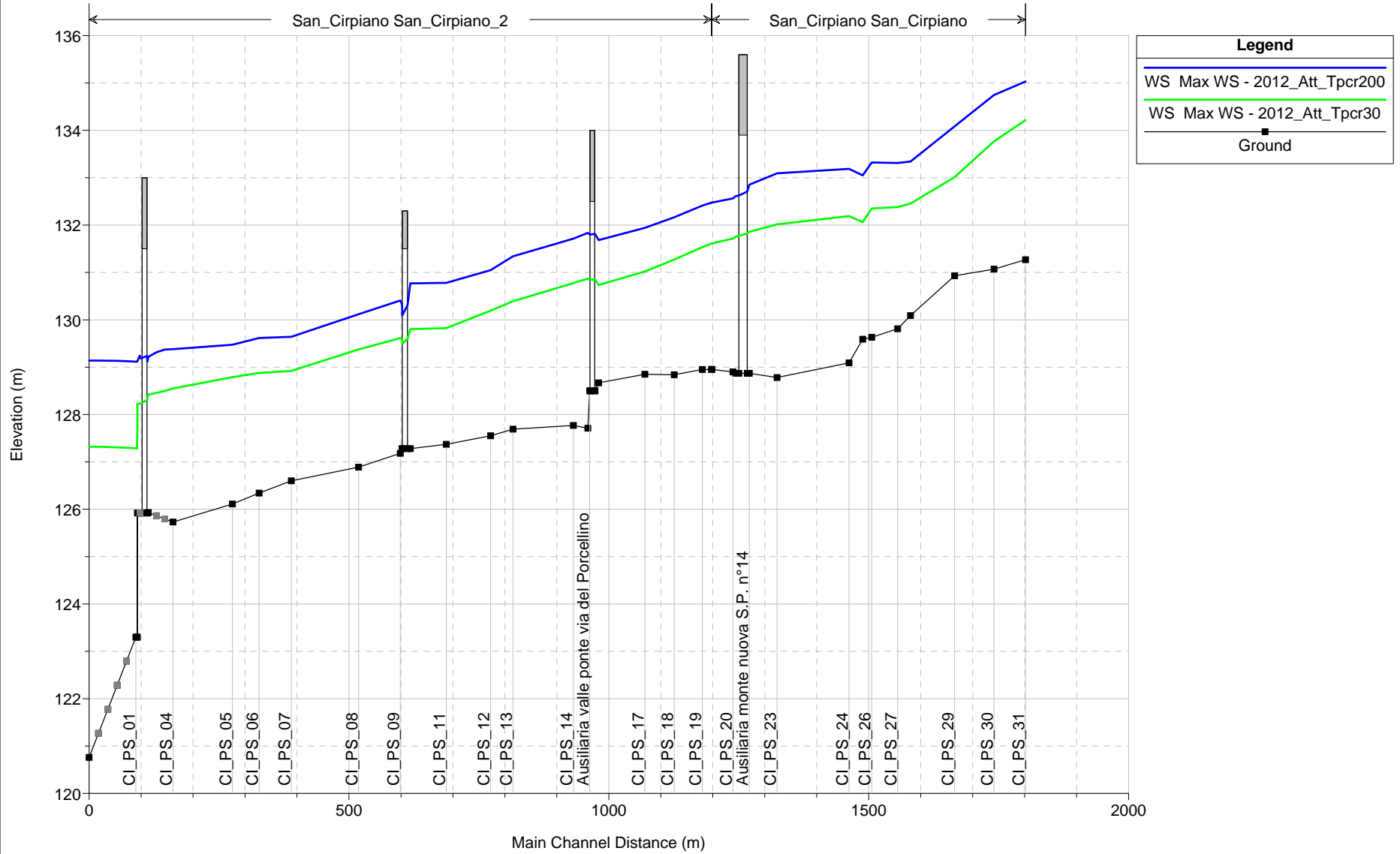
### **BORRO SAN CIPRIANO**

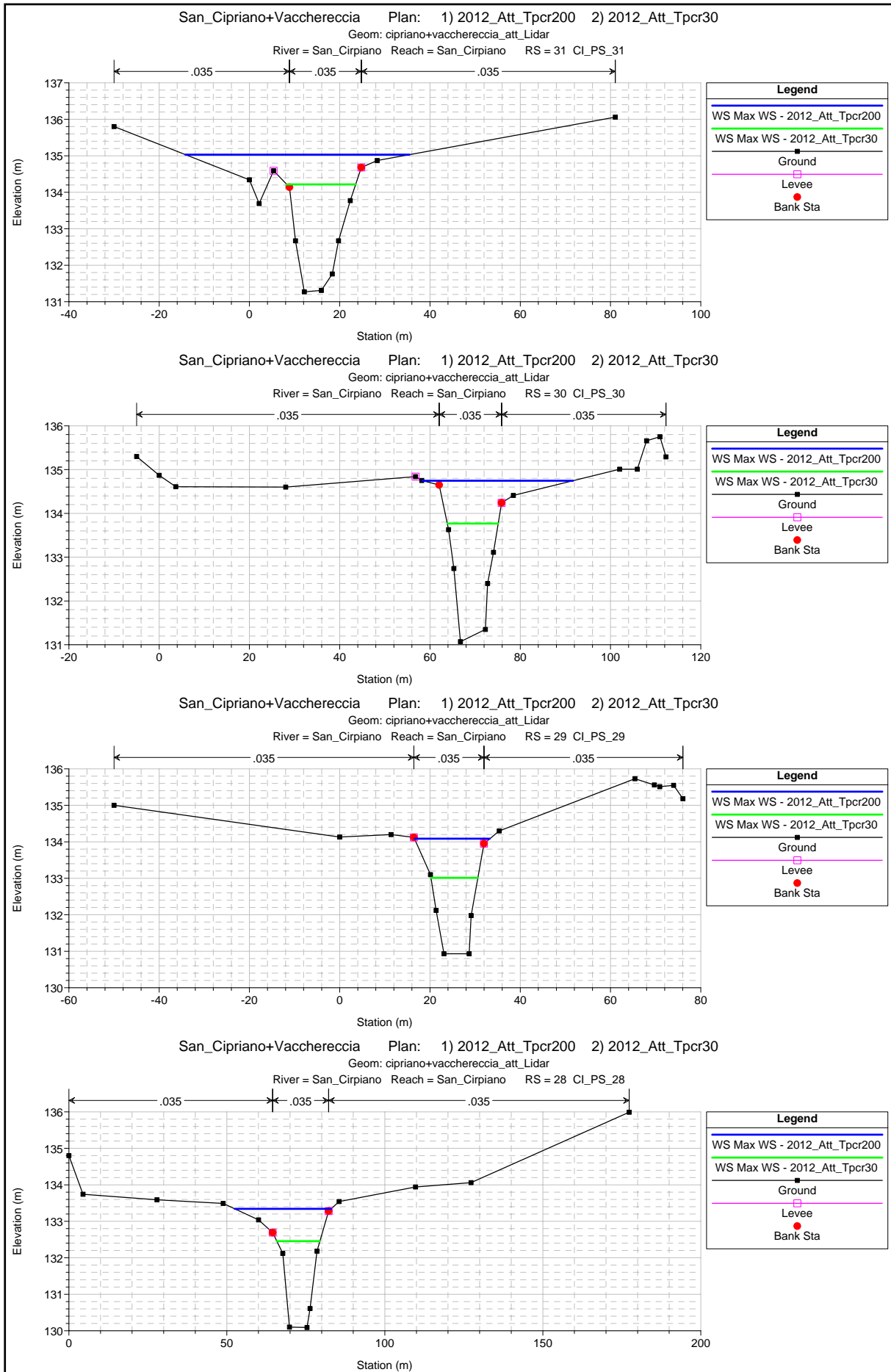
#### **Scenario A1 - Tr 200 e 30 anni**

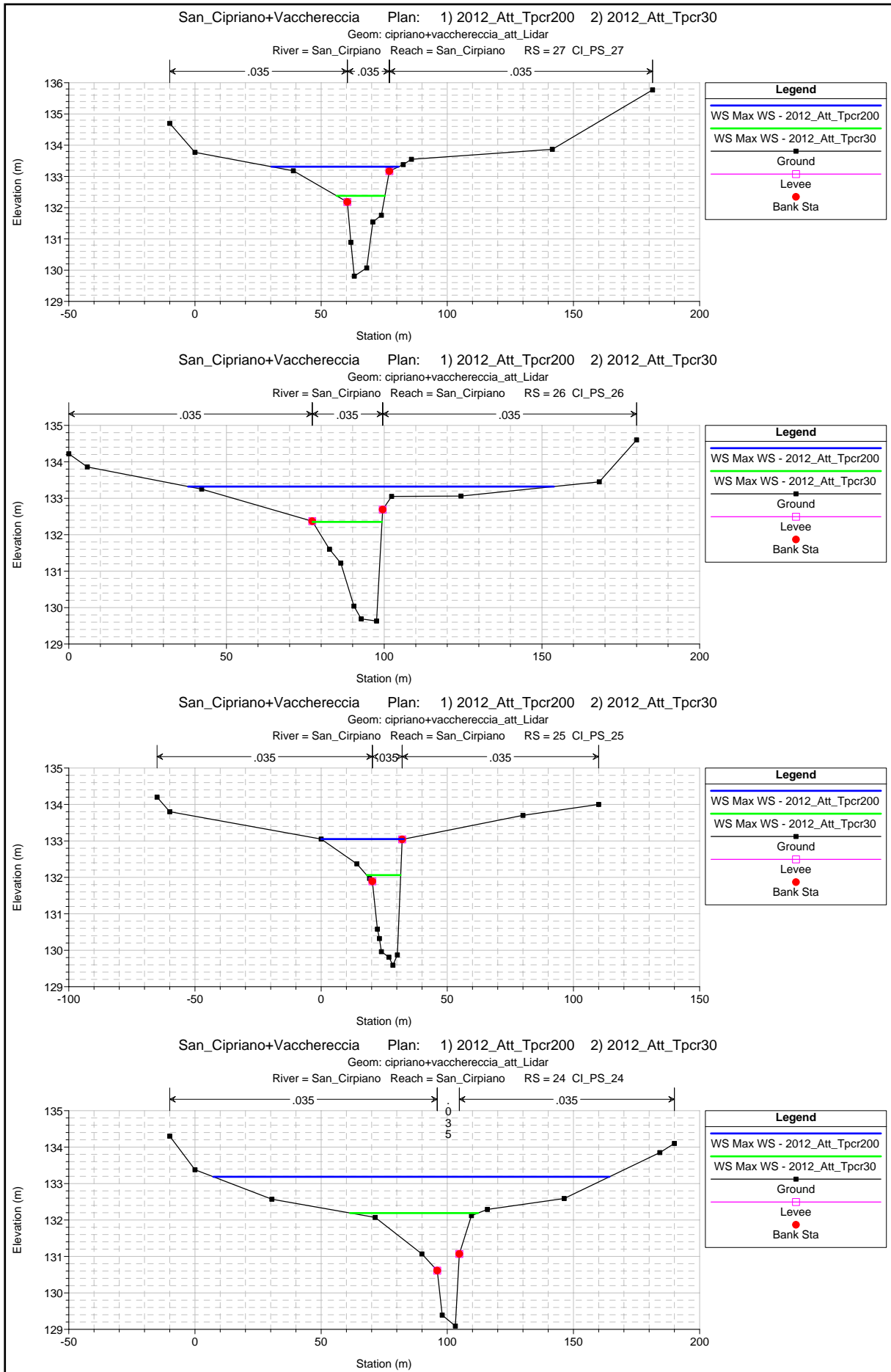
- Profili
- Sezioni di verifica
- Tabelle di output

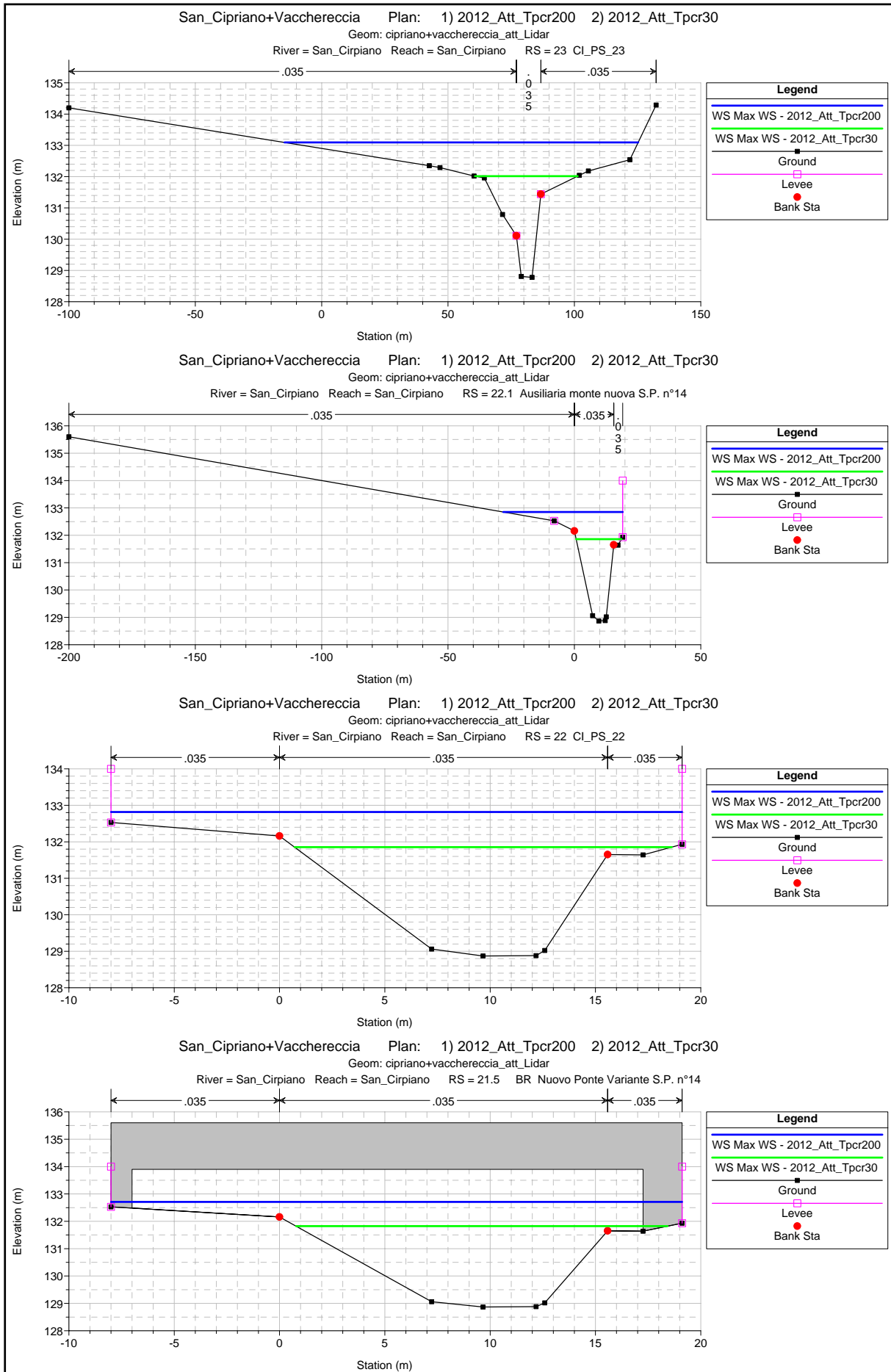
San\_Cirpiano+Vacchereccia Plan: 1) 2012\_Att\_Tpcr200 2) 2012\_Att\_Tpcr30

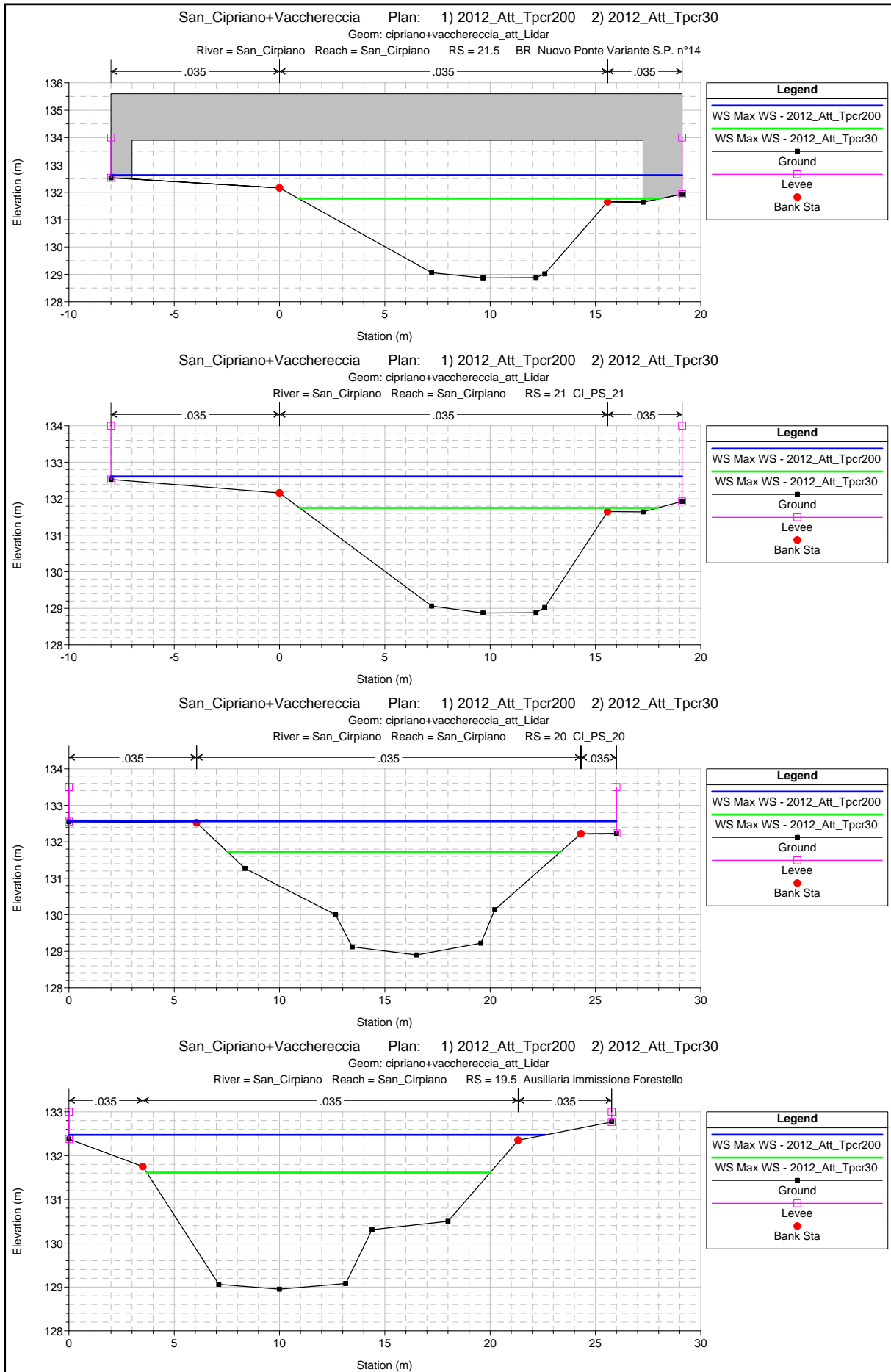
Geom: cipriano+vacchereccia\_att\_Lidar



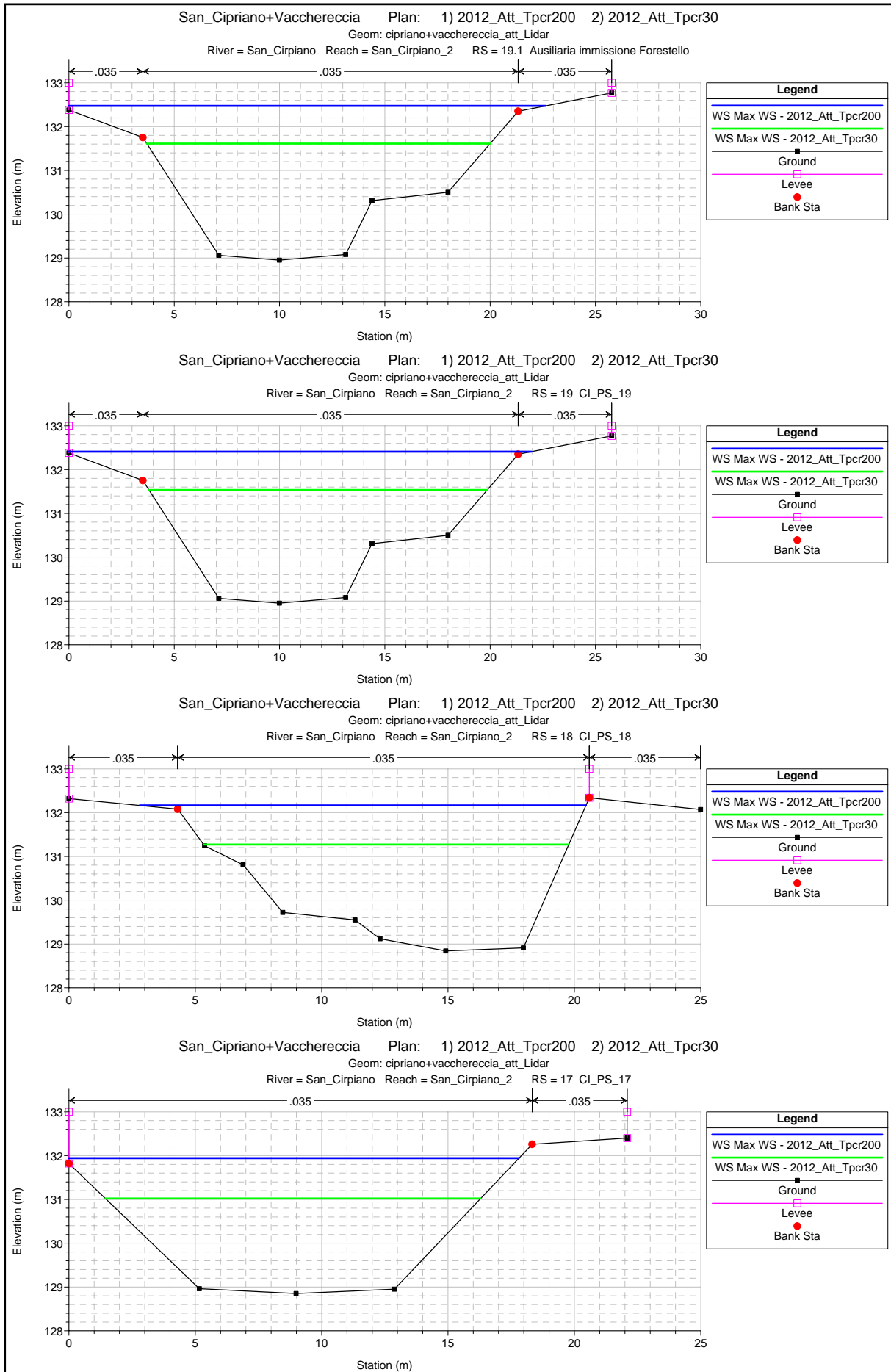


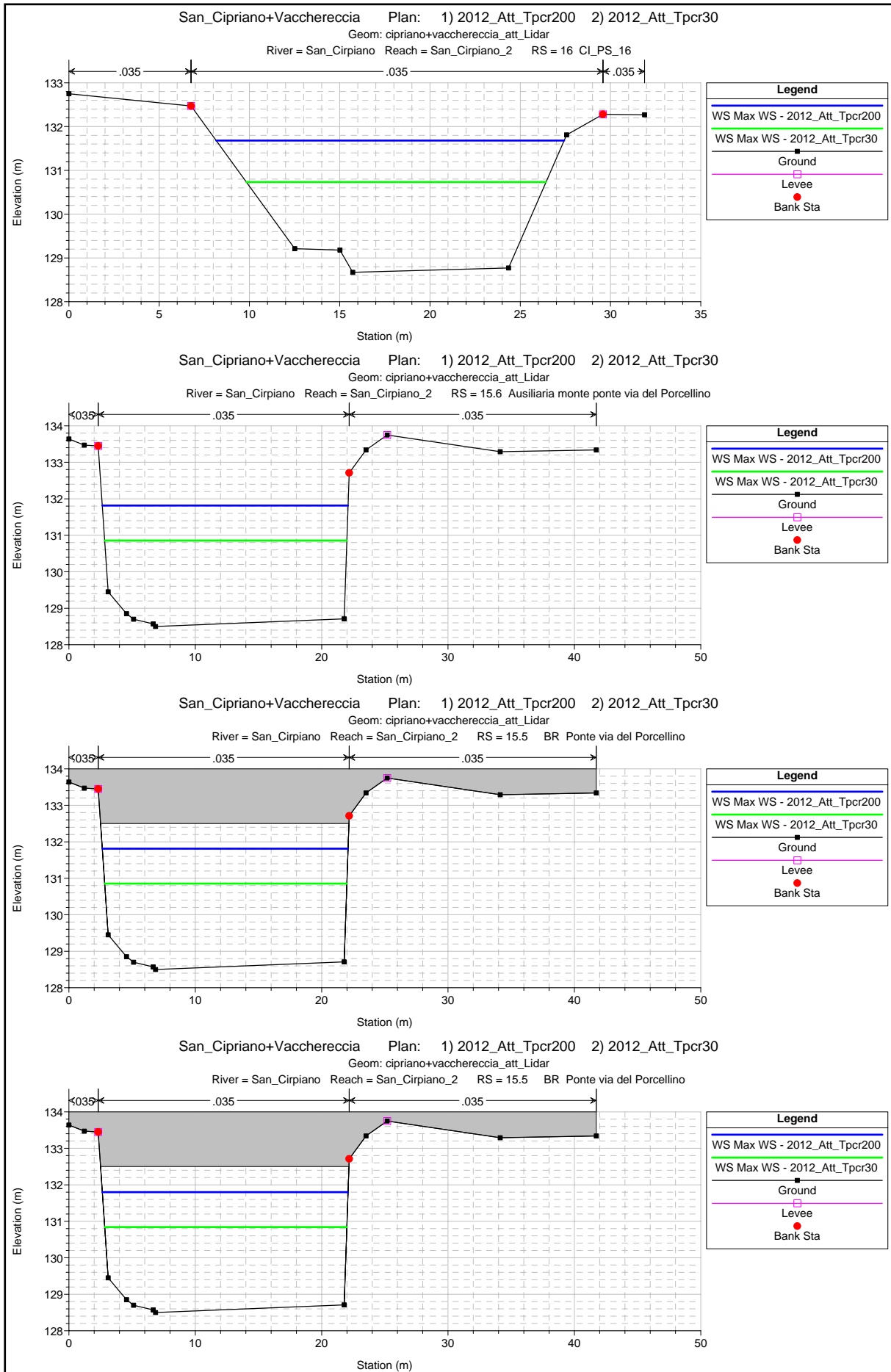


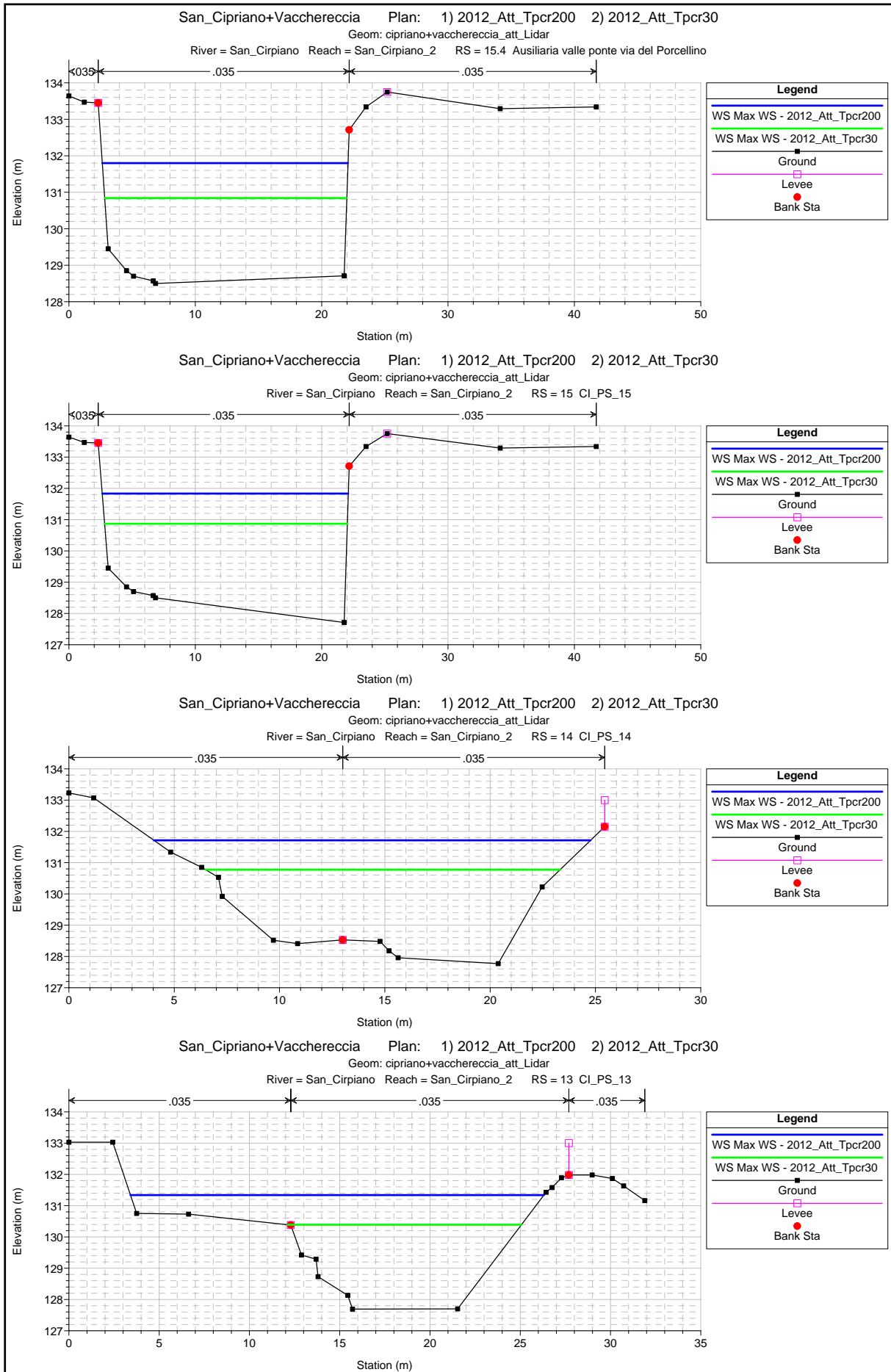


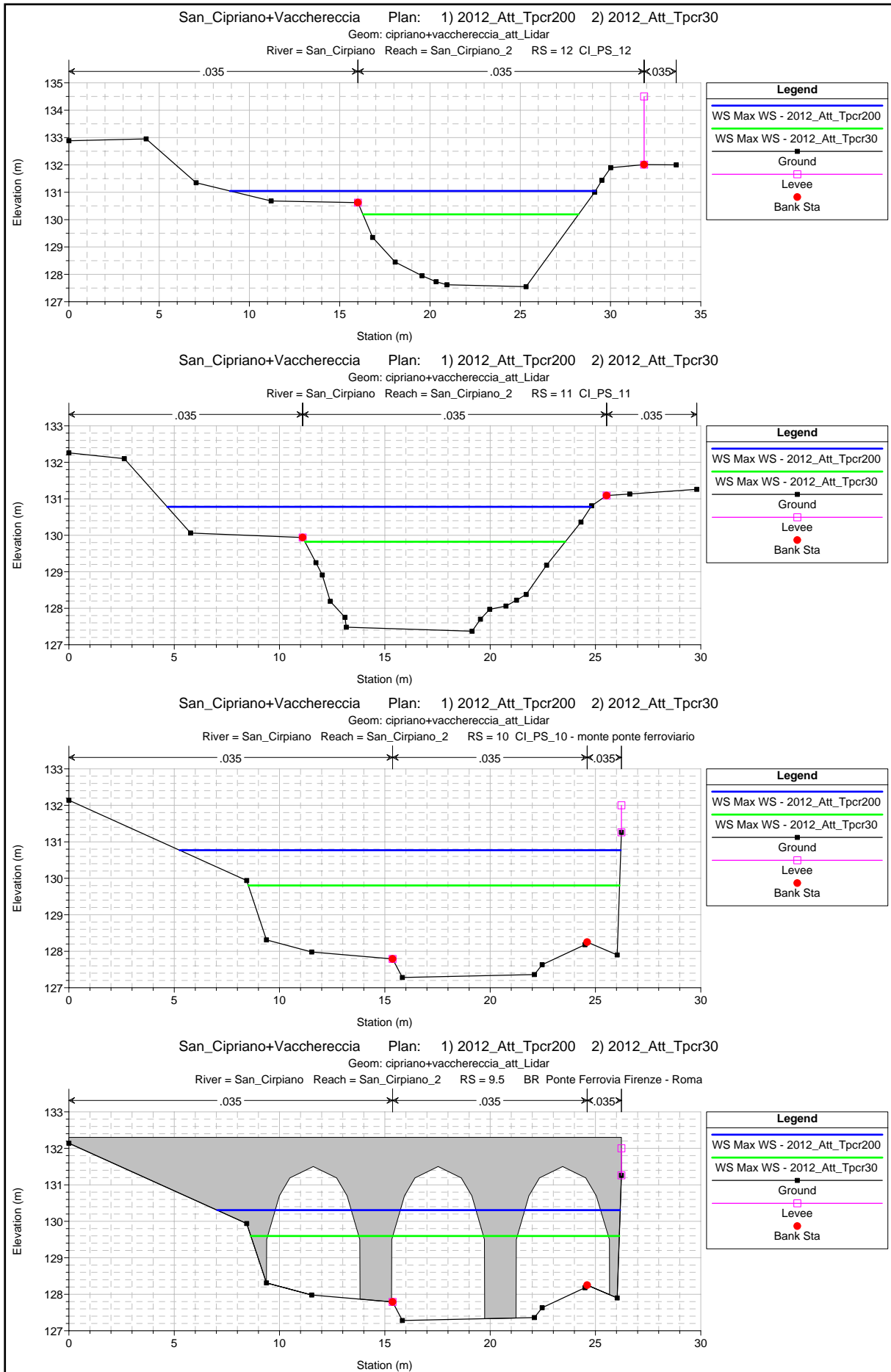


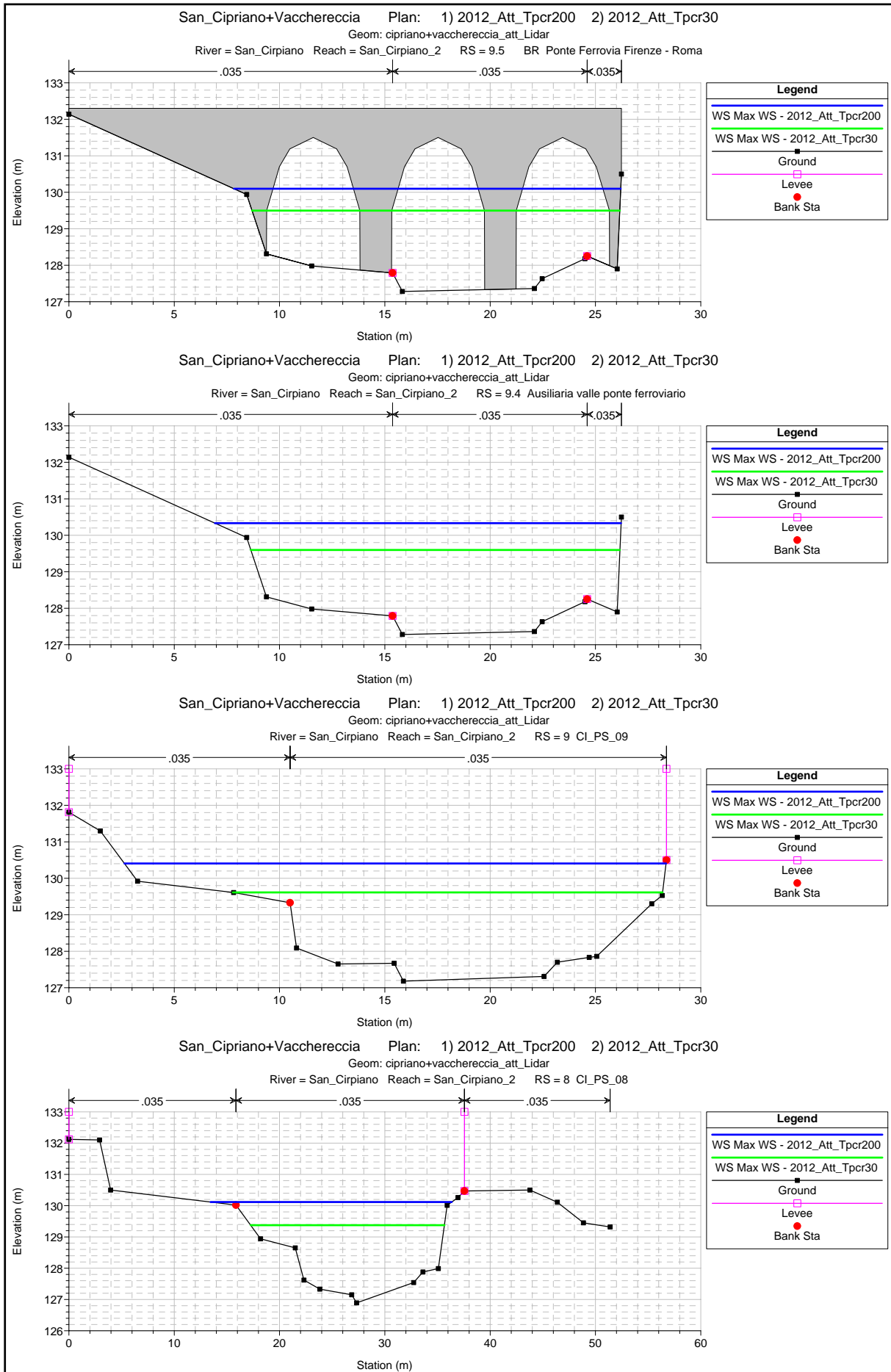


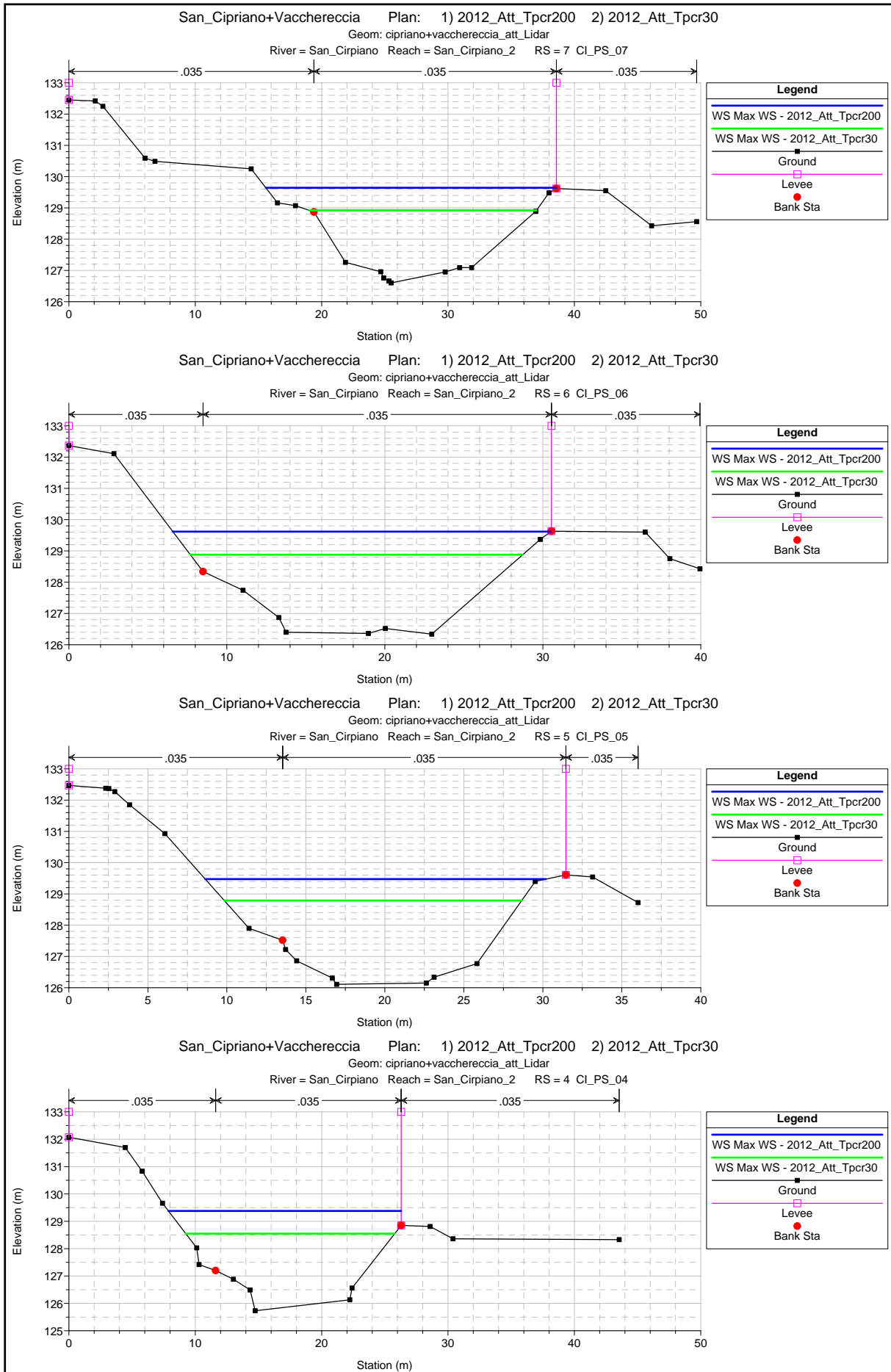


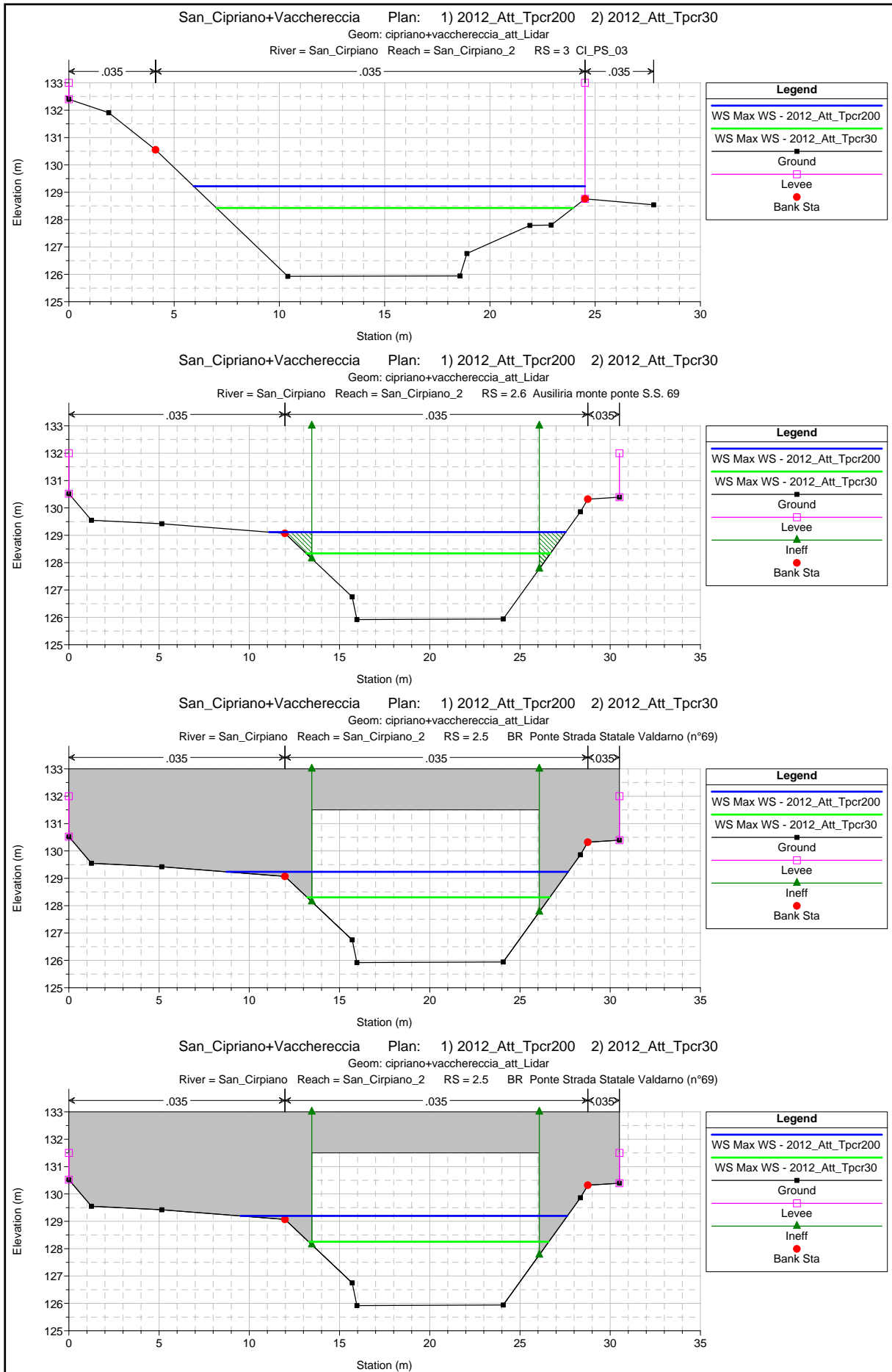


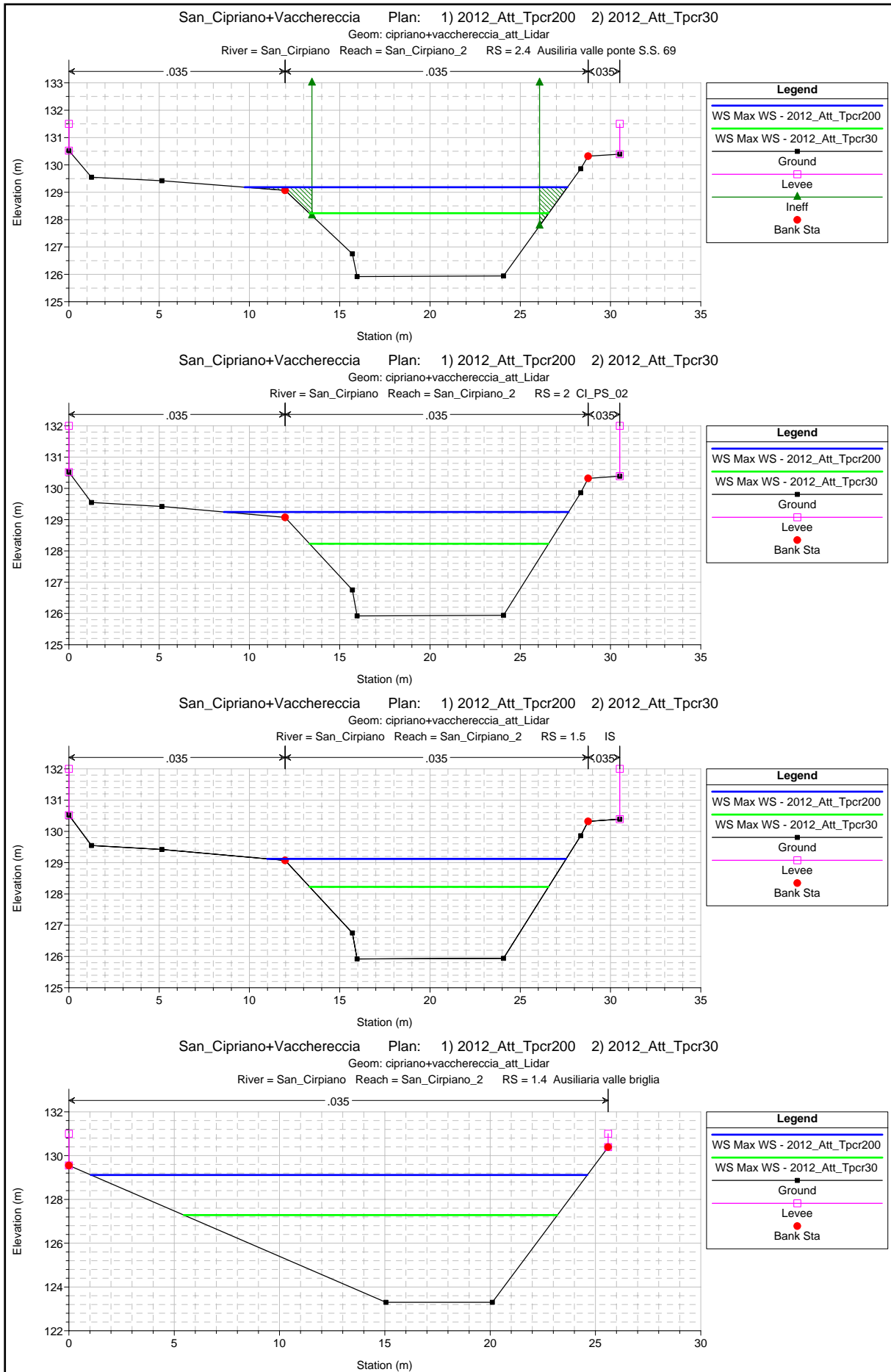




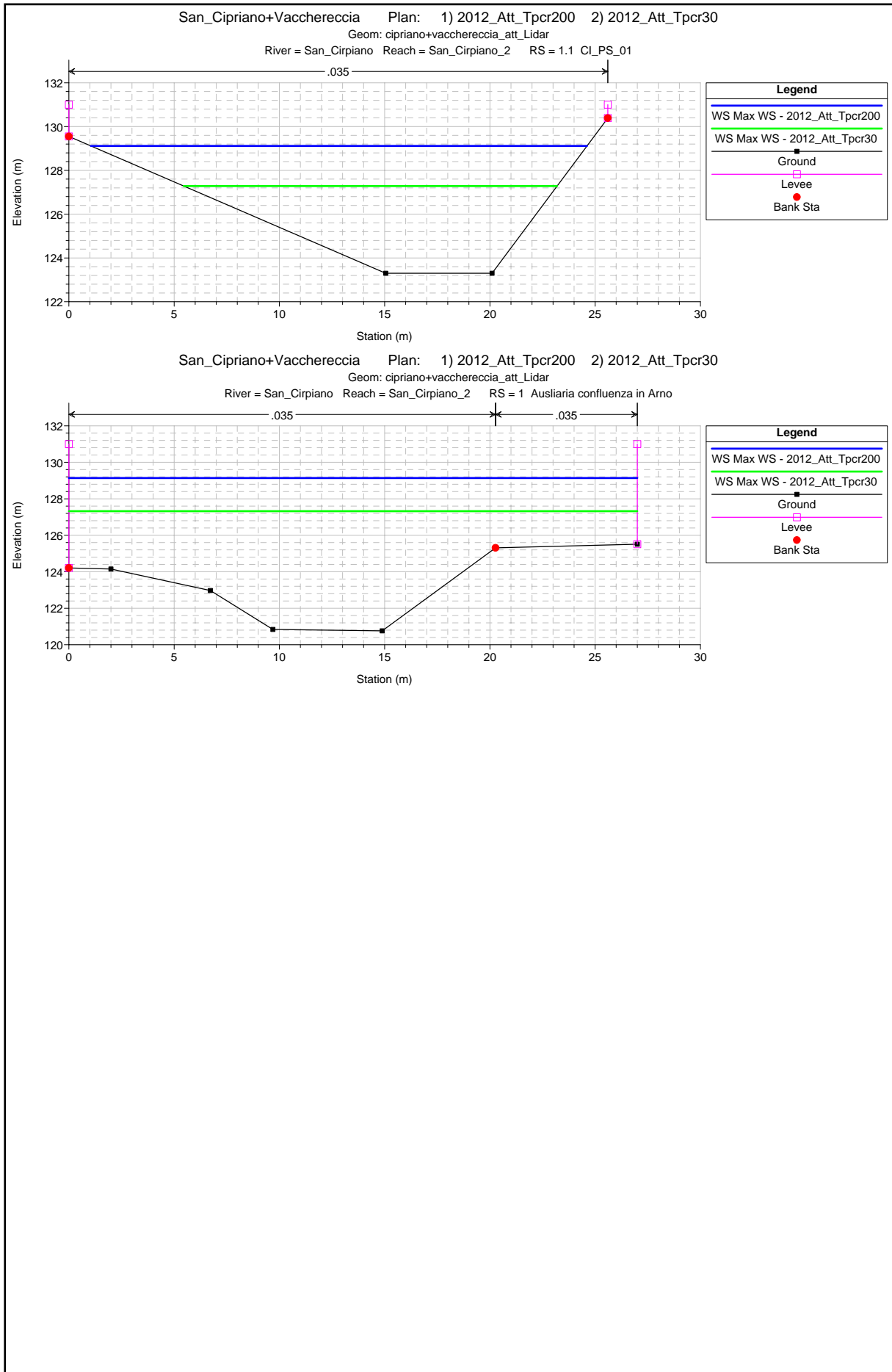












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	31	Max WS	2012_Att_Tpcr200	121.96	131.27	135.03		135.36	0.002768	2.64	55.11	49.67	0.52
San_Cirpiano	31	Max WS	2012_Att_Tpcr30	57.70	131.27	134.22		134.42	0.002362	2.01	28.66	15.26	0.46
San_Cirpiano	30	Max WS	2012_Att_Tpcr200	121.75	131.07	134.75	134.35	135.41	0.006406	3.64	36.23	33.43	0.76
San_Cirpiano	30	Max WS	2012_Att_Tpcr30	57.66	131.07	133.77		134.19	0.005834	2.86	20.15	11.28	0.68
San_Cirpiano	29	Max WS	2012_Att_Tpcr200	121.60	130.93	134.09	133.97	134.92	0.009840	4.05	30.09	16.71	0.93
San_Cirpiano	29	Max WS	2012_Att_Tpcr30	57.63	130.93	133.01		133.66	0.010567	3.57	16.16	10.38	0.91
San_Cirpiano	28	Max WS	2012_Att_Tpcr200	124.49	130.09	133.34		133.93	0.006560	3.45	38.49	30.51	0.78
San_Cirpiano	28	Max WS	2012_Att_Tpcr30	57.60	130.09	132.45		132.85	0.006198	2.78	20.75	13.62	0.72
San_Cirpiano	27	Max WS	2012_Att_Tpcr200	123.59	129.81	133.31		133.69	0.003909	2.89	51.87	50.45	0.61
San_Cirpiano	27	Max WS	2012_Att_Tpcr30	57.60	129.81	132.38		132.70	0.005043	2.53	23.15	19.17	0.65
San_Cirpiano	26	Max WS	2012_Att_Tpcr200	123.54	129.63	133.32		133.49	0.001530	1.94	84.51	115.97	0.39
San_Cirpiano	26	Max WS	2012_Att_Tpcr30	57.52	129.63	132.35		132.50	0.002237	1.71	33.71	21.99	0.44
San_Cirpiano	25	Max WS	2012_Att_Tpcr200	123.65	129.59	133.05		133.61	0.005064	3.47	42.13	32.76	0.68
San_Cirpiano	25	Max WS	2012_Att_Tpcr30	57.43	129.59	132.06		132.47	0.005454	2.83	20.44	13.49	0.67
San_Cirpiano	24	Max WS	2012_Att_Tpcr200	123.47	129.09	133.19		133.24	0.000534	1.42	160.51	156.98	0.24
San_Cirpiano	24	Max WS	2012_Att_Tpcr30	57.42	129.09	132.19		132.31	0.001296	1.79	46.32	50.73	0.35
San_Cirpiano	23.9			Lat Struct									
San_Cirpiano	23	Max WS	2012_Att_Tpcr200	123.45	128.78	133.09		133.16	0.000639	1.59	141.39	139.94	0.26
San_Cirpiano	23	Max WS	2012_Att_Tpcr30	57.40	128.78	132.02		132.14	0.001221	1.74	42.82	40.67	0.34
San_Cirpiano	22.1	Max WS	2012_Att_Tpcr200	123.45	128.87	132.85		133.16	0.002232	2.55	56.14	47.28	0.48
San_Cirpiano	22.1	Max WS	2012_Att_Tpcr30	57.39	128.87	131.86		132.05	0.002134	1.94	29.94	17.94	0.44
San_Cirpiano	22	Max WS	2012_Att_Tpcr200	123.45	128.87	132.82	131.83	133.15	0.002365	2.61	51.95	27.11	0.49
San_Cirpiano	22	Max WS	2012_Att_Tpcr30	57.39	128.87	131.85	130.82	132.05	0.002147	1.95	29.87	17.91	0.44
San_Cirpiano	21.5			Bridge									
San_Cirpiano	21	Max WS	2012_Att_Tpcr200	123.44	128.87	132.61		133.01	0.003178	2.87	46.31	27.11	0.56
San_Cirpiano	21	Max WS	2012_Att_Tpcr30	57.39	128.87	131.75		131.97	0.002521	2.06	28.07	17.01	0.48

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	20.8			Lat Struct									
San_Cirpiano	20	Max WS	2012_Att_Tpcr200	121.67	128.90	132.56		133.00	0.004040	2.93	42.07	26.00	0.62
San_Cirpiano	20	Max WS	2012_Att_Tpcr30	57.39	128.90	131.72		131.95	0.003179	2.15	26.72	15.78	0.53
San_Cirpiano	19.5	Max WS	2012_Att_Tpcr200	119.94	128.95	132.47		132.86	0.003358	2.77	44.27	22.64	0.57
San_Cirpiano	19.5	Max WS	2012_Att_Tpcr30	57.37	128.95	131.61		131.83	0.002874	2.06	27.91	16.31	0.50
San_Cirpiano_2	19.1	Max WS	2012_Att_Tpcr200	102.63	128.95	132.47		132.76	0.002458	2.37	44.27	22.64	0.49
San_Cirpiano_2	19.1	Max WS	2012_Att_Tpcr30	58.37	128.95	131.61		131.84	0.002975	2.09	27.91	16.31	0.51
San_Cirpiano_2	19	Max WS	2012_Att_Tpcr200	102.61	128.95	132.41		132.71	0.002703	2.45	42.84	21.96	0.51
San_Cirpiano_2	19	Max WS	2012_Att_Tpcr30	58.37	128.95	131.53		131.78	0.003404	2.19	26.63	16.06	0.54
San_Cirpiano_2	18.9			Lat Struct									
San_Cirpiano_2	18.8			Lat Struct									
San_Cirpiano_2	18	Max WS	2012_Att_Tpcr200	102.74	128.84	132.16		132.54	0.003541	2.73	37.75	17.66	0.57
San_Cirpiano_2	18	Max WS	2012_Att_Tpcr30	58.37	128.84	131.27		131.57	0.004279	2.43	23.98	14.45	0.60
San_Cirpiano_2	17	Max WS	2012_Att_Tpcr200	105.72	128.85	131.94		132.32	0.003627	2.72	38.83	17.80	0.59
San_Cirpiano_2	17	Max WS	2012_Att_Tpcr30	58.34	128.85	131.02		131.33	0.004374	2.46	23.71	14.85	0.62
San_Cirpiano_2	16	Max WS	2012_Att_Tpcr200	109.36	128.67	131.68		132.00	0.002956	2.51	43.60	19.28	0.53
San_Cirpiano_2	16	Max WS	2012_Att_Tpcr30	58.34	128.67	130.73		130.98	0.003487	2.19	26.60	16.60	0.55
San_Cirpiano_2	15.6	Max WS	2012_Att_Tpcr200	109.37	128.50	131.81	130.17	131.98	0.001221	1.82	60.03	19.45	0.33
San_Cirpiano_2	15.6	Max WS	2012_Att_Tpcr30	58.34	128.50	130.86	129.65	130.96	0.001063	1.40	41.52	19.16	0.30
San_Cirpiano_2	15.5			Bridge									
San_Cirpiano_2	15.4	Max WS	2012_Att_Tpcr200	109.37	128.50	131.80		131.97	0.001240	1.83	59.73	19.44	0.33
San_Cirpiano_2	15.4	Max WS	2012_Att_Tpcr30	58.34	128.50	130.84		130.94	0.001083	1.41	41.27	19.16	0.31
San_Cirpiano_2	15	Max WS	2012_Att_Tpcr200	109.37	127.71	131.83		131.97	0.000850	1.61	68.07	19.47	0.27
San_Cirpiano_2	15	Max WS	2012_Att_Tpcr30	58.34	127.71	130.87		130.94	0.000632	1.18	49.42	19.20	0.23

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano_2	14.8			Lat Struct									
San_Cirpiano_2	14	Max WS	2012_Att_Tpcr200	109.37	127.77	131.71		131.93	0.001696	2.20	53.26	20.73	0.41
San_Cirpiano_2	14	Max WS	2012_Att_Tpcr30	58.33	127.77	130.78		130.92	0.001421	1.73	35.56	16.84	0.36
San_Cirpiano_2	13	Max WS	2012_Att_Tpcr200	109.36	127.69	131.34		131.68	0.002848	2.66	44.59	22.90	0.51
San_Cirpiano_2	13	Max WS	2012_Att_Tpcr30	58.32	127.69	130.39		130.66	0.003127	2.28	25.61	12.95	0.51
San_Cirpiano_2	12	Max WS	2012_Att_Tpcr200	109.35	127.55	131.05		131.54	0.004229	3.13	36.56	20.24	0.62
San_Cirpiano_2	12	Max WS	2012_Att_Tpcr30	58.31	127.55	130.19		130.51	0.003764	2.49	23.43	11.95	0.57
San_Cirpiano_2	11	Max WS	2012_Att_Tpcr200	109.35	127.37	130.78		131.20	0.003702	2.94	39.68	20.11	0.59
San_Cirpiano_2	11	Max WS	2012_Att_Tpcr30	58.31	127.37	129.82		130.16	0.004413	2.58	22.62	12.36	0.61
San_Cirpiano_2	10	Max WS	2012_Att_Tpcr200	109.35	127.28	130.77	129.39	131.01	0.001533	2.41	54.08	20.94	0.42
San_Cirpiano_2	10	Max WS	2012_Att_Tpcr30	58.30	127.28	129.80	128.83	129.95	0.001432	1.84	35.63	17.62	0.39
San_Cirpiano_2	9.5			Bridge									
San_Cirpiano_2	9.4	Max WS	2012_Att_Tpcr200	109.35	127.28	130.33		130.66	0.002513	2.80	45.34	19.28	0.53
San_Cirpiano_2	9.4	Max WS	2012_Att_Tpcr30	58.29	127.28	129.60		129.78	0.001990	2.04	32.06	17.52	0.45
San_Cirpiano_2	9.2			Lat Struct									
San_Cirpiano_2	9	Max WS	2012_Att_Tpcr200	109.35	127.18	130.41		130.64	0.001911	2.19	52.94	25.72	0.43
San_Cirpiano_2	9	Max WS	2012_Att_Tpcr30	58.29	127.18	129.61		129.77	0.001847	1.75	33.61	20.40	0.41
San_Cirpiano_2	8	Max WS	2012_Att_Tpcr200	109.30	126.89	130.12		130.44	0.003238	2.51	43.73	22.90	0.55
San_Cirpiano_2	8	Max WS	2012_Att_Tpcr30	58.29	126.89	129.37		129.58	0.002963	1.99	29.22	18.39	0.51
San_Cirpiano_2	7	Max WS	2012_Att_Tpcr200	109.30	126.60	129.64		130.00	0.003563	2.68	41.95	22.98	0.59
San_Cirpiano_2	7	Max WS	2012_Att_Tpcr30	58.26	126.60	128.92		129.16	0.003531	2.17	26.84	17.99	0.56
San_Cirpiano_2	6	Max WS	2012_Att_Tpcr200	109.15	126.34	129.62		129.83	0.001755	2.06	53.64	23.93	0.43
San_Cirpiano_2	6	Max WS	2012_Att_Tpcr30	58.24	126.34	128.88		129.01	0.001460	1.58	37.08	21.04	0.37
San_Cirpiano_2	5	Max WS	2012_Att_Tpcr200	109.03	126.11	129.47		129.74	0.002078	2.34	49.06	21.56	0.46
San_Cirpiano_2	5	Max WS	2012_Att_Tpcr30	58.24	126.11	128.79		128.93	0.001428	1.71	35.43	18.83	0.37

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano_2	4	Max WS	2012_Att_Tpcr200	71.40	125.73	129.38		129.51	0.000994	1.64	45.57	18.42	0.31
San_Cirpiano_2	4	Max WS	2012_Att_Tpcr30	58.23	125.73	128.55		128.74	0.002028	1.94	30.93	16.53	0.43
San_Cirpiano_2	3	Max WS	2012_Att_Tpcr200	90.51	125.93	129.22		129.44	0.001958	2.06	43.93	18.59	0.43
San_Cirpiano_2	3	Max WS	2012_Att_Tpcr30	58.23	125.93	128.42		128.62	0.002542	1.96	29.68	16.95	0.47
San_Cirpiano_2	2.6	Max WS	2012_Att_Tpcr200	94.69	125.92	129.12	128.14	129.49	0.002776	2.72	34.81	16.44	0.52
San_Cirpiano_2	2.6	Max WS	2012_Att_Tpcr30	58.23	125.92	128.34	127.59	128.62	0.003155	2.33	25.02	13.54	0.53
San_Cirpiano_2	2.5			Bridge									
San_Cirpiano_2	2.4	Max WS	2012_Att_Tpcr200	94.69	125.92	129.19		129.54	0.002554	2.65	35.69	17.88	0.50
San_Cirpiano_2	2.4	Max WS	2012_Att_Tpcr30	58.23	125.92	128.23		128.54	0.003780	2.46	23.70	13.26	0.57
San_Cirpiano_2	2	Max WS	2012_Att_Tpcr200	94.16	125.92	129.24	128.15	129.55	0.002692	2.44	38.85	19.09	0.50
San_Cirpiano_2	2	Max WS	2012_Att_Tpcr30	58.23	125.92	128.23	127.59	128.53	0.004055	2.45	23.74	13.24	0.58
San_Cirpiano_2	1.5			Inl Struct									
San_Cirpiano_2	1.4	Max WS	2012_Att_Tpcr200	95.44	123.30	129.12		129.19	0.000369	1.15	83.27	23.57	0.19
San_Cirpiano_2	1.4	Max WS	2012_Att_Tpcr30	20.98	123.30	127.28		127.30	0.000090	0.46	45.40	17.74	0.09
San_Cirpiano_2	1.1	Max WS	2012_Att_Tpcr200	95.40	123.30	129.12		129.18	0.000369	1.15	83.24	23.57	0.19
San_Cirpiano_2	1.1	Max WS	2012_Att_Tpcr30	20.97	123.30	127.28		127.30	0.000091	0.46	45.39	17.74	0.09
San_Cirpiano_2	1	Max WS	2012_Att_Tpcr200	92.92	120.76	129.14	123.41	129.16	0.000058	0.62	159.04	27.00	0.08
San_Cirpiano_2	1	Max WS	2012_Att_Tpcr30	55.14	120.76	127.32	122.71	127.33	0.000059	0.53	109.90	27.00	0.08

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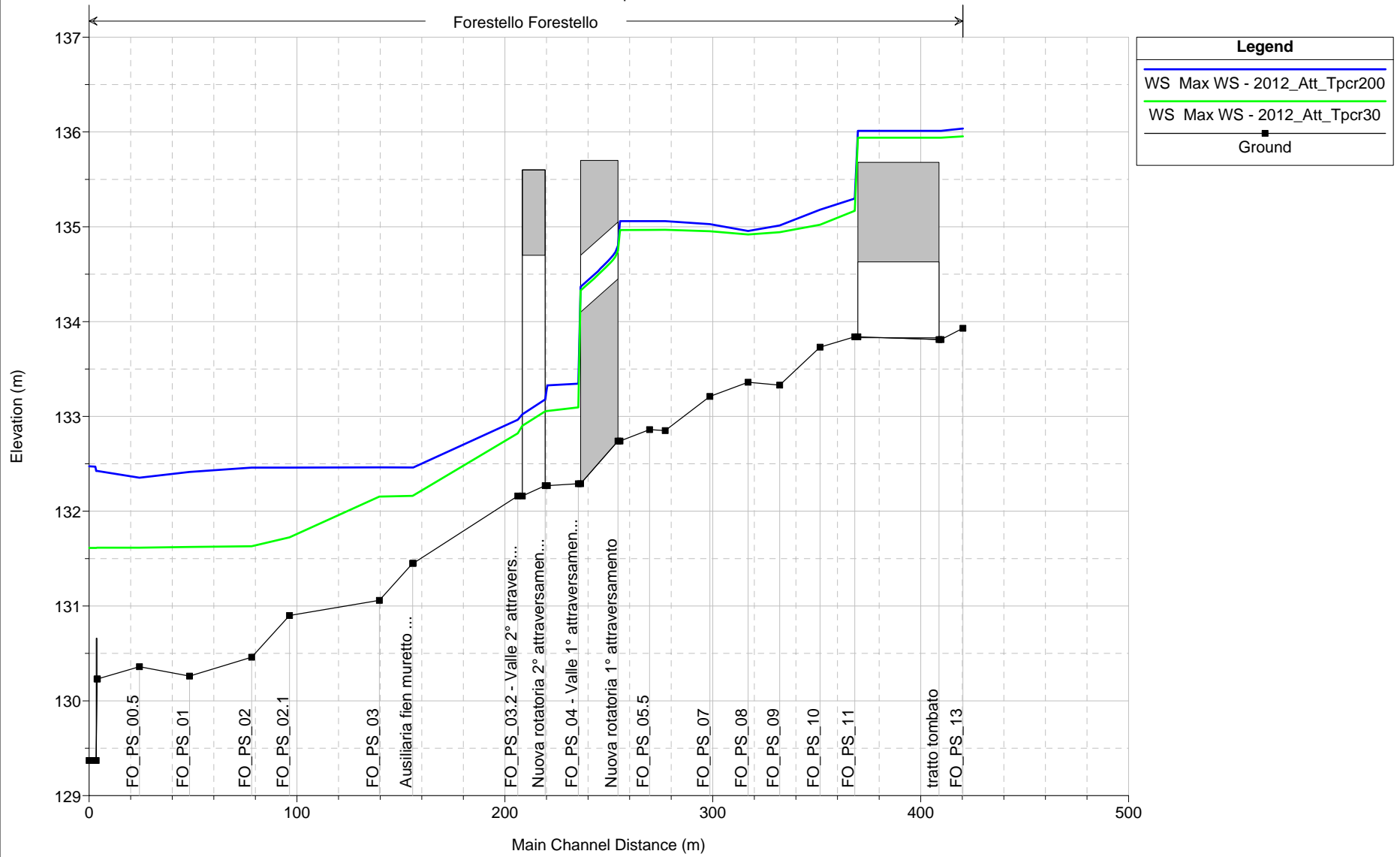
### **BORRO FORESTELLO**

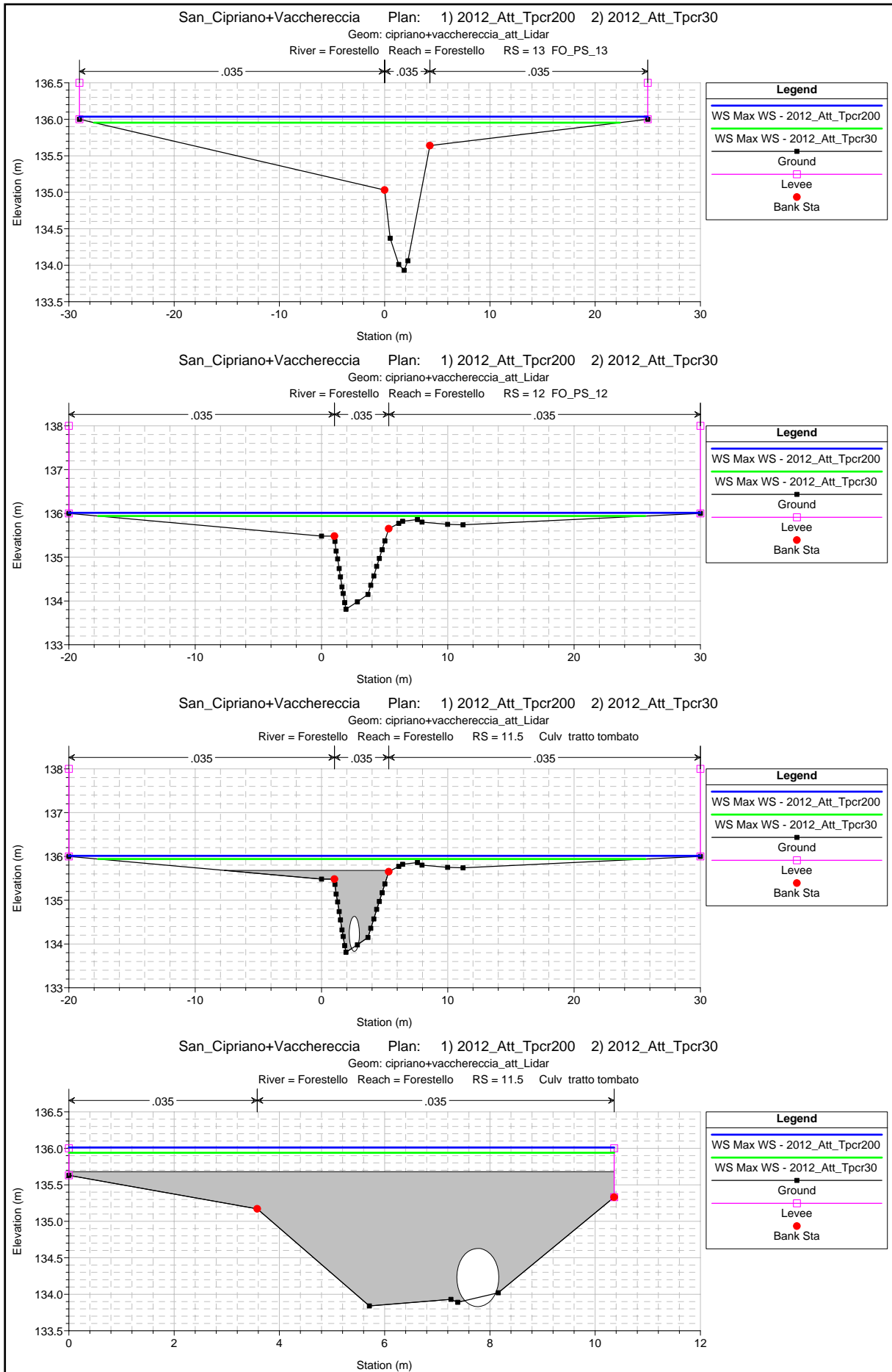
#### **Scenario A1 - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

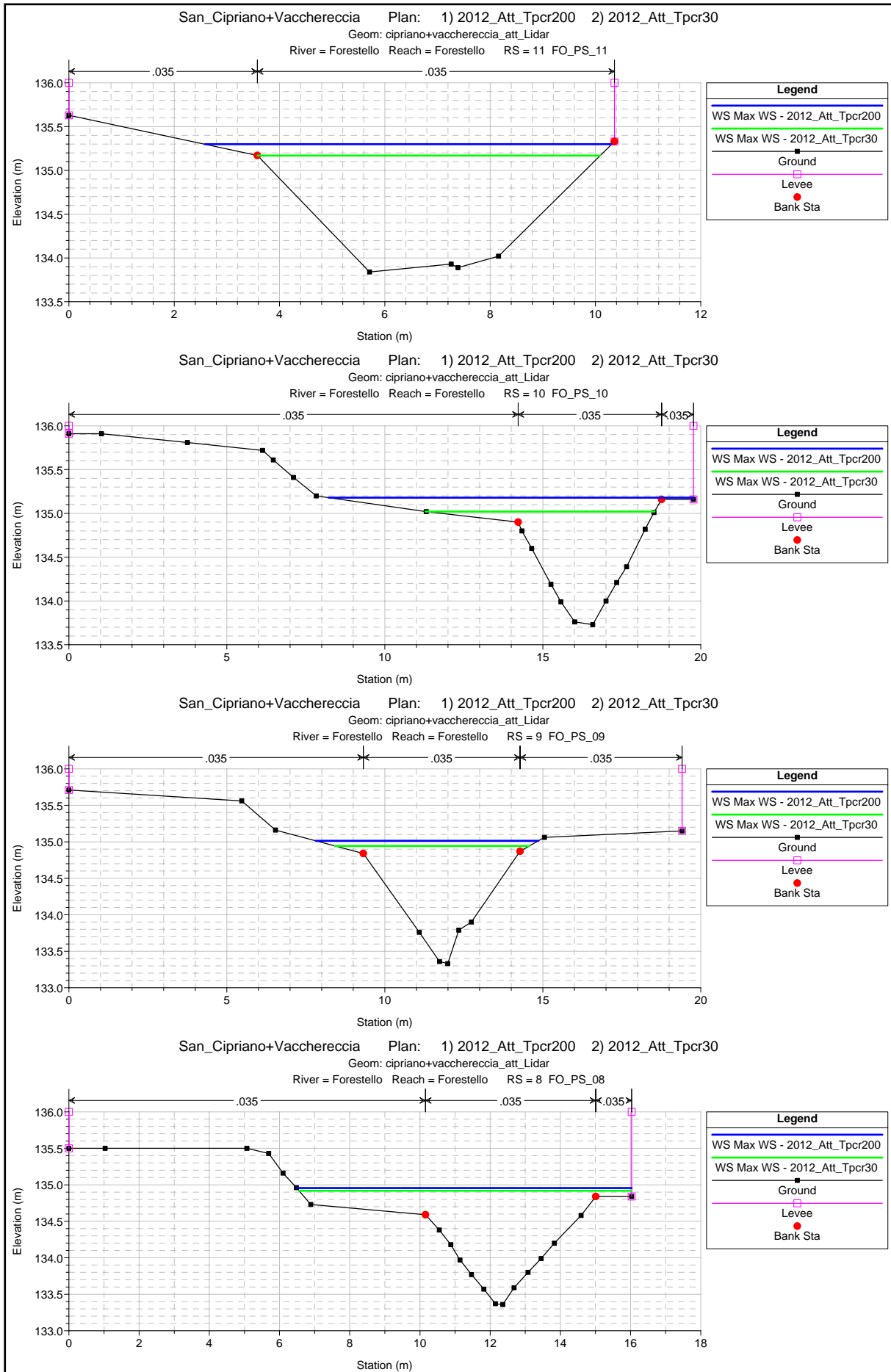
San\_Cipriano+Vacchereccia Plan: 1) 2012\_Att\_Tpcr200 2) 2012\_Att\_Tpcr30

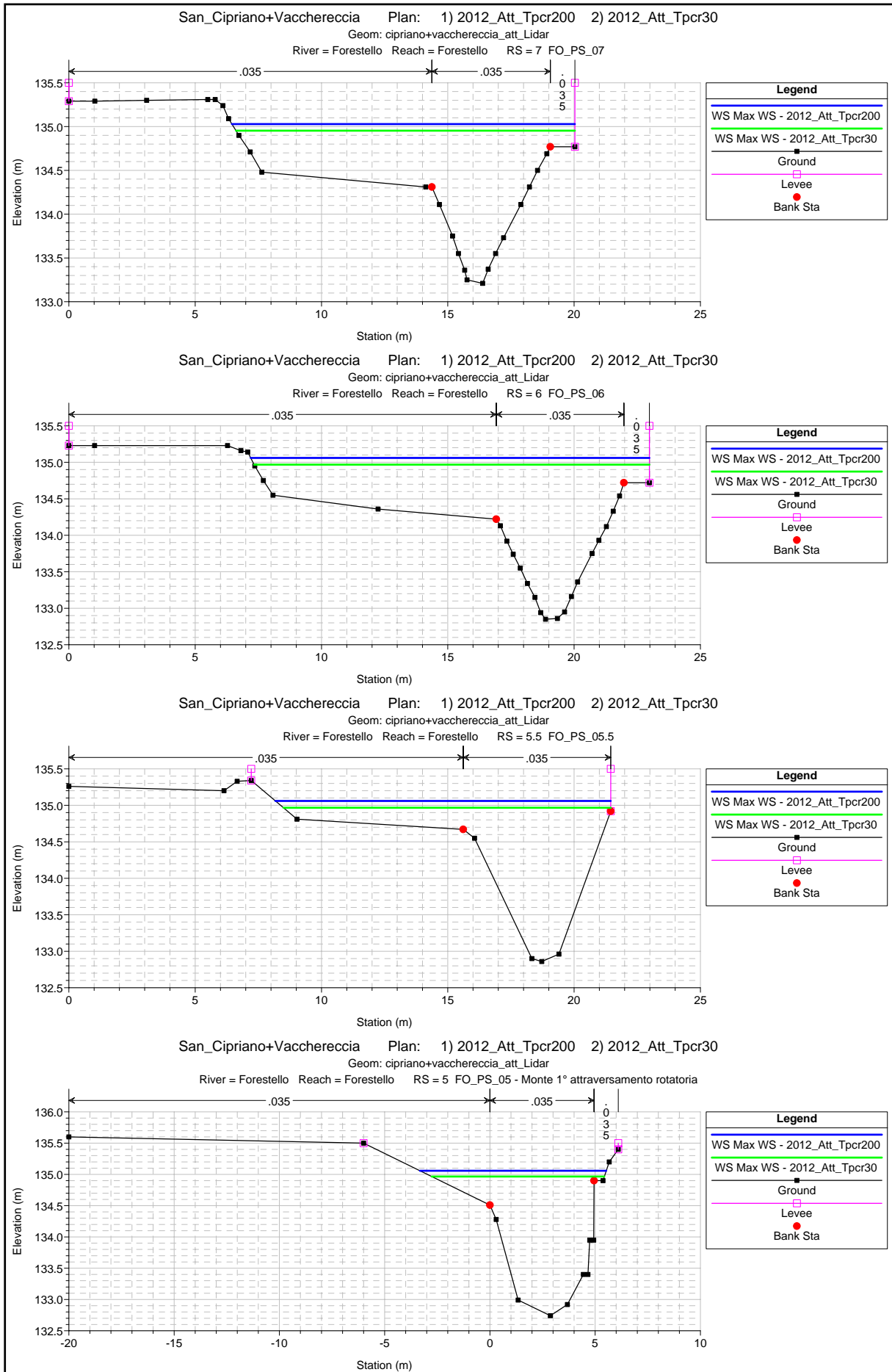
Geom: cipriano+vacchereccia\_att\_Lidar

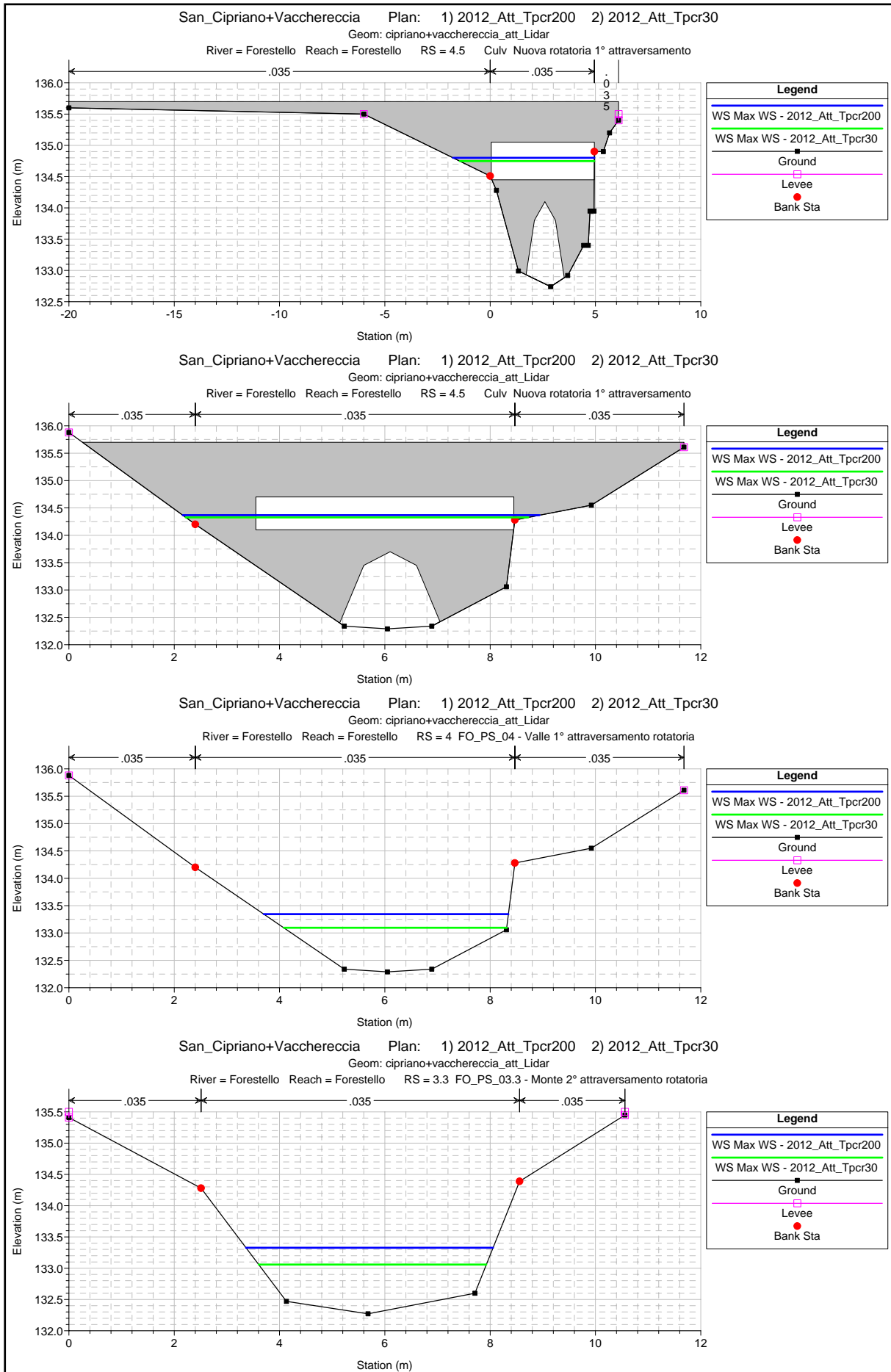


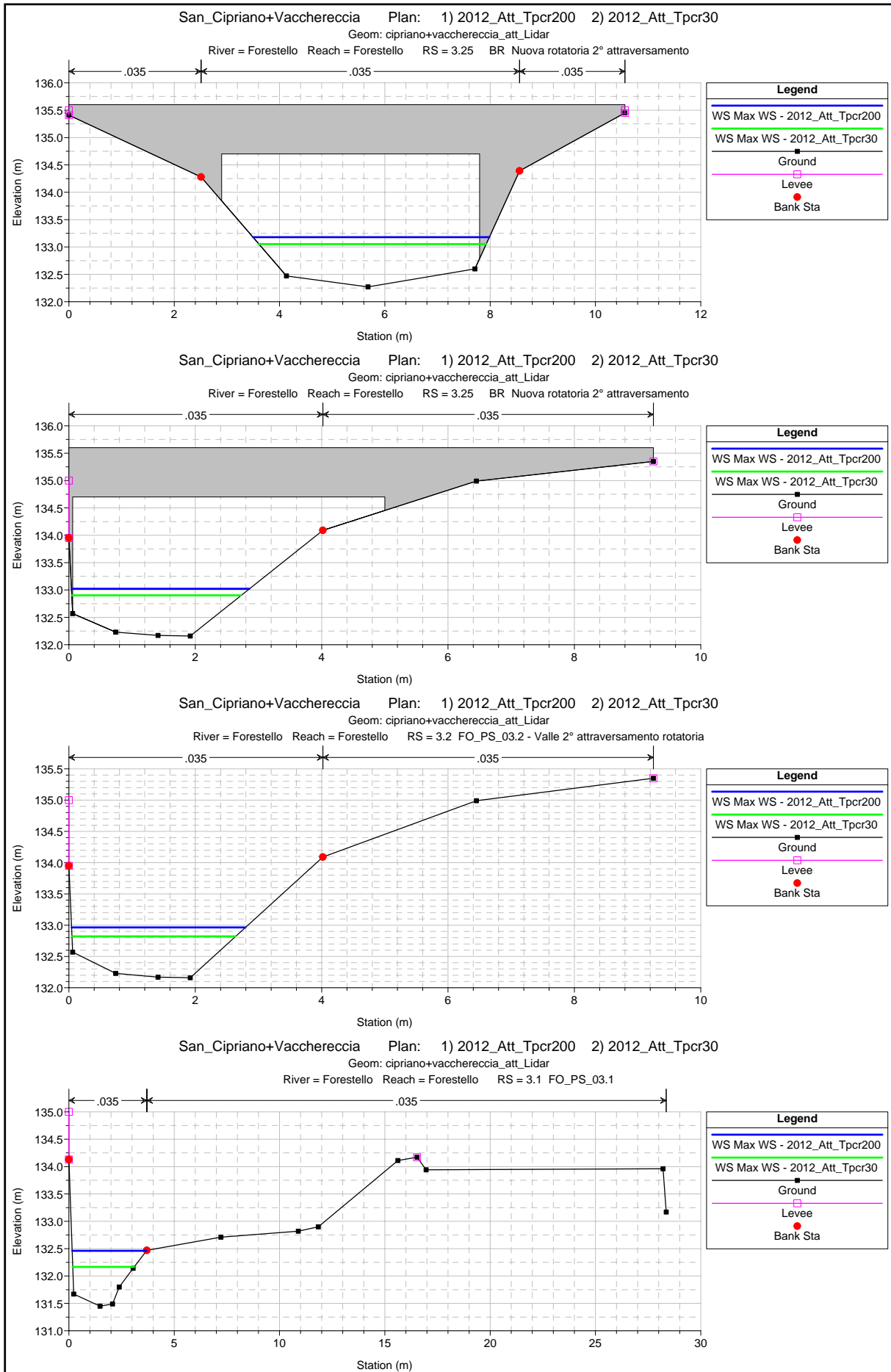


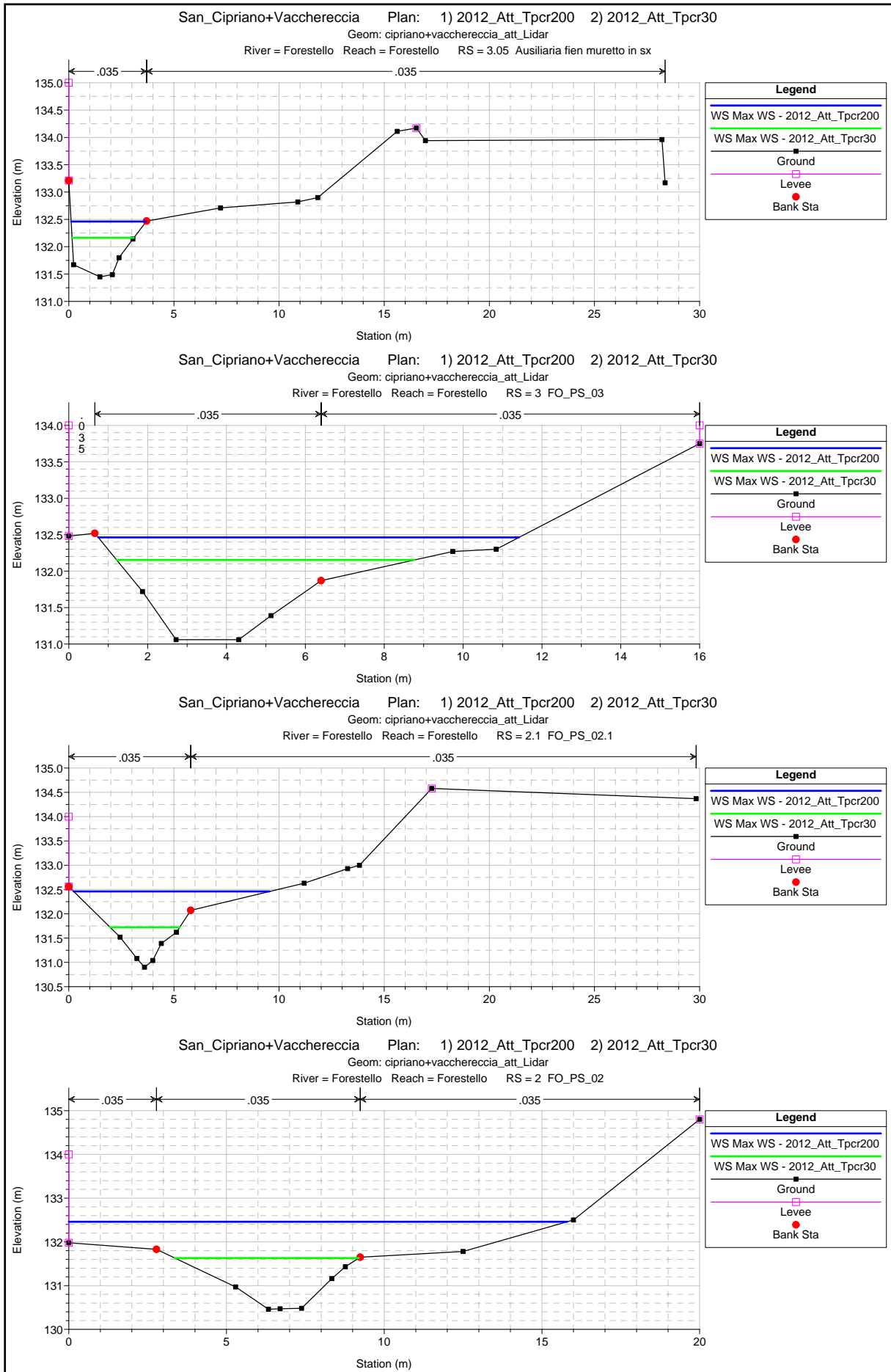


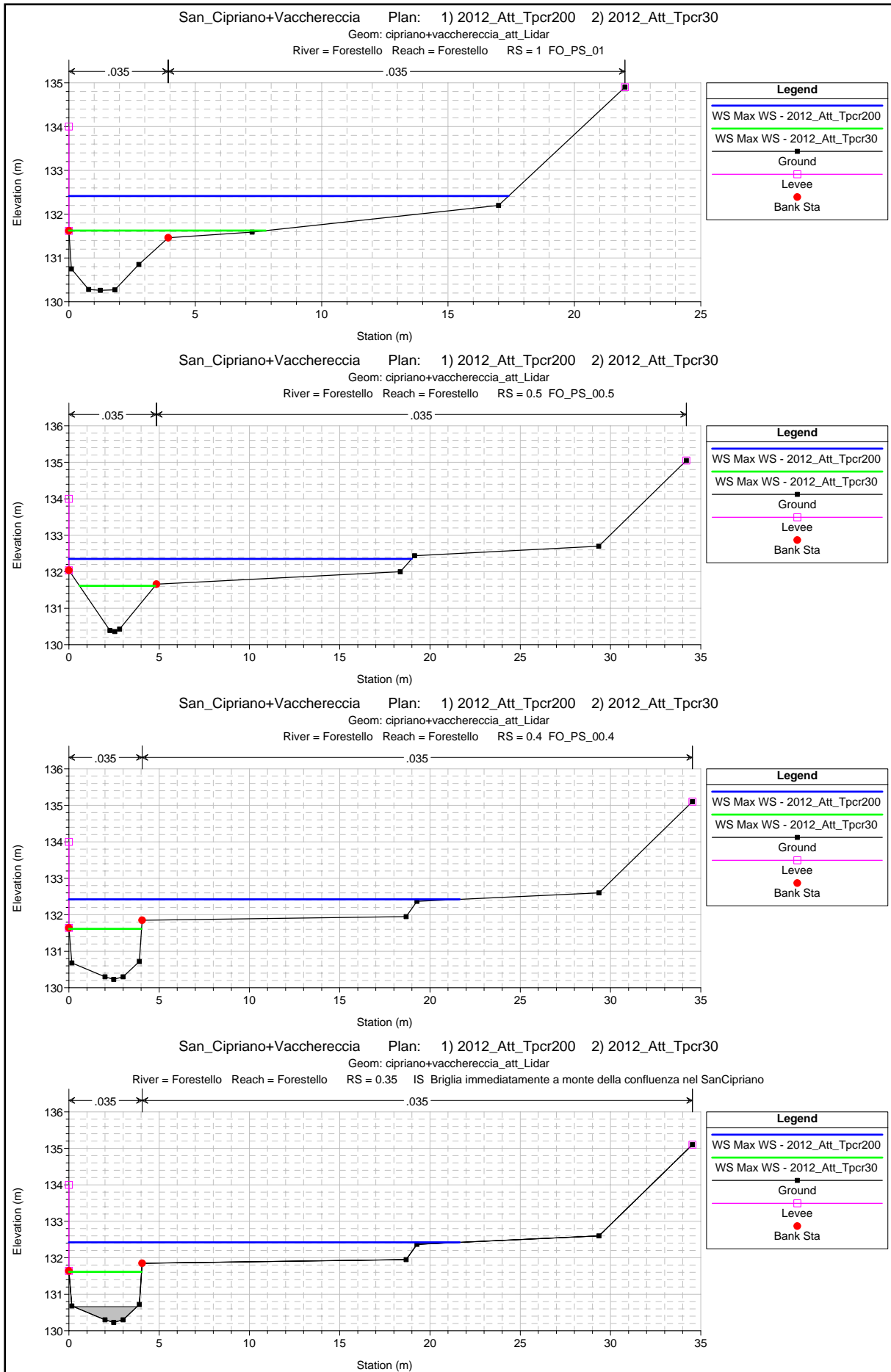


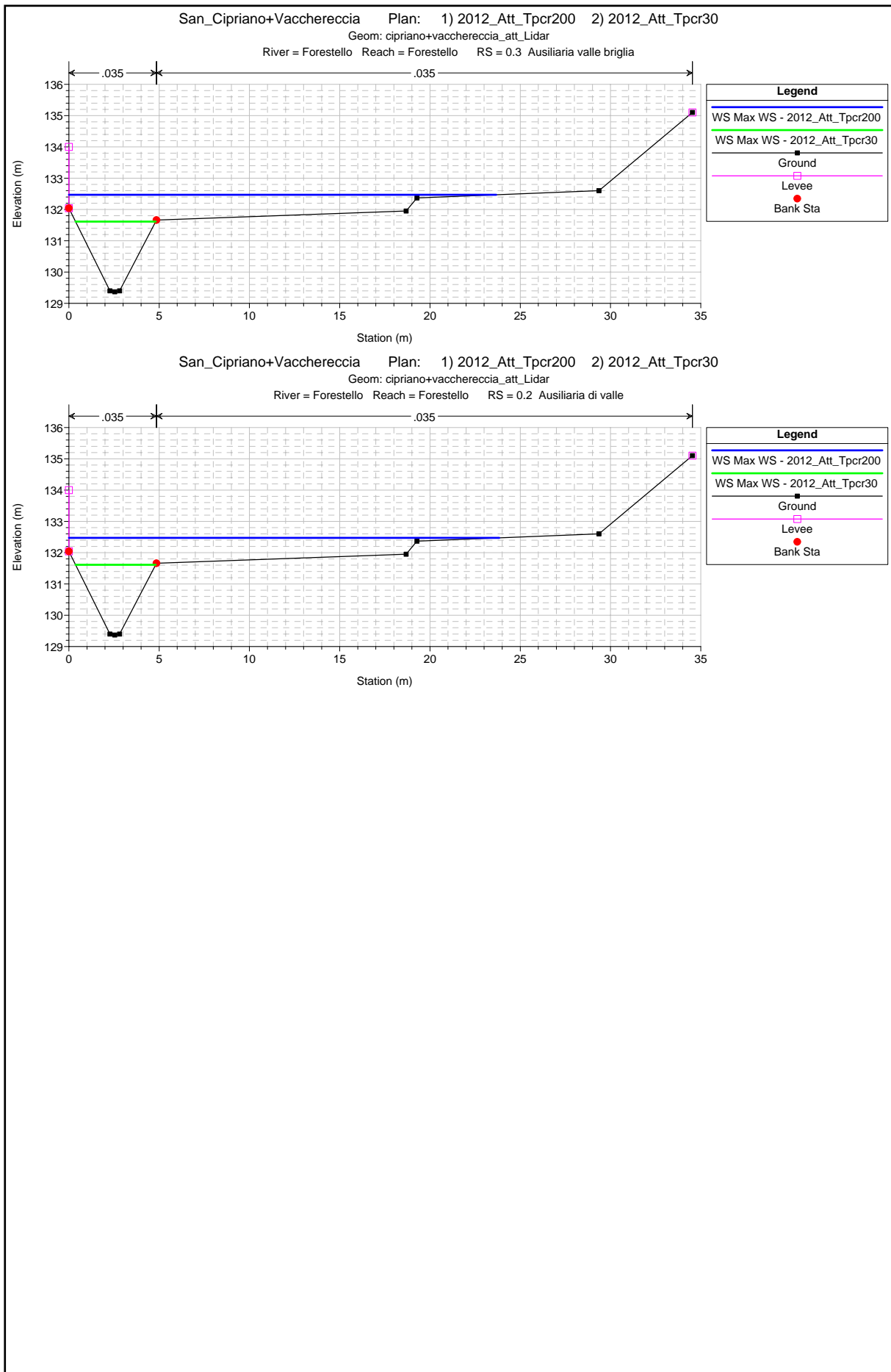












HEC-RAS River: Forestello Reach: Forestello Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	13	Max WS	2012_Att_Tpcr200	9.94	133.93	136.04		136.05	0.000341	0.61	26.07	54.00	0.16
Forestello	13	Max WS	2012_Att_Tpcr30	6.38	133.93	135.95		135.96	0.000215	0.46	21.72	49.98	0.12
Forestello	12	Max WS	2012_Att_Tpcr200	9.94	133.81	136.01		136.05	0.000996	0.98	16.71	50.00	0.25
Forestello	12	Max WS	2012_Att_Tpcr30	6.38	133.81	135.94		135.96	0.000614	0.74	13.28	43.32	0.20
Forestello	11.5			Culvert									
Forestello	11	Max WS	2012_Att_Tpcr200	9.94	133.84	135.30		135.42	0.003500	1.53	6.53	7.73	0.50
Forestello	11	Max WS	2012_Att_Tpcr30	6.38	133.84	135.17		135.23	0.002221	1.14	5.61	6.51	0.39
Forestello	10.8			Lat Struct									
Forestello	10	Max WS	2012_Att_Tpcr200	9.94	133.73	135.18	135.16	135.43	0.009364	2.30	4.93	11.55	0.78
Forestello	10	Max WS	2012_Att_Tpcr30	6.38	133.73	135.02		135.20	0.007738	1.90	3.50	7.25	0.69
Forestello	9	Max WS	2012_Att_Tpcr200	9.93	133.33	135.01		135.25	0.007995	2.15	4.74	7.05	0.72
Forestello	9	Max WS	2012_Att_Tpcr30	6.38	133.33	134.94		135.06	0.004356	1.51	4.28	6.15	0.52
Forestello	8	Max WS	2012_Att_Tpcr200	9.81	133.36	134.96		135.13	0.006252	1.96	5.63	9.54	0.65
Forestello	8	Max WS	2012_Att_Tpcr30	6.34	133.36	134.92		135.00	0.003078	1.34	5.28	9.48	0.45
Forestello	7	Max WS	2012_Att_Tpcr200	8.15	133.21	135.03		135.06	0.001053	0.93	10.36	13.58	0.27
Forestello	7	Max WS	2012_Att_Tpcr30	5.36	133.21	134.95		134.97	0.000614	0.68	9.35	13.41	0.21
Forestello	6	Max WS	2012_Att_Tpcr200	4.28	132.85	135.06		135.06	0.000121	0.36	14.26	15.78	0.09
Forestello	6	Max WS	2012_Att_Tpcr30	2.99	132.85	134.97		134.97	0.000080	0.28	12.83	15.65	0.08
Forestello	5.5	Max WS	2012_Att_Tpcr200	3.29	132.86	135.06		135.07	0.000157	0.37	10.06	13.27	0.10
Forestello	5.5	Max WS	2012_Att_Tpcr30	2.50	132.86	134.97		134.97	0.000123	0.32	8.83	12.96	0.09
Forestello	5	Max WS	2012_Att_Tpcr200	3.20	132.74	135.06		135.06	0.000108	0.34	9.98	8.86	0.08
Forestello	5	Max WS	2012_Att_Tpcr30	2.49	132.74	134.97		134.97	0.000080	0.28	9.19	8.20	0.07
Forestello	4.5			Culvert									
Forestello	4	Max WS	2012_Att_Tpcr200	3.20	132.29	133.35		133.39	0.001992	0.94	3.40	4.65	0.35
Forestello	4	Max WS	2012_Att_Tpcr30	2.49	132.29	133.10		133.16	0.003740	1.09	2.29	4.23	0.47



HEC-RAS River: Forestello Reach: Forestello Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	3.3	Max WS	2012_Att_Tpcr200	3.20	132.27	133.33	132.84	133.36	0.001511	0.85	3.75	4.69	0.30
Forestello	3.3	Max WS	2012_Att_Tpcr30	2.49	132.27	133.06	132.77	133.11	0.002866	0.98	2.53	4.32	0.41
Forestello	3.25			Bridge									
Forestello	3.2	Max WS	2012_Att_Tpcr200	3.62	132.16	132.96		133.21	0.015947	2.18	1.66	2.75	0.90
Forestello	3.2	Max WS	2012_Att_Tpcr30	2.49	132.16	132.82		133.02	0.015754	1.95	1.27	2.59	0.89
Forestello	3.19			Lat Struct									
Forestello	3.1	Max WS	2012_Att_Tpcr200	1.00	131.45	132.46		132.47	0.000479	0.41	2.43	3.53	0.16
Forestello	3.1	Max WS	2012_Att_Tpcr30	2.49	131.45	132.17		132.31	0.011467	1.69	1.48	2.92	0.76
Forestello	3.05	Max WS	2012_Att_Tpcr200	1.00	131.45	132.46		132.47	0.000469	0.41	2.44	3.57	0.16
Forestello	3.05	Max WS	2012_Att_Tpcr30	2.49	131.45	132.16		132.31	0.011589	1.69	1.47	2.94	0.76
Forestello	3	Max WS	2012_Att_Tpcr200	1.00	131.06	132.46		132.46	0.000034	0.16	7.19	10.67	0.05
Forestello	3	Max WS	2012_Att_Tpcr30	2.49	131.06	132.15		132.17	0.000744	0.61	4.29	7.55	0.22
Forestello	2.99			Lat Struct									
Forestello	2.1	Max WS	2012_Att_Tpcr200	1.00	130.90	132.46		132.46	0.000072	0.20	5.42	9.31	0.07
Forestello	2.1	Max WS	2012_Att_Tpcr30	2.48	130.90	131.72	131.71	131.90	0.017220	1.88	1.32	3.32	0.95
Forestello	2	Max WS	2012_Att_Tpcr200	-1.20	130.46	132.46		132.46	0.000009	-0.10	14.17	15.81	0.03
Forestello	2	Max WS	2012_Att_Tpcr30	2.26	130.46	131.63		131.65	0.000892	0.60	3.77	5.83	0.24
Forestello	1	Max WS	2012_Att_Tpcr200	-11.02	130.26	132.41		132.45	0.000849	-0.91	14.92	17.40	0.22
Forestello	1	Max WS	2012_Att_Tpcr30	1.00	130.26	131.62		131.63	0.000128	0.26	4.10	7.78	0.09
Forestello	0.5	Max WS	2012_Att_Tpcr200	-17.31	130.36	132.35		132.45	0.003012	-1.61	13.49	18.99	0.45
Forestello	0.5	Max WS	2012_Att_Tpcr30	1.00	130.36	131.62		131.62	0.000311	0.35	2.86	4.19	0.14
Forestello	0.4	Max WS	2012_Att_Tpcr200	-17.31	130.23	132.42	131.72	132.50	0.002105	-1.44	15.71	21.65	0.33
Forestello	0.4	Max WS	2012_Att_Tpcr30	1.00	130.23	131.61	130.61	131.62	0.000081	0.22	4.54	4.02	0.07
Forestello	0.35			Inl Struct									

HEC-RAS River: Forestello Reach: Forestello Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	0.3	Max WS	2012_Att_Tpcr200	-17.31	129.37	132.47		132.52	0.001210	-1.17	19.20	23.67	0.27
Forestello	0.3	Max WS	2012_Att_Tpcr30	1.00	129.37	131.61		131.61	0.000050	0.18	5.52	4.44	0.05
Forestello	0.2	Max WS	2012_Att_Tpcr200	-17.31	129.37	132.47		132.53	0.001200	-1.17	19.29	23.84	0.26
Forestello	0.2	Max WS	2012_Att_Tpcr30	1.00	129.37	131.61		131.61	0.000050	0.18	5.52	4.44	0.05

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

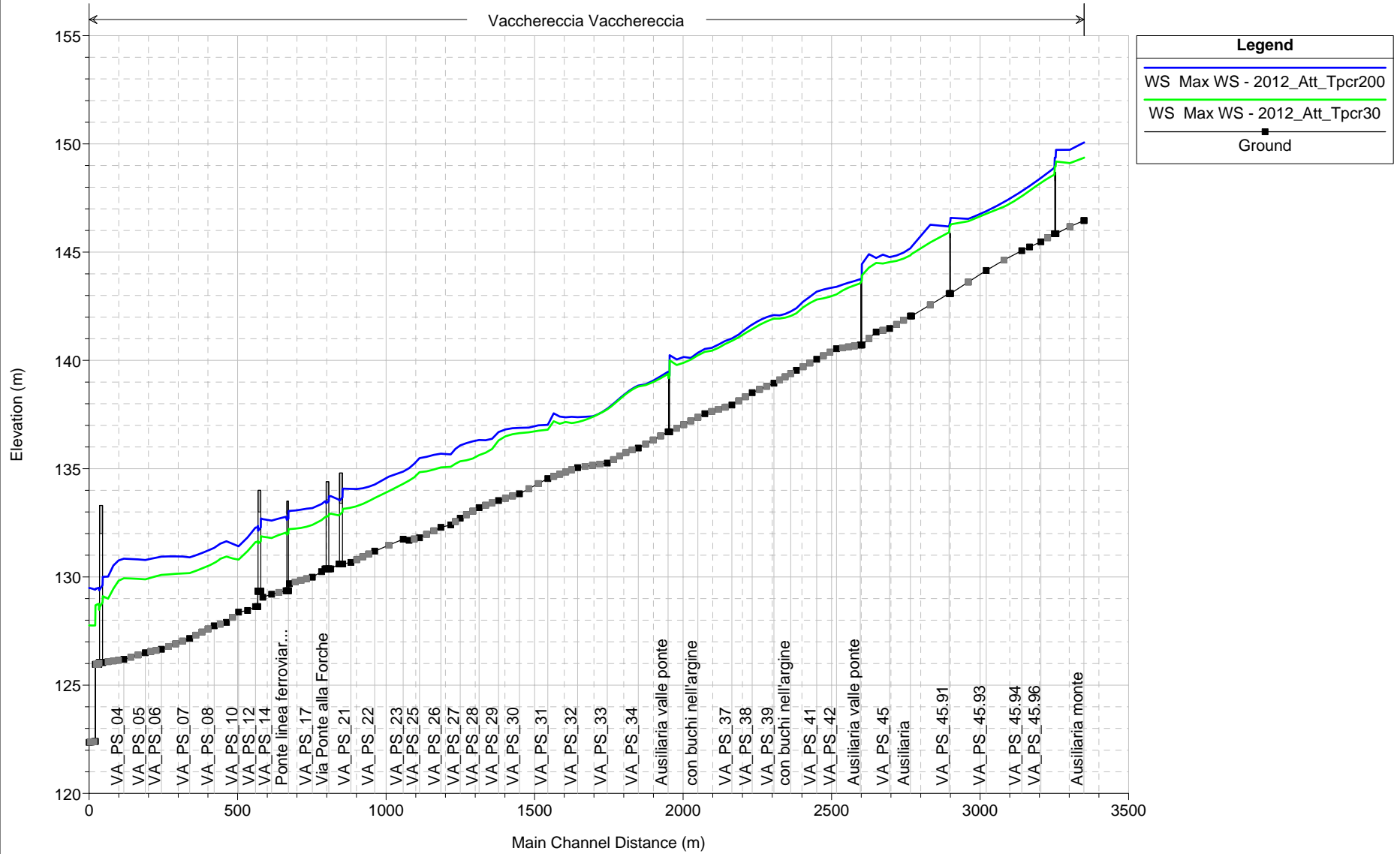
### **BORRO VACCHERECCIA**

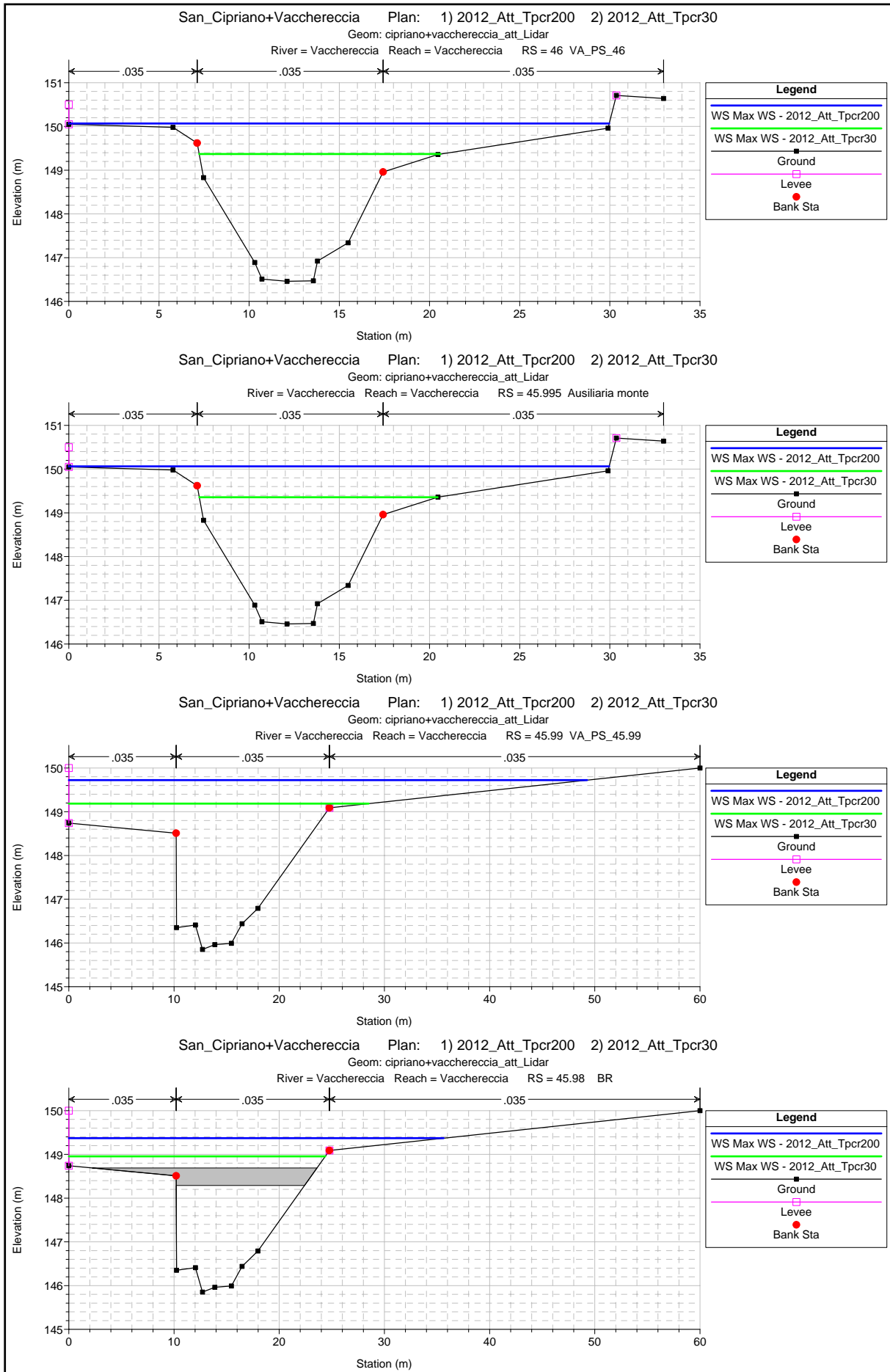
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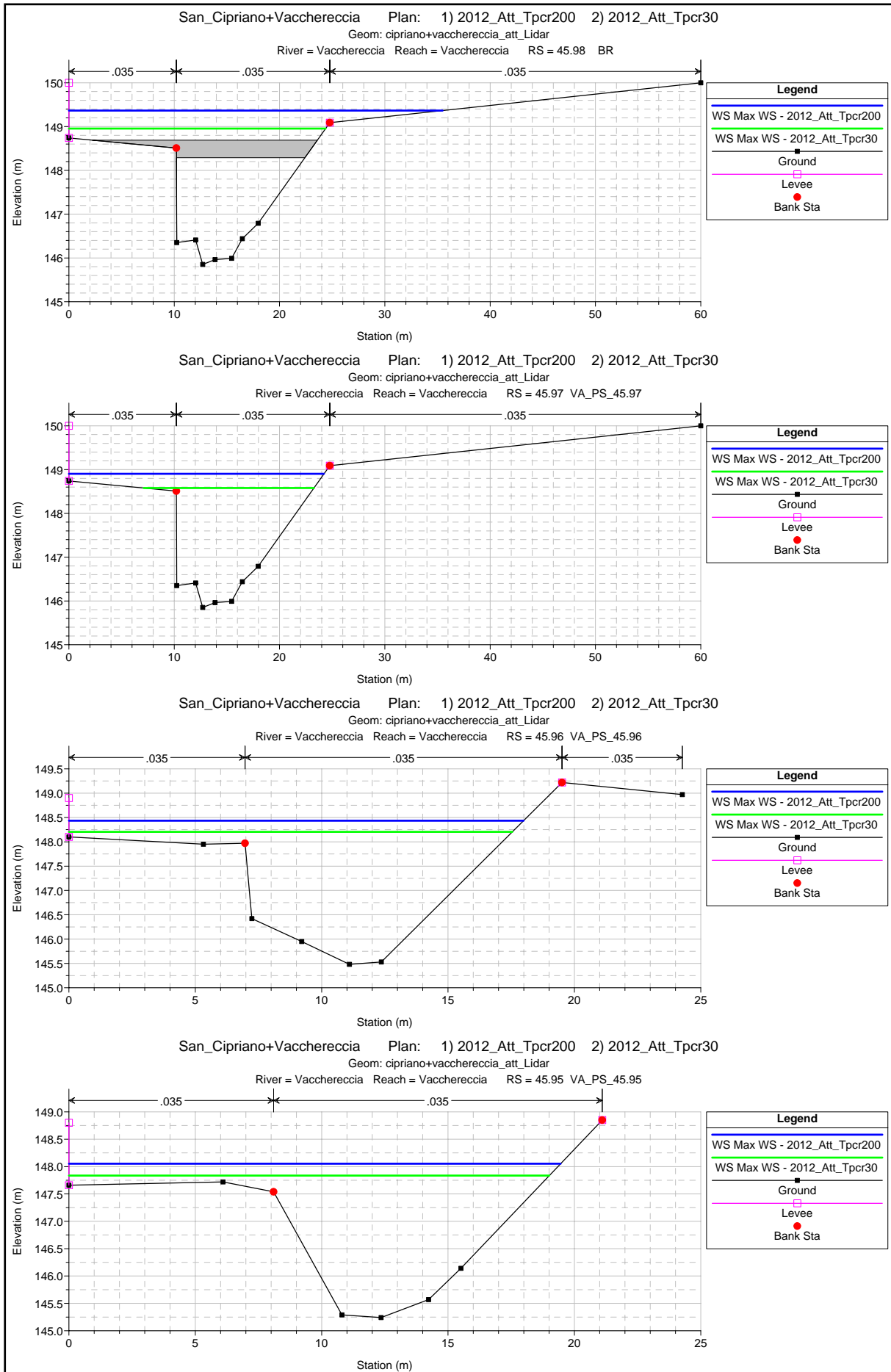
- Profili
- Sezioni di verifica
- Tabelle di output

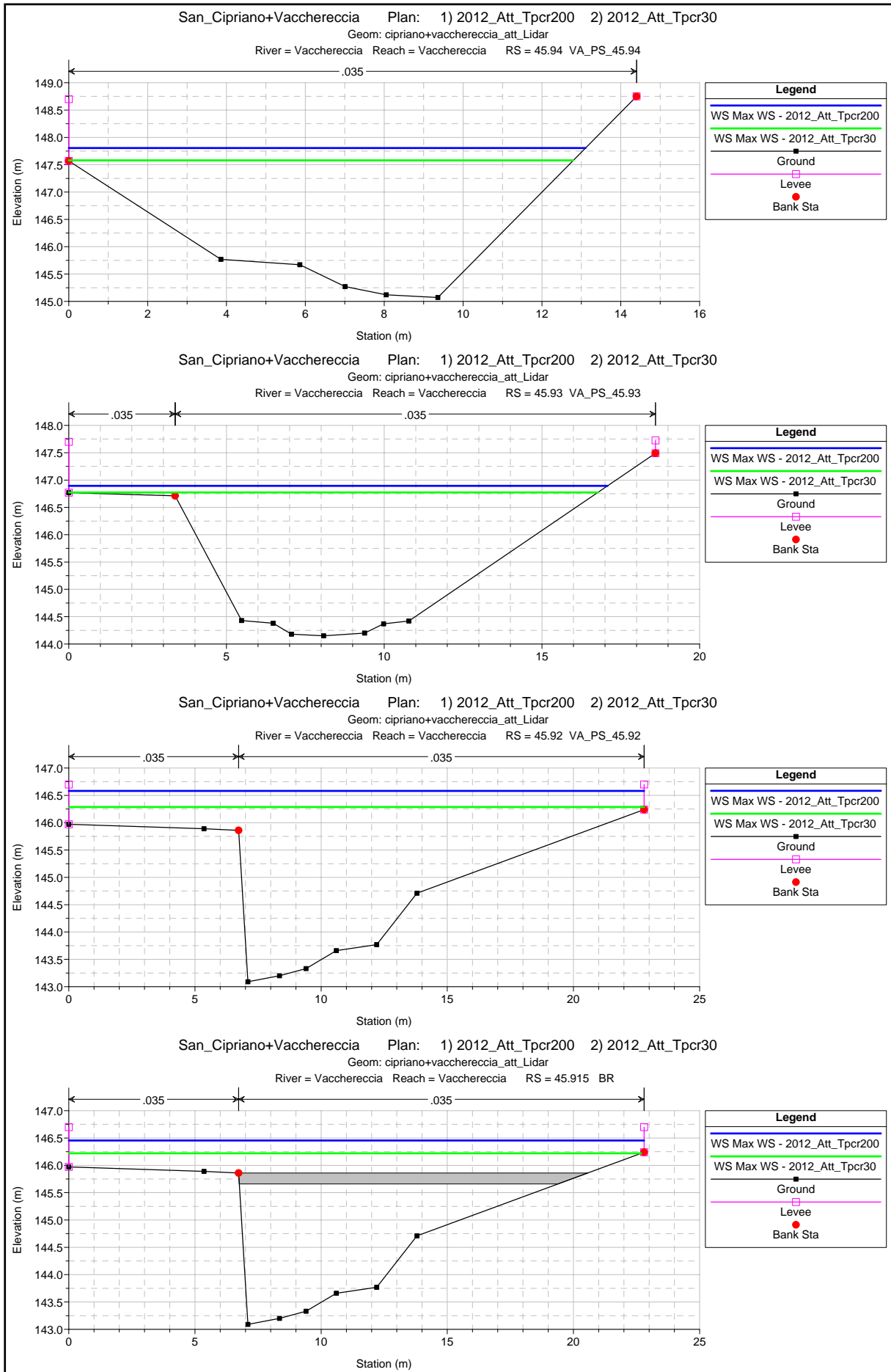
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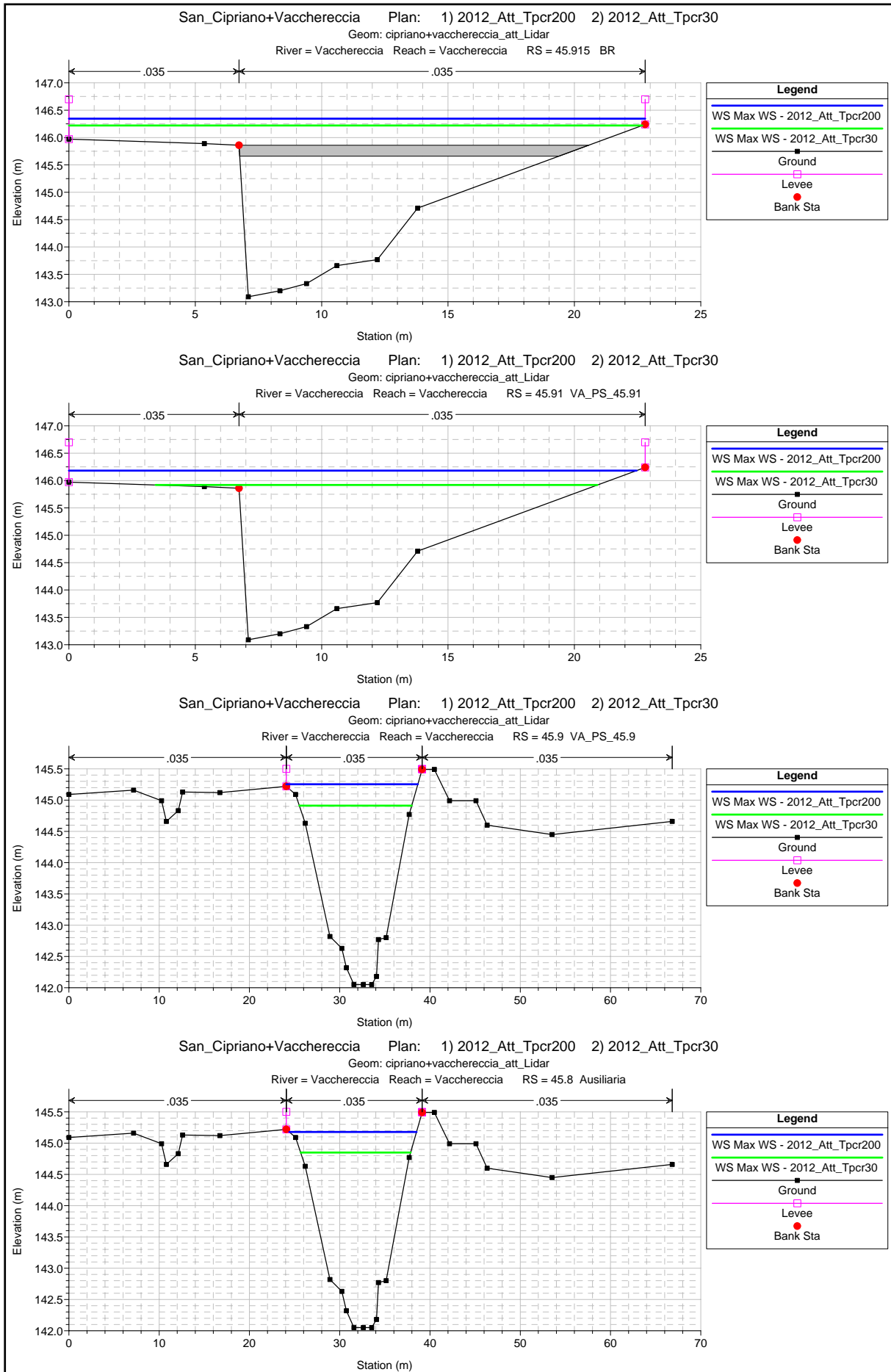
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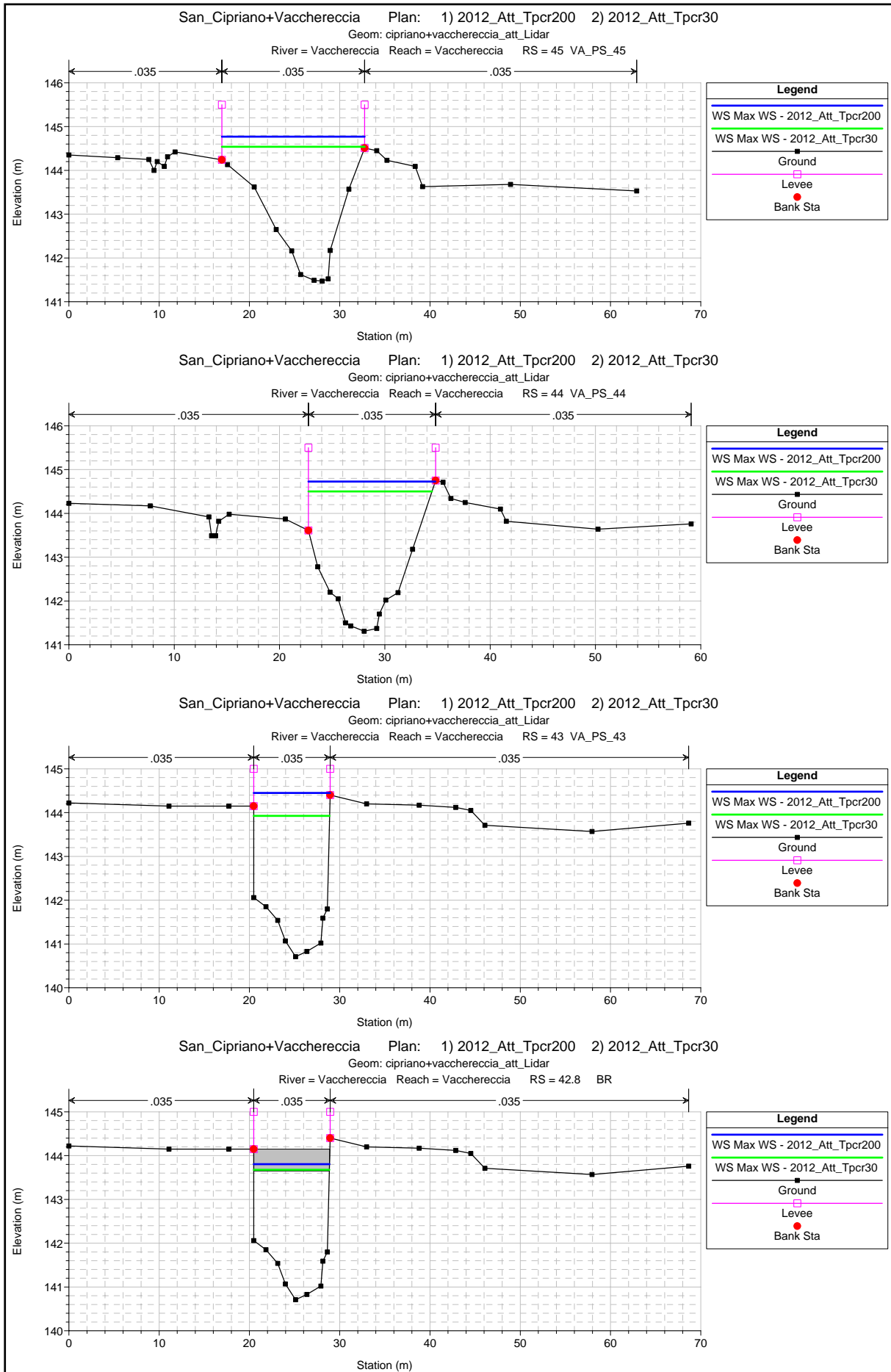


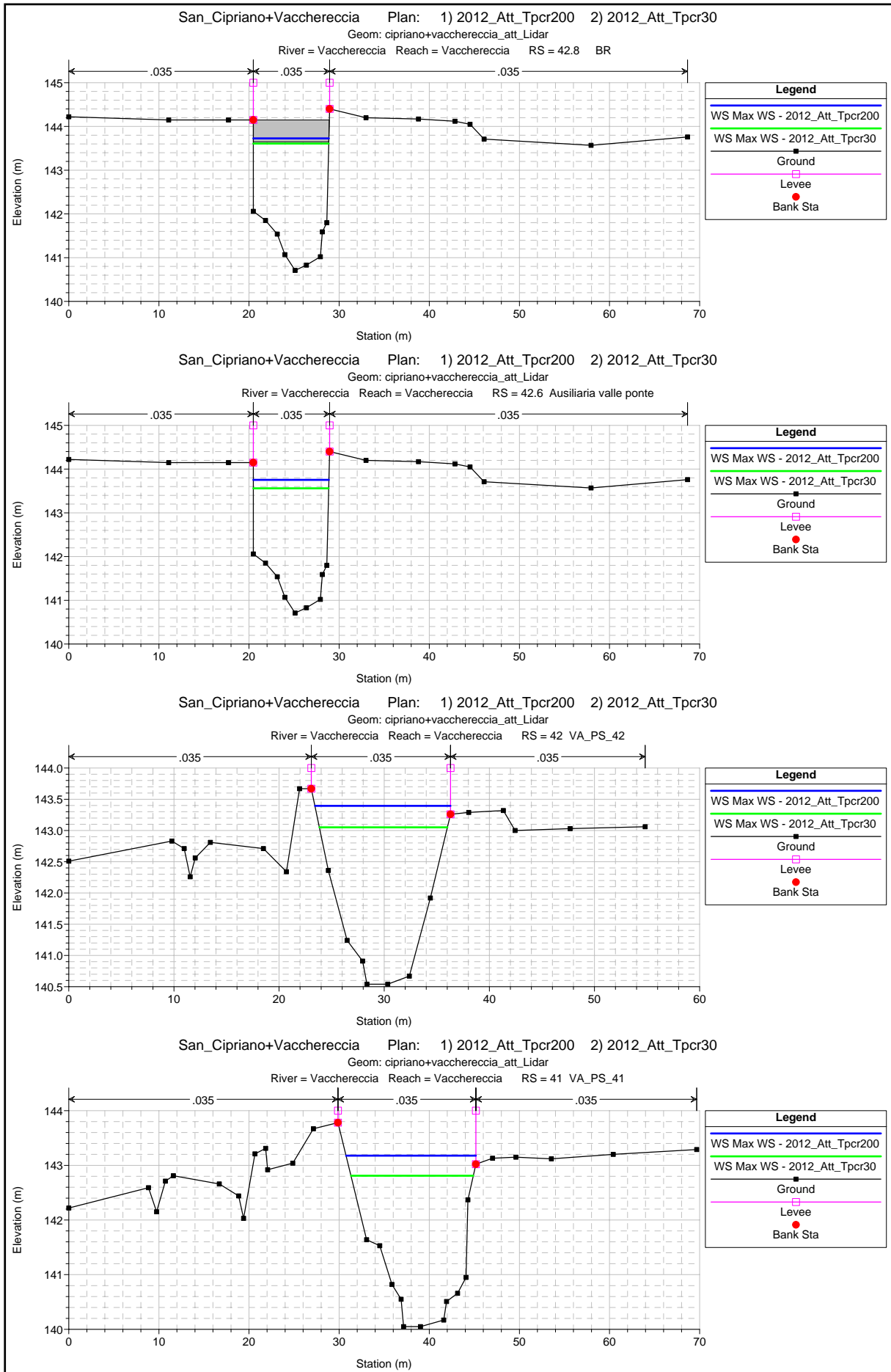


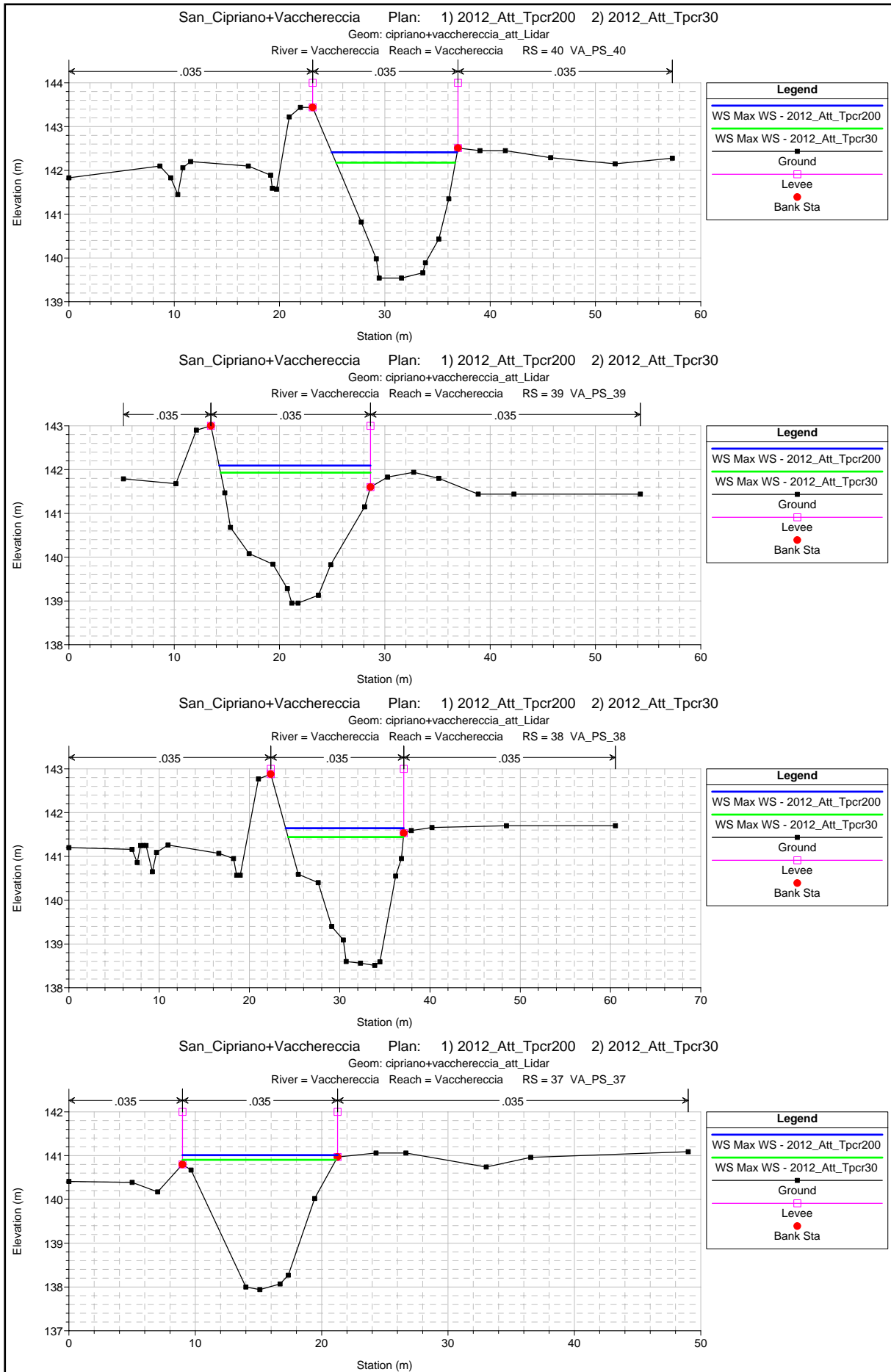


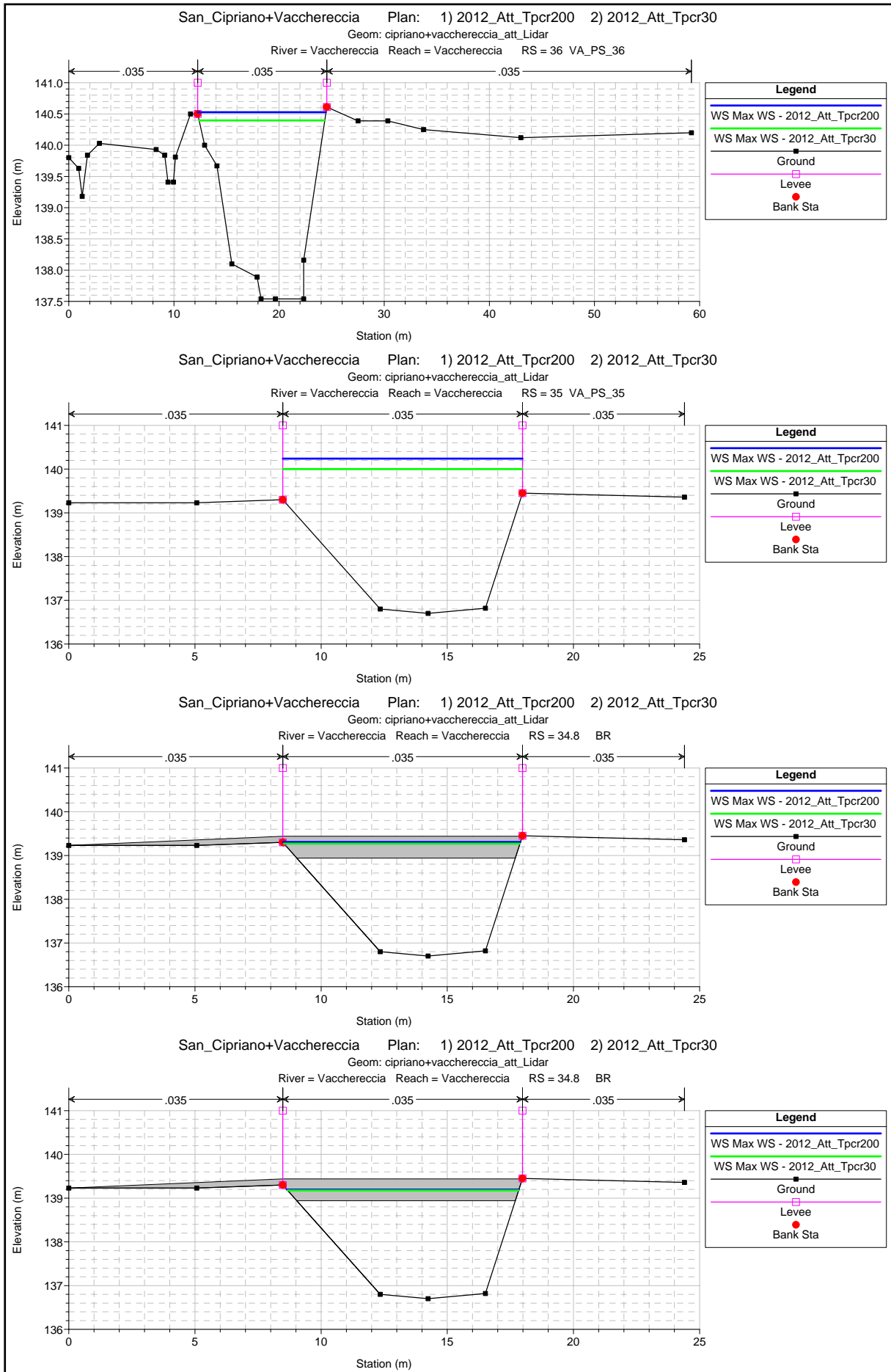


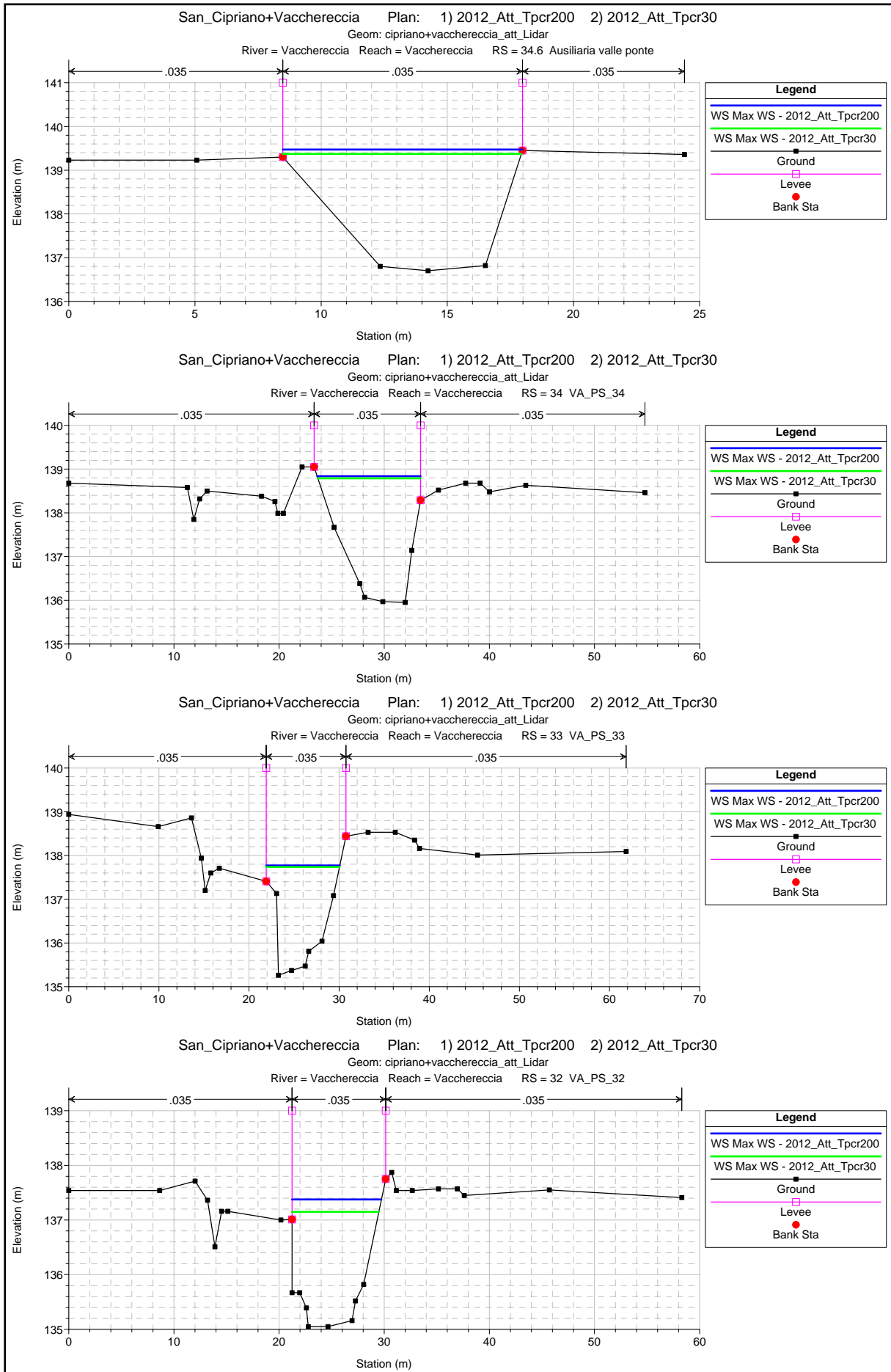


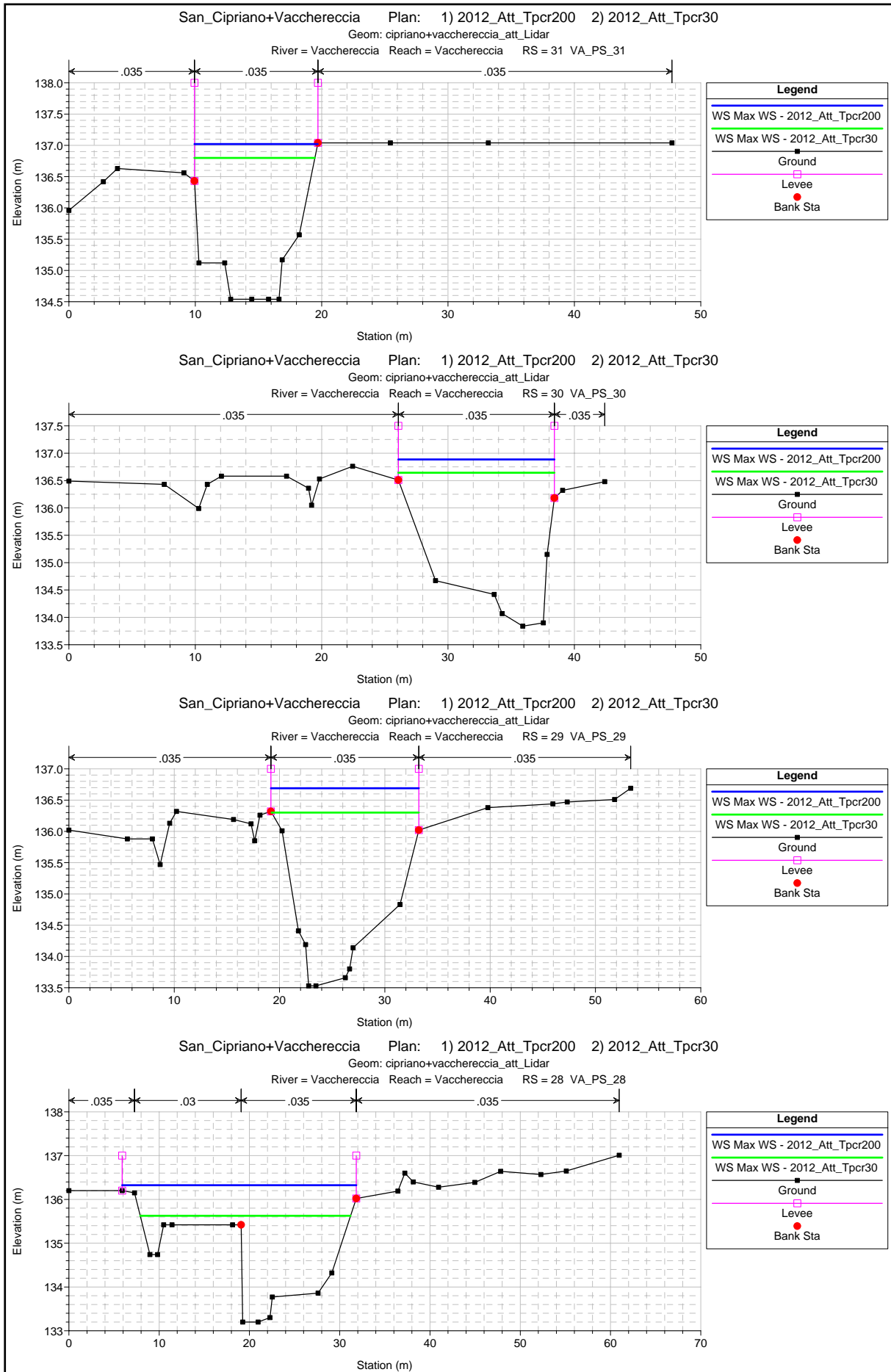


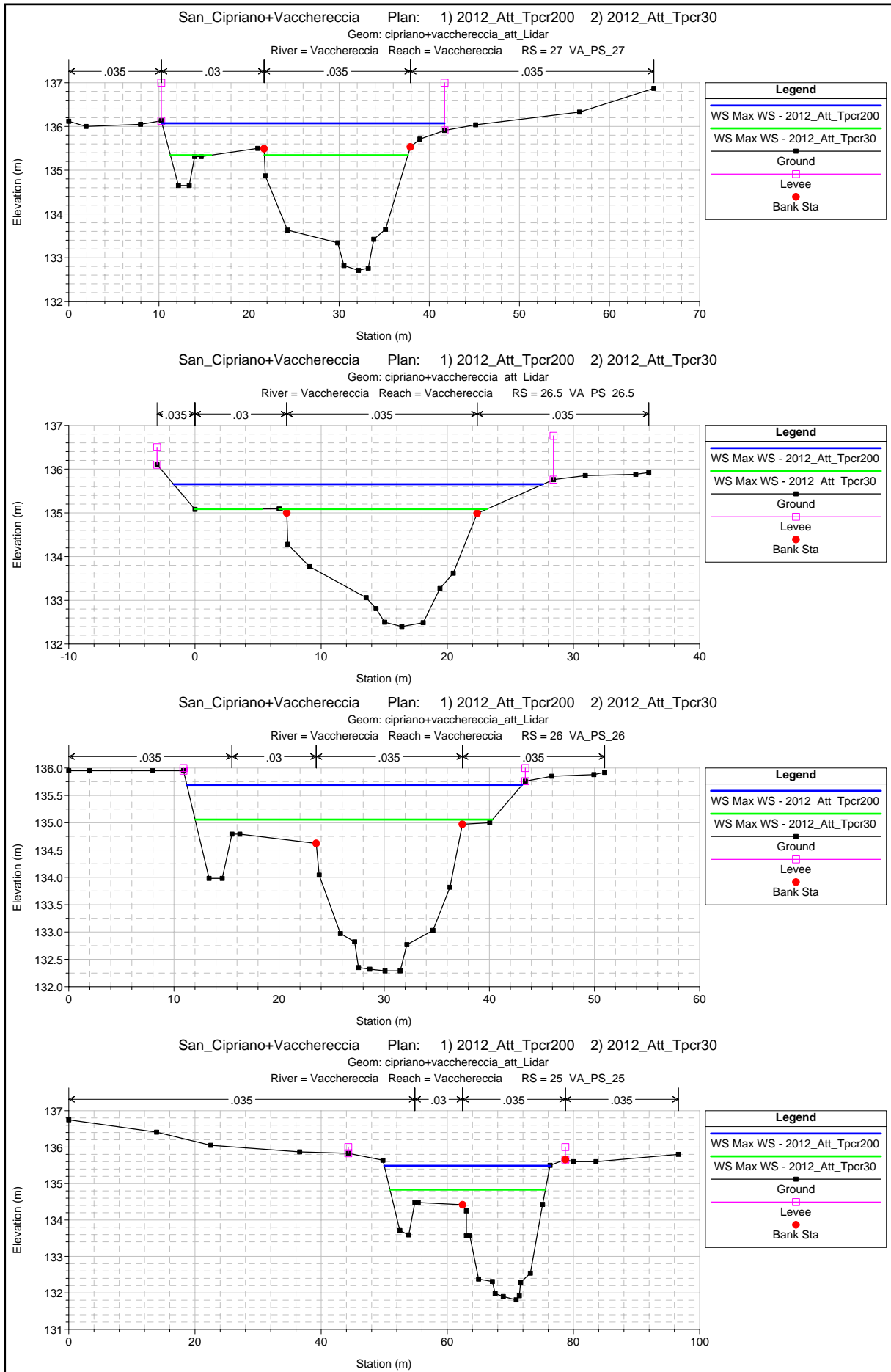


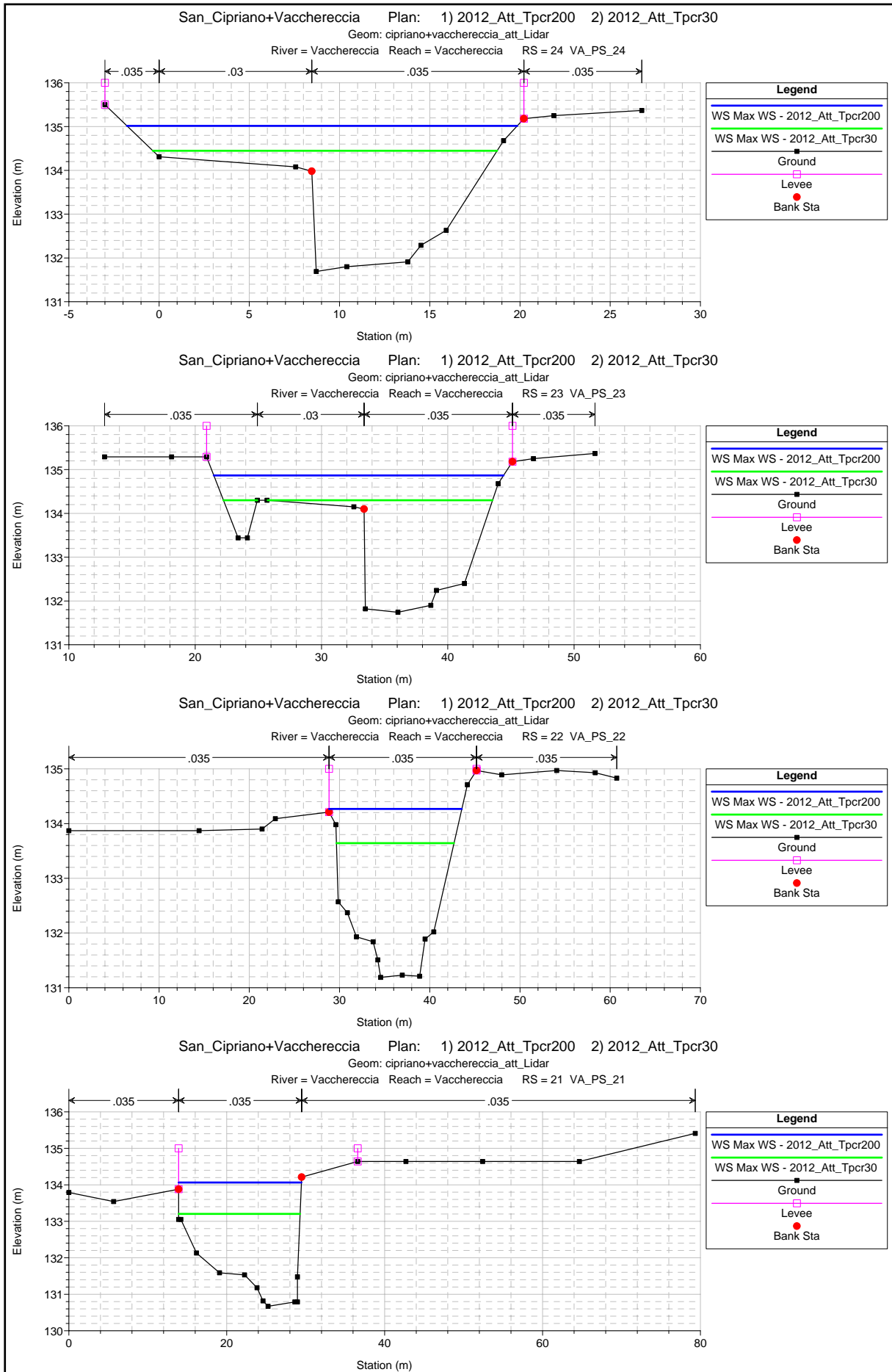




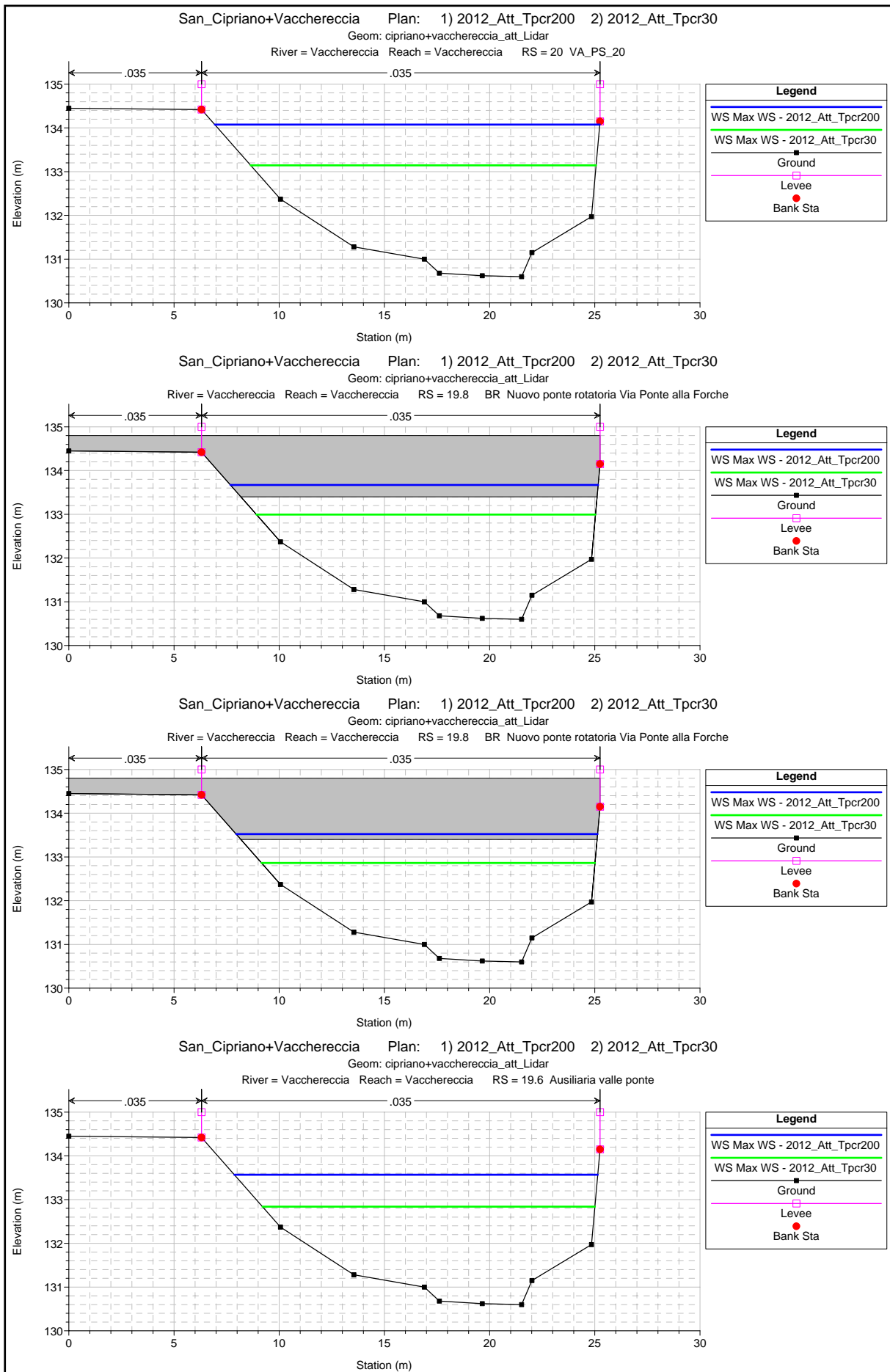


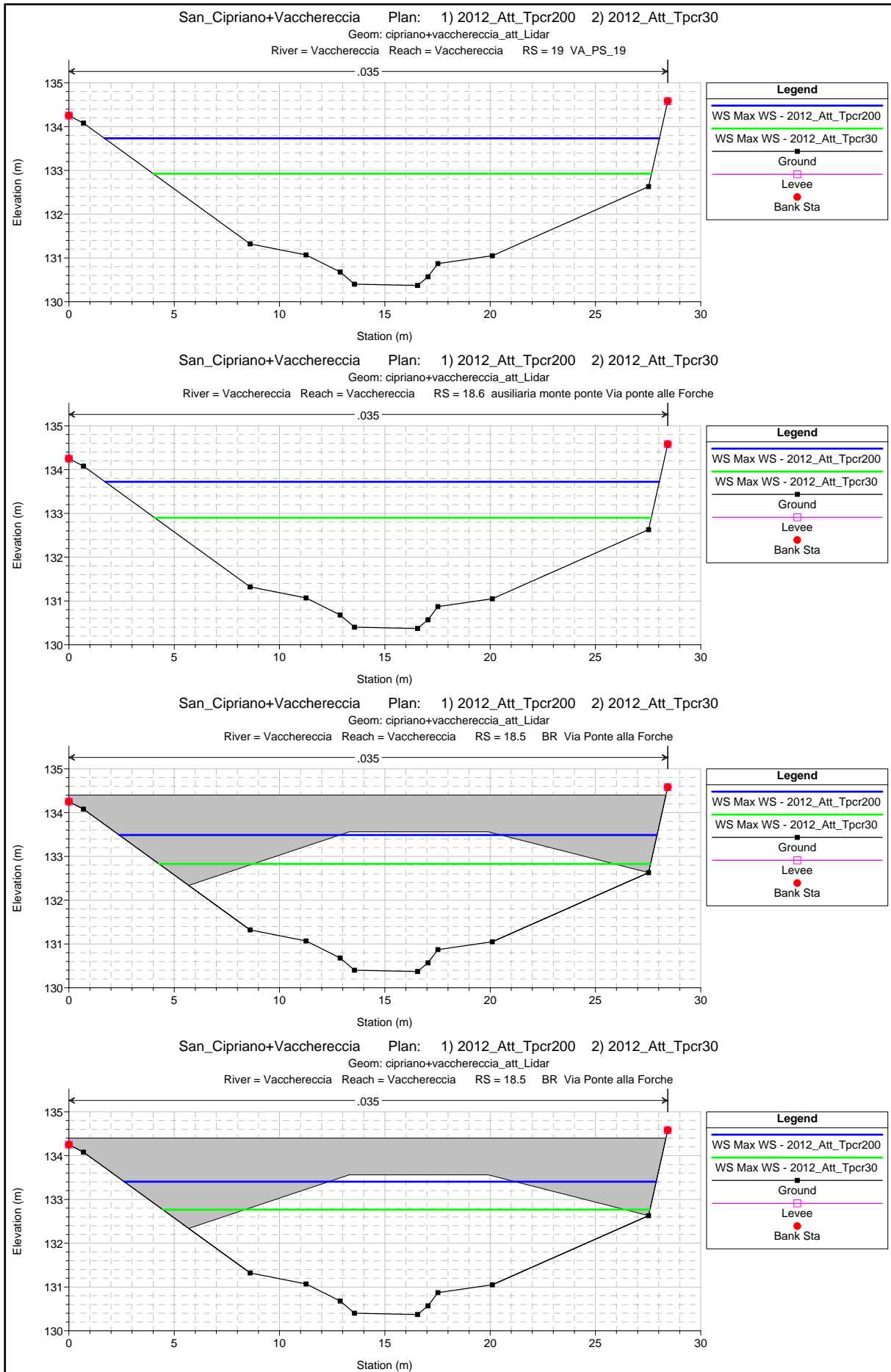


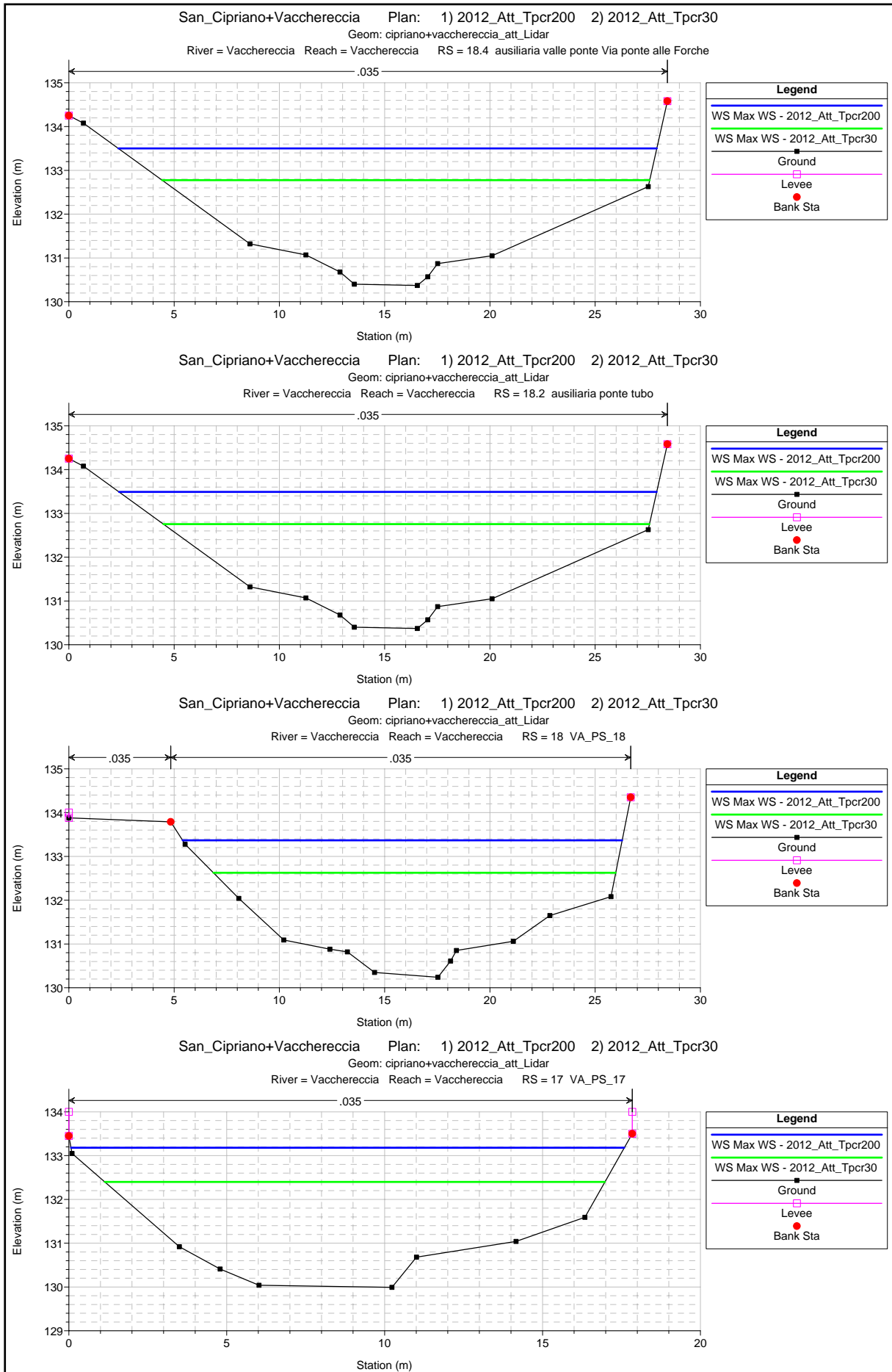


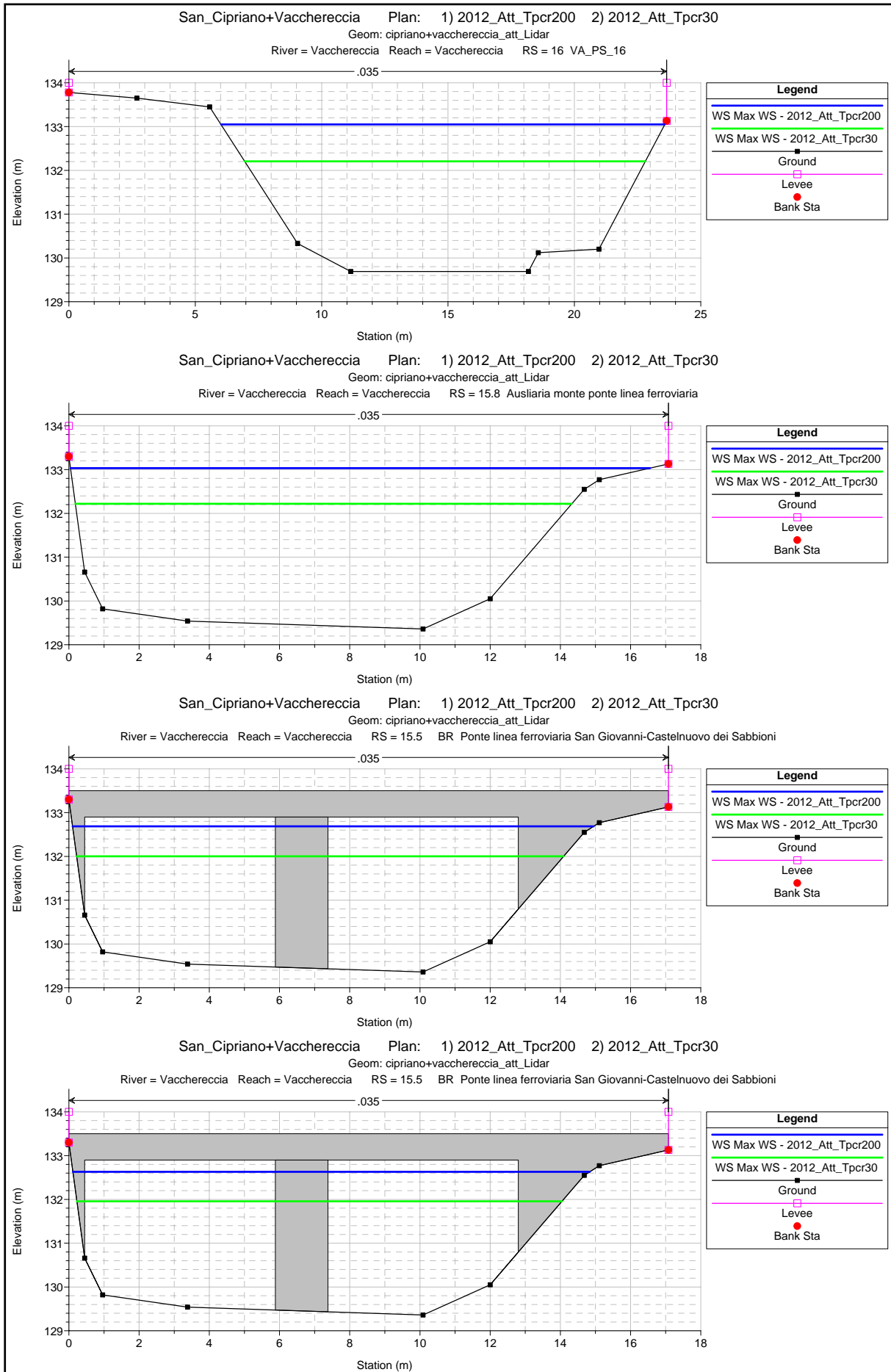


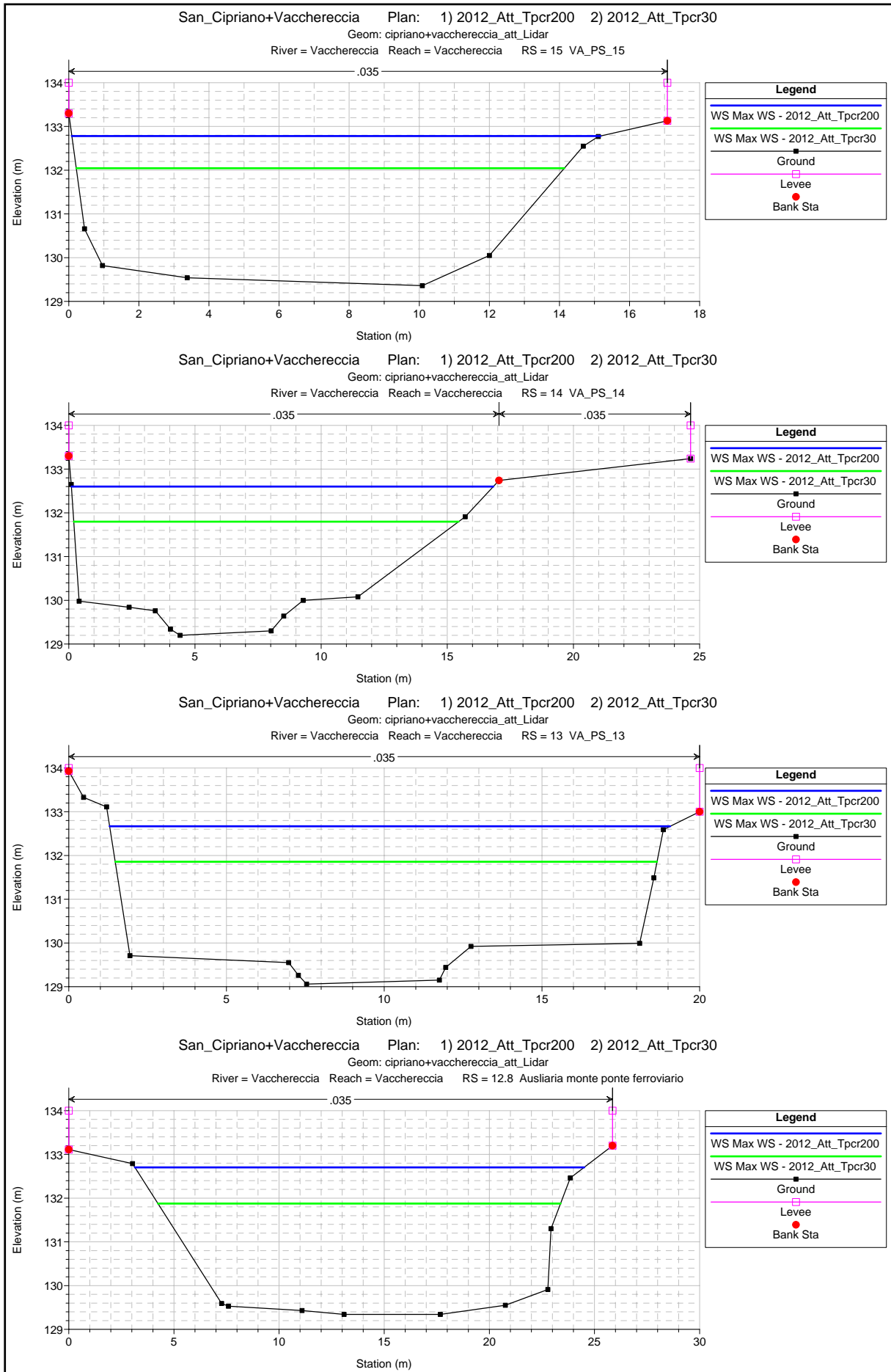


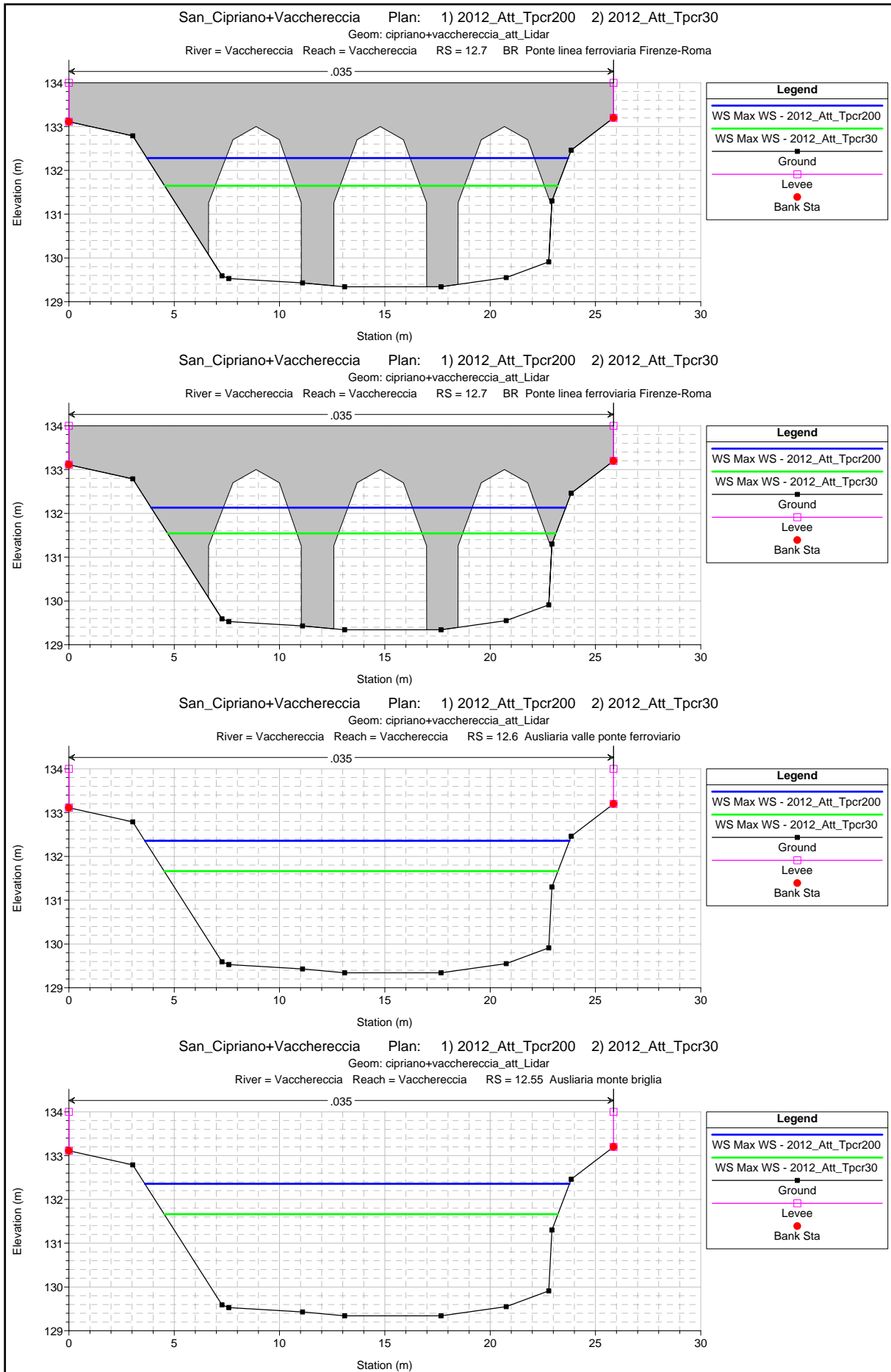


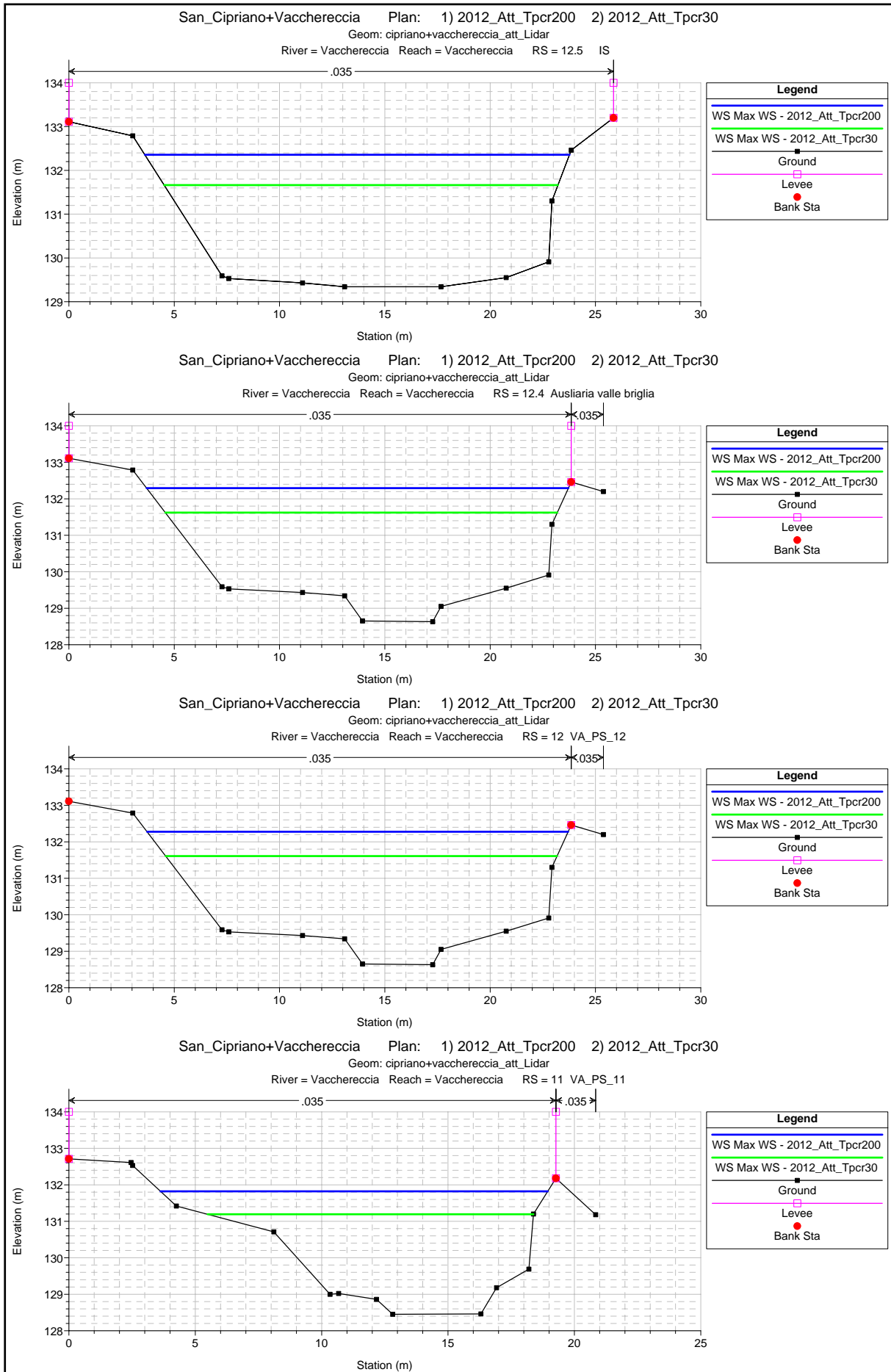


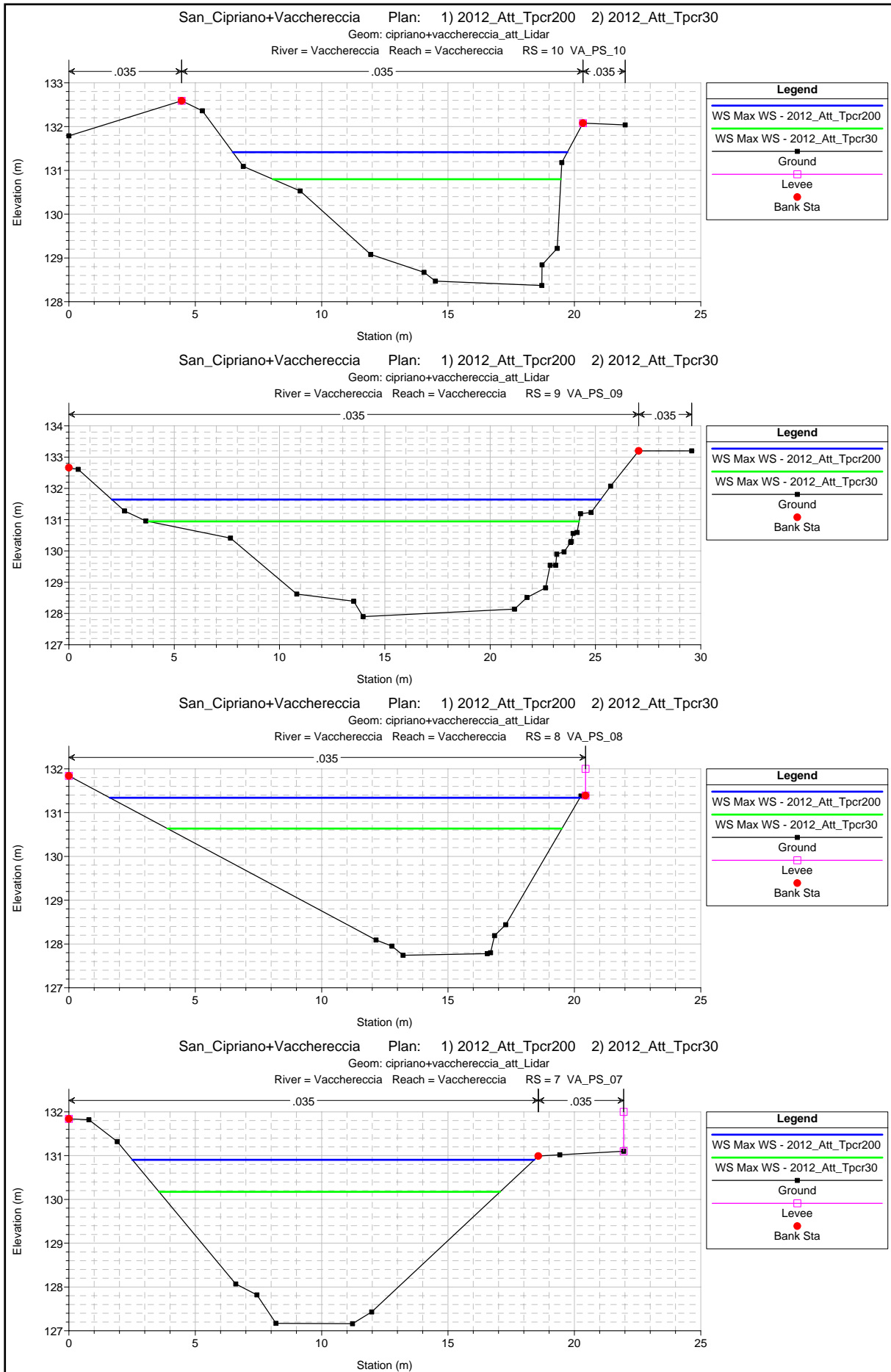




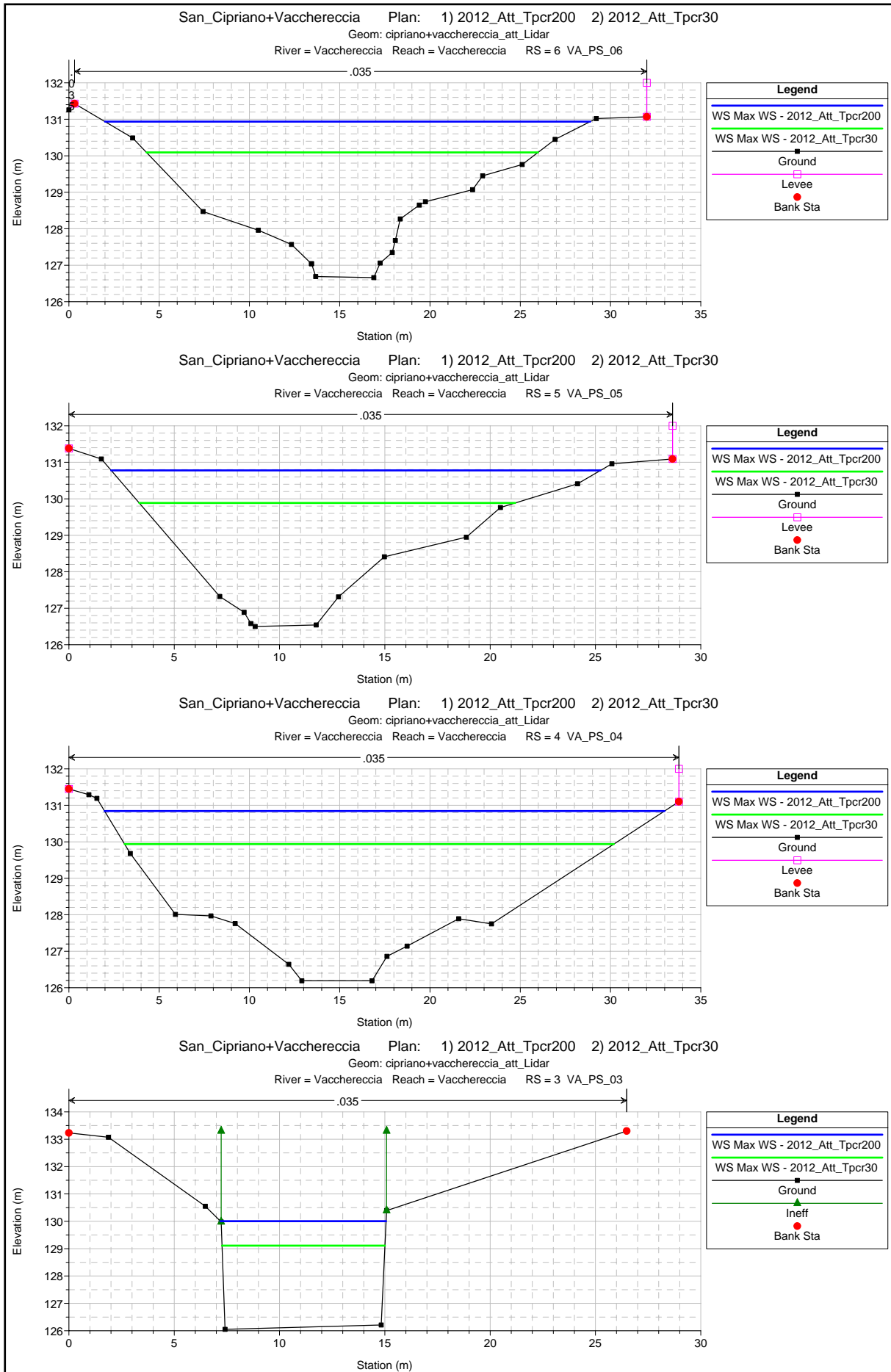


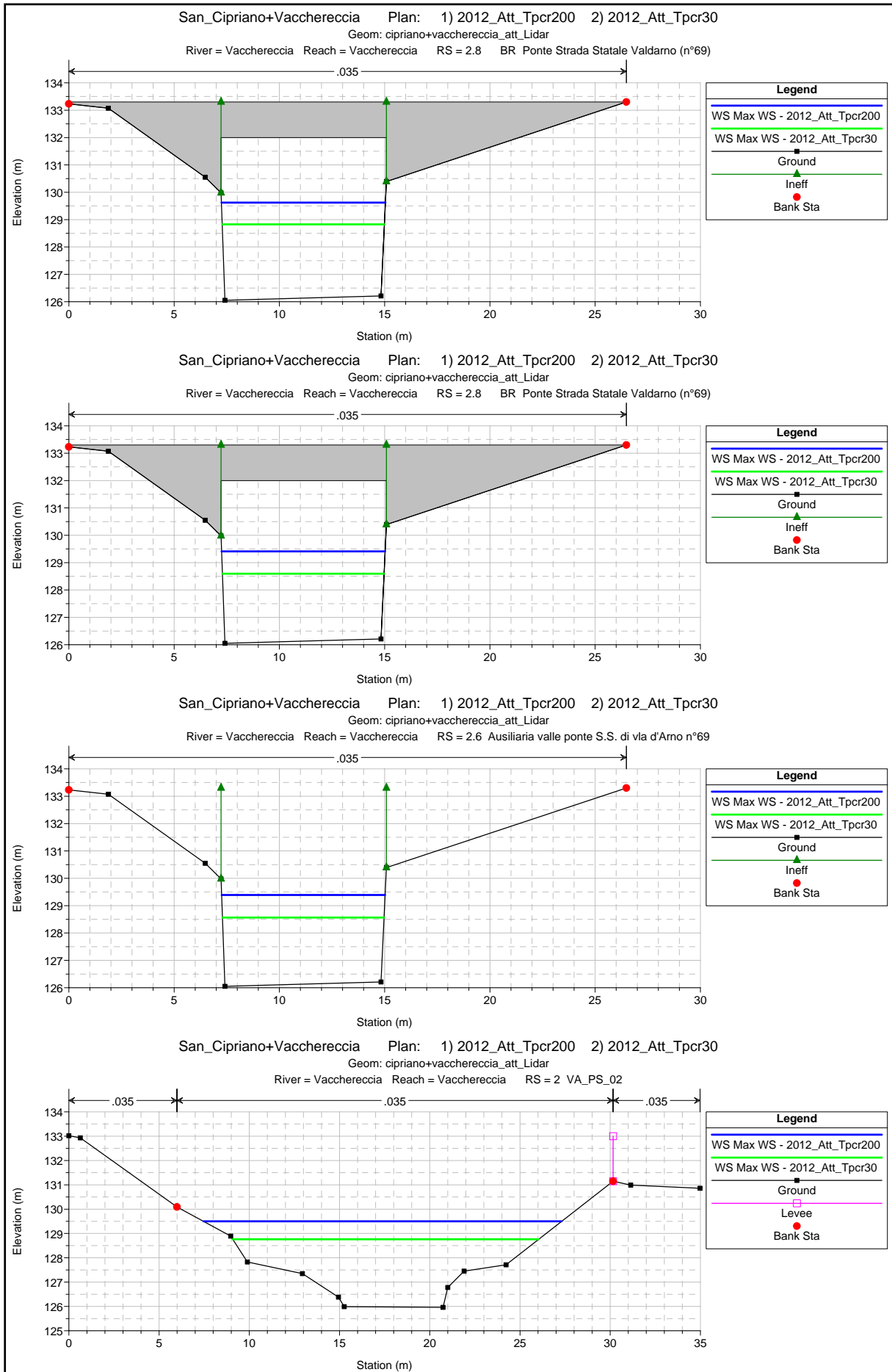


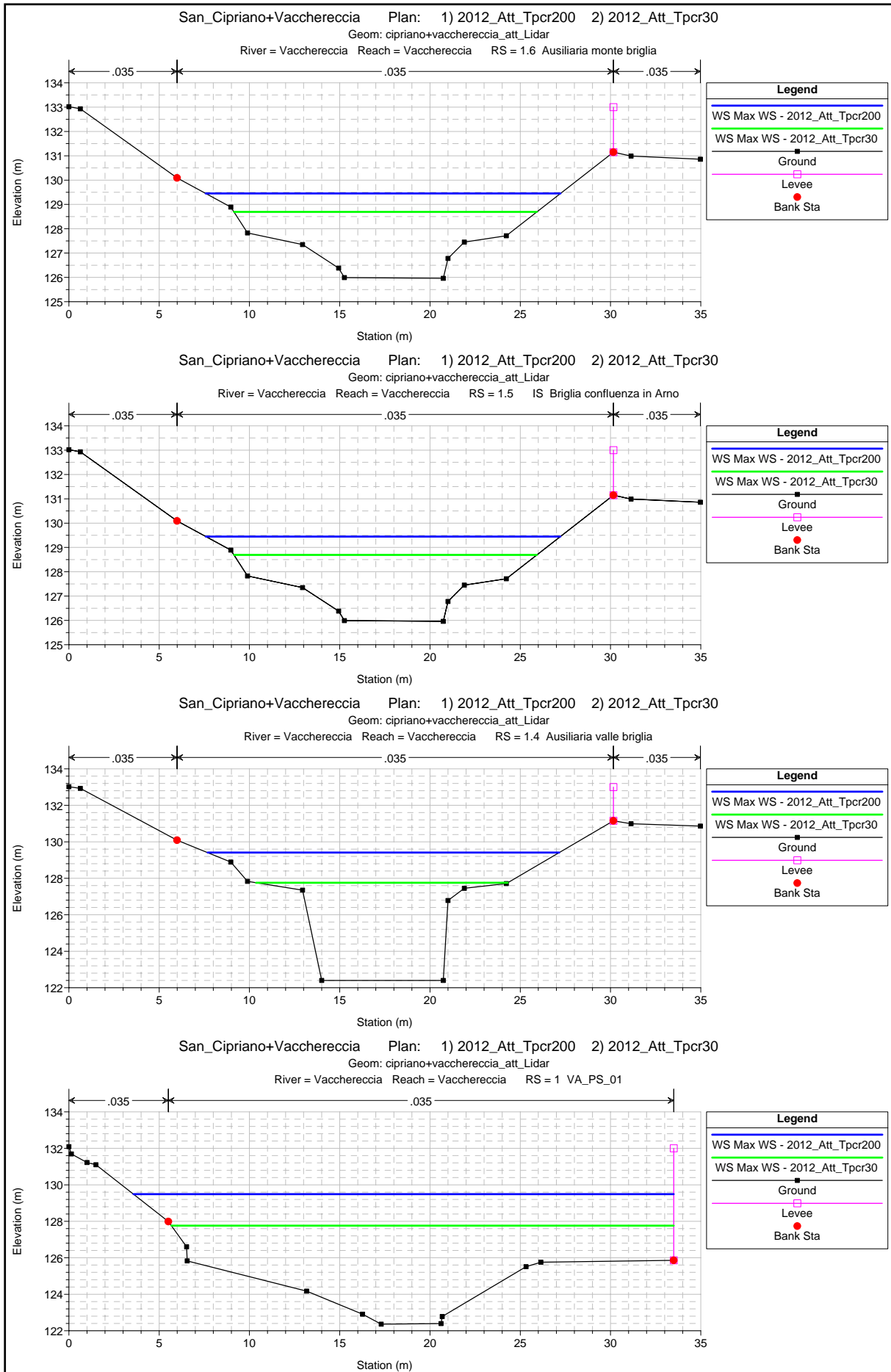












HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	46	Max WS	2012_Att_Tpcr200	118.95	146.46	150.07	150.11	150.80	0.006555	3.93	34.95	29.97	0.77
Vacchereccia	46	Max WS	2012_Att_Tpcr30	72.64	146.46	149.37		150.00	0.007659	3.53	21.08	13.38	0.79
Vacchereccia	45.995	Max WS	2012_Att_Tpcr200	118.94	146.46	150.06	150.10	150.80	0.006628	3.95	34.76	29.96	0.77
Vacchereccia	45.995	Max WS	2012_Att_Tpcr30	72.64	146.46	149.36		149.99	0.007800	3.55	20.94	13.22	0.80
Vacchereccia	45.993			Lat Struct									
Vacchereccia	45.99	Max WS	2012_Att_Tpcr200	101.22	145.85	149.72	148.86	149.92	0.001857	2.12	58.19	49.28	0.41
Vacchereccia	45.99	Max WS	2012_Att_Tpcr30	68.50	145.85	149.19	148.17	149.38	0.002266	2.02	37.32	28.51	0.44
Vacchereccia	45.98			Bridge									
Vacchereccia	45.97	Max WS	2012_Att_Tpcr200	97.89	145.85	148.90		149.50	0.007723	3.47	30.19	24.22	0.79
Vacchereccia	45.97	Max WS	2012_Att_Tpcr30	70.85	145.85	148.58		149.06	0.007091	3.08	23.07	16.16	0.74
Vacchereccia	45.969			Lat Struct									
Vacchereccia	45.96	Max WS	2012_Att_Tpcr200	96.94	145.48	148.44	148.56	149.31	0.011157	4.23	24.74	17.99	0.96
Vacchereccia	45.96	Max WS	2012_Att_Tpcr30	70.07	145.48	148.20	148.16	148.84	0.008898	3.57	20.63	17.54	0.84
Vacchereccia	45.95	Max WS	2012_Att_Tpcr200	89.56	145.24	148.05	148.22	148.90	0.011511	4.18	23.36	19.45	1.00
Vacchereccia	45.95	Max WS	2012_Att_Tpcr30	68.19	145.24	147.84	147.94	148.54	0.010424	3.75	19.18	19.01	0.94
Vacchereccia	45.94	Max WS	2012_Att_Tpcr200	85.31	145.07	147.81		148.53	0.009809	3.77	22.63	13.11	0.92
Vacchereccia	45.94	Max WS	2012_Att_Tpcr30	67.56	145.07	147.58		148.18	0.009219	3.43	19.71	12.80	0.88
Vacchereccia	45.93	Max WS	2012_Att_Tpcr200	83.24	144.15	146.89		147.48	0.007466	3.39	25.00	17.08	0.81
Vacchereccia	45.93	Max WS	2012_Att_Tpcr30	67.35	144.15	146.77		147.22	0.006022	2.95	22.96	16.78	0.72
Vacchereccia	45.92	Max WS	2012_Att_Tpcr200	62.78	143.09	146.58	145.70	146.76	0.002416	1.91	35.00	22.80	0.44
Vacchereccia	45.92	Max WS	2012_Att_Tpcr30	60.21	143.09	146.29	145.66	146.54	0.004104	2.25	28.28	22.80	0.57
Vacchereccia	45.915			Bridge									
Vacchereccia	45.91	Max WS	2012_Att_Tpcr200	60.38	143.09	146.18		146.48	0.005150	2.44	25.92	22.46	0.63
Vacchereccia	45.91	Max WS	2012_Att_Tpcr30	63.74	143.09	145.92		146.43	0.009691	3.15	20.29	17.47	0.84
Vacchereccia	45.909			Lat Struct									
Vacchereccia	45.908			Lat Struct									

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	45.9	Max WS	2012_Att_Tpcr200	93.23	142.05	145.25		145.88	0.007966	3.50	26.66	14.57	0.83
Vacchereccia	45.9	Max WS	2012_Att_Tpcr30	68.80	142.05	144.91		145.41	0.006683	3.12	22.08	12.45	0.75
Vacchereccia	45.8	Max WS	2012_Att_Tpcr200	93.23	142.05	145.18		145.85	0.008754	3.64	25.58	14.09	0.86
Vacchereccia	45.8	Max WS	2012_Att_Tpcr30	68.80	142.05	144.85		145.38	0.007292	3.23	21.33	12.19	0.78
Vacchereccia	45.7			Lat Struct									
Vacchereccia	45.6			Lat Struct									
Vacchereccia	45	Max WS	2012_Att_Tpcr200	91.47	141.47	144.77		145.25	0.006076	3.08	29.65	15.82	0.72
Vacchereccia	45	Max WS	2012_Att_Tpcr30	68.52	141.47	144.54		144.89	0.005087	2.63	26.03	15.82	0.65
Vacchereccia	44	Max WS	2012_Att_Tpcr200	80.03	141.31	144.73		145.14	0.004293	2.85	28.06	12.05	0.60
Vacchereccia	44	Max WS	2012_Att_Tpcr30	59.88	141.31	144.50		144.79	0.003181	2.36	25.36	11.73	0.51
Vacchereccia	43	Max WS	2012_Att_Tpcr200	82.41	140.71	144.45	143.47	144.95	0.005214	3.15	26.18	8.46	0.57
Vacchereccia	43	Max WS	2012_Att_Tpcr30	70.66	140.71	143.93	143.26	144.46	0.006376	3.24	21.78	8.40	0.64
Vacchereccia	42.8			Bridge									
Vacchereccia	42.6	Max WS	2012_Att_Tpcr200	82.41	140.71	143.75		144.59	0.010518	4.05	20.33	8.38	0.83
Vacchereccia	42.6	Max WS	2012_Att_Tpcr30	70.66	140.71	143.56		144.29	0.009782	3.78	18.71	8.36	0.81
Vacchereccia	42.5			Lat Struct									
Vacchereccia	42.4			Lat Struct									
Vacchereccia	42	Max WS	2012_Att_Tpcr200	82.32	140.54	143.40		143.94	0.006405	3.27	25.15	12.90	0.75
Vacchereccia	42	Max WS	2012_Att_Tpcr30	70.66	140.54	143.05		143.64	0.008033	3.39	20.82	12.18	0.83
Vacchereccia	41	Max WS	2012_Att_Tpcr200	85.64	140.05	143.18		143.57	0.004298	2.77	30.91	14.40	0.60
Vacchereccia	41	Max WS	2012_Att_Tpcr30	70.66	140.05	142.81		143.19	0.004903	2.75	25.74	13.57	0.64
Vacchereccia	40.8			Lat Struct									
Vacchereccia	40	Max WS	2012_Att_Tpcr200	88.19	139.54	142.41		143.16	0.009228	3.84	22.99	11.91	0.88
Vacchereccia	40	Max WS	2012_Att_Tpcr30	70.66	139.54	142.18		142.80	0.008359	3.49	20.27	11.32	0.83
Vacchereccia	39.9			Lat Struct									

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	39	Max WS	2012_Att_Tpcr200	87.40	138.95	142.09		142.53	0.004871	2.95	29.67	14.37	0.65
Vacchereccia	39	Max WS	2012_Att_Tpcr30	70.51	138.95	141.93		142.27	0.004031	2.58	27.35	14.23	0.59
Vacchereccia	38	Max WS	2012_Att_Tpcr200	83.78	138.51	141.64		142.19	0.006673	3.26	25.69	13.09	0.74
Vacchereccia	38	Max WS	2012_Att_Tpcr30	70.30	138.51	141.44		141.91	0.006401	3.05	23.08	12.78	0.72
Vacchereccia	37.9			Lat Struct									
Vacchereccia	37	Max WS	2012_Att_Tpcr200	81.85	137.94	141.01		141.70	0.009024	3.67	22.31	12.27	0.87
Vacchereccia	37	Max WS	2012_Att_Tpcr30	69.28	137.94	140.90		141.46	0.007699	3.30	21.00	12.14	0.80
Vacchereccia	36	Max WS	2012_Att_Tpcr200	77.41	137.54	140.53		141.01	0.005852	3.08	25.09	12.21	0.69
Vacchereccia	36	Max WS	2012_Att_Tpcr30	67.76	137.54	140.40		140.82	0.005388	2.88	23.51	11.95	0.66
Vacchereccia	35.9			Lat Struct									
Vacchereccia	35	Max WS	2012_Att_Tpcr200	59.92	136.70	140.24	139.05	140.51	0.002695	2.30	26.07	9.50	0.44
Vacchereccia	35	Max WS	2012_Att_Tpcr30	54.96	136.70	140.00	138.94	140.27	0.002923	2.31	23.81	9.50	0.47
Vacchereccia	34.8			Bridge									
Vacchereccia	34.6	Max WS	2012_Att_Tpcr200	59.92	136.70	139.47		139.99	0.006836	3.19	18.79	9.50	0.72
Vacchereccia	34.6	Max WS	2012_Att_Tpcr30	54.96	136.70	139.37		139.86	0.006677	3.08	17.84	9.46	0.72
Vacchereccia	34.5			Lat Struct									
Vacchereccia	34.48			Lat Struct									
Vacchereccia	34	Max WS	2012_Att_Tpcr200	58.99	135.95	138.84		139.28	0.005728	2.96	19.96	9.84	0.66
Vacchereccia	34	Max WS	2012_Att_Tpcr30	54.60	135.95	138.79		139.19	0.005244	2.80	19.48	9.77	0.63
Vacchereccia	33	Max WS	2012_Att_Tpcr200	50.57	135.26	137.77	137.70	138.50	0.013524	3.78	13.39	8.16	0.94
Vacchereccia	33	Max WS	2012_Att_Tpcr30	48.39	135.26	137.74		138.43	0.013146	3.69	13.11	8.13	0.93
Vacchereccia	32.9			Lat Struct									
Vacchereccia	32	Max WS	2012_Att_Tpcr200	38.06	135.05	137.38		137.68	0.004676	2.43	15.66	8.50	0.57
Vacchereccia	32	Max WS	2012_Att_Tpcr30	38.61	135.05	137.15		137.55	0.006934	2.81	13.75	8.25	0.69
Vacchereccia	31.9			Lat Struct									

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	31	Max WS	2012_Att_Tpcr200	46.72	134.54	137.02		137.34	0.004593	2.50	18.67	9.75	0.58
Vacchereccia	31	Max WS	2012_Att_Tpcr30	41.20	134.54	136.80		137.12	0.005046	2.49	16.54	9.53	0.60
Vacchereccia	30.8			Lat Struct									
Vacchereccia	30.7			Lat Struct									
Vacchereccia	30	Max WS	2012_Att_Tpcr200	48.90	133.84	136.88		137.05	0.001844	1.78	27.43	12.35	0.38
Vacchereccia	30	Max WS	2012_Att_Tpcr30	43.09	133.84	136.64		136.80	0.002018	1.76	24.44	12.35	0.40
Vacchereccia	29	Max WS	2012_Att_Tpcr200	57.24	133.53	136.69		136.87	0.001993	1.89	30.34	14.05	0.41
Vacchereccia	29	Max WS	2012_Att_Tpcr30	54.41	133.53	136.30		136.55	0.003266	2.19	24.87	13.99	0.52
Vacchereccia	28	Max WS	2012_Att_Tpcr200	78.75	133.20	136.32		136.52	0.002296	2.07	41.35	25.93	0.43
Vacchereccia	28	Max WS	2012_Att_Tpcr30	64.88	133.20	135.63		136.04	0.006631	2.91	24.27	23.30	0.71
Vacchereccia	27	Max WS	2012_Att_Tpcr200	98.87	132.71	136.07		136.30	0.002142	2.22	49.33	31.36	0.45
Vacchereccia	27	Max WS	2012_Att_Tpcr30	66.39	132.71	135.34		135.63	0.003815	2.37	28.87	20.47	0.58
Vacchereccia	26.5	Max WS	2012_Att_Tpcr200	119.51	132.40	135.66		136.13	0.004389	3.13	41.91	29.29	0.65
Vacchereccia	26.5	Max WS	2012_Att_Tpcr30	71.89	132.40	135.09		135.45	0.004605	2.67	27.02	21.73	0.64
Vacchereccia	26	Max WS	2012_Att_Tpcr200	119.53	132.29	135.69		135.99	0.002561	2.59	53.20	31.89	0.50
Vacchereccia	26	Max WS	2012_Att_Tpcr30	71.89	132.29	135.06		135.32	0.002982	2.33	34.09	28.28	0.52
Vacchereccia	25	Max WS	2012_Att_Tpcr200	119.51	131.81	135.49		135.79	0.002720	2.57	51.41	26.29	0.50
Vacchereccia	25	Max WS	2012_Att_Tpcr30	71.88	131.81	134.84		135.08	0.002837	2.28	34.79	24.65	0.49
Vacchereccia	24	Max WS	2012_Att_Tpcr200	119.51	131.69	135.02		135.67	0.007335	3.74	34.67	21.64	0.78
Vacchereccia	24	Max WS	2012_Att_Tpcr30	71.88	131.69	134.45		134.99	0.007226	3.32	23.13	19.08	0.75
Vacchereccia	23	Max WS	2012_Att_Tpcr200	119.51	131.74	134.87		135.53	0.007701	3.80	35.22	22.94	0.78
Vacchereccia	23	Max WS	2012_Att_Tpcr30	71.88	131.74	134.30	134.00	134.86	0.007680	3.37	22.71	20.49	0.76
Vacchereccia	22.9			Lat Struct									
Vacchereccia	22	Max WS	2012_Att_Tpcr200	112.58	131.19	134.27		134.92	0.007026	3.57	31.56	14.72	0.78
Vacchereccia	22	Max WS	2012_Att_Tpcr30	71.88	131.19	133.64		134.14	0.006839	3.13	22.99	13.04	0.75
Vacchereccia	21	Max WS	2012_Att_Tpcr200	110.54	130.67	134.06		134.47	0.003864	2.81	39.35	15.56	0.56

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	21	Max WS	2012_Att_Tpcr30	71.88	130.67	133.20		133.59	0.005753	2.76	26.00	15.39	0.68
Vacchereccia	20	Max WS	2012_Att_Tpcr200	110.21	130.60	134.08	133.03	134.38	0.002626	2.44	45.26	18.30	0.49
Vacchereccia	20	Max WS	2012_Att_Tpcr30	71.88	130.60	133.14	132.57	133.46	0.004014	2.47	29.07	16.42	0.59
Vacchereccia	19.8			Bridge									
Vacchereccia	19.6	Max WS	2012_Att_Tpcr200	110.20	130.60	133.57		134.04	0.004978	3.04	36.21	17.27	0.67
Vacchereccia	19.6	Max WS	2012_Att_Tpcr30	71.88	130.60	132.84		133.29	0.006965	2.98	24.11	15.80	0.77
Vacchereccia	19	Max WS	2012_Att_Tpcr200	110.21	130.37	133.73		133.93	0.001822	1.95	56.45	26.35	0.43
Vacchereccia	19	Max WS	2012_Att_Tpcr30	71.88	130.37	132.92		133.12	0.002870	1.98	36.22	23.65	0.51
Vacchereccia	18.6	Max WS	2012_Att_Tpcr200	110.20	130.37	133.72	132.68	133.92	0.001854	1.96	56.11	26.31	0.43
Vacchereccia	18.6	Max WS	2012_Att_Tpcr30	71.88	130.37	132.90	132.28	133.11	0.003003	2.02	35.67	23.58	0.52
Vacchereccia	18.5			Bridge									
Vacchereccia	18.4	Max WS	2012_Att_Tpcr200	110.20	130.37	133.50		133.74	0.002533	2.19	50.43	25.58	0.50
Vacchereccia	18.4	Max WS	2012_Att_Tpcr30	71.87	130.37	132.78		133.02	0.003877	2.19	32.76	23.16	0.59
Vacchereccia	18.2	Max WS	2012_Att_Tpcr200	110.20	130.37	133.49		133.74	0.002578	2.20	50.12	25.54	0.50
Vacchereccia	18.2	Max WS	2012_Att_Tpcr30	71.87	130.37	132.76		133.01	0.004058	2.23	32.26	23.09	0.60
Vacchereccia	18	Max WS	2012_Att_Tpcr200	110.19	130.24	133.37		133.70	0.003417	2.56	43.05	20.88	0.57
Vacchereccia	18	Max WS	2012_Att_Tpcr30	71.87	130.24	132.63		132.96	0.005128	2.55	28.17	19.11	0.67
Vacchereccia	17	Max WS	2012_Att_Tpcr200	110.19	129.99	133.18		133.59	0.003933	2.84	38.85	17.52	0.61
Vacchereccia	17	Max WS	2012_Att_Tpcr30	71.87	129.99	132.40		132.80	0.005537	2.79	25.77	15.84	0.70
Vacchereccia	16	Max WS	2012_Att_Tpcr200	110.19	129.69	133.05		133.34	0.002341	2.40	45.98	17.56	0.47
Vacchereccia	16	Max WS	2012_Att_Tpcr30	71.87	129.69	132.21		132.46	0.002839	2.25	31.91	15.85	0.51
Vacchereccia	15.8	Max WS	2012_Att_Tpcr200	110.19	129.36	133.03	131.66	133.33	0.002444	2.43	45.43	16.51	0.47
Vacchereccia	15.8	Max WS	2012_Att_Tpcr30	71.87	129.36	132.22	131.15	132.46	0.002322	2.16	33.26	14.14	0.45
Vacchereccia	15.5			Bridge									
Vacchereccia	15	Max WS	2012_Att_Tpcr200	110.18	129.36	132.78		133.14	0.002962	2.66	41.43	15.08	0.51
Vacchereccia	15	Max WS	2012_Att_Tpcr30	71.87	129.36	132.04		132.32	0.002894	2.33	30.82	13.92	0.50



HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	14.9			Lat Struct									
Vacchereccia	14	Max WS	2012_Att_Tpcr200	110.18	129.20	132.60		132.98	0.003594	2.73	40.29	16.72	0.56
Vacchereccia	14	Max WS	2012_Att_Tpcr30	71.86	129.20	131.80		132.15	0.004641	2.62	27.43	15.25	0.62
Vacchereccia	13	Max WS	2012_Att_Tpcr200	110.18	129.06	132.67		132.90	0.001835	2.13	51.78	17.77	0.40
Vacchereccia	13	Max WS	2012_Att_Tpcr30	71.86	129.06	131.86		132.04	0.002010	1.91	37.70	17.18	0.41
Vacchereccia	12.8	Max WS	2012_Att_Tpcr200	110.18	129.34	132.70	131.15	132.89	0.001389	1.90	57.97	21.36	0.37
Vacchereccia	12.8	Max WS	2012_Att_Tpcr30	71.86	129.34	131.88	130.74	132.03	0.001542	1.74	41.38	19.15	0.38
Vacchereccia	12.7			Bridge									
Vacchereccia	12.6	Max WS	2012_Att_Tpcr200	110.18	129.34	132.36		132.60	0.001991	2.17	50.80	20.16	0.44
Vacchereccia	12.6	Max WS	2012_Att_Tpcr30	71.86	129.34	131.66		131.85	0.002088	1.92	37.34	18.70	0.43
Vacchereccia	12.55	Max WS	2012_Att_Tpcr200	110.18	129.34	132.36	131.15	132.60	0.001992	2.17	50.80	20.16	0.44
Vacchereccia	12.55	Max WS	2012_Att_Tpcr30	71.86	129.34	131.66	130.74	131.85	0.002089	1.92	37.33	18.70	0.43
Vacchereccia	12.5			Inl Struct									
Vacchereccia	12.4	Max WS	2012_Att_Tpcr200	110.18	128.63	132.29		132.51	0.001783	2.09	52.75	20.02	0.41
Vacchereccia	12.4	Max WS	2012_Att_Tpcr30	71.86	128.63	131.62		131.79	0.001722	1.80	39.81	18.61	0.39
Vacchereccia	12	Max WS	2012_Att_Tpcr200	110.18	128.63	132.28		132.50	0.001811	2.10	52.47	19.99	0.41
Vacchereccia	12	Max WS	2012_Att_Tpcr30	71.86	128.63	131.61		131.78	0.001754	1.82	39.56	18.58	0.40
Vacchereccia	11	Max WS	2012_Att_Tpcr200	110.18	128.45	131.82		132.43	0.007018	3.46	31.80	15.32	0.77
Vacchereccia	11	Max WS	2012_Att_Tpcr30	71.86	128.45	131.19		131.70	0.007266	3.16	22.75	12.89	0.76
Vacchereccia	10	Max WS	2012_Att_Tpcr200	110.17	128.37	131.42		132.27	0.010582	4.10	26.87	13.23	0.92
Vacchereccia	10	Max WS	2012_Att_Tpcr30	71.86	128.37	130.80		131.51	0.011154	3.75	19.19	11.39	0.92
Vacchereccia	9	Max WS	2012_Att_Tpcr200	110.17	127.90	131.64		131.85	0.001822	2.01	54.94	23.21	0.42
Vacchereccia	9	Max WS	2012_Att_Tpcr30	71.85	127.90	130.94		131.11	0.001946	1.82	39.50	20.44	0.42
Vacchereccia	8.8			Lat Struct									
Vacchereccia	8	Max WS	2012_Att_Tpcr200	109.75	127.74	131.34		131.74	0.004076	2.80	39.24	18.60	0.61
Vacchereccia	8	Max WS	2012_Att_Tpcr30	71.85	127.74	130.63		130.99	0.004672	2.64	27.19	15.60	0.64

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	7	Max WS	2012_Att_Tpcr200	109.74	127.16	130.91		131.38	0.004472	3.04	36.10	15.91	0.64
Vacchereccia	7	Max WS	2012_Att_Tpcr30	71.83	127.16	130.17		130.58	0.004959	2.83	25.35	13.50	0.66
Vacchereccia	6	Max WS	2012_Att_Tpcr200	109.69	126.66	130.94		131.11	0.001674	1.87	58.72	26.88	0.40
Vacchereccia	6	Max WS	2012_Att_Tpcr30	71.83	126.66	130.09		130.27	0.002226	1.87	38.47	21.69	0.45
Vacchereccia	5	Max WS	2012_Att_Tpcr200	109.64	126.50	130.78		131.01	0.002184	2.14	51.33	23.24	0.46
Vacchereccia	5	Max WS	2012_Att_Tpcr30	71.81	126.50	129.88		130.13	0.002986	2.20	32.70	17.86	0.52
Vacchereccia	4	Max WS	2012_Att_Tpcr200	108.60	126.19	130.84		130.92	0.000565	1.27	85.21	31.02	0.25
Vacchereccia	4	Max WS	2012_Att_Tpcr30	71.80	126.19	129.94		130.01	0.000700	1.22	58.92	27.10	0.26
Vacchereccia	3	Max WS	2012_Att_Tpcr200	104.83	126.05	130.01	128.84	130.65	0.006327	3.55	29.55	7.87	0.58
Vacchereccia	3	Max WS	2012_Att_Tpcr30	71.80	126.05	129.11	128.24	129.63	0.006174	3.18	22.57	7.74	0.59
Vacchereccia	2.8			Bridge									
Vacchereccia	2.6	Max WS	2012_Att_Tpcr200	104.83	126.05	129.39		130.30	0.010255	4.24	24.73	7.77	0.76
Vacchereccia	2.6	Max WS	2012_Att_Tpcr30	71.80	126.05	128.56		129.34	0.010957	3.91	18.37	7.68	0.81
Vacchereccia	2	Max WS	2012_Att_Tpcr200	109.11	125.96	129.50		129.82	0.003229	2.53	43.17	19.86	0.55
Vacchereccia	2	Max WS	2012_Att_Tpcr30	71.81	125.96	128.76		129.06	0.003954	2.42	29.66	16.96	0.58
Vacchereccia	1.6	Max WS	2012_Att_Tpcr200	111.23	125.96	129.45	128.64	129.81	0.003563	2.63	42.23	19.66	0.57
Vacchereccia	1.6	Max WS	2012_Att_Tpcr30	71.81	125.96	128.69	128.17	129.02	0.004464	2.52	28.45	16.78	0.62
Vacchereccia	1.5			Inl Struct									
Vacchereccia	1.4	Max WS	2012_Att_Tpcr200	107.72	122.40	129.41		129.53	0.000939	1.56	68.95	19.48	0.27
Vacchereccia	1.4	Max WS	2012_Att_Tpcr30	16.47	122.40	127.75		127.76	0.000085	0.40	41.47	13.94	0.07
Vacchereccia	1	Max WS	2012_Att_Tpcr200	108.49	122.36	129.49	125.37	129.52	0.000124	0.79	138.08	29.92	0.11
Vacchereccia	1	Max WS	2012_Att_Tpcr30	16.45	122.36	127.76	123.54	127.76	0.000011	0.19	88.23	27.82	0.03

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

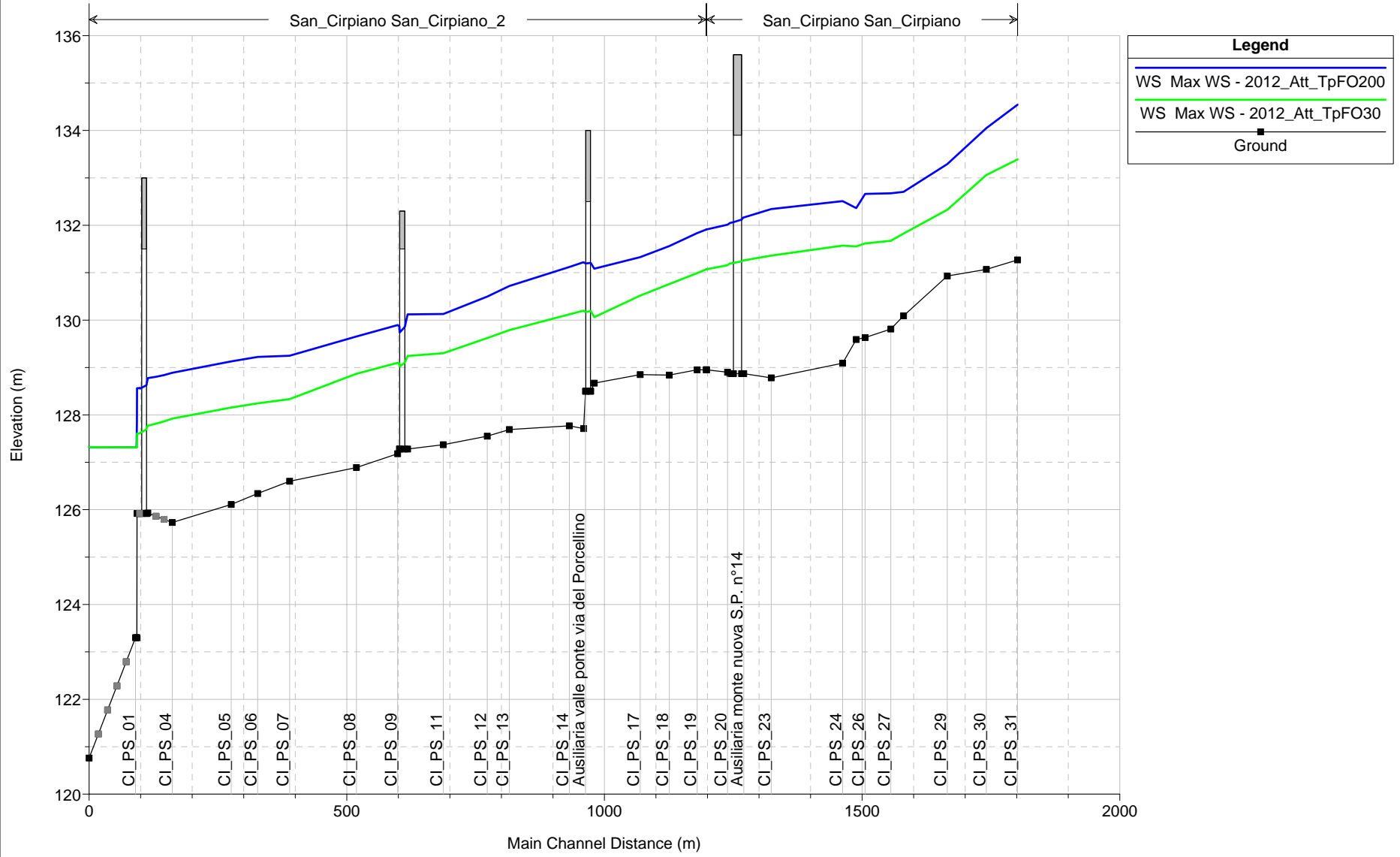
### **BORRO SAN CIPRIANO**

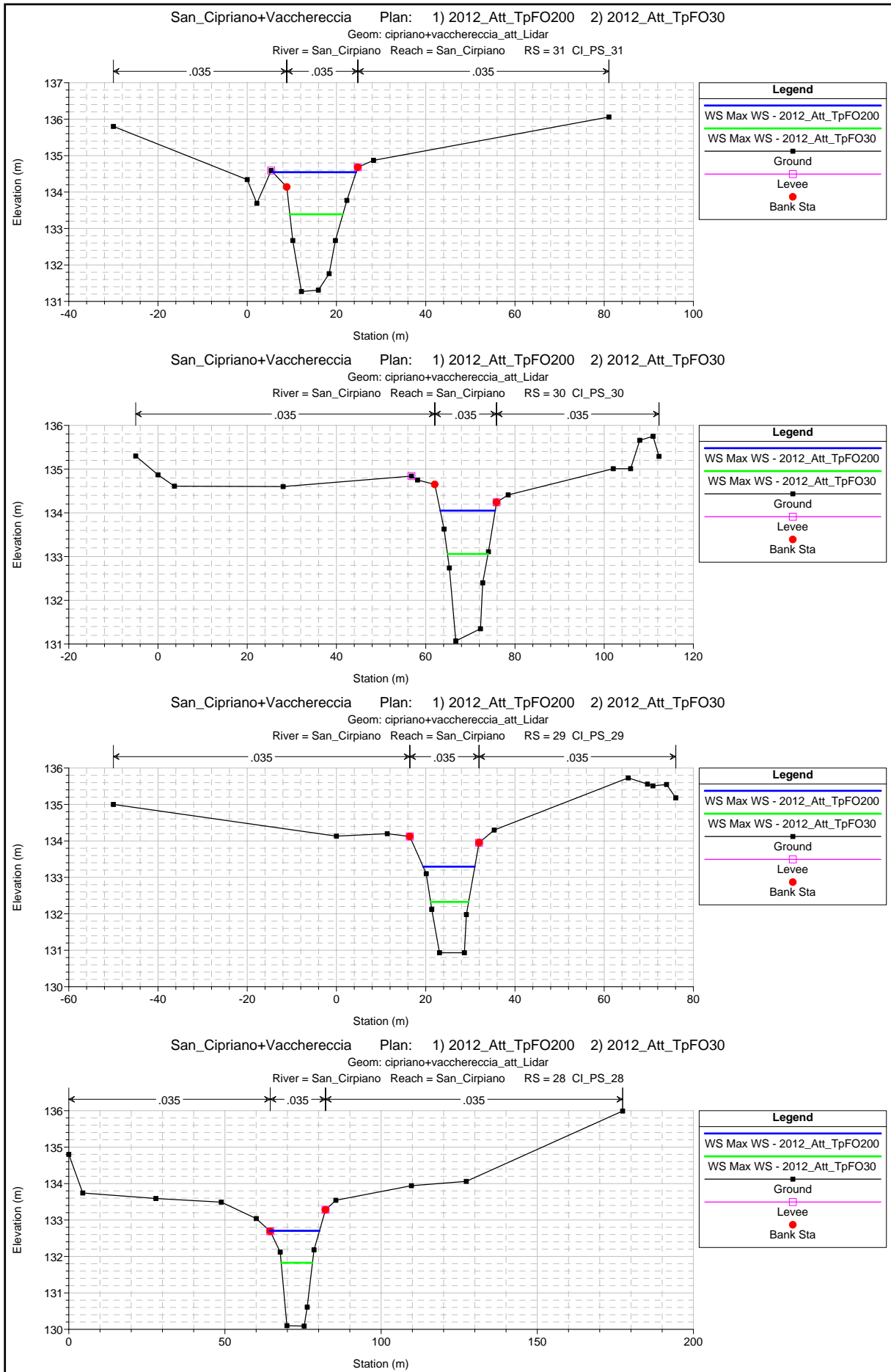
#### **Scenario A2 - Tr 200 e 30 anni**

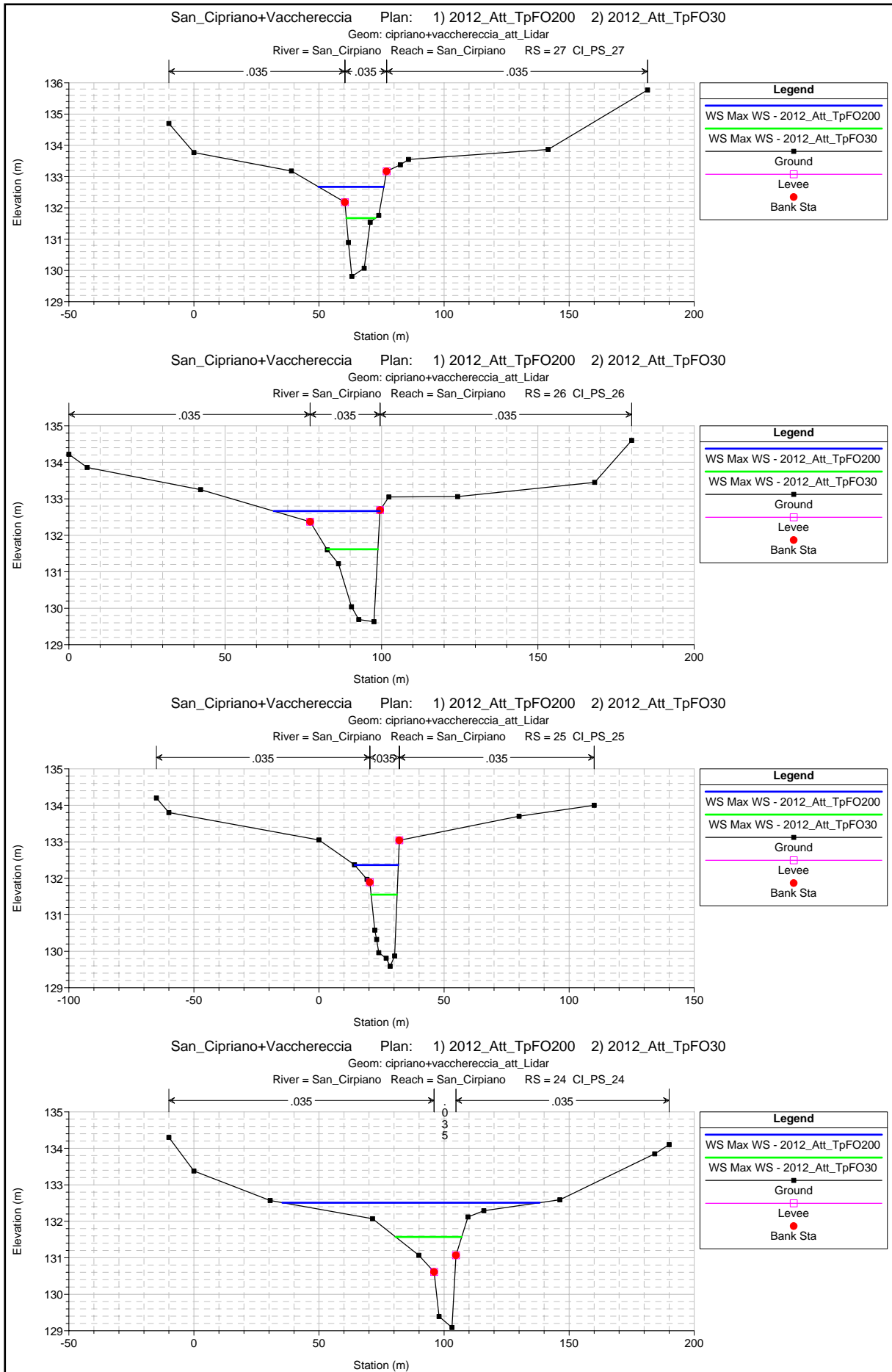
- Profili
- Sezioni di verifica
- Tabelle di output

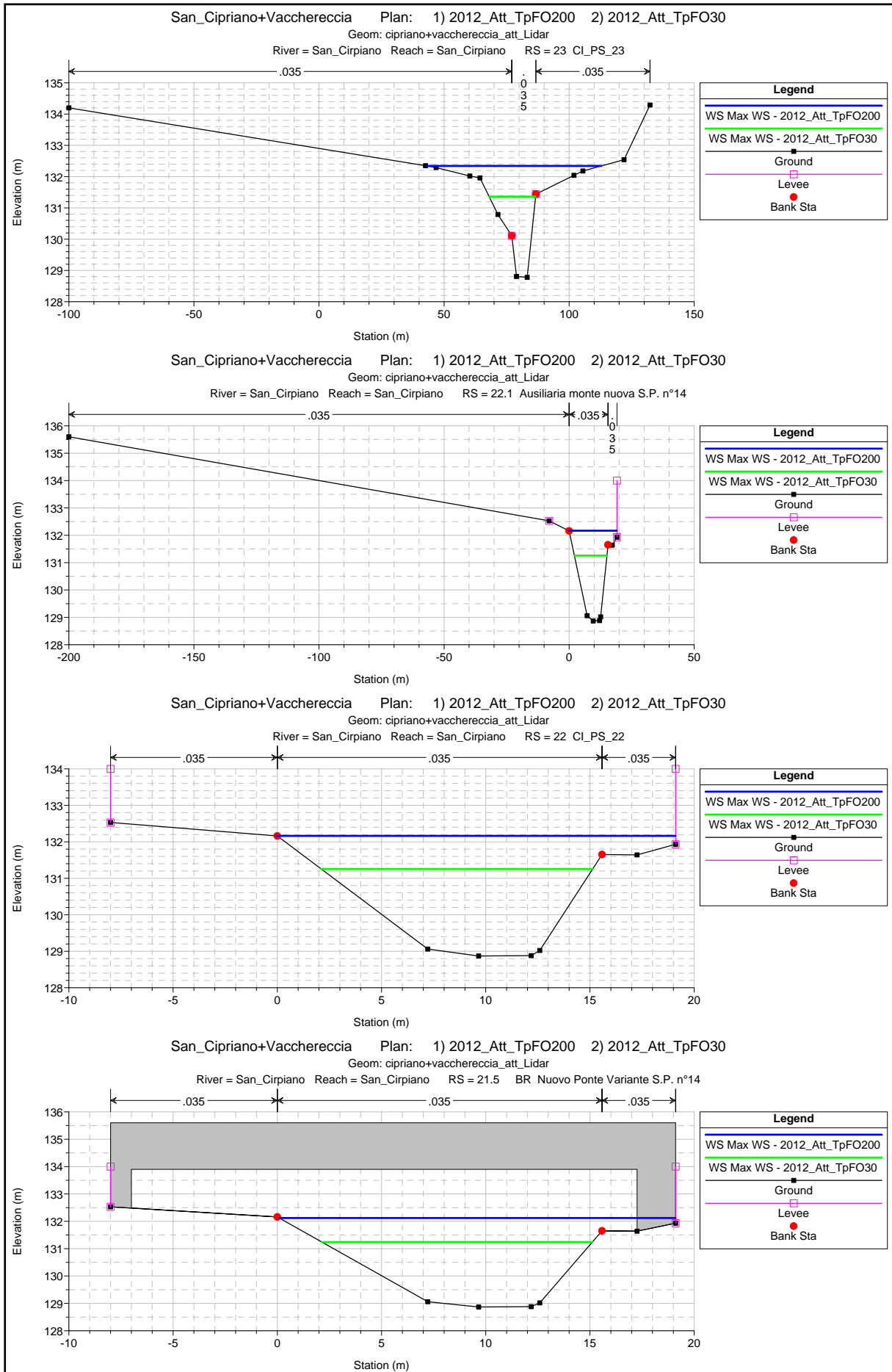
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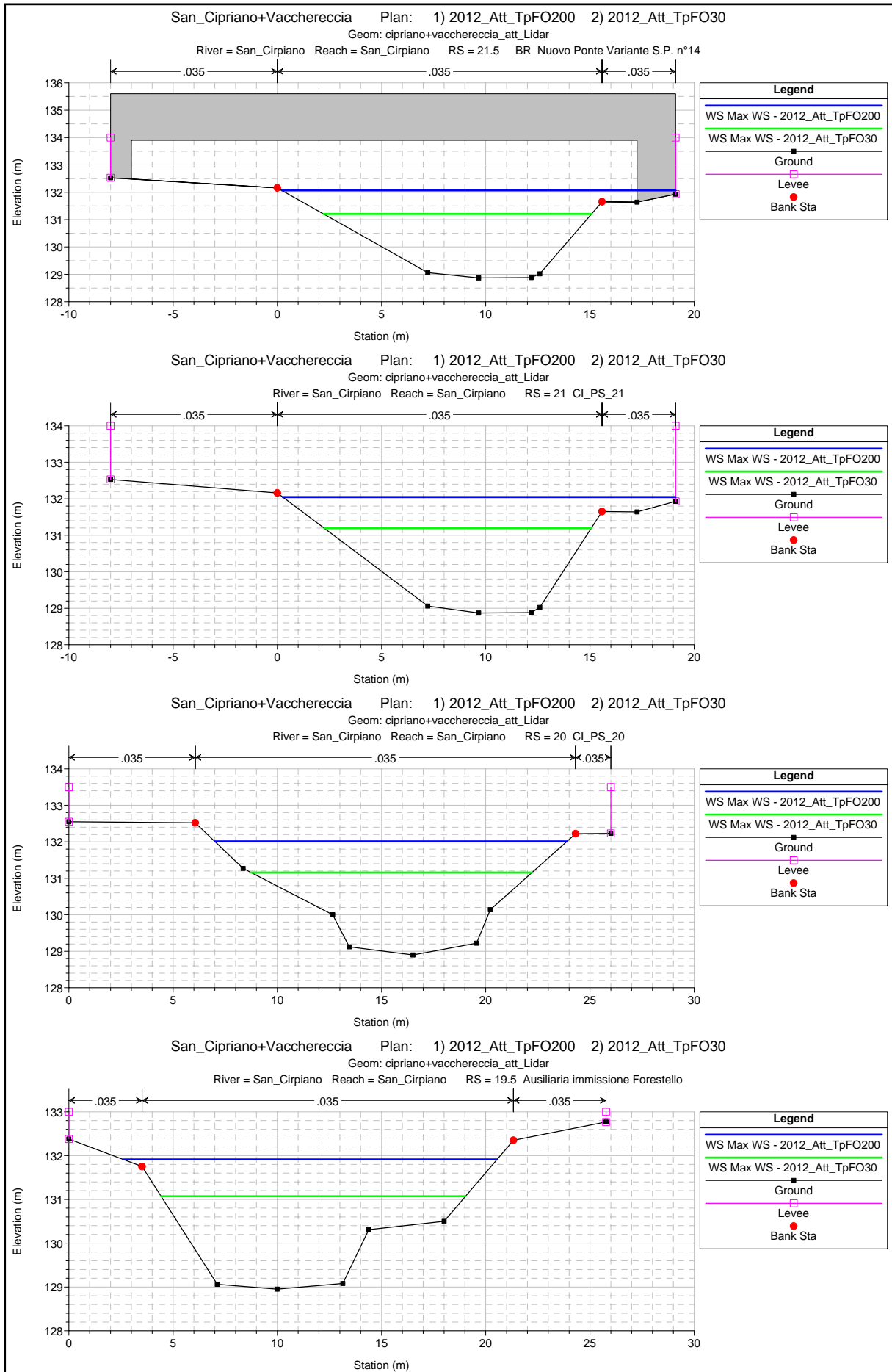
Geom: cipriano+vacchereccia\_att\_Lidar



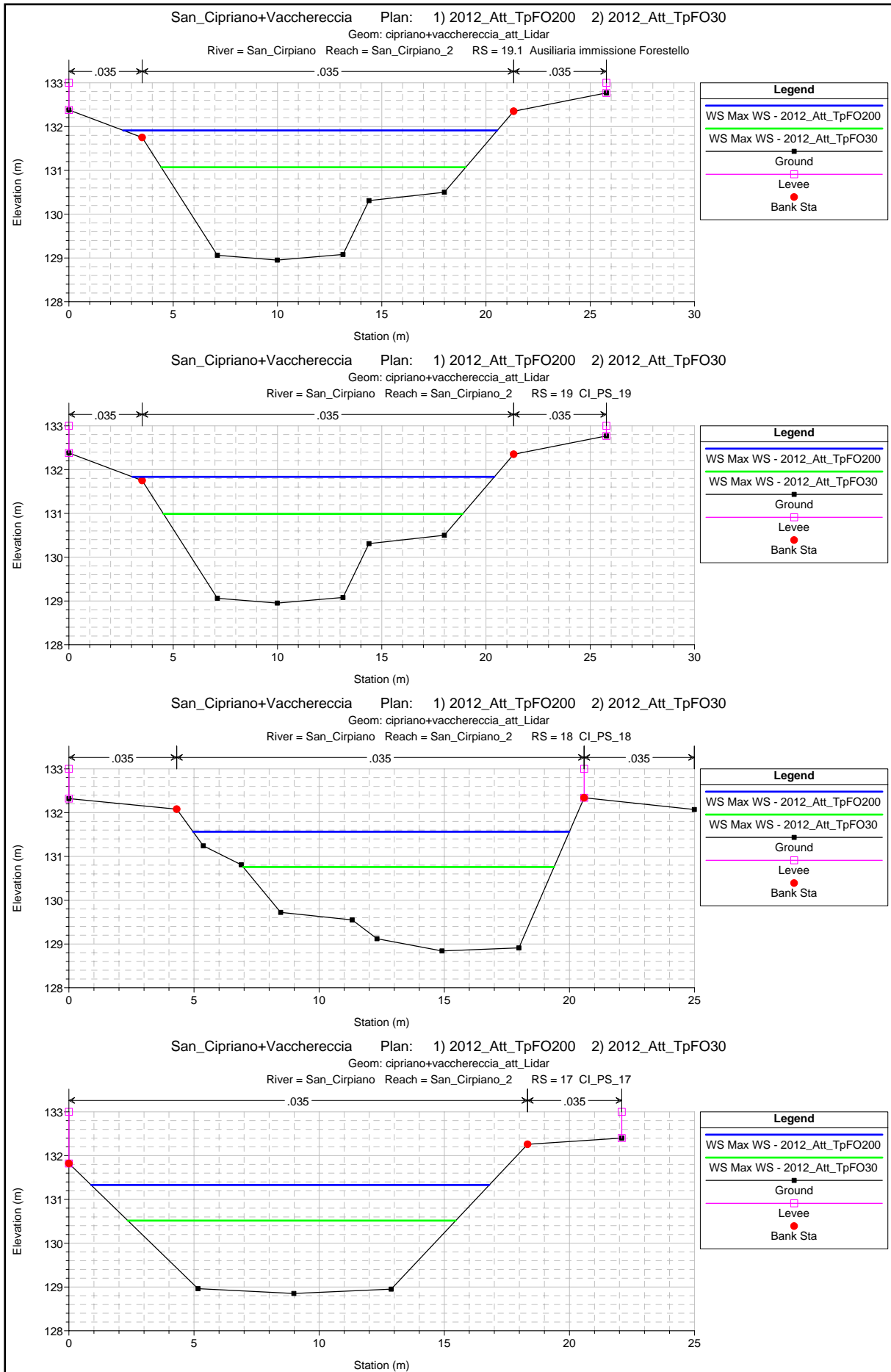


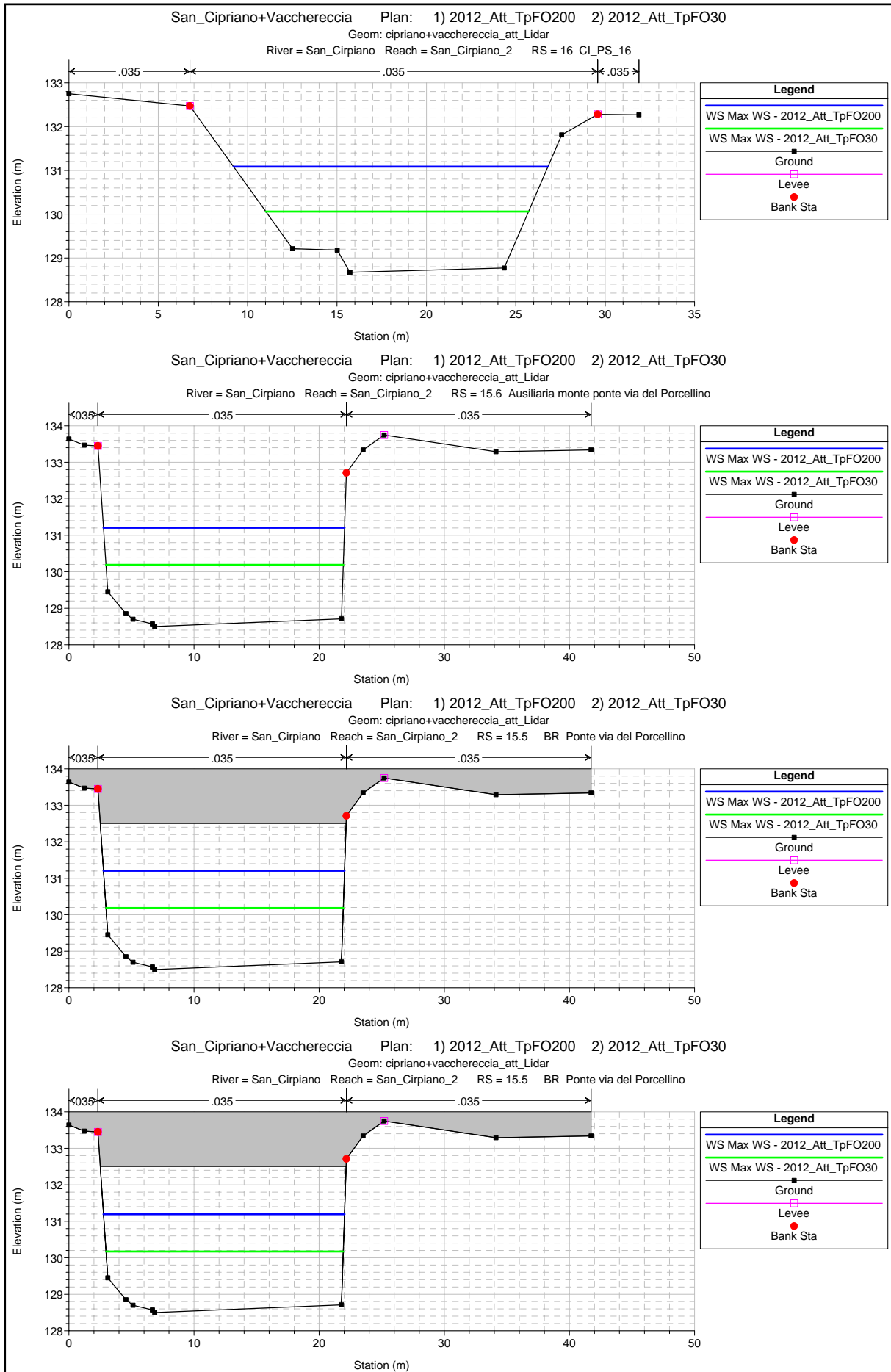


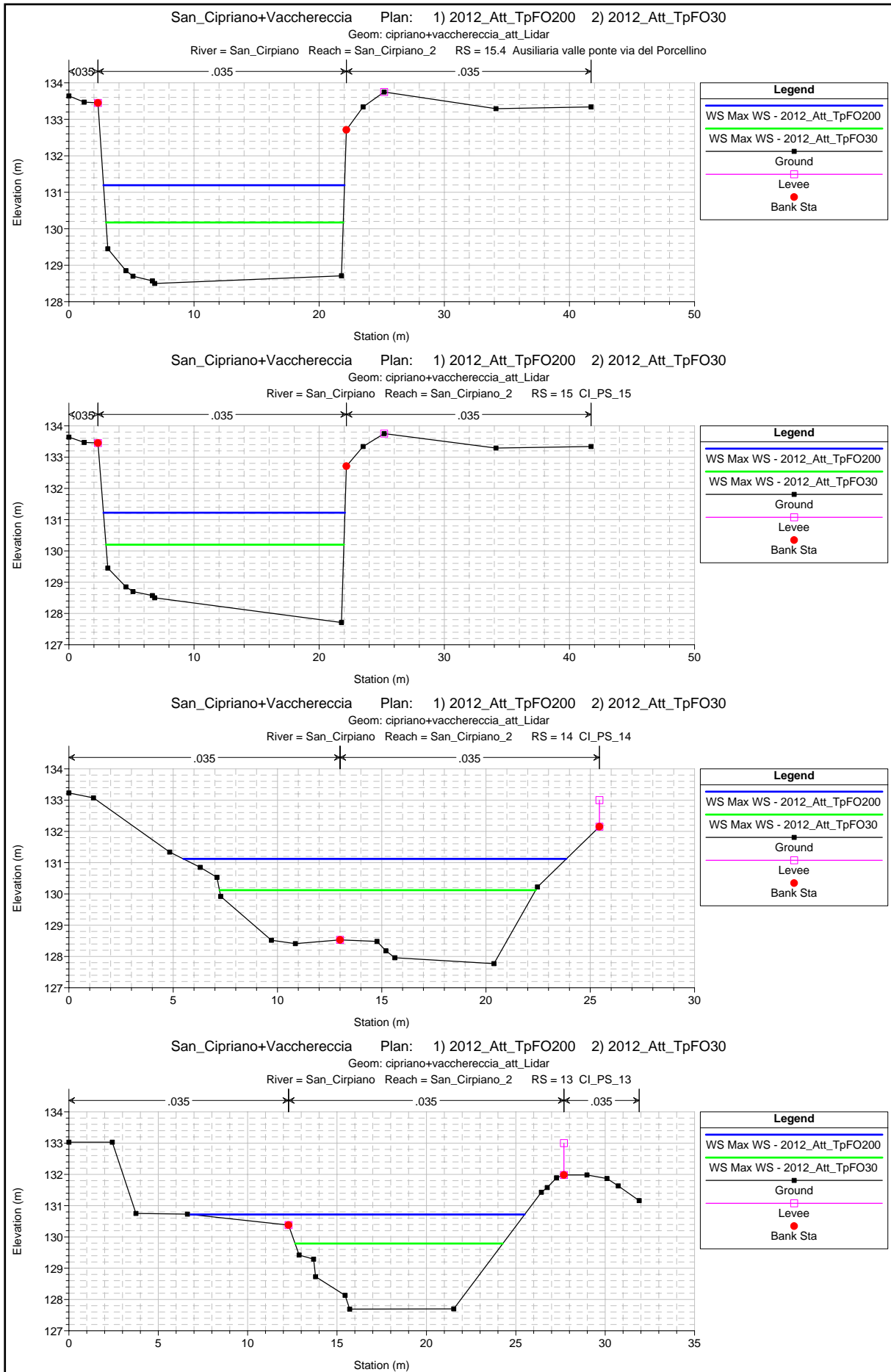


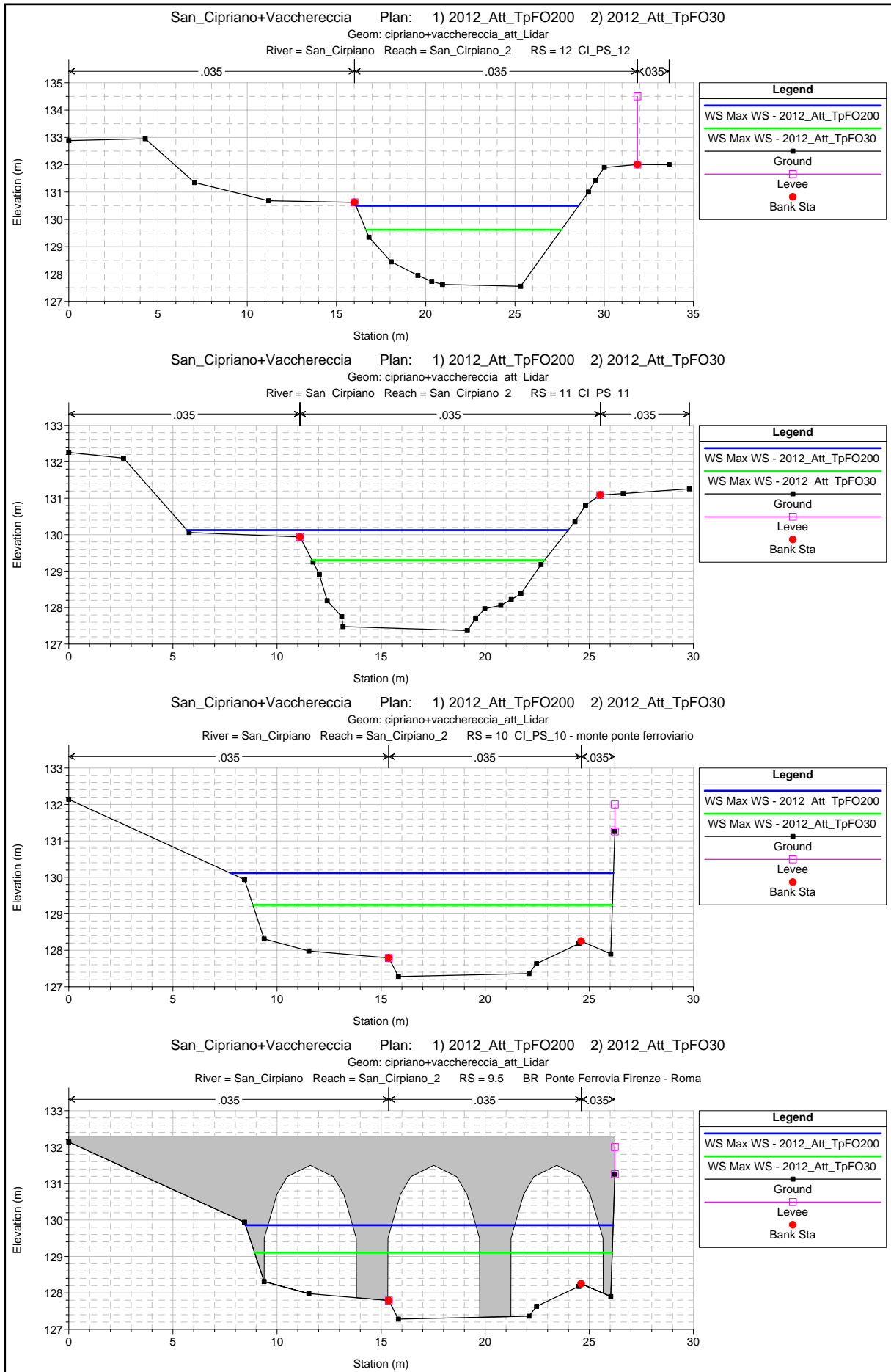


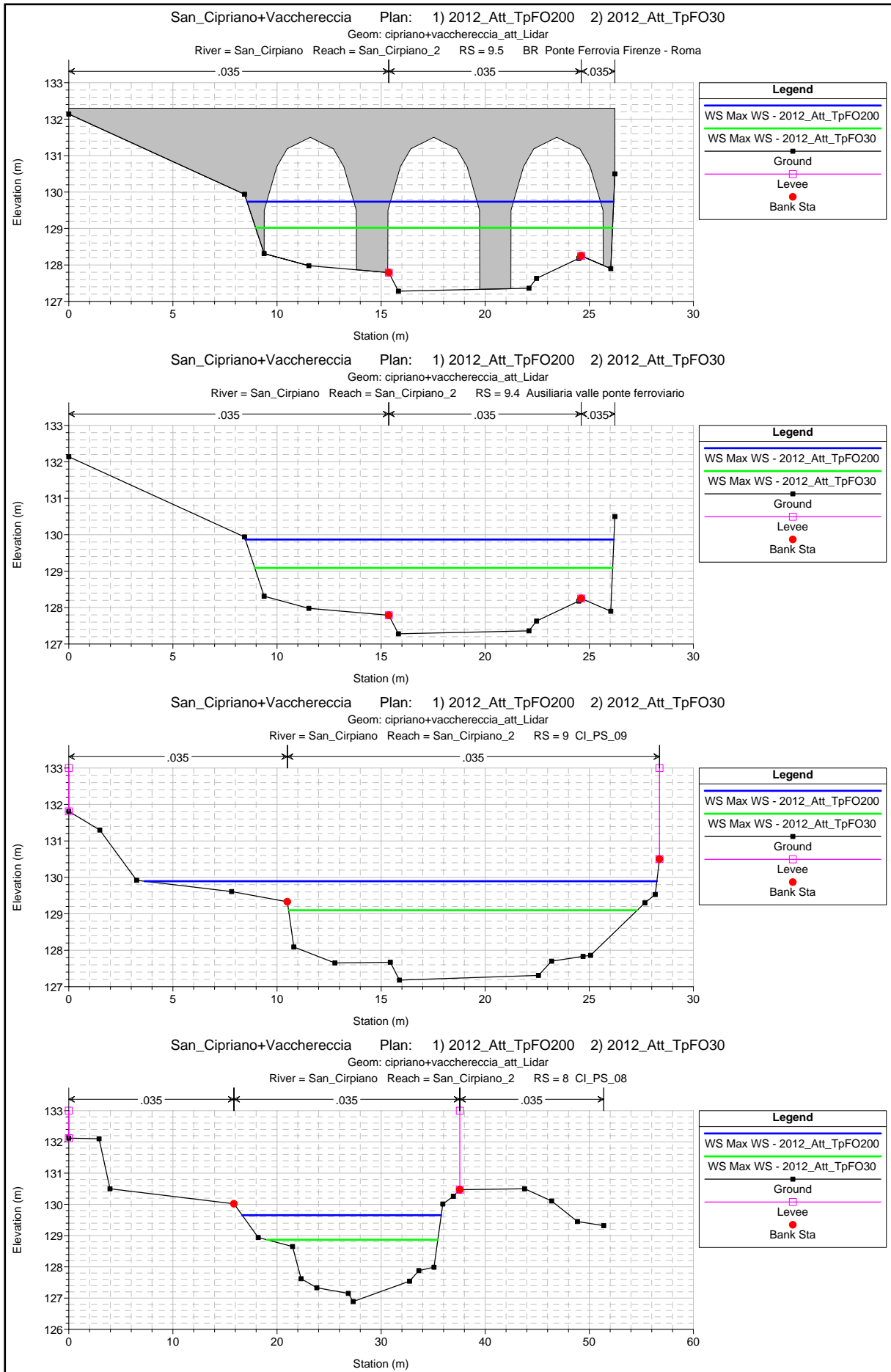


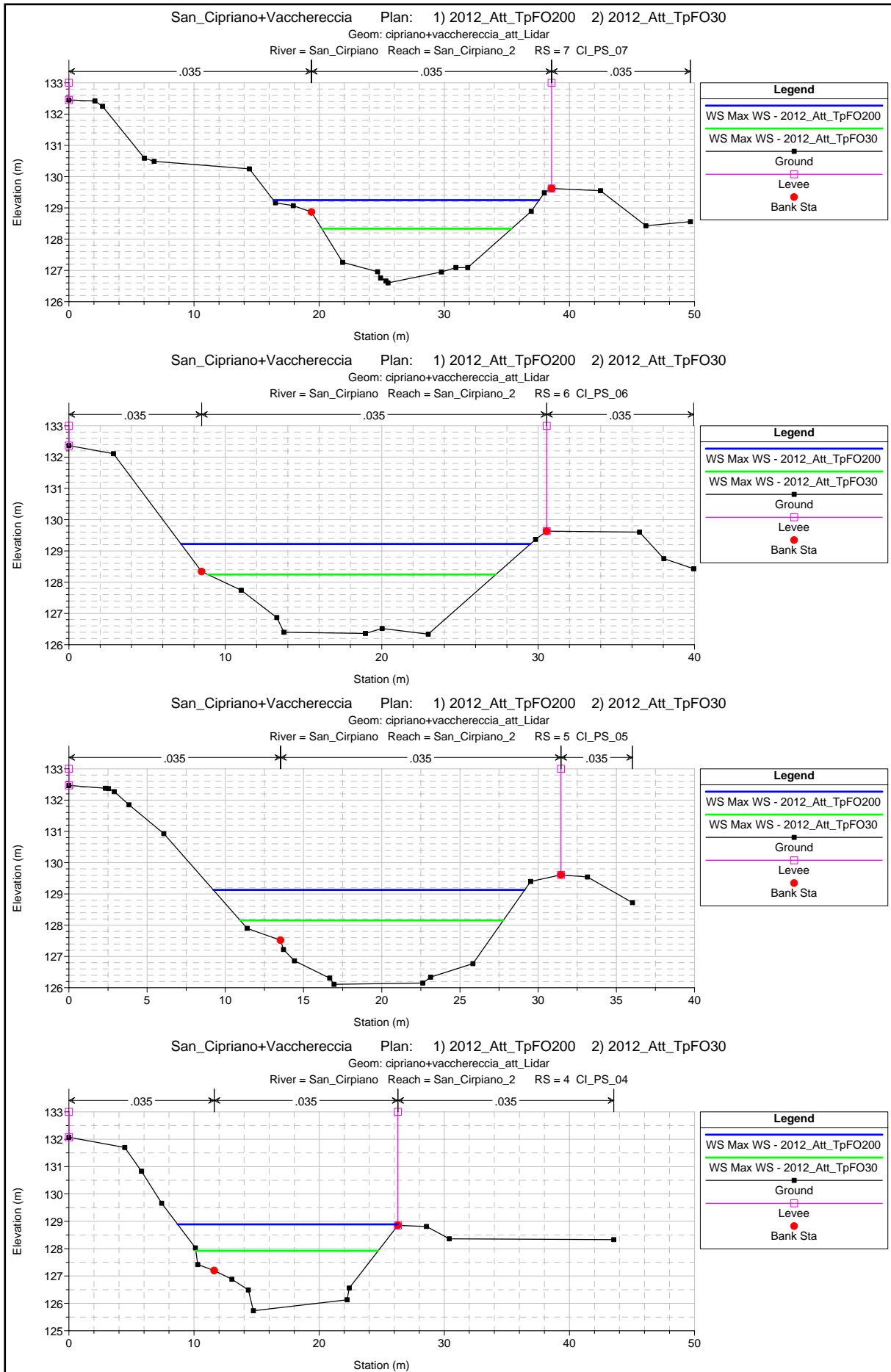


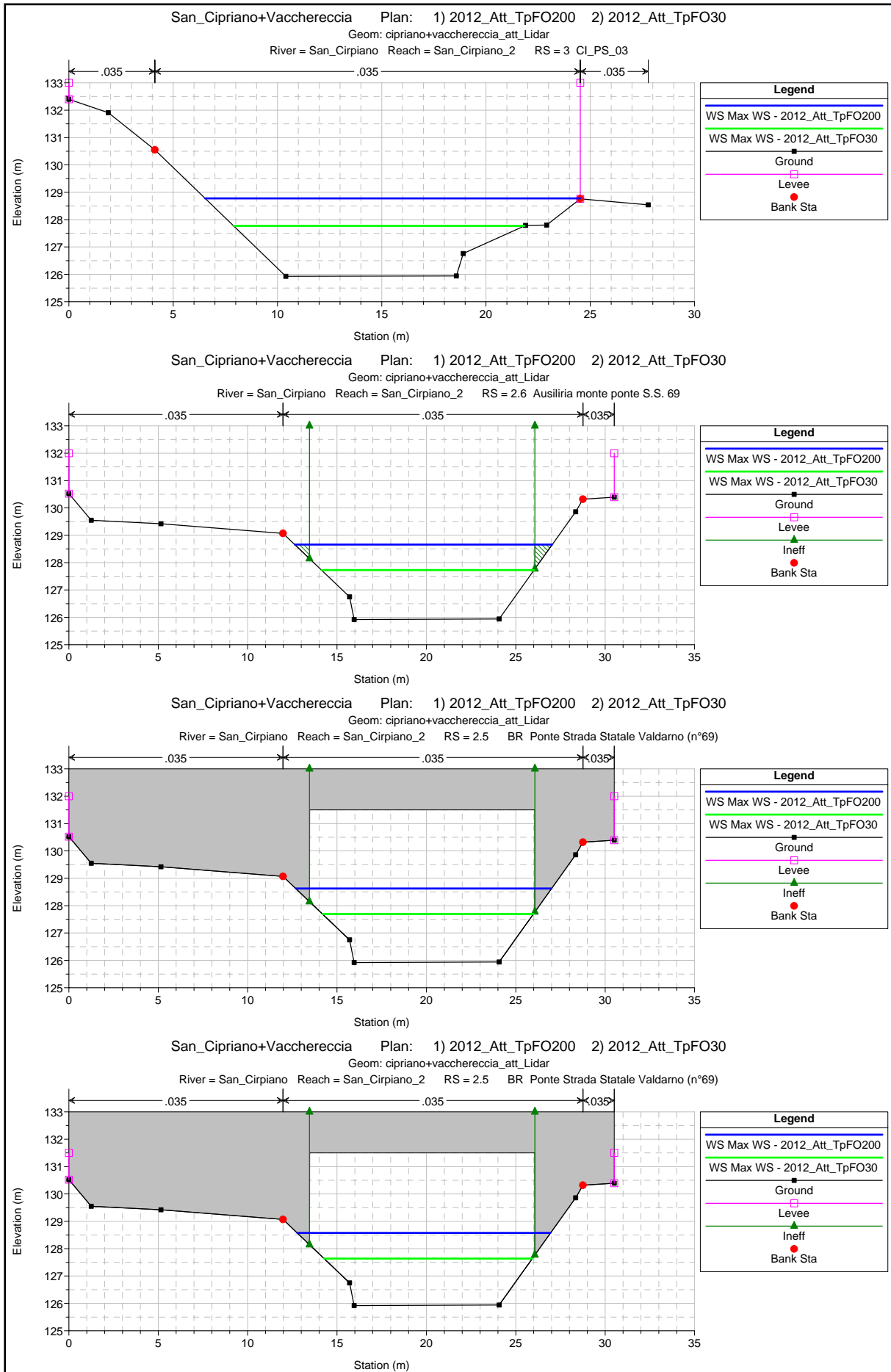


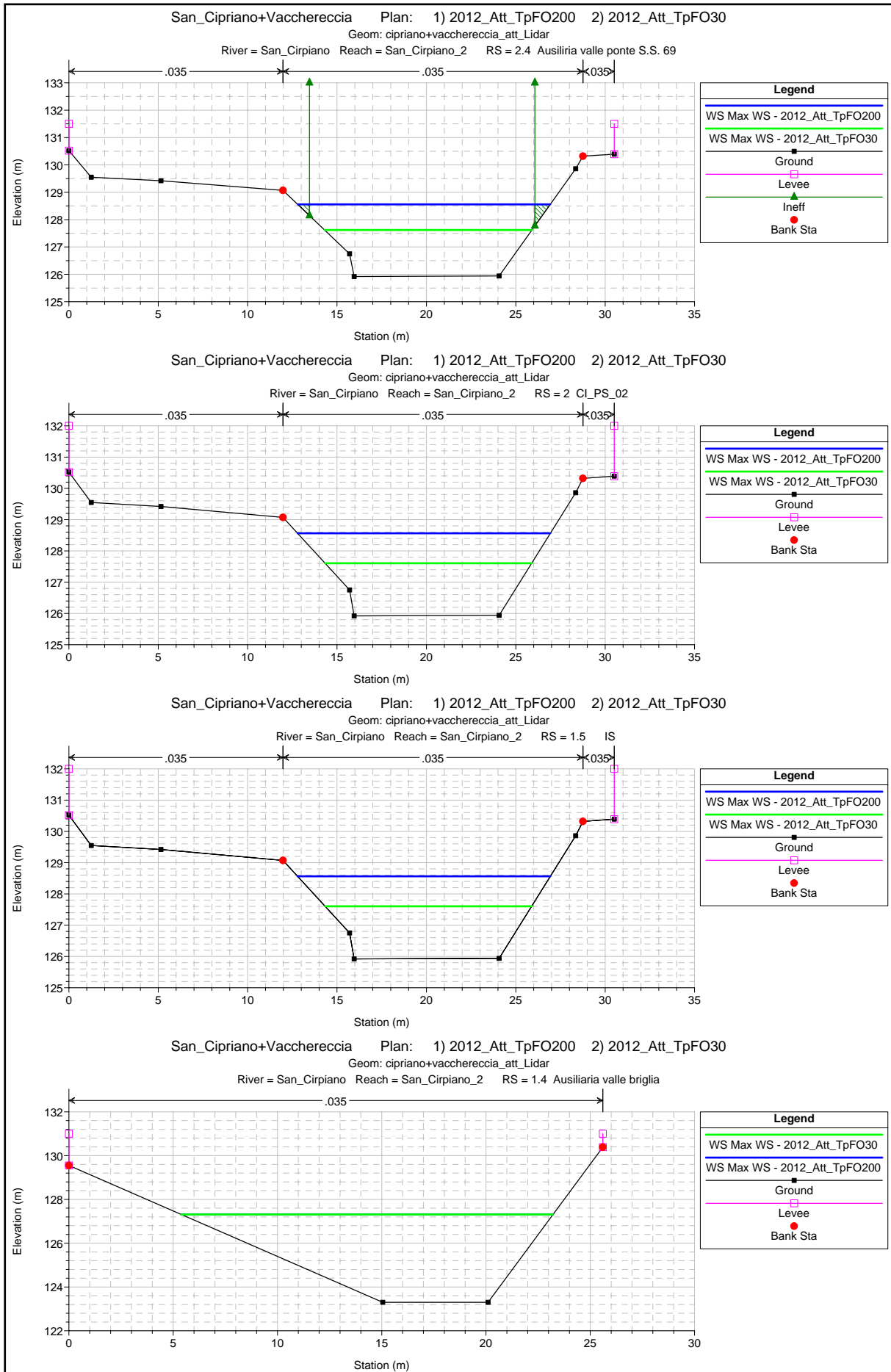




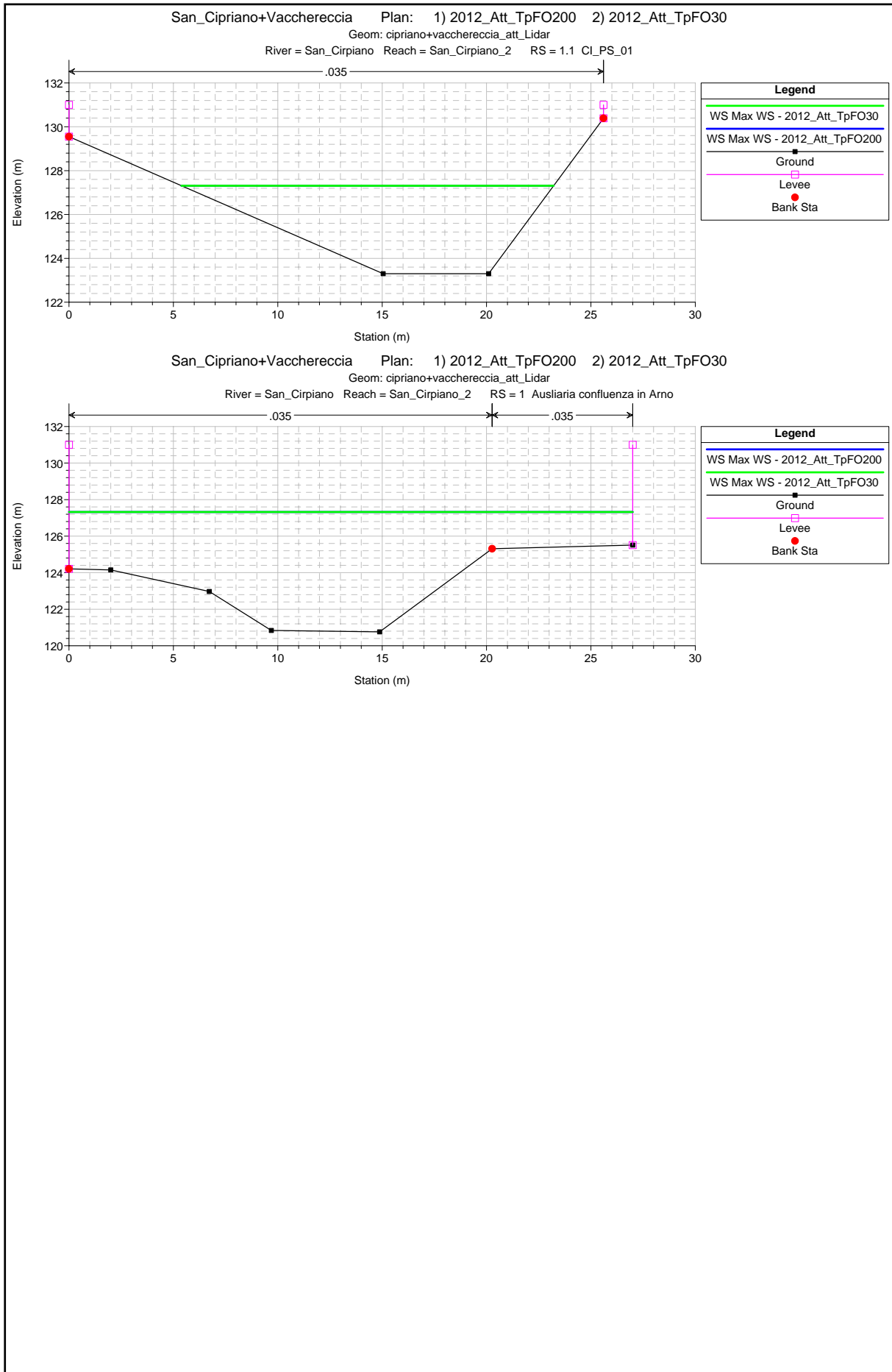












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	31	Max WS	2012_Att_TpFO200	72.27	131.27	134.54		134.78	0.002323	2.14	34.25	18.71	0.47
San_Cirpiano	31	Max WS	2012_Att_TpFO30	29.12	131.27	133.39		133.53	0.002235	1.65	17.68	11.89	0.43
San_Cirpiano	30	Max WS	2012_Att_TpFO200	72.27	131.07	134.05		134.53	0.006164	3.08	23.46	12.31	0.71
San_Cirpiano	30	Max WS	2012_Att_TpFO30	29.12	131.07	133.06		133.32	0.004855	2.25	12.96	9.10	0.60
San_Cirpiano	29	Max WS	2012_Att_TpFO200	72.26	130.93	133.29		134.01	0.010734	3.76	19.22	11.59	0.93
San_Cirpiano	29	Max WS	2012_Att_TpFO30	29.11	130.93	132.33		132.79	0.011153	3.00	9.70	8.53	0.90
San_Cirpiano	28	Max WS	2012_Att_TpFO200	72.08	130.09	132.70		133.15	0.006751	2.95	24.43	15.95	0.76
San_Cirpiano	28	Max WS	2012_Att_TpFO30	29.09	130.09	131.83		132.06	0.004314	2.13	13.63	10.03	0.58
San_Cirpiano	27	Max WS	2012_Att_TpFO200	72.02	129.81	132.67		133.00	0.004369	2.58	29.81	26.12	0.62
San_Cirpiano	27	Max WS	2012_Att_TpFO30	29.08	129.81	131.67		131.93	0.006062	2.25	12.93	11.61	0.68
San_Cirpiano	26	Max WS	2012_Att_TpFO200	72.02	129.63	132.66		132.82	0.001898	1.76	42.37	33.99	0.42
San_Cirpiano	26	Max WS	2012_Att_TpFO30	19.98	129.63	131.62		131.67	0.001088	1.02	19.67	16.28	0.29
San_Cirpiano	25	Max WS	2012_Att_TpFO200	71.94	129.59	132.36		132.81	0.005116	2.99	25.13	17.47	0.66
San_Cirpiano	25	Max WS	2012_Att_TpFO30	19.90	129.59	131.55		131.65	0.001671	1.35	14.72	10.41	0.36
San_Cirpiano	24	Max WS	2012_Att_TpFO200	71.94	129.09	132.51		132.62	0.001074	1.75	70.13	102.85	0.33
San_Cirpiano	24	Max WS	2012_Att_TpFO30	19.88	129.09	131.57		131.61	0.000550	0.97	24.95	26.43	0.22
San_Cirpiano	23.9			Lat Struct									
San_Cirpiano	23	Max WS	2012_Att_TpFO200	72.41	128.78	132.34		132.47	0.001136	1.82	60.46	69.77	0.34
San_Cirpiano	23	Max WS	2012_Att_TpFO30	31.02	128.78	131.36		131.45	0.001145	1.40	24.97	18.58	0.32
San_Cirpiano	22.1	Max WS	2012_Att_TpFO200	72.41	128.87	132.17		132.38	0.002148	2.09	35.71	19.24	0.45
San_Cirpiano	22.1	Max WS	2012_Att_TpFO30	31.40	128.87	131.26		131.37	0.001645	1.49	21.02	13.03	0.38
San_Cirpiano	22	Max WS	2012_Att_TpFO200	72.41	128.87	132.16	131.09	132.38	0.002161	2.09	35.63	19.15	0.45
San_Cirpiano	22	Max WS	2012_Att_TpFO30	31.40	128.87	131.26	130.27	131.37	0.001651	1.50	20.99	13.03	0.38
San_Cirpiano	21.5			Bridge									
San_Cirpiano	21	Max WS	2012_Att_TpFO200	72.40	128.87	132.05		132.30	0.002549	2.22	33.47	18.85	0.49
San_Cirpiano	21	Max WS	2012_Att_TpFO30	31.40	128.87	131.19		131.32	0.001841	1.56	20.17	12.81	0.40
San_Cirpiano	20.8			Lat Struct									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	20	Max WS	2012_Att_TpFO200	72.39	128.90	132.01		132.28	0.003192	2.29	31.55	16.91	0.54
San_Cirpiano	20	Max WS	2012_Att_TpFO30	31.40	128.90	131.16		131.31	0.002615	1.70	18.51	13.48	0.46
San_Cirpiano	19.5	Max WS	2012_Att_TpFO200	72.39	128.95	131.91		132.16	0.002806	2.20	32.99	17.94	0.50
San_Cirpiano	19.5	Max WS	2012_Att_TpFO30	31.38	128.95	131.07		131.20	0.002408	1.61	19.54	14.61	0.44
San_Cirpiano_2	19.1	Max WS	2012_Att_TpFO200	73.85	128.95	131.91		132.17	0.002920	2.24	32.99	17.94	0.51
San_Cirpiano_2	19.1	Max WS	2012_Att_TpFO30	35.26	128.95	131.07		131.24	0.003040	1.80	19.54	14.61	0.50
San_Cirpiano_2	19	Max WS	2012_Att_TpFO200	73.85	128.95	131.83		132.11	0.003313	2.34	31.61	17.36	0.55
San_Cirpiano_2	19	Max WS	2012_Att_TpFO30	35.24	128.95	130.99		131.18	0.003646	1.92	18.35	14.35	0.54
San_Cirpiano_2	18.9			Lat Struct									
San_Cirpiano_2	18.8			Lat Struct									
San_Cirpiano_2	18	Max WS	2012_Att_TpFO200	73.83	128.84	131.56		131.91	0.004229	2.61	28.28	15.04	0.61
San_Cirpiano_2	18	Max WS	2012_Att_TpFO30	35.19	128.84	130.76		130.97	0.003880	2.06	17.11	12.42	0.56
San_Cirpiano_2	17	Max WS	2012_Att_TpFO200	73.83	128.85	131.33		131.67	0.004215	2.60	28.45	15.91	0.62
San_Cirpiano_2	17	Max WS	2012_Att_TpFO30	35.18	128.85	130.52		130.74	0.004303	2.11	16.67	13.11	0.60
San_Cirpiano_2	16	Max WS	2012_Att_TpFO200	73.80	128.67	131.09		131.35	0.003093	2.26	32.60	17.59	0.53
San_Cirpiano_2	16	Max WS	2012_Att_TpFO30	35.07	128.67	130.06		130.30	0.005620	2.18	16.06	14.71	0.67
San_Cirpiano_2	15.6	Max WS	2012_Att_TpFO200	73.80	128.50	131.21	129.82	131.33	0.001073	1.53	48.28	19.27	0.31
San_Cirpiano_2	15.6	Max WS	2012_Att_TpFO30	35.06	128.50	130.19	129.36	130.26	0.001196	1.22	28.80	18.96	0.32
San_Cirpiano_2	15.5			Bridge									
San_Cirpiano_2	15.4	Max WS	2012_Att_TpFO200	73.80	128.50	131.19		131.31	0.001091	1.54	48.02	19.26	0.31
San_Cirpiano_2	15.4	Max WS	2012_Att_TpFO30	35.06	128.50	130.17		130.25	0.001236	1.23	28.50	18.96	0.32
San_Cirpiano_2	15	Max WS	2012_Att_TpFO200	73.80	127.71	131.22		131.31	0.000686	1.31	56.21	19.30	0.25
San_Cirpiano_2	15	Max WS	2012_Att_TpFO30	35.06	127.71	130.20		130.25	0.000574	0.96	36.60	19.02	0.22
San_Cirpiano_2	14.8			Lat Struct									
San_Cirpiano_2	14	Max WS	2012_Att_TpFO200	73.80	127.77	131.12		131.28	0.001500	1.89	41.61	18.36	0.38
San_Cirpiano_2	14	Max WS	2012_Att_TpFO30	34.95	127.77	130.12		130.22	0.001350	1.47	25.23	15.17	0.34

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano_2	13	Max WS	2012_Att_TpFO200	73.79	127.69	130.72		131.02	0.003100	2.45	30.81	18.70	0.52
San_Cirpiano_2	13	Max WS	2012_Att_TpFO30	34.93	127.69	129.79		129.98	0.002955	1.91	18.26	11.62	0.49
San_Cirpiano_2	12	Max WS	2012_Att_TpFO200	73.79	127.55	130.50		130.87	0.003986	2.72	27.13	12.48	0.59
San_Cirpiano_2	12	Max WS	2012_Att_TpFO30	34.92	127.55	129.62		129.84	0.003444	2.07	16.88	10.95	0.53
San_Cirpiano_2	11	Max WS	2012_Att_TpFO200	73.77	127.37	130.13		130.52	0.004410	2.77	27.15	18.31	0.62
San_Cirpiano_2	11	Max WS	2012_Att_TpFO30	34.85	127.37	129.30		129.53	0.003860	2.11	16.49	11.17	0.55
San_Cirpiano_2	10	Max WS	2012_Att_TpFO200	73.77	127.28	130.12	129.01	130.30	0.001486	2.05	41.29	18.41	0.40
San_Cirpiano_2	10	Max WS	2012_Att_TpFO30	34.83	127.28	129.24	128.51	129.34	0.001383	1.51	25.87	17.27	0.36
San_Cirpiano_2	9.5			Bridge									
San_Cirpiano_2	9.4	Max WS	2012_Att_TpFO200	73.75	127.28	129.87		130.09	0.002073	2.26	36.81	17.70	0.47
San_Cirpiano_2	9.4	Max WS	2012_Att_TpFO30	34.83	127.28	129.09		129.21	0.001948	1.68	23.18	17.19	0.42
San_Cirpiano_2	9.2			Lat Struct									
San_Cirpiano_2	9	Max WS	2012_Att_TpFO200	73.75	127.18	129.89		130.08	0.001856	1.91	39.95	24.60	0.41
San_Cirpiano_2	9	Max WS	2012_Att_TpFO30	34.83	127.18	129.10		129.20	0.001710	1.43	24.33	16.74	0.38
San_Cirpiano_2	8	Max WS	2012_Att_TpFO200	73.75	126.89	129.65		129.89	0.002915	2.14	34.46	19.11	0.51
San_Cirpiano_2	8	Max WS	2012_Att_TpFO30	34.79	126.89	128.87		129.02	0.003026	1.72	20.24	16.41	0.49
San_Cirpiano_2	7	Max WS	2012_Att_TpFO200	73.72	126.60	129.25		129.50	0.003046	2.25	33.27	21.24	0.54
San_Cirpiano_2	7	Max WS	2012_Att_TpFO30	34.49	126.60	128.33		128.54	0.004450	2.01	17.15	15.16	0.60
San_Cirpiano_2	6	Max WS	2012_Att_TpFO200	73.72	126.34	129.22		129.36	0.001366	1.67	44.51	22.33	0.37
San_Cirpiano_2	6	Max WS	2012_Att_TpFO30	34.49	126.34	128.24		128.34	0.001760	1.41	24.49	18.39	0.39
San_Cirpiano_2	5	Max WS	2012_Att_TpFO200	73.72	126.11	129.13		129.29	0.001412	1.84	42.02	19.90	0.38
San_Cirpiano_2	5	Max WS	2012_Att_TpFO30	34.48	126.11	128.15		128.26	0.001497	1.47	24.13	16.82	0.37
San_Cirpiano_2	4	Max WS	2012_Att_TpFO200	73.69	125.73	128.89		129.10	0.002000	2.09	36.69	17.60	0.44
San_Cirpiano_2	4	Max WS	2012_Att_TpFO30	34.43	125.73	127.92		128.06	0.002117	1.66	21.18	14.57	0.43
San_Cirpiano_2	3	Max WS	2012_Att_TpFO200	73.52	125.93	128.78		128.99	0.002357	2.05	35.84	17.99	0.46
San_Cirpiano_2	3	Max WS	2012_Att_TpFO30	34.41	125.93	127.77		127.93	0.002861	1.78	19.28	13.95	0.48

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano_2	2.6	Max WS	2012_Att_TpFO200	73.52	125.92	128.66	127.84	128.99	0.003045	2.53	29.09	14.41	0.53
San_Cirpiano_2	2.6	Max WS	2012_Att_TpFO30	34.41	125.92	127.73	127.12	127.93	0.003367	1.97	17.46	11.89	0.52
San_Cirpiano_2	2.5			Bridge									
San_Cirpiano_2	2.4	Max WS	2012_Att_TpFO200	73.52	125.92	128.56		128.91	0.003558	2.65	27.76	14.12	0.57
San_Cirpiano_2	2.4	Max WS	2012_Att_TpFO30	34.41	125.92	127.62		127.85	0.004184	2.13	16.18	11.60	0.57
San_Cirpiano_2	2	Max WS	2012_Att_TpFO200	73.52	125.92	128.56	127.85	128.91	0.003947	2.60	28.33	14.14	0.59
San_Cirpiano_2	2	Max WS	2012_Att_TpFO30	34.41	125.92	127.61	127.12	127.84	0.004293	2.15	16.04	11.56	0.58
San_Cirpiano_2	1.5			Inl Struct									
San_Cirpiano_2	1.4	Max WS	2012_Att_TpFO200	24.49	123.30	127.31		127.33	0.000120	0.53	45.90	17.83	0.11
San_Cirpiano_2	1.4	Max WS	2012_Att_TpFO30	22.02	123.30	127.31		127.33	0.000097	0.48	45.92	17.83	0.10
San_Cirpiano_2	1.1	Max WS	2012_Att_TpFO200	24.49	123.30	127.31		127.33	0.000120	0.53	45.90	17.83	0.11
San_Cirpiano_2	1.1	Max WS	2012_Att_TpFO30	22.02	123.30	127.31		127.33	0.000097	0.48	45.91	17.83	0.10
San_Cirpiano_2	1	Max WS	2012_Att_TpFO200	24.42	120.76	127.32	121.99	127.32	0.000012	0.23	109.90	27.00	0.03
San_Cirpiano_2	1	Max WS	2012_Att_TpFO30	21.96	120.76	127.32	121.91	127.32	0.000009	0.21	109.90	27.00	0.03

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

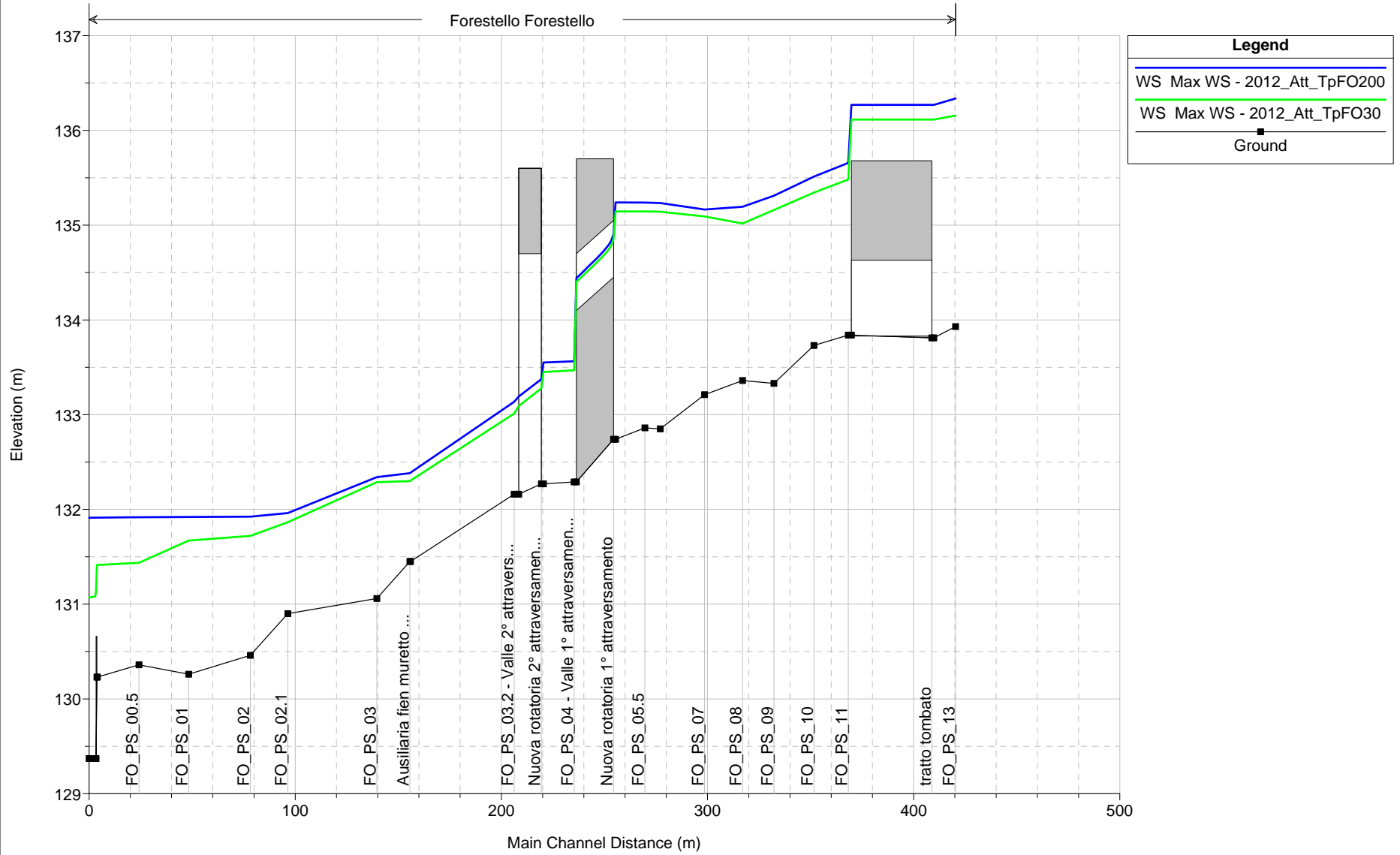
### **BORRO FORESTELLO**

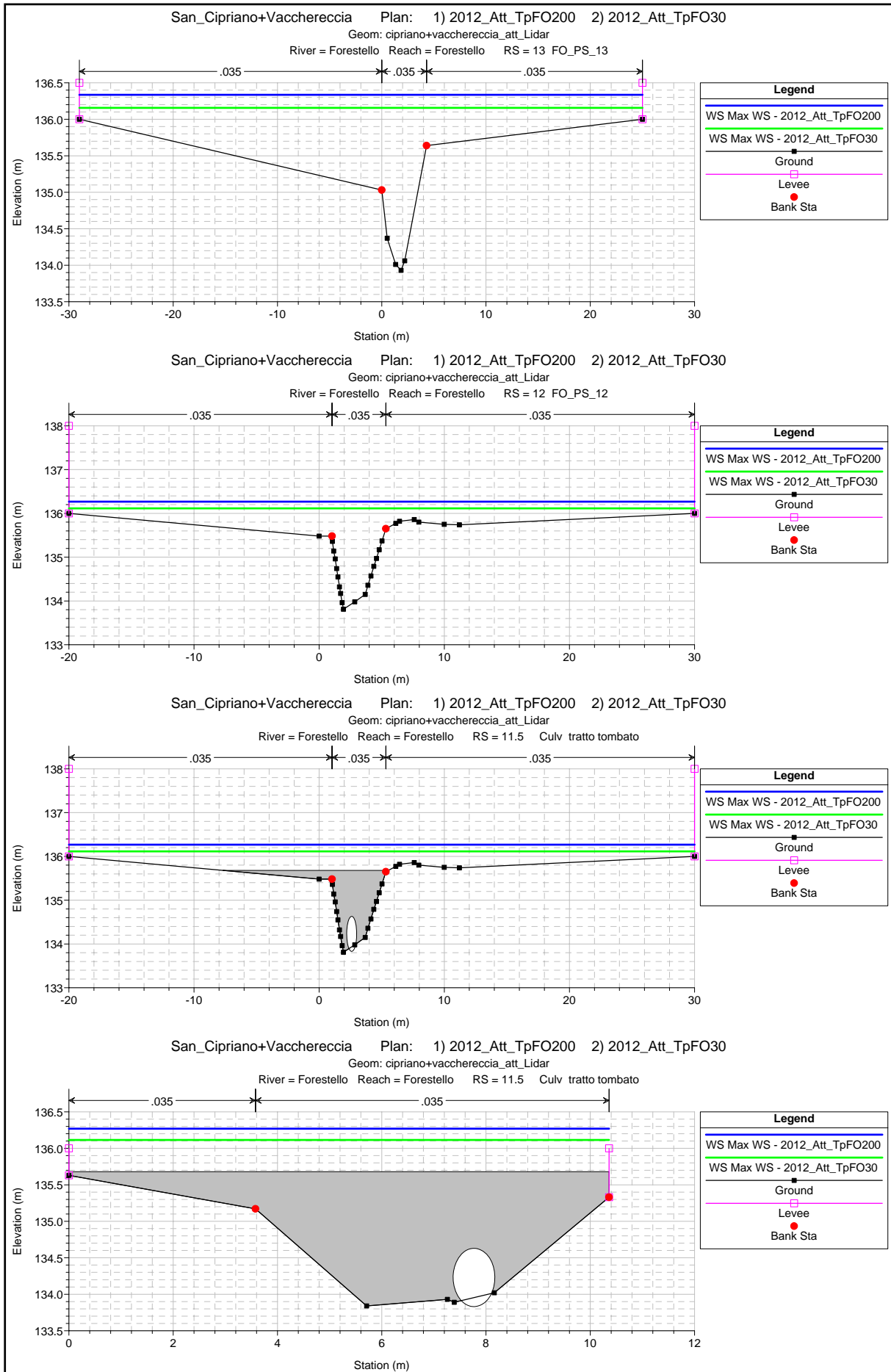
#### **Scenario A2 - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

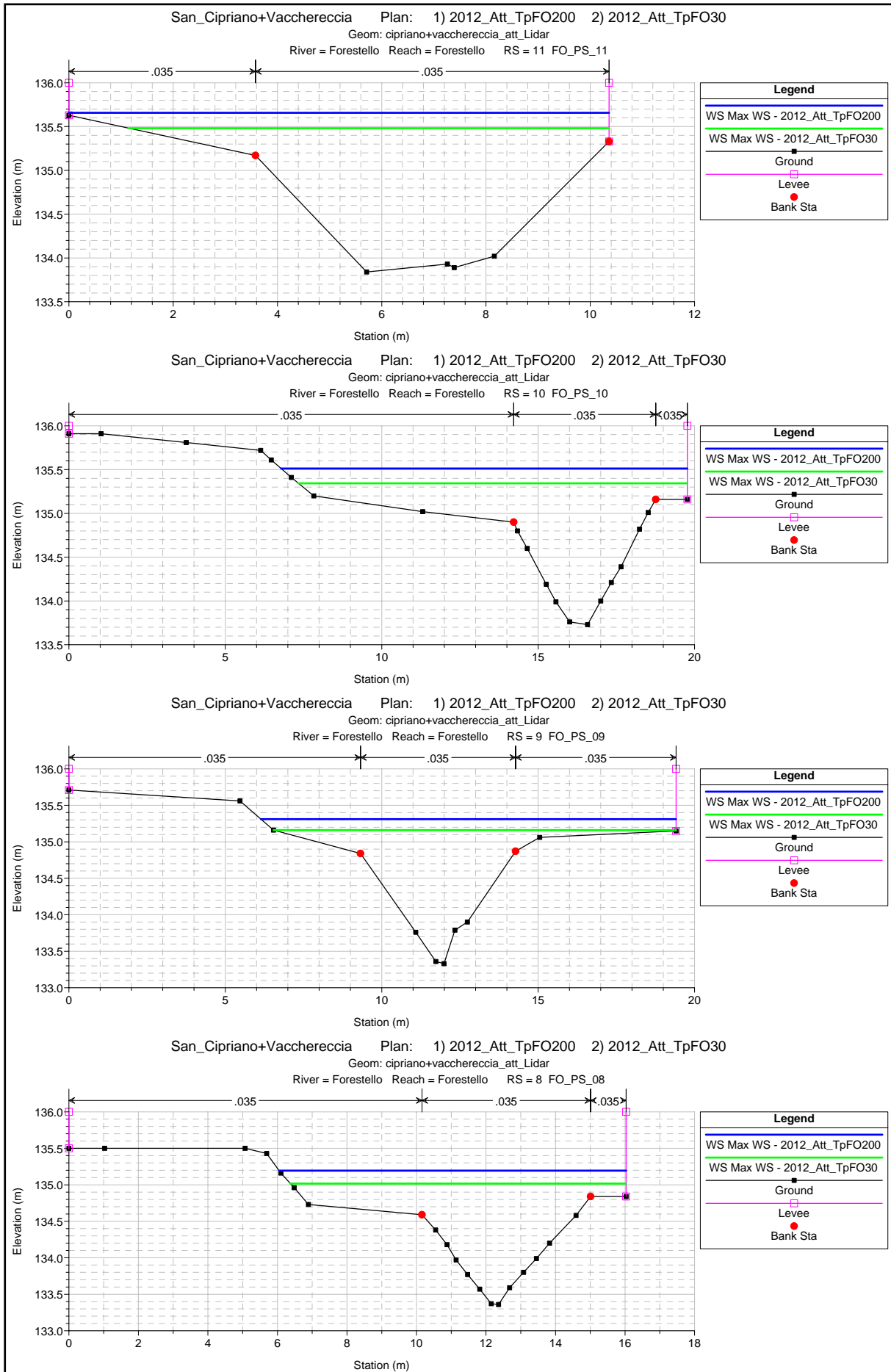
San\_Cipriano+Vacchereccia Plan: 1) 2012\_Att\_TpFO200 2) 2012\_Att\_TpFO30

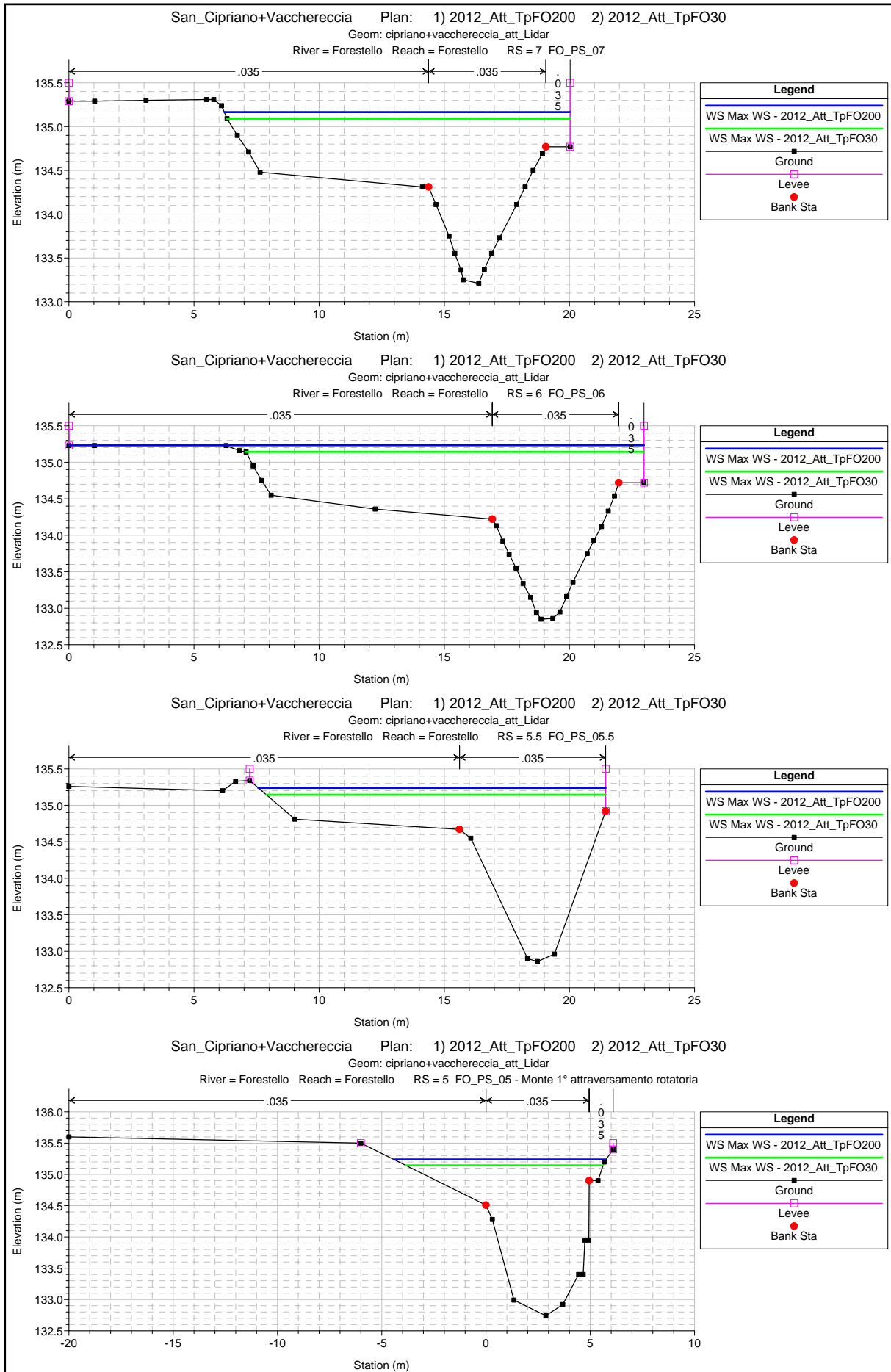
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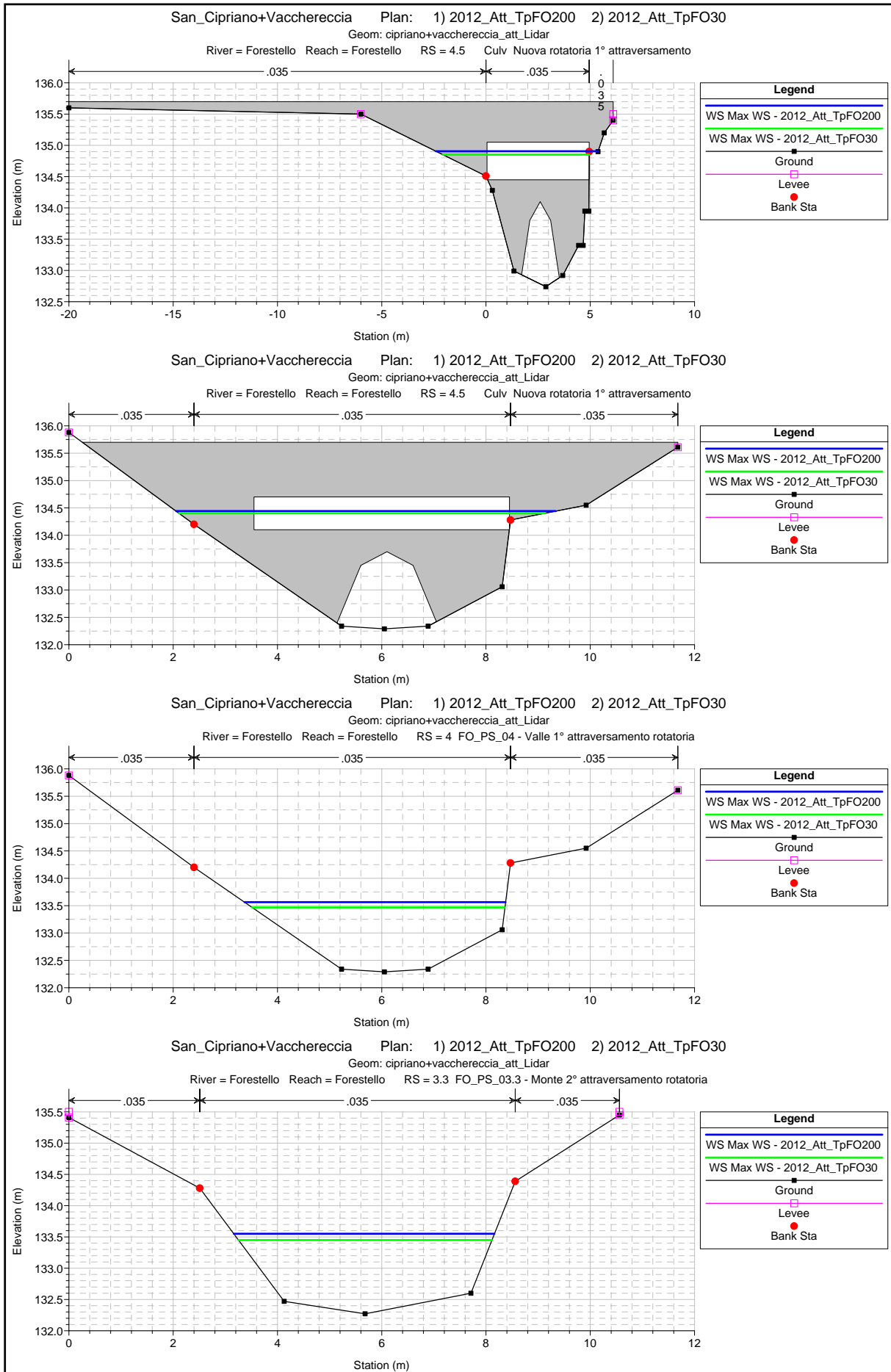


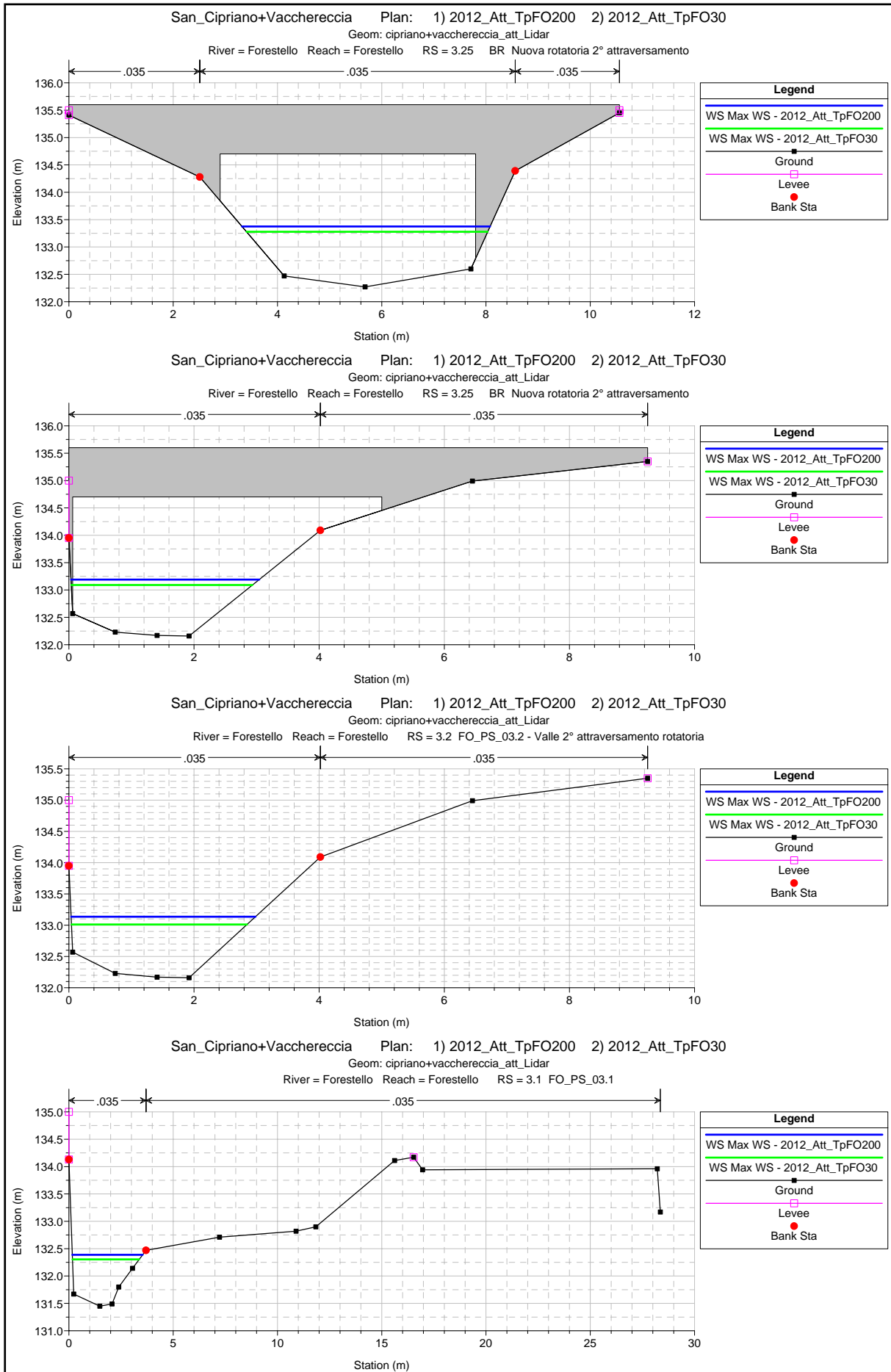


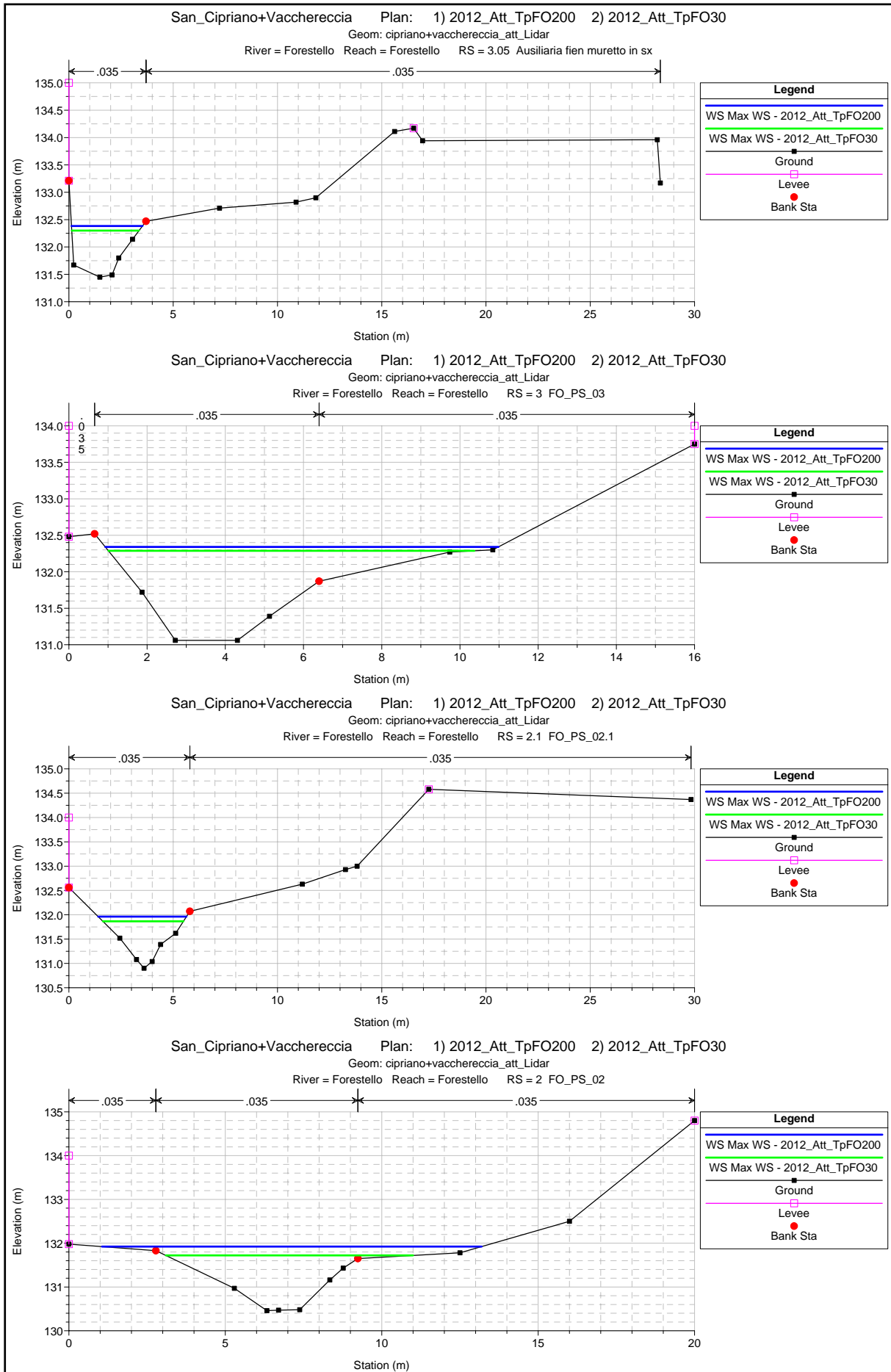


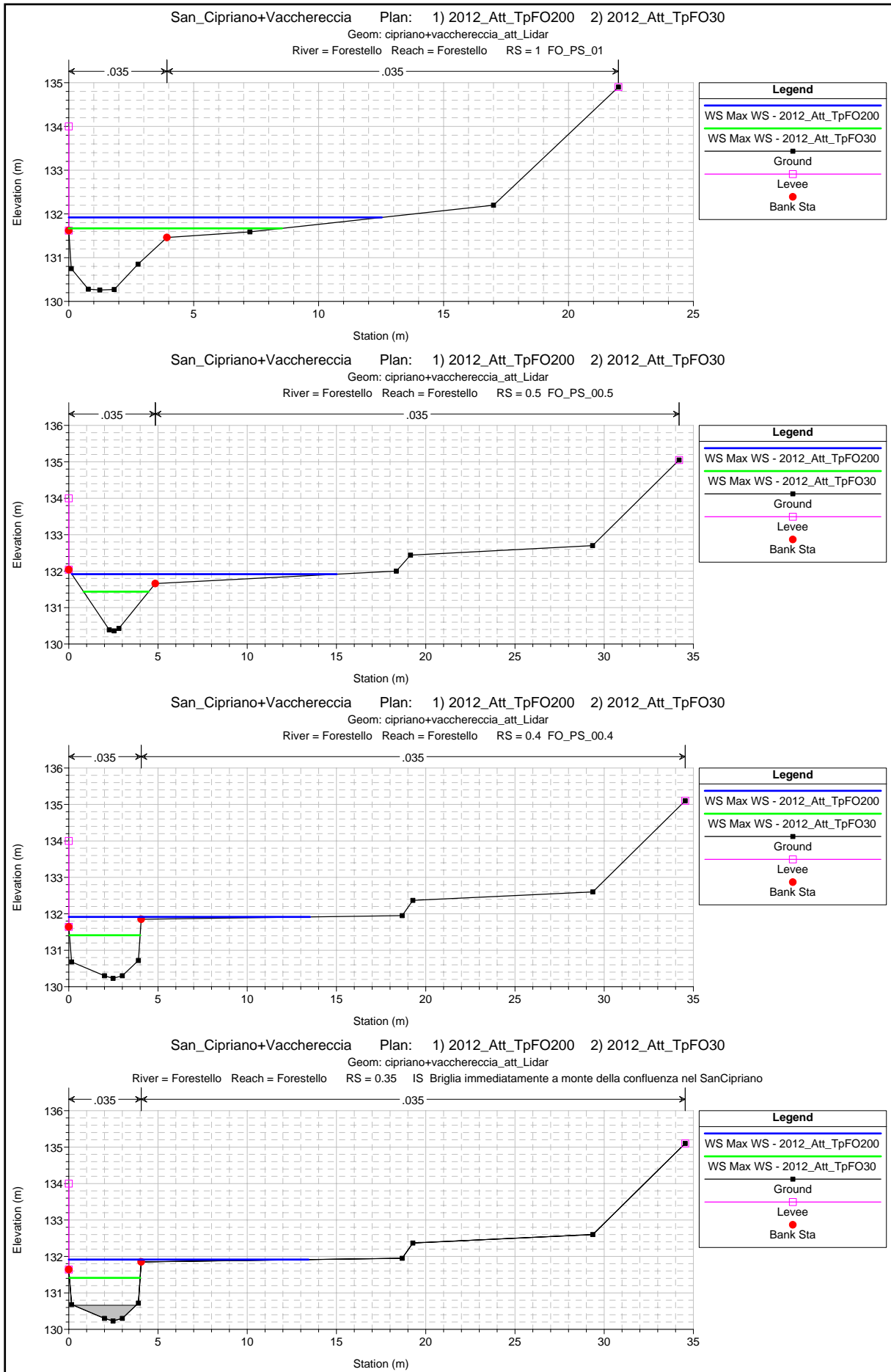


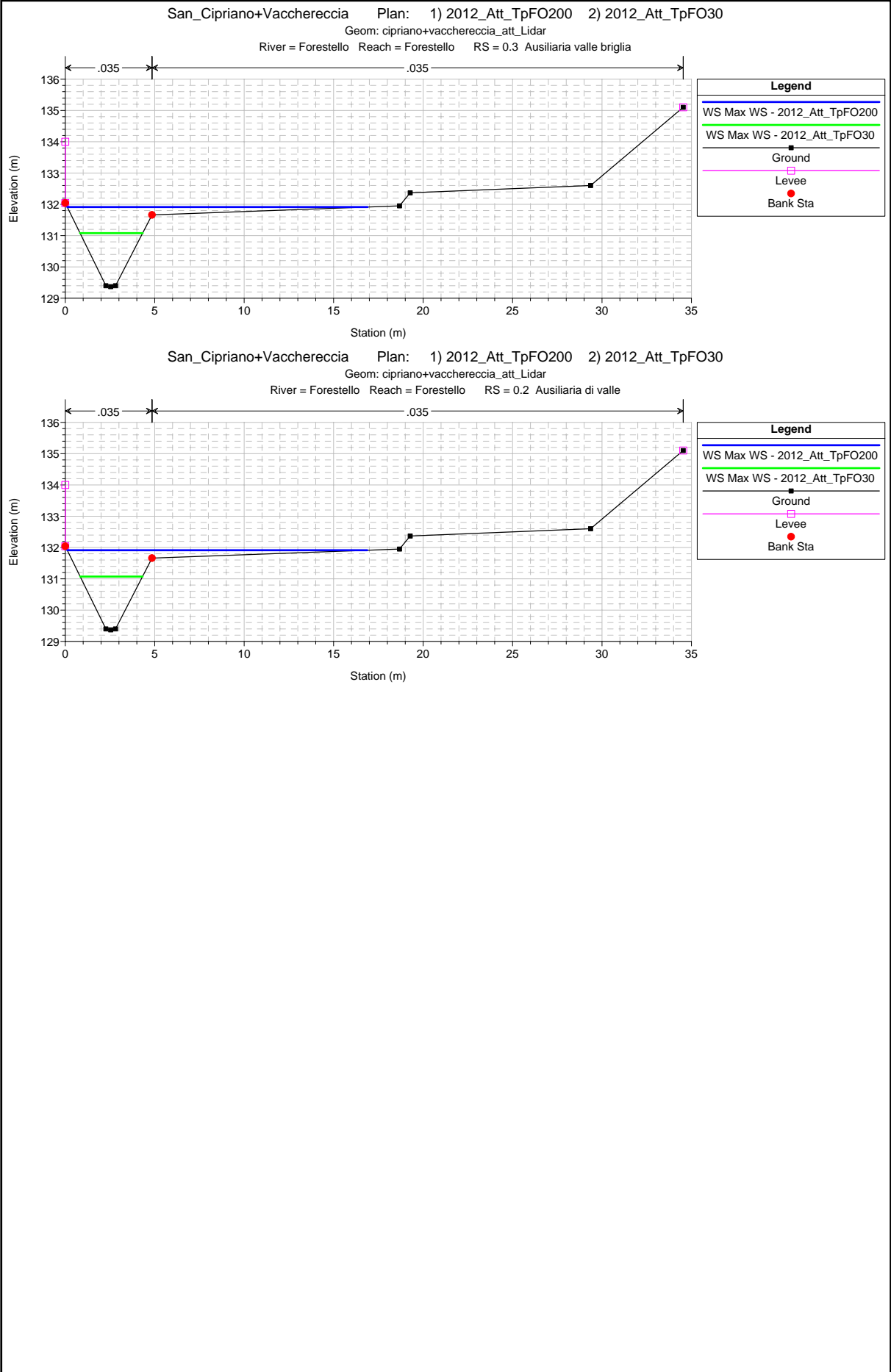












HEC-RAS River: Forestello Reach: Forestello Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	13	Max WS	2012_Att_TpFO200	26.67	133.93	136.34		136.36	0.000616	0.92	42.28	54.00	0.22
Forestello	13	Max WS	2012_Att_TpFO30	16.30	133.93	136.16		136.17	0.000496	0.77	32.59	54.00	0.19
Forestello	12	Max WS	2012_Att_TpFO200	26.66	133.81	136.27		136.33	0.001700	1.41	29.56	50.00	0.34
Forestello	12	Max WS	2012_Att_TpFO30	16.28	133.81	136.12		136.16	0.001426	1.22	21.86	50.00	0.30
Forestello	11.5			Culvert									
Forestello	11	Max WS	2012_Att_TpFO200	26.66	133.84	135.66		136.07	0.008656	2.89	9.82	10.36	0.80
Forestello	11	Max WS	2012_Att_TpFO30	16.28	133.84	135.48		135.70	0.005298	2.08	8.09	9.20	0.62
Forestello	10.8			Lat Struct									
Forestello	10	Max WS	2012_Att_TpFO200	22.92	133.73	135.51	135.56	135.91	0.011061	3.09	9.06	12.99	0.89
Forestello	10	Max WS	2012_Att_TpFO30	14.99	133.73	135.34		135.64	0.009631	2.61	6.92	12.43	0.81
Forestello	9	Max WS	2012_Att_TpFO200	19.85	133.33	135.31	135.37	135.70	0.010001	2.90	8.10	13.27	0.84
Forestello	9	Max WS	2012_Att_TpFO30	14.25	133.33	135.16	135.18	135.49	0.009463	2.59	6.13	12.87	0.80
Forestello	8	Max WS	2012_Att_TpFO200	16.93	133.36	135.19		135.46	0.007145	2.44	7.96	9.98	0.72
Forestello	8	Max WS	2012_Att_TpFO30	13.71	133.36	135.02		135.30	0.009329	2.49	6.22	9.66	0.80
Forestello	7	Max WS	2012_Att_TpFO200	15.97	133.21	135.17		135.26	0.002470	1.53	12.24	13.82	0.43
Forestello	7	Max WS	2012_Att_TpFO30	11.11	133.21	135.09		135.15	0.001550	1.17	11.22	13.71	0.34
Forestello	6	Max WS	2012_Att_TpFO200	8.07	132.85	135.23		135.25	0.000323	0.64	17.10	22.98	0.16
Forestello	6	Max WS	2012_Att_TpFO30	5.75	132.85	135.14		135.15	0.000169	0.44	15.58	15.93	0.11
Forestello	5.5	Max WS	2012_Att_TpFO200	5.64	132.86	135.24		135.25	0.000269	0.52	12.48	13.88	0.14
Forestello	5.5	Max WS	2012_Att_TpFO30	4.21	132.86	135.15		135.15	0.000198	0.43	11.19	13.56	0.12
Forestello	5	Max WS	2012_Att_TpFO200	4.74	132.74	135.24		135.25	0.000161	0.45	11.69	10.18	0.10
Forestello	5	Max WS	2012_Att_TpFO30	3.90	132.74	135.14		135.15	0.000134	0.39	10.76	9.46	0.09
Forestello	4.5			Culvert									
Forestello	4	Max WS	2012_Att_TpFO200	4.59	132.29	133.56		133.62	0.001932	1.03	4.45	5.01	0.35
Forestello	4	Max WS	2012_Att_TpFO30	3.90	132.29	133.47		133.52	0.001908	0.98	3.98	4.85	0.35
Forestello	3.3	Max WS	2012_Att_TpFO200	4.52	132.27	133.55	132.95	133.60	0.001468	0.93	4.83	5.00	0.30



HEC-RAS River: Forestello Reach: Forestello Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	3.3	Max WS	2012_Att_TpFO30	3.90	132.27	133.45	132.90	133.49	0.001485	0.90	4.34	4.86	0.30
Forestello	3.25			Bridge									
Forestello	3.2	Max WS	2012_Att_TpFO200	4.86	132.16	133.14		133.40	0.014146	2.26	2.15	2.95	0.85
Forestello	3.2	Max WS	2012_Att_TpFO30	3.90	132.16	133.01		133.25	0.014990	2.18	1.79	2.81	0.87
Forestello	3.19			Lat Struct									
Forestello	3.1	Max WS	2012_Att_TpFO200	4.60	131.45	132.39		132.62	0.013705	2.12	2.17	3.37	0.84
Forestello	3.1	Max WS	2012_Att_TpFO30	3.89	131.45	132.30		132.52	0.014107	2.05	1.90	3.20	0.85
Forestello	3.05	Max WS	2012_Att_TpFO200	4.60	131.45	132.38		132.61	0.013668	2.12	2.17	3.40	0.85
Forestello	3.05	Max WS	2012_Att_TpFO30	3.89	131.45	132.30		132.51	0.014186	2.05	1.89	3.23	0.86
Forestello	3	Max WS	2012_Att_TpFO200	4.58	131.06	132.34		132.38	0.001170	0.86	5.93	10.06	0.29
Forestello	3	Max WS	2012_Att_TpFO30	3.89	131.06	132.29		132.32	0.001047	0.79	5.39	9.36	0.27
Forestello	2.99			Lat Struct									
Forestello	2.1	Max WS	2012_Att_TpFO200	4.69	130.90	131.96		132.19	0.015192	2.11	2.22	4.23	0.93
Forestello	2.1	Max WS	2012_Att_TpFO30	3.89	130.90	131.86	131.86	132.10	0.017696	2.13	1.83	3.86	0.99
Forestello	2	Max WS	2012_Att_TpFO200	1.47	130.46	131.92		131.93	0.000104	0.25	6.41	12.14	0.09
Forestello	2	Max WS	2012_Att_TpFO30	3.89	130.46	131.72		131.76	0.001797	0.90	4.37	7.90	0.34
Forestello	1	Max WS	2012_Att_TpFO200	1.46	130.26	131.92		131.92	0.000088	0.25	7.11	12.53	0.07
Forestello	1	Max WS	2012_Att_TpFO30	3.88	130.26	131.67		131.71	0.001593	0.95	4.48	8.54	0.30
Forestello	0.5	Max WS	2012_Att_TpFO200	1.46	130.36	131.92		131.92	0.000178	0.32	5.51	14.84	0.11
Forestello	0.5	Max WS	2012_Att_TpFO30	3.88	130.36	131.44		131.60	0.009828	1.80	2.16	3.65	0.74
Forestello	0.4	Max WS	2012_Att_TpFO200	1.46	130.23	131.91	130.68	131.92	0.000087	0.25	6.06	13.51	0.07
Forestello	0.4	Max WS	2012_Att_TpFO30	3.88	130.23	131.41	130.91	131.47	0.002112	1.04	3.74	3.96	0.34
Forestello	0.35			Ini Struct									
Forestello	0.3	Max WS	2012_Att_TpFO200	1.46	129.37	131.91		131.91	0.000049	0.20	8.42	16.78	0.05
Forestello	0.3	Max WS	2012_Att_TpFO30	3.88	129.37	131.08		131.15	0.002672	1.14	3.40	3.50	0.37

HEC-RAS River: Forestello Reach: Forestello Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Forestello	0.2	Max WS	2012_Att_TpFO200	1.46	129.37	131.91		131.91	0.000049	0.20	8.42	16.77	0.05
Forestello	0.2	Max WS	2012_Att_TpFO30	3.88	129.37	131.07		131.14	0.002739	1.15	3.37	3.49	0.37

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

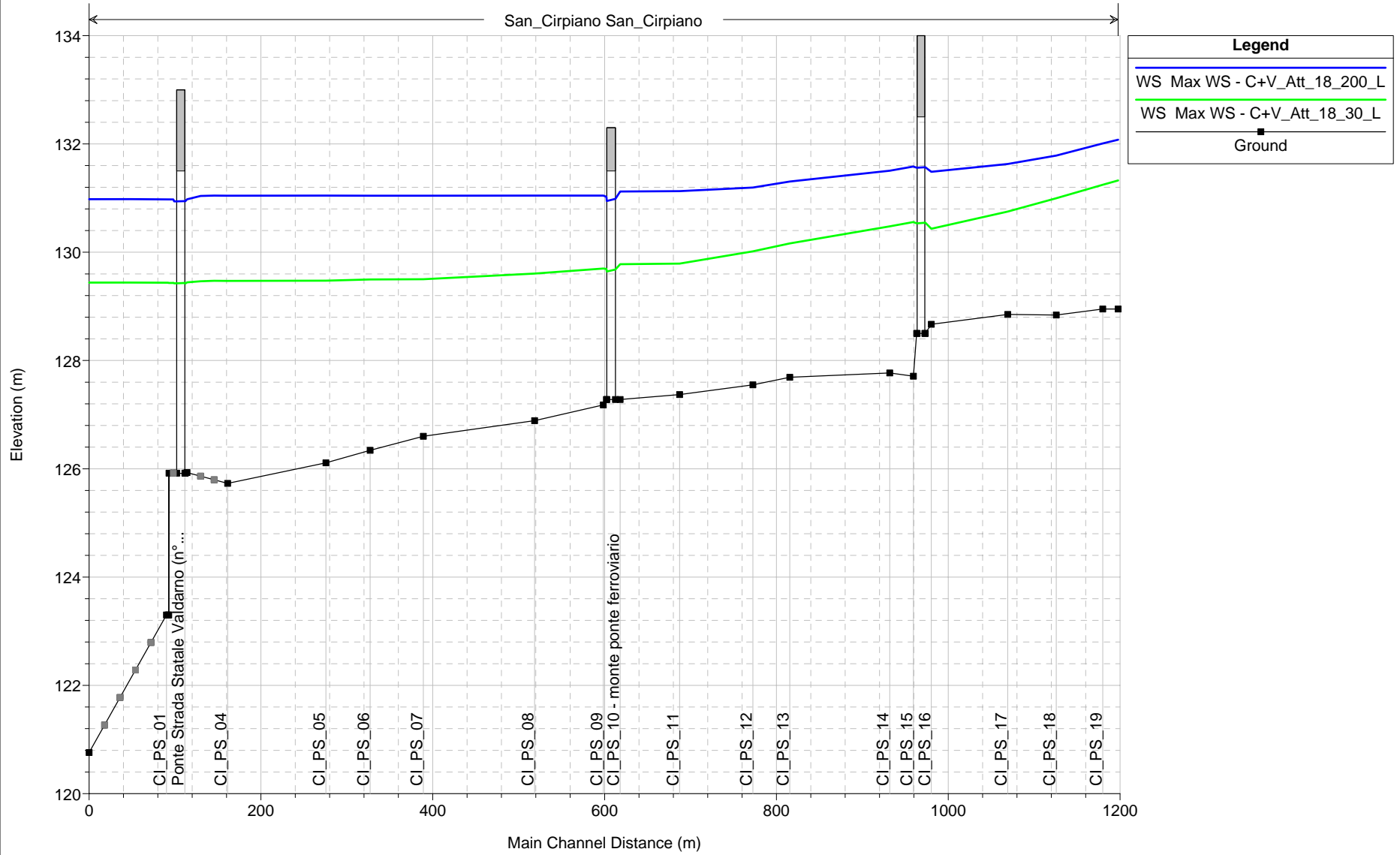
### **BORRO SAN CIPRIANO**

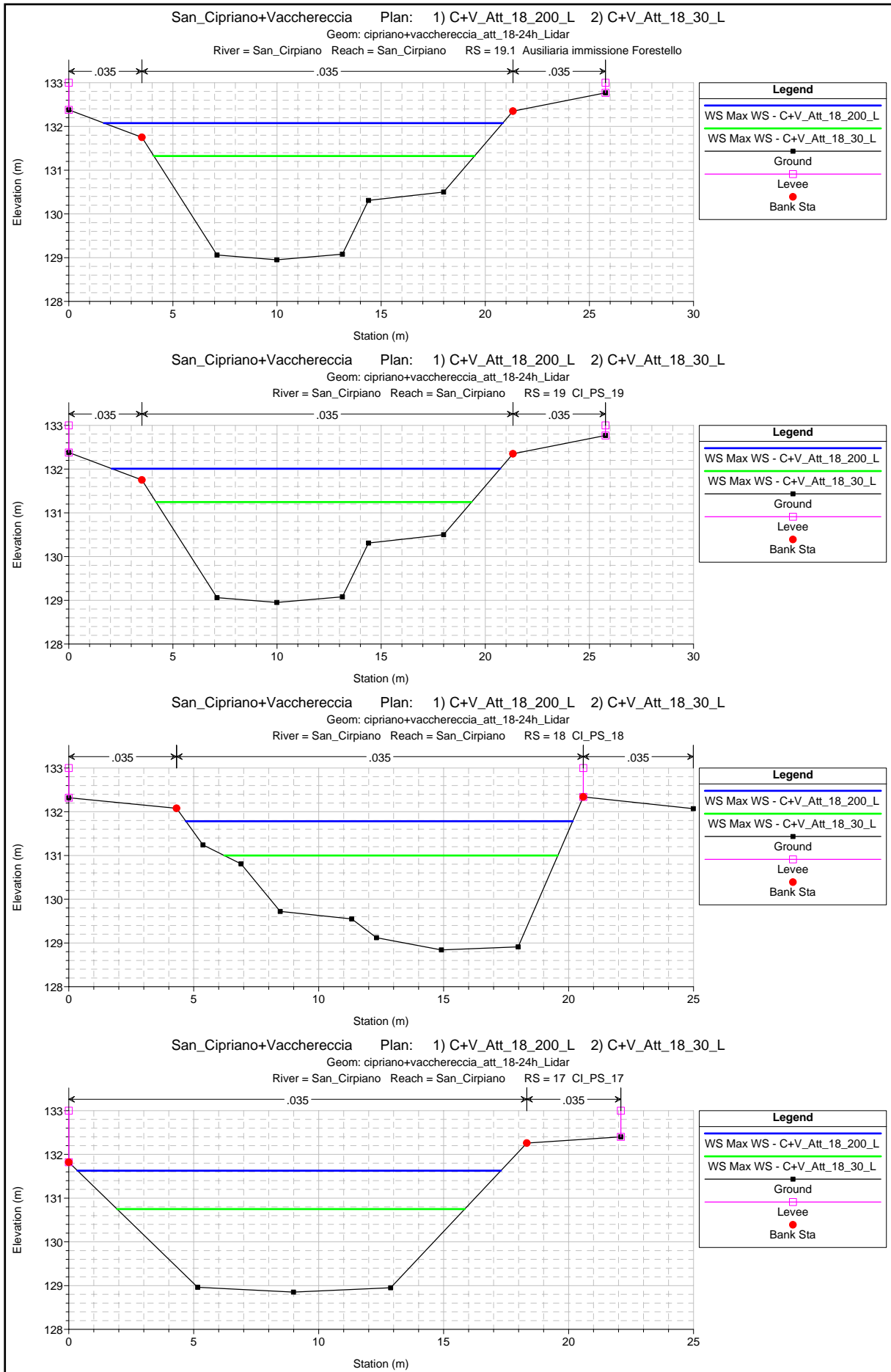
#### **Scenario B - Tr 200 e 30 anni**

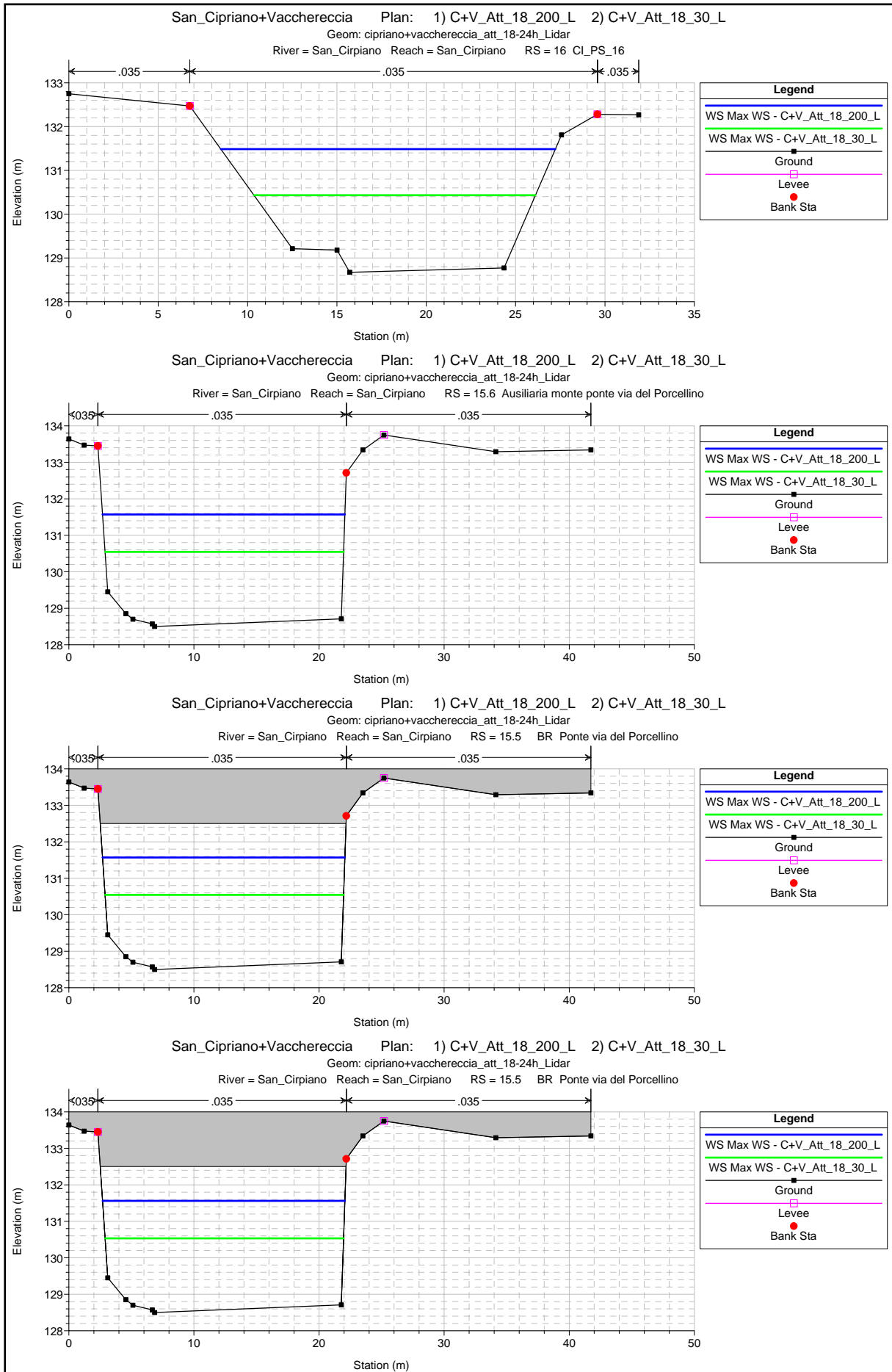
- Profili
- Sezioni di verifica
- Tabelle di output

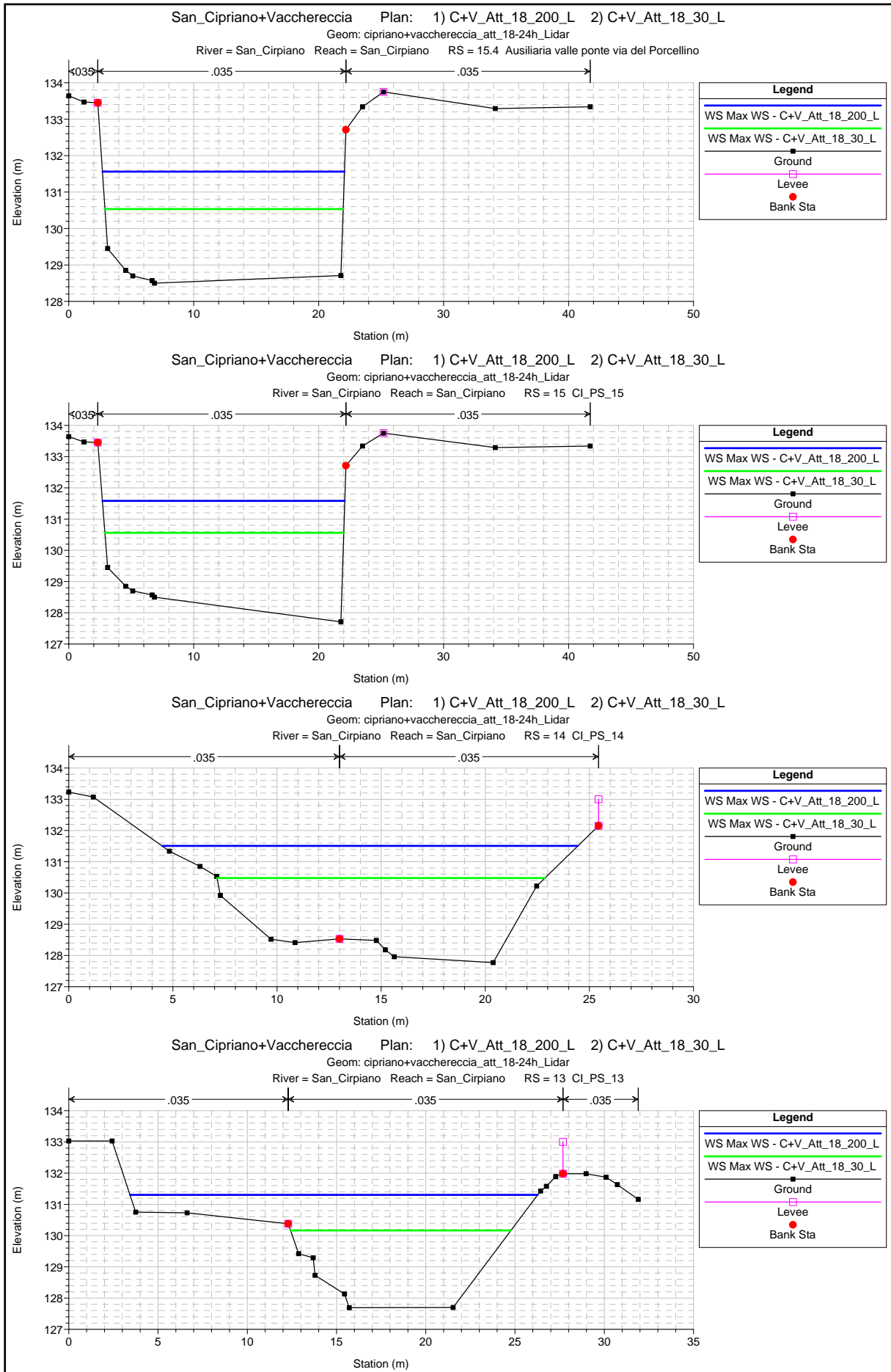
San\_Cipriano+Vacchereccia Plan: 1) C+V\_Att\_18\_200\_L 2) C+V\_Att\_18\_30\_L

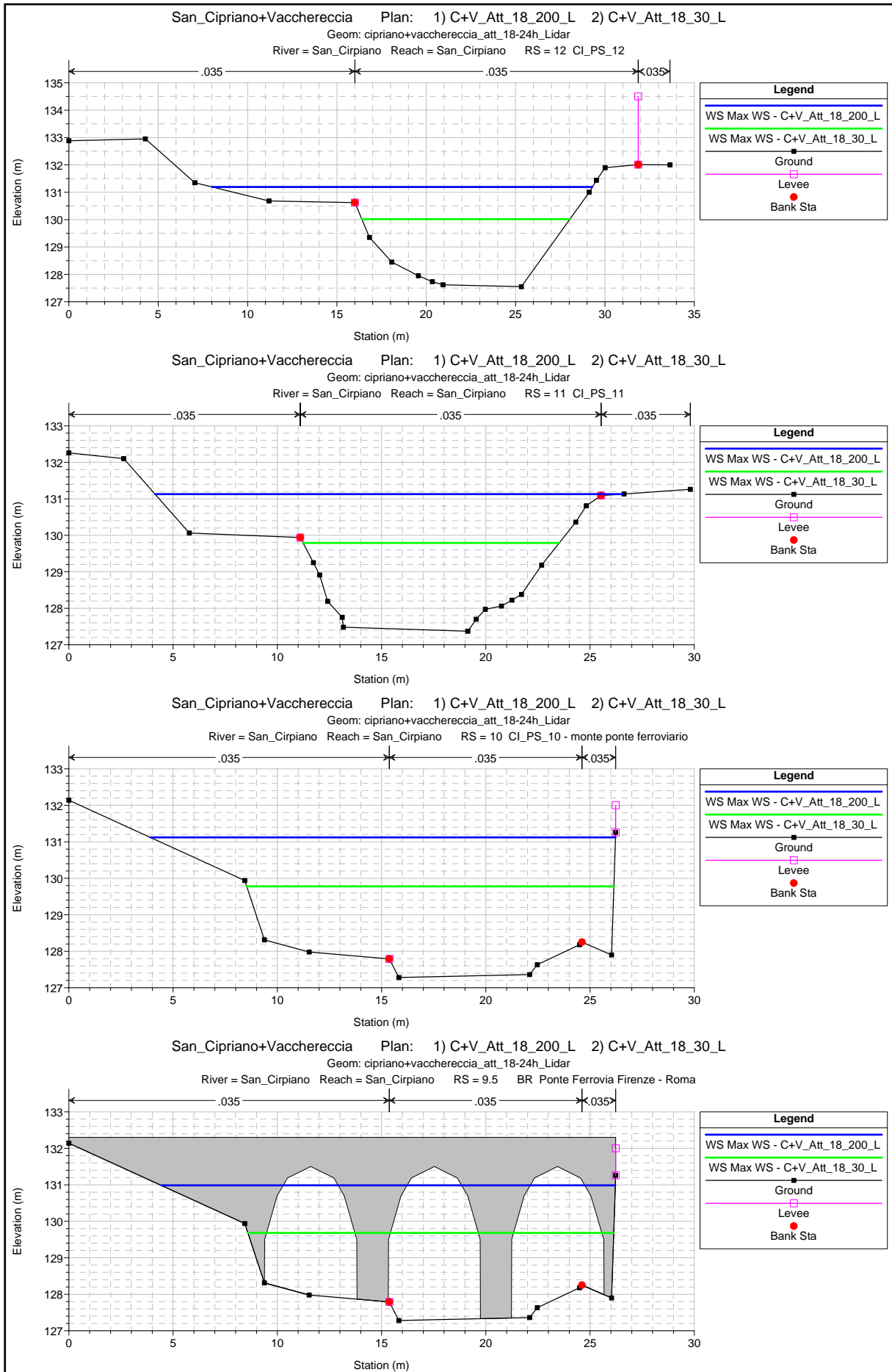
Geom: cipriano+vacchereccia\_att\_18-24h\_Lidar



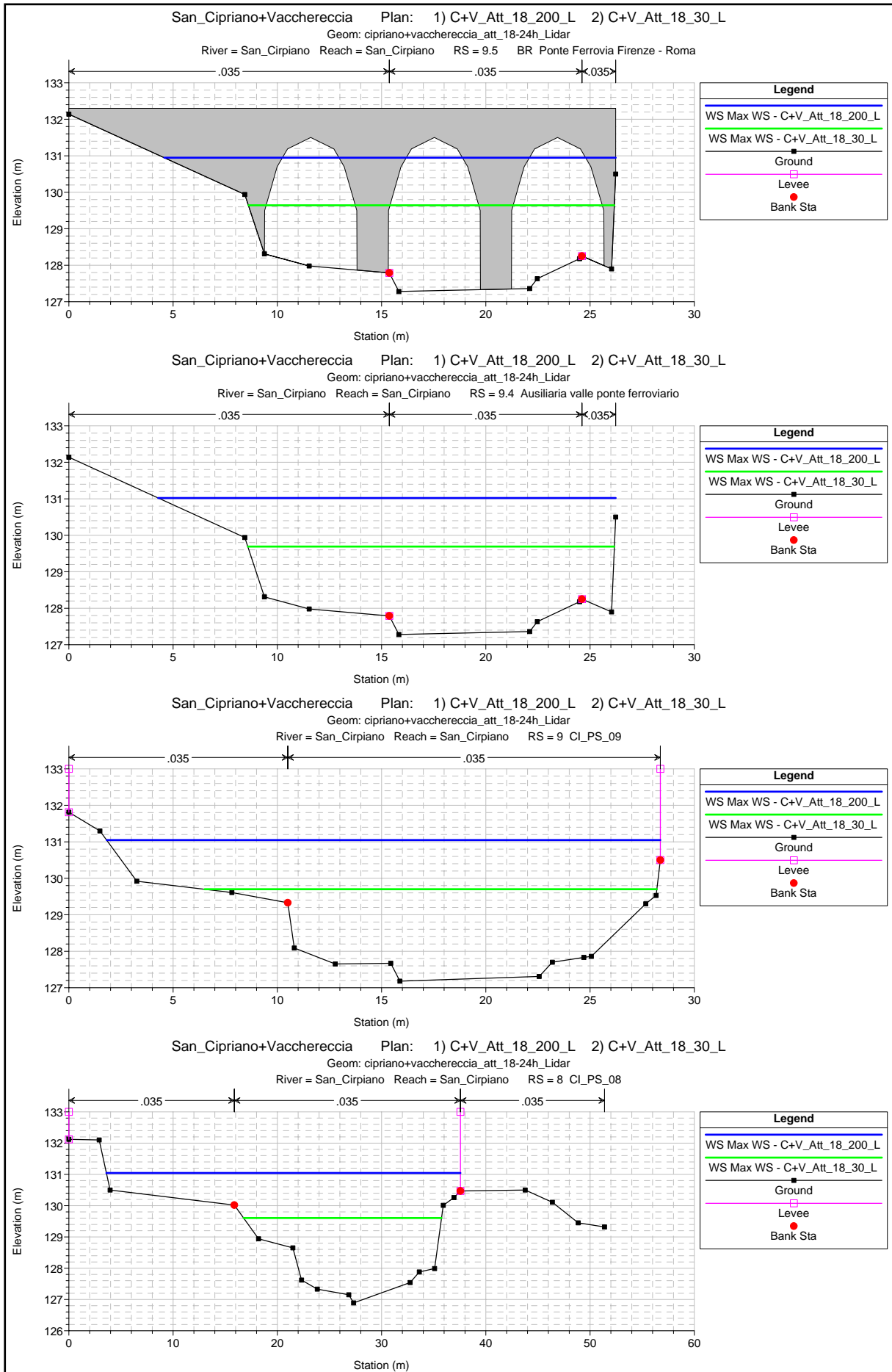


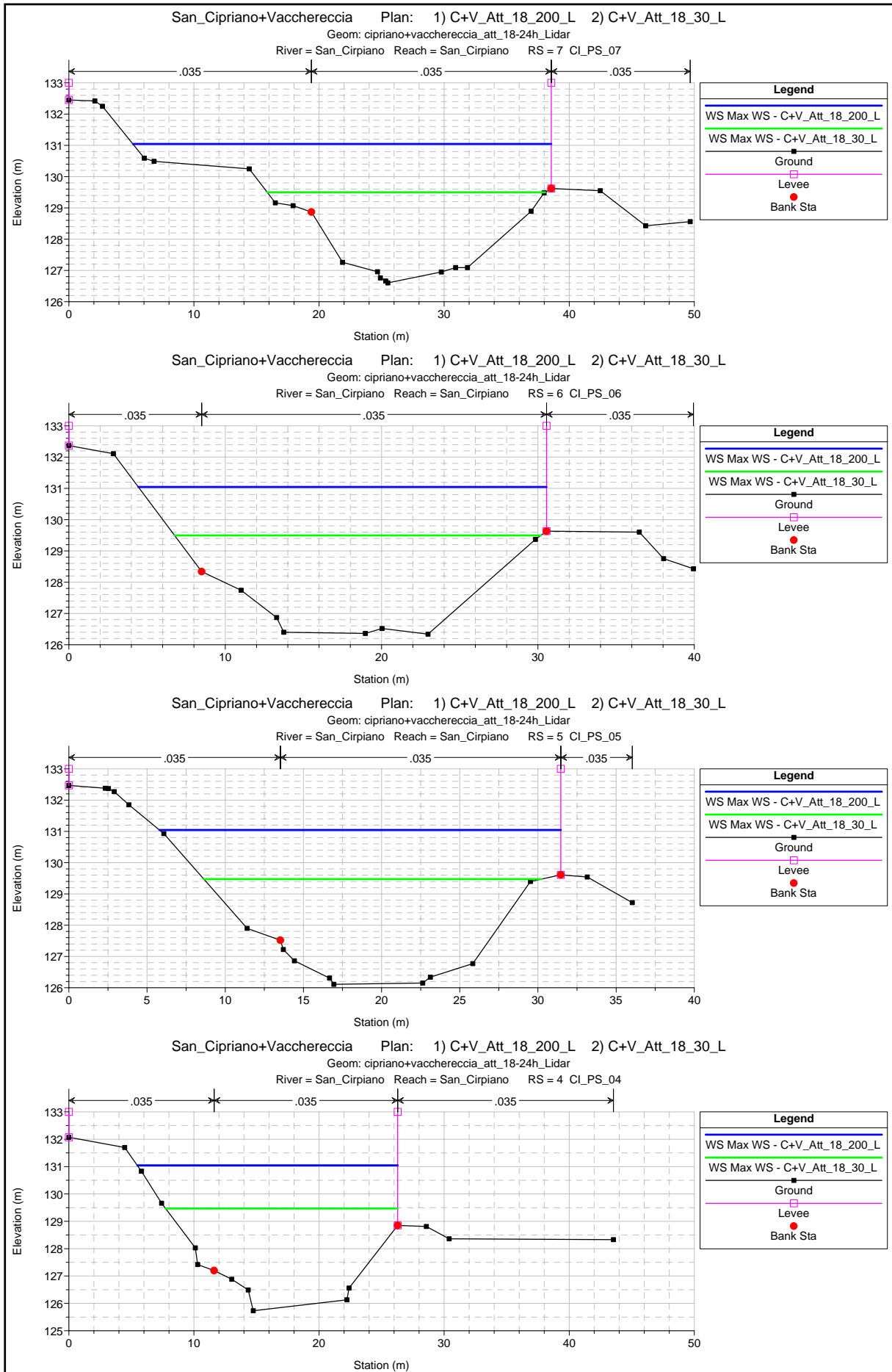


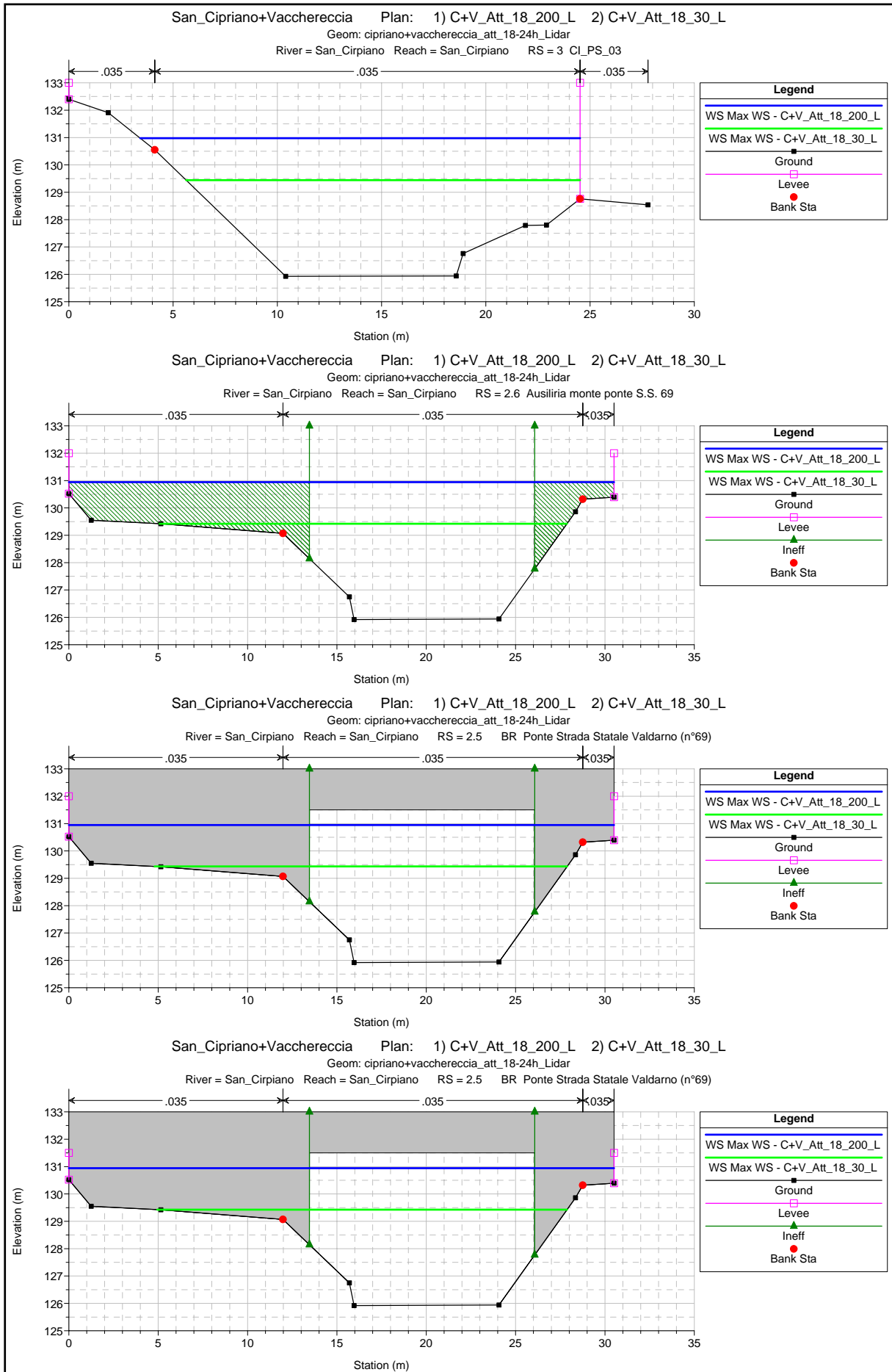


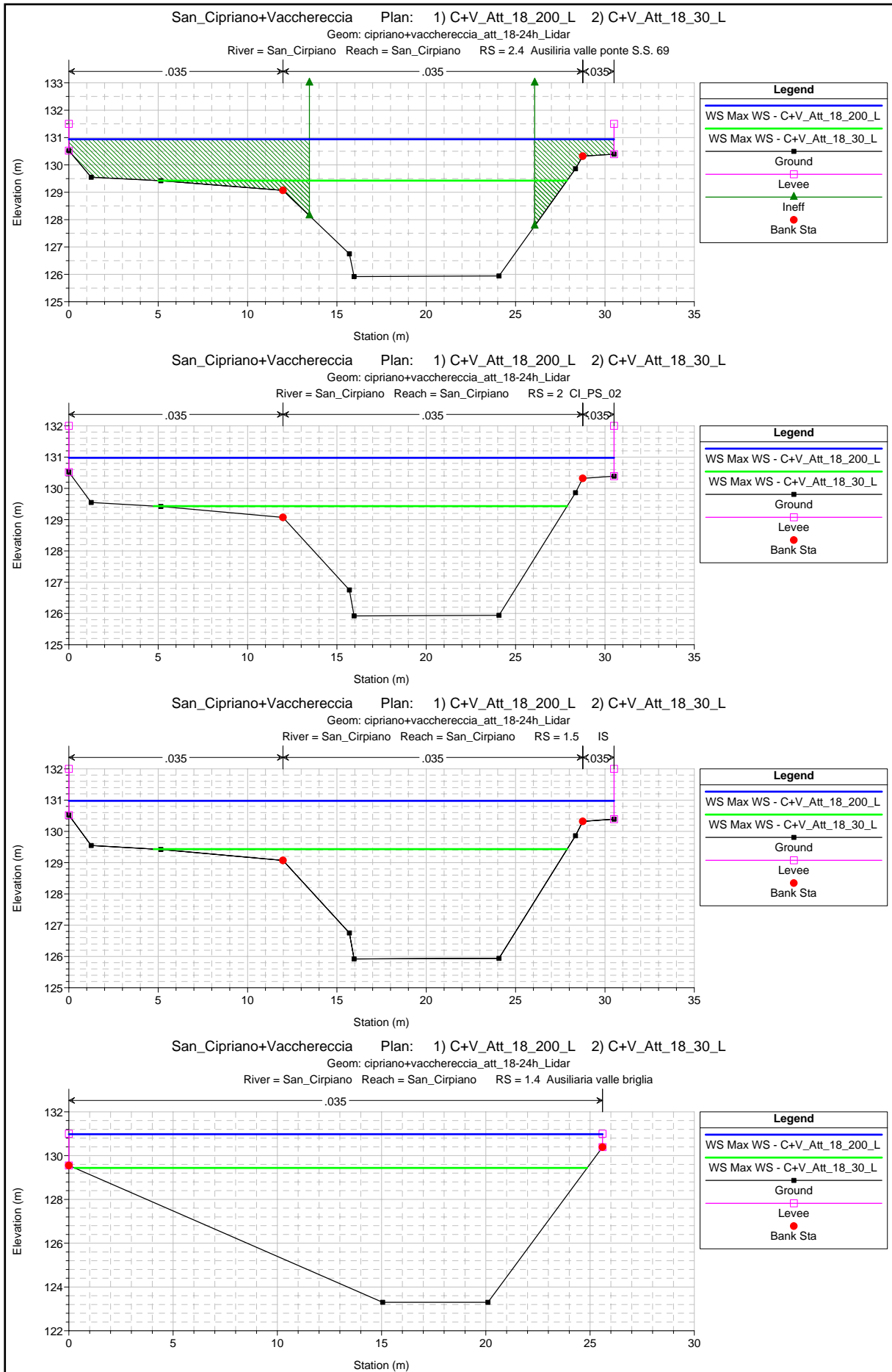


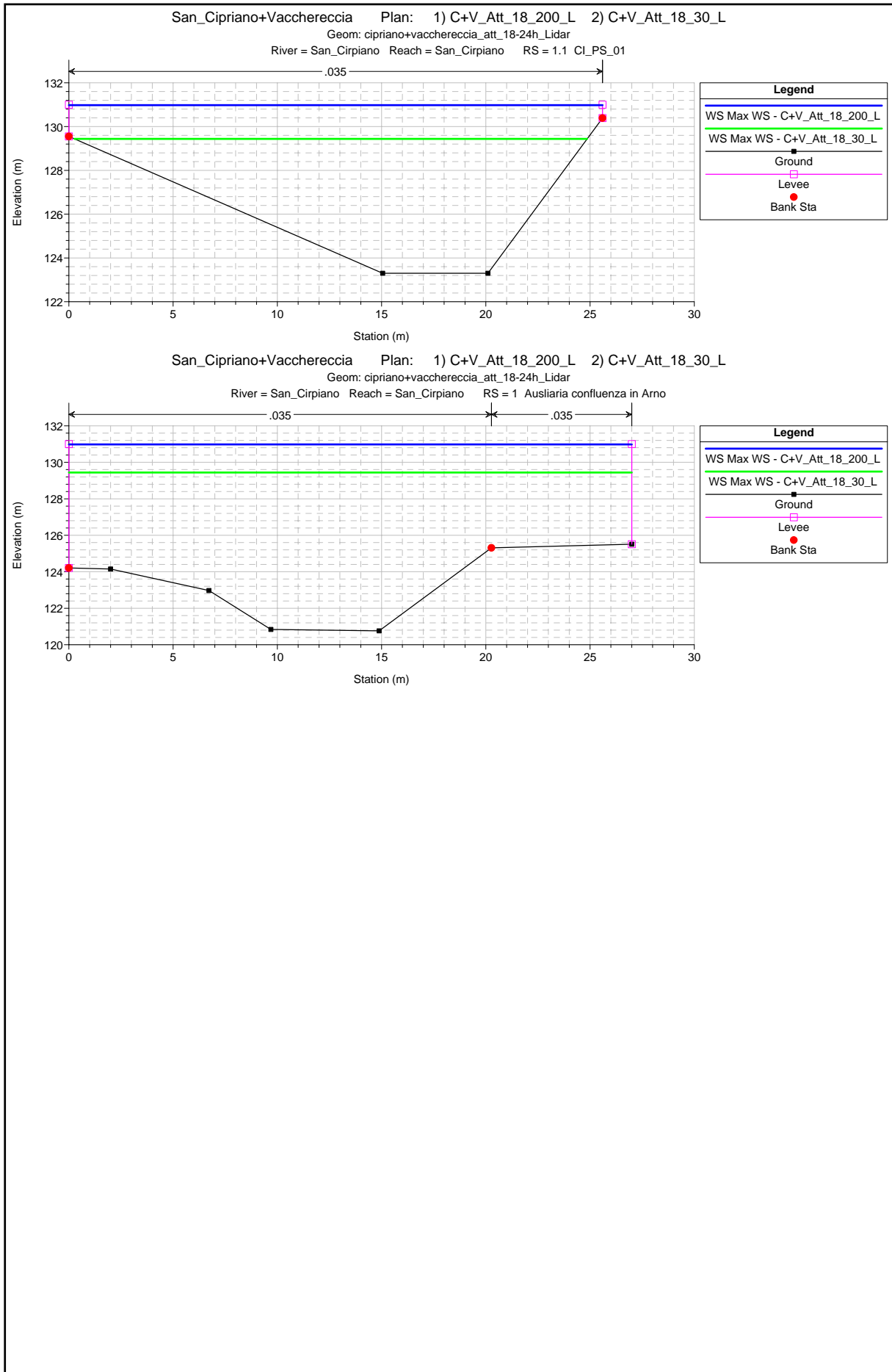












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	19.1	Max WS	C+V_Att_18_200_L	79.40	128.95	132.08		132.33	0.002617	2.22	36.06	19.15	0.49
San_Cirpiano	19.1	Max WS	C+V_Att_18_30_L	45.30	128.95	131.33		131.52	0.002989	1.94	23.36	15.41	0.50
San_Cirpiano	19	Max WS	C+V_Att_18_200_L	79.40	128.95	132.01		132.28	0.002898	2.29	34.78	18.66	0.52
San_Cirpiano	19	Max WS	C+V_Att_18_30_L	45.29	128.95	131.25		131.46	0.003488	2.05	22.14	15.16	0.54
San_Cirpiano	18.9			Lat Struct									
San_Cirpiano	18.8			Lat Struct									
San_Cirpiano	18	Max WS	C+V_Att_18_200_L	79.39	128.84	131.78		132.10	0.003521	2.51	31.67	15.48	0.56
San_Cirpiano	18	Max WS	C+V_Att_18_30_L	45.29	128.84	131.00		131.25	0.004099	2.24	20.18	13.34	0.58
San_Cirpiano	17	Max WS	C+V_Att_18_200_L	79.39	128.85	131.63		131.92	0.003128	2.38	33.39	16.95	0.54
San_Cirpiano	17	Max WS	C+V_Att_18_30_L	45.28	128.85	130.75		131.02	0.004354	2.28	19.83	13.92	0.61
San_Cirpiano	16	Max WS	C+V_Att_18_200_L	79.39	128.67	131.49		131.69	0.002006	1.99	39.89	18.73	0.44
San_Cirpiano	16	Max WS	C+V_Att_18_30_L	45.26	128.67	130.43		130.65	0.003800	2.08	21.74	15.76	0.57
San_Cirpiano	15.6	Max WS	C+V_Att_18_200_L	79.39	128.50	131.57	129.88	131.68	0.000823	1.44	55.30	19.37	0.27
San_Cirpiano	15.6	Max WS	C+V_Att_18_30_L	45.27	128.50	130.55	129.50	130.63	0.001028	1.27	35.62	19.07	0.30
San_Cirpiano	15.5			Bridge									
San_Cirpiano	15.4	Max WS	C+V_Att_18_200_L	79.39	128.50	131.56		131.67	0.000832	1.44	55.11	19.37	0.27
San_Cirpiano	15.4	Max WS	C+V_Att_18_30_L	45.27	128.50	130.53		130.62	0.001050	1.28	35.37	19.07	0.30
San_Cirpiano	15	Max WS	C+V_Att_18_200_L	79.39	127.71	131.58		131.66	0.000559	1.26	63.20	19.40	0.22
San_Cirpiano	15	Max WS	C+V_Att_18_30_L	45.27	127.71	130.56		130.61	0.000563	1.04	43.46	19.12	0.22
San_Cirpiano	14.8			Lat Struct									
San_Cirpiano	14	Max WS	C+V_Att_18_200_L	79.39	127.77	131.51		131.64	0.001119	1.73	49.04	19.97	0.33
San_Cirpiano	14	Max WS	C+V_Att_18_30_L	45.27	127.77	130.48		130.59	0.001273	1.55	30.74	15.75	0.34
San_Cirpiano	13	Max WS	C+V_Att_18_200_L	79.39	127.69	131.30		131.49	0.001571	1.96	43.79	22.84	0.38
San_Cirpiano	13	Max WS	C+V_Att_18_30_L	45.26	127.69	130.16		130.37	0.002639	1.99	22.75	12.34	0.47
San_Cirpiano	12	Max WS	C+V_Att_18_200_L	79.00	127.55	131.20		131.42	0.001824	2.12	39.61	21.29	0.41
San_Cirpiano	12	Max WS	C+V_Att_18_30_L	45.26	127.55	130.02		130.25	0.002951	2.12	21.35	11.64	0.50

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	11	Max WS	C+V_Att_18_200_L	78.60	127.37	131.13		131.28	0.001242	1.80	46.95	22.42	0.34
San_Cirpiano	11	Max WS	C+V_Att_18_30_L	45.26	127.37	129.79		130.00	0.002798	2.04	22.22	12.29	0.48
San_Cirpiano	10	Max WS	C+V_Att_18_200_L	78.58	127.28	131.12	129.06	131.22	0.000548	1.54	61.70	22.32	0.26
San_Cirpiano	10	Max WS	C+V_Att_18_30_L	45.26	127.28	129.78	128.66	129.87	0.000898	1.45	35.18	17.61	0.31
San_Cirpiano	9.5			Bridge									
San_Cirpiano	9.4	Max WS	C+V_Att_18_200_L	78.40	127.28	131.02		131.13	0.000602	1.58	59.58	21.94	0.27
San_Cirpiano	9.4	Max WS	C+V_Att_18_30_L	45.26	127.28	129.69		129.79	0.001028	1.51	33.69	17.58	0.32
San_Cirpiano	9.2			Lat Struct									
San_Cirpiano	9	Max WS	C+V_Att_18_200_L	79.23	127.18	131.05		131.12	0.000462	1.22	69.64	26.55	0.21
San_Cirpiano	9	Max WS	C+V_Att_18_30_L	45.26	127.18	129.70		129.78	0.000961	1.30	35.44	21.69	0.30
San_Cirpiano	8	Max WS	C+V_Att_18_200_L	69.71	126.89	131.05		131.10	0.000367	1.03	73.02	33.96	0.19
San_Cirpiano	8	Max WS	C+V_Att_18_30_L	45.26	126.89	129.61		129.70	0.001188	1.35	33.55	18.99	0.32
San_Cirpiano	7	Max WS	C+V_Att_18_200_L	58.65	126.60	131.04		131.07	0.000174	0.80	81.19	33.45	0.14
San_Cirpiano	7	Max WS	C+V_Att_18_30_L	45.25	126.60	129.50		129.57	0.000750	1.20	38.77	22.22	0.27
San_Cirpiano	6	Max WS	C+V_Att_18_200_L	56.75	126.34	131.04		131.07	0.000103	0.66	89.40	26.11	0.11
San_Cirpiano	6	Max WS	C+V_Att_18_30_L	45.25	126.34	129.50		129.54	0.000352	0.90	50.80	23.43	0.19
San_Cirpiano	5	Max WS	C+V_Att_18_200_L	52.13	126.11	131.05		131.06	0.000096	0.64	87.05	25.67	0.10
San_Cirpiano	5	Max WS	C+V_Att_18_30_L	45.24	126.11	129.47		129.52	0.000357	0.97	49.11	21.58	0.19
San_Cirpiano	4	Max WS	C+V_Att_18_200_L	43.17	125.73	131.04		131.06	0.000078	0.59	78.25	20.82	0.09
San_Cirpiano	4	Max WS	C+V_Att_18_30_L	36.25	125.73	129.47		129.50	0.000231	0.80	47.24	18.56	0.15
San_Cirpiano	3	Max WS	C+V_Att_18_200_L	73.82	125.93	130.98		131.02	0.000236	0.94	78.74	21.10	0.15
San_Cirpiano	3	Max WS	C+V_Att_18_30_L	43.22	125.93	129.44		129.48	0.000342	0.90	48.11	18.89	0.18
San_Cirpiano	2.6	Max WS	C+V_Att_18_200_L	73.43	125.92	130.94	127.84	131.02	0.000307	1.27	57.84	30.51	0.19
San_Cirpiano	2.6	Max WS	C+V_Att_18_30_L	43.22	125.92	129.42	127.31	129.49	0.000407	1.12	38.68	22.80	0.20
San_Cirpiano	2.5			Bridge									
San_Cirpiano	2.4	Max WS	C+V_Att_18_200_L	73.43	125.92	130.94		131.02	0.000308	1.27	57.81	30.51	0.19
San_Cirpiano	2.4	Max WS	C+V_Att_18_30_L	43.22	125.92	129.43		129.49	0.000406	1.12	38.72	22.89	0.20

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
San_Cirpiano	2	Max WS	C+V_Att_18_200_L	73.60	125.92	130.98	127.84	131.02	0.000213	0.94	86.95	30.51	0.15
San_Cirpiano	2	Max WS	C+V_Att_18_30_L	43.22	125.92	129.43	127.31	129.49	0.000447	1.03	42.84	23.14	0.20
San_Cirpiano	1.5			Inl Struct									
San_Cirpiano	1.4	Max WS	C+V_Att_18_200_L	73.82	123.30	130.98		130.99	0.000062	0.57	130.03	25.60	0.08
San_Cirpiano	1.4	Max WS	C+V_Att_18_30_L	43.22	123.30	129.44		129.45	0.000060	0.48	90.96	24.59	0.08
San_Cirpiano	1.1	Max WS	C+V_Att_18_200_L	73.82	123.30	130.98		130.99	0.000062	0.57	130.02	25.60	0.08
San_Cirpiano	1.1	Max WS	C+V_Att_18_30_L	43.22	123.30	129.44		129.45	0.000060	0.48	90.95	24.59	0.08
San_Cirpiano	1	Max WS	C+V_Att_18_200_L	73.26	120.76	130.98	123.06	130.99	0.000016	0.37	208.72	27.00	0.04
San_Cirpiano	1	Max WS	C+V_Att_18_30_L	43.13	120.76	129.44	122.46	129.44	0.000011	0.27	167.14	27.00	0.03



# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

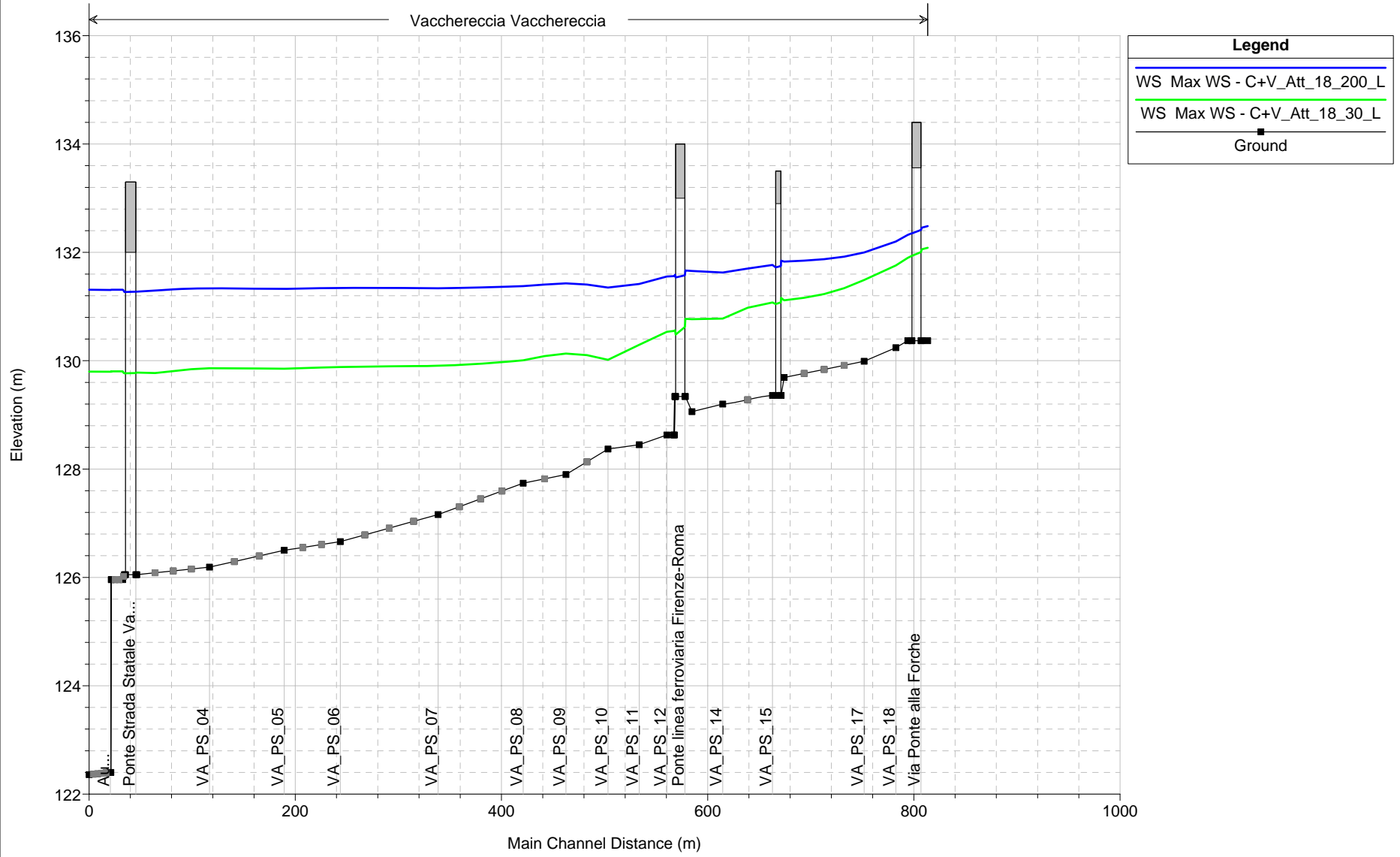
### **BORRO VACCHERECCIA**

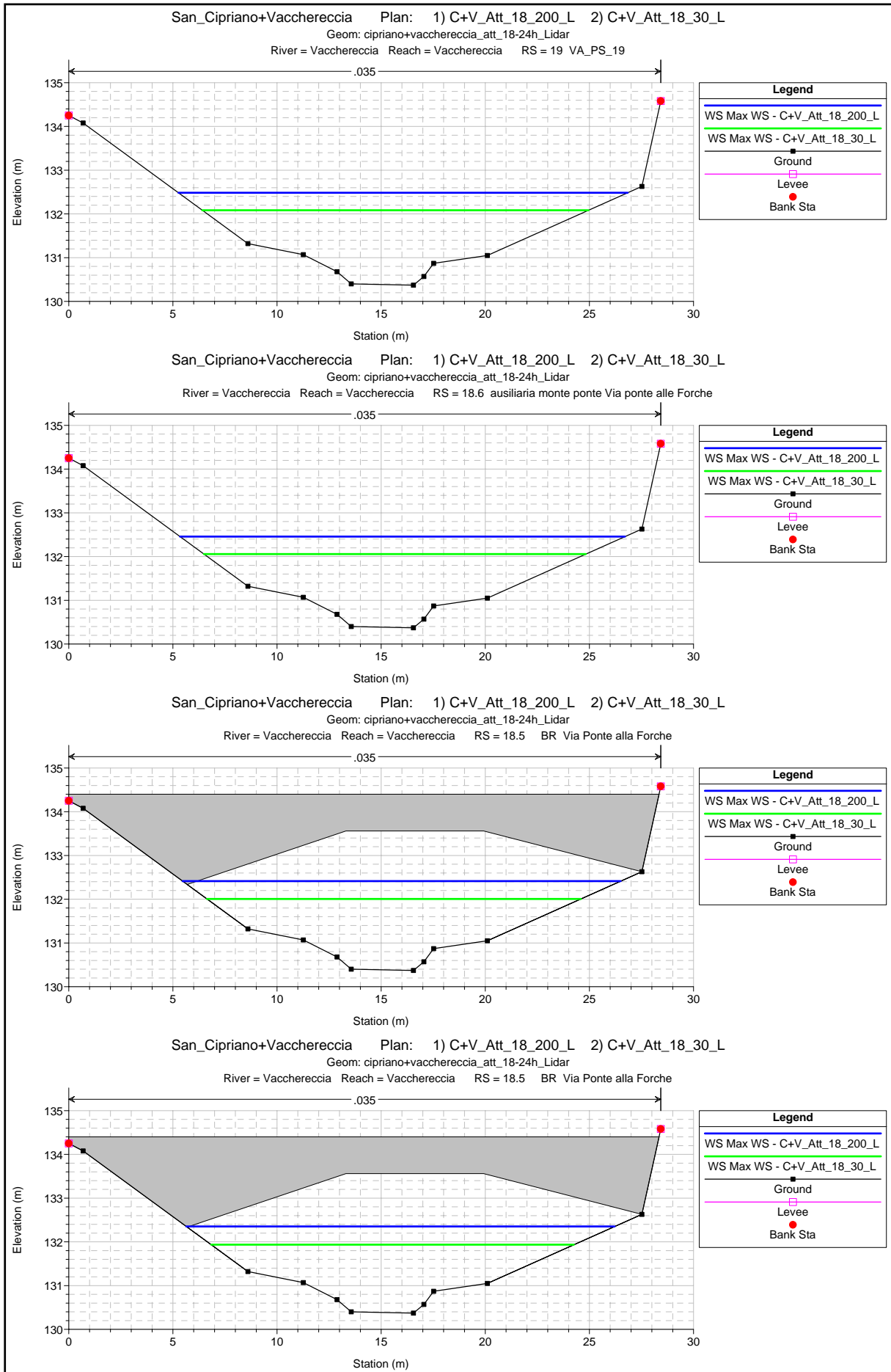
#### **Scenario B - Tr 200 e 30 anni**

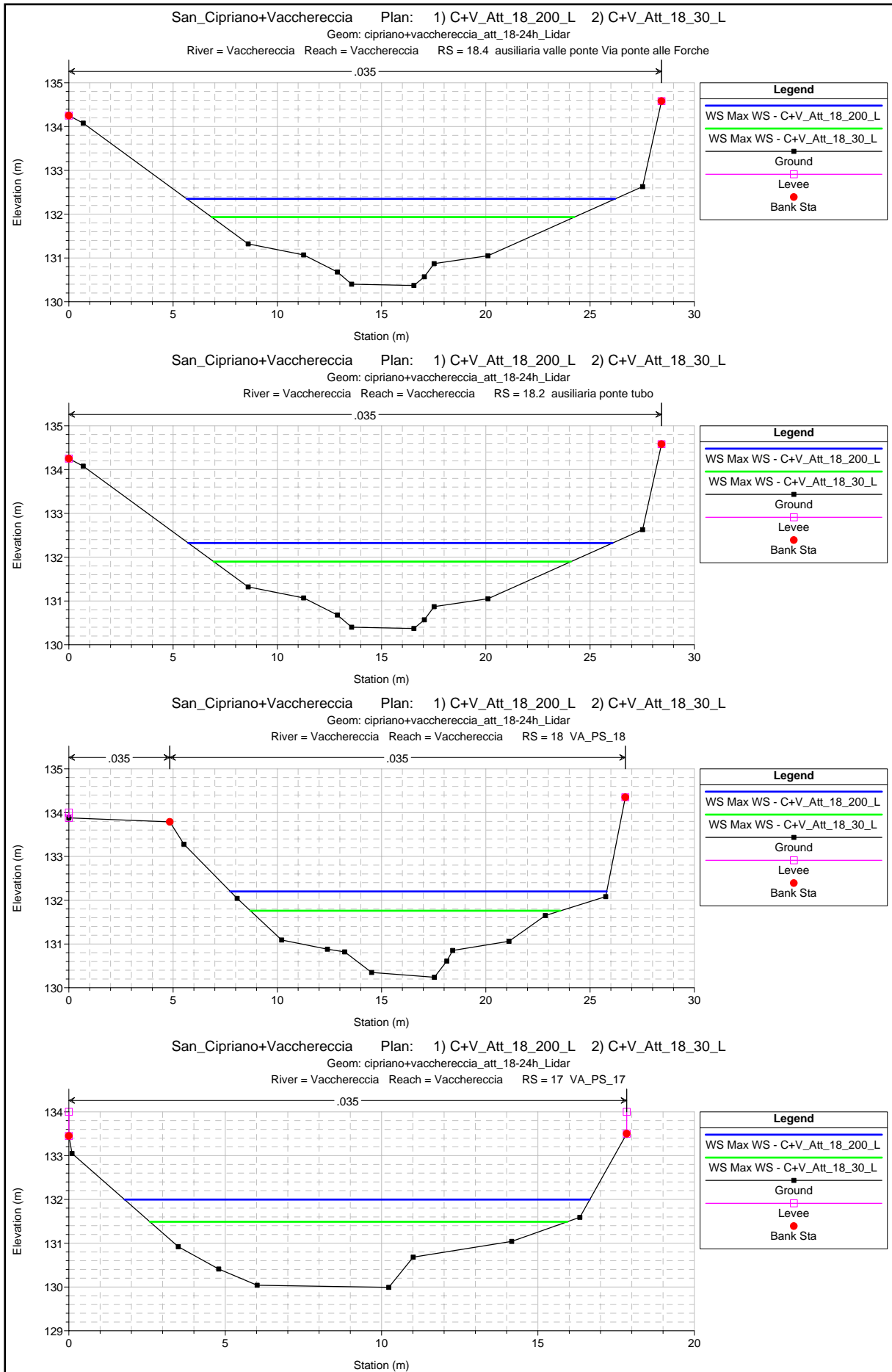
- Profili
- Sezioni di verifica
- Tabelle di output

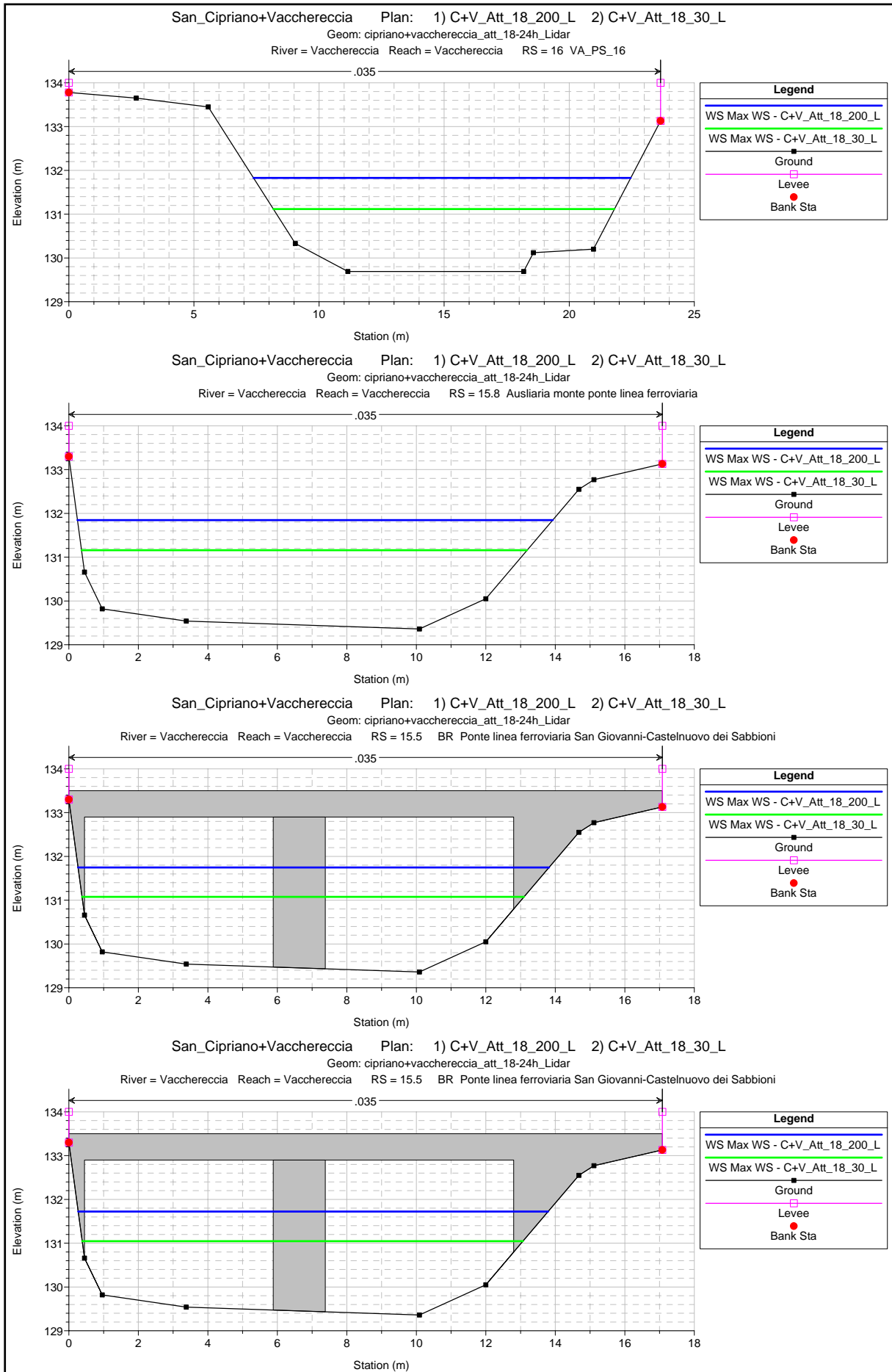
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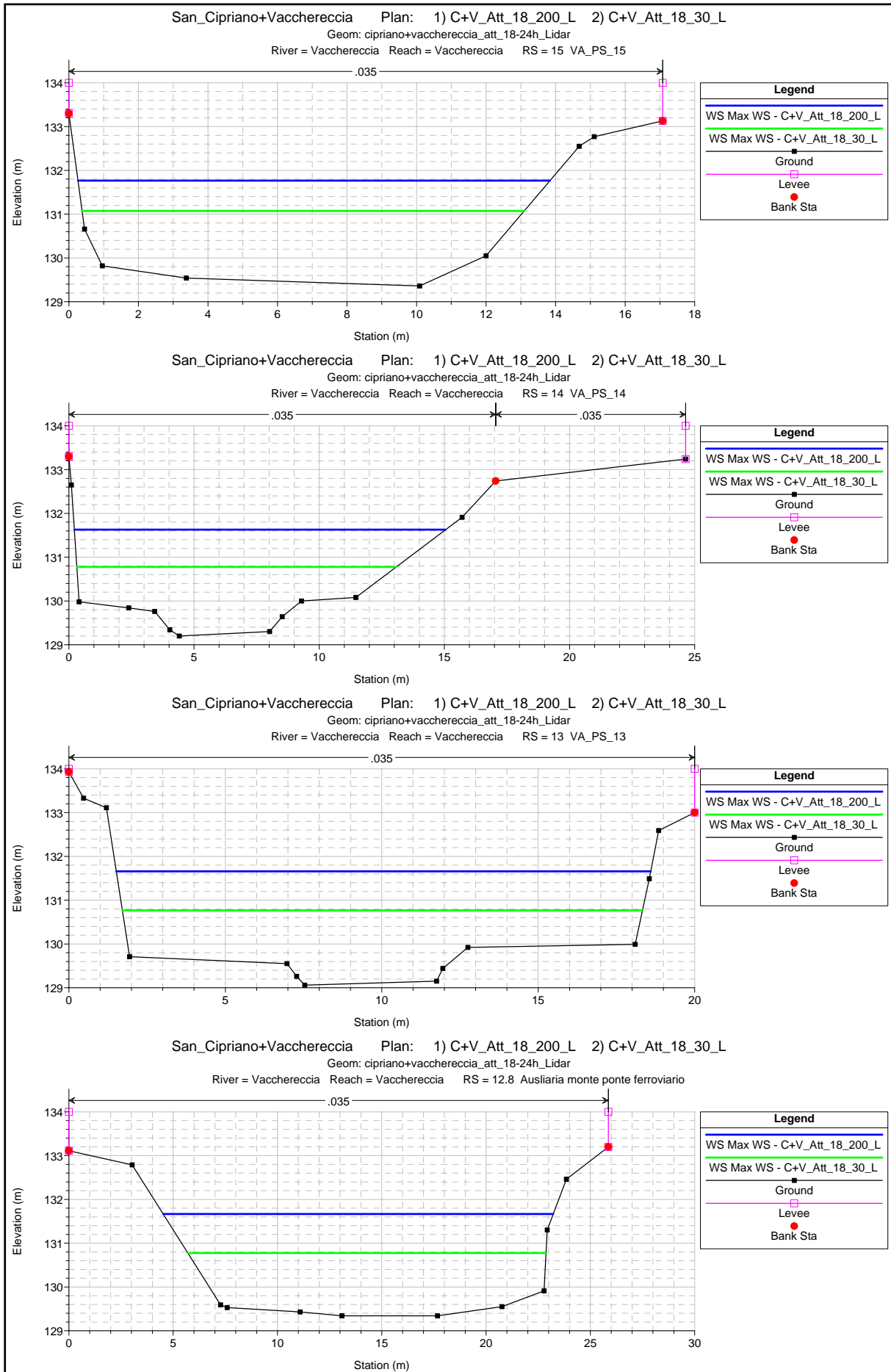
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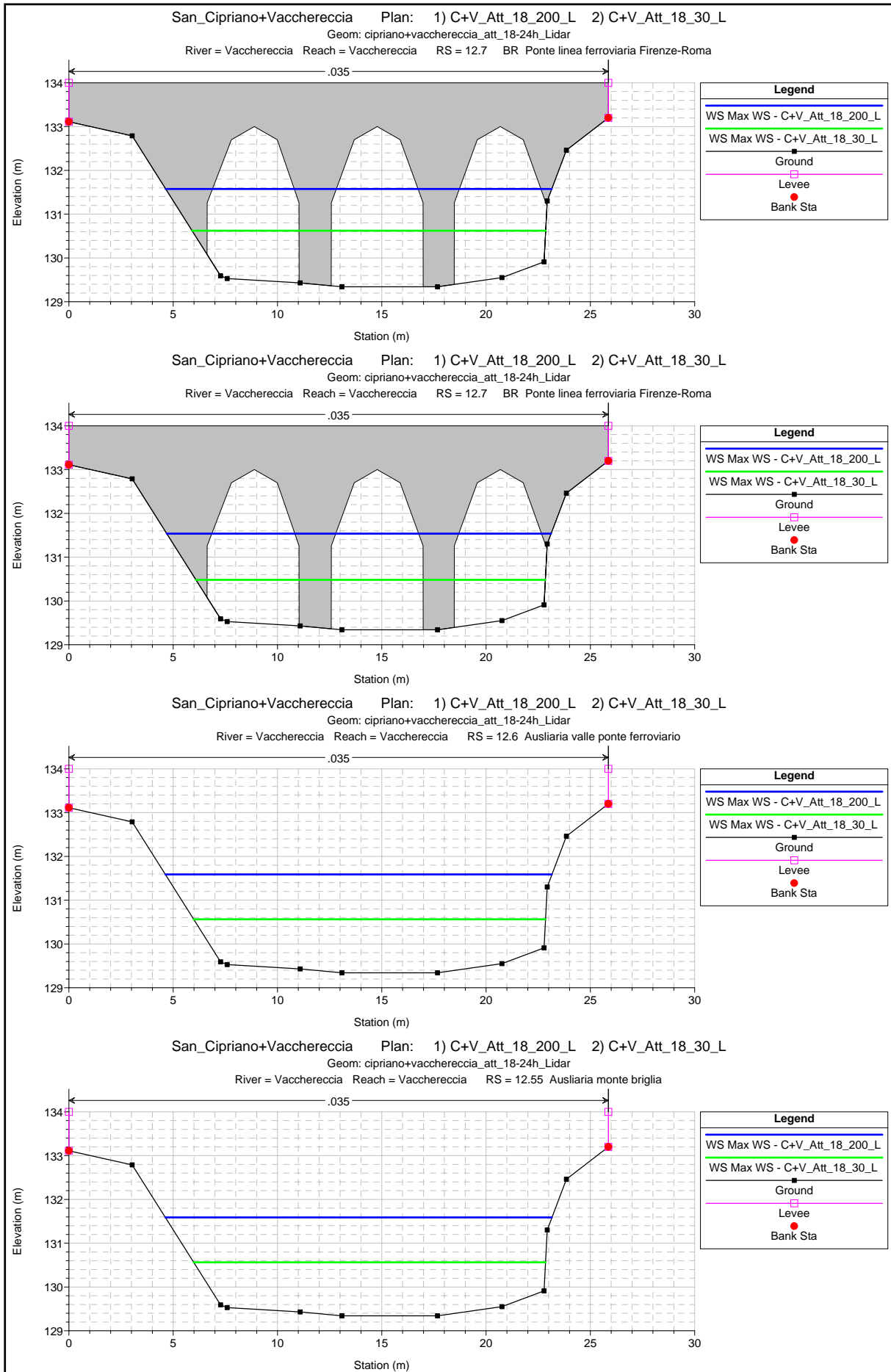


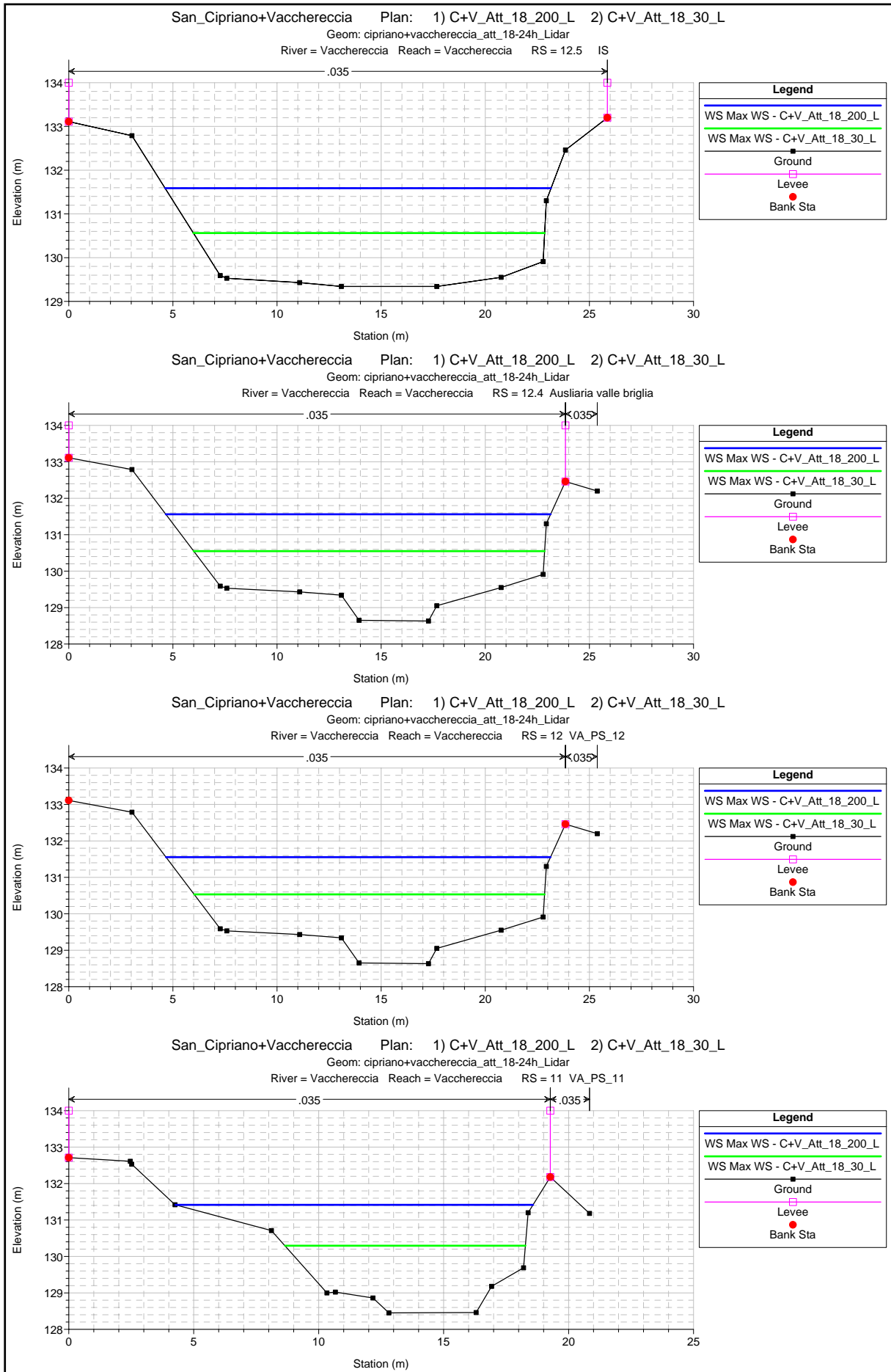




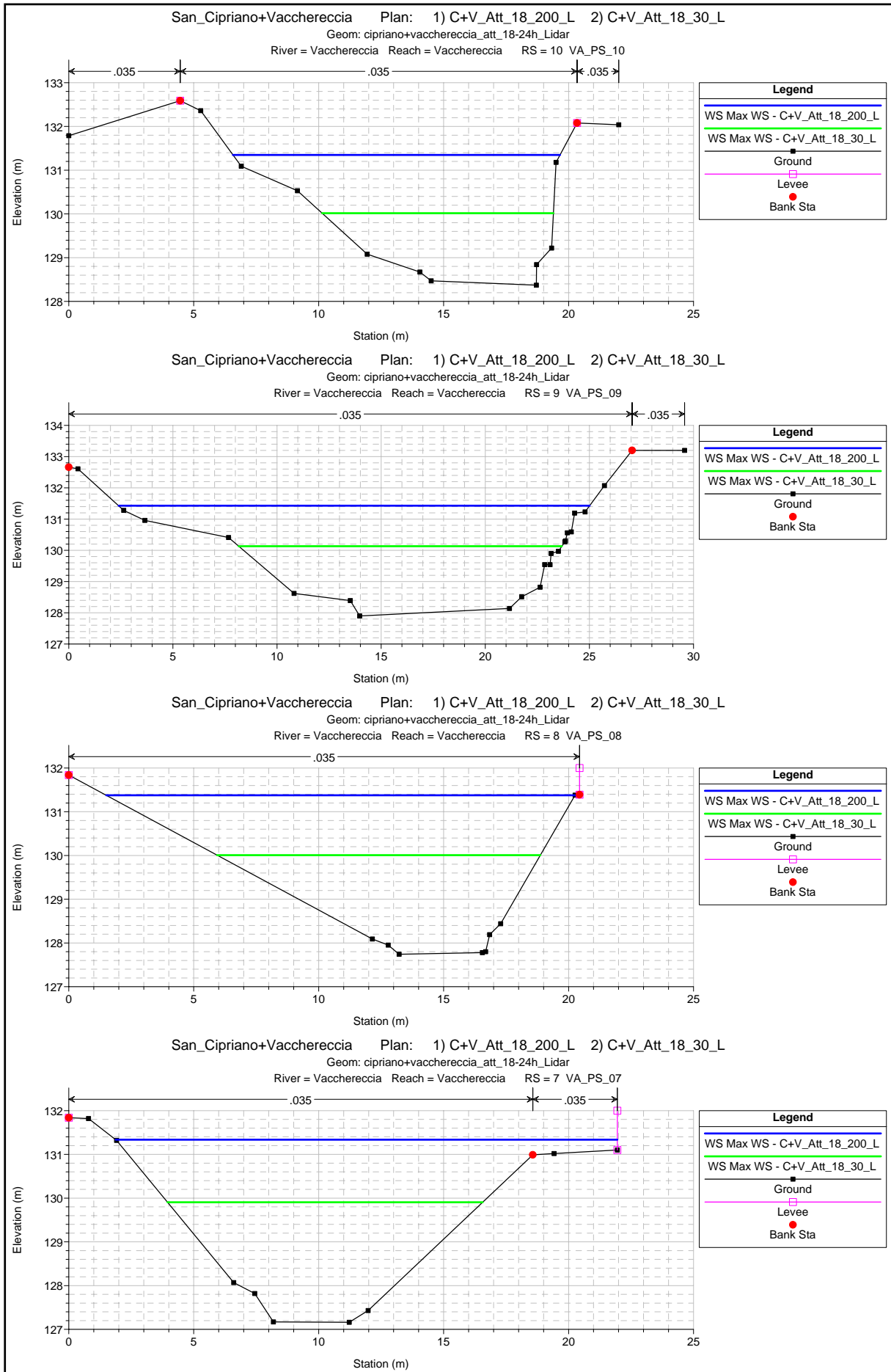


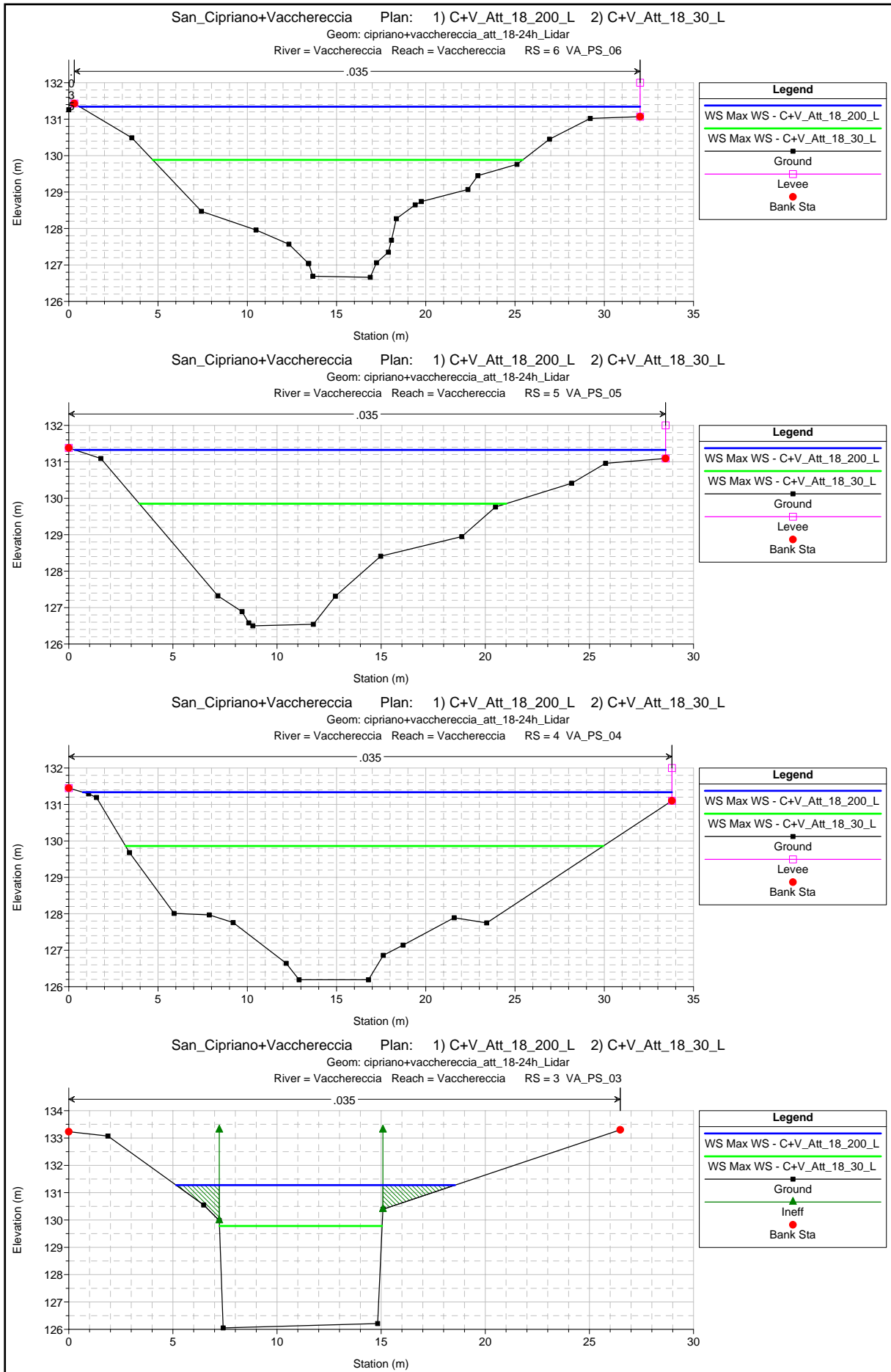


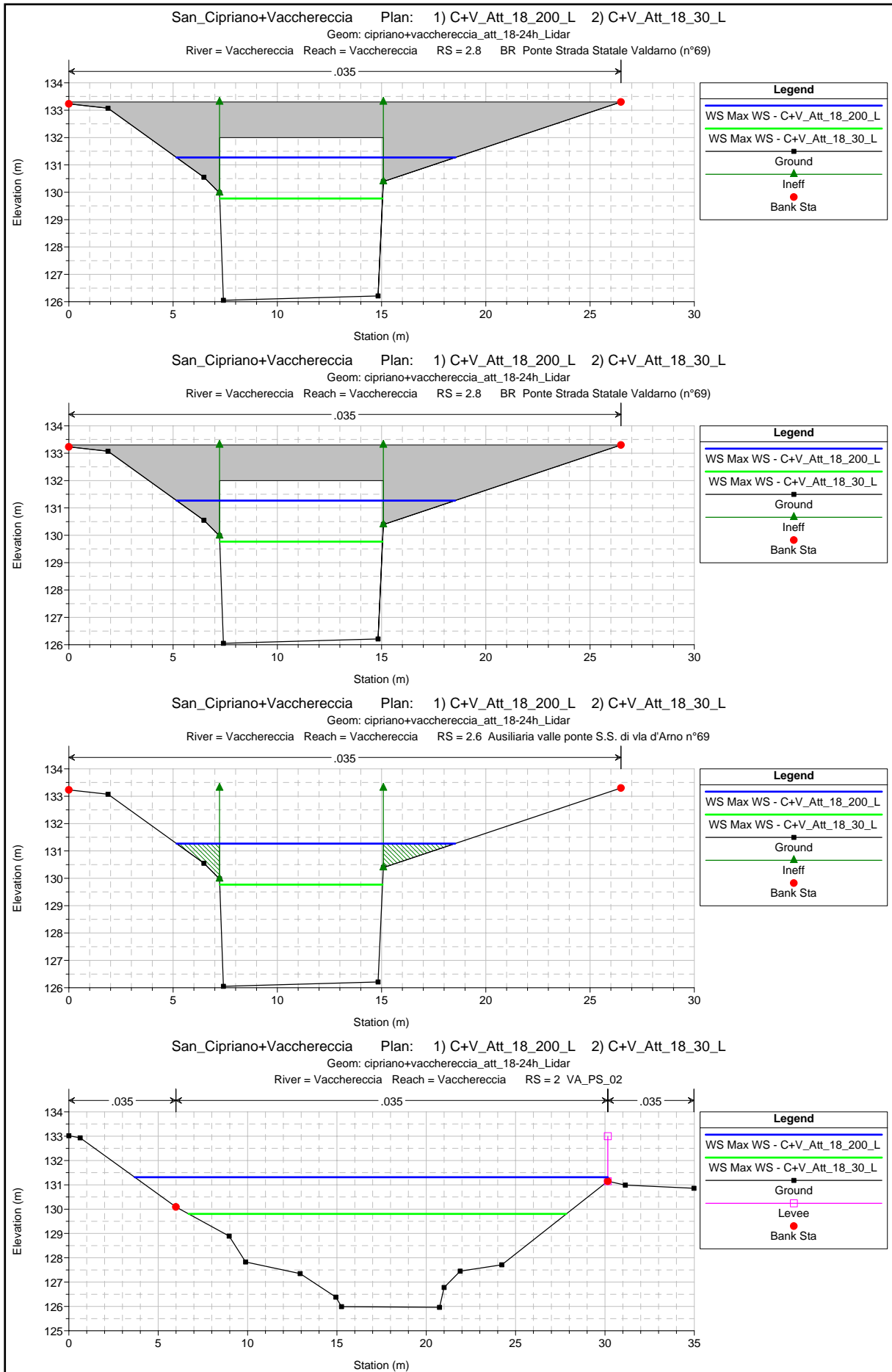


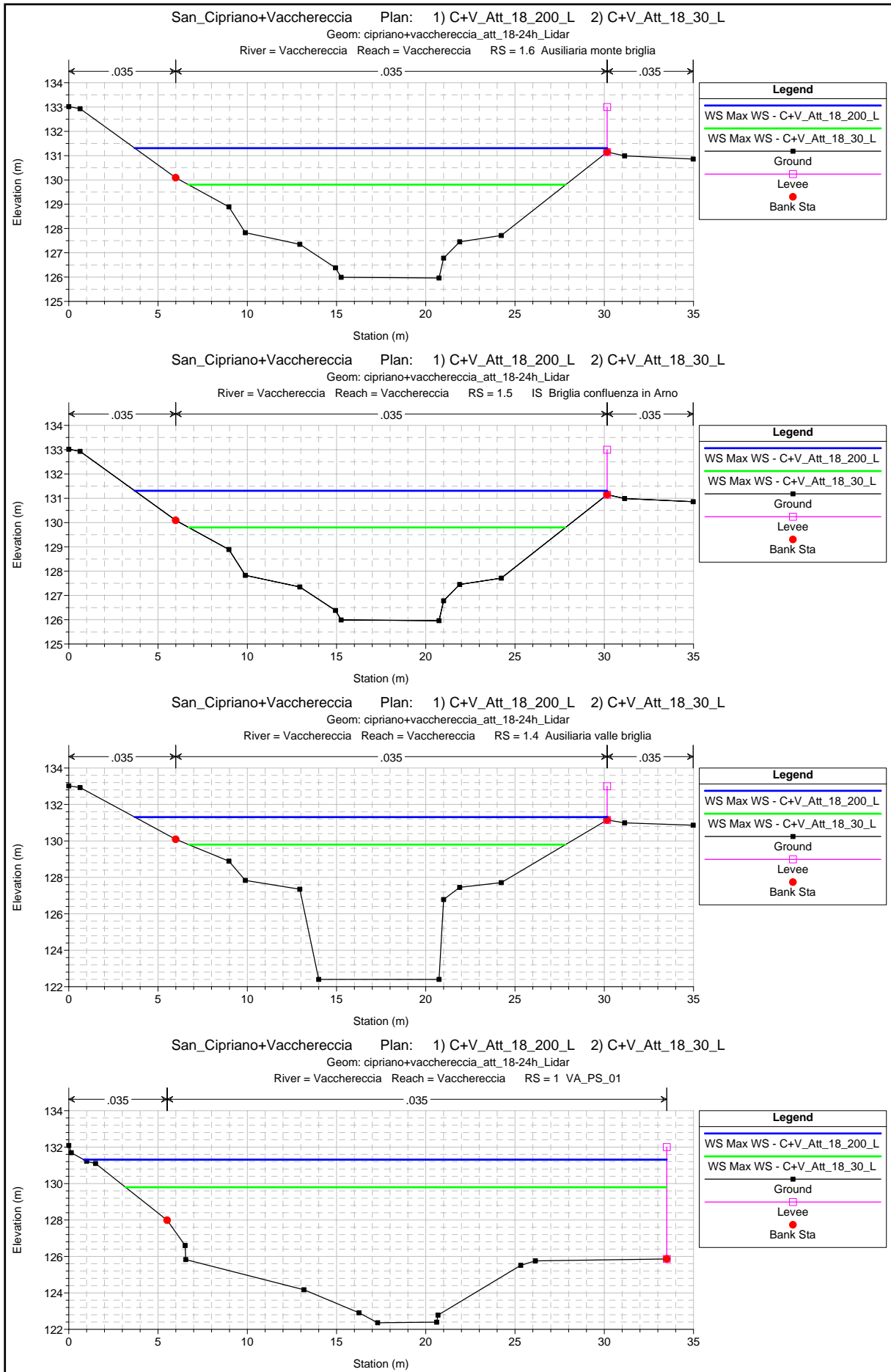












HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	19	Max WS	C+V_Att_18_200_L	48.28	130.37	132.48		132.66	0.003337	1.84	26.18	21.57	0.53
Vacchereccia	19	Max WS	C+V_Att_18_30_L	29.28	130.37	132.08		132.22	0.003389	1.61	18.16	18.55	0.52
Vacchereccia	18.6	Max WS	C+V_Att_18_200_L	48.28	130.37	132.46	131.97	132.64	0.003556	1.89	25.58	21.36	0.55
Vacchereccia	18.6	Max WS	C+V_Att_18_30_L	29.28	130.37	132.06	131.67	132.20	0.003675	1.66	17.65	18.34	0.54
Vacchereccia	18.5			Bridge									
Vacchereccia	18.4	Max WS	C+V_Att_18_200_L	48.28	130.37	132.35		132.57	0.004594	2.07	23.32	20.55	0.62
Vacchereccia	18.4	Max WS	C+V_Att_18_30_L	29.28	130.37	131.93		132.12	0.005367	1.90	15.42	17.40	0.64
Vacchereccia	18.2	Max WS	C+V_Att_18_200_L	48.28	130.37	132.32		132.55	0.004903	2.12	22.78	20.35	0.64
Vacchereccia	18.2	Max WS	C+V_Att_18_30_L	29.28	130.37	131.90		132.10	0.005984	1.97	14.83	17.14	0.68
Vacchereccia	18	Max WS	C+V_Att_18_200_L	48.28	130.24	132.20		132.49	0.006296	2.38	20.26	18.06	0.72
Vacchereccia	18	Max WS	C+V_Att_18_30_L	29.28	130.24	131.76		132.02	0.008084	2.28	12.86	14.87	0.78
Vacchereccia	17	Max WS	C+V_Att_18_200_L	48.28	129.99	132.00		132.31	0.005611	2.46	19.61	14.88	0.68
Vacchereccia	17	Max WS	C+V_Att_18_30_L	29.28	129.99	131.49		131.78	0.008076	2.36	12.38	13.36	0.78
Vacchereccia	16	Max WS	C+V_Att_18_200_L	48.27	129.69	131.83		132.00	0.002310	1.85	26.08	15.08	0.45
Vacchereccia	16	Max WS	C+V_Att_18_30_L	29.28	129.69	131.11		131.29	0.003772	1.85	15.83	13.63	0.55
Vacchereccia	15.8	Max WS	C+V_Att_18_200_L	48.27	129.36	131.85	130.79	132.00	0.001708	1.72	28.09	13.68	0.38
Vacchereccia	15.8	Max WS	C+V_Att_18_30_L	29.28	129.36	131.16	130.44	131.28	0.002002	1.54	18.97	12.82	0.41
Vacchereccia	15.5			Bridge									
Vacchereccia	15	Max WS	C+V_Att_18_200_L	48.27	129.36	131.77		131.93	0.001918	1.79	26.99	13.58	0.40
Vacchereccia	15	Max WS	C+V_Att_18_30_L	29.28	129.36	131.07		131.21	0.002384	1.64	17.89	12.72	0.44
Vacchereccia	14.9			Lat Struct									
Vacchereccia	14	Max WS	C+V_Att_18_200_L	48.27	129.20	131.63		131.82	0.002766	1.94	24.89	14.84	0.48
Vacchereccia	14	Max WS	C+V_Att_18_30_L	29.28	129.20	130.78		131.03	0.006587	2.23	13.15	12.76	0.70
Vacchereccia	13	Max WS	C+V_Att_18_200_L	48.27	129.06	131.66		131.76	0.001213	1.41	34.28	17.08	0.32
Vacchereccia	13	Max WS	C+V_Att_18_30_L	29.28	129.06	130.77		130.88	0.002688	1.52	19.26	16.62	0.45
Vacchereccia	12.8	Max WS	C+V_Att_18_200_L	48.27	129.34	131.67	130.44	131.75	0.000939	1.29	37.39	18.70	0.29
Vacchereccia	12.8	Max WS	C+V_Att_18_30_L	29.28	129.34	130.77	130.17	130.87	0.001859	1.37	21.45	17.17	0.39

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	12.7			Bridge									
Vacchereccia	12.6	Max WS	C+V_Att_18_200_L	48.26	129.34	131.59		131.68	0.001056	1.34	35.92	18.54	0.31
Vacchereccia	12.6	Max WS	C+V_Att_18_30_L	29.28	129.34	130.56		130.70	0.003282	1.64	17.86	16.87	0.51
Vacchereccia	12.55	Max WS	C+V_Att_18_200_L	48.26	129.34	131.59	130.44	131.68	0.001056	1.34	35.92	18.54	0.31
Vacchereccia	12.55	Max WS	C+V_Att_18_30_L	29.28	129.34	130.56	130.17	130.70	0.003285	1.64	17.86	16.87	0.51
Vacchereccia	12.5			Inl Struct									
Vacchereccia	12.4	Max WS	C+V_Att_18_200_L	48.26	128.63	131.56		131.64	0.000844	1.25	38.70	18.48	0.28
Vacchereccia	12.4	Max WS	C+V_Att_18_30_L	29.28	128.63	130.55		130.65	0.002011	1.40	20.89	16.85	0.40
Vacchereccia	12	Max WS	C+V_Att_18_200_L	48.26	128.63	131.56		131.63	0.000851	1.25	38.59	18.47	0.28
Vacchereccia	12	Max WS	C+V_Att_18_30_L	29.28	128.63	130.53		130.64	0.002093	1.42	20.62	16.83	0.41
Vacchereccia	11	Max WS	C+V_Att_18_200_L	48.25	128.45	131.42		131.60	0.002445	1.87	25.81	14.31	0.44
Vacchereccia	11	Max WS	C+V_Att_18_30_L	29.28	128.45	130.29		130.55	0.005003	2.24	13.05	9.62	0.61
Vacchereccia	10	Max WS	C+V_Att_18_200_L	48.24	128.37	131.35		131.52	0.002227	1.85	26.01	13.09	0.42
Vacchereccia	10	Max WS	C+V_Att_18_30_L	29.26	128.37	130.02		130.36	0.007883	2.60	11.26	9.26	0.75
Vacchereccia	9	Max WS	C+V_Att_18_200_L	48.24	127.90	131.43		131.48	0.000461	0.97	49.98	22.61	0.21
Vacchereccia	9	Max WS	C+V_Att_18_30_L	29.25	127.90	130.13		130.20	0.000979	1.16	25.31	15.52	0.29
Vacchereccia	8.8			Lat Struct									
Vacchereccia	8	Max WS	C+V_Att_18_200_L	48.22	127.74	131.38		131.45	0.000750	1.21	39.94	18.76	0.26
Vacchereccia	8	Max WS	C+V_Att_18_30_L	29.24	127.74	130.01		130.14	0.002261	1.60	18.25	12.93	0.43
Vacchereccia	7	Max WS	C+V_Att_18_200_L	48.20	127.16	131.34		131.40	0.000504	1.11	44.13	20.08	0.22
Vacchereccia	7	Max WS	C+V_Att_18_30_L	29.20	127.16	129.91		130.00	0.001223	1.34	21.86	12.61	0.32
Vacchereccia	6	Max WS	C+V_Att_18_200_L	48.25	126.66	131.34		131.37	0.000212	0.68	70.91	31.41	0.14
Vacchereccia	6	Max WS	C+V_Att_18_30_L	29.14	126.66	129.88		129.92	0.000518	0.86	34.06	20.74	0.21
Vacchereccia	5	Max WS	C+V_Att_18_200_L	48.24	126.50	131.33		131.35	0.000244	0.74	65.52	28.38	0.15
Vacchereccia	5	Max WS	C+V_Att_18_30_L	29.07	126.50	129.85		129.89	0.000511	0.90	32.12	17.62	0.21
Vacchereccia	4	Max WS	C+V_Att_18_200_L	45.54	126.19	131.34		131.35	0.000062	0.45	101.00	33.00	0.08

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	4	Max WS	C+V_Att_18_30_L	28.93	126.19	129.86		129.87	0.000126	0.51	56.83	26.77	0.11
Vacchereccia	3	Max WS	C+V_Att_18_200_L	41.23	126.05	131.27	127.59	131.33	0.000384	1.04	39.51	13.39	0.15
Vacchereccia	3	Max WS	C+V_Att_18_30_L	28.44	126.05	129.78	127.27	129.83	0.000551	1.02	27.78	7.81	0.17
Vacchereccia	2.8			Bridge									
Vacchereccia	2.6	Max WS	C+V_Att_18_200_L	41.23	126.05	131.27		131.32	0.000386	1.04	39.47	13.36	0.15
Vacchereccia	2.6	Max WS	C+V_Att_18_30_L	28.78	126.05	129.77		129.82	0.000569	1.04	27.68	7.81	0.18
Vacchereccia	2	Max WS	C+V_Att_18_200_L	41.28	125.96	131.31		131.32	0.000065	0.49	85.58	26.47	0.08
Vacchereccia	2	Max WS	C+V_Att_18_30_L	28.77	125.96	129.80		129.82	0.000156	0.58	49.40	21.14	0.12
Vacchereccia	1.6	Max WS	C+V_Att_18_200_L	41.22	125.96	131.31	127.71	131.32	0.000065	0.49	85.55	26.47	0.08
Vacchereccia	1.6	Max WS	C+V_Att_18_30_L	28.21	125.96	129.80	127.30	129.82	0.000150	0.57	49.40	21.14	0.12
Vacchereccia	1.5			Inl Struct									
Vacchereccia	1.4	Max WS	C+V_Att_18_200_L	41.22	122.40	131.31		131.31	0.000034	0.37	113.02	26.47	0.05
Vacchereccia	1.4	Max WS	C+V_Att_18_30_L	29.25	122.40	129.80		129.80	0.000052	0.38	76.81	21.11	0.06
Vacchereccia	1	Max WS	C+V_Att_18_200_L	41.20	122.36	131.31	124.26	131.31	0.000006	0.22	194.74	32.66	0.03
Vacchereccia	1	Max WS	C+V_Att_18_30_L	29.22	122.36	129.80	123.96	129.80	0.000007	0.20	147.42	30.32	0.03

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

### **BORRO SAN CIPRIANO**

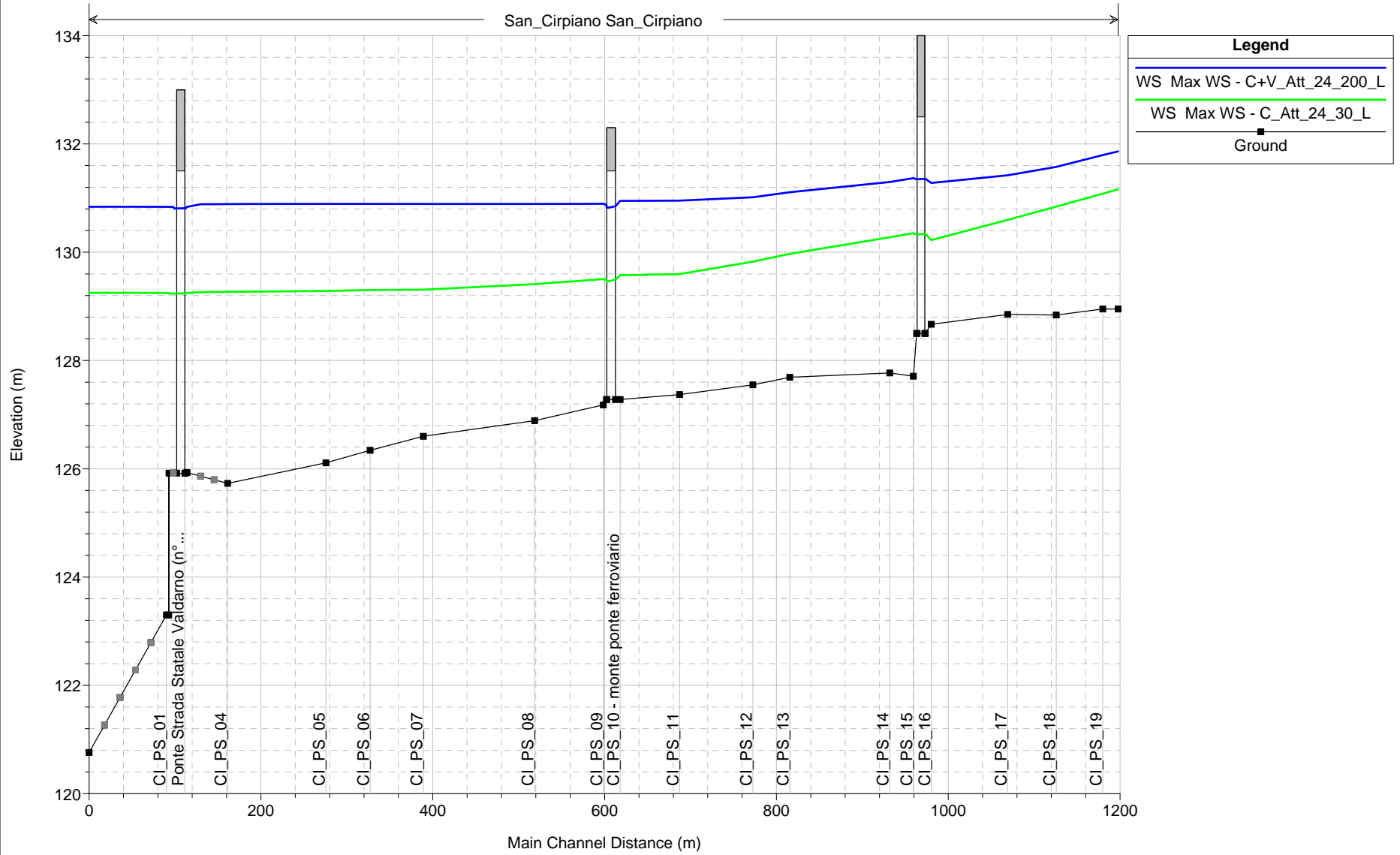
#### **Scenario C - Tr 200 e 30 anni**

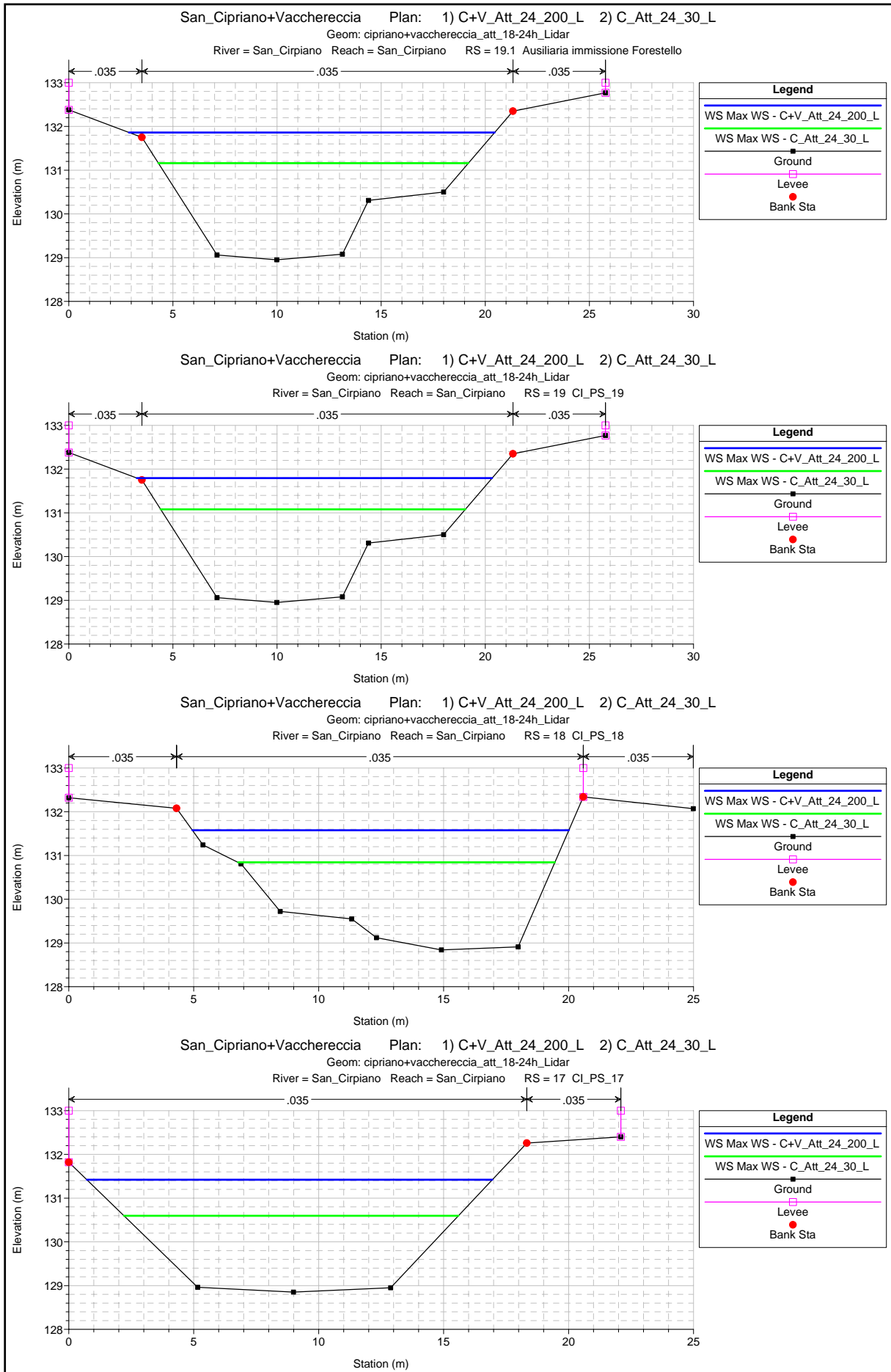
- Profili
- Sezioni di verifica
- Tabelle di output

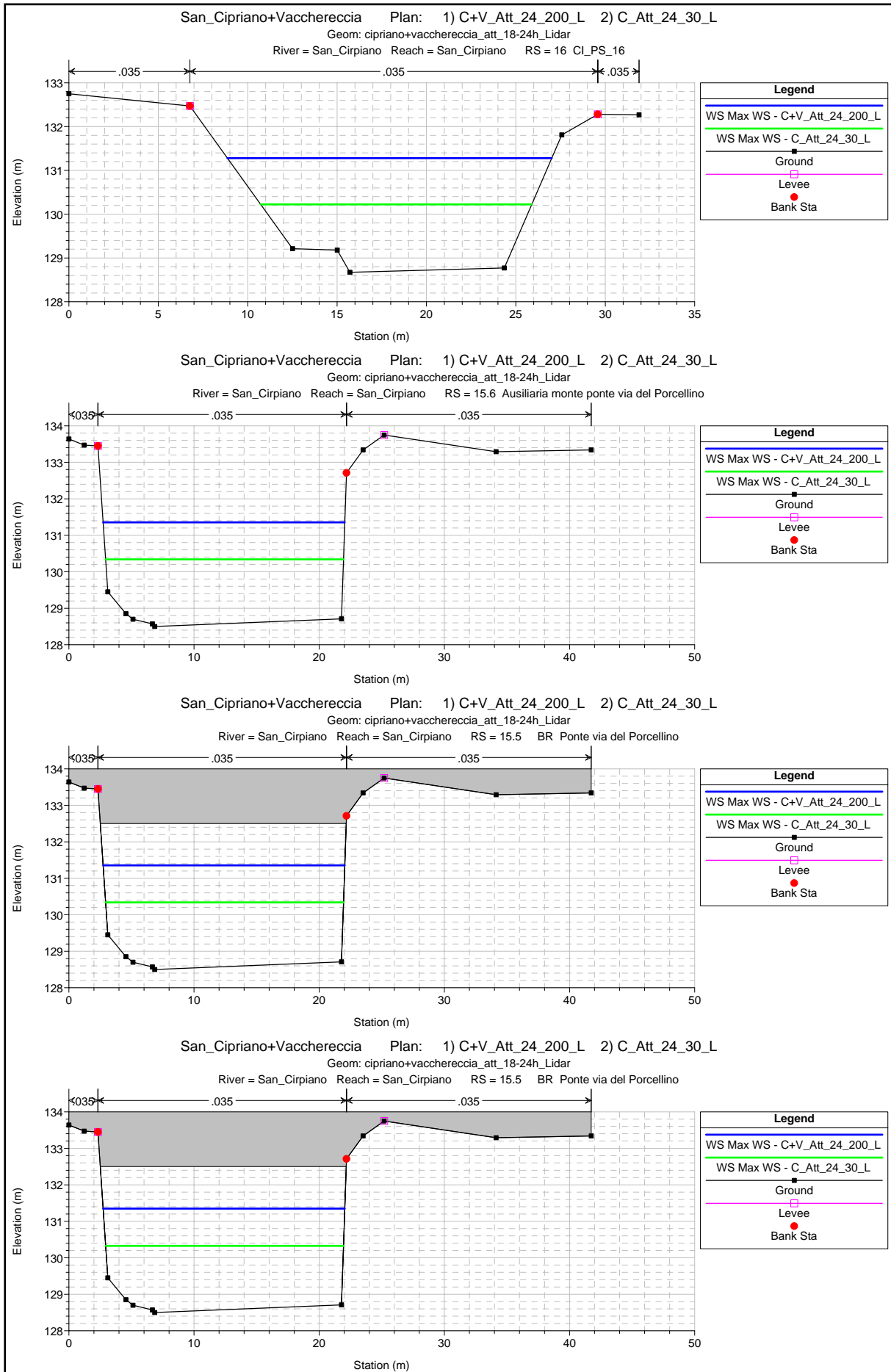


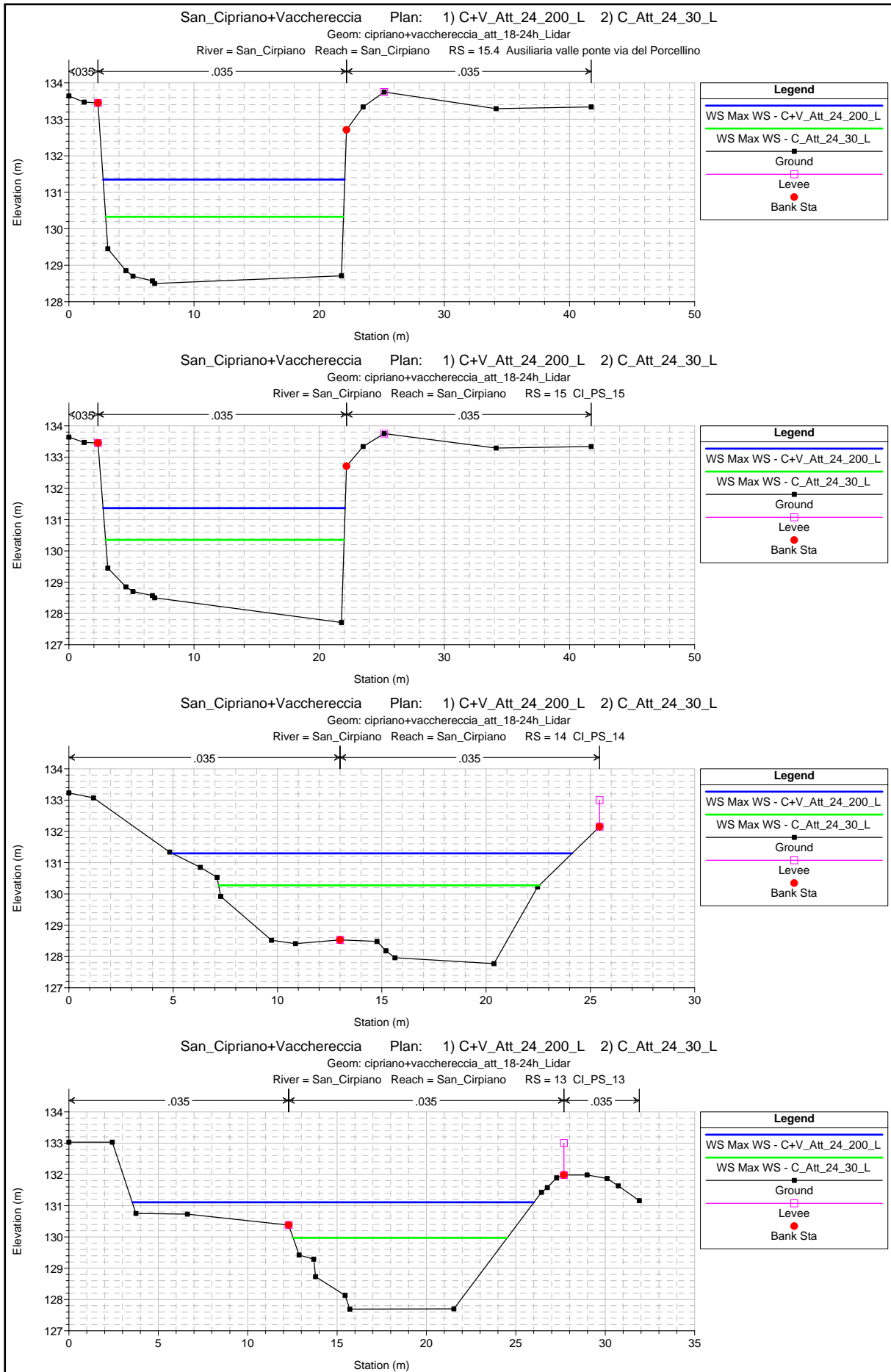
San\_Cipriano+Vacchereccia Plan: 1) C+V\_Att\_24\_200\_L 2) C\_Att\_24\_30\_L

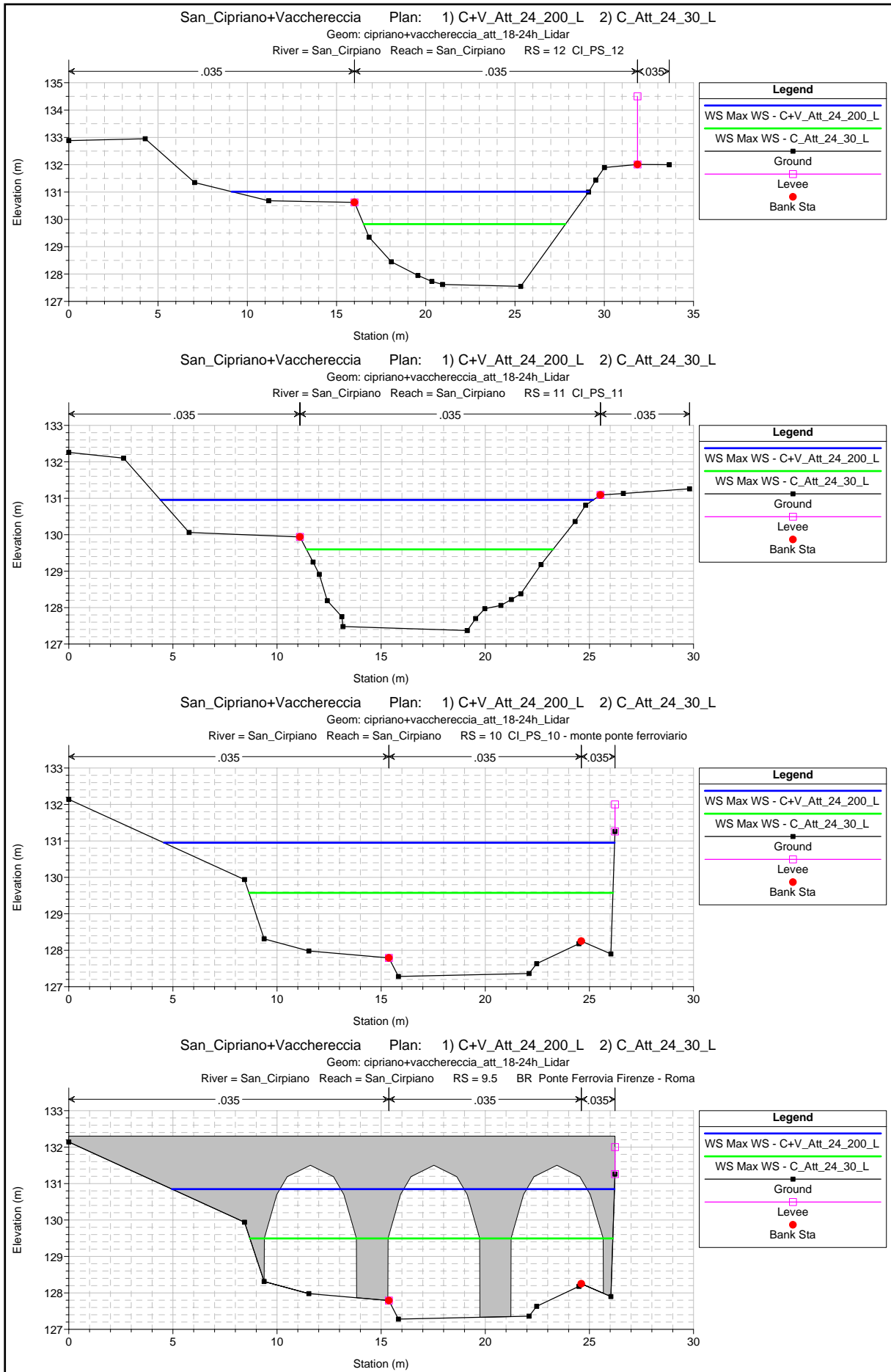
Geom: cipriano+vacchereccia\_att\_18-24h\_Lidar

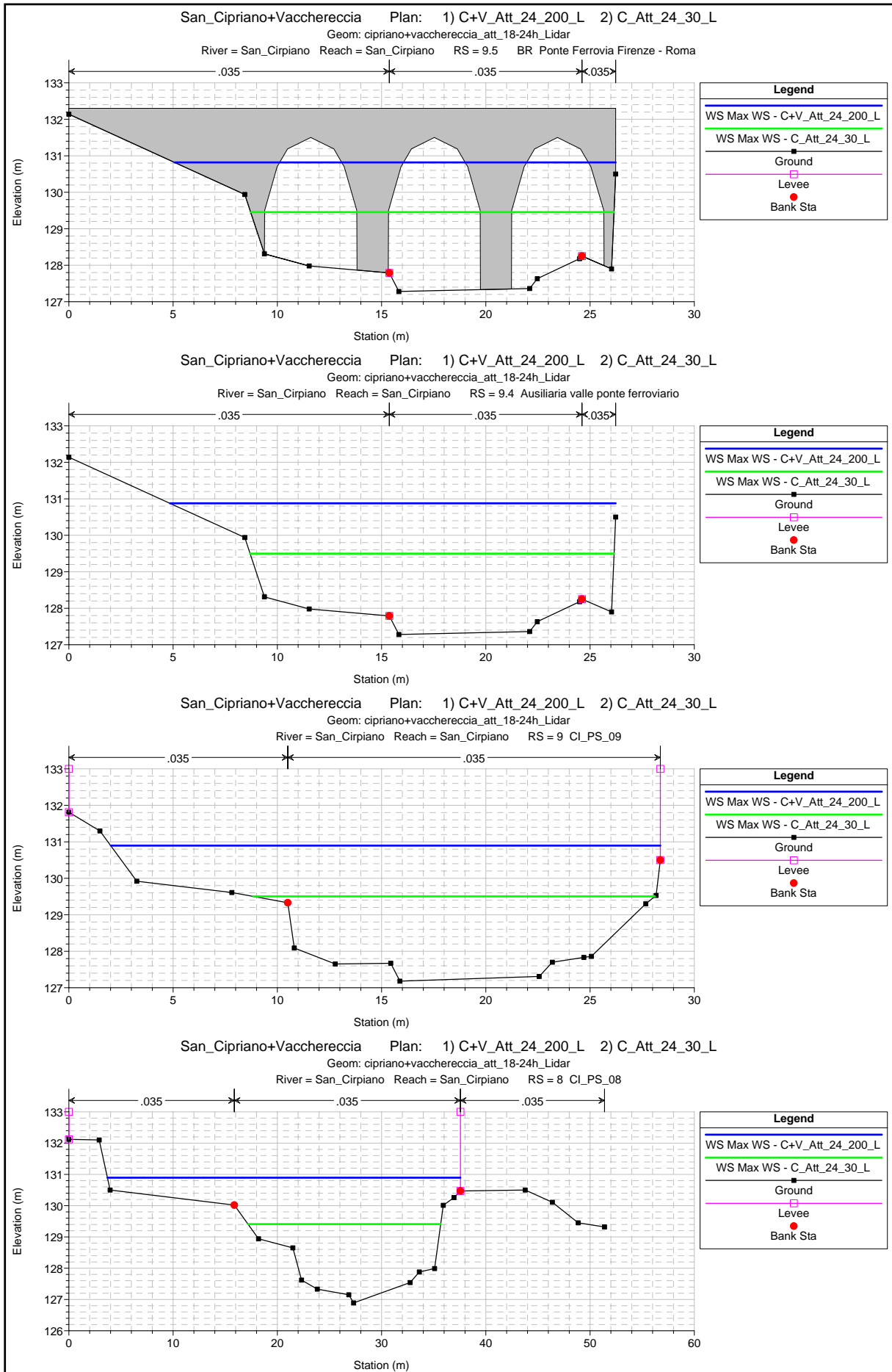


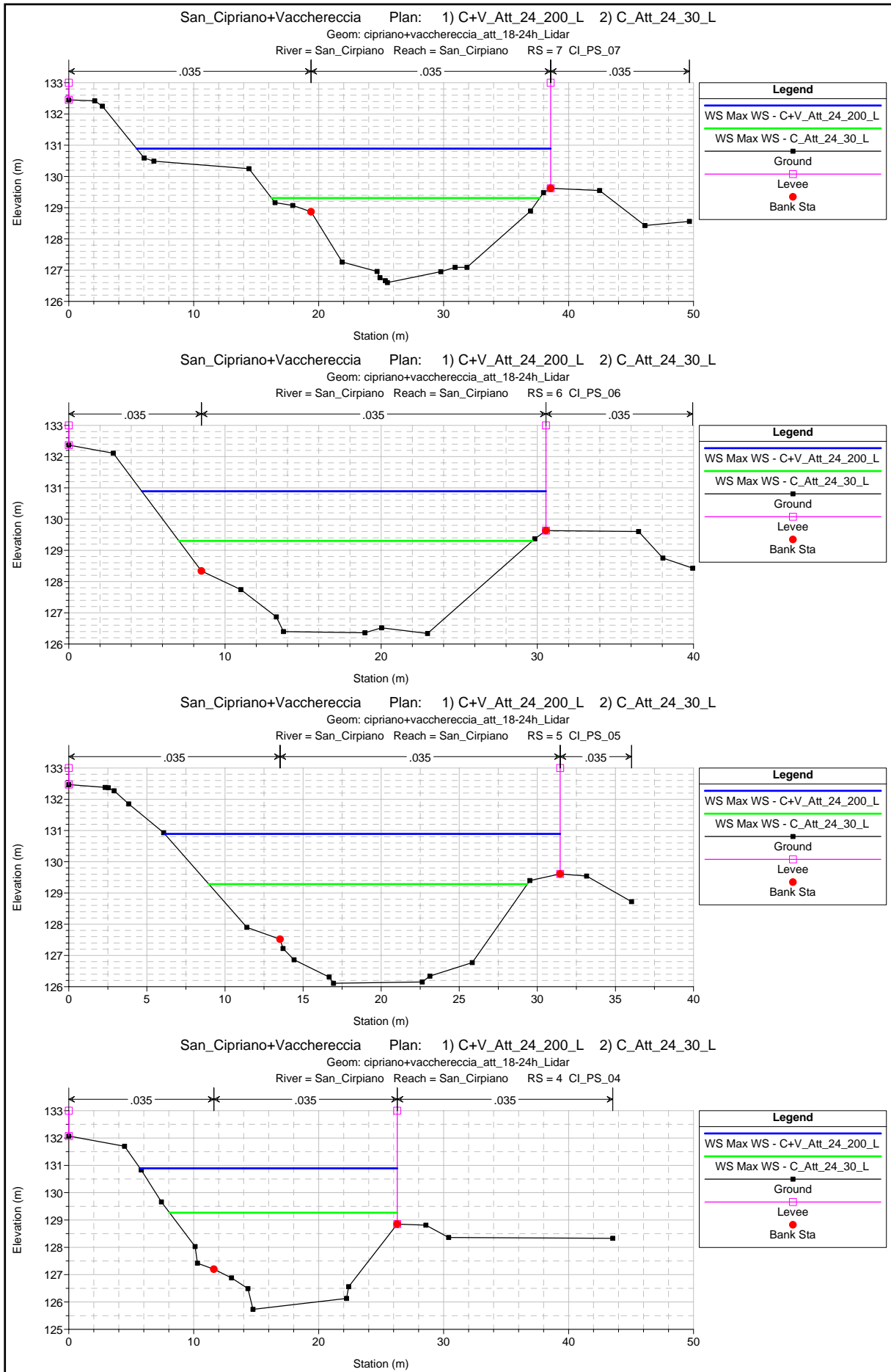


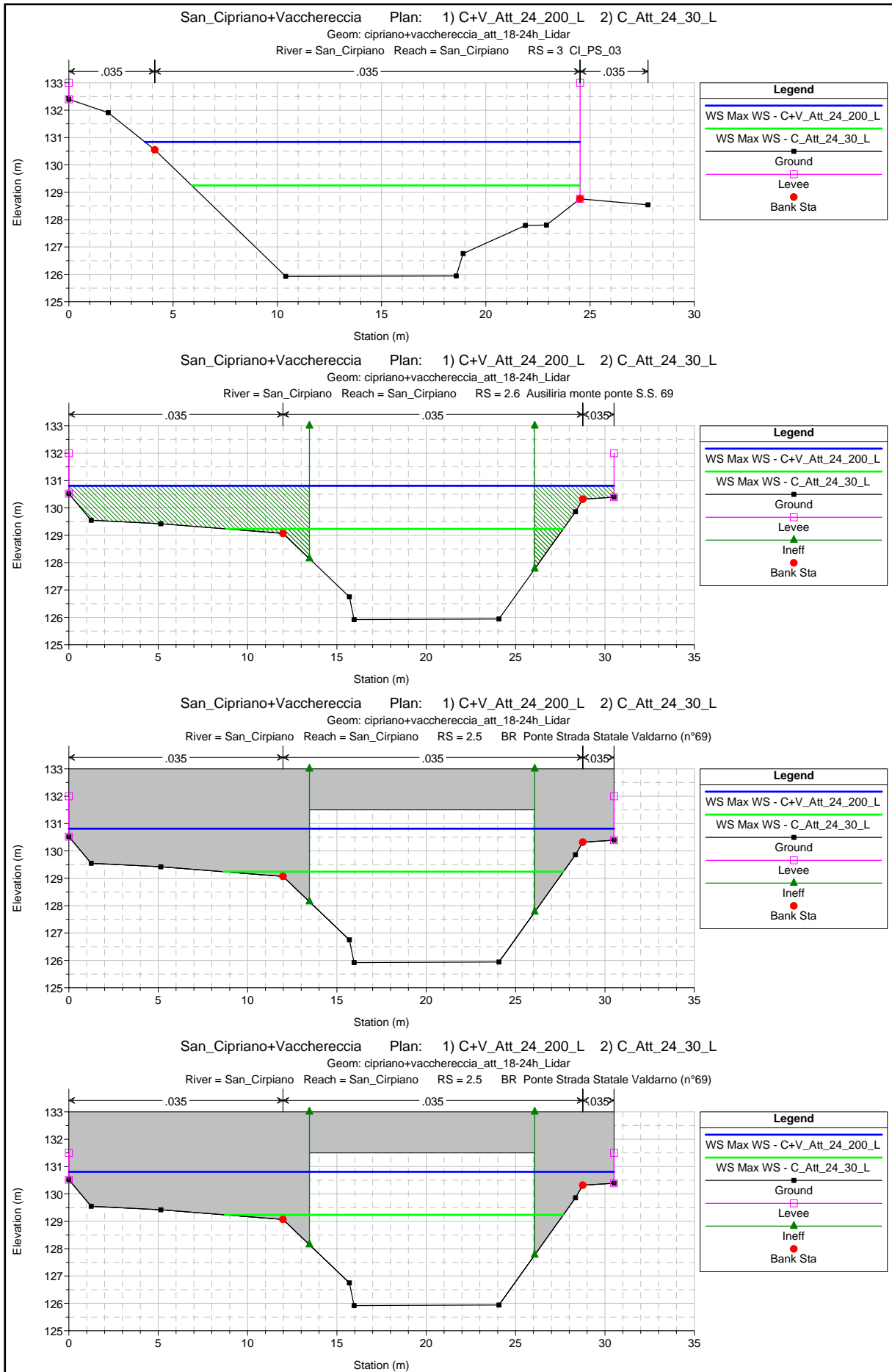




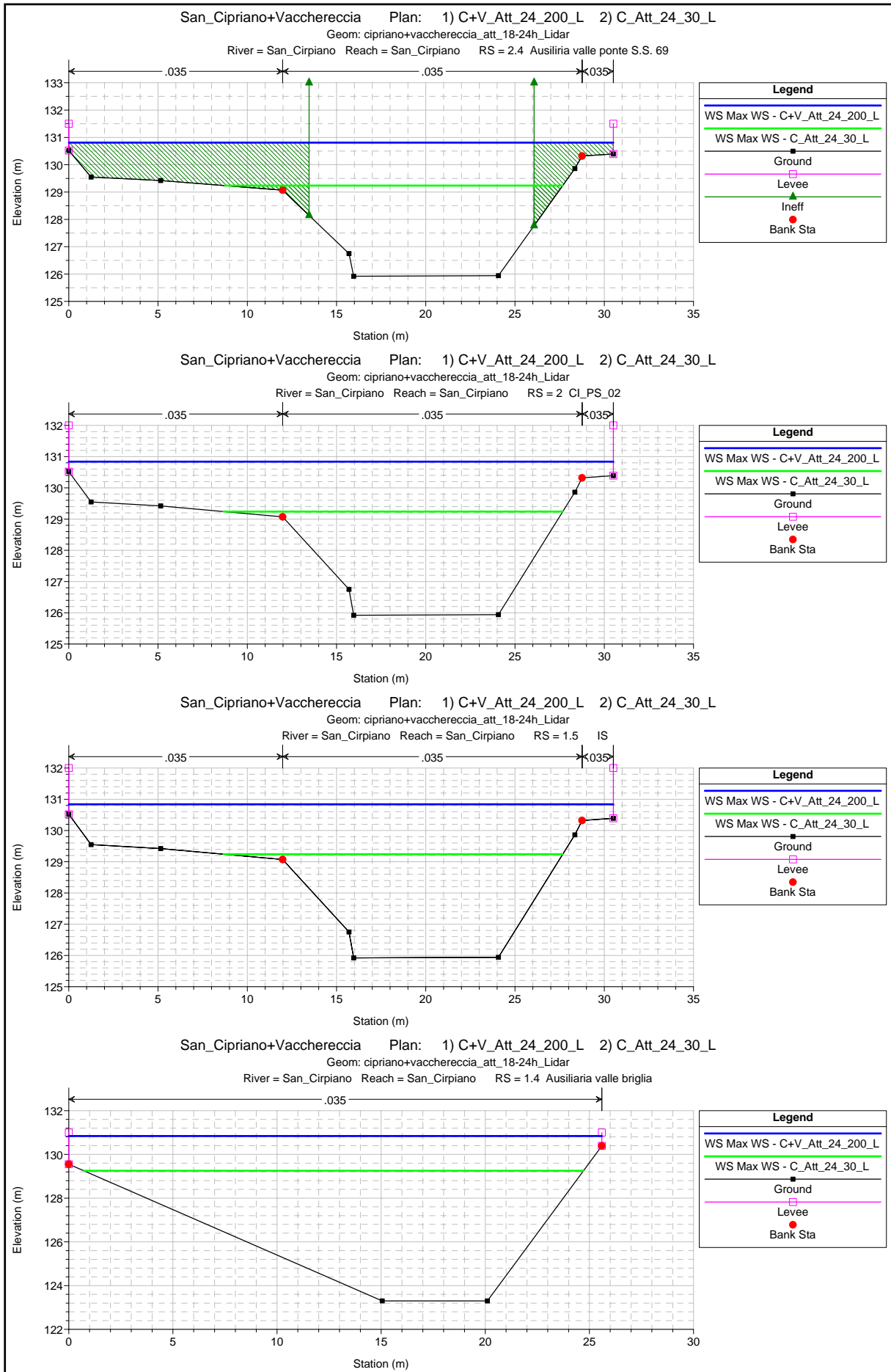


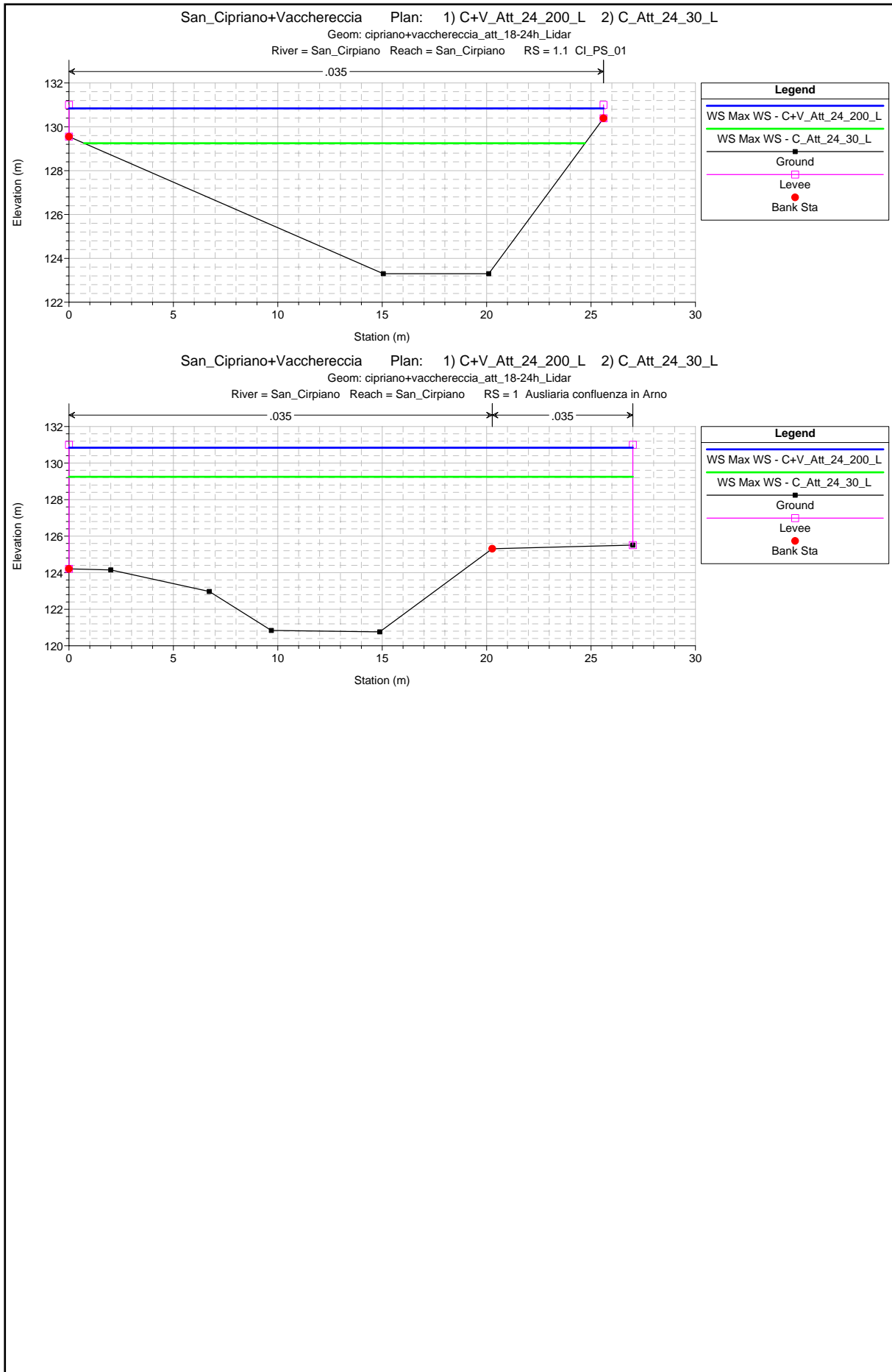












HEC-RAS River: San\_Cirpiano Reach: San\_Cirpiano Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	19.1	Max WS	C+V_Att_24_200_L	68.10	128.95	131.86		132.09	0.002690	2.12	32.10	17.57	0.49
San_Cirpiano	19.1	Max WS	C_Att_24_30_L	38.70	128.95	131.16		131.34	0.003021	1.85	20.87	14.89	0.50
San_Cirpiano	19	Max WS	C+V_Att_24_200_L	68.10	128.95	131.79		132.04	0.003011	2.20	30.92	17.06	0.52
San_Cirpiano	19	Max WS	C_Att_24_30_L	38.70	128.95	131.08		131.28	0.003588	1.97	19.68	14.64	0.54
San_Cirpiano	18.9			Lat Struct									
San_Cirpiano	18.8			Lat Struct									
San_Cirpiano	18	Max WS	C+V_Att_24_200_L	67.33	128.84	131.58		131.86	0.003440	2.36	28.49	15.06	0.55
San_Cirpiano	18	Max WS	C_Att_24_30_L	38.70	128.84	130.84		131.07	0.003965	2.13	18.16	12.68	0.57
San_Cirpiano	17	Max WS	C+V_Att_24_200_L	67.30	128.85	131.42		131.68	0.003045	2.25	29.92	16.23	0.53
San_Cirpiano	17	Max WS	C_Att_24_30_L	38.69	128.85	130.60		130.84	0.004369	2.18	17.73	13.38	0.61
San_Cirpiano	16	Max WS	C+V_Att_24_200_L	67.28	128.67	131.28		131.46	0.001923	1.87	36.06	18.14	0.42
San_Cirpiano	16	Max WS	C_Att_24_30_L	38.69	128.67	130.22		130.45	0.004481	2.09	18.50	15.17	0.60
San_Cirpiano	15.6	Max WS	C+V_Att_24_200_L	67.29	128.50	131.36	129.75	131.44	0.000749	1.32	51.15	19.31	0.26
San_Cirpiano	15.6	Max WS	C_Att_24_30_L	38.69	128.50	130.34	129.41	130.42	0.001080	1.22	31.69	19.01	0.30
San_Cirpiano	15.5			Bridge									
San_Cirpiano	15.4	Max WS	C+V_Att_24_200_L	67.28	128.50	131.35		131.44	0.000756	1.32	50.97	19.31	0.26
San_Cirpiano	15.4	Max WS	C_Att_24_30_L	38.69	128.50	130.33		130.40	0.001108	1.23	31.43	19.00	0.31
San_Cirpiano	15	Max WS	C+V_Att_24_200_L	67.29	127.71	131.37		131.43	0.000493	1.14	59.01	19.34	0.21
San_Cirpiano	15	Max WS	C_Att_24_30_L	38.69	127.71	130.35		130.40	0.000552	0.98	39.51	19.06	0.22
San_Cirpiano	14.8			Lat Struct									
San_Cirpiano	14	Max WS	C+V_Att_24_200_L	67.28	127.77	131.30		131.41	0.001017	1.60	44.95	19.17	0.31
San_Cirpiano	14	Max WS	C_Att_24_30_L	38.69	127.77	130.28		130.38	0.001272	1.48	27.58	15.38	0.34
San_Cirpiano	13	Max WS	C+V_Att_24_200_L	67.23	127.69	131.11		131.27	0.001474	1.83	39.34	22.47	0.37
San_Cirpiano	13	Max WS	C_Att_24_30_L	38.69	127.69	129.97		130.15	0.002639	1.90	20.39	11.97	0.46
San_Cirpiano	12	Max WS	C+V_Att_24_200_L	67.21	127.55	131.01		131.21	0.001669	1.96	35.89	20.01	0.39
San_Cirpiano	12	Max WS	C_Att_24_30_L	38.69	127.55	129.83		130.03	0.002939	2.02	19.15	11.31	0.50

HEC-RAS River: San\_Cirpiano Reach: San\_Cirpiano Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	11	Max WS	C+V_Att_24_200_L	67.20	127.37	130.95		131.09	0.001126	1.66	43.23	20.78	0.33
San_Cirpiano	11	Max WS	C_Att_24_30_L	38.20	127.37	129.60		129.79	0.002724	1.92	19.89	11.84	0.47
San_Cirpiano	10	Max WS	C+V_Att_24_200_L	67.19	127.28	130.95	128.93	131.03	0.000478	1.39	57.90	21.64	0.24
San_Cirpiano	10	Max WS	C_Att_24_30_L	38.16	127.28	129.58	128.56	129.66	0.000888	1.36	31.63	17.48	0.30
San_Cirpiano	9.5			Bridge									
San_Cirpiano	9.4	Max WS	C+V_Att_24_200_L	67.17	127.28	130.88		130.96	0.000515	1.42	56.40	21.38	0.25
San_Cirpiano	9.4	Max WS	C_Att_24_30_L	38.06	127.28	129.50		129.58	0.001011	1.41	30.30	17.46	0.32
San_Cirpiano	9.2			Lat Struct									
San_Cirpiano	9	Max WS	C+V_Att_24_200_L	67.64	127.18	130.89		130.95	0.000399	1.10	65.63	26.36	0.20
San_Cirpiano	9	Max WS	C_Att_24_30_L	38.06	127.18	129.50		129.58	0.000954	1.21	31.45	19.28	0.29
San_Cirpiano	8	Max WS	C+V_Att_24_200_L	59.15	126.89	130.89		130.94	0.000322	0.94	67.83	33.86	0.18
San_Cirpiano	8	Max WS	C_Att_24_30_L	38.01	126.89	129.41		129.49	0.001176	1.27	29.91	18.49	0.32
San_Cirpiano	7	Max WS	C+V_Att_24_200_L	49.54	126.60	130.89		130.92	0.000147	0.72	76.08	33.14	0.13
San_Cirpiano	7	Max WS	C_Att_24_30_L	37.96	126.60	129.31		129.37	0.000728	1.12	34.54	21.46	0.26
San_Cirpiano	6	Max WS	C+V_Att_24_200_L	48.04	126.34	130.89		130.91	0.000084	0.58	85.42	25.88	0.10
San_Cirpiano	6	Max WS	C_Att_24_30_L	37.96	126.34	129.30		129.34	0.000322	0.83	46.33	22.64	0.18
San_Cirpiano	5	Max WS	C+V_Att_24_200_L	44.05	126.11	130.89		130.91	0.000078	0.56	83.14	25.32	0.09
San_Cirpiano	5	Max WS	C_Att_24_30_L	37.94	126.11	129.28		129.32	0.000306	0.88	45.13	20.39	0.18
San_Cirpiano	4	Max WS	C+V_Att_24_200_L	36.40	125.73	130.89		130.90	0.000062	0.52	75.08	20.58	0.08
San_Cirpiano	4	Max WS	C_Att_24_30_L	32.81	125.73	129.27		129.30	0.000240	0.79	43.52	18.23	0.15
San_Cirpiano	3	Max WS	C+V_Att_24_200_L	64.99	125.93	130.84		130.88	0.000205	0.86	75.81	20.87	0.14
San_Cirpiano	3	Max WS	C_Att_24_30_L	36.49	125.93	129.25		129.28	0.000307	0.82	44.49	18.63	0.17
San_Cirpiano	2.6	Max WS	C+V_Att_24_200_L	64.99	125.92	130.81	127.71	130.88	0.000265	1.16	56.16	30.51	0.18
San_Cirpiano	2.6	Max WS	C_Att_24_30_L	36.39	125.92	129.23	127.17	129.28	0.000357	1.00	36.30	18.87	0.19
San_Cirpiano	2.5			Bridge									
San_Cirpiano	2.4	Max WS	C+V_Att_24_200_L	64.99	125.92	130.81		130.88	0.000266	1.16	56.15	30.51	0.18
San_Cirpiano	2.4	Max WS	C_Att_24_30_L	36.74	125.92	129.24		129.29	0.000363	1.01	36.32	18.91	0.19

HEC-RAS River: San\_Cirpiano Reach: San\_Cirpiano Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
San_Cirpiano	2	Max WS	C+V_Att_24_200_L	64.99	125.92	130.84	127.70	130.87	0.000192	0.87	82.72	30.51	0.14
San_Cirpiano	2	Max WS	C_Att_24_30_L	36.81	125.92	129.24	127.18	129.29	0.000413	0.96	38.78	19.01	0.19
San_Cirpiano	1.5			Inl Struct									
San_Cirpiano	1.4	Max WS	C+V_Att_24_200_L	64.99	123.30	130.84		130.85	0.000052	0.51	126.44	25.60	0.07
San_Cirpiano	1.4	Max WS	C_Att_24_30_L	36.39	123.30	129.25		129.26	0.000049	0.42	86.35	23.99	0.07
San_Cirpiano	1.1	Max WS	C+V_Att_24_200_L	64.99	123.30	130.84		130.85	0.000052	0.51	126.43	25.60	0.07
San_Cirpiano	1.1	Max WS	C_Att_24_30_L	36.39	123.30	129.25		129.26	0.000049	0.42	86.35	23.99	0.07
San_Cirpiano	1	Max WS	C+V_Att_24_200_L	64.96	120.76	130.84	122.90	130.85	0.000014	0.34	204.94	27.00	0.04
San_Cirpiano	1	Max WS	C_Att_24_30_L	36.34	120.76	129.25	122.30	129.25	0.000008	0.24	162.01	27.00	0.03

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

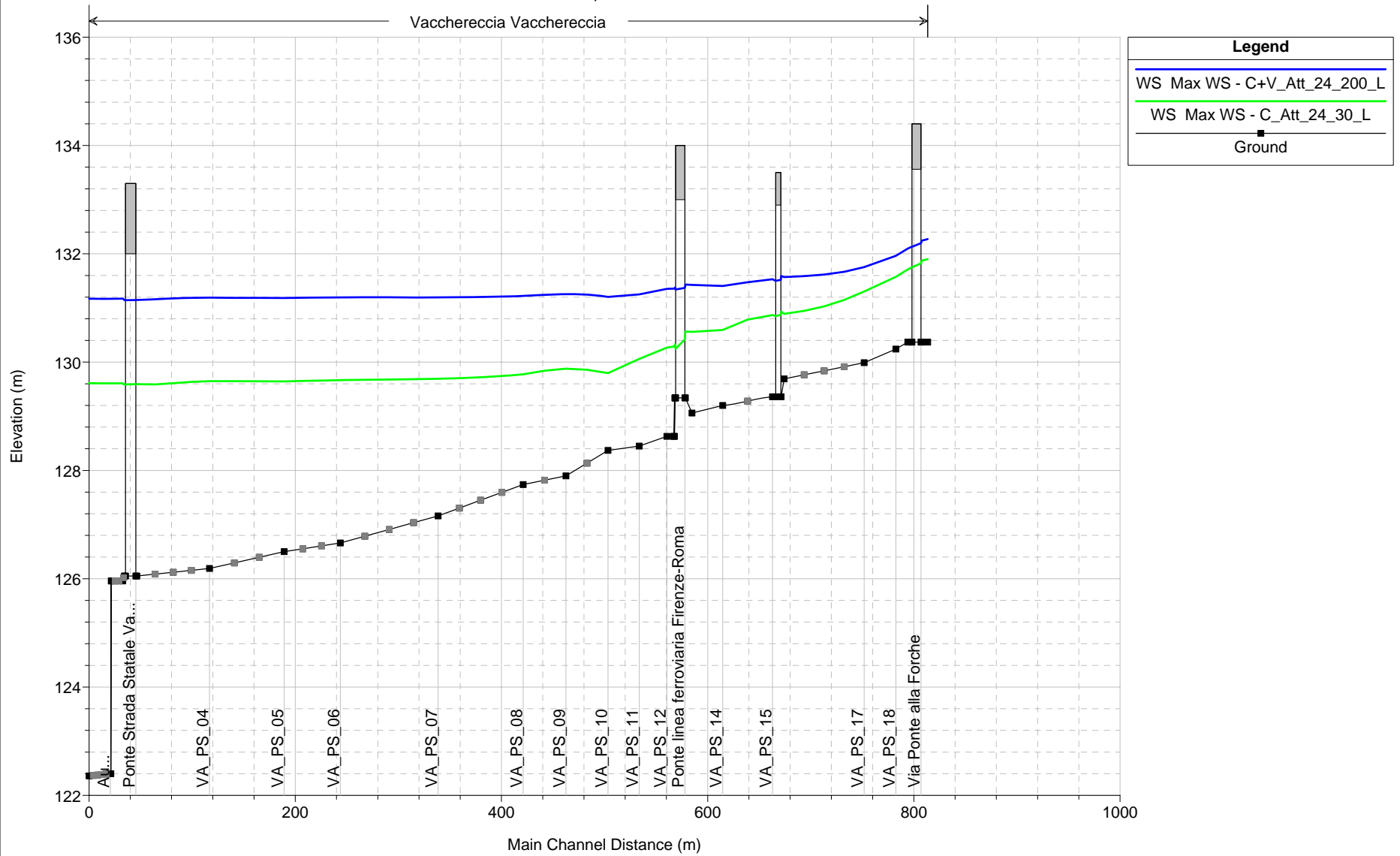
### **BORRO VACCHERECCIA**

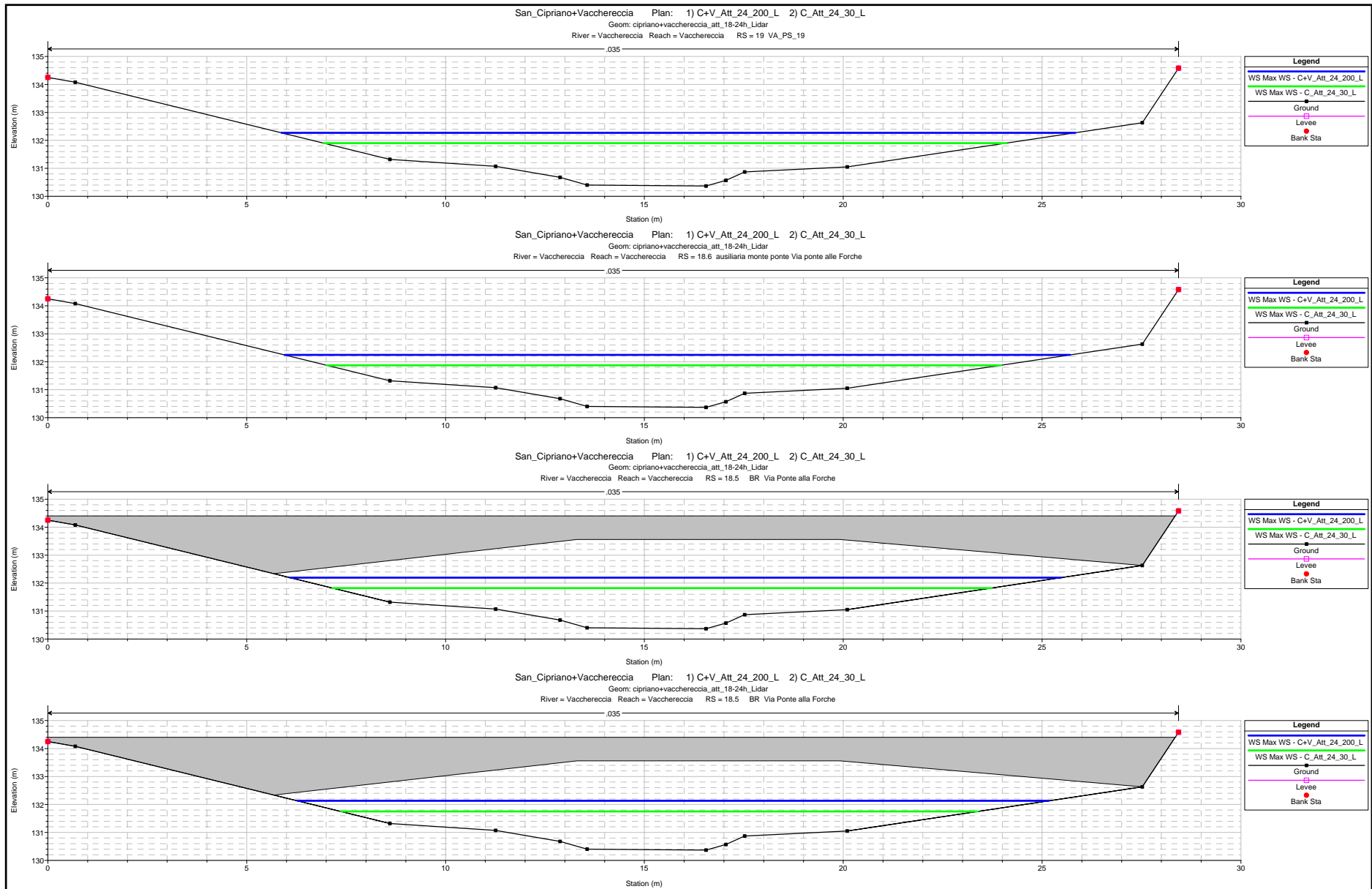
#### **Scenario C - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

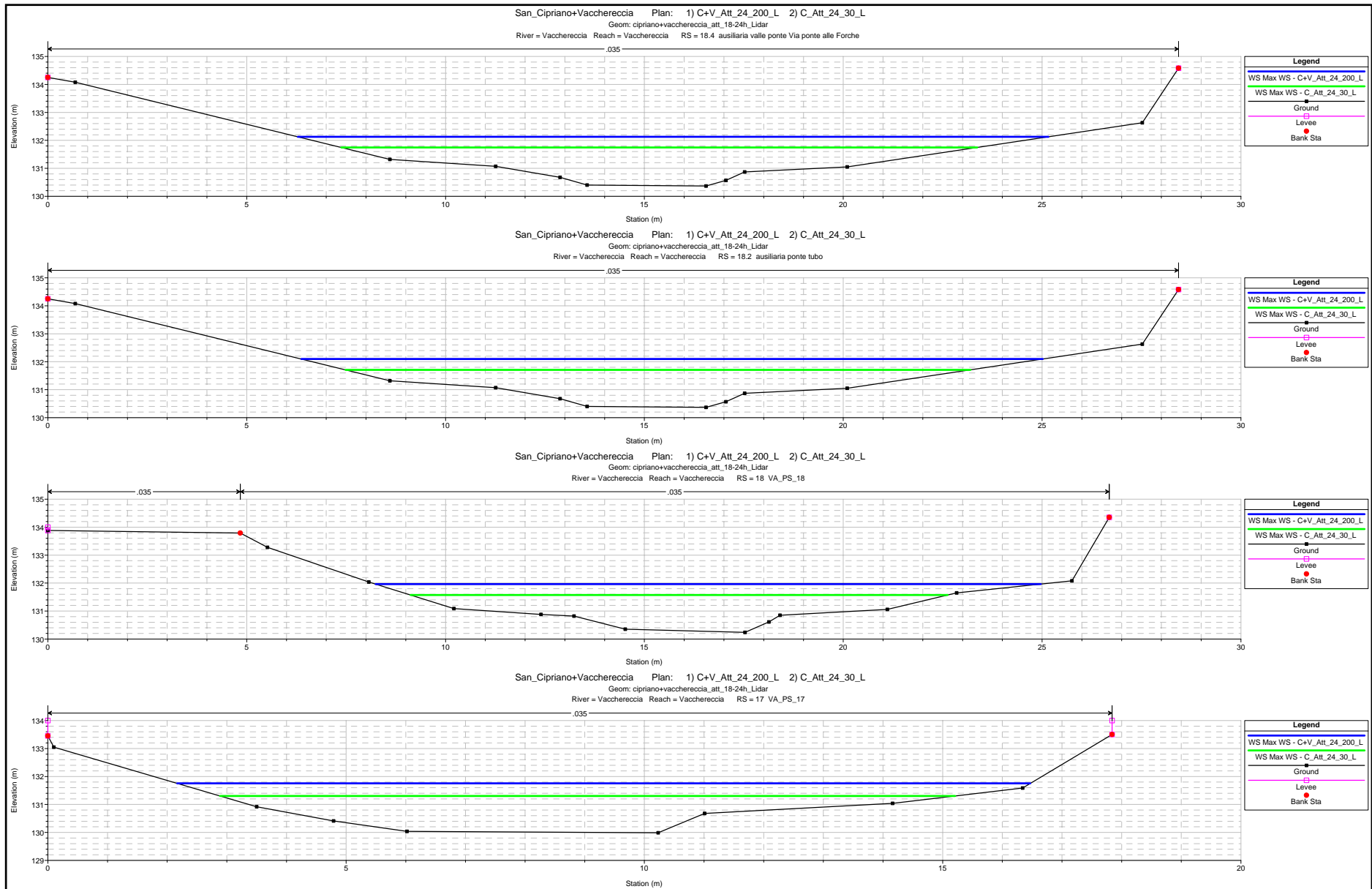
San\_Cipriano+Vacchereccia Plan: 1) C+V\_Att\_24\_200\_L 2) C\_Att\_24\_30\_L

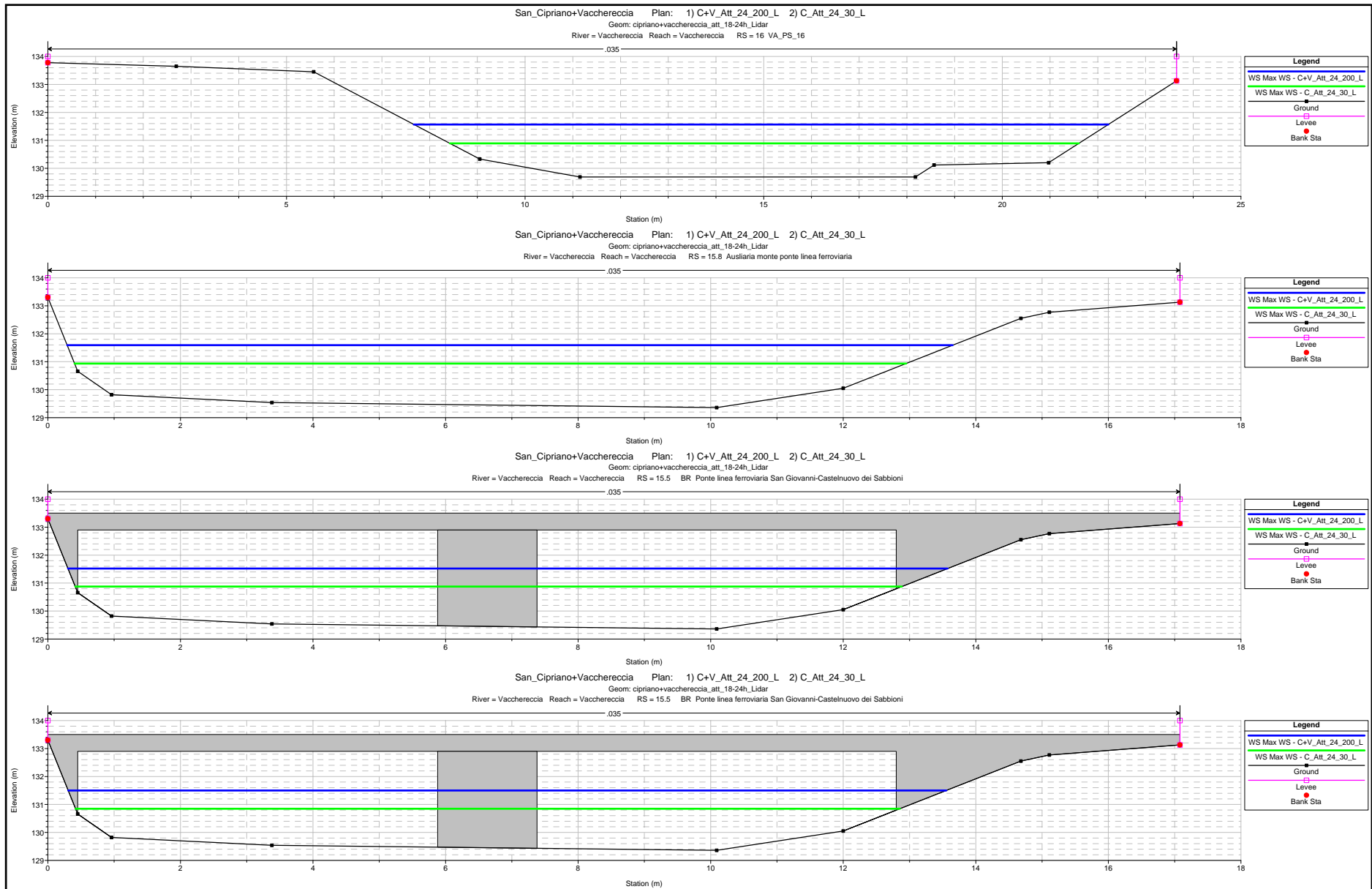
Geom: cipriano+vacchereccia\_att\_18-24h\_Lidar

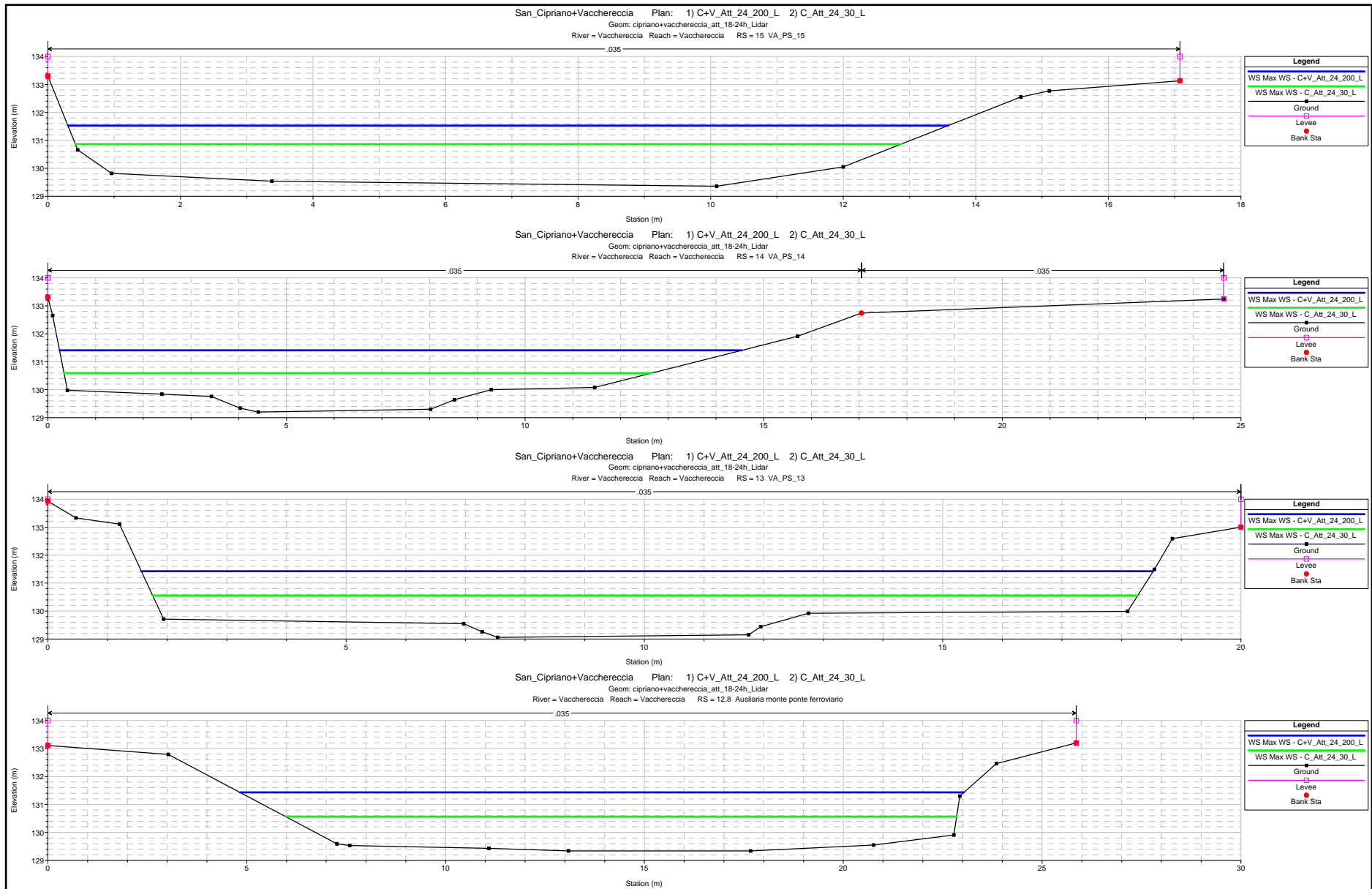


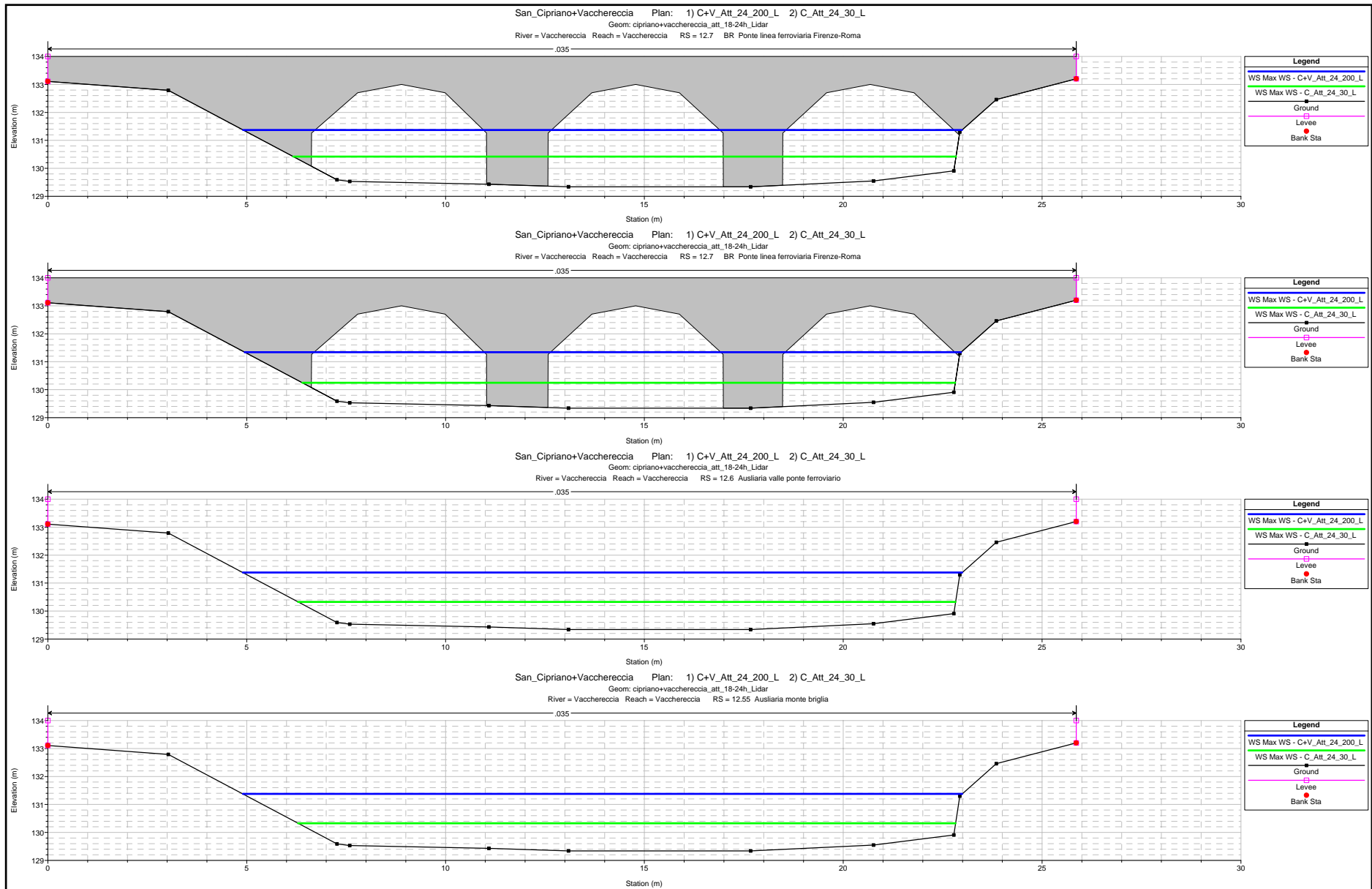


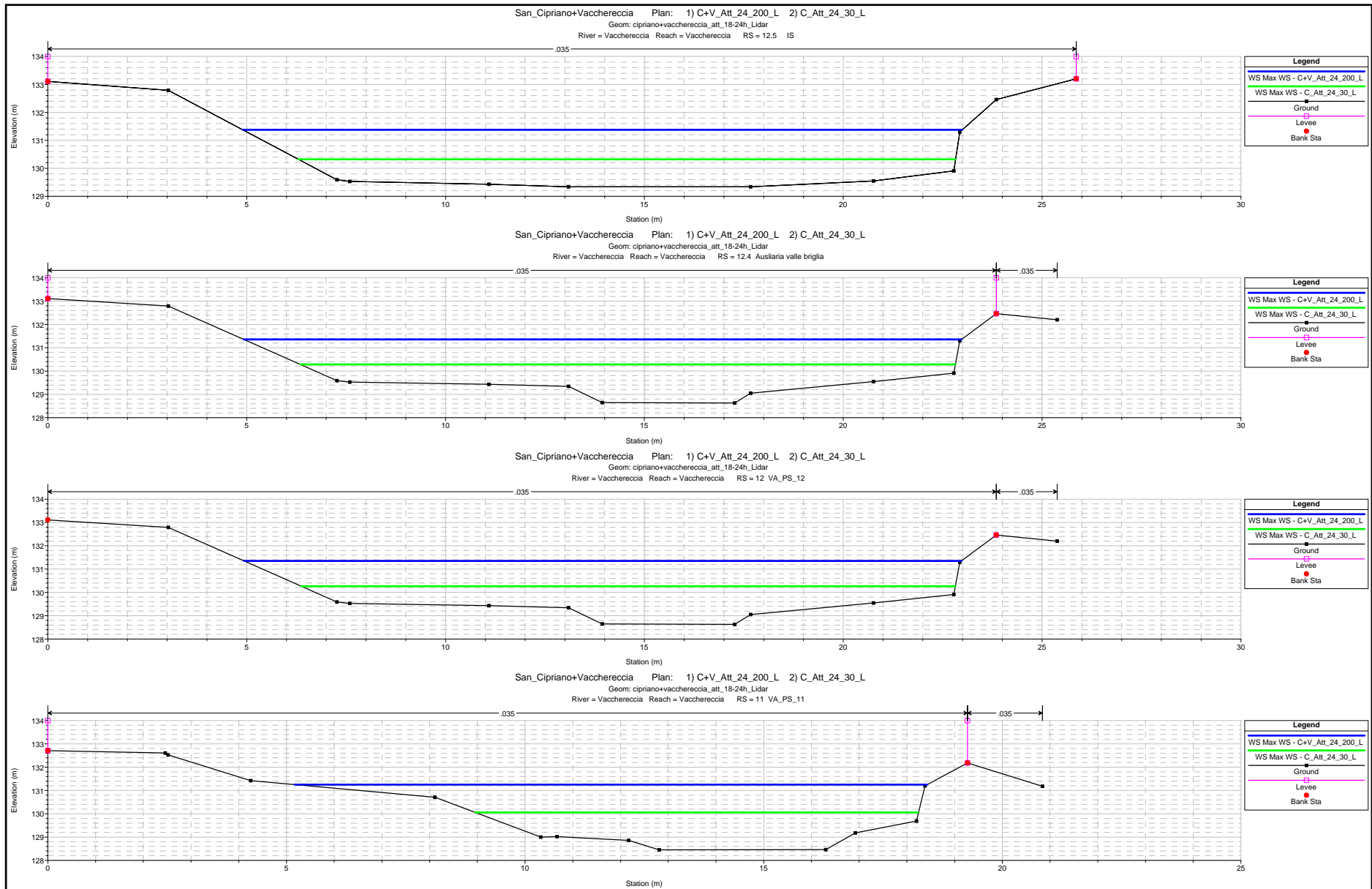


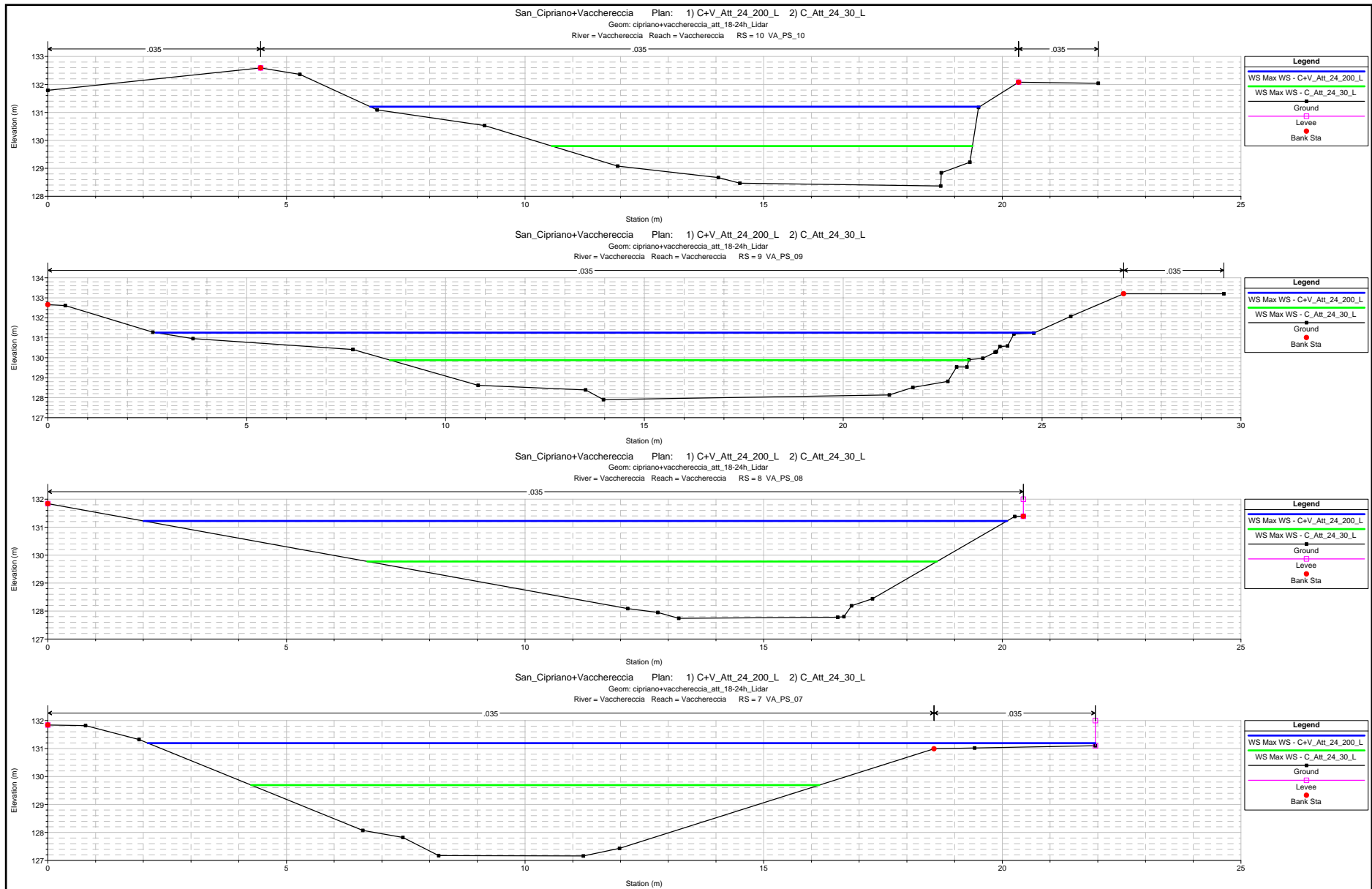


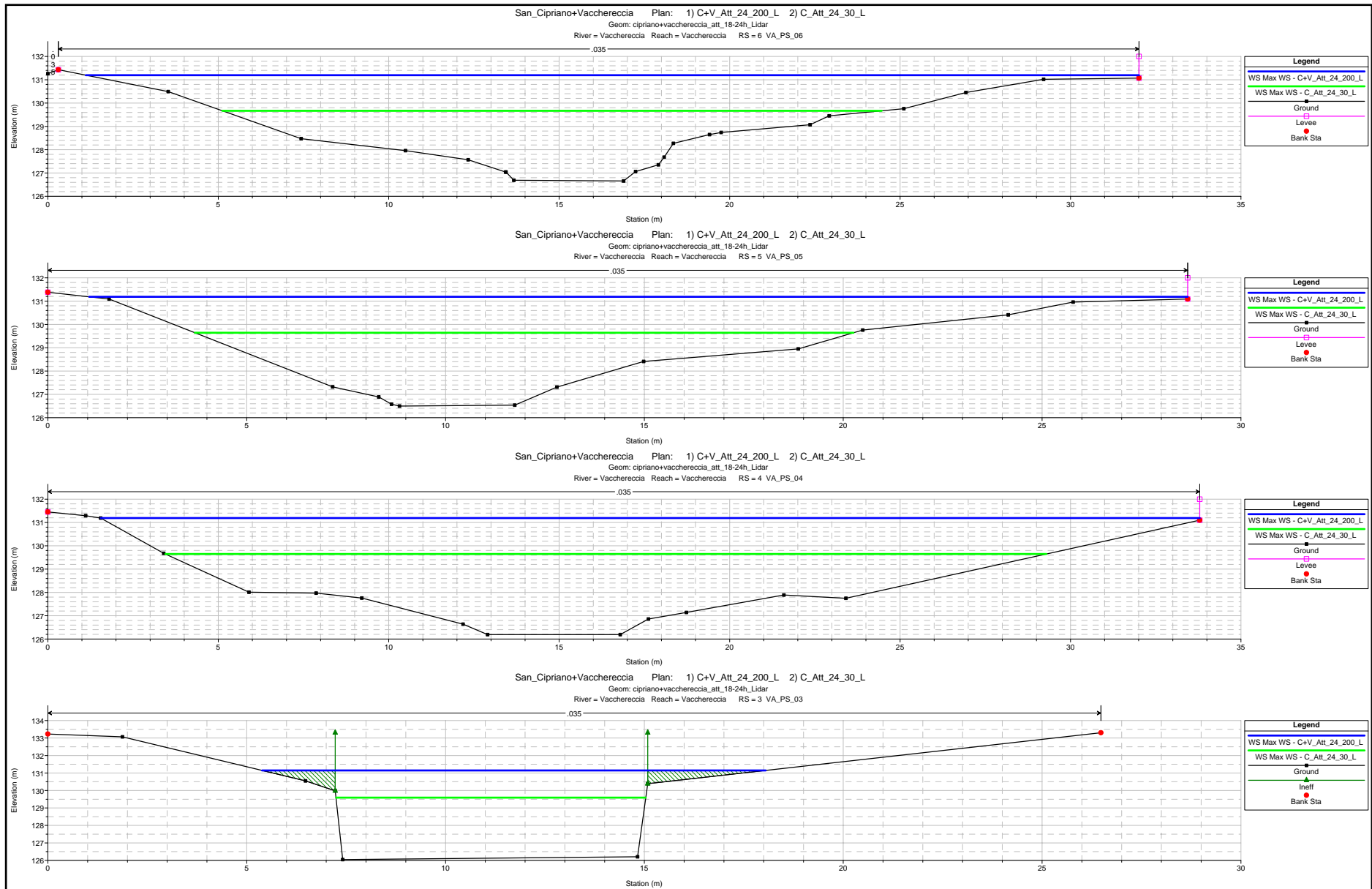


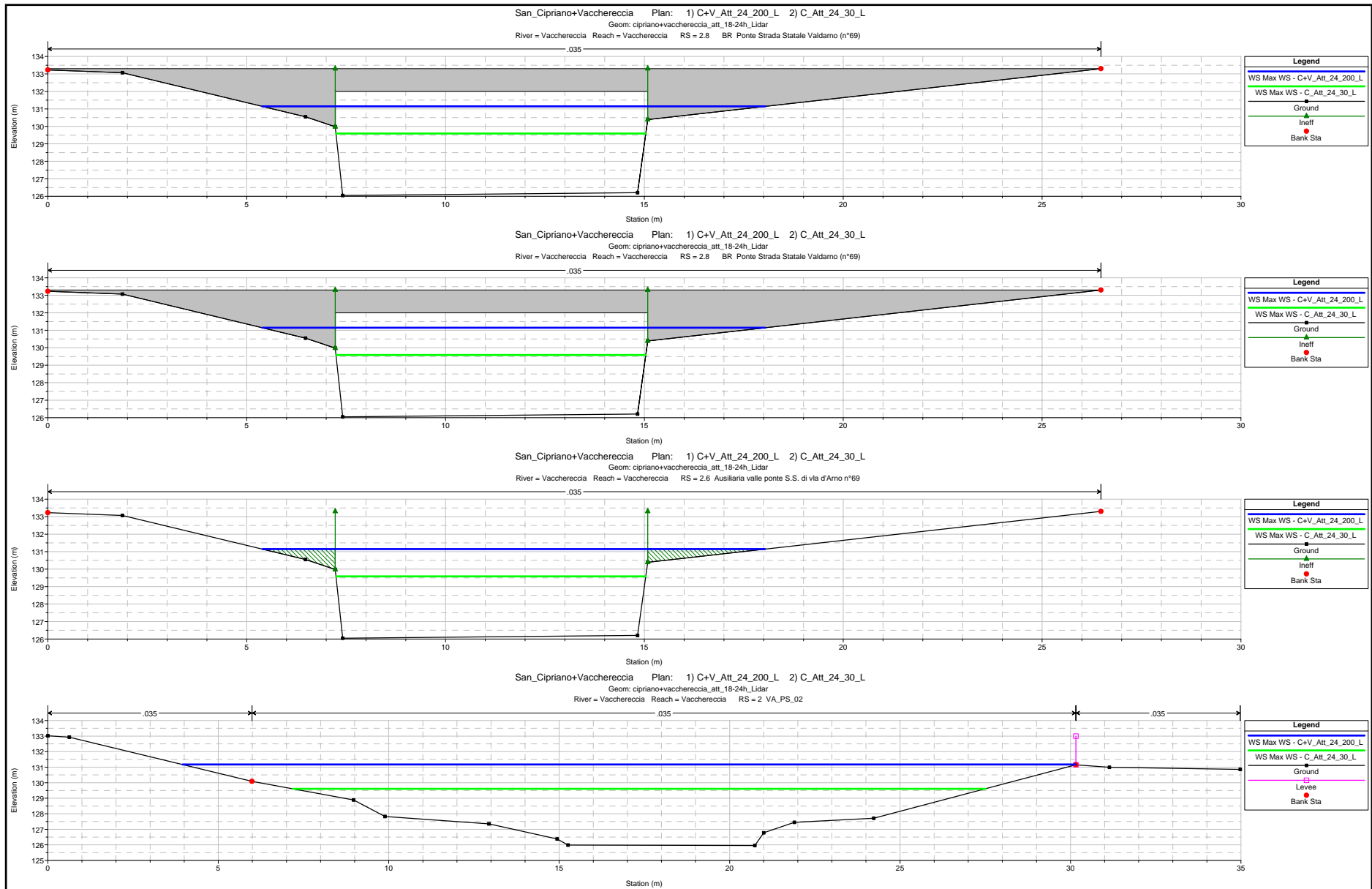




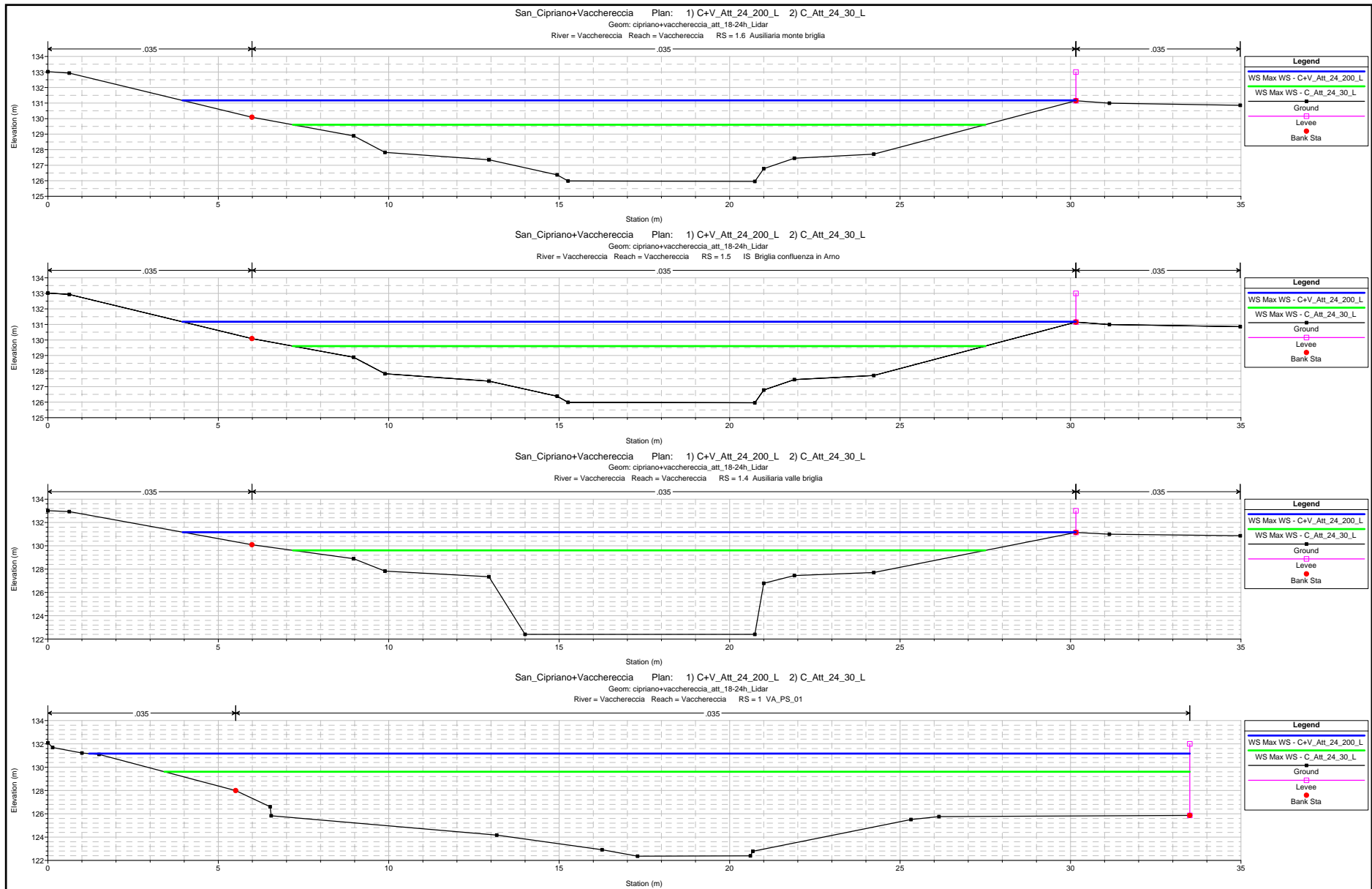












HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	19	Max WS	C+V_Att_24_200_L	37.58	130.37	132.27		132.42	0.003377	1.73	21.75	19.96	0.53
Vacchereccia	19	Max WS	C_Att_24_30_L	21.95	130.37	131.90		132.01	0.003335	1.48	14.88	17.16	0.51
Vacchereccia	18.6	Max WS	C+V_Att_24_200_L	37.58	130.37	132.24	131.81	132.40	0.003632	1.77	21.19	19.75	0.55
Vacchereccia	18.6	Max WS	C_Att_24_30_L	21.95	130.37	131.87	131.52	131.99	0.003646	1.52	14.41	16.95	0.53
Vacchereccia	18.5			Bridge									
Vacchereccia	18.4	Max WS	C+V_Att_24_200_L	37.58	130.37	132.13		132.33	0.004959	1.98	18.95	18.87	0.63
Vacchereccia	18.4	Max WS	C_Att_24_30_L	21.95	130.37	131.75		131.91	0.005694	1.78	12.31	15.99	0.65
Vacchereccia	18.2	Max WS	C+V_Att_24_200_L	37.58	130.37	132.10		132.31	0.005393	2.04	18.39	18.64	0.66
Vacchereccia	18.2	Max WS	C_Att_24_30_L	21.95	130.37	131.71		131.89	0.006531	1.87	11.73	15.71	0.69
Vacchereccia	18	Max WS	C+V_Att_24_200_L	37.58	130.24	131.96		132.24	0.007343	2.33	16.11	16.72	0.76
Vacchereccia	18	Max WS	C_Att_24_30_L	21.95	130.24	131.57		131.81	0.008472	2.14	10.26	13.50	0.78
Vacchereccia	17	Max WS	C+V_Att_24_200_L	37.58	129.99	131.75		132.03	0.006198	2.34	16.05	14.30	0.71
Vacchereccia	17	Max WS	C_Att_24_30_L	21.95	129.99	131.30		131.55	0.008299	2.20	10.00	12.32	0.78
Vacchereccia	16	Max WS	C+V_Att_24_200_L	37.58	129.69	131.57		131.71	0.002243	1.69	22.23	14.55	0.44
Vacchereccia	16	Max WS	C_Att_24_30_L	21.95	129.69	130.89		131.04	0.004027	1.71	12.82	13.18	0.55
Vacchereccia	15.8	Max WS	C+V_Att_24_200_L	37.58	129.36	131.59	130.60	131.71	0.001522	1.53	24.62	13.36	0.36
Vacchereccia	15.8	Max WS	C_Att_24_30_L	21.95	129.36	130.94	130.29	131.03	0.001825	1.36	16.15	12.55	0.38
Vacchereccia	15.5			Bridge									
Vacchereccia	15	Max WS	C+V_Att_24_200_L	37.58	129.36	131.53		131.66	0.001677	1.58	23.82	13.29	0.38
Vacchereccia	15	Max WS	C_Att_24_30_L	21.95	129.36	130.87		130.97	0.002148	1.43	15.30	12.46	0.41
Vacchereccia	14.9			Lat Struct									
Vacchereccia	14	Max WS	C+V_Att_24_200_L	37.57	129.20	131.41		131.56	0.002499	1.73	21.67	14.30	0.45
Vacchereccia	14	Max WS	C_Att_24_30_L	21.95	129.20	130.59		130.80	0.006596	2.02	10.85	12.31	0.69
Vacchereccia	13	Max WS	C+V_Att_24_200_L	37.57	129.06	131.43		131.50	0.001068	1.24	30.36	16.96	0.30
Vacchereccia	13	Max WS	C_Att_24_30_L	21.95	129.06	130.56		130.66	0.002818	1.39	15.82	16.52	0.45
Vacchereccia	12.8	Max WS	C+V_Att_24_200_L	37.57	129.34	131.43	130.29	131.50	0.000818	1.14	33.08	18.21	0.27
Vacchereccia	12.8	Max WS	C_Att_24_30_L	21.95	129.34	130.57	130.04	130.64	0.001834	1.23	17.90	16.87	0.38

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	12.7			Bridge									
Vacchereccia	12.6	Max WS	C+V_Att_24_200_L	37.57	129.34	131.38		131.45	0.000898	1.17	32.07	18.09	0.28
Vacchereccia	12.6	Max WS	C_Att_24_30_L	21.92	129.34	130.33		130.45	0.004007	1.57	13.94	16.53	0.55
Vacchereccia	12.55	Max WS	C+V_Att_24_200_L	37.57	129.34	131.38	130.29	131.45	0.000898	1.17	32.07	18.09	0.28
Vacchereccia	12.55	Max WS	C_Att_24_30_L	21.92	129.34	130.33	130.04	130.45	0.004015	1.57	13.93	16.53	0.55
Vacchereccia	12.5			Inl Struct									
Vacchereccia	12.4	Max WS	C+V_Att_24_200_L	37.57	128.63	131.36		131.42	0.000689	1.07	34.99	18.05	0.25
Vacchereccia	12.4	Max WS	C_Att_24_30_L	21.95	128.63	130.29		130.38	0.002347	1.33	16.51	16.47	0.42
Vacchereccia	12	Max WS	C+V_Att_24_200_L	37.57	128.63	131.35		131.41	0.000694	1.08	34.91	18.04	0.25
Vacchereccia	12	Max WS	C_Att_24_30_L	21.95	128.63	130.27		130.36	0.002493	1.36	16.20	16.45	0.44
Vacchereccia	11	Max WS	C+V_Att_24_200_L	37.56	128.45	131.25		131.38	0.001840	1.60	23.52	13.26	0.38
Vacchereccia	11	Max WS	C_Att_24_30_L	21.95	128.45	130.06		130.27	0.004845	2.03	10.83	9.29	0.60
Vacchereccia	10	Max WS	C+V_Att_24_200_L	37.56	128.37	131.20		131.33	0.001671	1.56	24.13	12.77	0.36
Vacchereccia	10	Max WS	C_Att_24_30_L	21.95	128.37	129.80		130.08	0.007737	2.36	9.28	8.81	0.74
Vacchereccia	9	Max WS	C+V_Att_24_200_L	37.56	127.90	131.26		131.29	0.000352	0.81	46.16	22.11	0.18
Vacchereccia	9	Max WS	C_Att_24_30_L	21.95	127.90	129.88		129.93	0.000870	1.02	21.49	14.55	0.27
Vacchereccia	8.8			Lat Struct									
Vacchereccia	8	Max WS	C+V_Att_24_200_L	37.54	127.74	131.22		131.27	0.000556	1.01	37.06	18.09	0.23
Vacchereccia	8	Max WS	C_Att_24_30_L	21.94	127.74	129.77		129.88	0.002038	1.43	15.34	11.94	0.40
Vacchereccia	7	Max WS	C+V_Att_24_200_L	37.53	127.16	131.19		131.23	0.000366	0.92	41.25	19.85	0.19
Vacchereccia	7	Max WS	C_Att_24_30_L	21.93	127.16	129.69		129.76	0.000978	1.14	19.22	11.91	0.29
Vacchereccia	6	Max WS	C+V_Att_24_200_L	37.50	126.66	131.20		131.21	0.000156	0.57	66.29	30.90	0.12
Vacchereccia	6	Max WS	C_Att_24_30_L	21.93	126.66	129.67		129.70	0.000423	0.74	29.70	19.35	0.19
Vacchereccia	5	Max WS	C+V_Att_24_200_L	37.49	126.50	131.18		131.20	0.000174	0.61	61.52	27.62	0.13
Vacchereccia	5	Max WS	C_Att_24_30_L	21.91	126.50	129.64		129.67	0.000394	0.77	28.58	16.56	0.19
Vacchereccia	4	Max WS	C+V_Att_24_200_L	35.71	126.19	131.19		131.20	0.000043	0.37	96.23	32.24	0.07

HEC-RAS River: Vacchereccia Reach: Vacchereccia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Vacchereccia	4	Max WS	C_Att_24_30_L	21.89	126.19	129.65		129.66	0.000097	0.43	51.27	25.85	0.10
Vacchereccia	3	Max WS	C+V_Att_24_200_L	33.07	126.05	131.15	127.39	131.19	0.000269	0.86	38.51	12.67	0.12
Vacchereccia	3	Max WS	C_Att_24_30_L	21.86	126.05	129.59	127.08	129.63	0.000376	0.83	26.32	7.79	0.14
Vacchereccia	2.8			Bridge									
Vacchereccia	2.6	Max WS	C+V_Att_24_200_L	33.07	126.05	131.14		131.18	0.000270	0.86	38.48	12.64	0.12
Vacchereccia	2.6	Max WS	C_Att_24_30_L	21.86	126.05	129.59		129.62	0.000378	0.83	26.28	7.79	0.14
Vacchereccia	2	Max WS	C+V_Att_24_200_L	33.07	125.96	131.17		131.18	0.000047	0.41	81.92	26.21	0.07
Vacchereccia	2	Max WS	C_Att_24_30_L	21.86	125.96	129.61		129.62	0.000113	0.48	45.37	20.32	0.10
Vacchereccia	1.6	Max WS	C+V_Att_24_200_L	33.07	125.96	131.17	127.44	131.18	0.000047	0.41	81.90	26.21	0.07
Vacchereccia	1.6	Max WS	C_Att_24_30_L	21.86	125.96	129.61	127.11	129.62	0.000113	0.48	45.35	20.32	0.10
Vacchereccia	1.5			Inl Struct									
Vacchereccia	1.4	Max WS	C+V_Att_24_200_L	33.07	122.40	131.17		131.17	0.000024	0.30	109.37	26.20	0.05
Vacchereccia	1.4	Max WS	C_Att_24_30_L	21.86	122.40	129.61		129.61	0.000033	0.30	72.90	20.31	0.05
Vacchereccia	1	Max WS	C+V_Att_24_200_L	33.06	122.36	131.17	124.06	131.17	0.000004	0.18	190.19	32.29	0.02
Vacchereccia	1	Max WS	C_Att_24_30_L	21.85	122.36	129.61	123.73	129.61	0.000005	0.16	141.69	30.08	0.02

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

**BORRO della MADONNA e BORRO dei BARULLI**

- Tempo di pioggia critico – Scenario A1
- Tempo di pioggia affluente – Scenario A2
- Tempo di pioggia 18 h – Scenario B
- Tempo di pioggia 24 h – Scenario C

# **VERIFICHE IDRAULICHE**

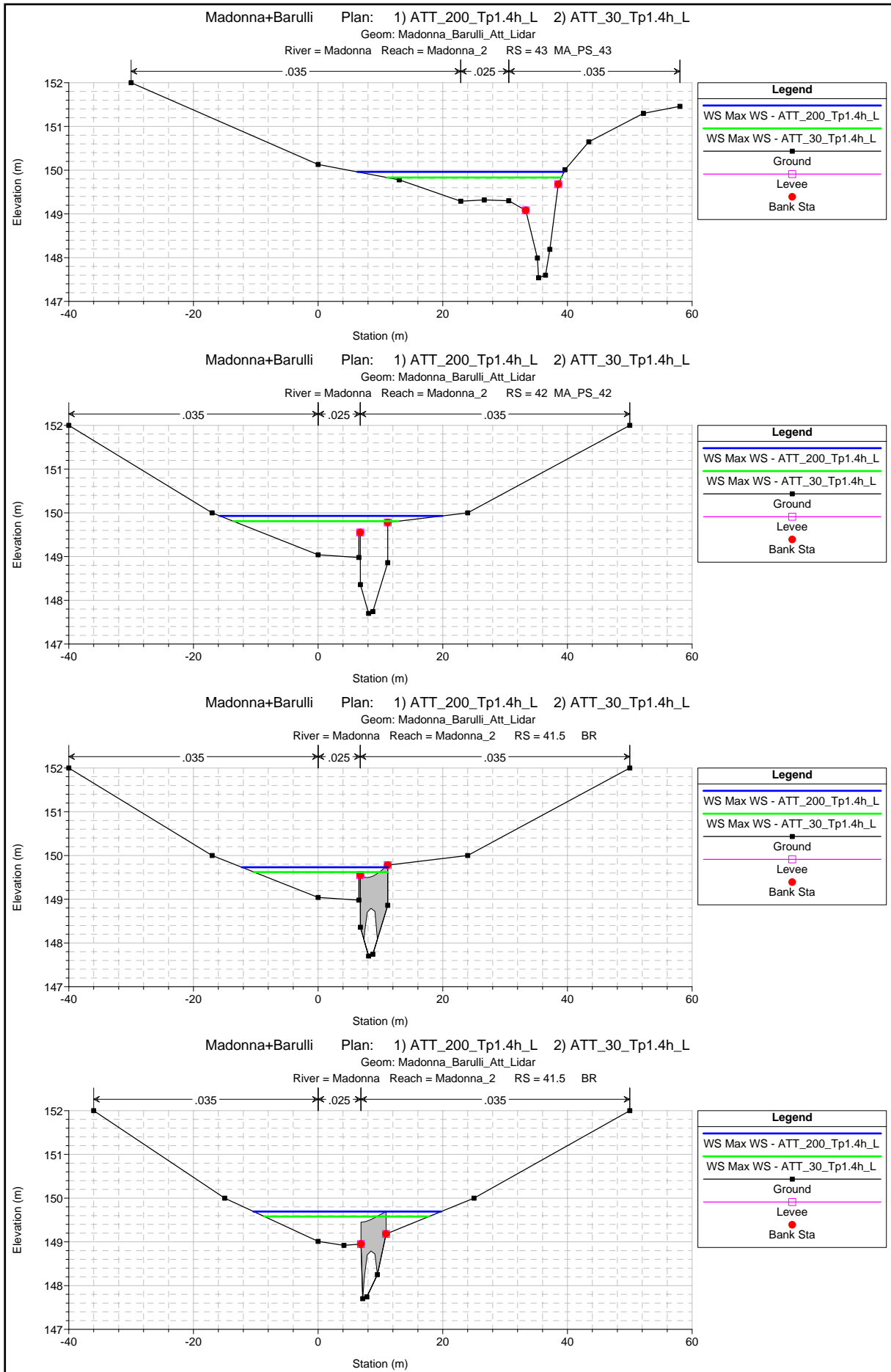
## **STATO ATTUALE**

### **BORRO della MADONNA**

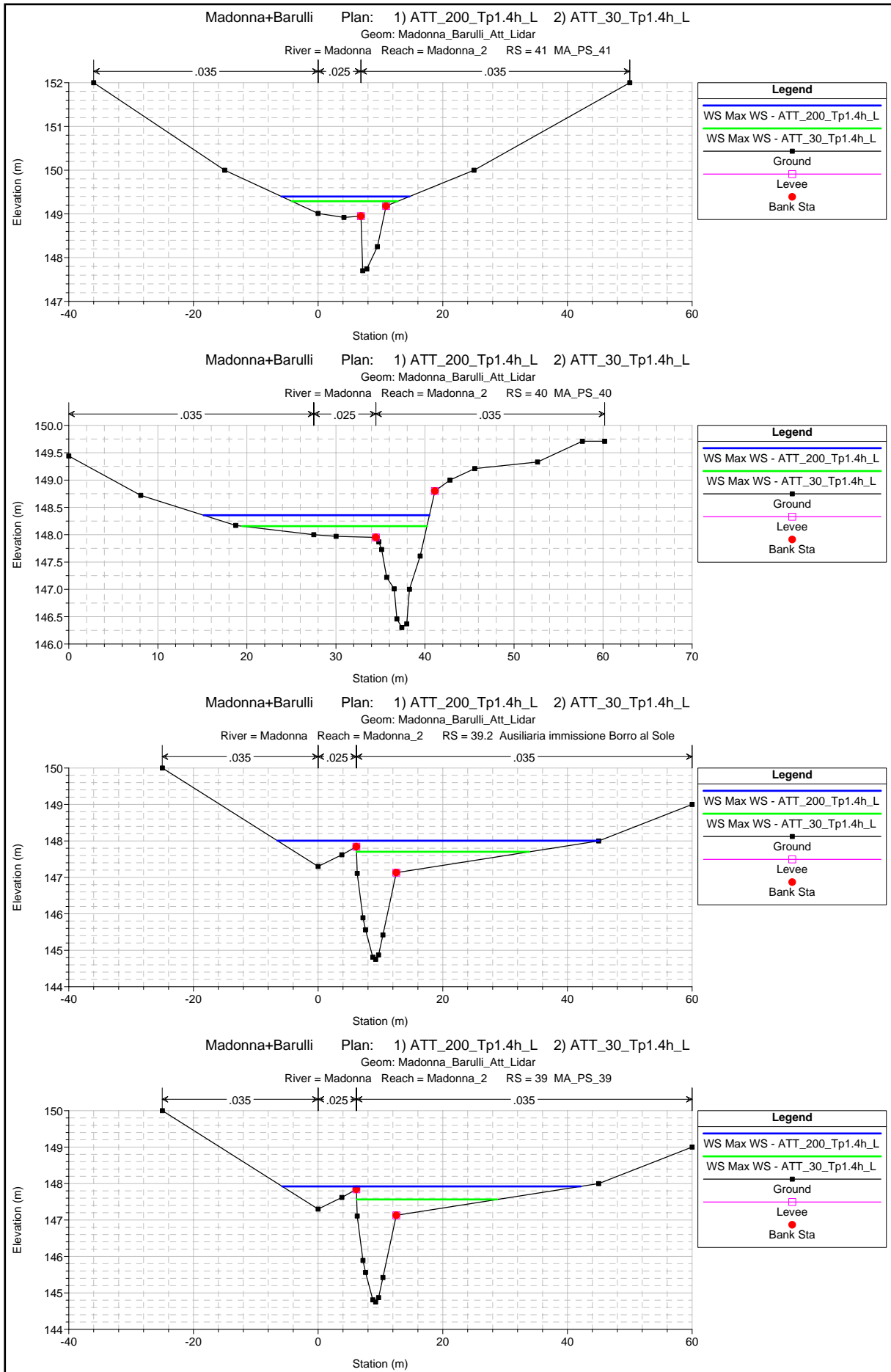
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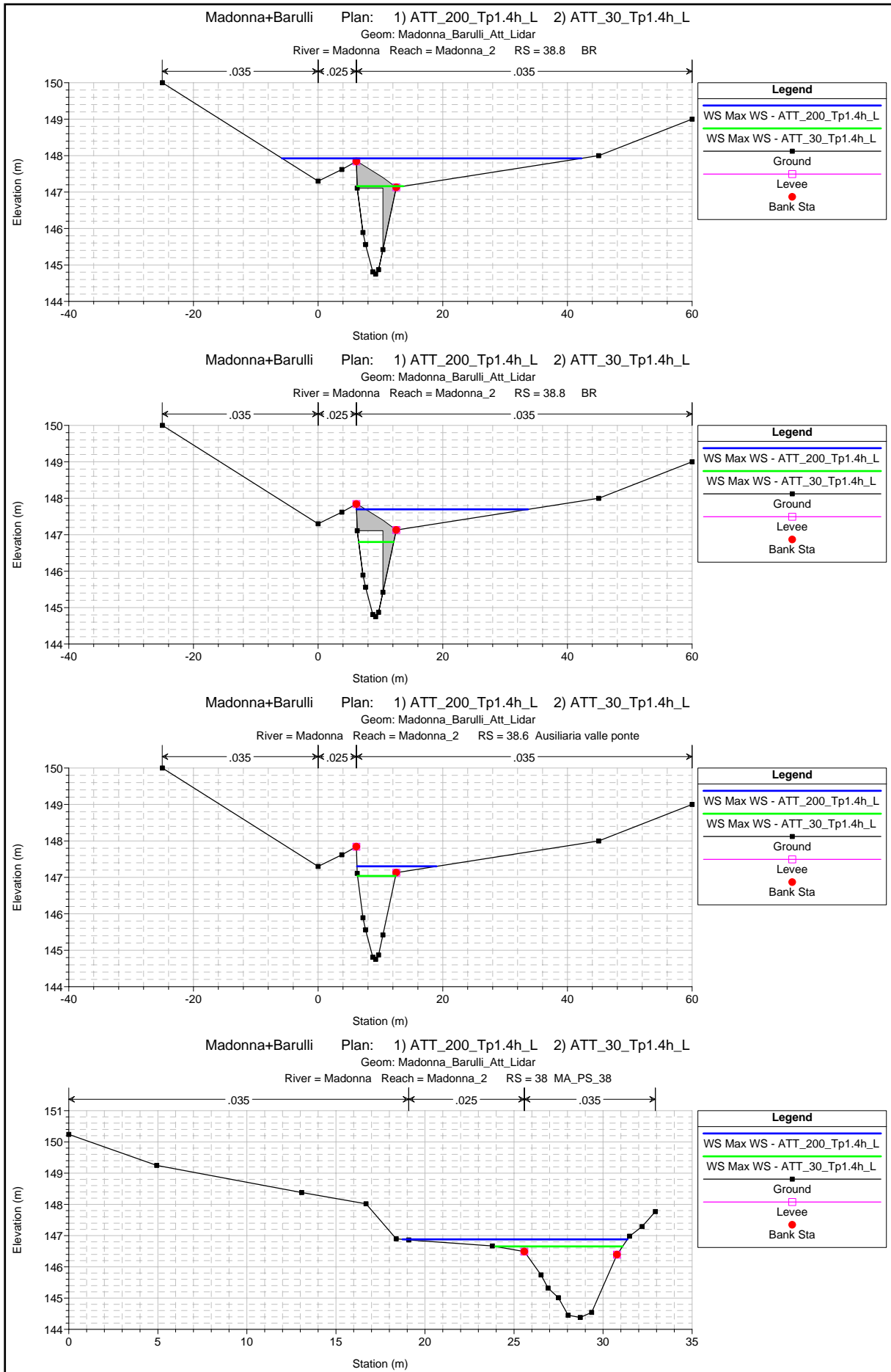
- Profili
- Sezioni di verifica
- Tabelle di output

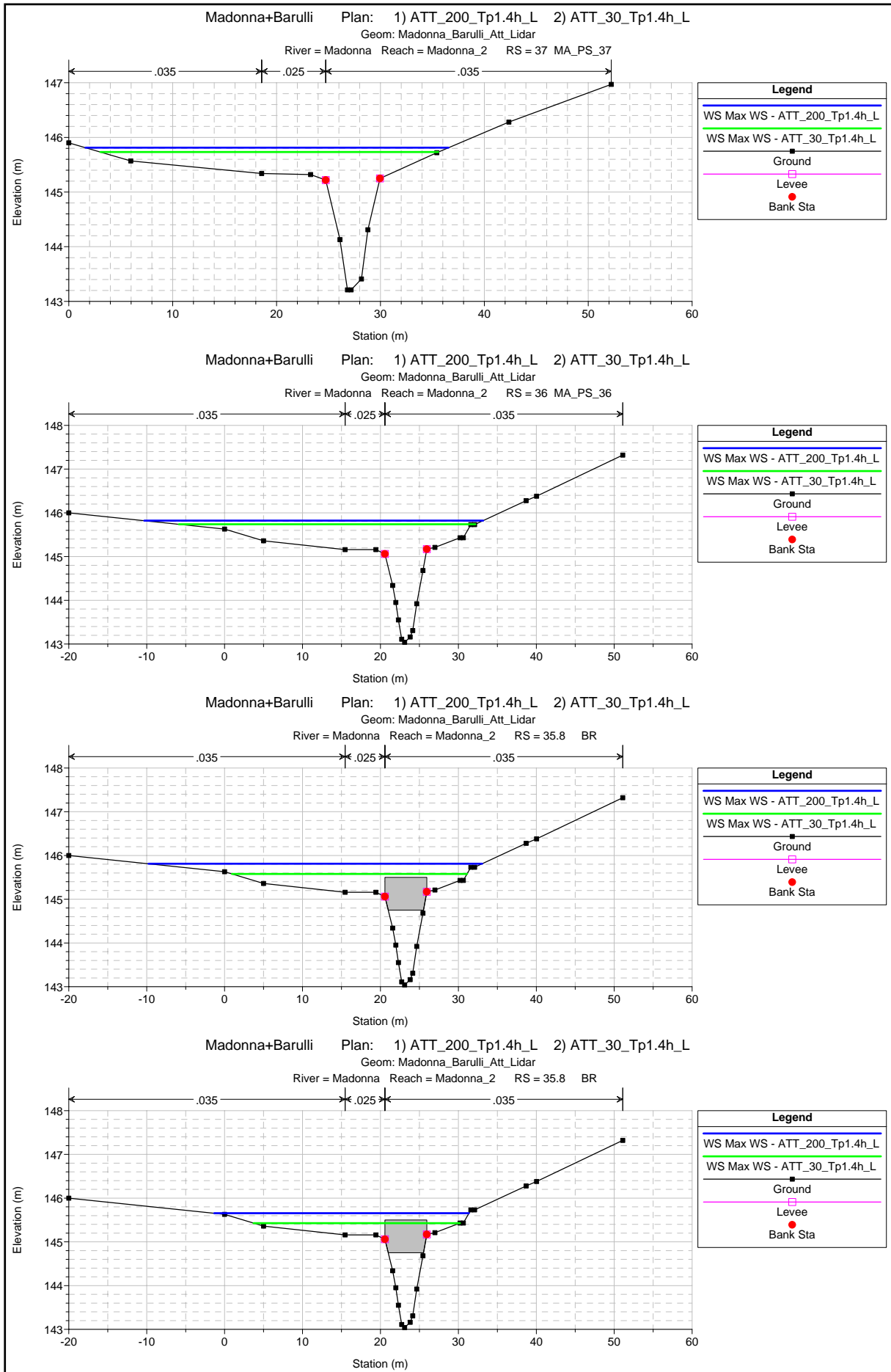


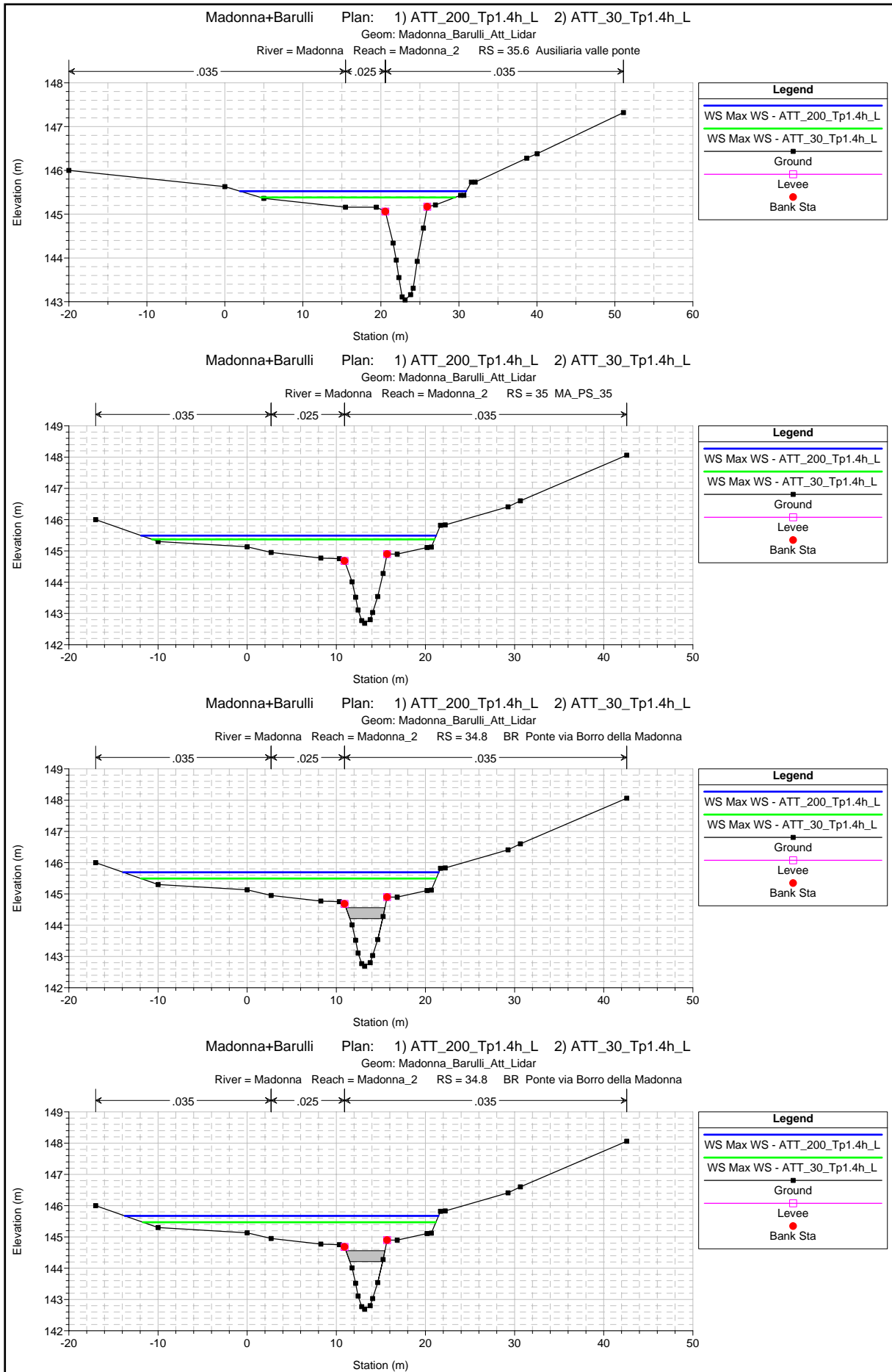


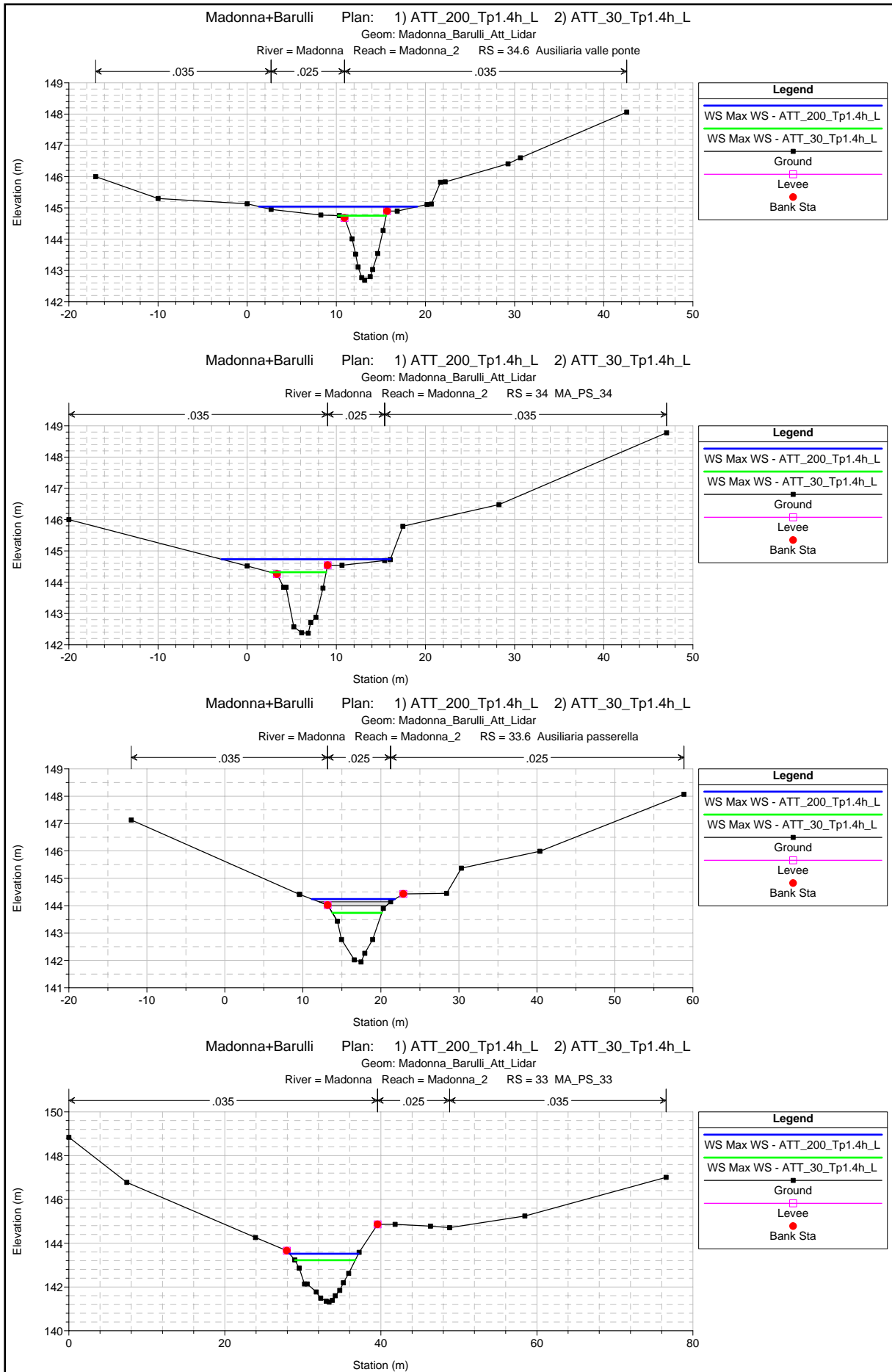


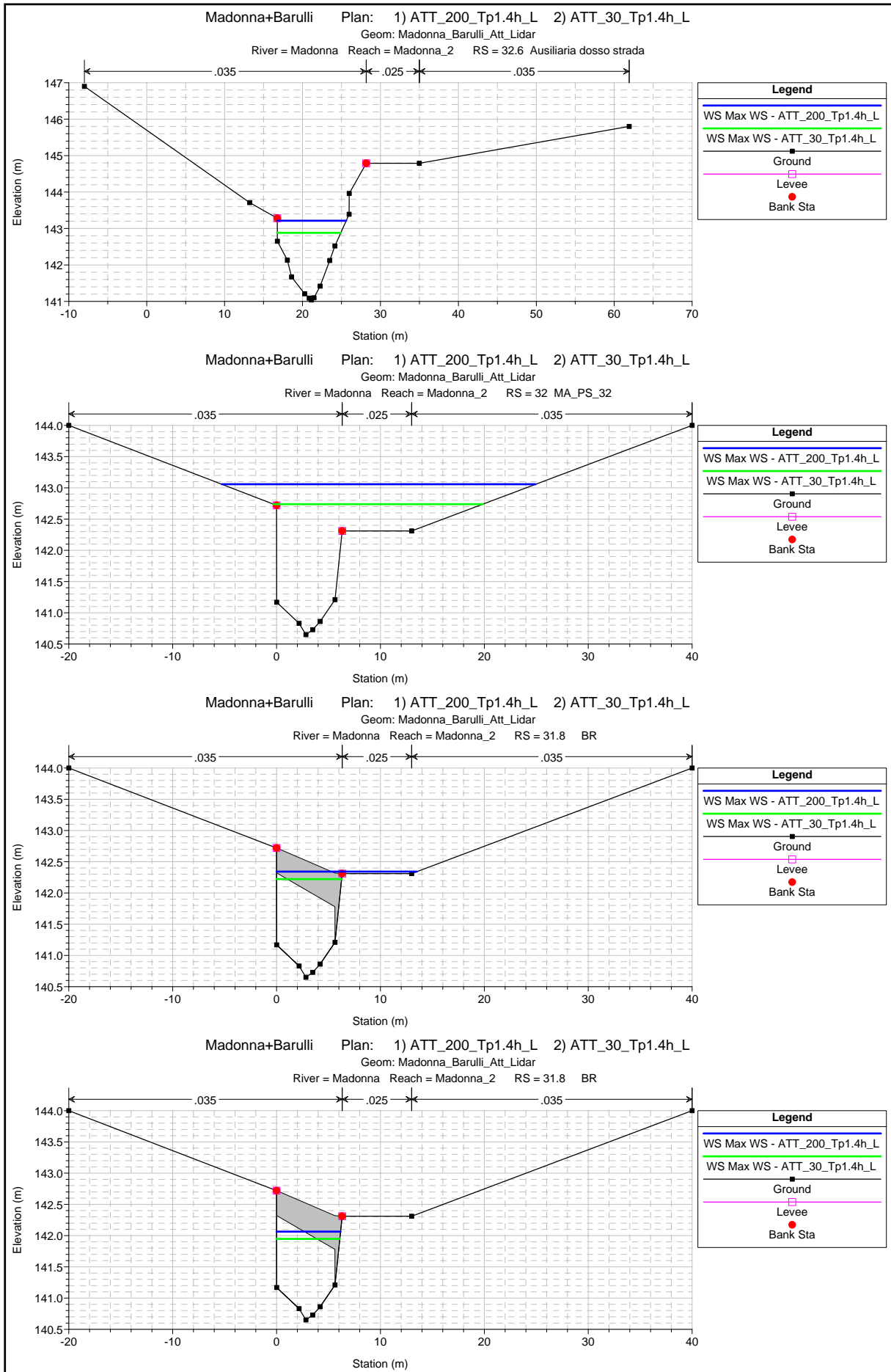


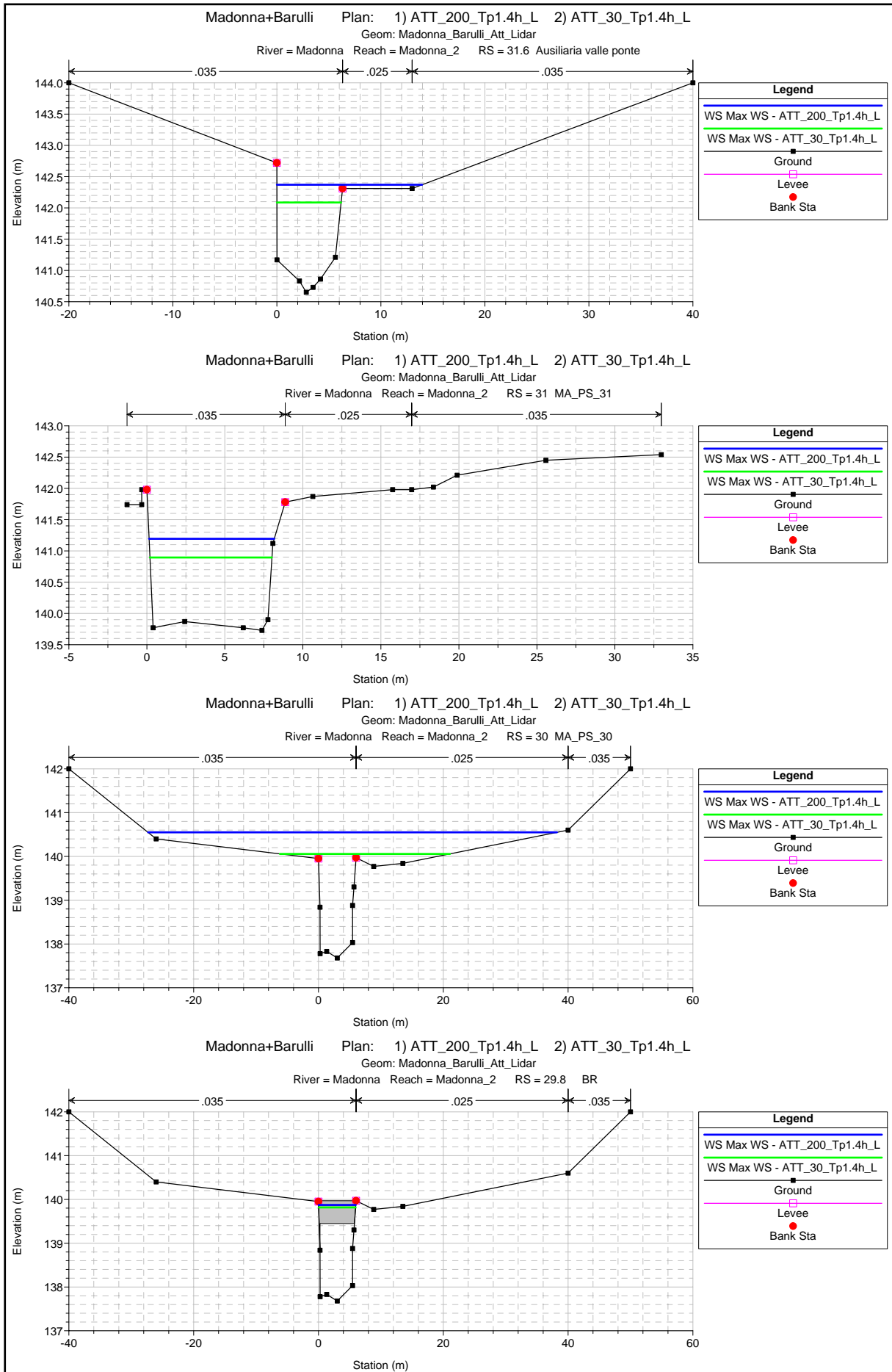


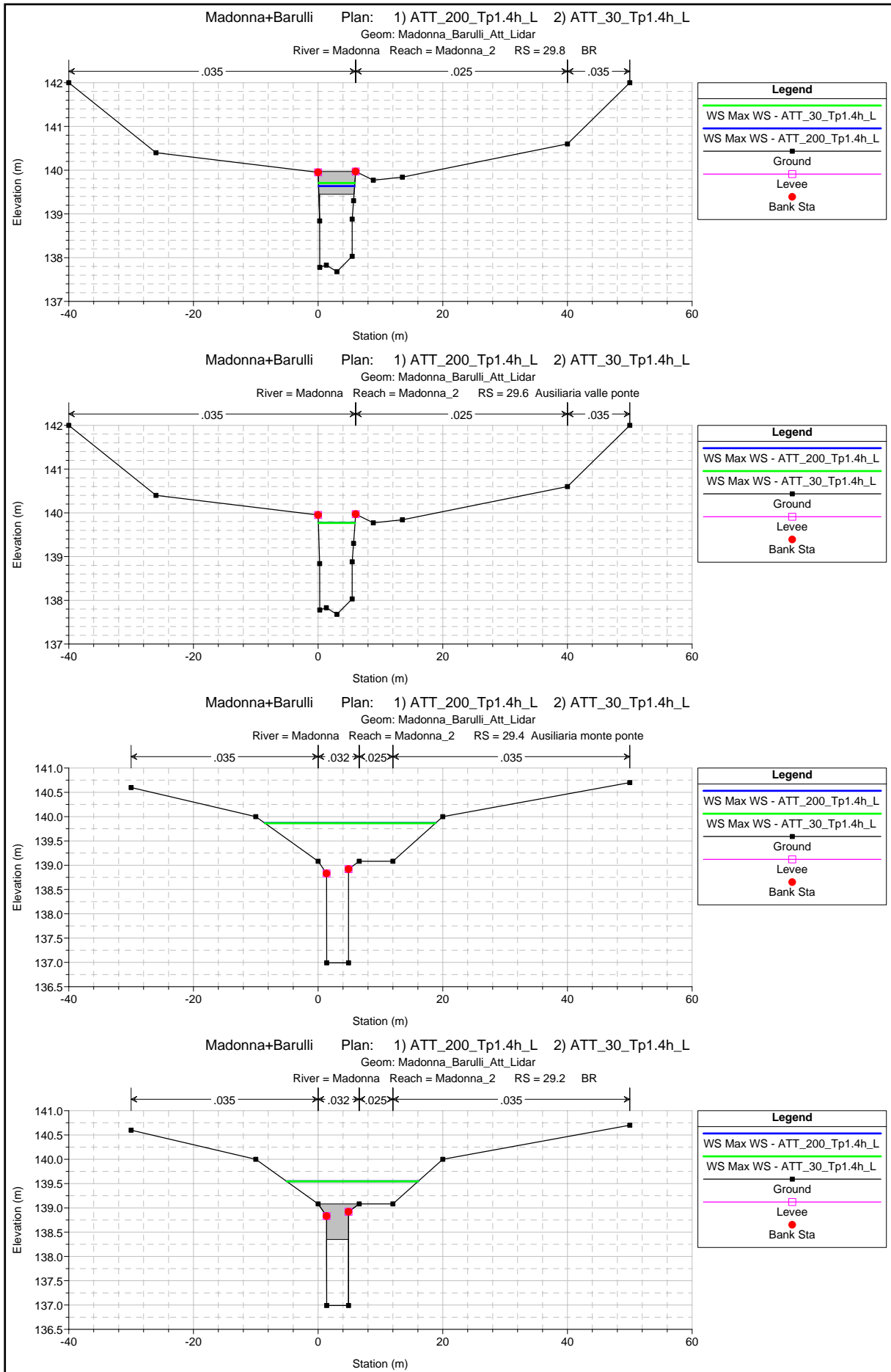




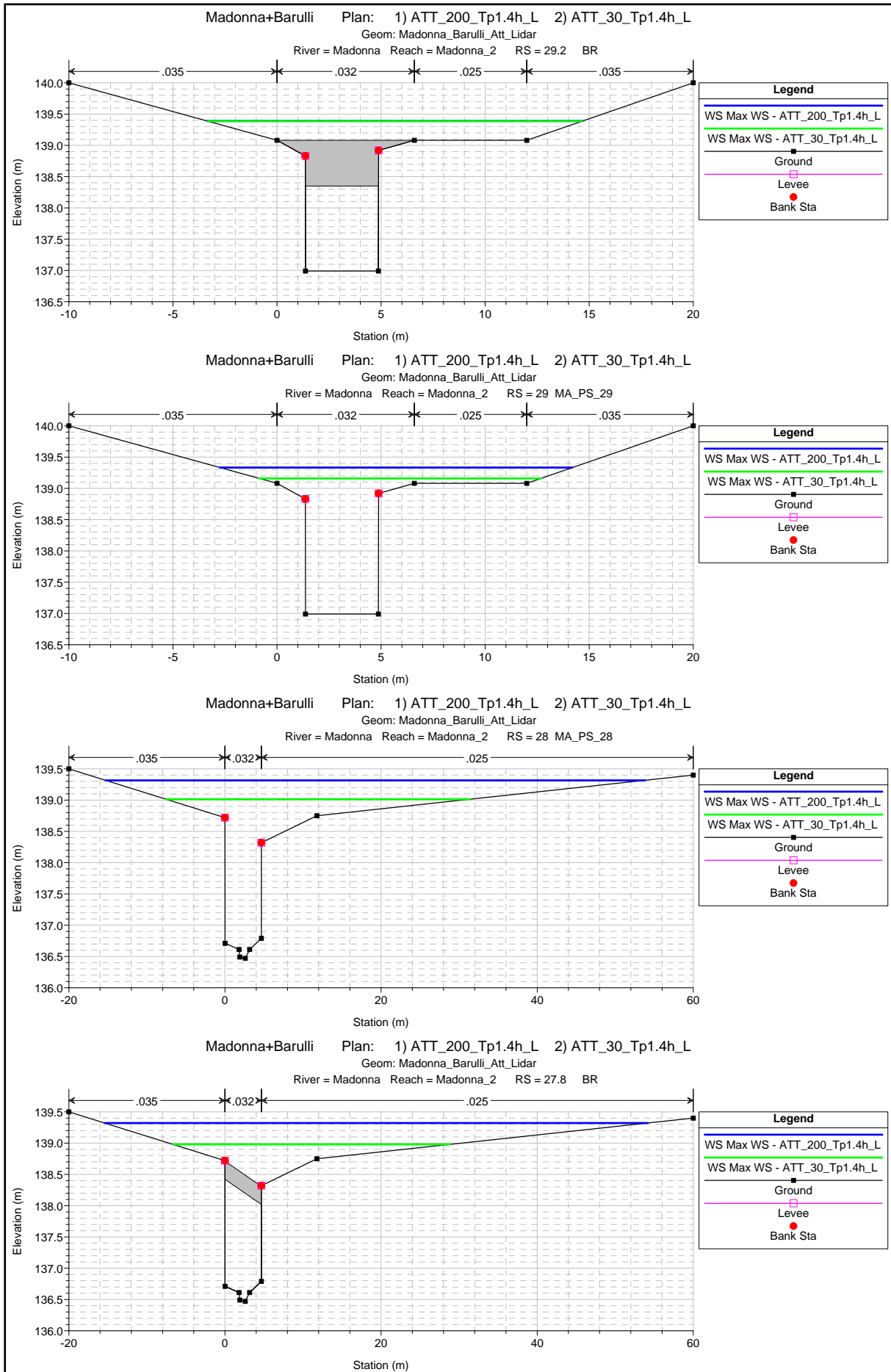


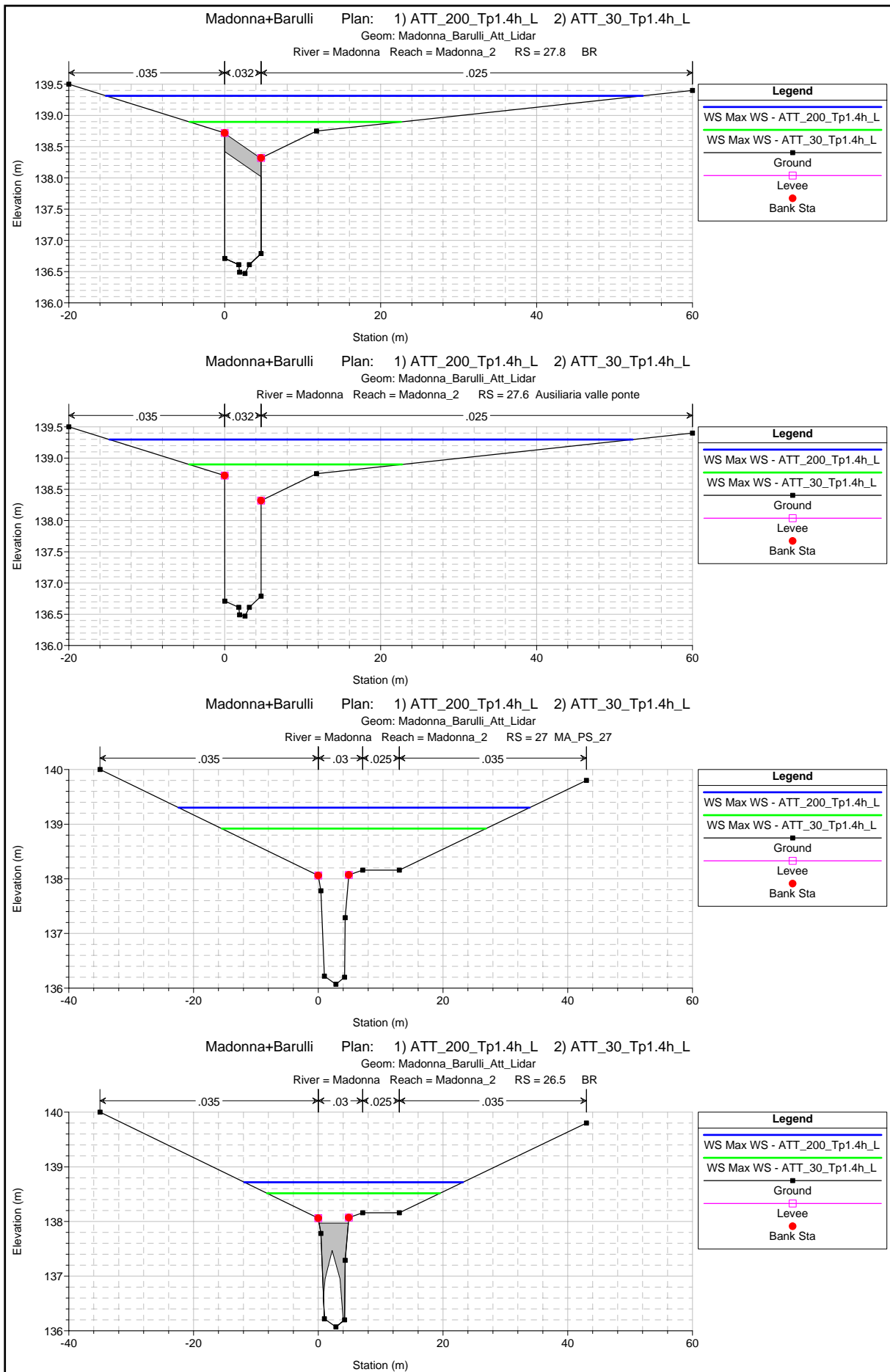


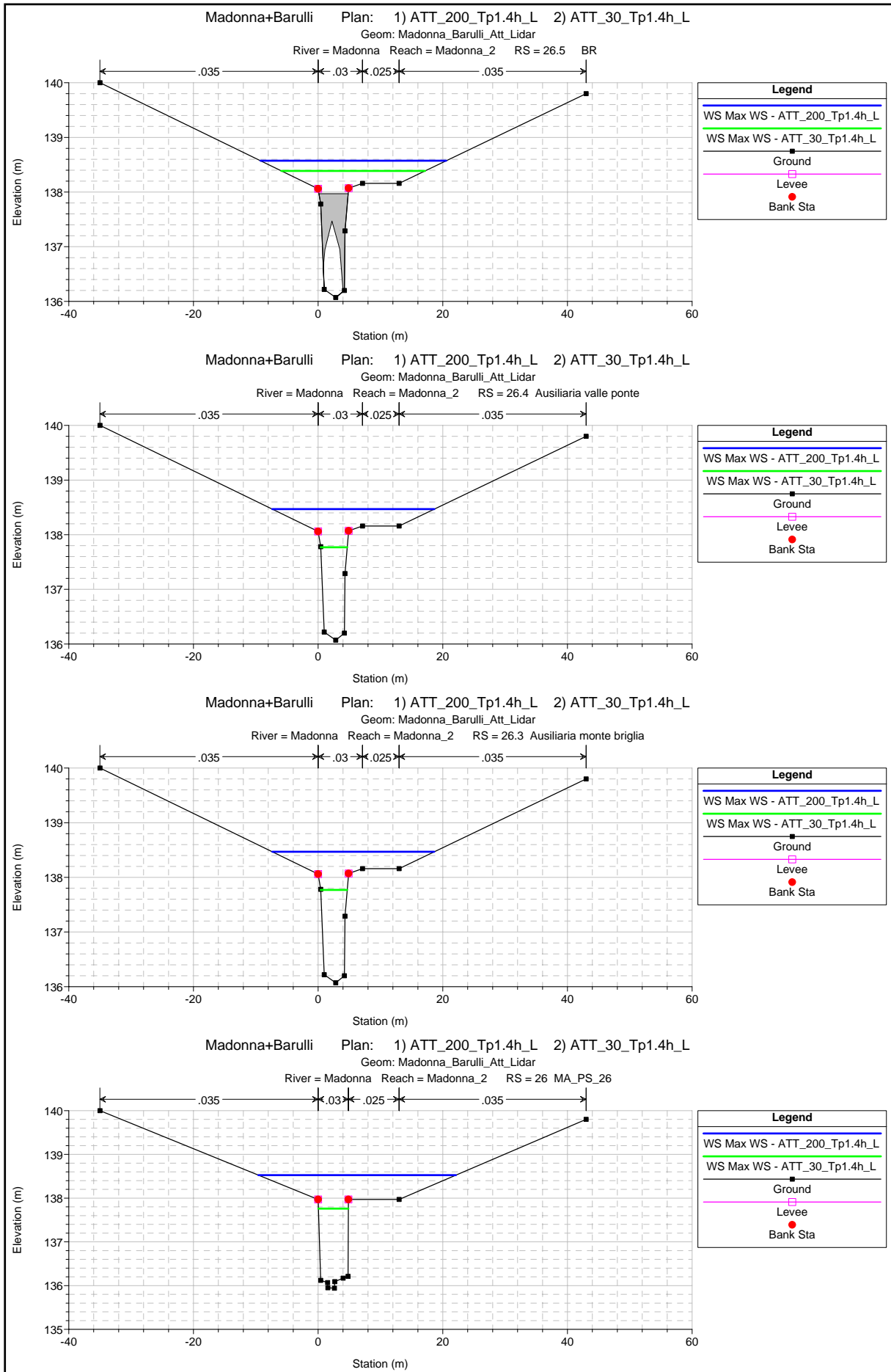


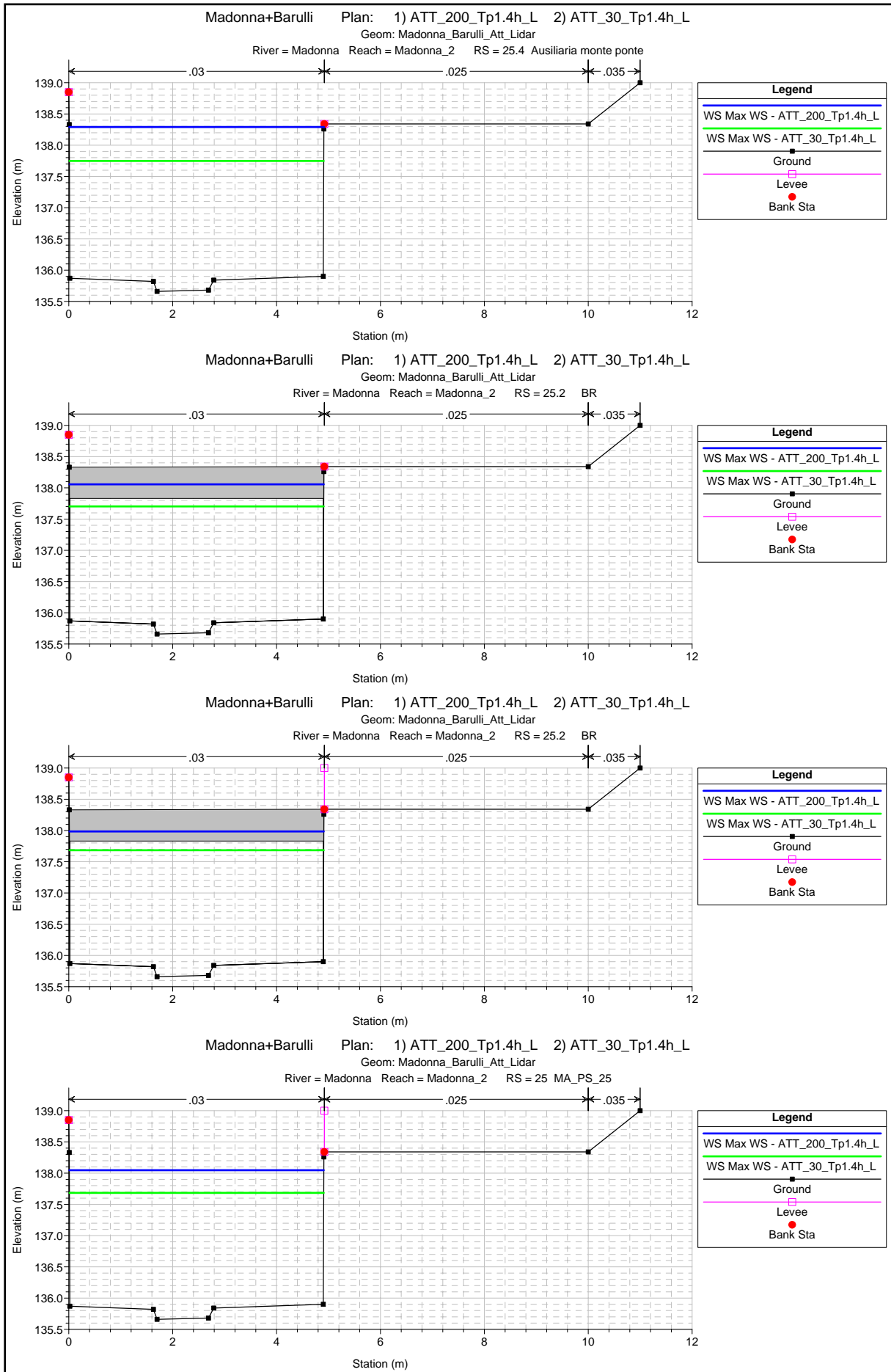


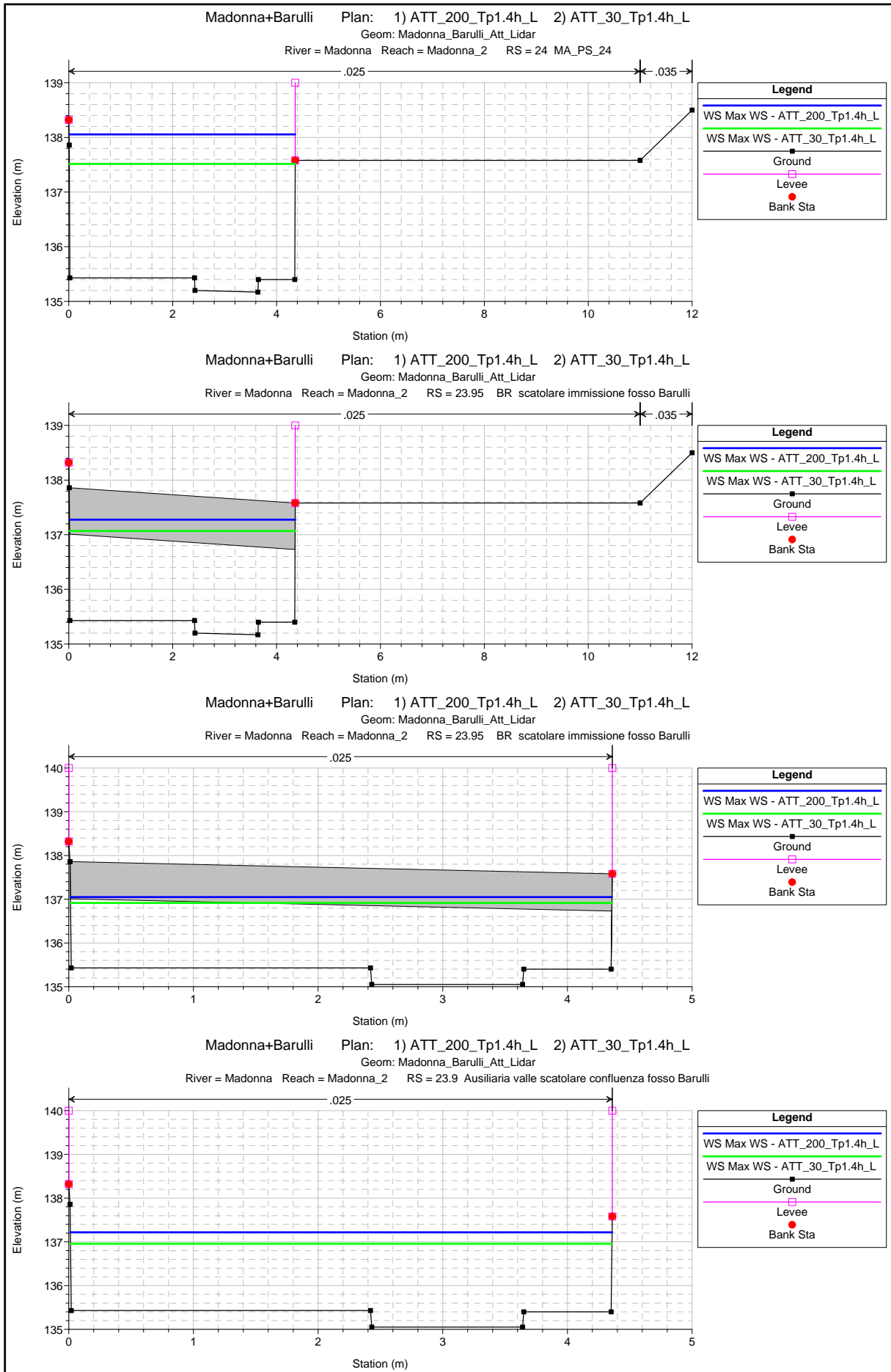


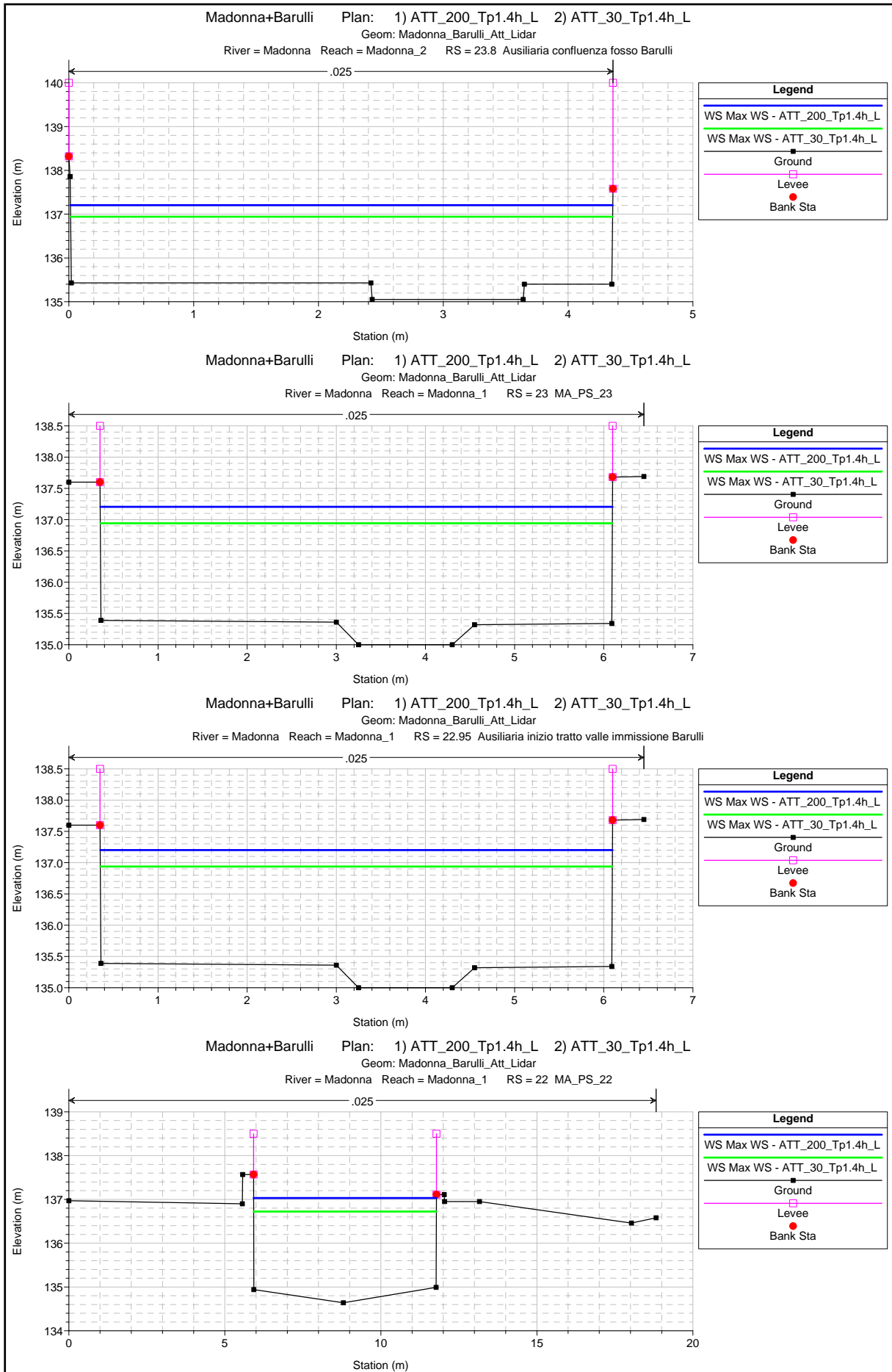


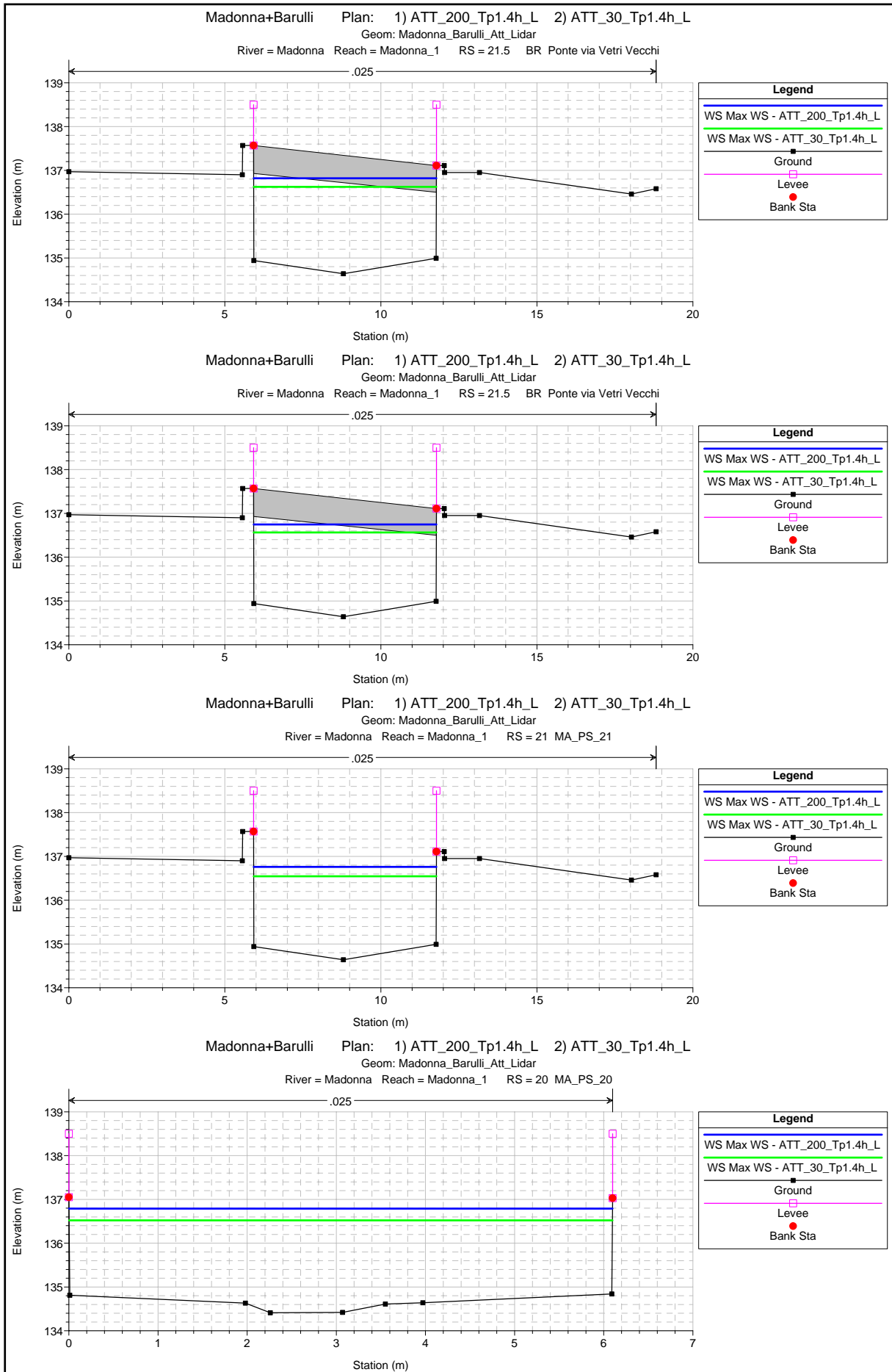


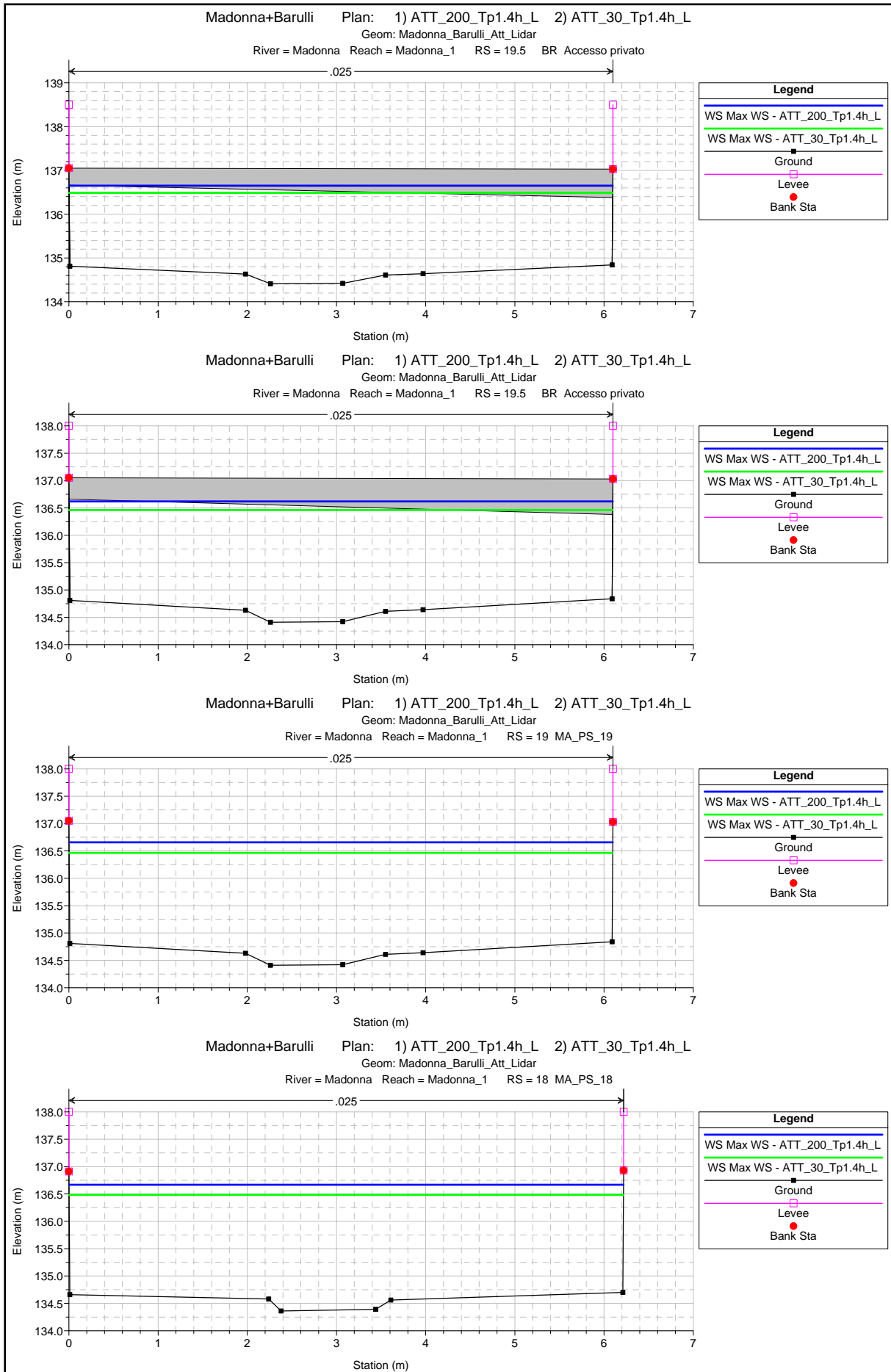




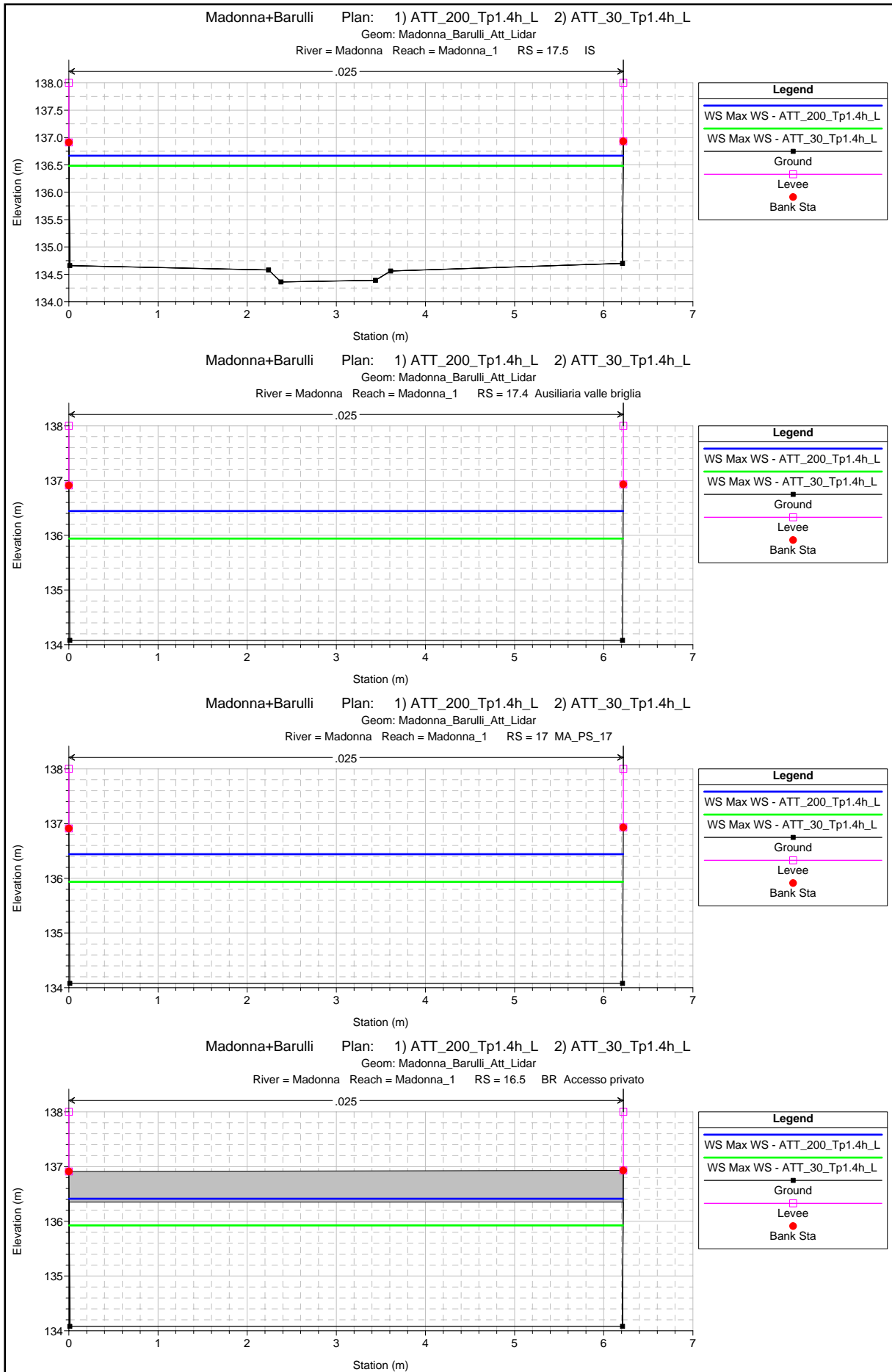


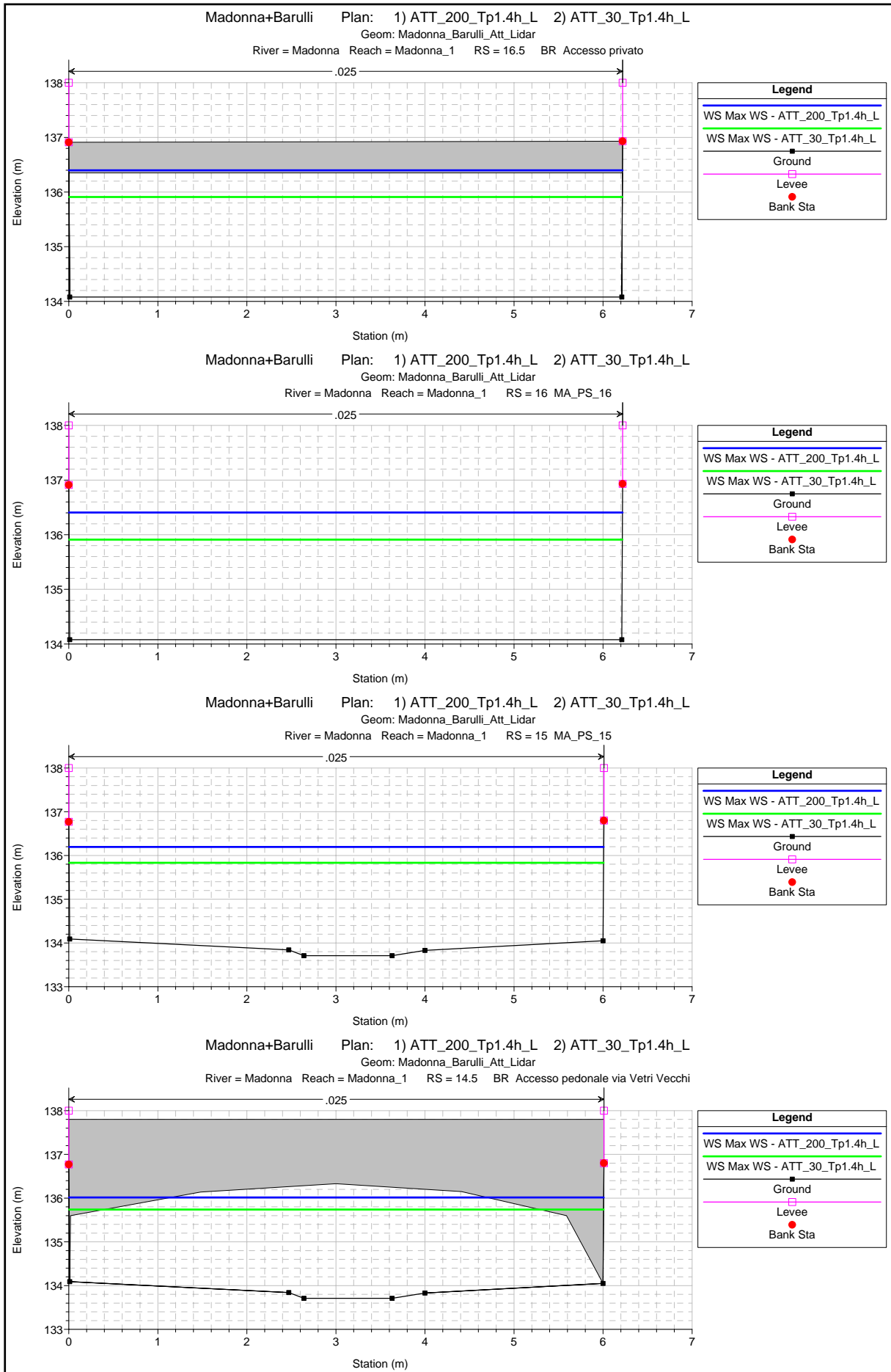


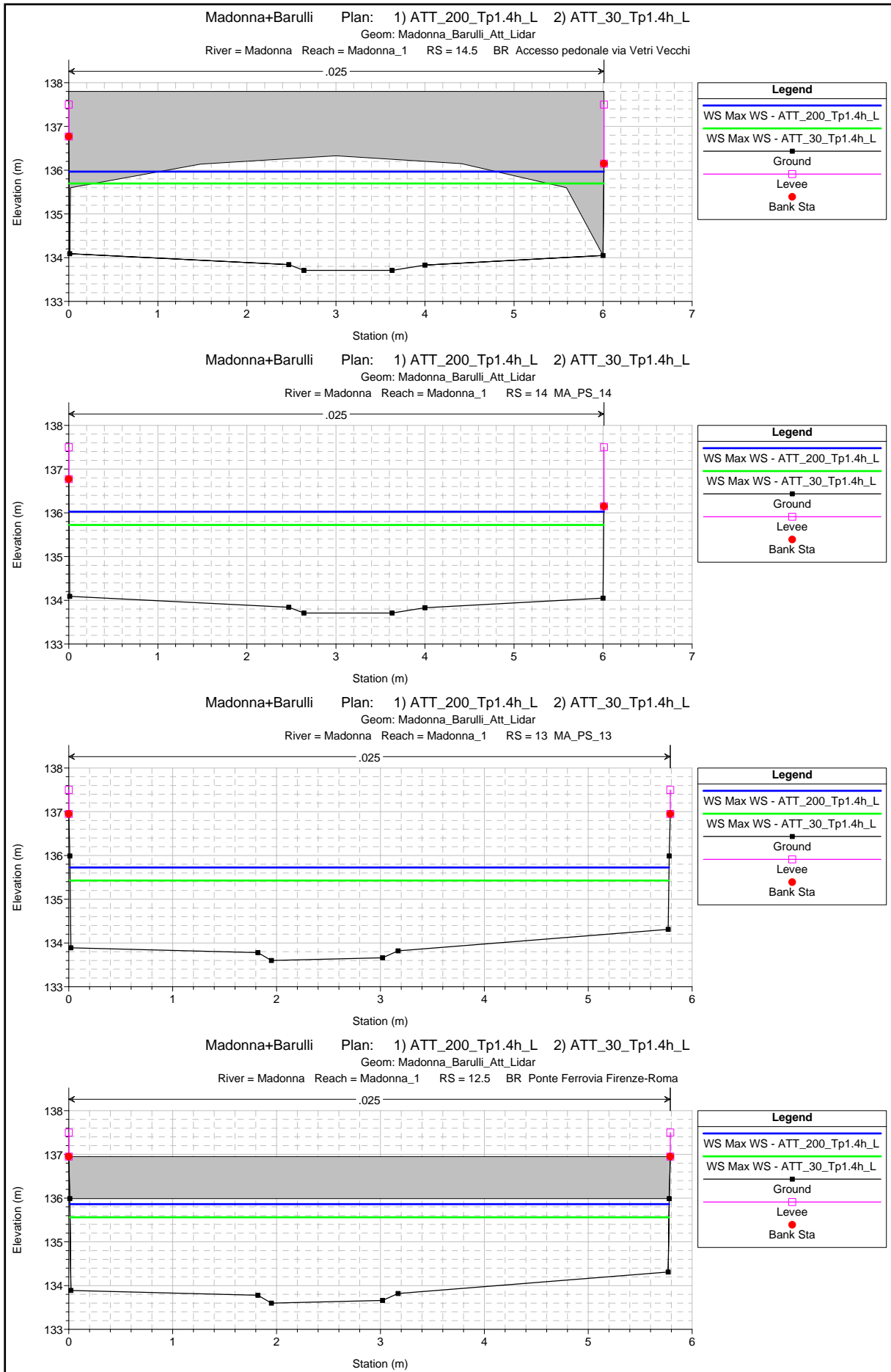


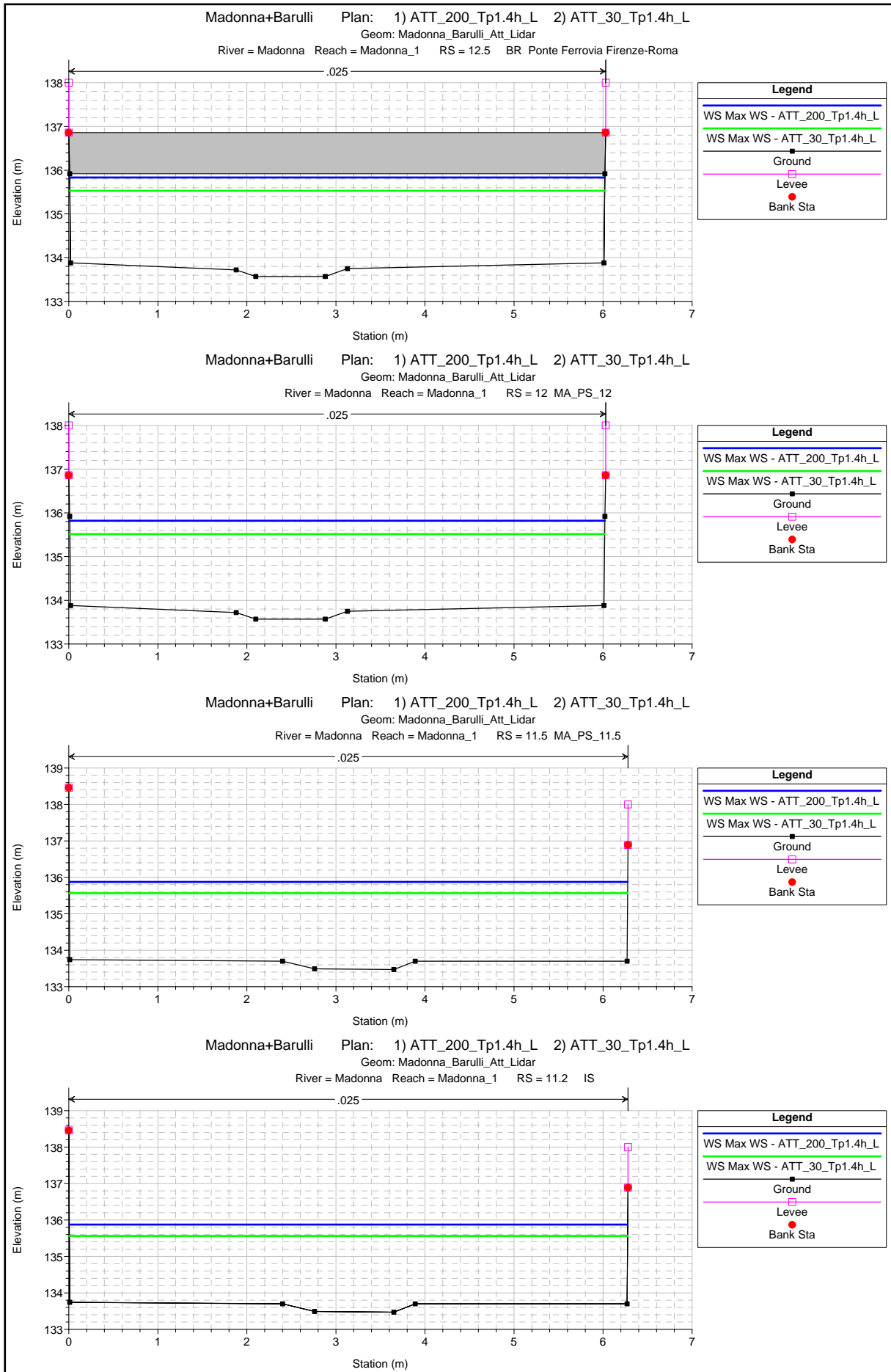


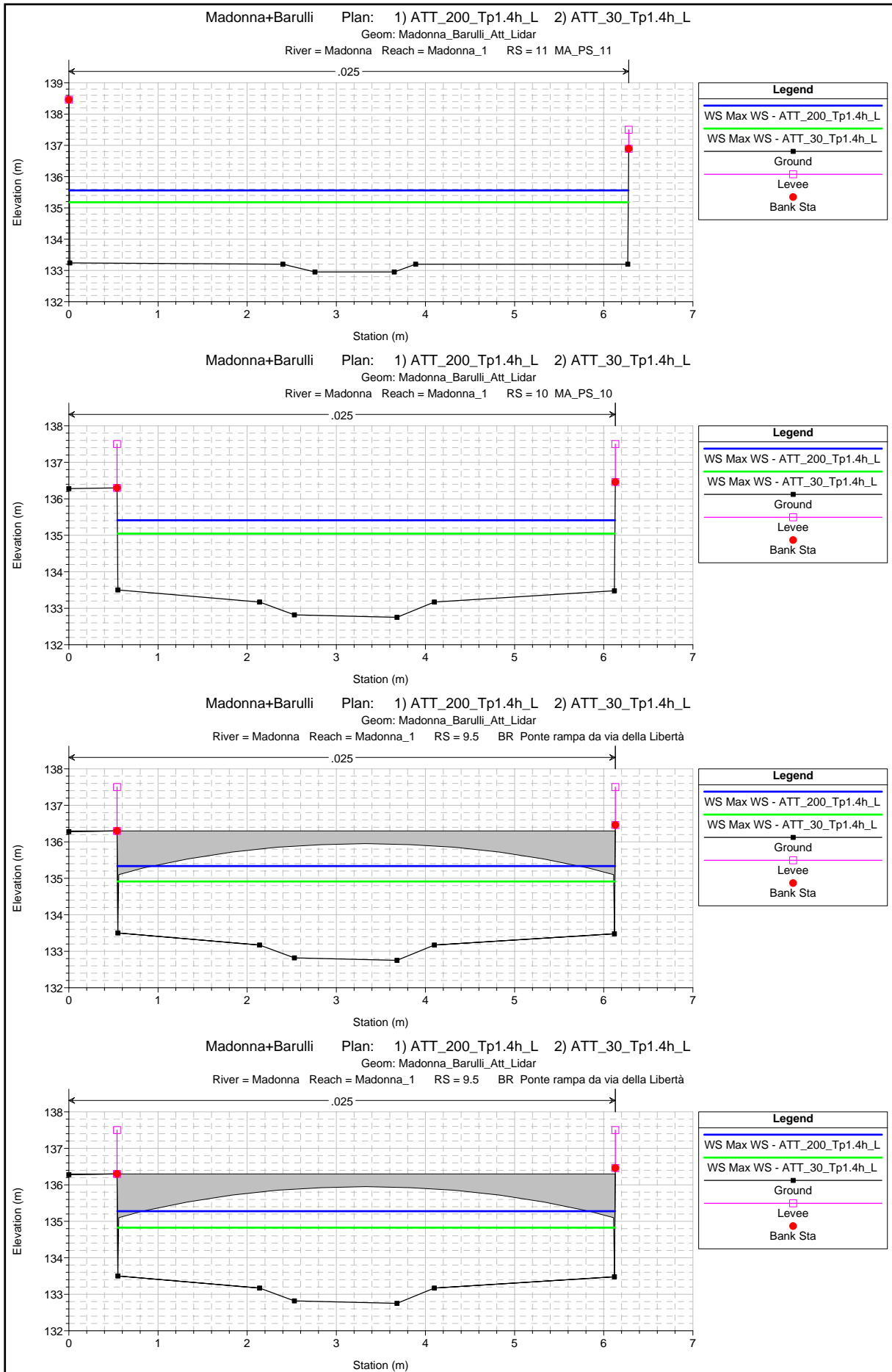


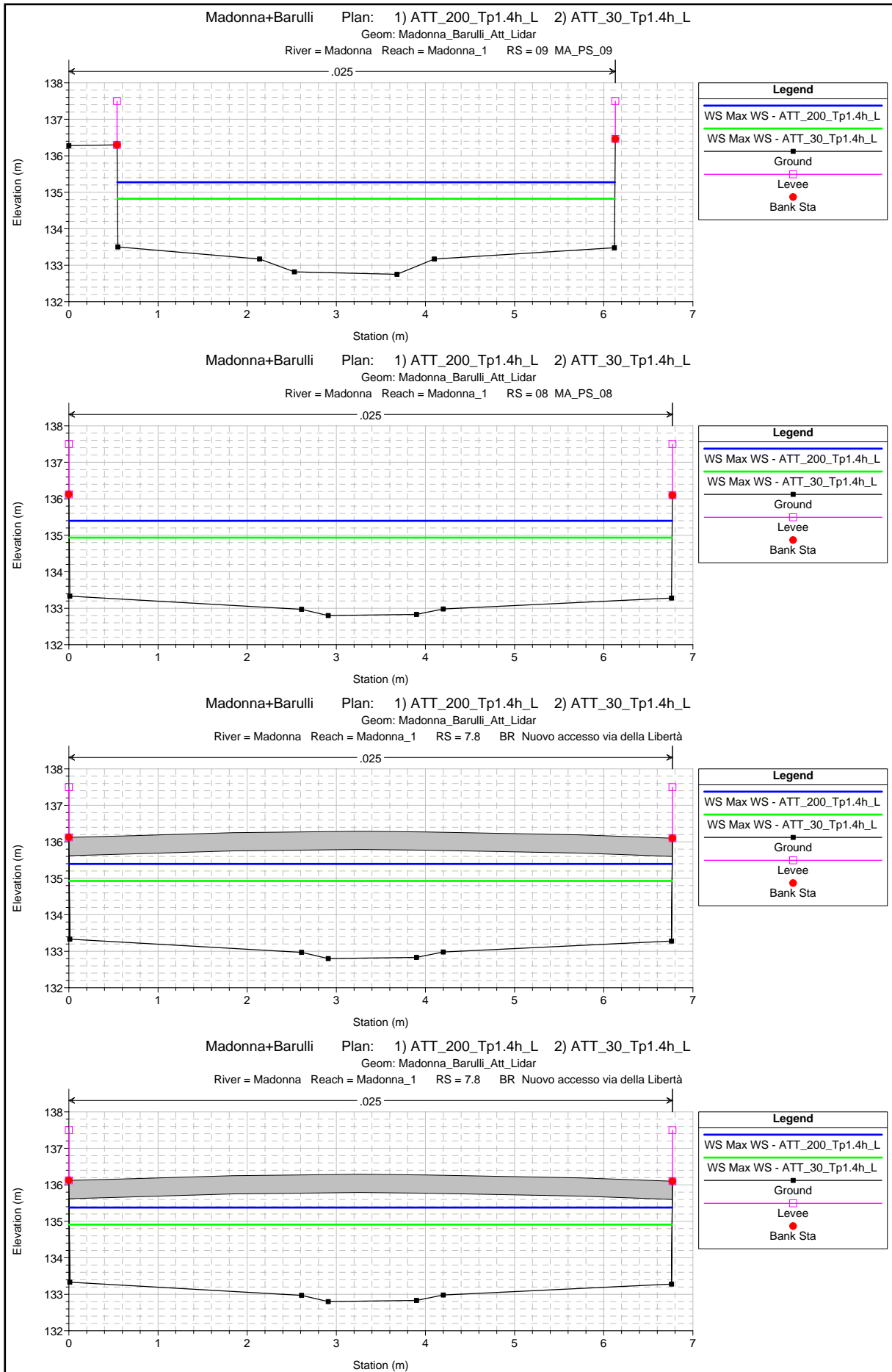


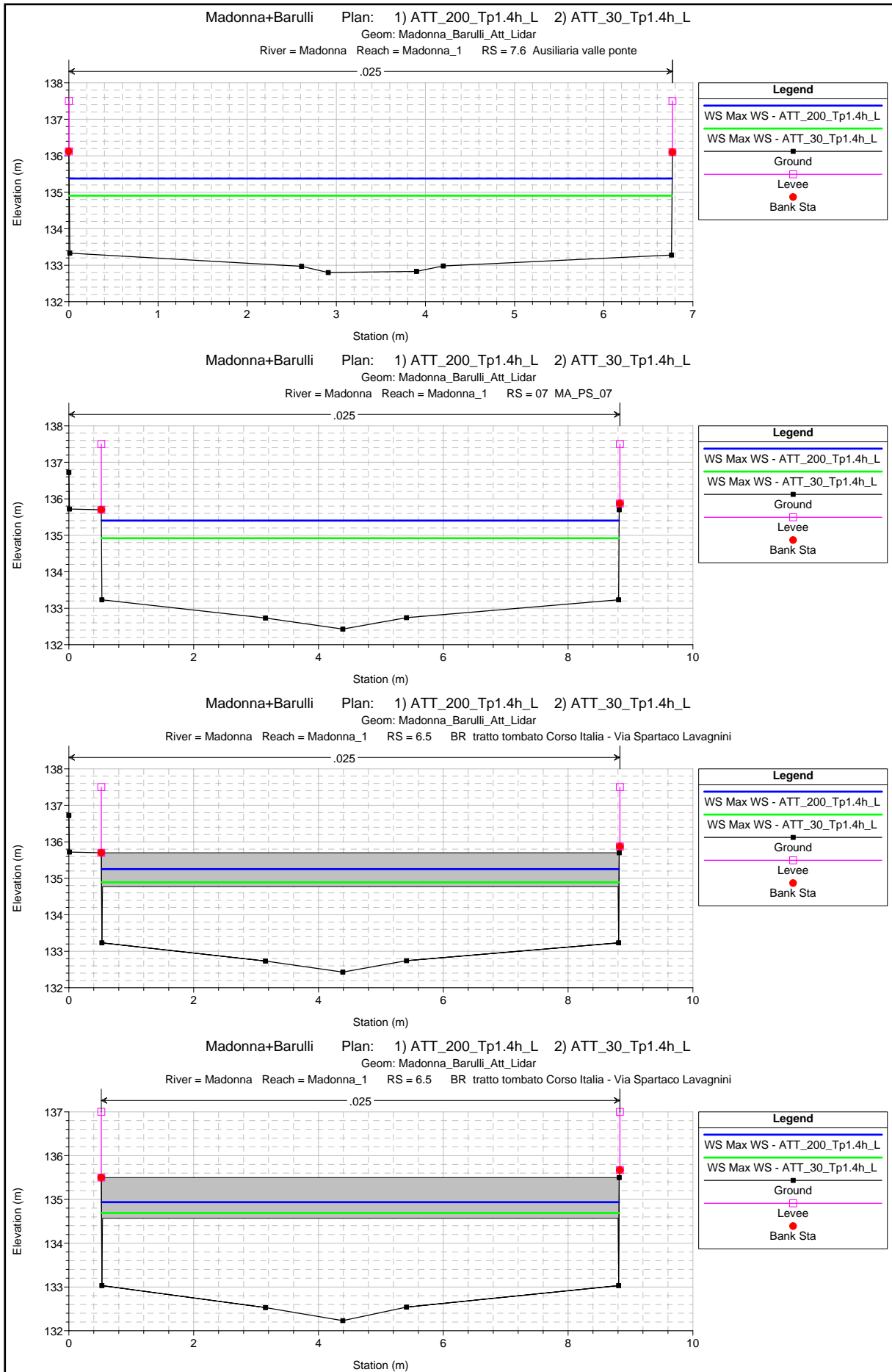


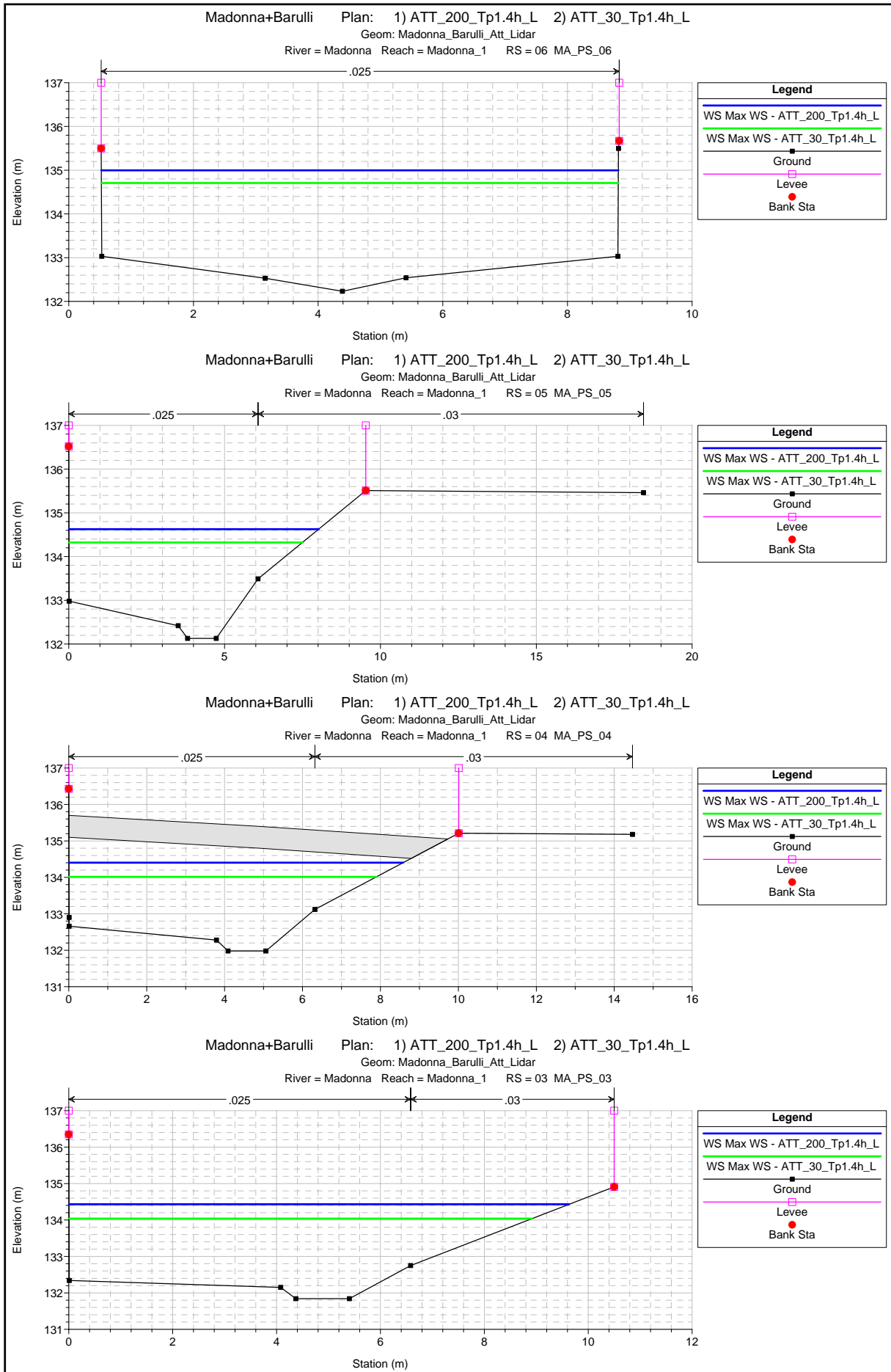




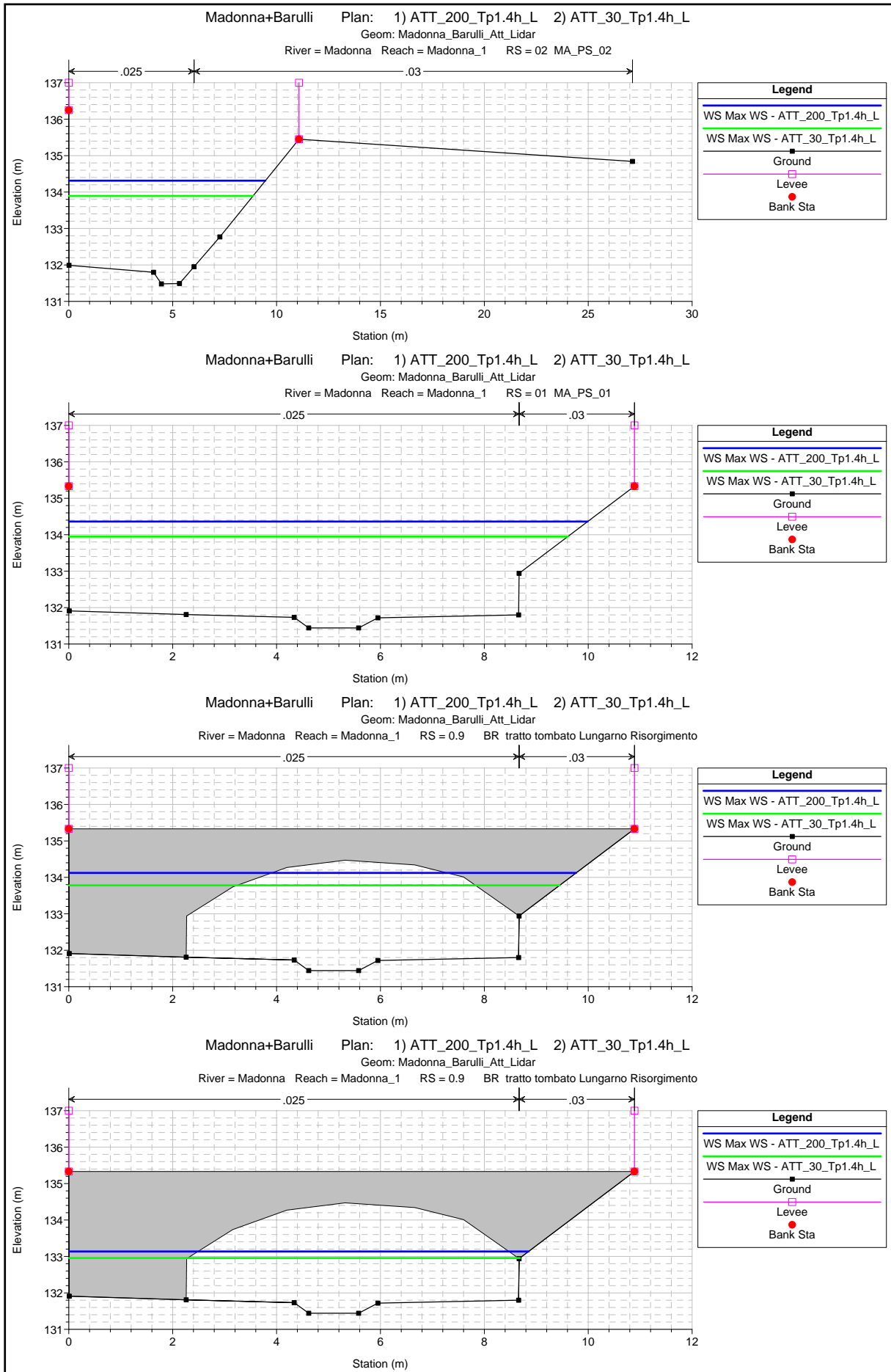


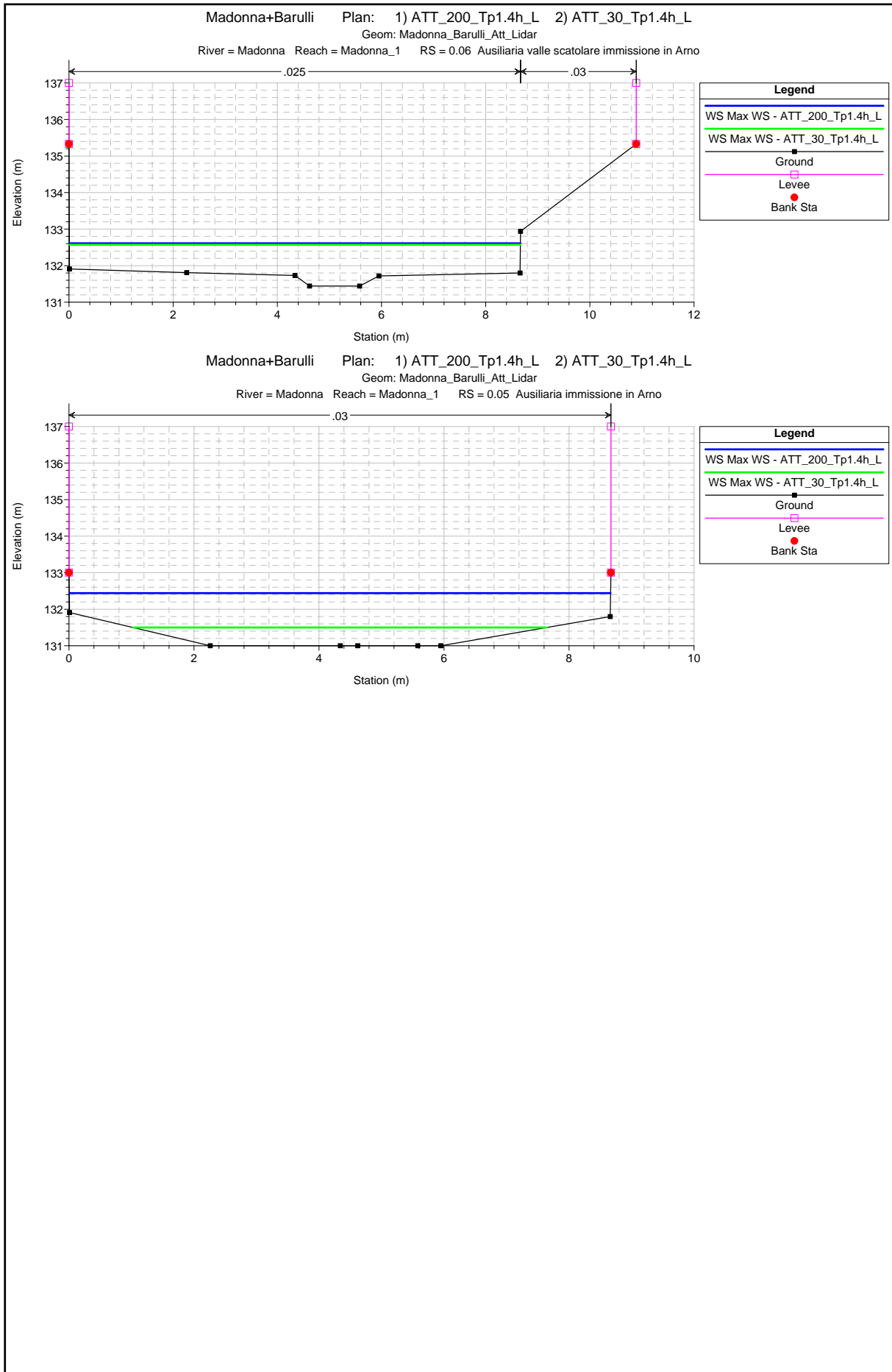












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_2	43	Max WS	ATT_200_Tp1.4h_L	23.20	147.54	149.96		150.04	0.001766	1.42	20.65	33.17	0.35
Madonna_2	43	Max WS	ATT_30_Tp1.4h_L	17.40	147.54	149.83		149.90	0.001654	1.30	16.70	27.94	0.34
Madonna_2	42	Max WS	ATT_200_Tp1.4h_L	23.20	147.70	149.93	149.55	149.99	0.001578	1.24	21.70	35.74	0.30
Madonna_2	42	Max WS	ATT_30_Tp1.4h_L	17.37	147.70	149.81	149.30	149.86	0.001374	1.11	17.90	26.45	0.27
Madonna_2	41.5			Bridge									
Madonna_2	41	Max WS	ATT_200_Tp1.4h_L	23.19	147.70	149.40	149.48	149.75	0.012286	2.91	9.35	20.55	0.86
Madonna_2	41	Max WS	ATT_30_Tp1.4h_L	17.37	147.70	149.29	149.37	149.61	0.012513	2.75	7.30	17.03	0.85
Madonna_2	40	Max WS	ATT_200_Tp1.4h_L	23.19	146.30	148.36		148.58	0.007644	2.34	12.12	25.35	0.71
Madonna_2	40	Max WS	ATT_30_Tp1.4h_L	17.34	146.30	148.16	148.26	148.49	0.012467	2.72	7.48	20.75	0.88
Madonna_2	39.2	Max WS	ATT_200_Tp1.4h_L	21.53	144.75	148.01		148.04	0.000569	0.95	33.68	51.61	0.20
Madonna_2	39.2	Max WS	ATT_30_Tp1.4h_L	16.06	144.75	147.70		147.76	0.000924	1.11	18.51	27.70	0.25
Madonna_2	39	Max WS	ATT_200_Tp1.4h_L	29.76	144.75	147.92	147.03	148.00	0.001436	1.47	29.57	47.89	0.32
Madonna_2	39	Max WS	ATT_30_Tp1.4h_L	21.39	144.75	147.56	146.70	147.70	0.002351	1.70	15.04	22.52	0.40
Madonna_2	38.8			Bridge									
Madonna_2	38.6	Max WS	ATT_200_Tp1.4h_L	29.76	144.75	147.30	147.03	147.75	0.008482	2.98	10.45	12.74	0.76
Madonna_2	38.6	Max WS	ATT_30_Tp1.4h_L	21.39	144.75	147.04		147.38	0.007633	2.59	8.24	6.09	0.71
Madonna_2	38	Max WS	ATT_200_Tp1.4h_L	29.76	144.38	146.88	146.98	147.40	0.009697	3.27	9.88	12.63	0.81
Madonna_2	38	Max WS	ATT_30_Tp1.4h_L	21.39	144.38	146.65		147.06	0.008898	2.85	7.65	7.15	0.76
Madonna_2	37	Max WS	ATT_200_Tp1.4h_L	29.75	143.21	145.81		145.99	0.004090	2.17	18.82	34.95	0.53
Madonna_2	37	Max WS	ATT_30_Tp1.4h_L	15.24	143.21	145.73		145.80	0.001506	1.28	16.14	32.52	0.32
Madonna_2	36	Max WS	ATT_200_Tp1.4h_L	29.75	143.04	145.82	145.57	145.92	0.002200	1.72	24.83	43.50	0.40
Madonna_2	36	Max WS	ATT_30_Tp1.4h_L	14.90	143.04	145.74	144.78	145.77	0.000743	0.97	21.47	38.06	0.23
Madonna_2	35.8			Bridge									
Madonna_2	35.6	Max WS	ATT_200_Tp1.4h_L	29.75	143.04	145.53		145.82	0.006717	2.68	14.58	29.00	0.68
Madonna_2	35.6	Max WS	ATT_30_Tp1.4h_L	21.38	143.04	145.38	145.40	145.66	0.006318	2.44	10.67	24.92	0.65
Madonna_2	35	Max WS	ATT_200_Tp1.4h_L	29.75	142.69	145.49	145.28	145.61	0.002525	1.80	21.38	33.08	0.41
Madonna_2	35	Max WS	ATT_30_Tp1.4h_L	21.38	142.69	145.37	145.09	145.46	0.002107	1.58	17.45	31.69	0.37

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	34.8			Bridge									
Madonna_2	34.6	Max WS	ATT_200_Tp1.4h_L	29.75	142.69	145.04	145.28	145.68	0.015196	3.71	9.25	17.74	0.97
Madonna_2	34.6	Max WS	ATT_30_Tp1.4h_L	21.38	142.69	144.75	145.09	145.46	0.019727	3.74	5.74	5.38	1.08
Madonna_2	34	Max WS	ATT_200_Tp1.4h_L	29.75	142.37	144.73	144.83	145.18	0.009048	3.06	11.28	18.95	0.78
Madonna_2	34	Max WS	ATT_30_Tp1.4h_L	21.38	142.37	144.32	144.27	144.85	0.014363	3.23	6.63	6.29	0.94
Madonna_2	33.6	Max WS	ATT_200_Tp1.4h_L	29.75	141.94	144.24	144.26	144.75	0.022874	3.16	9.54	10.67	0.66
Madonna_2	33.6	Max WS	ATT_30_Tp1.4h_L	21.38	141.94	143.74	143.72	144.25	0.007158	3.16	6.75	6.35	0.98
Madonna_2	33	Max WS	ATT_200_Tp1.4h_L	29.74	141.31	143.52		143.86	0.007051	2.60	11.42	8.85	0.73
Madonna_2	33	Max WS	ATT_30_Tp1.4h_L	21.37	141.31	143.22		143.51	0.006801	2.38	8.97	7.73	0.71
Madonna_2	32.6	Max WS	ATT_200_Tp1.4h_L	29.74	141.04	143.21		143.54	0.006686	2.55	11.68	8.85	0.71
Madonna_2	32.6	Max WS	ATT_30_Tp1.4h_L	21.36	141.04	142.88		143.18	0.007447	2.41	8.86	8.15	0.74
Madonna_2	32	Max WS	ATT_200_Tp1.4h_L	24.54	140.65	143.06	142.16	143.12	0.001146	1.27	23.30	30.23	0.28
Madonna_2	32	Max WS	ATT_30_Tp1.4h_L	21.36	140.65	142.74	142.05	142.85	0.002282	1.60	15.27	20.16	0.39
Madonna_2	31.8			Bridge									
Madonna_2	31.6	Max WS	ATT_200_Tp1.4h_L	29.74	140.65	142.37	142.56	142.96	0.013566	3.43	9.03	13.96	0.94
Madonna_2	31.6	Max WS	ATT_30_Tp1.4h_L	21.36	140.65	142.09	142.05	142.59	0.014078	3.13	6.82	6.18	0.95
Madonna_2	31	Max WS	ATT_200_Tp1.4h_L	29.74	139.73	141.19		141.59	0.009189	2.81	10.60	8.03	0.78
Madonna_2	31	Max WS	ATT_30_Tp1.4h_L	21.35	139.73	140.89		141.24	0.010072	2.59	8.23	7.82	0.81
Madonna_2	30	Max WS	ATT_200_Tp1.4h_L	29.56	137.68	140.55	139.31	140.59	0.000776	1.09	39.14	65.52	0.22
Madonna_2	30	Max WS	ATT_30_Tp1.4h_L	20.17	137.68	140.06	138.97	140.17	0.002057	1.53	15.07	27.24	0.34
Madonna_2	29.8			Bridge									
Madonna_2	29.6	Max WS	ATT_200_Tp1.4h_L	20.29	137.68	139.77		139.96	0.003769	1.93	10.51	5.88	0.46
Madonna_2	29.6	Max WS	ATT_30_Tp1.4h_L	20.17	137.68	139.77		139.96	0.003738	1.92	10.49	5.88	0.46
Madonna_2	29.4	Max WS	ATT_200_Tp1.4h_L	20.24	136.99	139.87	138.50	139.91	0.000811	1.11	23.18	27.42	0.21
Madonna_2	29.4	Max WS	ATT_30_Tp1.4h_L	20.12	136.99	139.87	138.49	139.91	0.000809	1.11	23.10	27.36	0.21
Madonna_2	29.2			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	29	Max WS	ATT_200_Tp1.4h_L	29.55	136.99	139.33	139.42	139.77	0.008398	3.11	11.31	16.95	0.65
Madonna_2	29	Max WS	ATT_30_Tp1.4h_L	24.10	136.99	139.16	138.68	139.62	0.008966	3.05	8.67	13.56	0.66
Madonna_2	28	Max WS	ATT_200_Tp1.4h_L	26.67	136.47	139.32	138.12	139.36	0.000832	1.19	34.55	69.10	0.23
Madonna_2	28	Max WS	ATT_30_Tp1.4h_L	22.11	136.47	139.01	137.95	139.13	0.001807	1.62	18.22	38.91	0.33
Madonna_2	27.8			Bridge									
Madonna_2	27.6	Max WS	ATT_200_Tp1.4h_L	26.67	136.47	139.30		139.35	0.000901	1.23	33.20	67.12	0.24
Madonna_2	27.6	Max WS	ATT_30_Tp1.4h_L	15.52	136.47	138.90		138.98	0.001267	1.31	14.37	27.31	0.28
Madonna_2	27	Max WS	ATT_200_Tp1.4h_L	26.13	136.07	139.30	138.39	139.32	0.000279	0.82	48.46	56.27	0.16
Madonna_2	27	Max WS	ATT_30_Tp1.4h_L	14.33	136.07	138.92	137.38	138.94	0.000258	0.71	29.58	42.36	0.15
Madonna_2	26.5			Bridge									
Madonna_2	26.4	Max WS	ATT_200_Tp1.4h_L	30.48	136.07	138.47		138.80	0.005211	2.77	14.20	26.00	0.64
Madonna_2	26.4	Max WS	ATT_30_Tp1.4h_L	21.34	136.07	137.77	137.75	138.43	0.013558	3.61	5.91	4.26	0.98
Madonna_2	26.3	Max WS	ATT_200_Tp1.4h_L	30.48	136.07	138.47		138.81	0.005221	2.77	14.18	25.98	0.64
Madonna_2	26.3	Max WS	ATT_30_Tp1.4h_L	21.34	136.07	137.77	137.75	138.43	0.013589	3.61	5.91	4.26	0.98
Madonna_2	26	Max WS	ATT_200_Tp1.4h_L	30.46	135.94	138.53		138.67	0.002143	1.92	21.13	31.70	0.40
Madonna_2	26	Max WS	ATT_30_Tp1.4h_L	21.33	135.94	137.76		138.15	0.007073	2.77	7.69	4.81	0.70
Madonna_2	25.4	Max WS	ATT_200_Tp1.4h_L	30.11	135.66	138.29	137.39	138.61	0.004258	2.49	12.10	4.90	0.51
Madonna_2	25.4	Max WS	ATT_30_Tp1.4h_L	21.71	135.66	137.75	137.08	138.02	0.004342	2.30	9.44	4.90	0.53
Madonna_2	25.2			Bridge									
Madonna_2	25	Max WS	ATT_200_Tp1.4h_L	30.11	135.66	138.05		138.44	0.005636	2.76	10.90	4.90	0.59
Madonna_2	25	Max WS	ATT_30_Tp1.4h_L	21.49	135.66	137.68		137.97	0.004661	2.35	9.13	4.89	0.55
Madonna_2	24.8			Lat Struct									
Madonna_2	24	Max WS	ATT_200_Tp1.4h_L	25.76	135.17	138.06	136.89	138.30	0.002461	2.20	11.72	4.35	0.43
Madonna_2	24	Max WS	ATT_30_Tp1.4h_L	21.62	135.17	137.52	136.72	137.79	0.003138	2.31	9.37	4.35	0.50
Madonna_2	23.95			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	23.9	Max WS	ATT_200_Tp1.4h_L	25.39	135.05	137.22		137.70	0.006326	3.08	8.24	4.35	0.71
Madonna_2	23.9	Max WS	ATT_30_Tp1.4h_L	21.32	135.05	136.96		137.42	0.006728	3.00	7.10	4.34	0.75
Madonna_2	23.8	Max WS	ATT_200_Tp1.4h_L	25.39	135.05	137.21		137.70	0.006442	3.10	8.19	4.35	0.72
Madonna_2	23.8	Max WS	ATT_30_Tp1.4h_L	21.32	135.05	136.94		137.41	0.006899	3.03	7.04	4.34	0.76
Madonna_1	23	Max WS	ATT_200_Tp1.4h_L	33.26	135.00	137.21		137.67	0.004765	3.00	11.07	5.75	0.69
Madonna_1	23	Max WS	ATT_30_Tp1.4h_L	28.60	135.00	136.94		137.40	0.005345	2.99	9.55	5.74	0.74
Madonna_1	22.95	Max WS	ATT_200_Tp1.4h_L	33.26	135.00	137.20		137.66	0.004790	3.01	11.05	5.75	0.69
Madonna_1	22.95	Max WS	ATT_30_Tp1.4h_L	28.60	135.00	136.94		137.40	0.005387	3.00	9.53	5.74	0.74
Madonna_1	22.9			Lat Struct									
Madonna_1	22.8			Lat Struct									
Madonna_1	22	Max WS	ATT_200_Tp1.4h_L	33.25	134.64	137.03	136.29	137.36	0.002865	2.55	13.03	5.86	0.55
Madonna_1	22	Max WS	ATT_30_Tp1.4h_L	28.59	134.64	136.72	136.15	137.05	0.003198	2.55	11.22	5.85	0.59
Madonna_1	21.5			Bridge									
Madonna_1	21	Max WS	ATT_200_Tp1.4h_L	33.24	134.64	136.76		137.19	0.004088	2.90	11.45	5.86	0.66
Madonna_1	21	Max WS	ATT_30_Tp1.4h_L	28.59	134.64	136.55		136.95	0.004189	2.80	10.19	5.85	0.68
Madonna_1	20.9			Lat Struct									
Madonna_1	20.8			Lat Struct									
Madonna_1	20	Max WS	ATT_200_Tp1.4h_L	32.41	134.41	136.79	136.08	137.11	0.002790	2.49	13.00	6.10	0.55
Madonna_1	20	Max WS	ATT_30_Tp1.4h_L	28.48	134.41	136.52	135.96	136.84	0.003138	2.51	11.36	6.10	0.59
Madonna_1	19.5			Bridge									
Madonna_1	19	Max WS	ATT_200_Tp1.4h_L	32.40	134.41	136.66		137.02	0.003330	2.66	12.19	6.10	0.60
Madonna_1	19	Max WS	ATT_30_Tp1.4h_L	28.48	134.41	136.46		136.80	0.003427	2.59	11.01	6.09	0.61
Madonna_1	18.9			Lat Struct									
Madonna_1	18	Max WS	ATT_200_Tp1.4h_L	32.57	134.36	136.67	135.99	136.99	0.002909	2.51	12.99	6.22	0.55
Madonna_1	18	Max WS	ATT_30_Tp1.4h_L	28.48	134.36	136.48	135.86	136.78	0.002881	2.40	11.85	6.22	0.56

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	17.5			Inl Struct									
Madonna_1	17.4	Max WS	ATT_200_Tp1.4h_L	32.48	134.08	136.44		136.69	0.002069	2.21	14.67	6.22	0.46
Madonna_1	17.4	Max WS	ATT_30_Tp1.4h_L	28.29	134.08	135.94		136.25	0.003067	2.45	11.54	6.21	0.57
Madonna_1	17	Max WS	ATT_200_Tp1.4h_L	32.48	134.08	136.44	135.49	136.69	0.002076	2.22	14.65	6.22	0.46
Madonna_1	17	Max WS	ATT_30_Tp1.4h_L	28.29	134.08	135.94	135.36	136.24	0.003088	2.46	11.52	6.21	0.58
Madonna_1	16.5			Bridge									
Madonna_1	16	Max WS	ATT_200_Tp1.4h_L	32.48	134.08	136.41		136.66	0.002161	2.25	14.44	6.22	0.47
Madonna_1	16	Max WS	ATT_30_Tp1.4h_L	28.29	134.08	135.91		136.23	0.003216	2.49	11.35	6.21	0.59
Madonna_1	15.9			Lat Struct									
Madonna_1	15	Max WS	ATT_200_Tp1.4h_L	35.74	133.71	136.20	135.43	136.54	0.002860	2.59	13.78	6.01	0.55
Madonna_1	15	Max WS	ATT_30_Tp1.4h_L	28.49	133.71	135.83	135.22	136.14	0.002930	2.46	11.60	6.00	0.56
Madonna_1	14.5			Bridge									
Madonna_1	14	Max WS	ATT_200_Tp1.4h_L	35.74	133.71	136.03		136.42	0.003535	2.80	12.76	6.01	0.61
Madonna_1	14	Max WS	ATT_30_Tp1.4h_L	28.49	133.71	135.72		136.07	0.003447	2.60	10.95	6.00	0.62
Madonna_1	13	Max WS	ATT_200_Tp1.4h_L	35.74	133.60	135.73	135.48	136.31	0.006014	3.39	10.54	5.77	0.80
Madonna_1	13	Max WS	ATT_30_Tp1.4h_L	28.48	133.60	135.43	135.25	135.96	0.006308	3.23	8.83	5.76	0.83
Madonna_1	12.5			Bridge									
Madonna_1	12	Max WS	ATT_200_Tp1.4h_L	35.74	133.57	135.82		136.25	0.003973	2.90	12.32	6.01	0.65
Madonna_1	12	Max WS	ATT_30_Tp1.4h_L	28.49	133.57	135.51		135.89	0.003970	2.72	10.49	6.01	0.66
Madonna_1	11.5	Max WS	ATT_200_Tp1.4h_L	35.74	133.47	135.87	135.15	136.21	0.002968	2.58	13.83	6.27	0.56
Madonna_1	11.5	Max WS	ATT_30_Tp1.4h_L	28.49	133.47	135.56	134.95	135.86	0.002887	2.40	11.89	6.27	0.56
Madonna_1	11.2			Inl Struct									
Madonna_1	11	Max WS	ATT_200_Tp1.4h_L	35.74	132.95	135.56		135.85	0.002366	2.38	15.03	6.27	0.49
Madonna_1	11	Max WS	ATT_30_Tp1.4h_L	27.96	132.95	135.18		135.43	0.002338	2.21	12.65	6.27	0.50
Madonna_1	10	Max WS	ATT_200_Tp1.4h_L	35.74	132.75	135.41	134.78	135.83	0.003662	2.85	12.52	5.58	0.61
Madonna_1	10	Max WS	ATT_30_Tp1.4h_L	27.95	132.75	135.05	134.53	135.41	0.003651	2.67	10.48	5.58	0.62

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	9.5			Bridge									
Madonna_1	09	Max WS	ATT_200_Tp1.4h_L	35.71	132.75	135.28		135.74	0.004340	3.04	11.76	5.58	0.67
Madonna_1	09	Max WS	ATT_30_Tp1.4h_L	28.46	132.75	134.82		135.31	0.005403	3.08	9.23	5.58	0.76
Madonna_1	08	Max WS	ATT_200_Tp1.4h_L	35.73	132.80	135.40	134.49	135.66	0.002019	2.27	15.72	6.76	0.48
Madonna_1	08	Max WS	ATT_30_Tp1.4h_L	28.46	132.80	134.94	134.29	135.20	0.002385	2.26	12.60	6.76	0.53
Madonna_1	7.8			Bridge									
Madonna_1	7.6	Max WS	ATT_200_Tp1.4h_L	35.71	132.80	135.38		135.64	0.002068	2.29	15.58	6.76	0.48
Madonna_1	7.6	Max WS	ATT_30_Tp1.4h_L	28.46	132.80	134.91		135.18	0.002491	2.29	12.41	6.76	0.54
Madonna_1	07	Max WS	ATT_200_Tp1.4h_L	35.71	132.43	135.40	134.11	135.55	0.000939	1.70	20.96	8.30	0.34
Madonna_1	07	Max WS	ATT_30_Tp1.4h_L	28.46	132.43	134.92	133.93	135.06	0.001087	1.68	16.96	8.29	0.37
Madonna_1	6.5			Bridge									
Madonna_1	06	Max WS	ATT_200_Tp1.4h_L	35.70	132.23	135.00		135.17	0.001193	1.85	19.25	8.30	0.39
Madonna_1	06	Max WS	ATT_30_Tp1.4h_L	28.46	132.23	134.71		134.85	0.001110	1.69	16.84	8.29	0.38
Madonna_1	05	Max WS	ATT_200_Tp1.4h_L	35.66	132.13	134.63		134.99	0.003665	2.68	13.29	8.01	0.66
Madonna_1	05	Max WS	ATT_30_Tp1.4h_L	28.44	132.13	134.32		134.67	0.003914	2.60	10.93	7.49	0.69
Madonna_1	04	Max WS	ATT_200_Tp1.4h_L	35.64	131.98	134.40	133.89	134.73	0.002930	2.52	14.13	8.58	0.63
Madonna_1	04	Max WS	ATT_30_Tp1.4h_L	28.42	131.98	134.01	133.69	134.36	0.003784	2.60	10.93	7.89	0.71
Madonna_1	03	Max WS	ATT_200_Tp1.4h_L	35.64	131.84	134.43		134.65	0.001916	2.05	17.37	9.63	0.49
Madonna_1	03	Max WS	ATT_30_Tp1.4h_L	28.42	131.84	134.04		134.26	0.002298	2.07	13.72	8.91	0.53
Madonna_1	02	Max WS	ATT_200_Tp1.4h_L	35.64	131.48	134.31		134.49	0.001415	1.85	19.23	9.46	0.41
Madonna_1	02	Max WS	ATT_30_Tp1.4h_L	28.42	131.48	133.89		134.07	0.001642	1.84	15.41	8.86	0.45
Madonna_1	01	Max WS	ATT_200_Tp1.4h_L	35.64	131.44	134.36	132.94	134.48	0.000776	1.51	23.64	9.99	0.31
Madonna_1	01	Max WS	ATT_30_Tp1.4h_L	28.42	131.44	133.95	132.77	134.06	0.000827	1.45	19.61	9.60	0.32
Madonna_1	0.9			Bridge									
Madonna_1	0.06	Max WS	ATT_200_Tp1.4h_L	35.57	131.44	132.61	132.94	133.74	0.021308	4.72	7.54	8.66	1.61
Madonna_1	0.06	Max WS	ATT_30_Tp1.4h_L	28.42	131.44	132.57	132.77	133.36	0.015562	3.94	7.22	8.66	1.38



HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	0.05	Max WS	ATT_200_Tp1.4h_L	25.00	131.00	132.44	132.19	132.74	0.005093	2.42	10.35	8.66	0.71
Madonna_1	0.05	Max WS	ATT_30_Tp1.4h_L	20.90	131.00	131.50	132.09	134.85	0.215472	8.11	2.58	6.62	4.15

# **VERIFICHE IDRAULICHE**

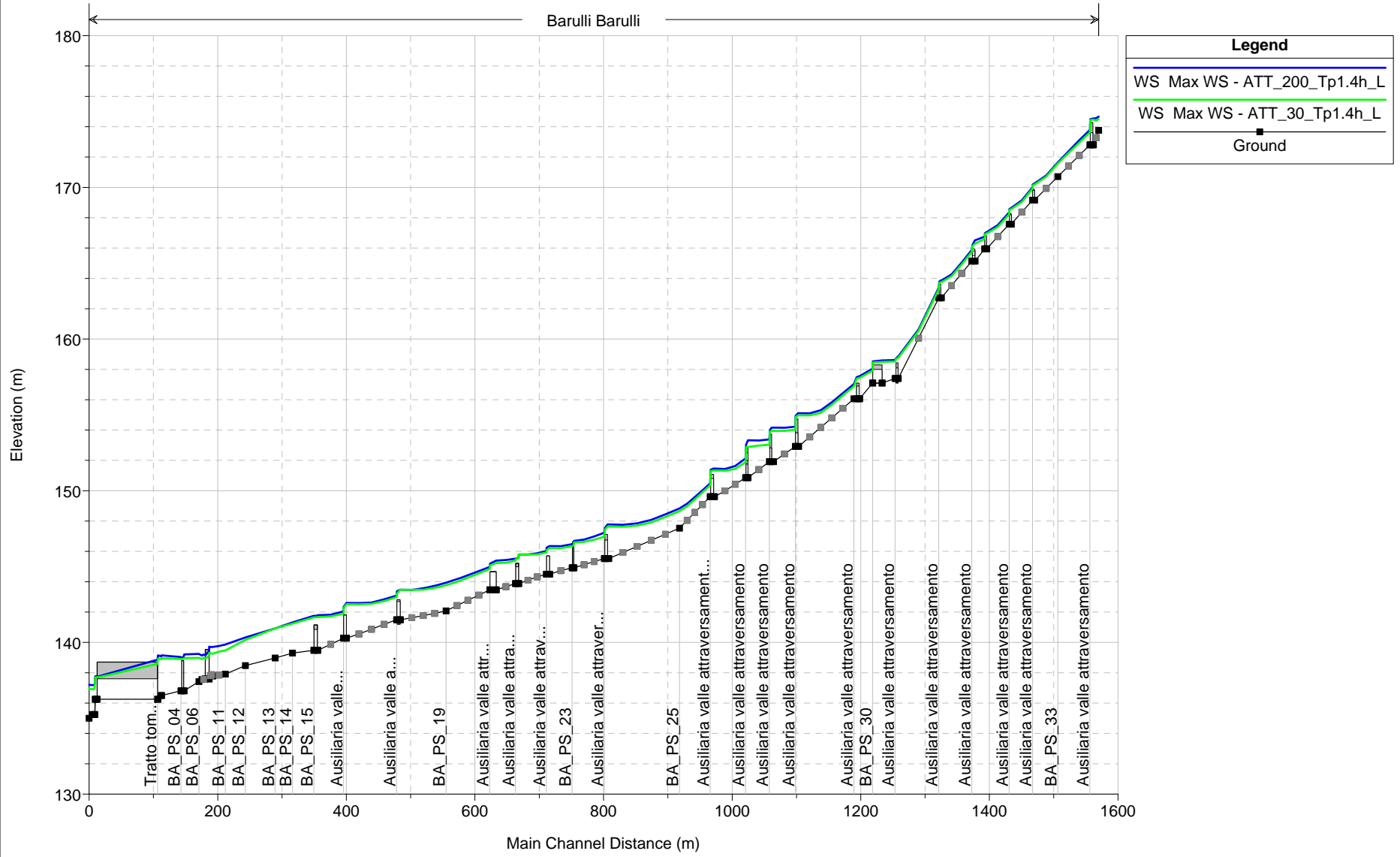
## **STATO ATTUALE**

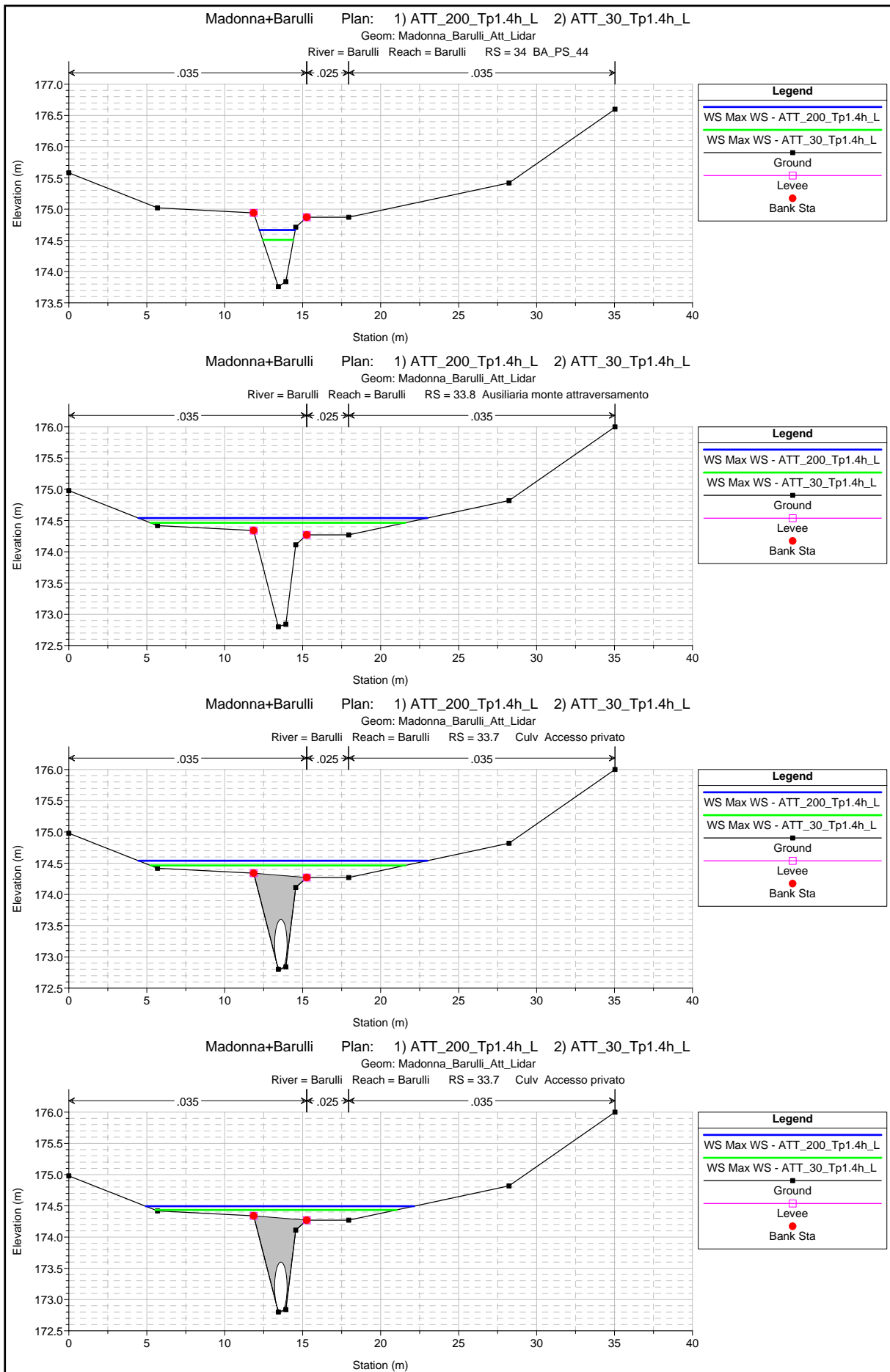
### **BORRO dei BARULLI**

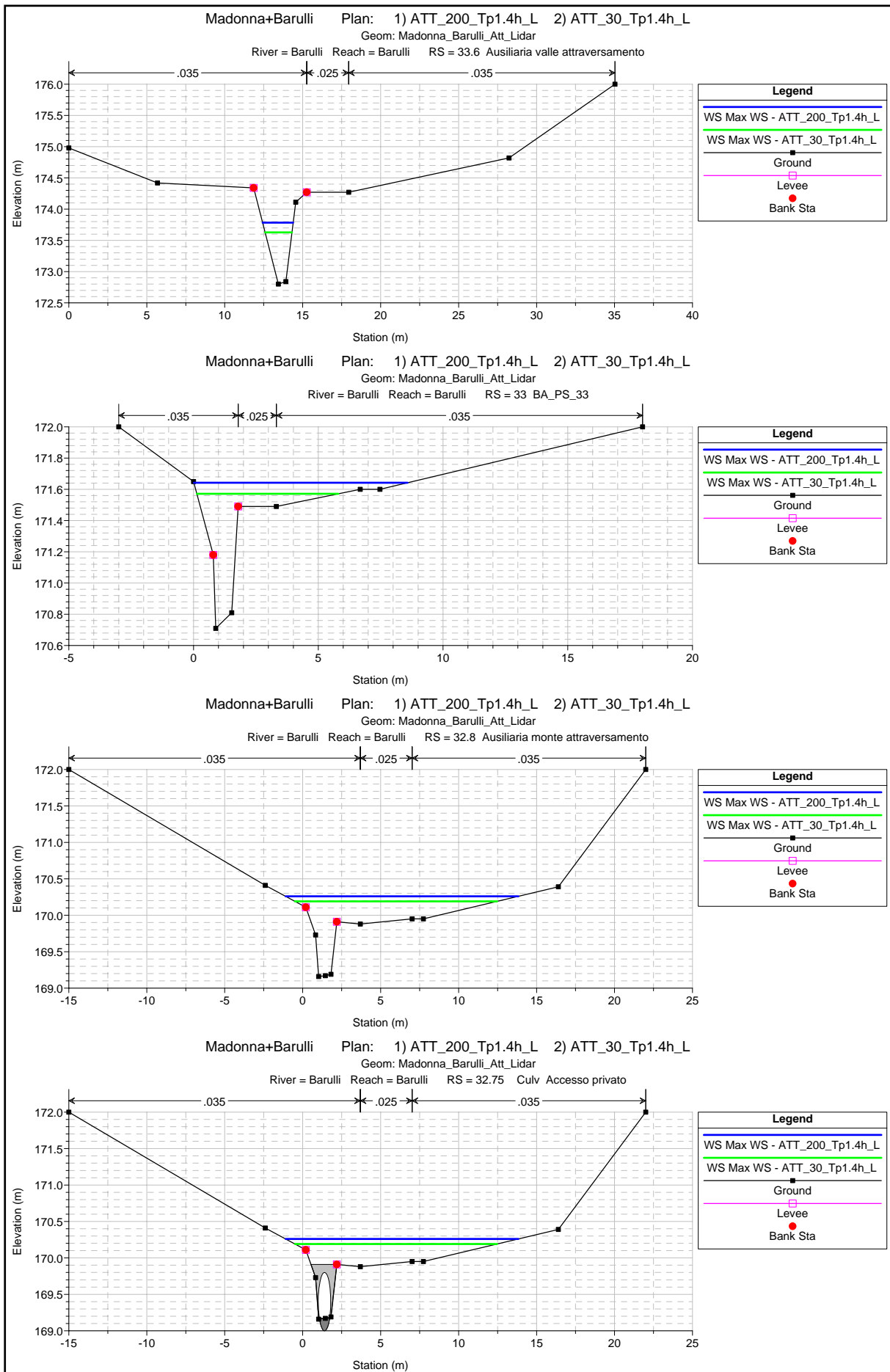
#### **Scenario A1 - Tr 200 e 30 anni**

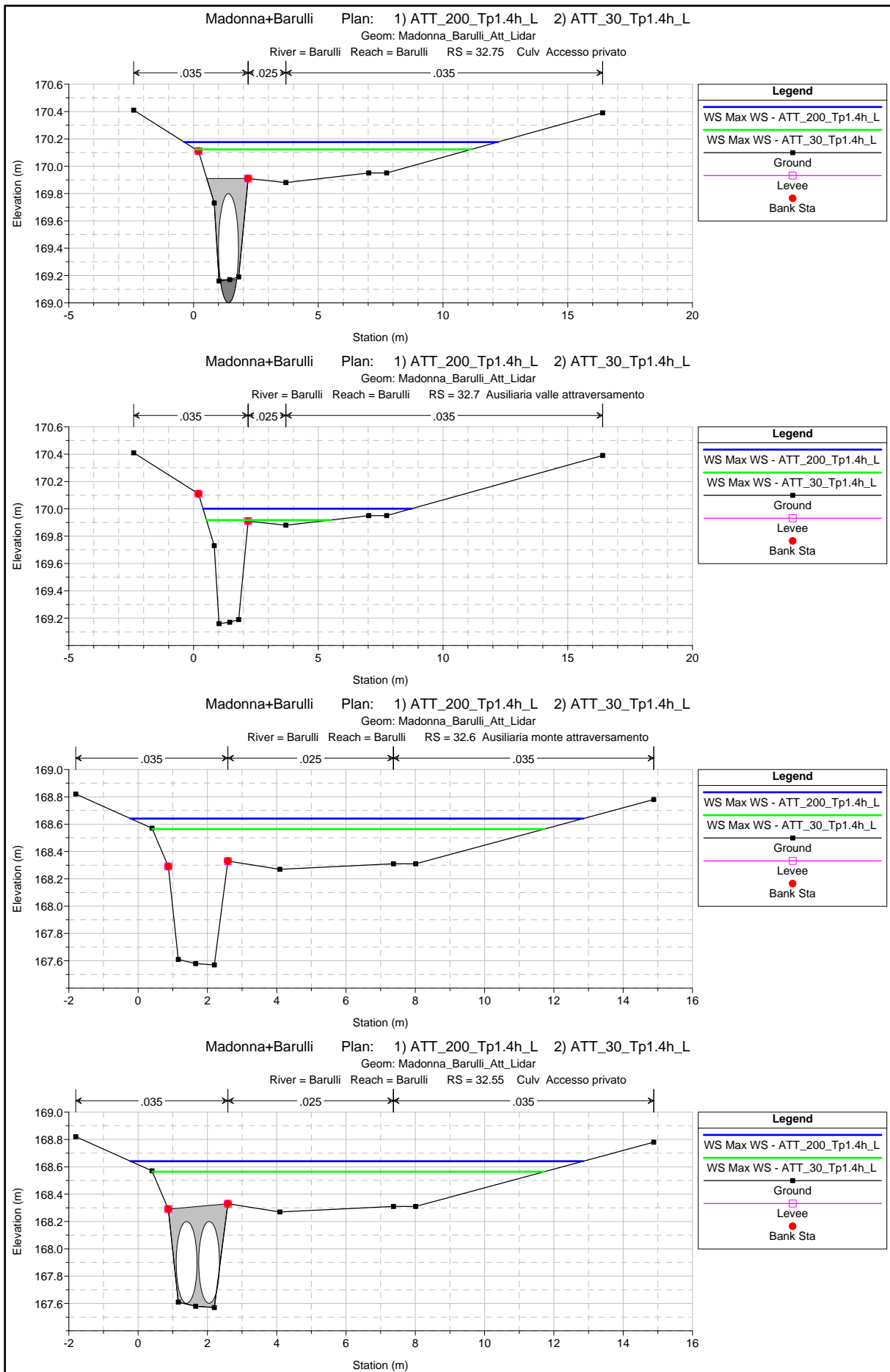
- Profili
- Sezioni di verifica
- Tabelle di output

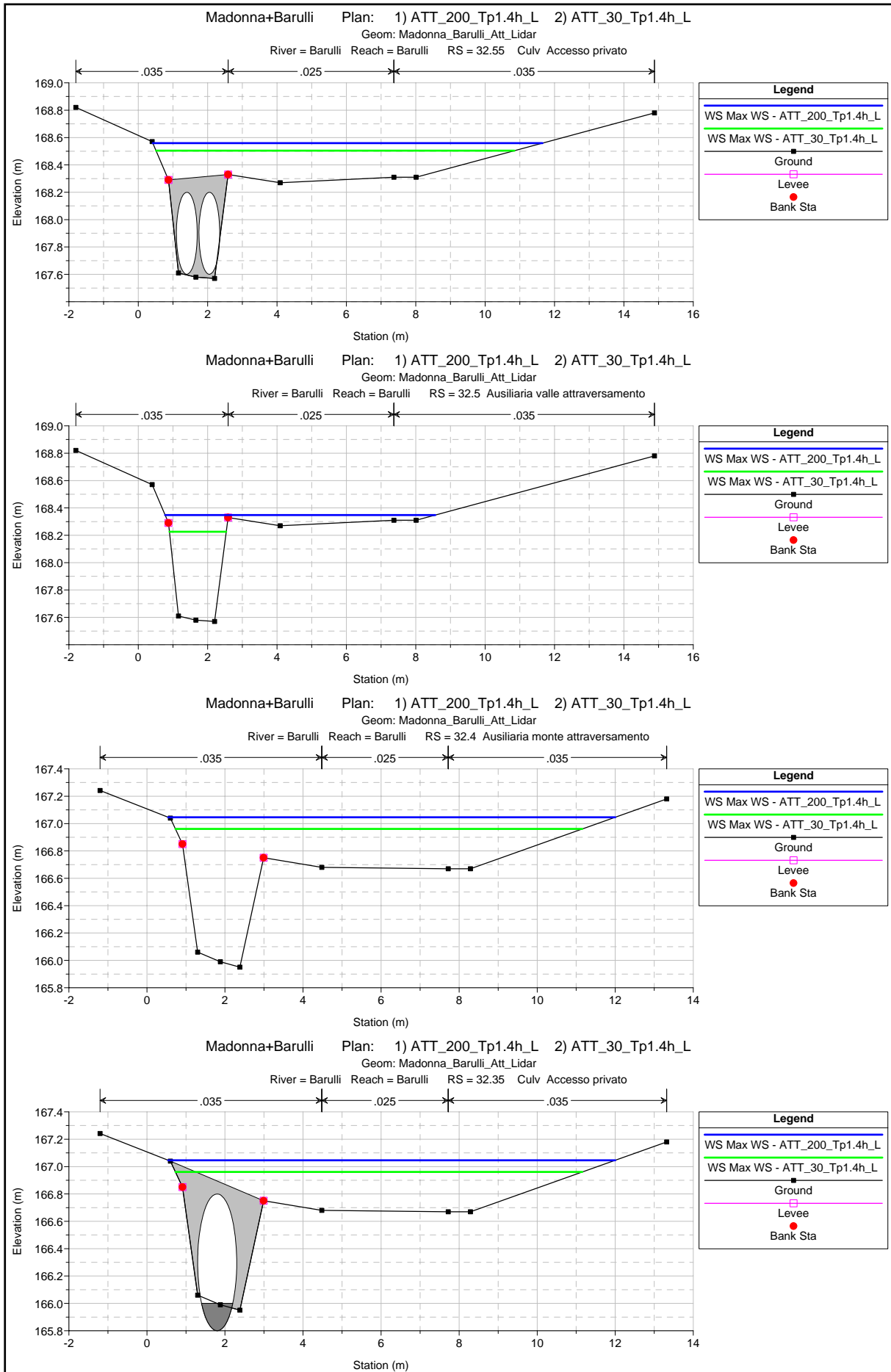
Madonna+Barulli Plan: 1) ATT\_200\_Tp1.4h\_L 2) ATT\_30\_Tp1.4h\_L  
 Geom: Madonna\_Barulli\_Att\_Lidar

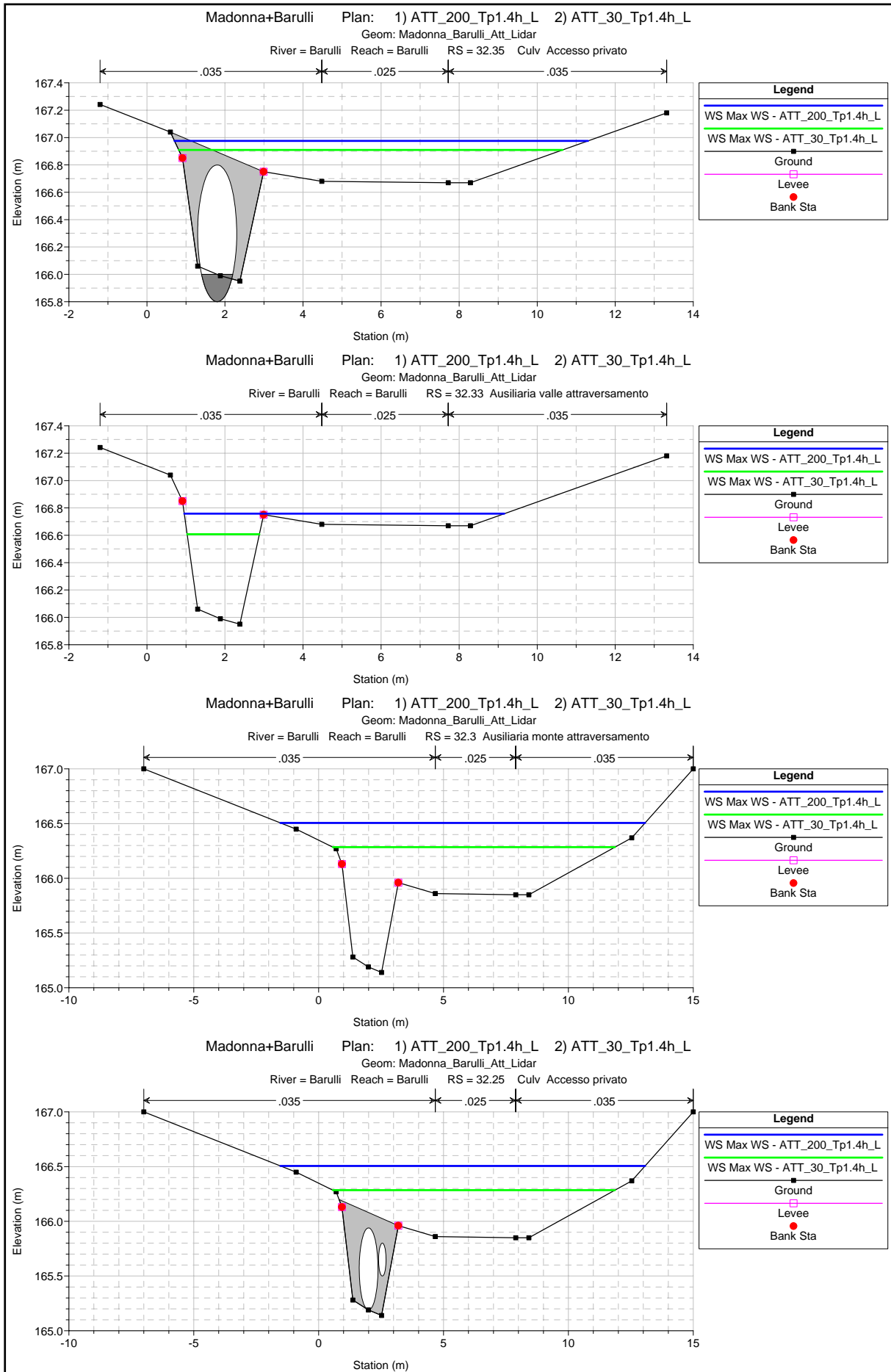




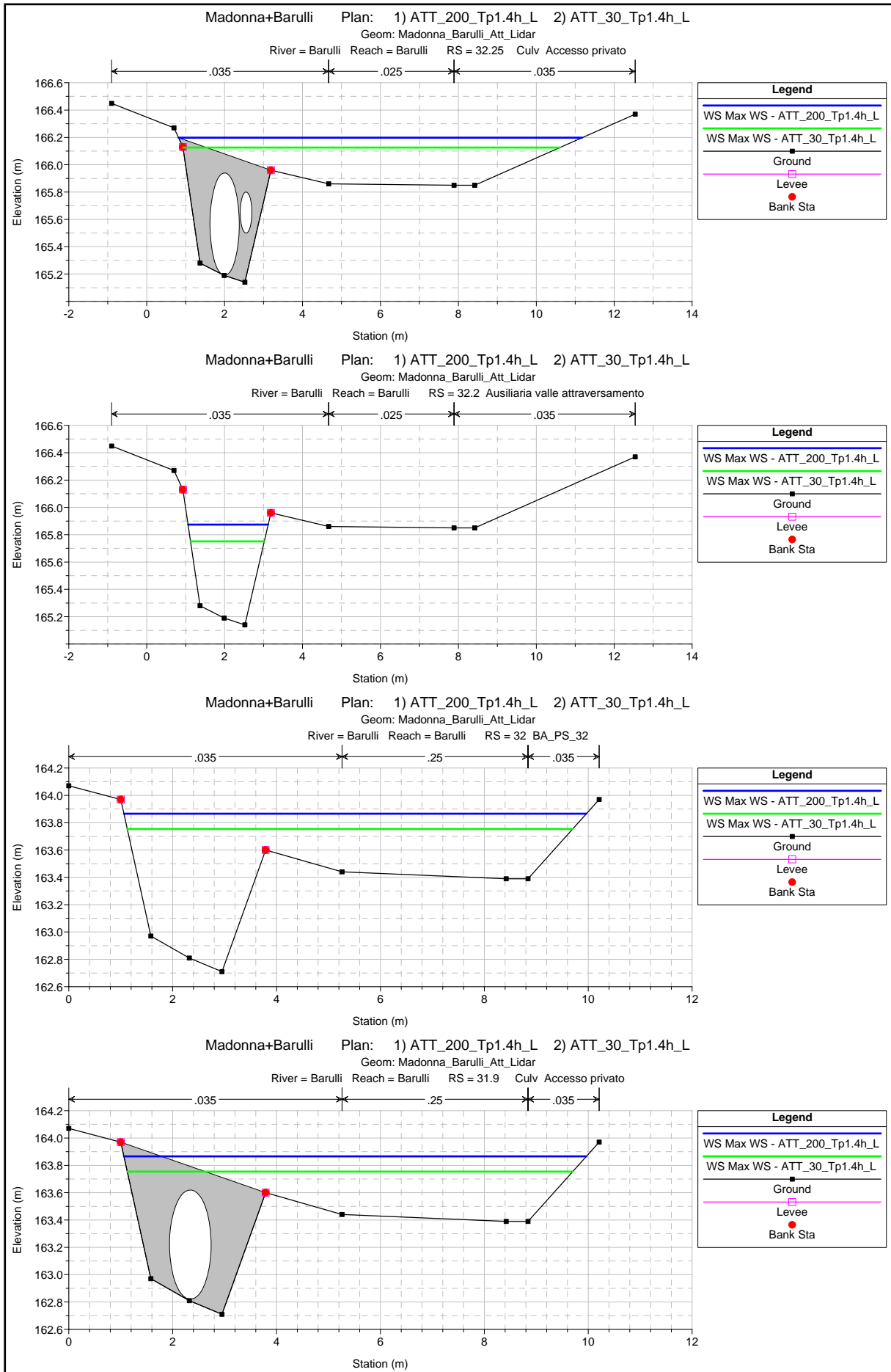


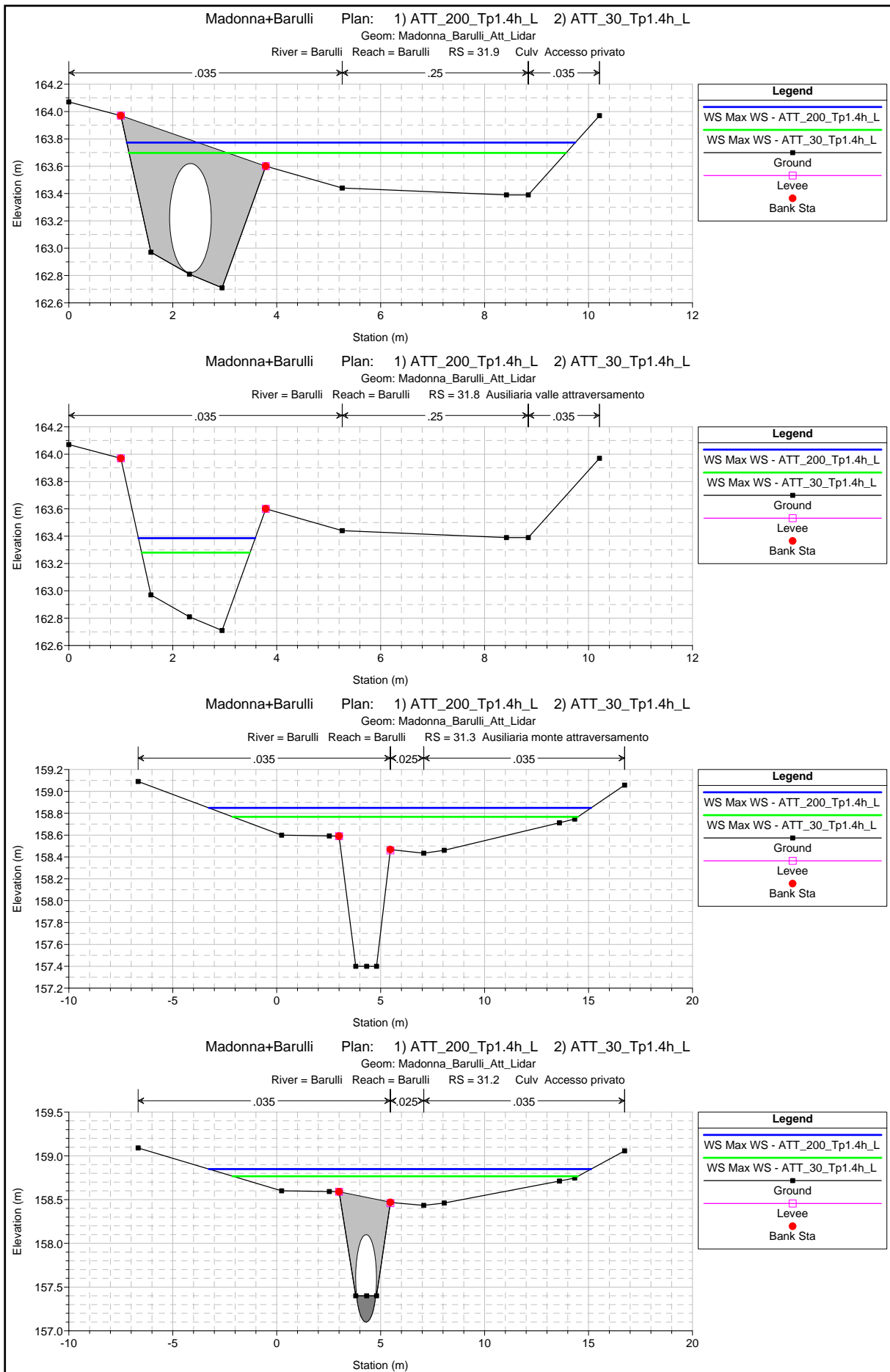


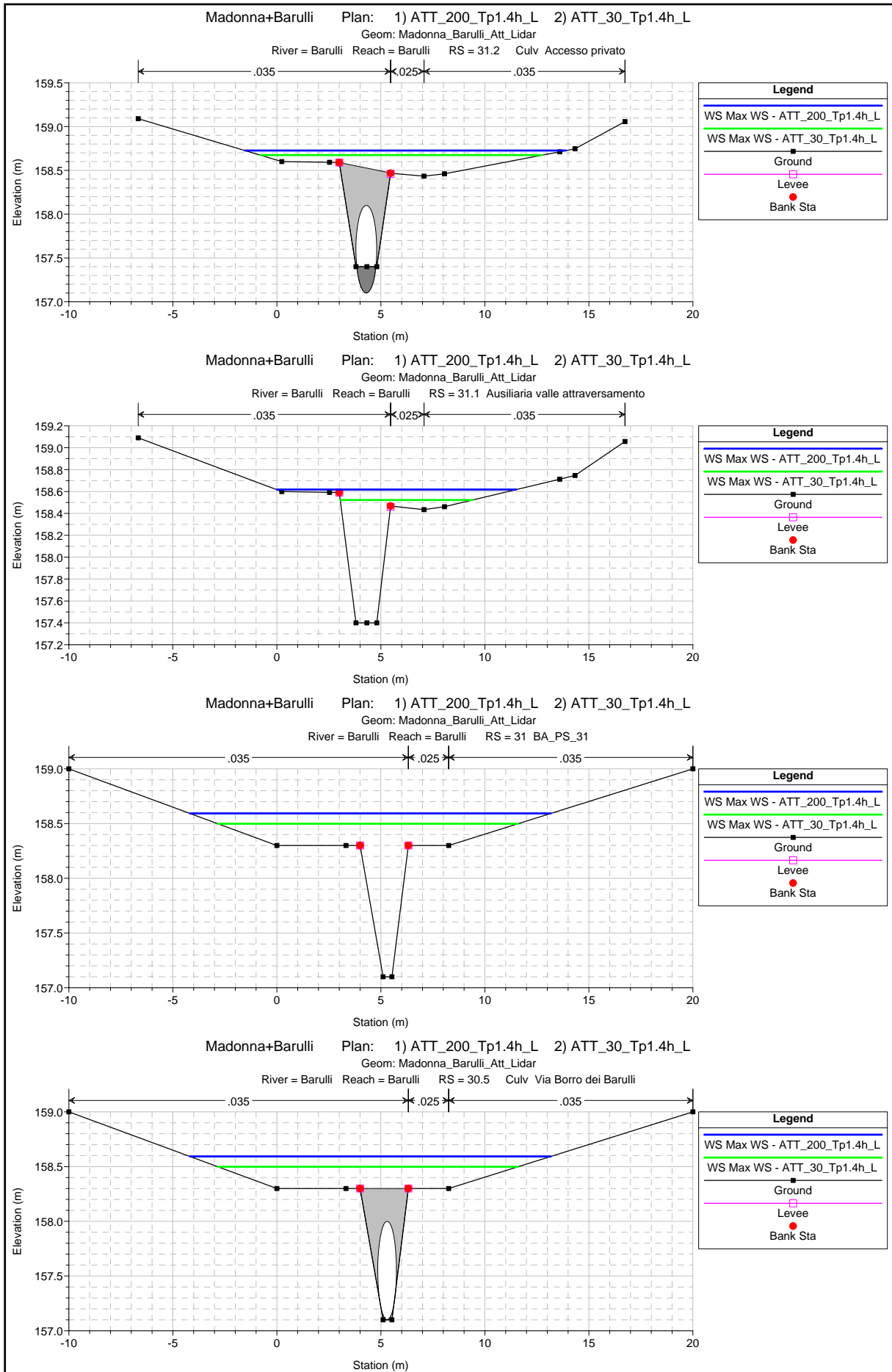


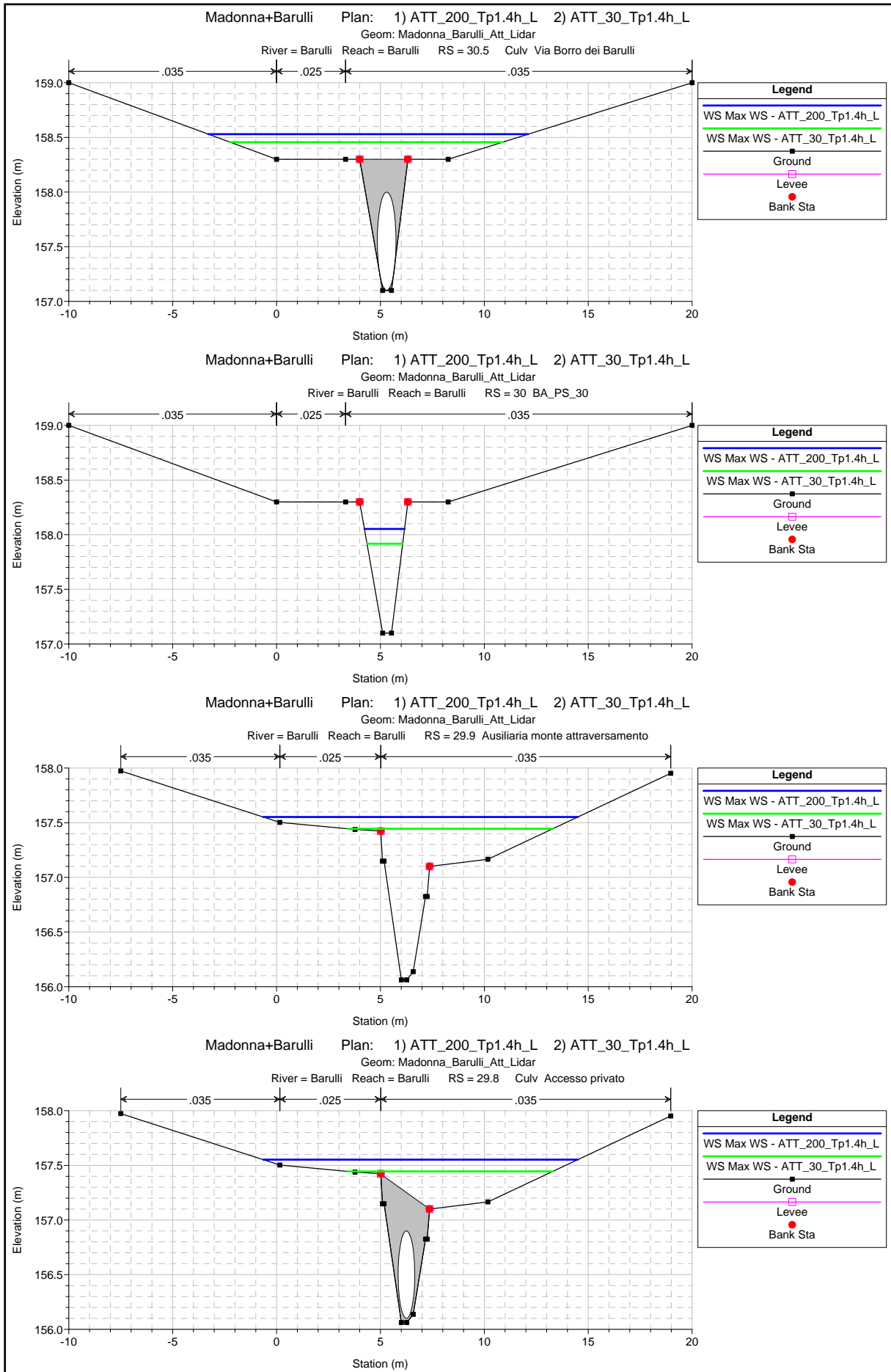


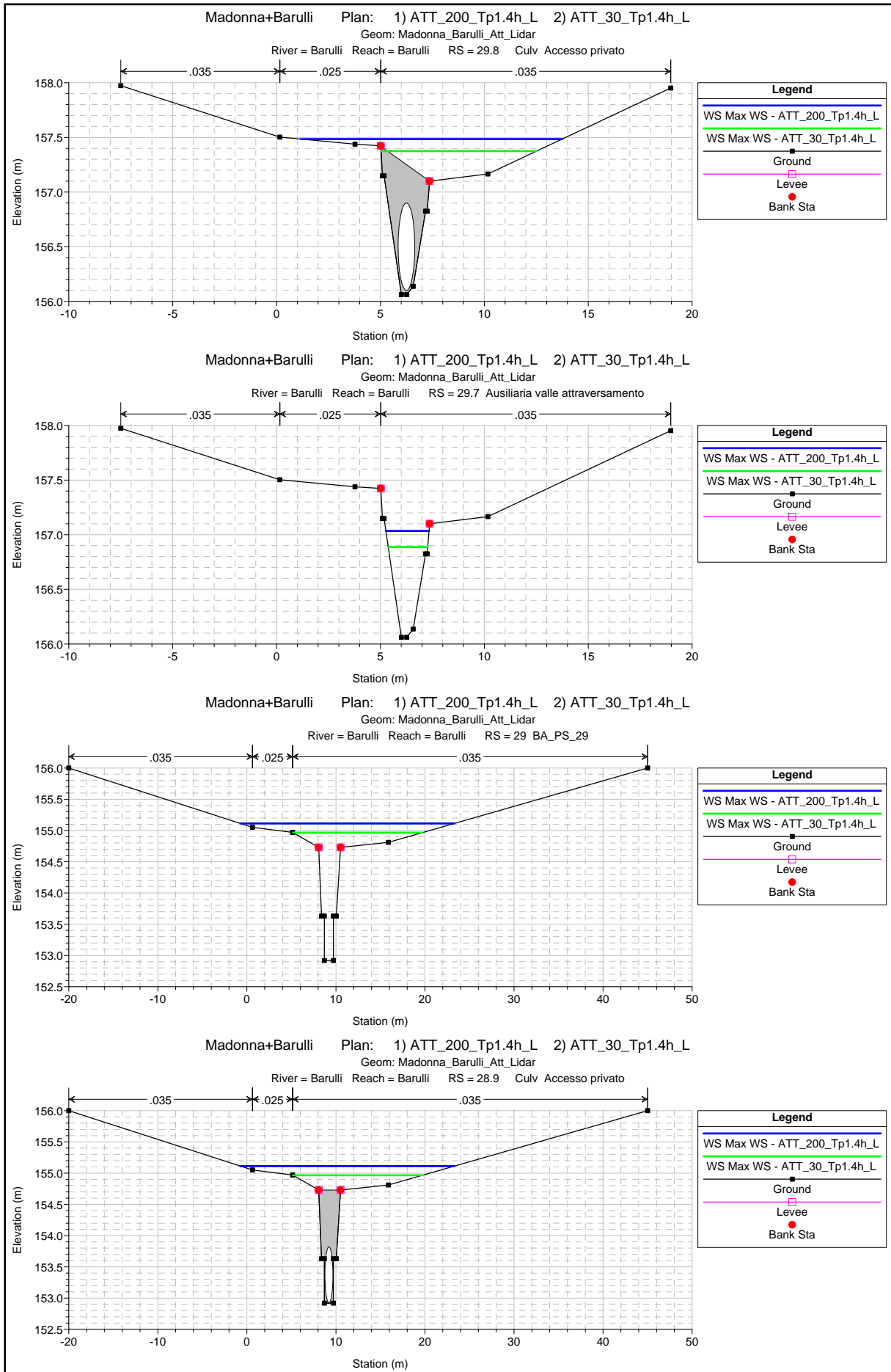


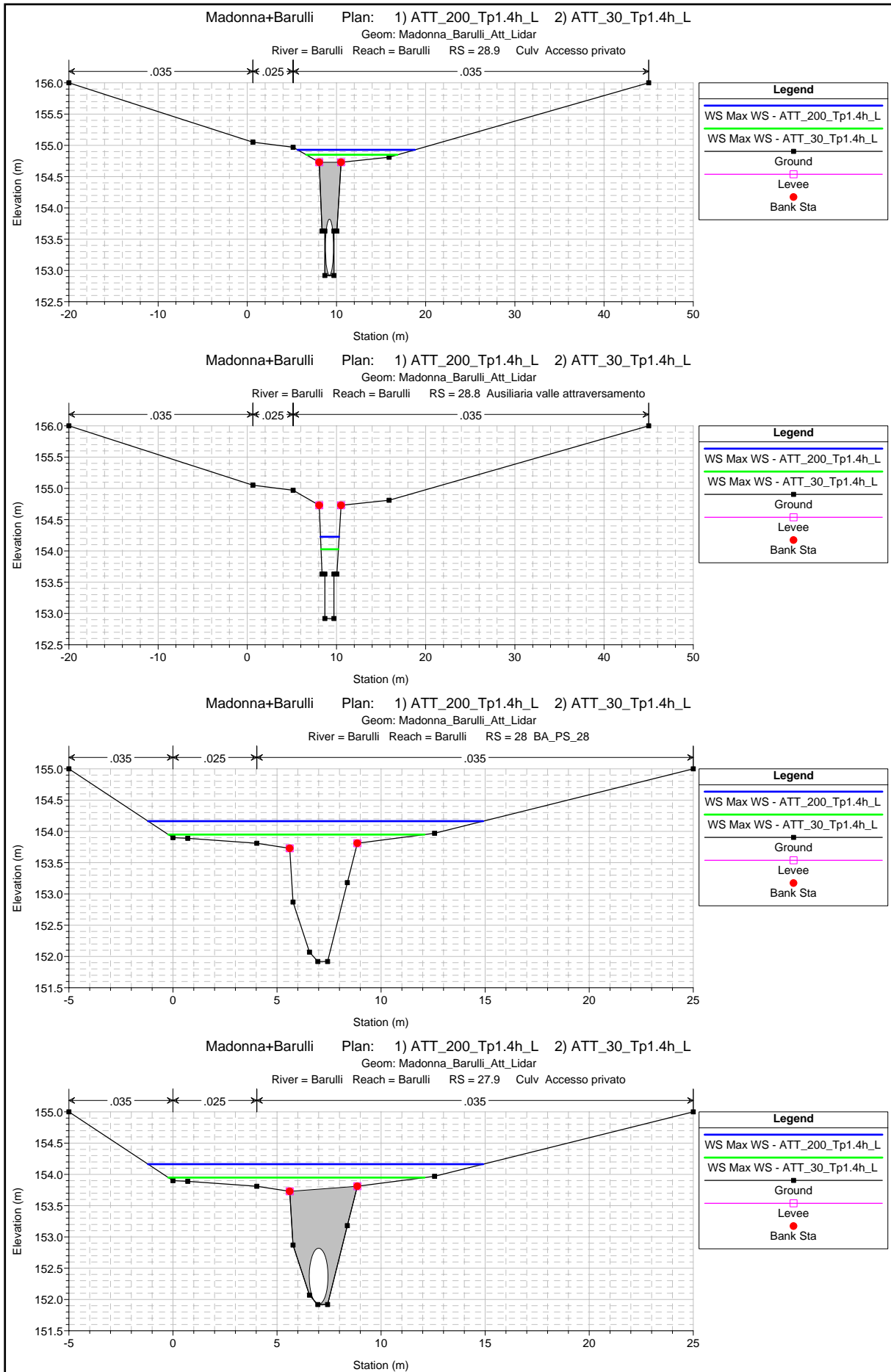


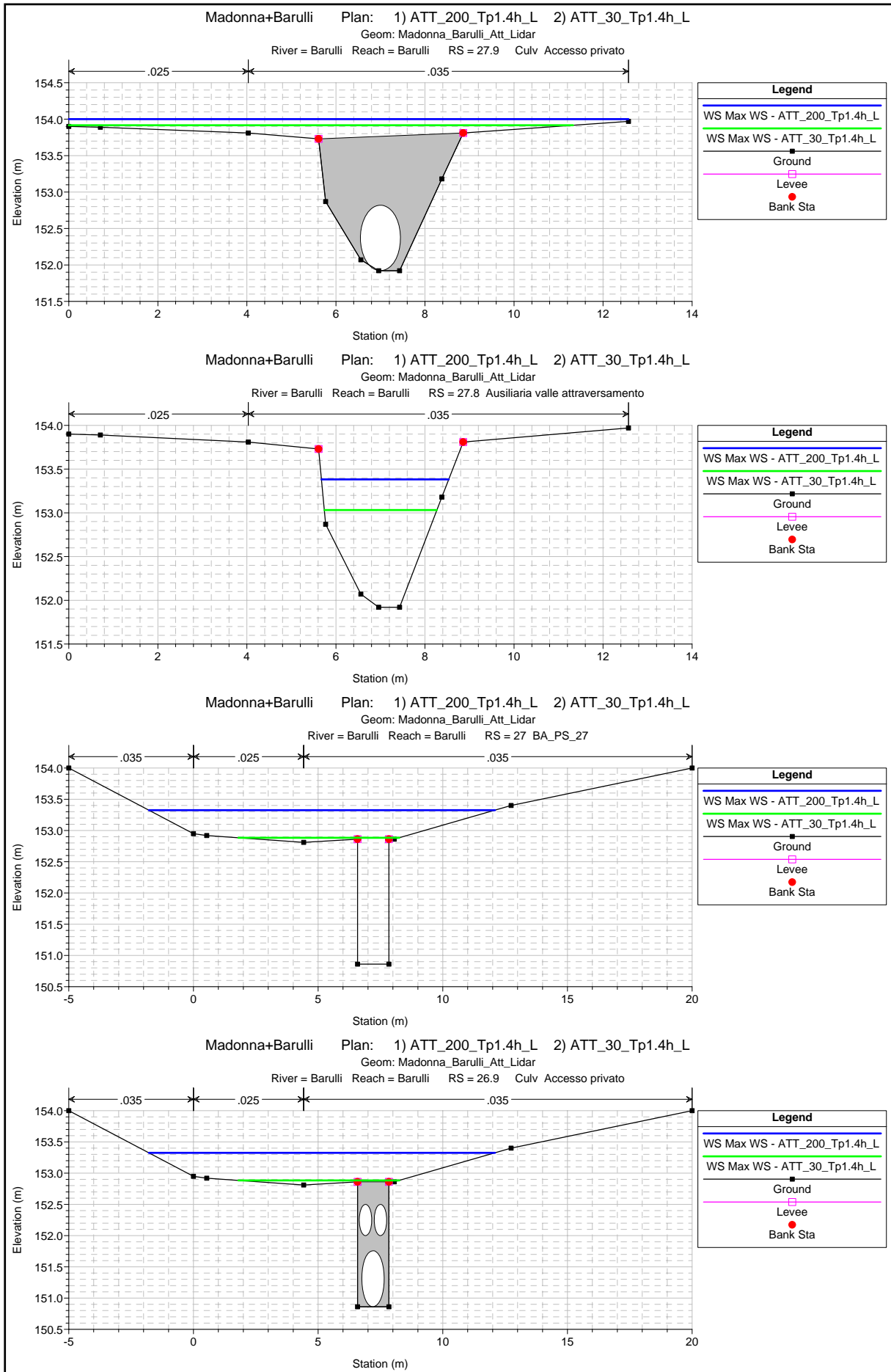


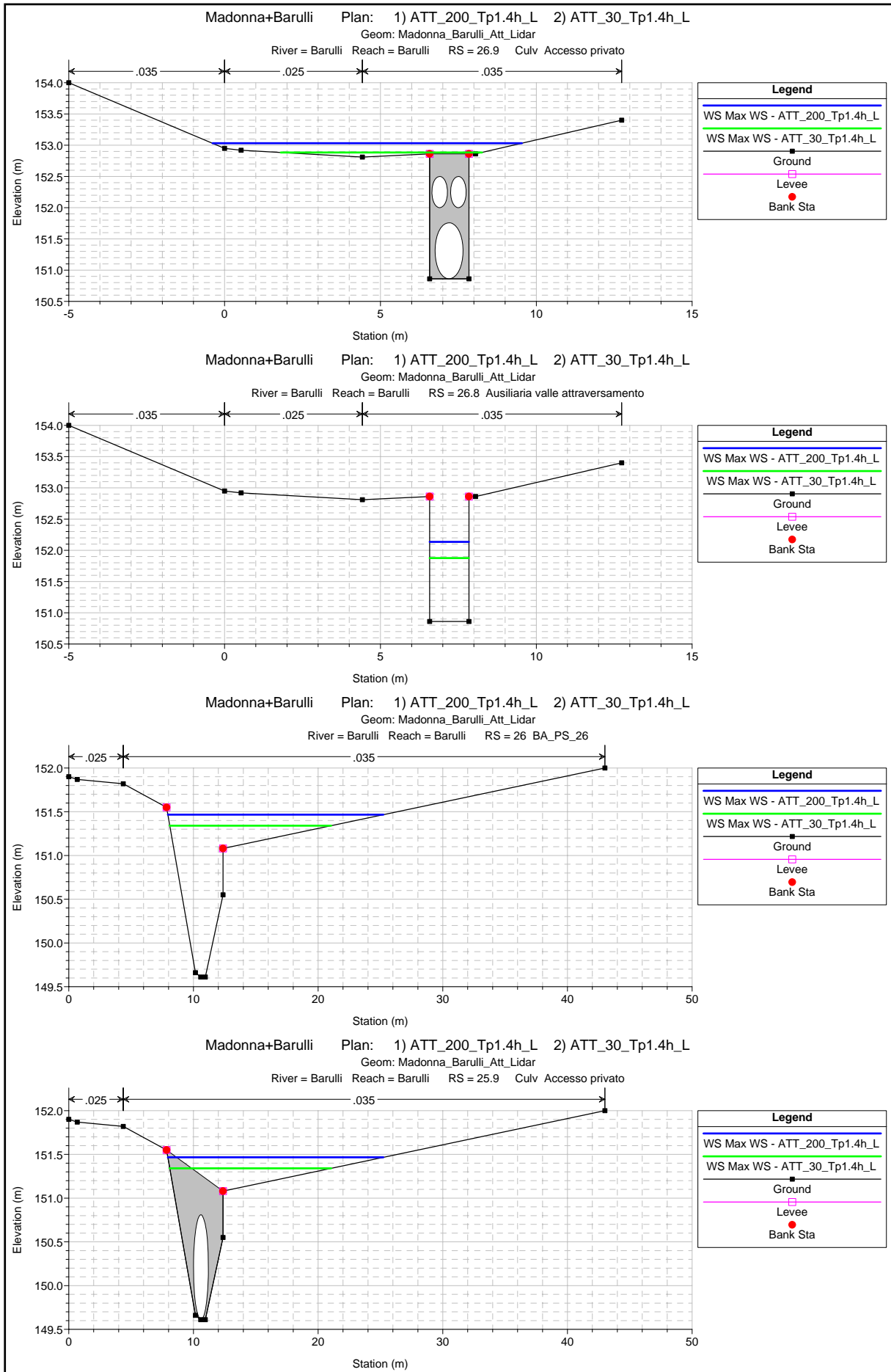




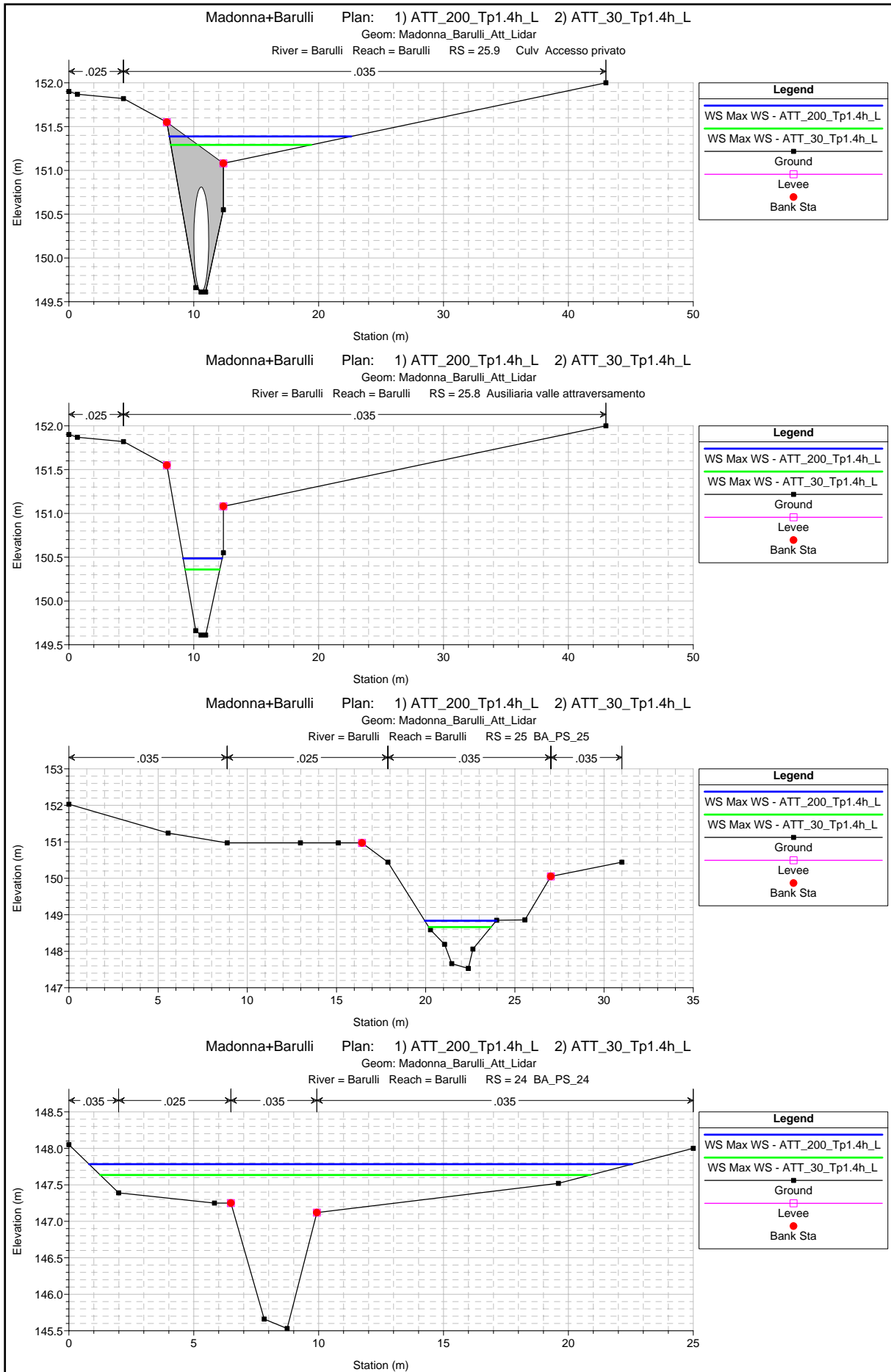


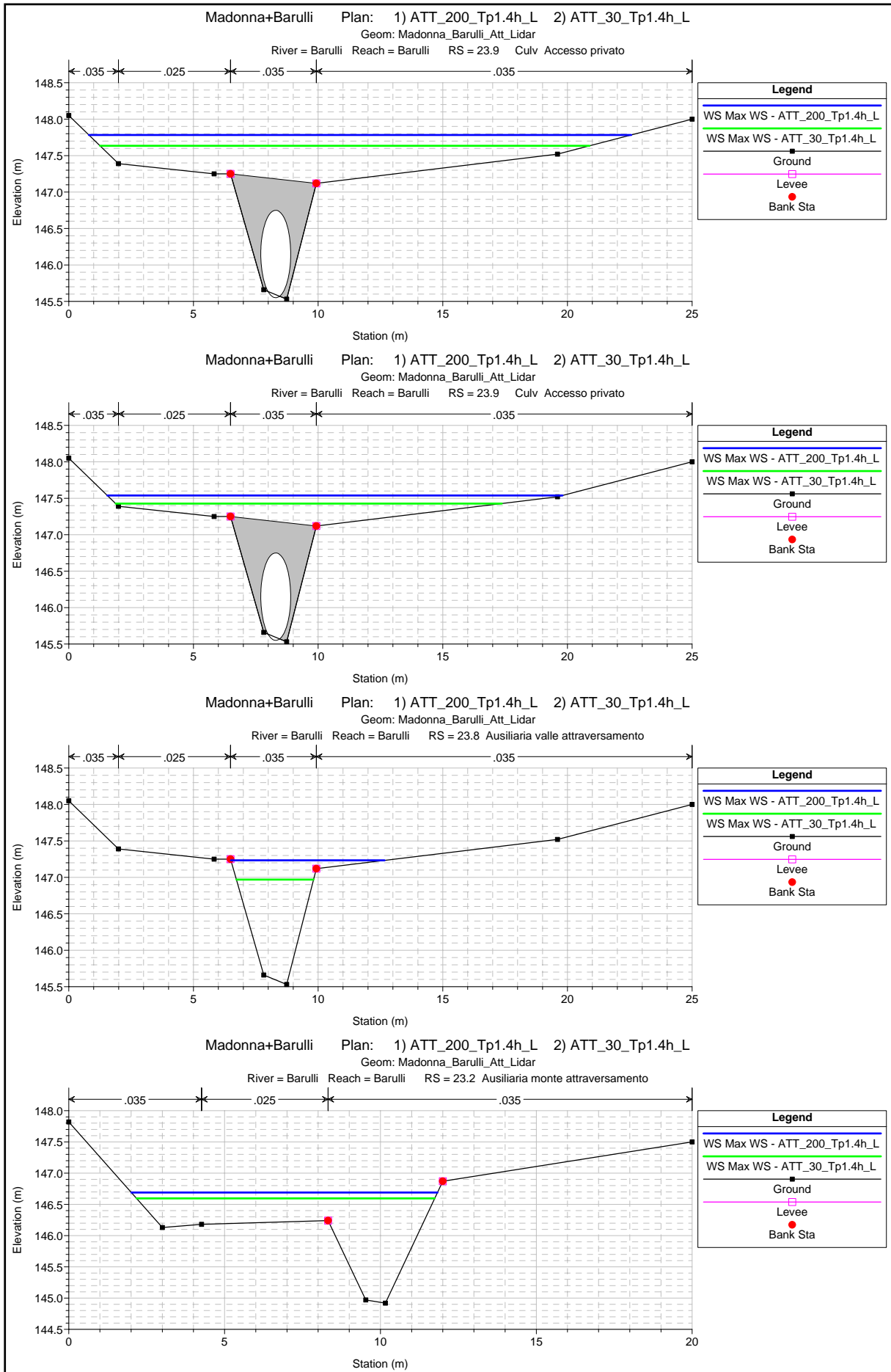


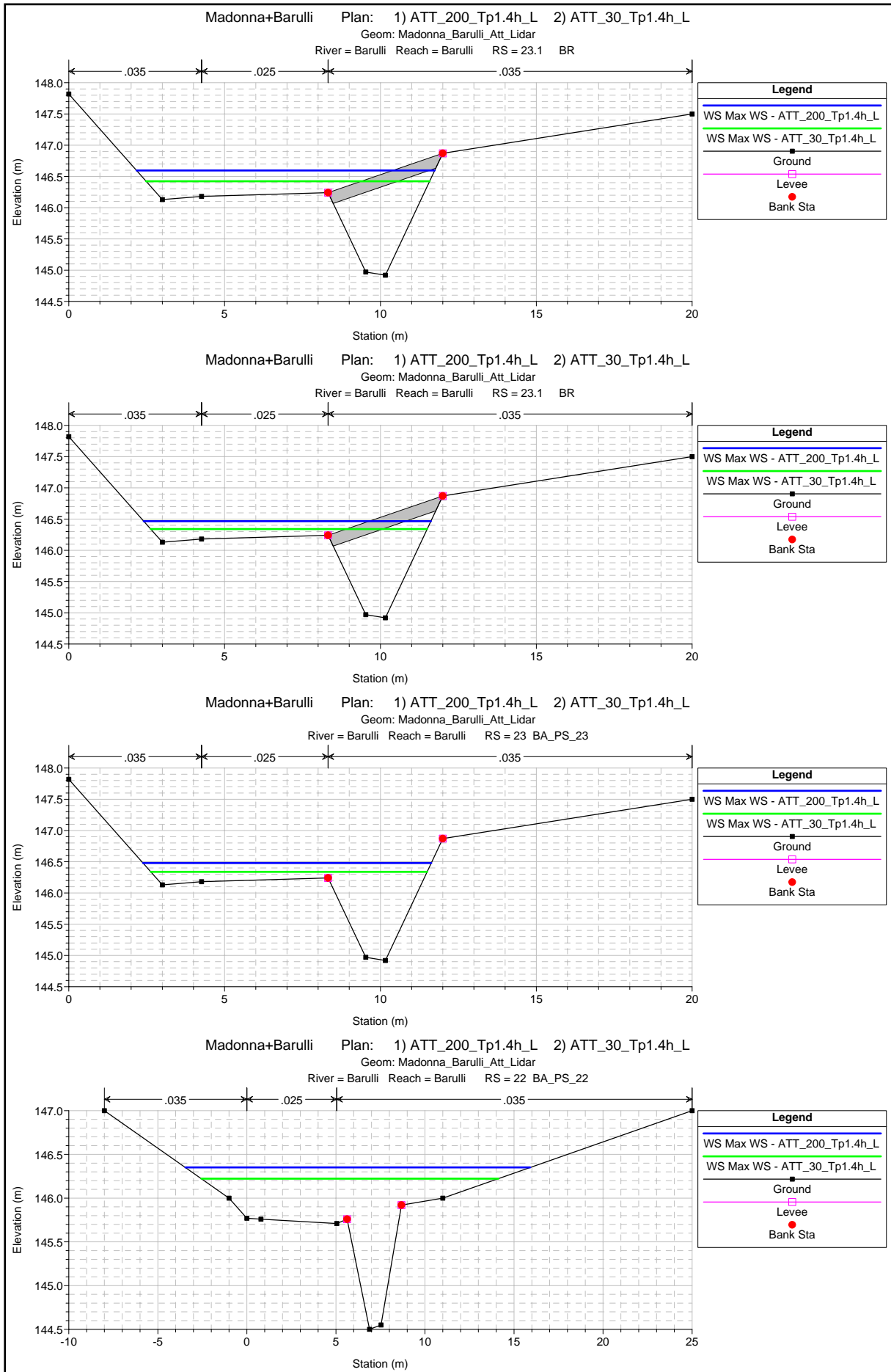


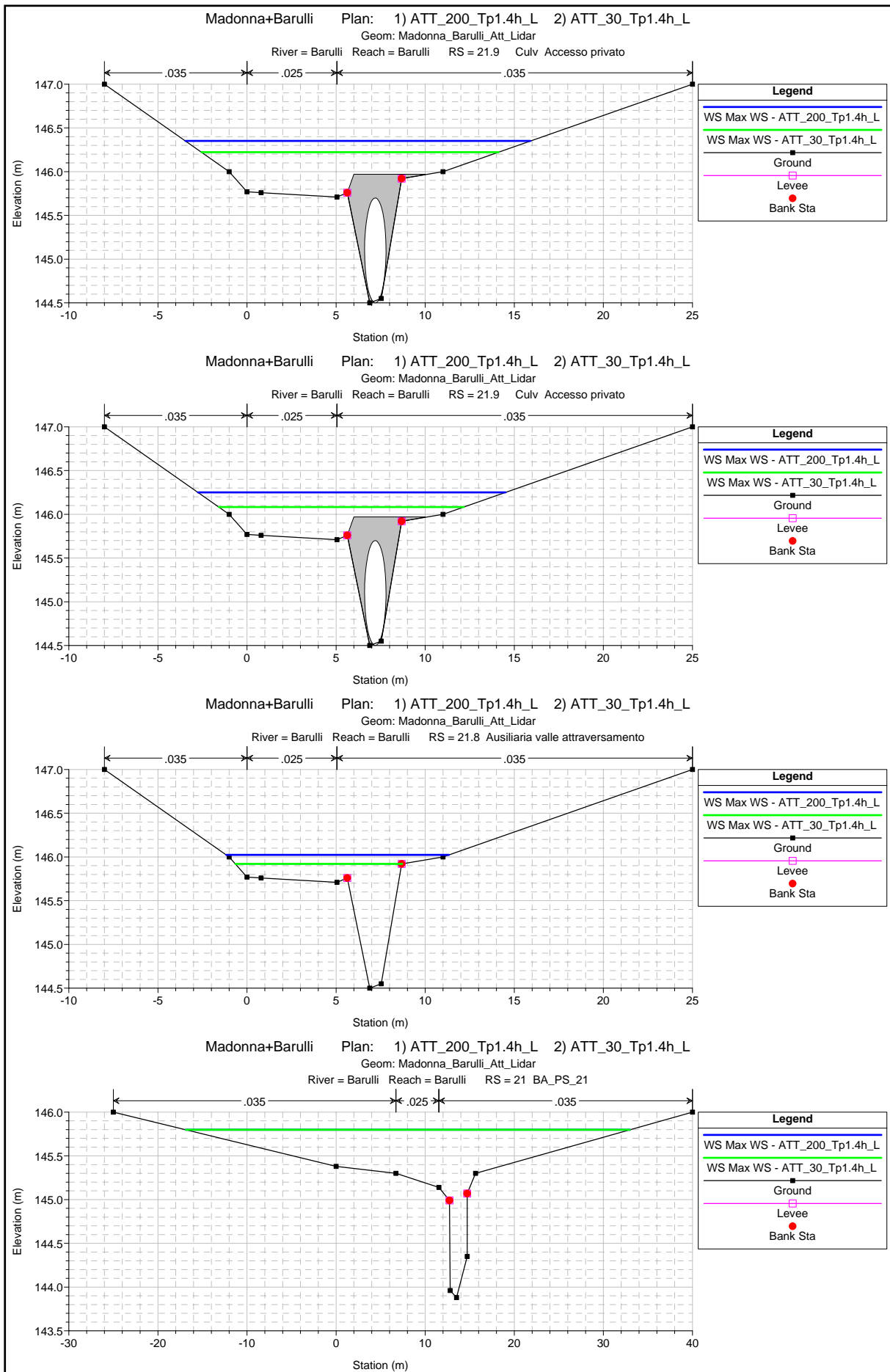


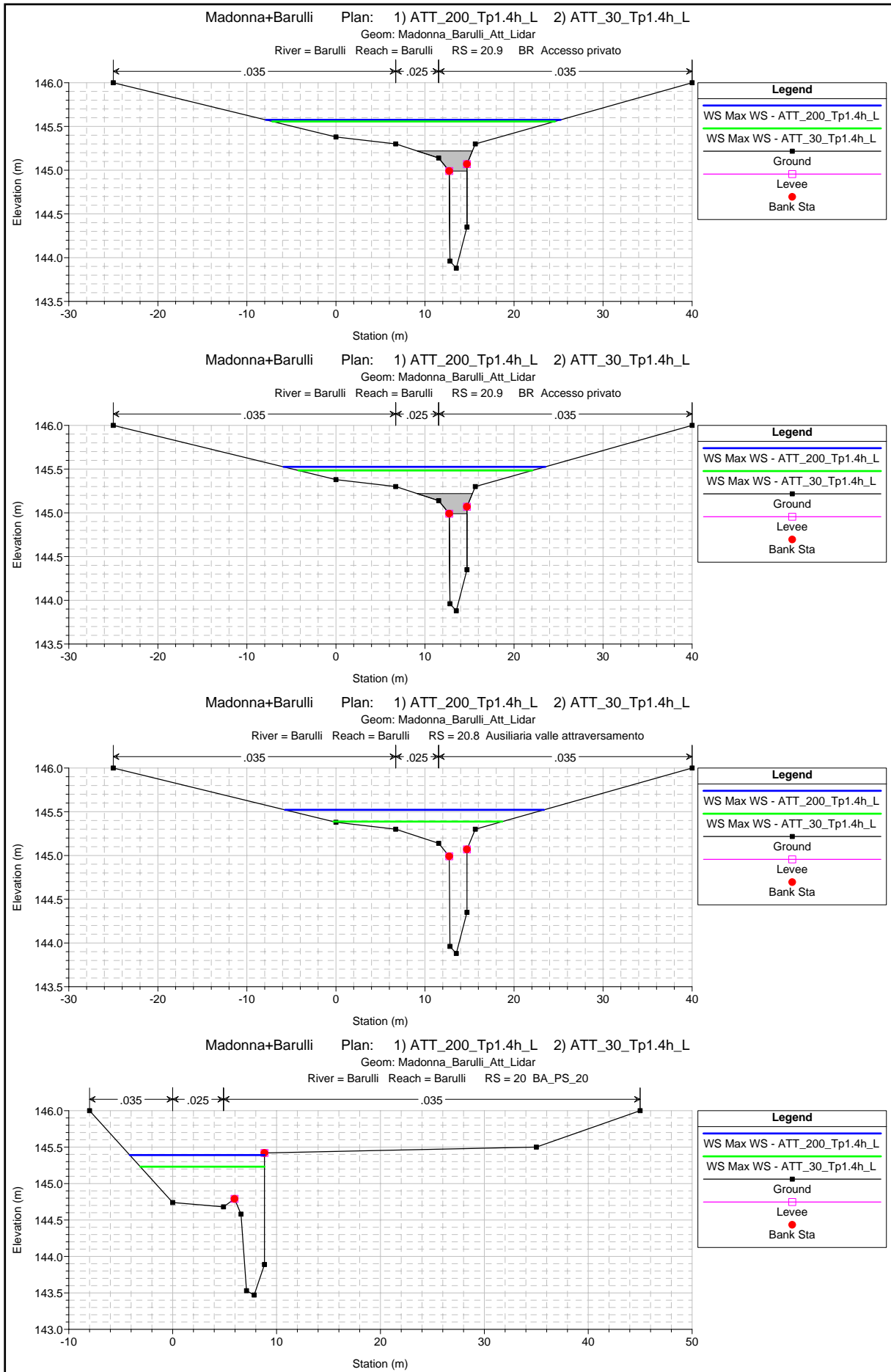


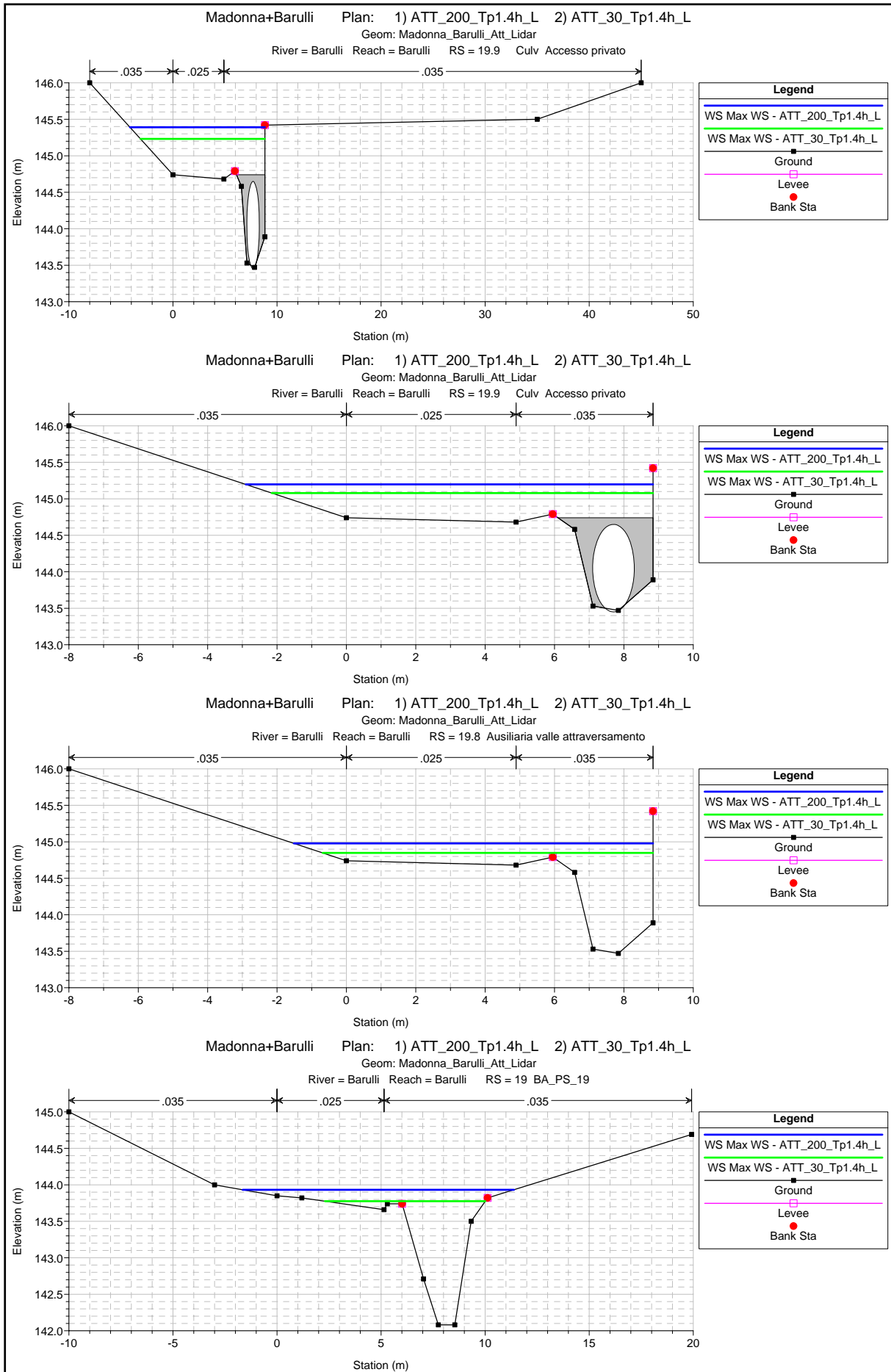


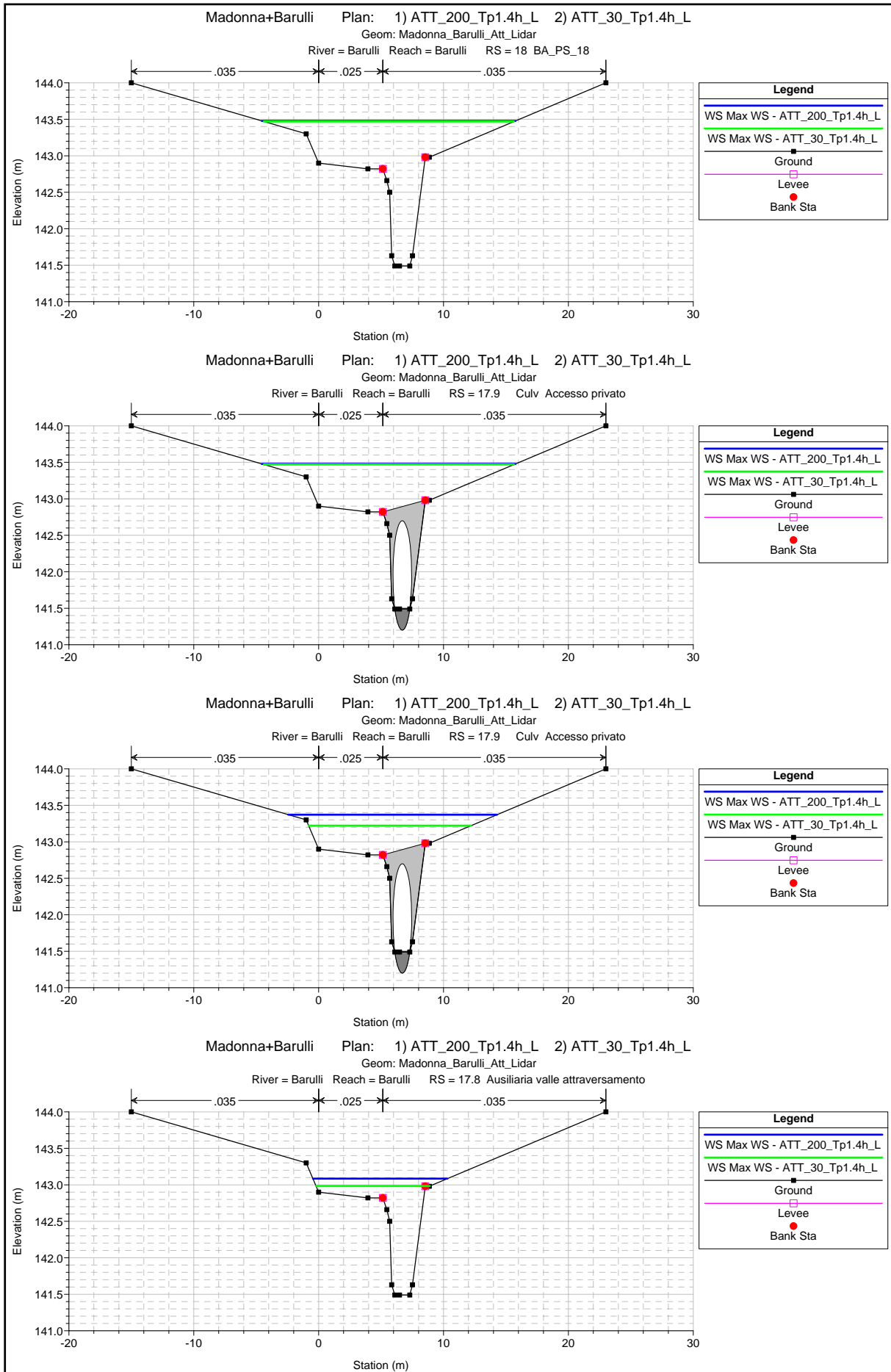


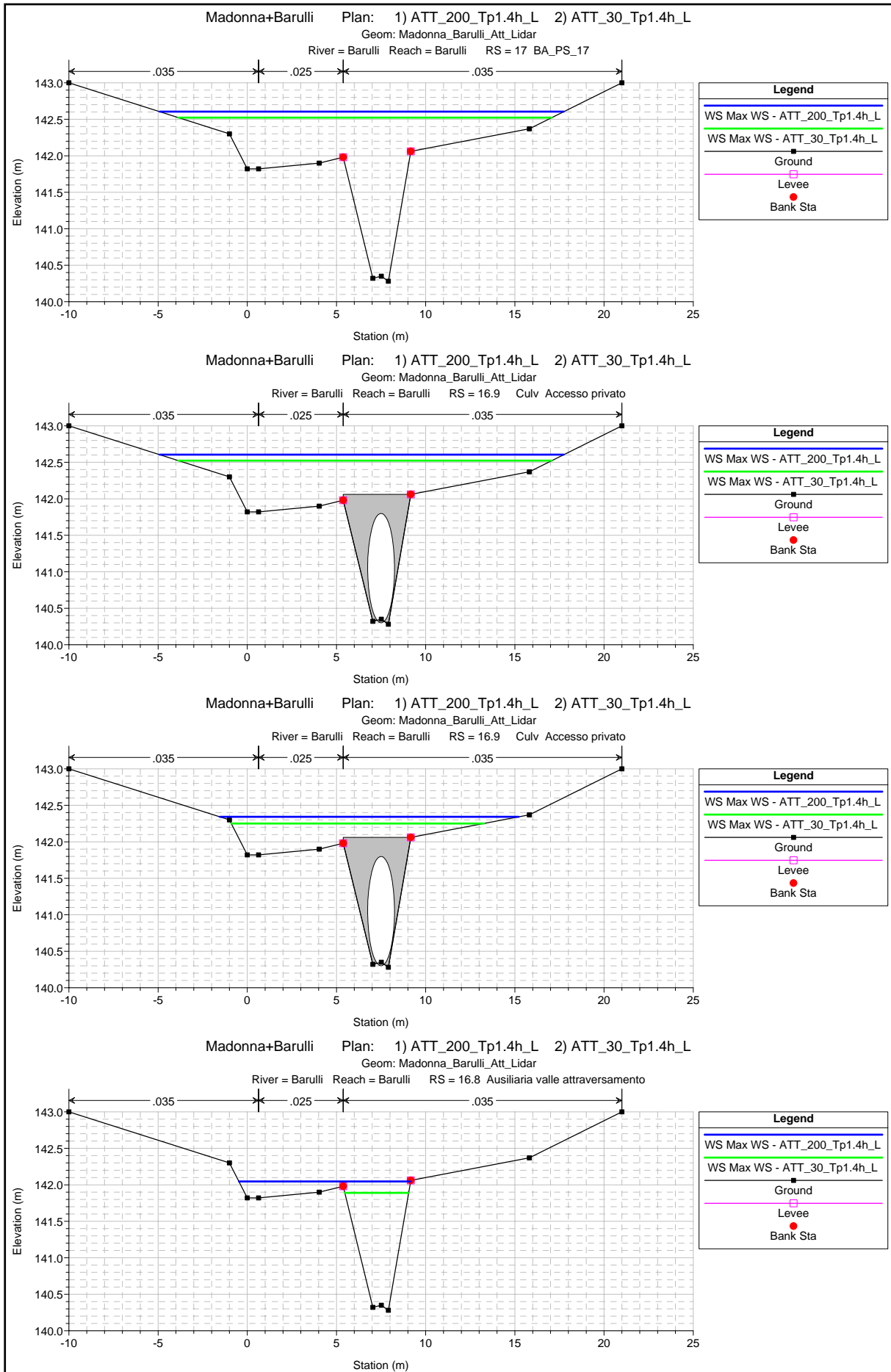




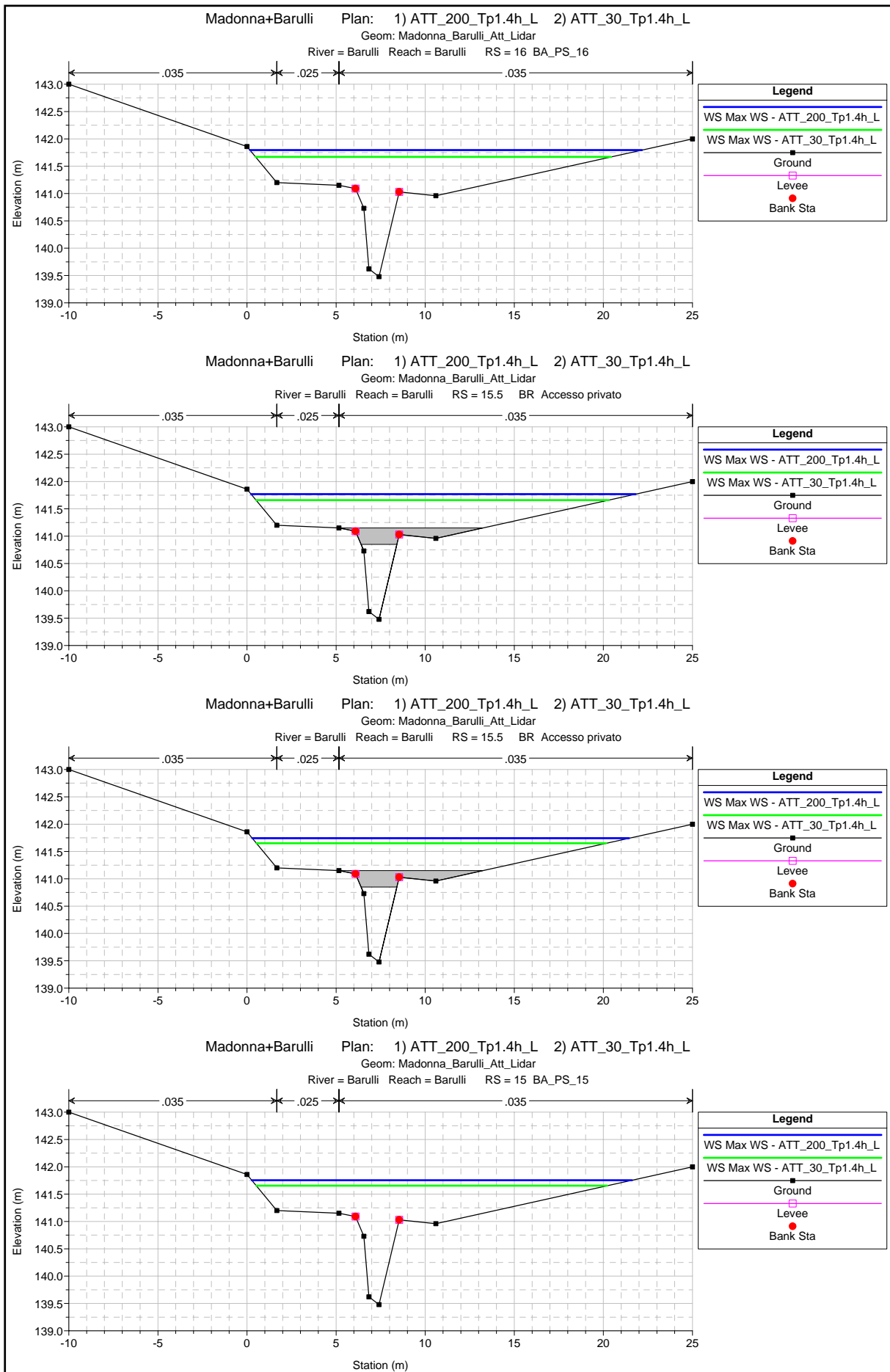


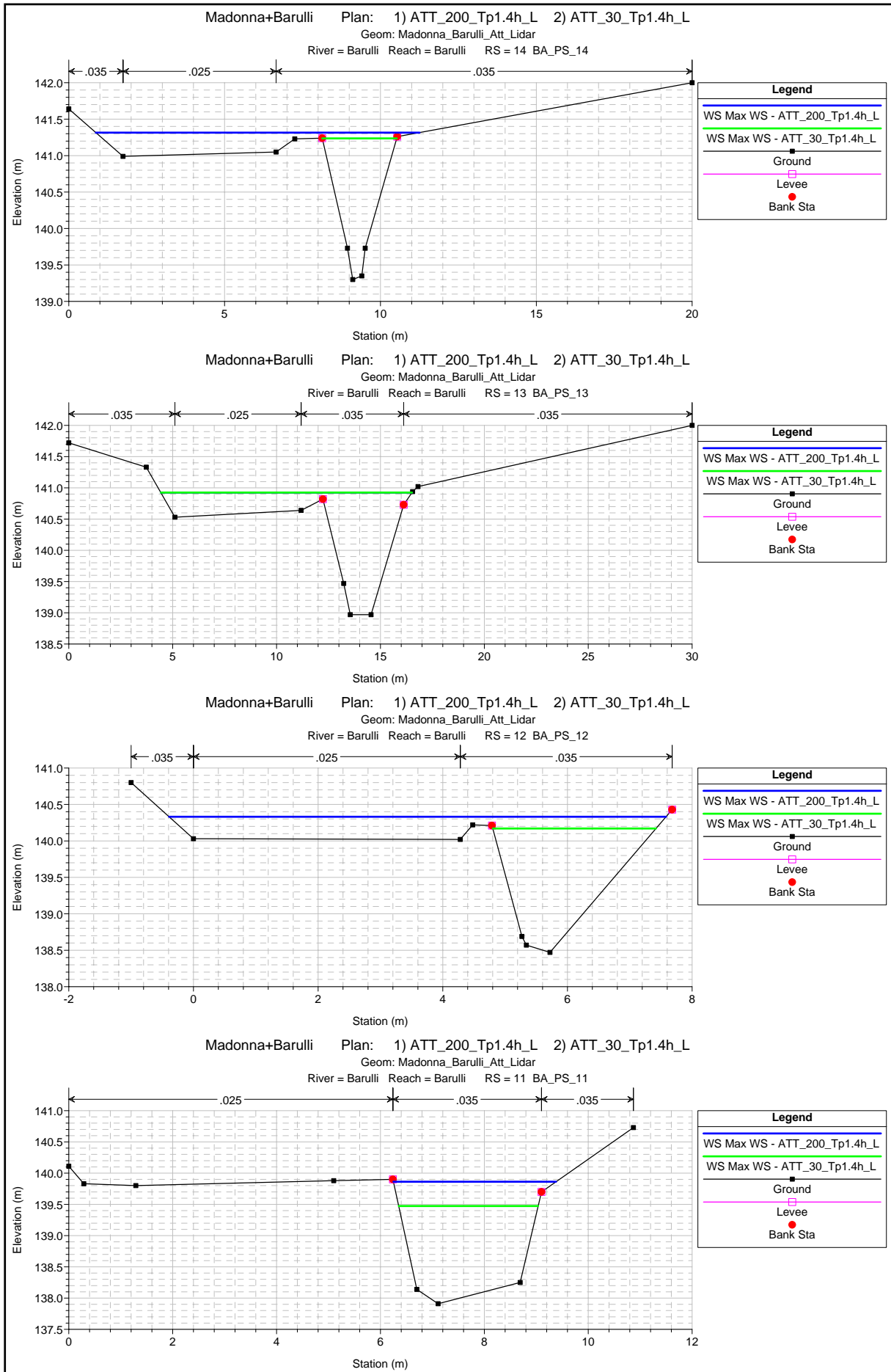


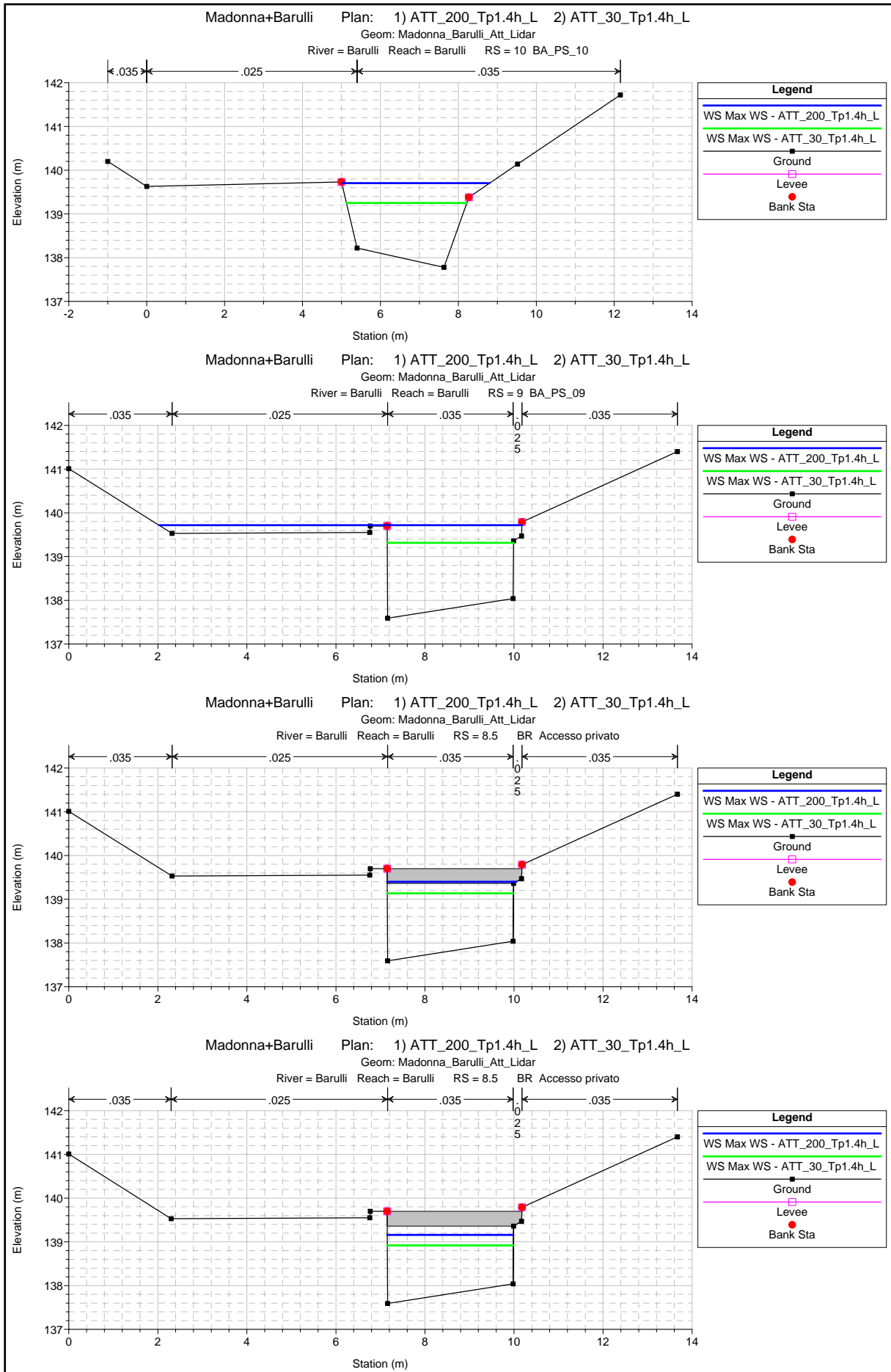


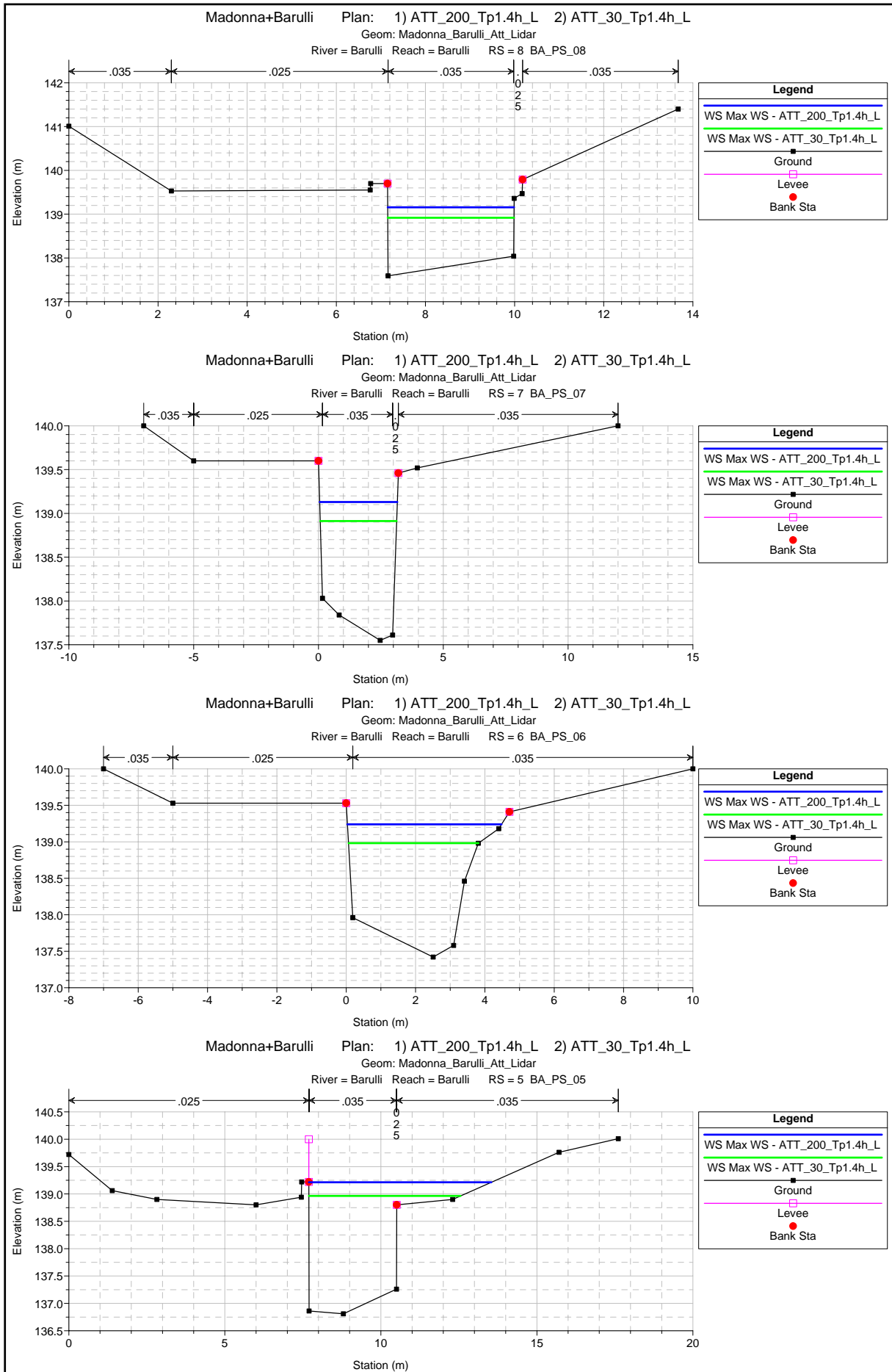


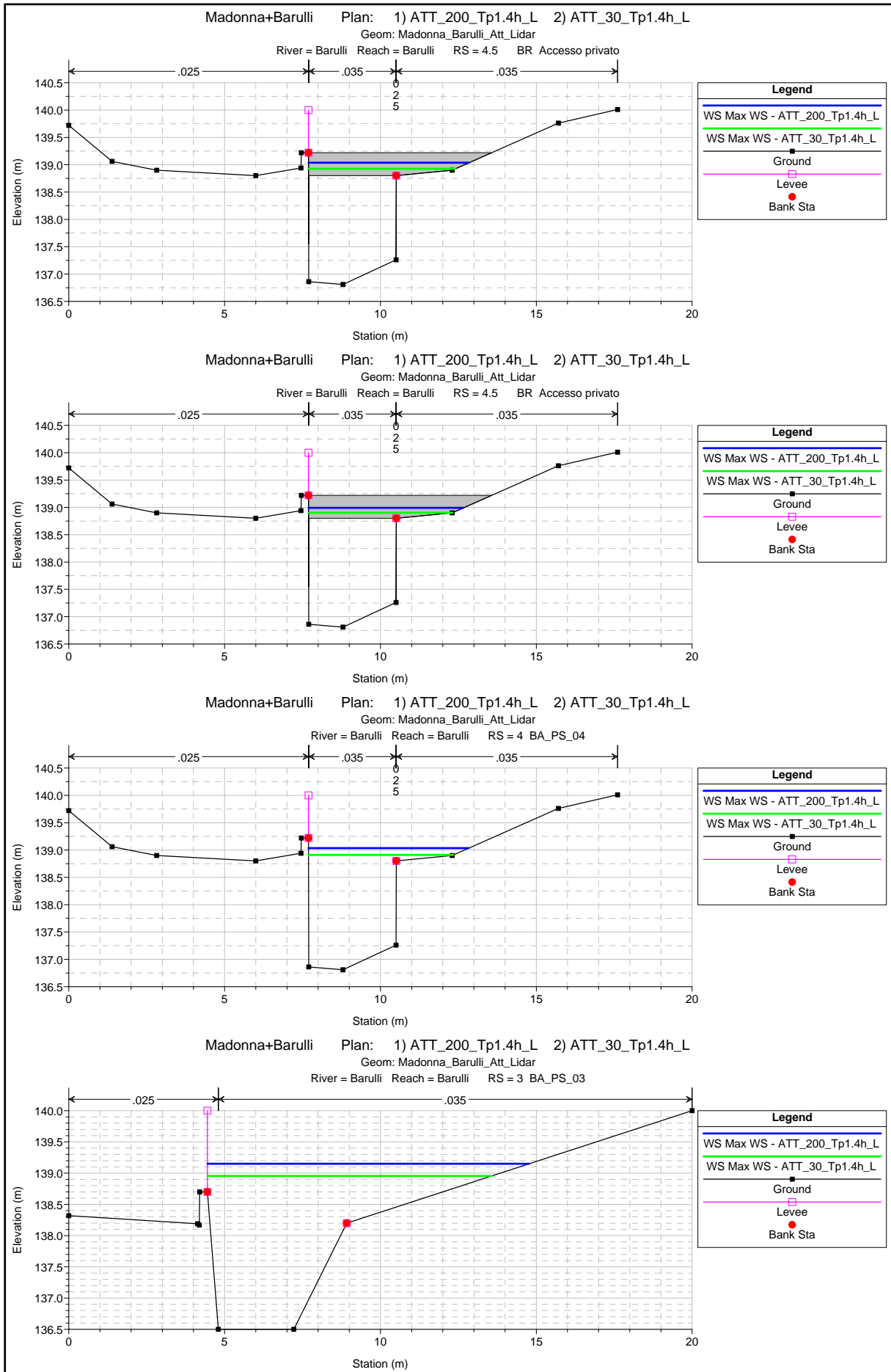


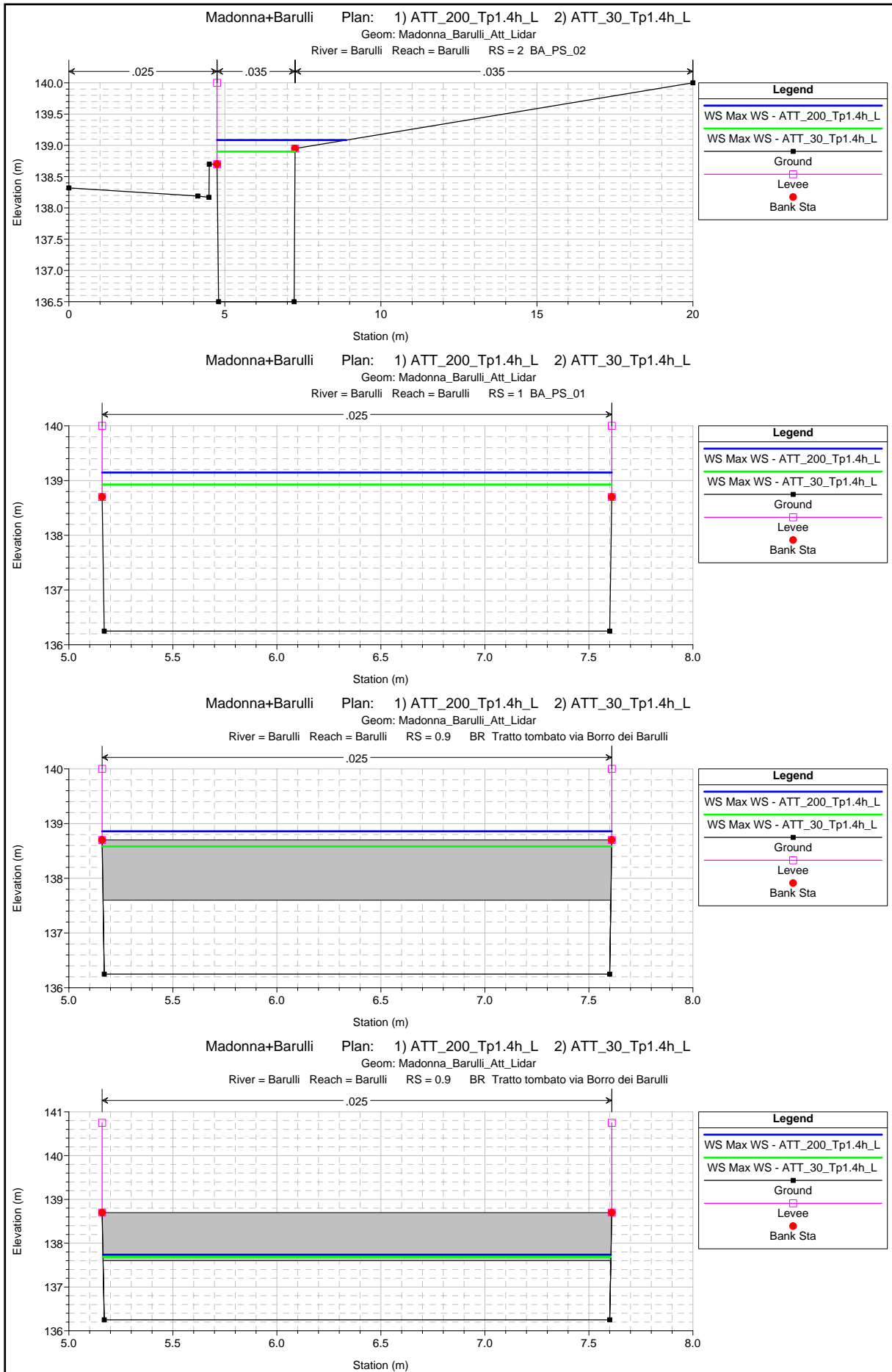


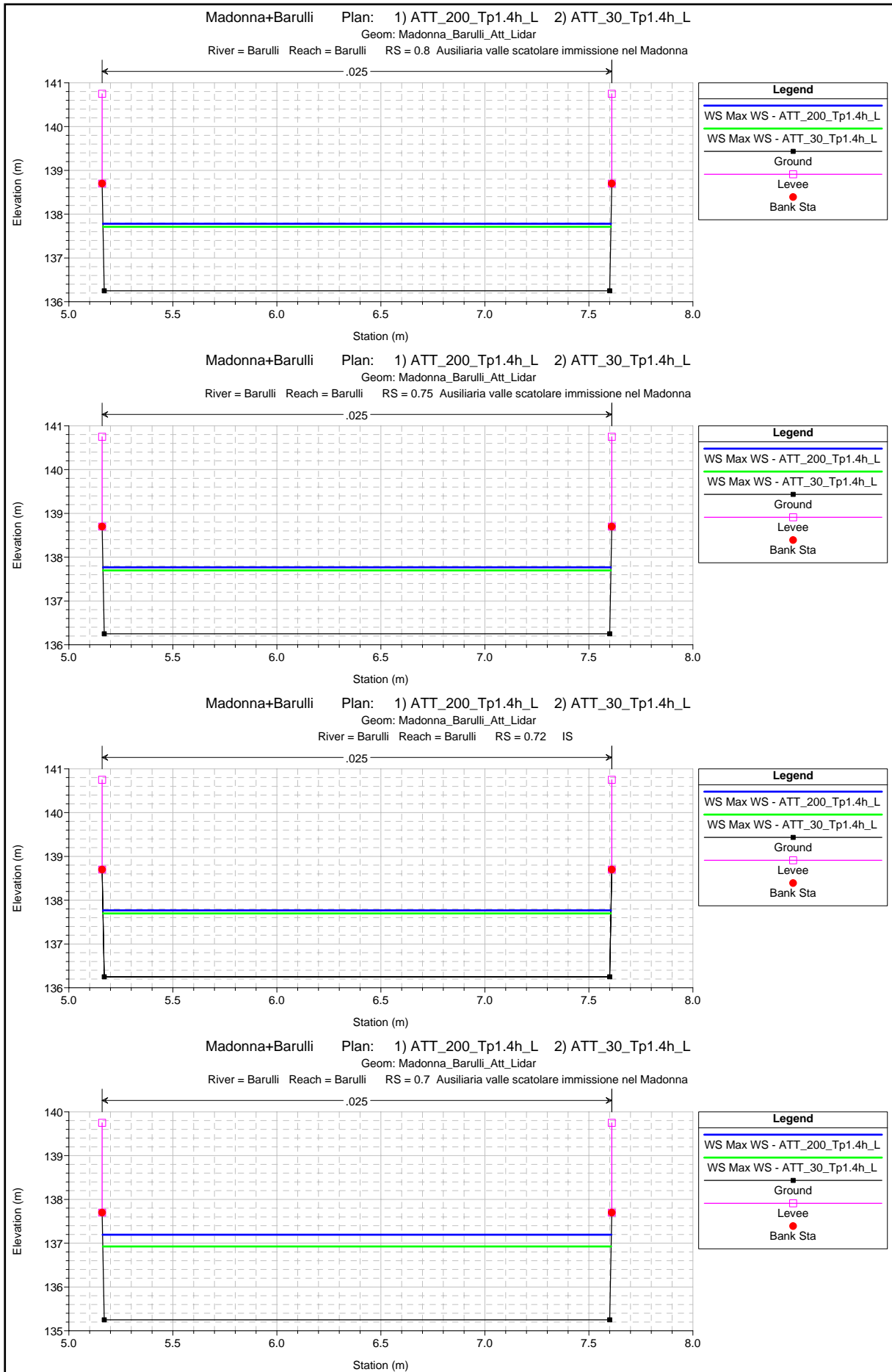


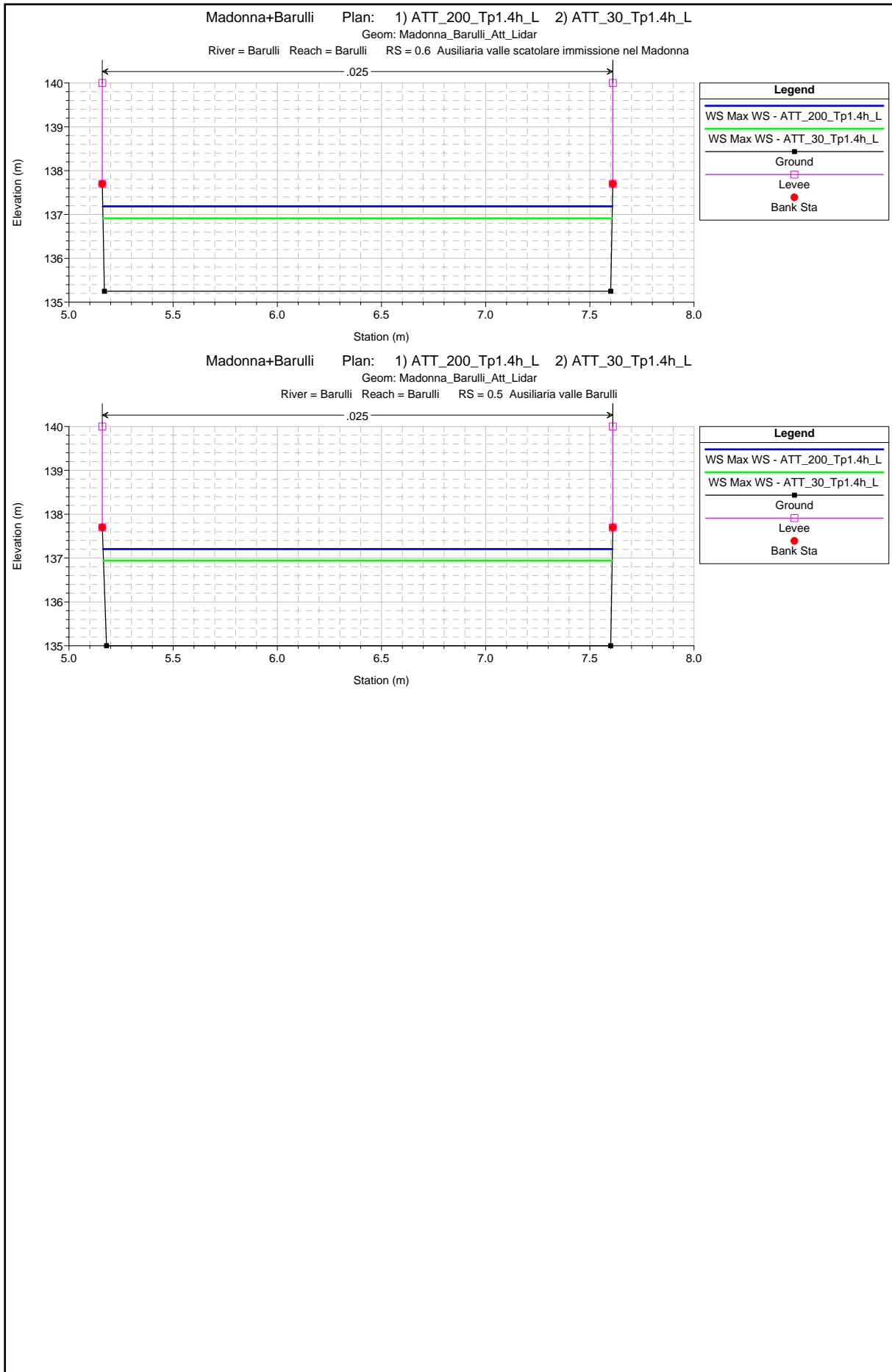














HEC-RAS River: Barulli Reach: Barulli Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	34	Max WS	ATT_200_Tp1.4h_L	3.75	173.76	174.67	174.83	175.15	0.039728	3.10	1.21	2.29	1.36
Barulli	34	Max WS	ATT_30_Tp1.4h_L	2.63	173.76	174.51	174.65	174.97	0.046078	3.00	0.88	1.97	1.43
Barulli	33.8	Max WS	ATT_200_Tp1.4h_L	3.75	172.80	174.54		174.57	0.001468	0.85	5.75	18.53	0.27
Barulli	33.8	Max WS	ATT_30_Tp1.4h_L	2.63	172.80	174.46		174.49	0.001225	0.73	4.43	16.36	0.25
Barulli	33.7			Culvert									
Barulli	33.6	Max WS	ATT_200_Tp1.4h_L	3.75	172.80	173.78	173.92	174.30	0.041897	3.18	1.18	1.96	1.31
Barulli	33.6	Max WS	ATT_30_Tp1.4h_L	2.63	172.80	173.63	173.74	174.07	0.042739	2.94	0.89	1.72	1.30
Barulli	33	Max WS	ATT_200_Tp1.4h_L	3.75	170.71	171.64	171.77	172.04	0.041773	3.23	1.56	8.56	1.18
Barulli	33	Max WS	ATT_30_Tp1.4h_L	2.63	170.71	171.57	171.71	171.99	0.043383	3.08	1.05	5.67	1.18
Barulli	32.8	Max WS	ATT_200_Tp1.4h_L	3.75	169.16	170.26		170.30	0.002983	1.00	4.46	14.93	0.37
Barulli	32.8	Max WS	ATT_30_Tp1.4h_L	2.63	169.16	170.19		170.22	0.002757	0.90	3.49	12.97	0.35
Barulli	32.75			Culvert									
Barulli	32.7	Max WS	ATT_200_Tp1.4h_L	3.75	169.16	170.00	170.12	170.42	0.045398	3.10	1.50	8.37	1.34
Barulli	32.7	Max WS	ATT_30_Tp1.4h_L	2.63	169.16	169.92	170.07	170.39	0.050211	3.06	0.91	4.96	1.37
Barulli	32.6	Max WS	ATT_200_Tp1.4h_L	3.75	167.57	168.64		168.68	0.002512	1.01	4.37	13.07	0.34
Barulli	32.6	Max WS	ATT_30_Tp1.4h_L	2.63	167.57	168.56		168.60	0.002326	0.92	3.43	11.32	0.32
Barulli	32.55			Culvert									
Barulli	32.5	Max WS	ATT_200_Tp1.4h_L	3.75	167.57	168.35	168.49	168.83	0.042280	3.21	1.36	7.79	1.30
Barulli	32.5	Max WS	ATT_30_Tp1.4h_L	2.63	167.57	168.23	168.43	168.70	0.046483	3.06	0.86	1.64	1.35
Barulli	32.4	Max WS	ATT_200_Tp1.4h_L	3.74	165.95	167.05		167.08	0.002343	0.98	4.43	11.46	0.34
Barulli	32.4	Max WS	ATT_30_Tp1.4h_L	2.63	165.95	166.96		166.99	0.002226	0.89	3.49	10.43	0.32
Barulli	32.35			Culvert									
Barulli	32.33	Max WS	ATT_200_Tp1.4h_L	3.74	165.95	166.76	166.87	167.11	0.030302	2.76	1.61	8.20	1.15
Barulli	32.33	Max WS	ATT_30_Tp1.4h_L	2.63	165.95	166.61	166.81	167.05	0.042105	2.94	0.90	1.85	1.35

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	32.3	Max WS	ATT_200_Tp1.4h_L	3.74	165.14	166.51		166.52	0.000462	0.52	7.81	14.60	0.16
Barulli	32.3	Max WS	ATT_30_Tp1.4h_L	2.63	165.14	166.28		166.30	0.000810	0.60	4.93	11.29	0.20
Barulli	32.25			Culvert									
Barulli	32.2	Max WS	ATT_200_Tp1.4h_L	3.74	165.14	165.87	166.05	166.48	0.051345	3.46	1.08	2.06	1.52
Barulli	32.2	Max WS	ATT_30_Tp1.4h_L	2.63	165.14	165.75	165.99	166.25	0.050673	3.13	0.84	1.89	1.50
Barulli	32	Max WS	ATT_200_Tp1.4h_L	3.74	162.71	163.87		163.93	0.003866	1.28	4.65	8.90	0.45
Barulli	32	Max WS	ATT_30_Tp1.4h_L	2.63	162.71	163.75		163.81	0.003420	1.13	3.68	8.58	0.42
Barulli	31.9			Culvert									
Barulli	31.8	Max WS	ATT_200_Tp1.4h_L	3.74	162.71	163.39	163.65	164.06	0.062266	3.65	1.03	2.25	1.72
Barulli	31.8	Max WS	ATT_30_Tp1.4h_L	2.63	162.71	163.28	163.45	163.84	0.062629	3.30	0.80	2.09	1.71
Barulli	31.3	Max WS	ATT_200_Tp1.4h_L	3.74	157.40	158.85		158.87	0.001144	0.79	6.49	18.39	0.24
Barulli	31.3	Max WS	ATT_30_Tp1.4h_L	2.63	157.40	158.77		158.79	0.000993	0.70	5.07	16.62	0.22
Barulli	31.2			Culvert									
Barulli	31.1	Max WS	ATT_200_Tp1.4h_L	3.74	157.40	158.62		158.72	0.005683	1.51	2.94	11.51	0.51
Barulli	31.1	Max WS	ATT_30_Tp1.4h_L	2.63	157.40	158.52		158.61	0.004819	1.31	2.17	6.37	0.47
Barulli	31	Max WS	ATT_200_Tp1.4h_L	3.74	157.10	158.59		158.63	0.001951	0.96	5.39	17.35	0.31
Barulli	31	Max WS	ATT_30_Tp1.4h_L	2.63	157.10	158.50		158.53	0.001975	0.91	3.90	14.43	0.30
Barulli	30.5			Culvert									
Barulli	30	Max WS	ATT_200_Tp1.4h_L	3.74	157.10	158.05	158.41	158.62	0.047970	3.35	1.12	1.93	1.40
Barulli	30	Max WS	ATT_30_Tp1.4h_L	2.63	157.10	157.92	158.05	158.38	0.045599	3.01	0.87	1.71	1.35
Barulli	29.9	Max WS	ATT_200_Tp1.4h_L	3.74	156.06	157.55		157.59	0.002065	1.00	4.92	15.15	0.31
Barulli	29.9	Max WS	ATT_30_Tp1.4h_L	2.63	156.06	157.44		157.48	0.002010	0.92	3.52	9.90	0.30
Barulli	29.8			Culvert									
Barulli	29.7	Max WS	ATT_200_Tp1.4h_L	3.74	156.06	157.03	157.25	157.48	0.034694	2.97	1.26	2.08	1.22

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	29.7	Max WS	ATT_30_Tp1.4h_L	2.63	156.06	156.89	156.97	157.26	0.035304	2.72	0.97	1.90	1.22
Barulli	29	Max WS	ATT_200_Tp1.4h_L	3.74	152.92	155.11		155.13	0.000761	0.64	8.16	24.01	0.16
Barulli	29	Max WS	ATT_30_Tp1.4h_L	2.63	152.92	154.97		154.98	0.000847	0.63	5.27	14.53	0.17
Barulli	28.9			Culvert									
Barulli	28.8	Max WS	ATT_200_Tp1.4h_L	3.74	152.92	154.23		154.44	0.015870	2.03	1.84	2.09	0.69
Barulli	28.8	Max WS	ATT_30_Tp1.4h_L	2.63	152.92	154.03		154.20	0.015583	1.83	1.44	1.95	0.68
Barulli	28	Max WS	ATT_200_Tp1.4h_L	4.34	151.92	154.16		154.18	0.000494	0.63	8.50	16.10	0.16
Barulli	28	Max WS	ATT_30_Tp1.4h_L	3.05	151.92	153.95		153.97	0.000596	0.63	5.44	12.31	0.17
Barulli	27.9			Culvert									
Barulli	27.8	Max WS	ATT_200_Tp1.4h_L	4.34	151.92	153.38		153.51	0.005358	1.55	2.79	2.86	0.50
Barulli	27.8	Max WS	ATT_30_Tp1.4h_L	3.05	151.92	153.03		153.17	0.008025	1.65	1.85	2.53	0.62
Barulli	27	Max WS	ATT_200_Tp1.4h_L	4.91	150.86	153.33		153.35	0.001463	0.62	7.54	13.88	0.13
Barulli	27	Max WS	ATT_30_Tp1.4h_L	3.46	150.86	152.88		152.97	0.008668	1.32	2.76	6.46	0.30
Barulli	26.9			Culvert									
Barulli	26.8	Max WS	ATT_200_Tp1.4h_L	4.91	150.86	152.13		152.61	0.036257	3.06	1.61	1.26	0.86
Barulli	26.8	Max WS	ATT_30_Tp1.4h_L	3.46	150.86	151.88		152.25	0.031498	2.70	1.28	1.26	0.86
Barulli	26	Max WS	ATT_200_Tp1.4h_L	5.75	149.61	151.47		151.50	0.001265	0.91	7.91	17.29	0.26
Barulli	26	Max WS	ATT_30_Tp1.4h_L	4.05	149.61	151.34		151.37	0.001023	0.78	6.01	12.95	0.23
Barulli	25.9			Culvert									
Barulli	25.8	Max WS	ATT_200_Tp1.4h_L	5.75	149.61	150.49	150.66	151.08	0.041140	3.43	1.68	3.13	1.49
Barulli	25.8	Max WS	ATT_30_Tp1.4h_L	4.05	149.61	150.36	150.51	150.85	0.039845	3.10	1.31	2.78	1.44
Barulli	25	Max WS	ATT_200_Tp1.4h_L	6.59	147.53	148.84	148.81	149.14	0.016775	2.45	2.69	4.01	0.95
Barulli	25	Max WS	ATT_30_Tp1.4h_L	4.64	147.53	148.66	148.64	148.93	0.017630	2.28	2.04	3.49	0.95
Barulli	24	Max WS	ATT_200_Tp1.4h_L	8.24	145.53	147.78		147.81	0.000776	0.85	12.74	21.75	0.21

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	24	Max WS	ATT_30_Tp1.4h_L	5.99	145.53	147.63		147.66	0.000817	0.82	9.66	19.63	0.22
Barulli	23.9			Culvert									
Barulli	23.8	Max WS	ATT_200_Tp1.4h_L	9.75	145.53	147.23	147.10	147.59	0.013303	2.67	3.78	6.16	0.83
Barulli	23.8	Max WS	ATT_30_Tp1.4h_L	5.99	145.53	146.97		147.21	0.010906	2.17	2.76	3.09	0.73
Barulli	23.2	Max WS	ATT_200_Tp1.4h_L	10.03	144.92	146.69	146.49	146.80	0.003988	1.56	6.79	9.82	0.47
Barulli	23.2	Max WS	ATT_30_Tp1.4h_L	5.52	144.92	146.60	146.30	146.64	0.001844	1.02	5.88	9.57	0.32
Barulli	23.1			Bridge									
Barulli	23	Max WS	ATT_200_Tp1.4h_L	10.03	144.92	146.48		146.72	0.010973	2.36	4.78	9.25	0.77
Barulli	23	Max WS	ATT_30_Tp1.4h_L	6.57	144.92	146.34	146.36	146.55	0.010441	2.14	3.51	8.87	0.74
Barulli	22	Max WS	ATT_200_Tp1.4h_L	10.47	144.50	146.35		146.41	0.001963	1.22	10.10	19.37	0.34
Barulli	22	Max WS	ATT_30_Tp1.4h_L	5.19	144.50	146.22		146.25	0.000918	0.78	7.79	16.68	0.23
Barulli	21.9			Culvert									
Barulli	21.8	Max WS	ATT_200_Tp1.4h_L	10.45	144.50	146.02	146.07	146.29	0.011686	2.46	4.89	12.51	0.79
Barulli	21.8	Max WS	ATT_30_Tp1.4h_L	7.01	144.50	145.92	145.94	146.12	0.010140	2.13	3.75	9.36	0.72
Barulli	21	Max WS	ATT_200_Tp1.4h_L	7.33	143.88	145.80	145.44	145.81	0.000532	0.55	18.62	49.87	0.13
Barulli	21	Max WS	ATT_30_Tp1.4h_L	6.93	143.88	145.80	145.42	145.81	0.000477	0.52	18.59	49.82	0.13
Barulli	20.9			Bridge									
Barulli	20.8	Max WS	ATT_200_Tp1.4h_L	11.18	143.88	145.52		145.67	0.009028	2.03	7.69	29.08	0.54
Barulli	20.8	Max WS	ATT_30_Tp1.4h_L	7.54	143.88	145.39	145.44	145.58	0.011487	2.15	4.46	18.96	0.60
Barulli	20	Max WS	ATT_200_Tp1.4h_L	11.49	143.47	145.39		145.46	0.002247	1.19	9.61	12.97	0.31
Barulli	20	Max WS	ATT_30_Tp1.4h_L	7.91	143.47	145.23		145.29	0.002074	1.08	7.62	11.96	0.30
Barulli	19.9			Culvert									
Barulli	19.8	Max WS	ATT_200_Tp1.4h_L	11.49	143.47	144.98	145.04	145.29	0.015933	2.69	4.81	10.36	0.83
Barulli	19.8	Max WS	ATT_30_Tp1.4h_L	7.91	143.47	144.85	144.93	145.15	0.016651	2.56	3.51	9.53	0.85

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	19	Max WS	ATT_200_Tp1.4h_L	12.56	142.08	143.93	144.00	144.23	0.011112	2.54	5.59	13.03	0.78
Barulli	19	Max WS	ATT_30_Tp1.4h_L	8.75	142.08	143.77	143.55	144.04	0.010899	2.30	3.96	7.70	0.76
Barulli	18	Max WS	ATT_200_Tp1.4h_L	12.44	141.49	143.48		143.55	0.002085	1.34	10.94	20.32	0.35
Barulli	18	Max WS	ATT_30_Tp1.4h_L	7.88	141.49	143.47		143.50	0.000868	0.86	10.77	20.03	0.22
Barulli	17.9			Culvert									
Barulli	17.8	Max WS	ATT_200_Tp1.4h_L	12.44	141.49	143.08	143.15	143.42	0.012767	2.71	5.16	10.77	0.82
Barulli	17.8	Max WS	ATT_30_Tp1.4h_L	9.54	141.49	142.98	143.05	143.29	0.012586	2.52	4.16	9.12	0.80
Barulli	17	Max WS	ATT_200_Tp1.4h_L	9.71	140.28	142.60		142.63	0.000714	0.84	14.09	22.67	0.21
Barulli	17	Max WS	ATT_30_Tp1.4h_L	8.71	140.28	142.52		142.55	0.000795	0.85	12.31	20.94	0.22
Barulli	16.9			Culvert									
Barulli	16.8	Max WS	ATT_200_Tp1.4h_L	12.41	140.28	142.05	142.12	142.40	0.013153	2.73	5.06	9.63	0.84
Barulli	16.8	Max WS	ATT_30_Tp1.4h_L	8.25	140.28	141.89		142.17	0.011033	2.35	3.51	3.58	0.76
Barulli	16	Max WS	ATT_200_Tp1.4h_L	12.40	139.48	141.80	141.45	141.84	0.001711	1.12	13.61	22.00	0.28
Barulli	16	Max WS	ATT_30_Tp1.4h_L	6.40	139.48	141.67	141.27	141.69	0.000815	0.73	10.97	19.94	0.19
Barulli	15.5			Bridge									
Barulli	15	Max WS	ATT_200_Tp1.4h_L	12.40	139.48	141.75		141.81	0.002050	1.20	12.73	21.34	0.31
Barulli	15	Max WS	ATT_30_Tp1.4h_L	6.40	139.48	141.65		141.68	0.000879	0.75	10.67	19.69	0.20
Barulli	14	Max WS	ATT_200_Tp1.4h_L	12.40	139.30	141.32	141.44	141.74	0.025159	3.05	4.39	10.39	0.94
Barulli	14	Max WS	ATT_30_Tp1.4h_L	8.76	139.30	141.24	141.32	141.91	0.039386	3.64	2.41	2.39	1.16
Barulli	13	Max WS	ATT_200_Tp1.4h_L	8.50	138.97	140.92		141.00	0.002387	1.28	7.41	12.09	0.36
Barulli	13	Max WS	ATT_30_Tp1.4h_L	8.52	138.97	140.92		141.00	0.002402	1.29	7.40	12.09	0.36
Barulli	12	Max WS	ATT_200_Tp1.4h_L	11.85	138.47	140.33	140.40	140.71	0.018754	2.85	4.41	7.97	0.88
Barulli	12	Max WS	ATT_30_Tp1.4h_L	8.76	138.47	140.17	140.30	140.78	0.031775	3.47	2.52	2.62	1.13
Barulli	11	Max WS	ATT_200_Tp1.4h_L	11.51	137.91	139.86		140.22	0.011577	2.66	4.35	3.13	0.69

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	11	Max WS	ATT_30_Tp1.4h_L	8.76	137.91	139.47		139.85	0.014858	2.70	3.24	2.68	0.79
Barulli	10	Max WS	ATT_200_Tp1.4h_L	11.45	137.78	139.70		139.99	0.007107	2.37	4.89	3.79	0.62
Barulli	10	Max WS	ATT_30_Tp1.4h_L	8.76	137.78	139.25		139.60	0.012285	2.61	3.36	3.09	0.80
Barulli	9	Max WS	ATT_200_Tp1.4h_L	11.44	137.59	139.72	139.00	139.91	0.004545	1.98	6.26	8.15	0.47
Barulli	9	Max WS	ATT_30_Tp1.4h_L	8.75	137.59	139.32	138.81	139.53	0.005914	2.06	4.24	2.84	0.54
Barulli	8.5			Bridge									
Barulli	8	Max WS	ATT_200_Tp1.4h_L	12.39	137.59	139.16		139.70	0.016288	3.27	3.79	2.84	0.90
Barulli	8	Max WS	ATT_30_Tp1.4h_L	8.75	137.59	138.92		139.32	0.014348	2.81	3.12	2.83	0.86
Barulli	7	Max WS	ATT_200_Tp1.4h_L	12.38	137.55	139.13		139.59	0.012172	3.00	4.13	3.11	0.83
Barulli	7	Max WS	ATT_30_Tp1.4h_L	8.75	137.55	138.91		139.24	0.010110	2.53	3.46	3.06	0.76
Barulli	6	Max WS	ATT_200_Tp1.4h_L	12.38	137.42	139.24		139.51	0.007528	2.29	5.41	4.45	0.66
Barulli	6	Max WS	ATT_30_Tp1.4h_L	8.75	137.42	138.98		139.19	0.006361	2.02	4.34	3.75	0.60
Barulli	5.9			Lat Struct									
Barulli	5	Max WS	ATT_200_Tp1.4h_L	12.38	136.81	139.21	138.22	139.38	0.003266	1.86	7.18	5.85	0.40
Barulli	5	Max WS	ATT_30_Tp1.4h_L	8.75	136.81	138.96	137.95	139.08	0.002512	1.54	5.85	4.86	0.35
Barulli	4.5			Bridge									
Barulli	4	Max WS	ATT_200_Tp1.4h_L	12.38	136.81	139.03		139.25	0.004454	2.09	6.20	5.14	0.46
Barulli	4	Max WS	ATT_30_Tp1.4h_L	8.75	136.81	138.91		139.04	0.002759	1.59	5.59	4.65	0.36
Barulli	3.9			Lat Struct									
Barulli	3	Max WS	ATT_200_Tp1.4h_L	9.56	136.50	139.15		139.18	0.000489	0.85	12.80	10.32	0.18
Barulli	3	Max WS	ATT_30_Tp1.4h_L	7.98	136.50	138.96		138.99	0.000491	0.81	10.90	9.12	0.18
Barulli	2	Max WS	ATT_200_Tp1.4h_L	9.41	136.50	139.09		139.20	0.003276	1.47	6.48	4.14	0.29
Barulli	2	Max WS	ATT_30_Tp1.4h_L	7.92	136.50	138.90		138.99	0.002875	1.34	5.91	2.50	0.28
Barulli	1	Max WS	ATT_200_Tp1.4h_L	7.91	136.25	139.15	137.28	139.21	0.000954	1.12	7.08	2.45	0.21

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	1	Max WS	ATT_30_Tp1.4h_L	7.36	136.25	138.93	137.23	138.99	0.001000	1.13	6.54	2.45	0.22
Barulli	0.9			Bridge									
Barulli	0.8	Max WS	ATT_200_Tp1.4h_L	7.91	136.25	137.78		138.01	0.004708	2.12	3.73	2.44	0.55
Barulli	0.8	Max WS	ATT_30_Tp1.4h_L	7.36	136.25	137.71		137.93	0.004615	2.07	3.56	2.44	0.55
Barulli	0.75	Max WS	ATT_200_Tp1.4h_L	7.91	136.25	137.77	137.27	138.00	0.004817	2.14	3.70	2.44	0.56
Barulli	0.75	Max WS	ATT_30_Tp1.4h_L	7.36	136.25	137.70	137.23	137.92	0.004728	2.09	3.52	2.44	0.56
Barulli	0.72			Inl Struct									
Barulli	0.7	Max WS	ATT_200_Tp1.4h_L	7.86	135.25	137.19		137.33	0.002525	1.66	4.74	2.45	0.38
Barulli	0.7	Max WS	ATT_30_Tp1.4h_L	7.28	135.25	136.92		137.09	0.003165	1.78	4.08	2.44	0.44
Barulli	0.6	Max WS	ATT_200_Tp1.4h_L	7.86	135.25	137.18		137.33	0.002554	1.67	4.72	2.45	0.38
Barulli	0.6	Max WS	ATT_30_Tp1.4h_L	7.28	135.25	136.91		137.08	0.003224	1.80	4.05	2.44	0.45
Barulli	0.5	Max WS	ATT_200_Tp1.4h_L	7.86	135.00	137.21		137.32	0.001852	1.47	5.36	2.44	0.32
Barulli	0.5	Max WS	ATT_30_Tp1.4h_L	7.28	135.00	136.94		137.06	0.002185	1.54	4.72	2.44	0.35

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

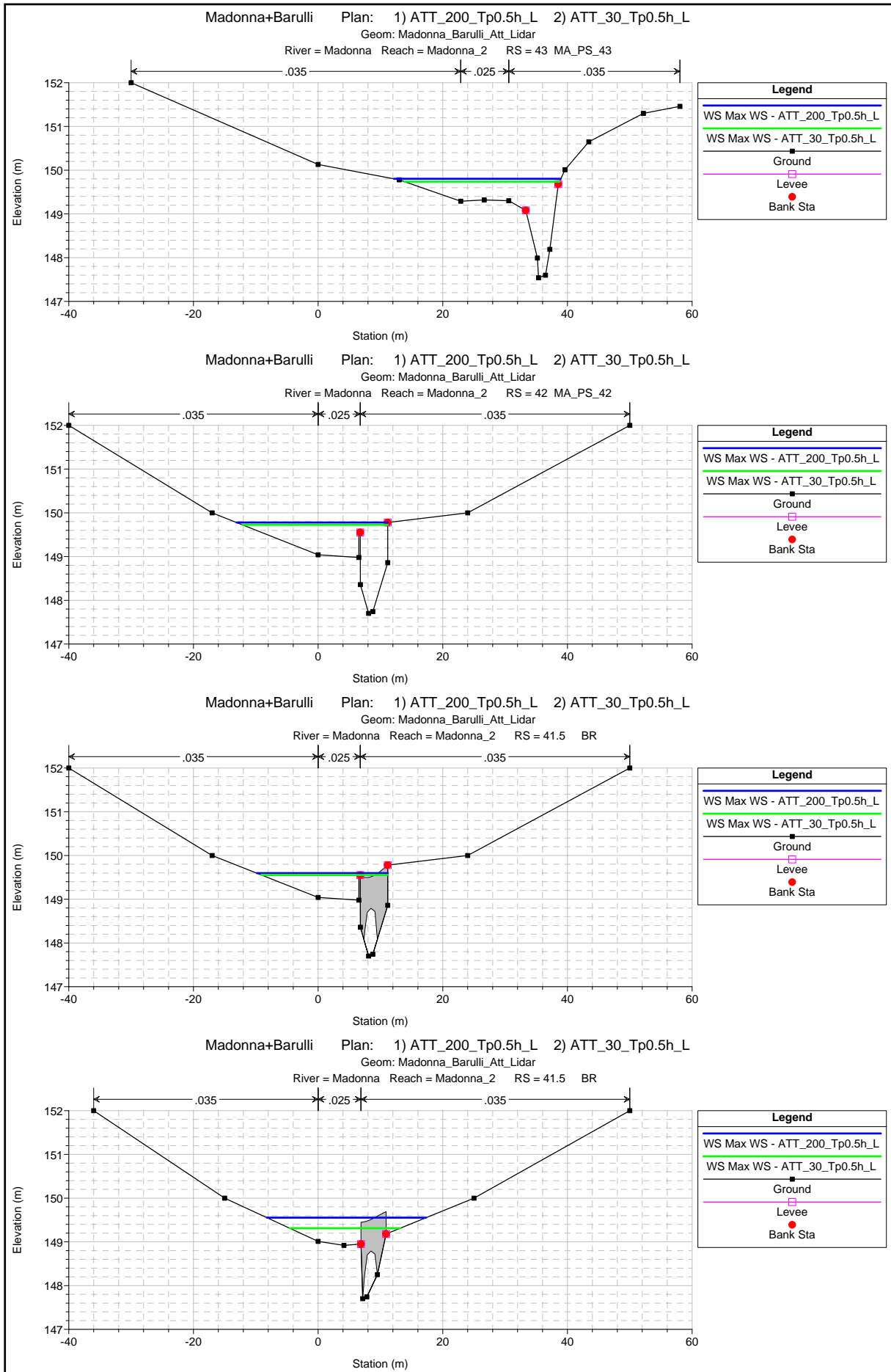
### **BORRO della MADONNA**

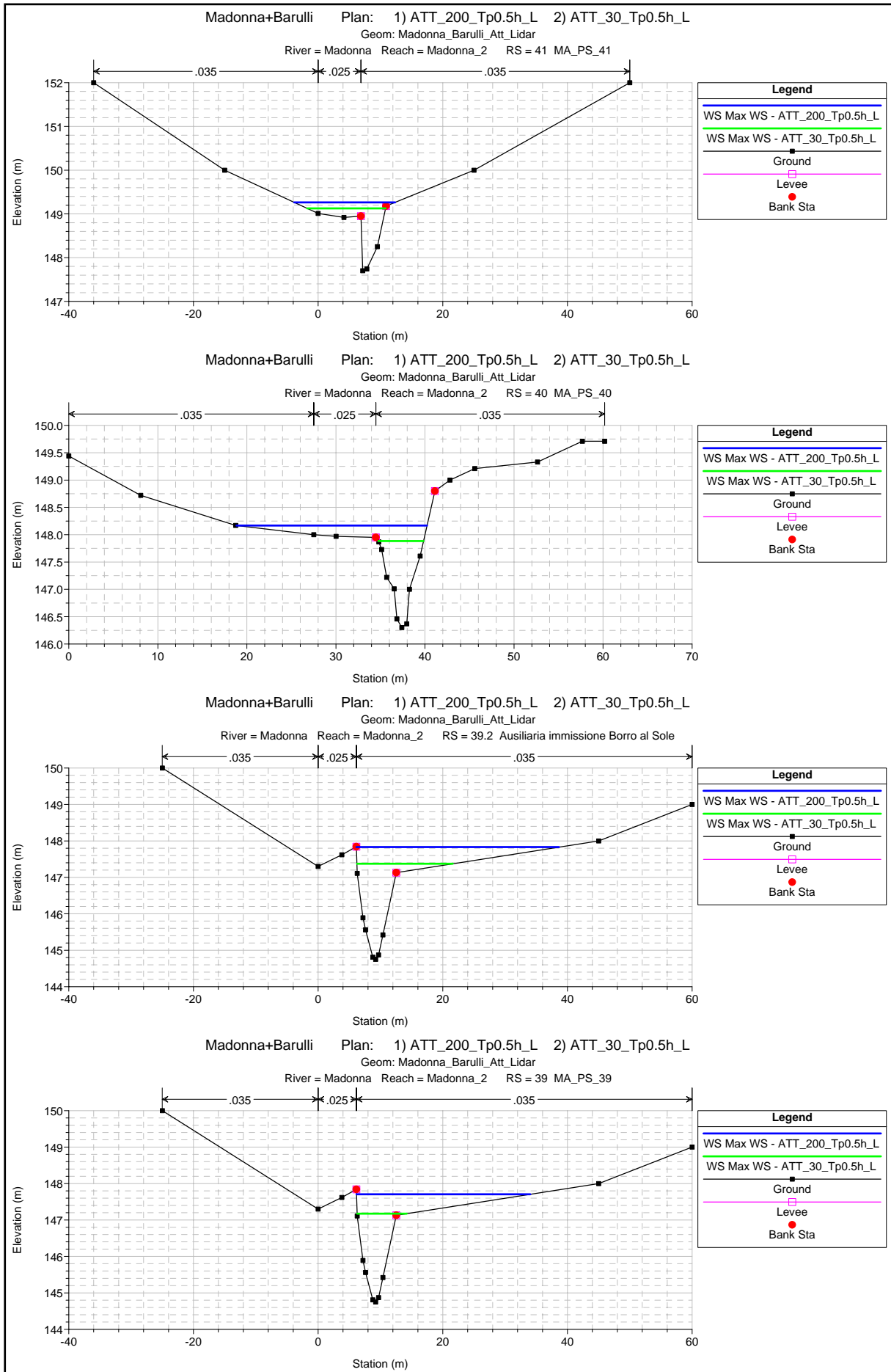
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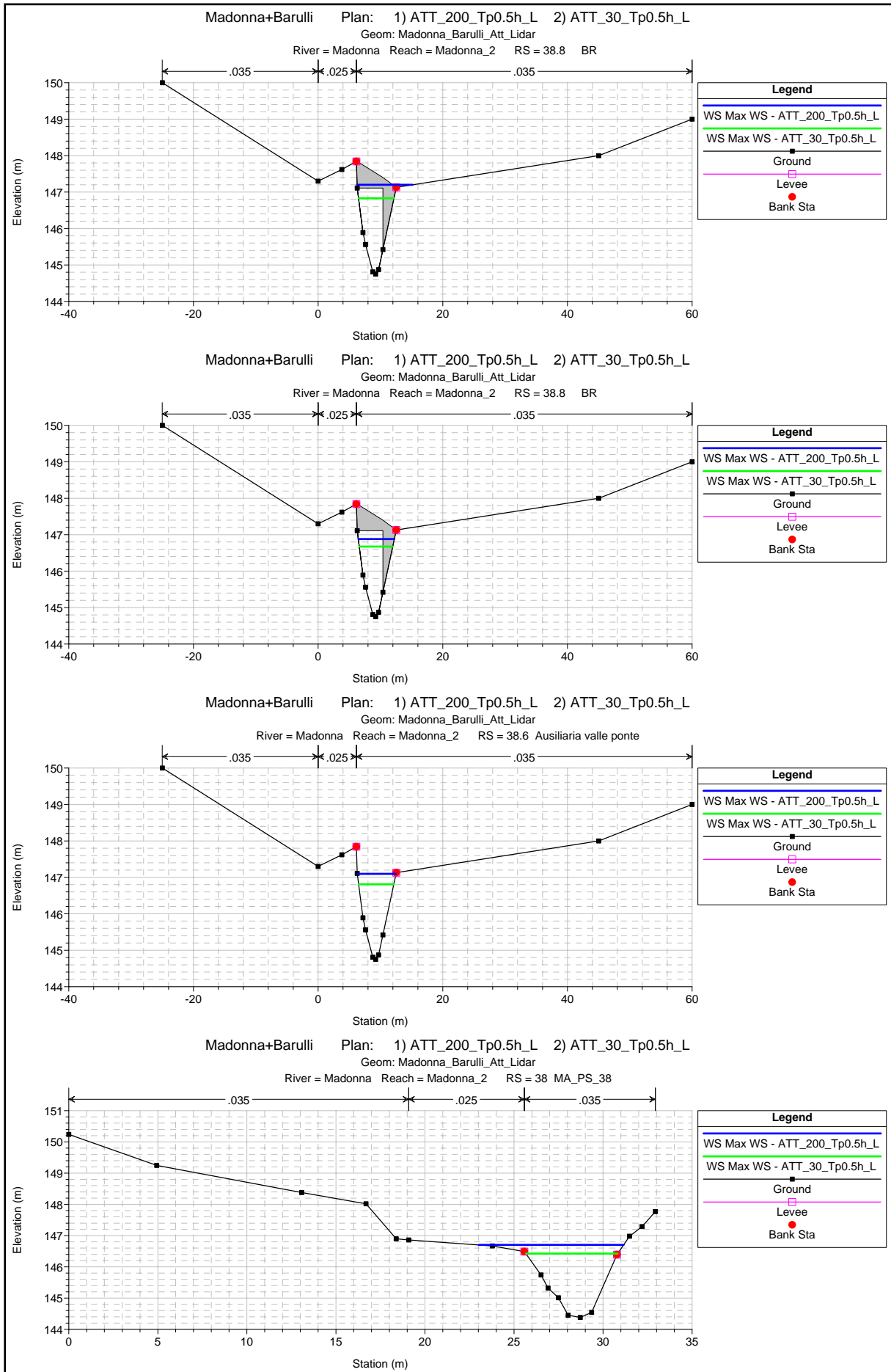
- Profili
- Sezioni di verifica
- Tabelle di output

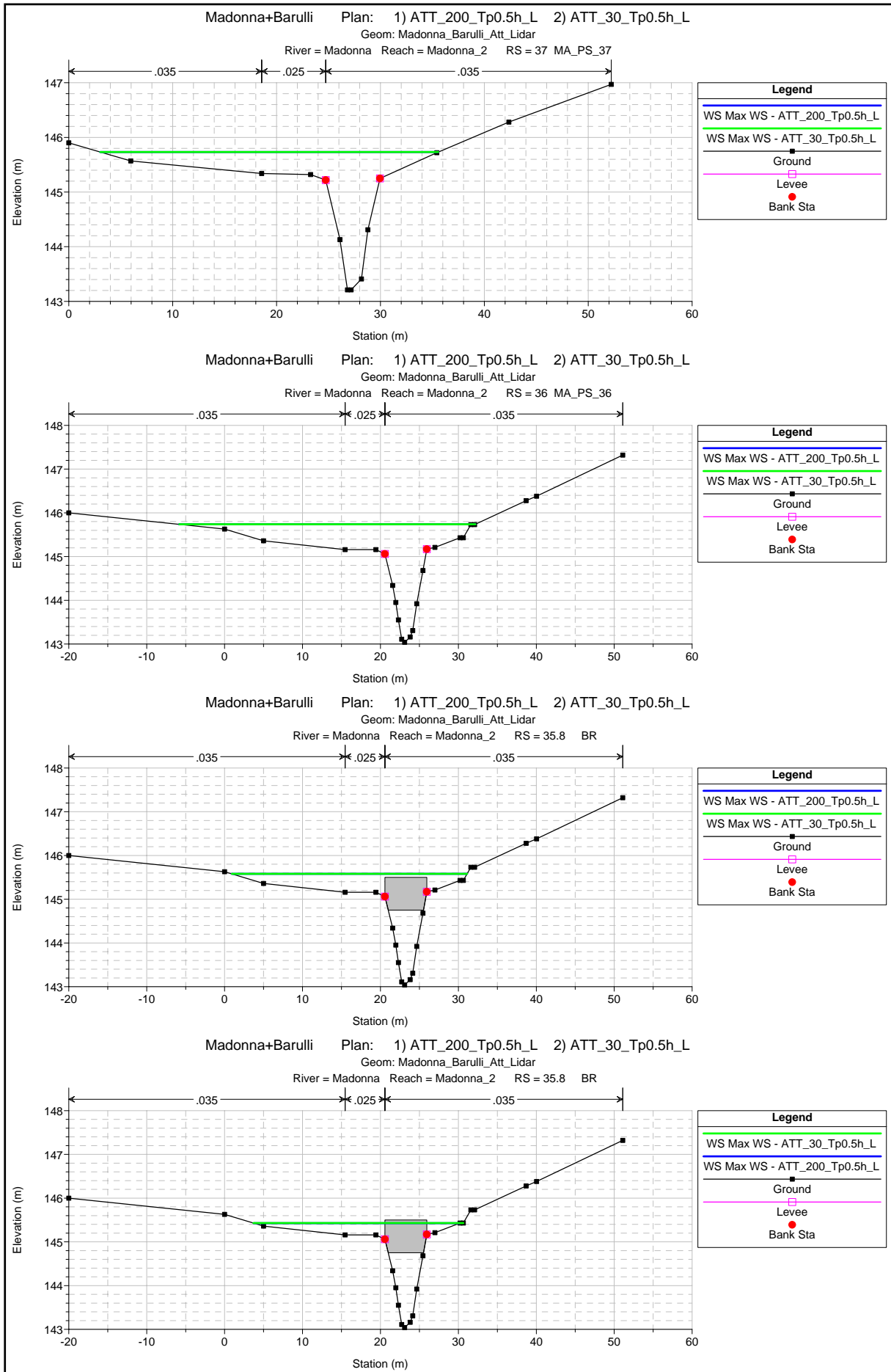


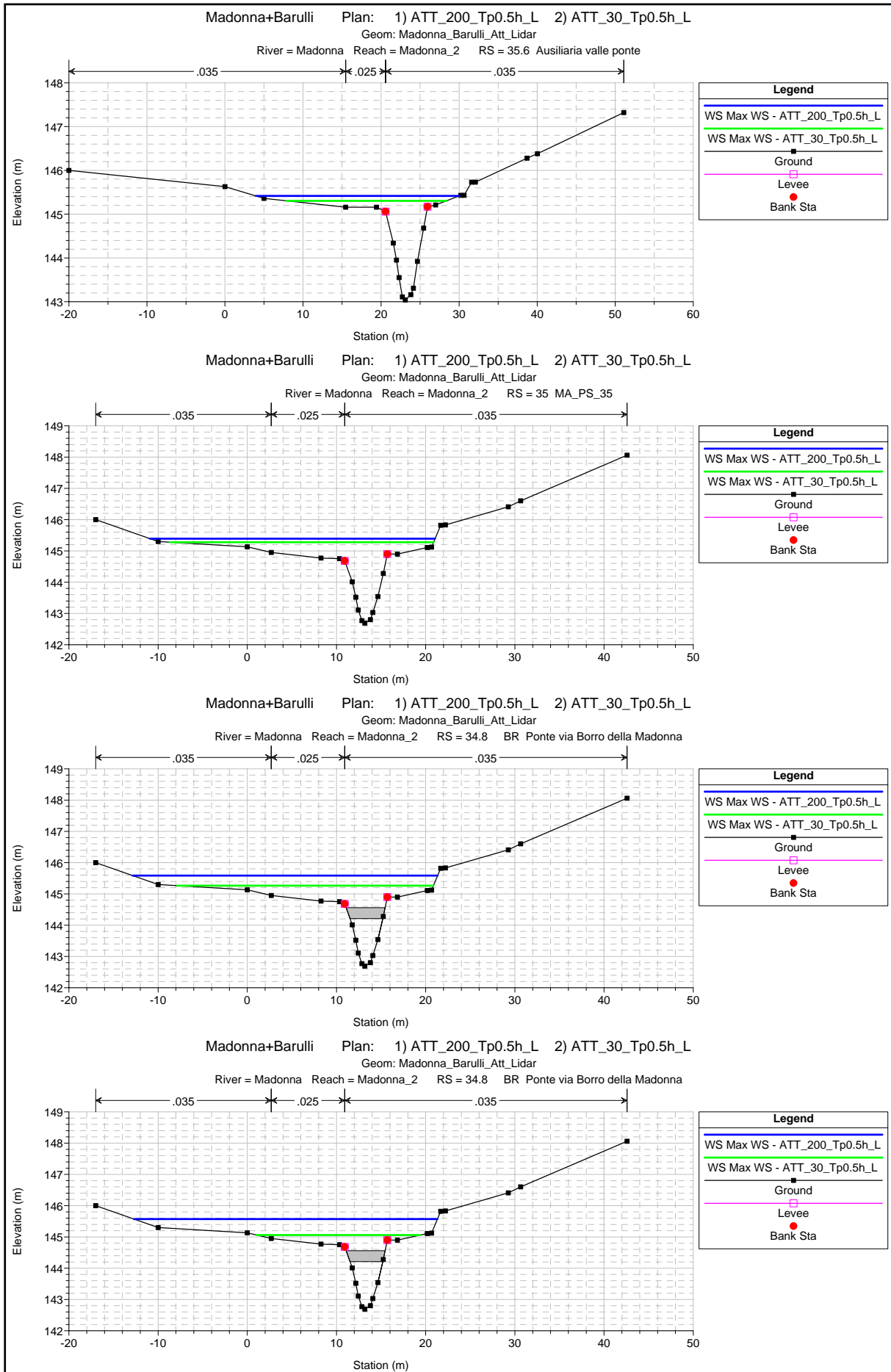


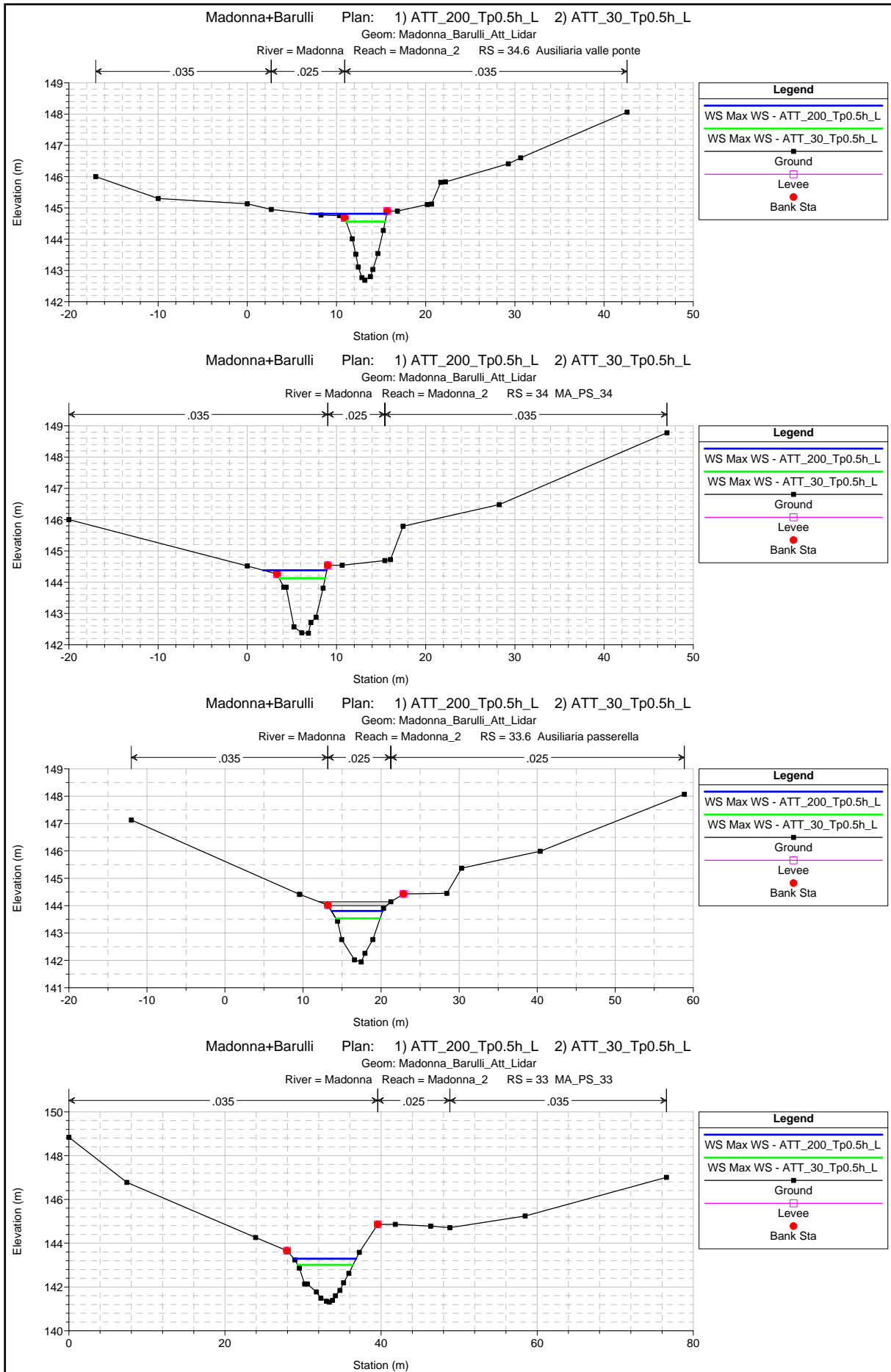


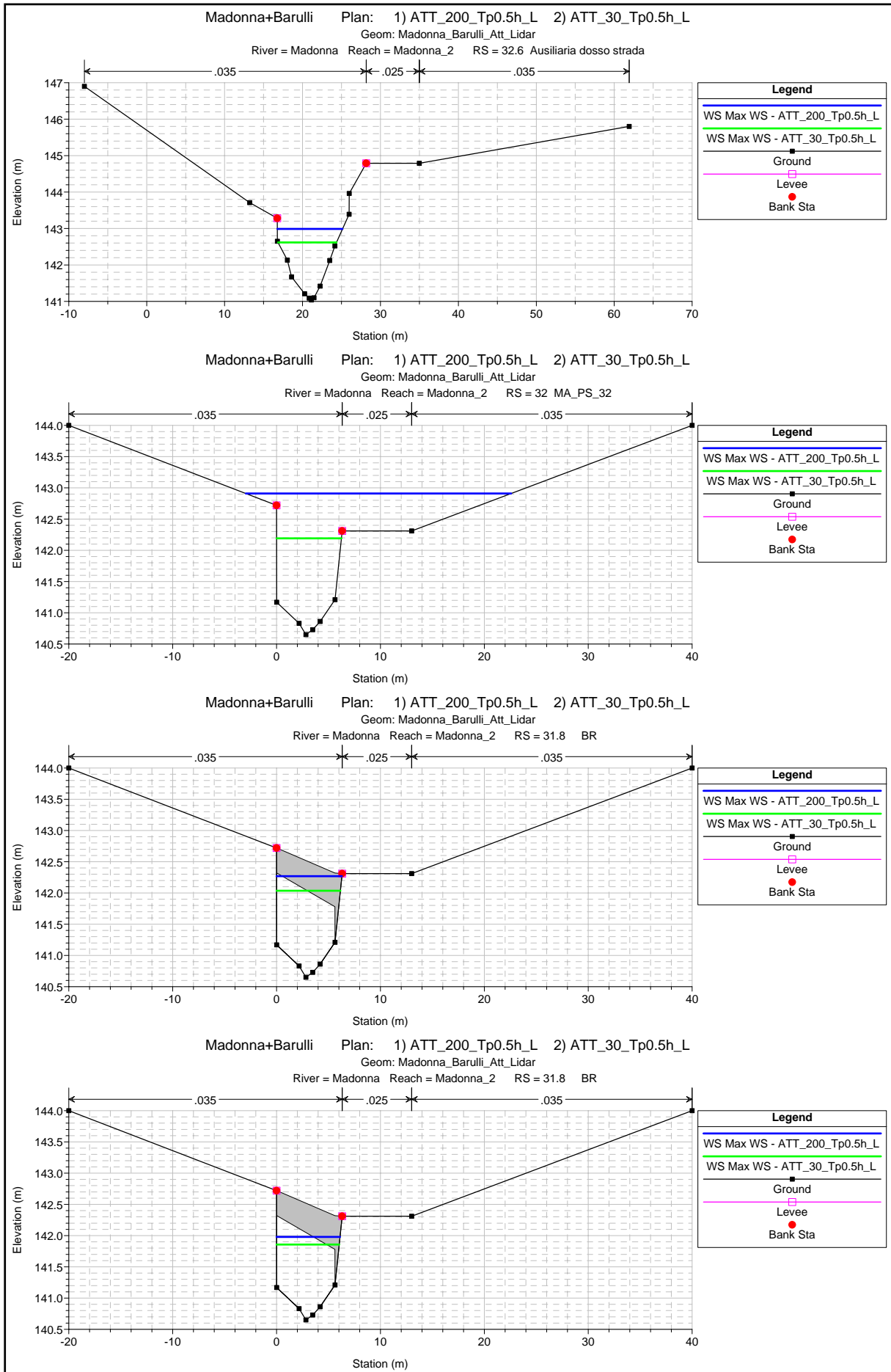




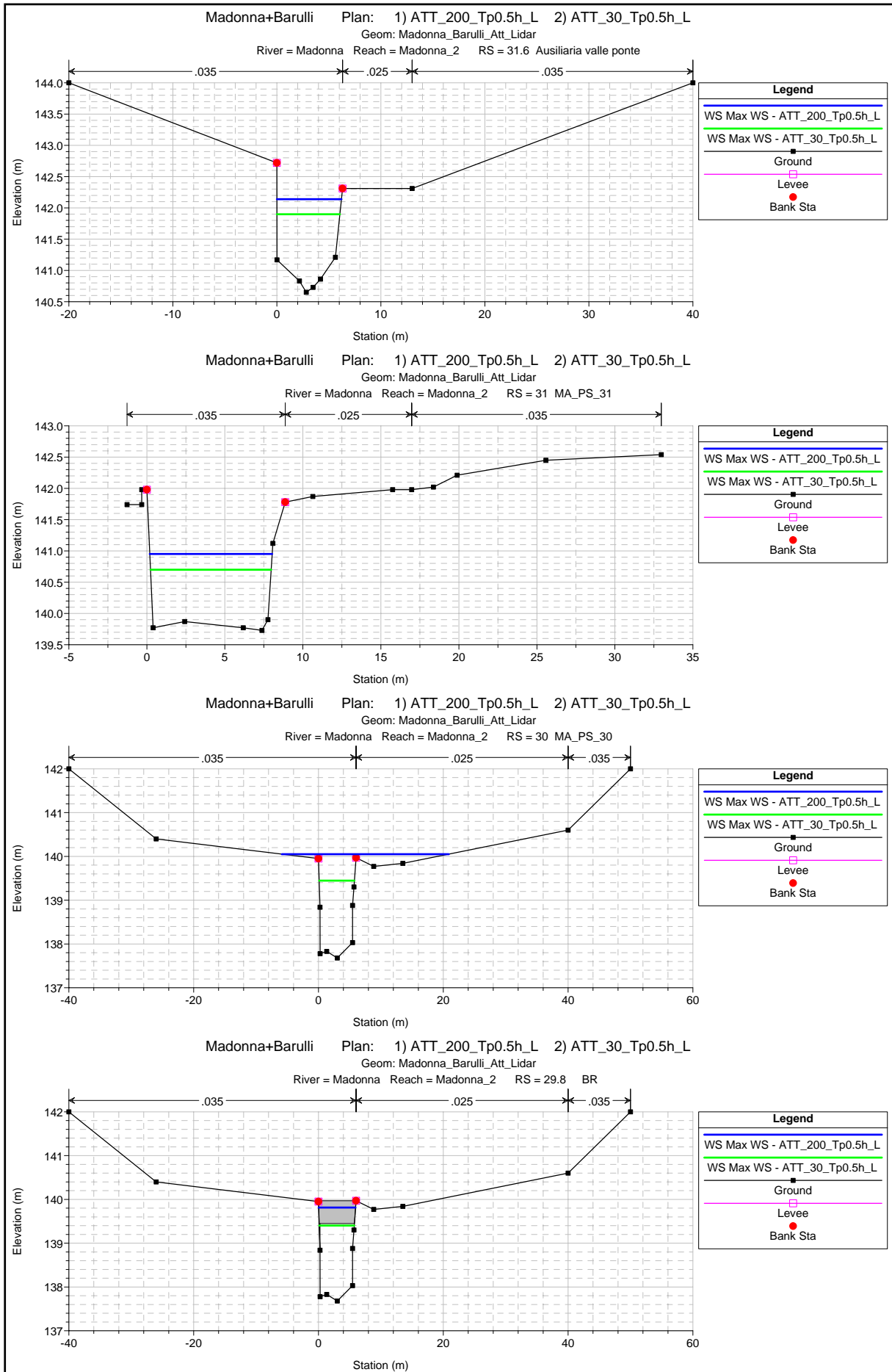


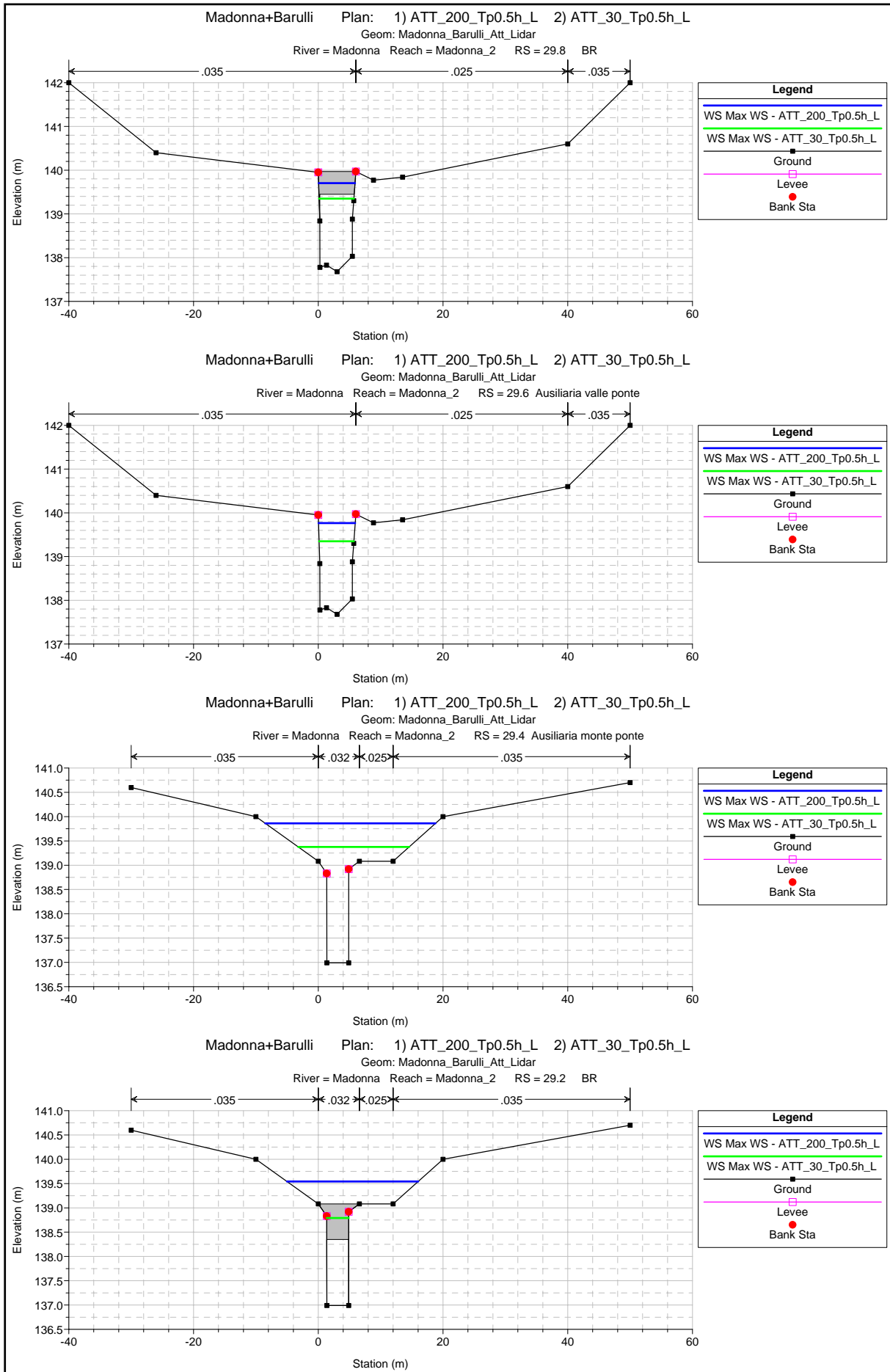


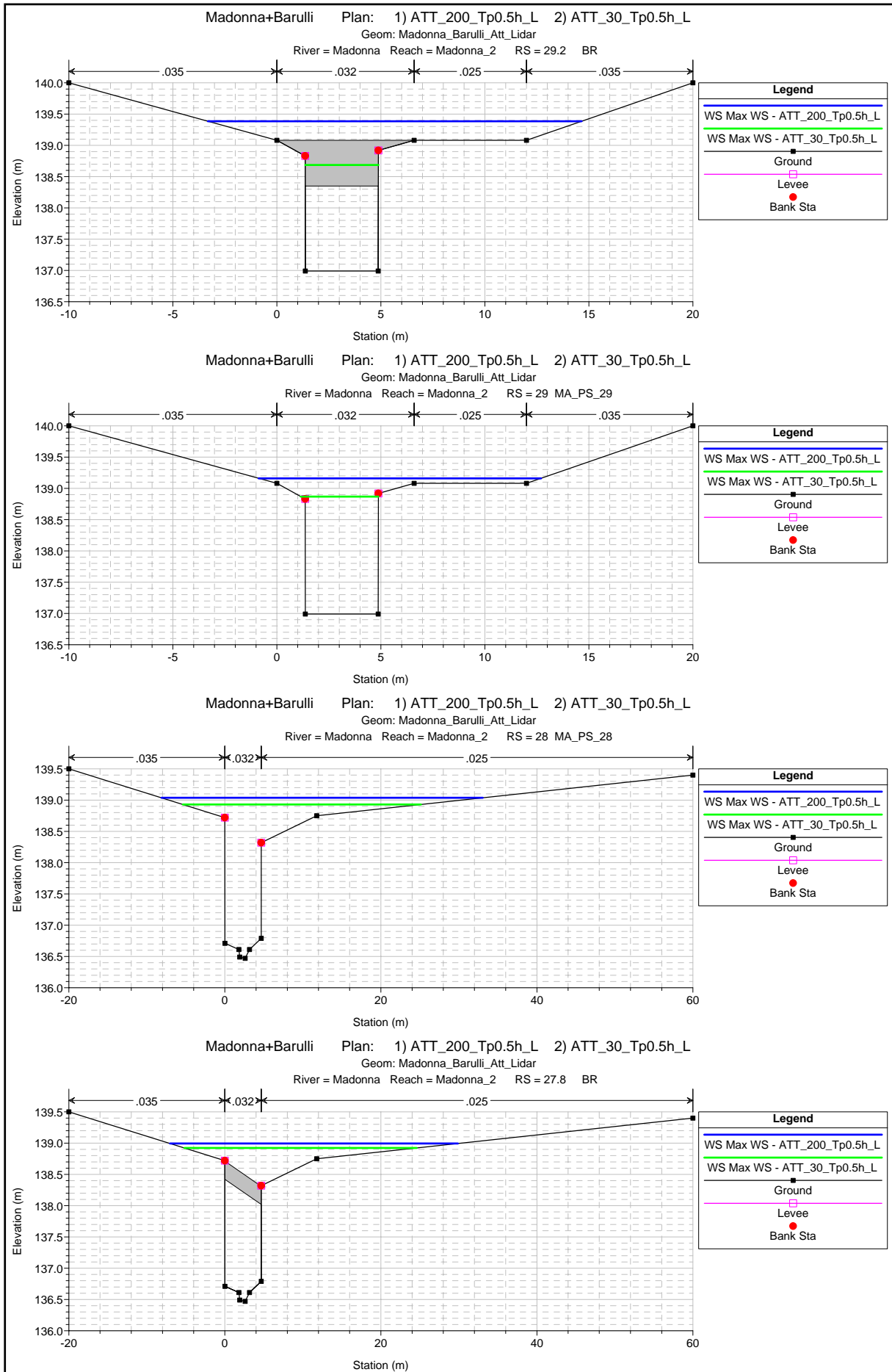


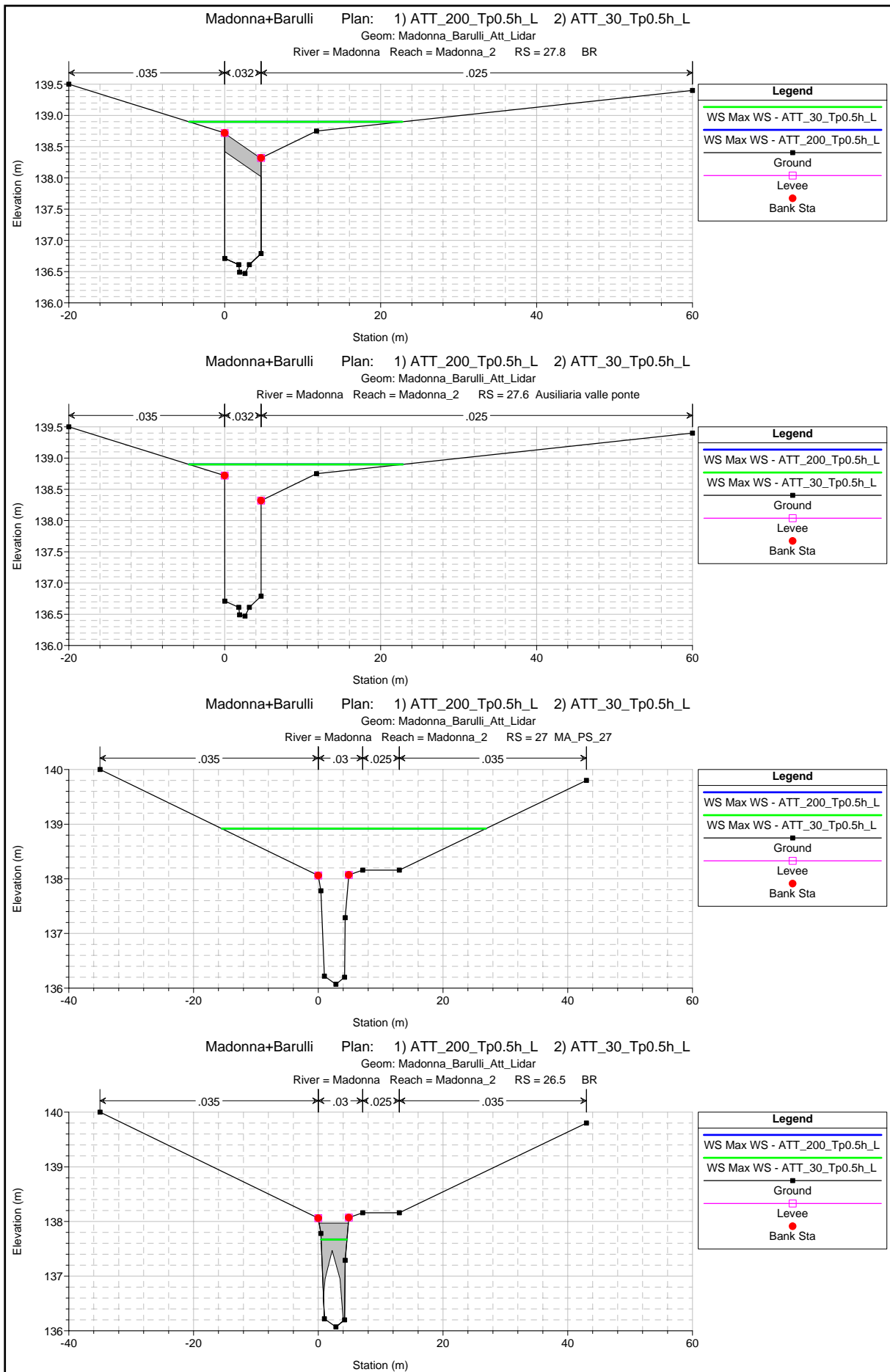


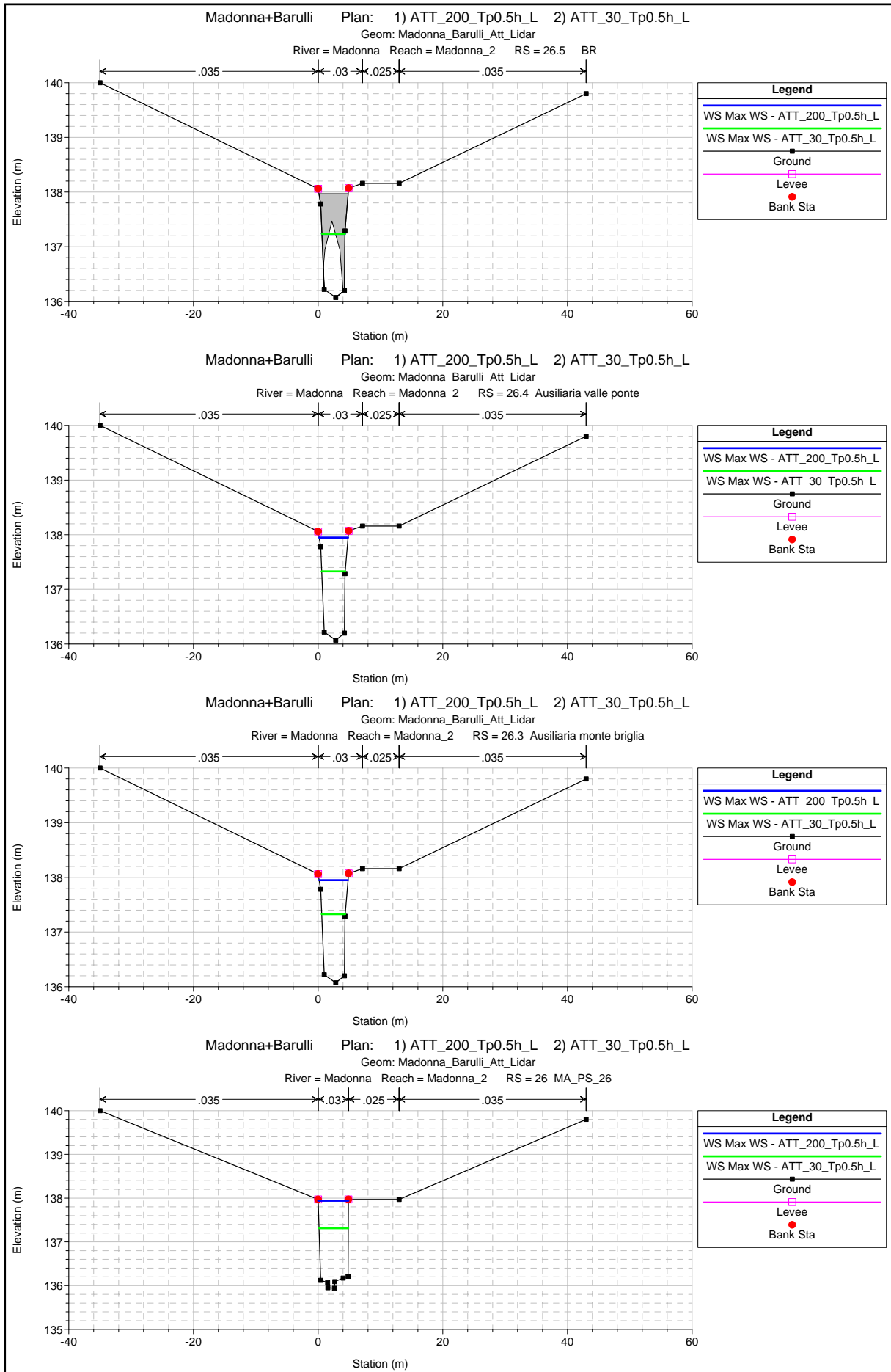


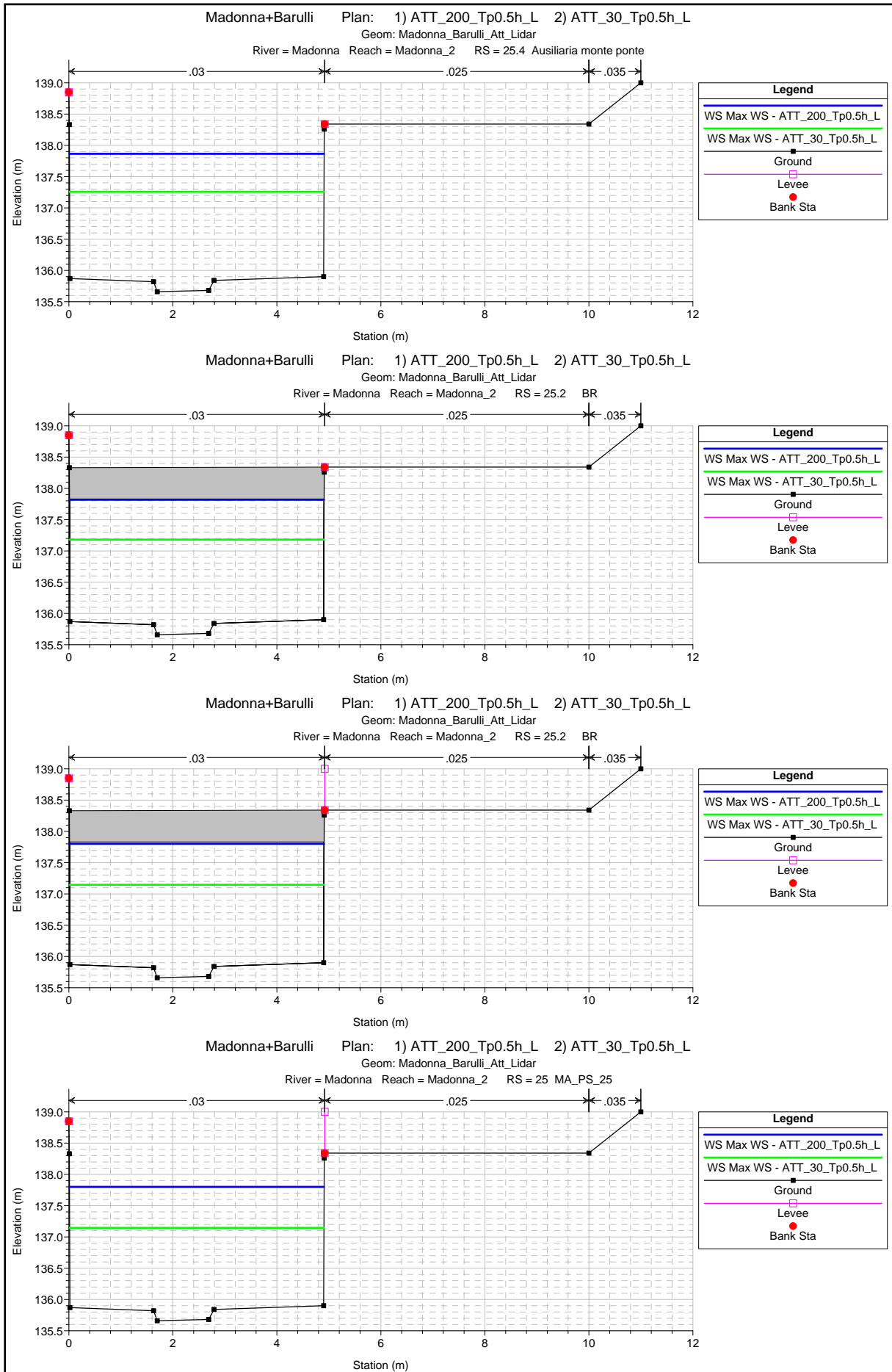


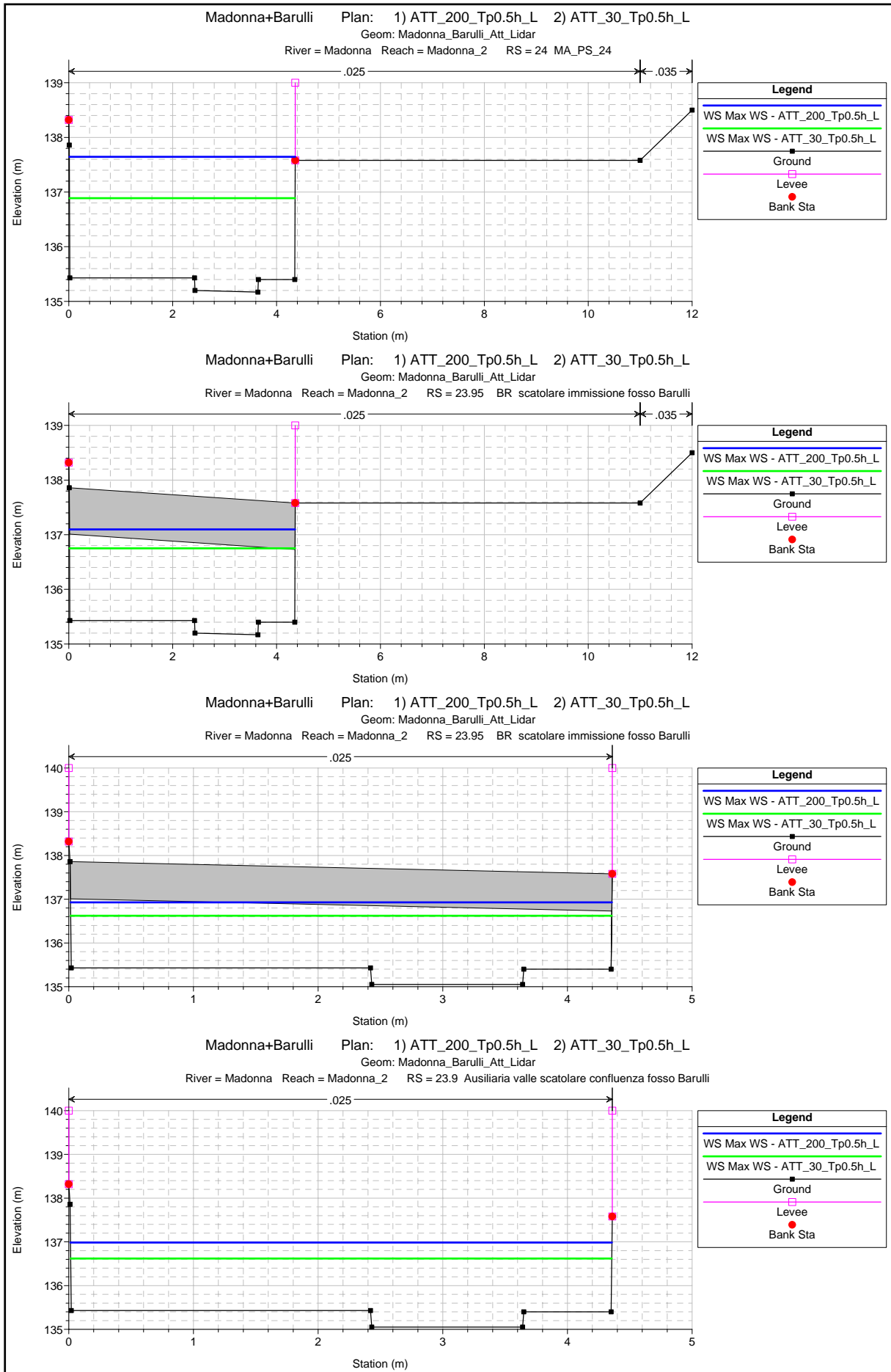


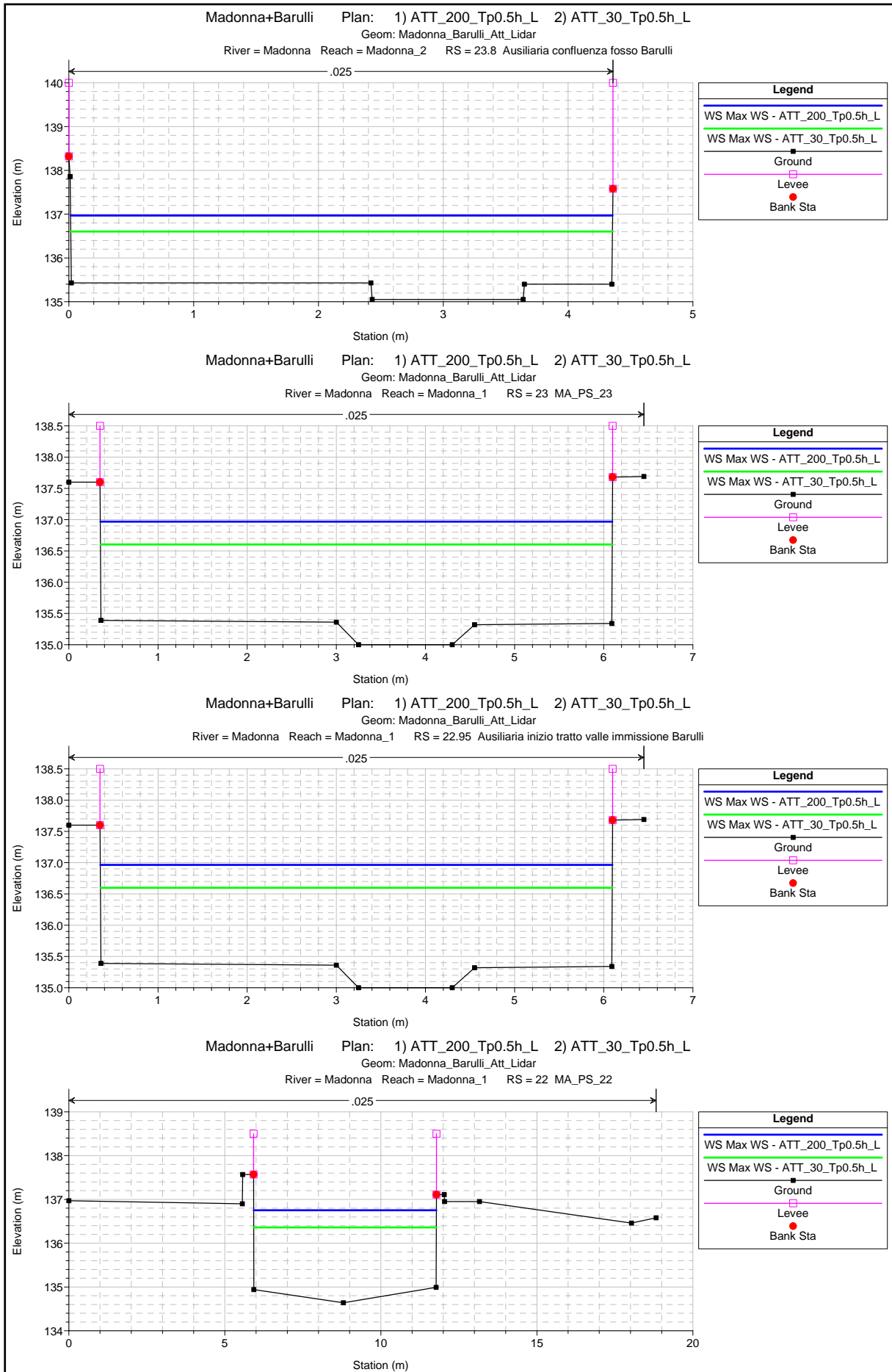




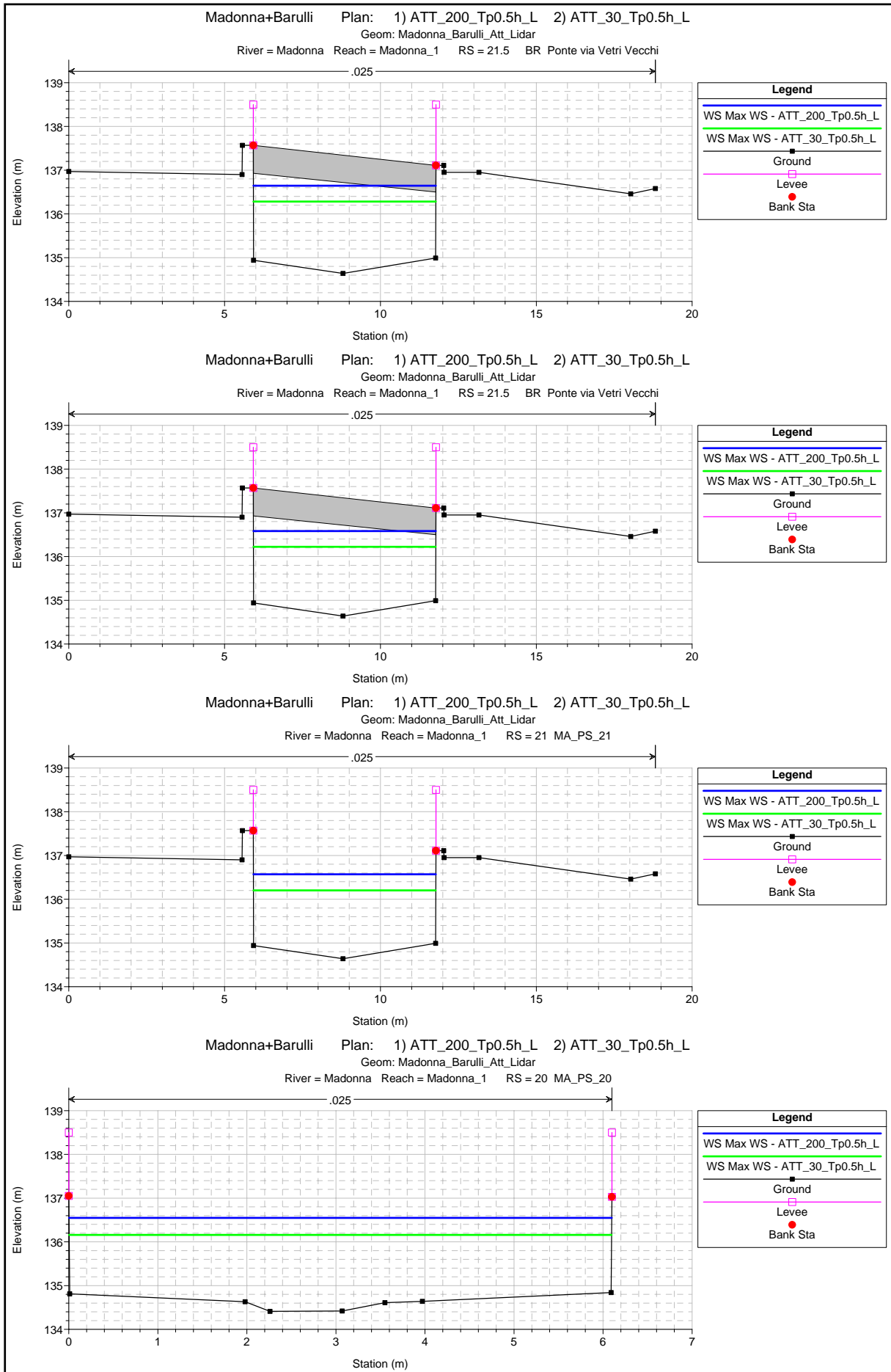


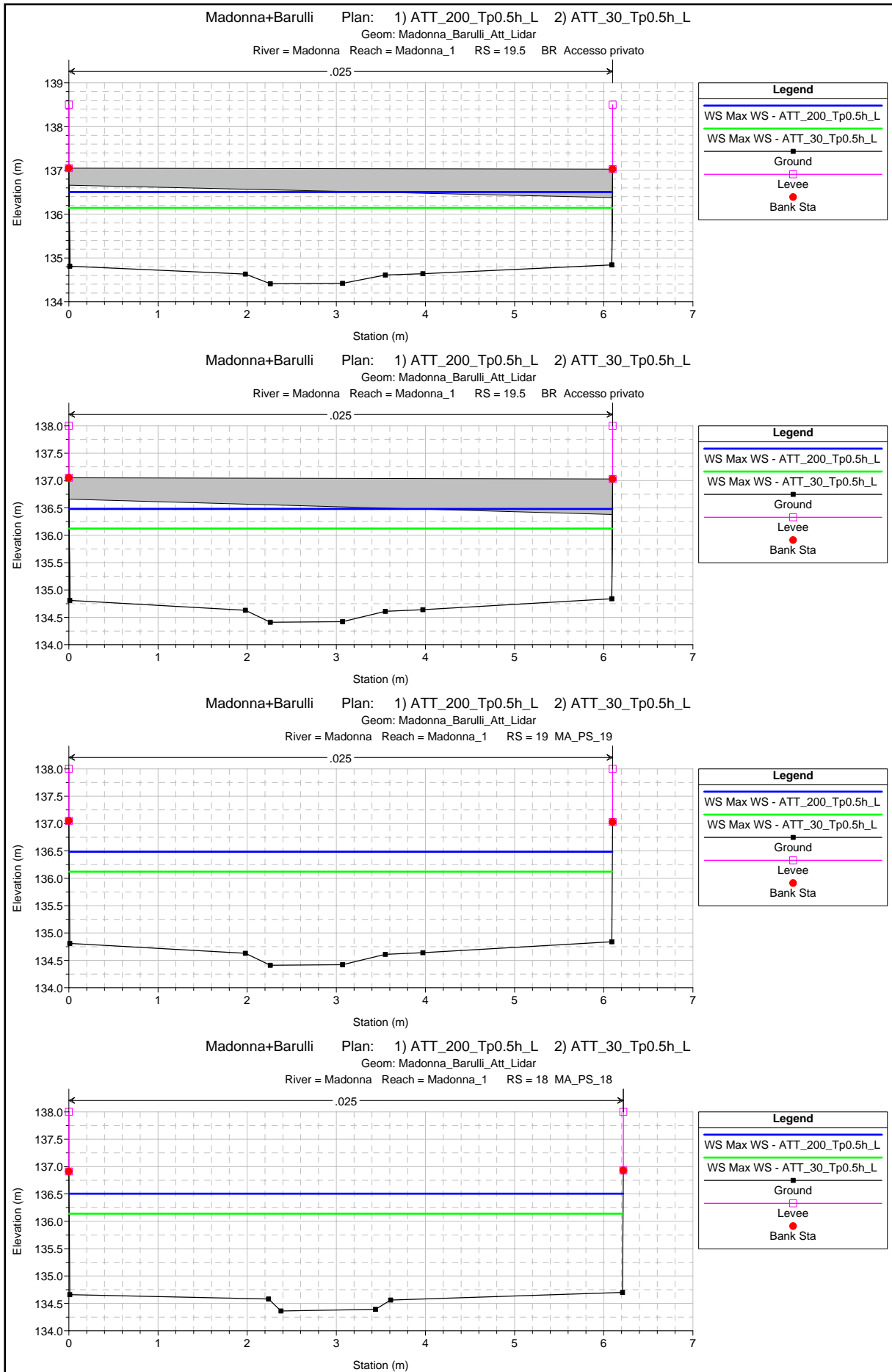


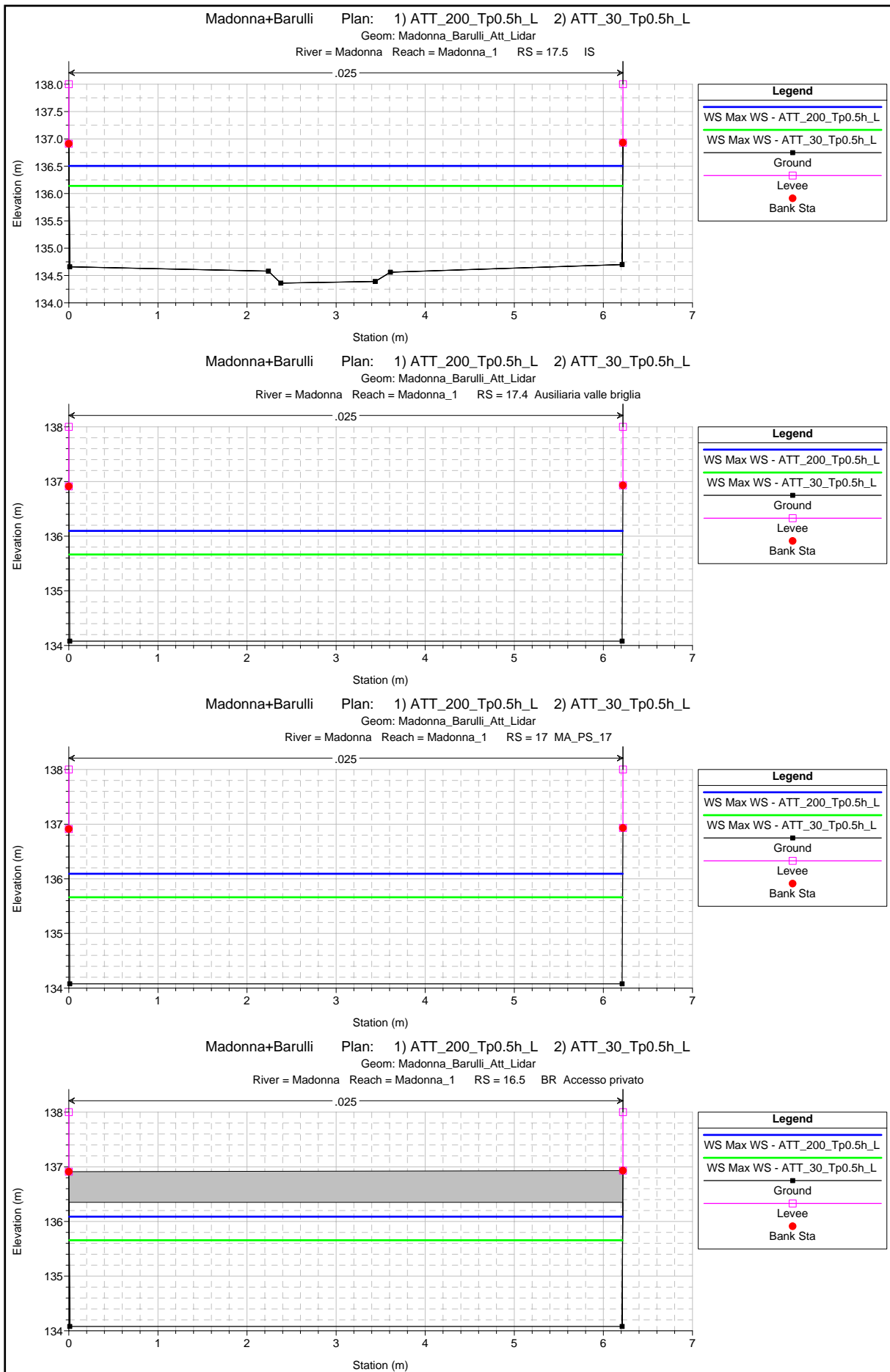


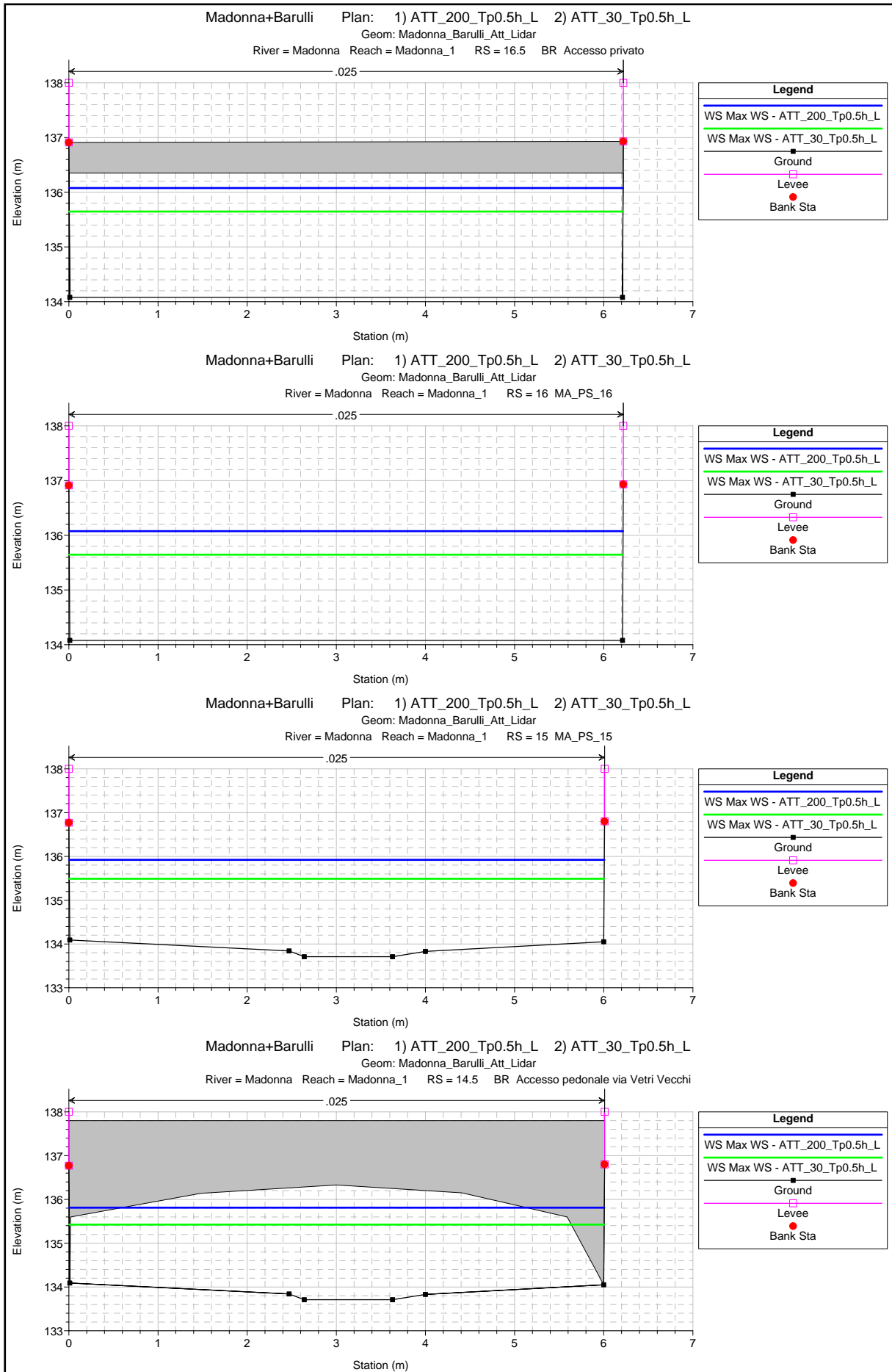


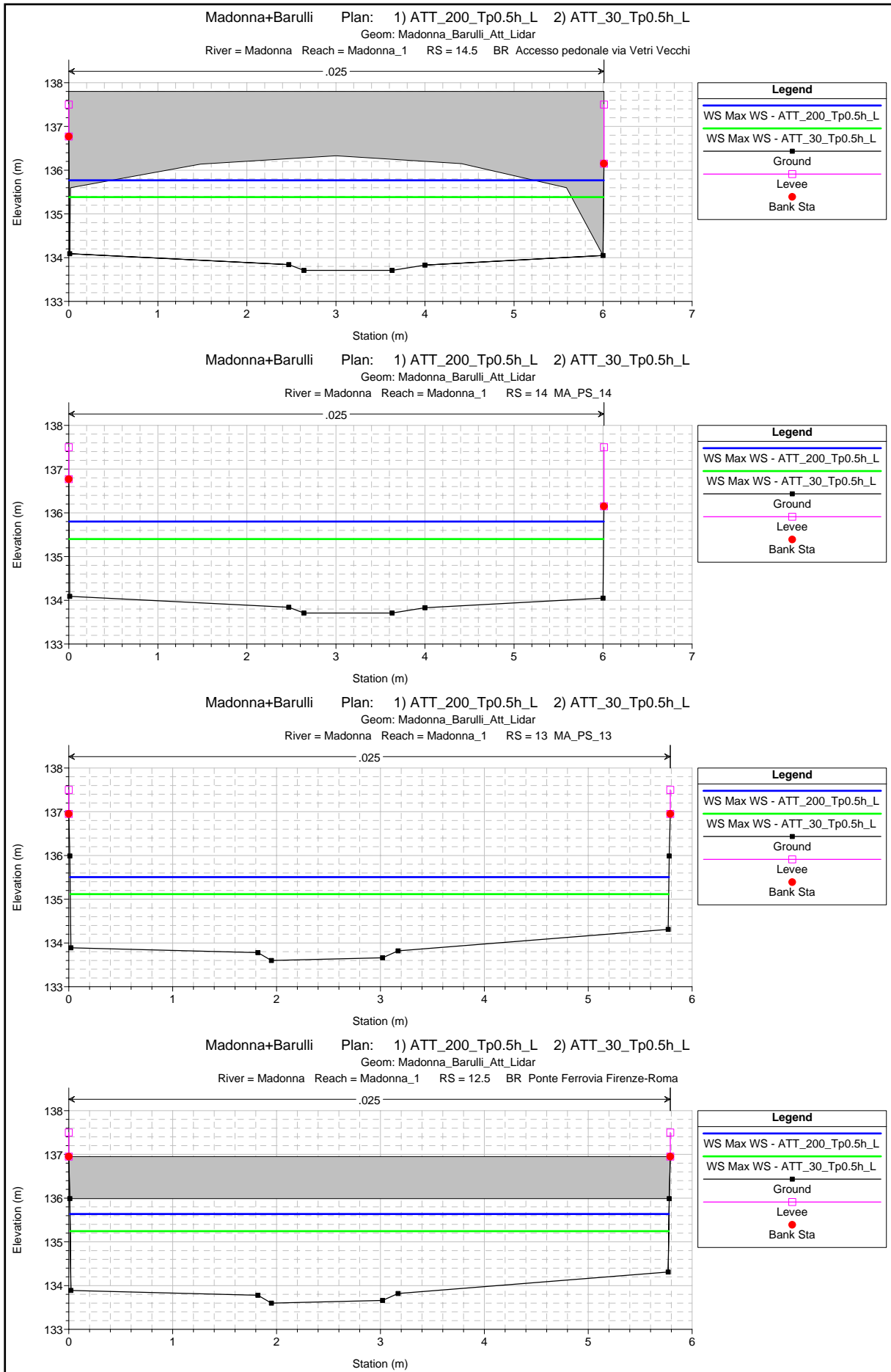


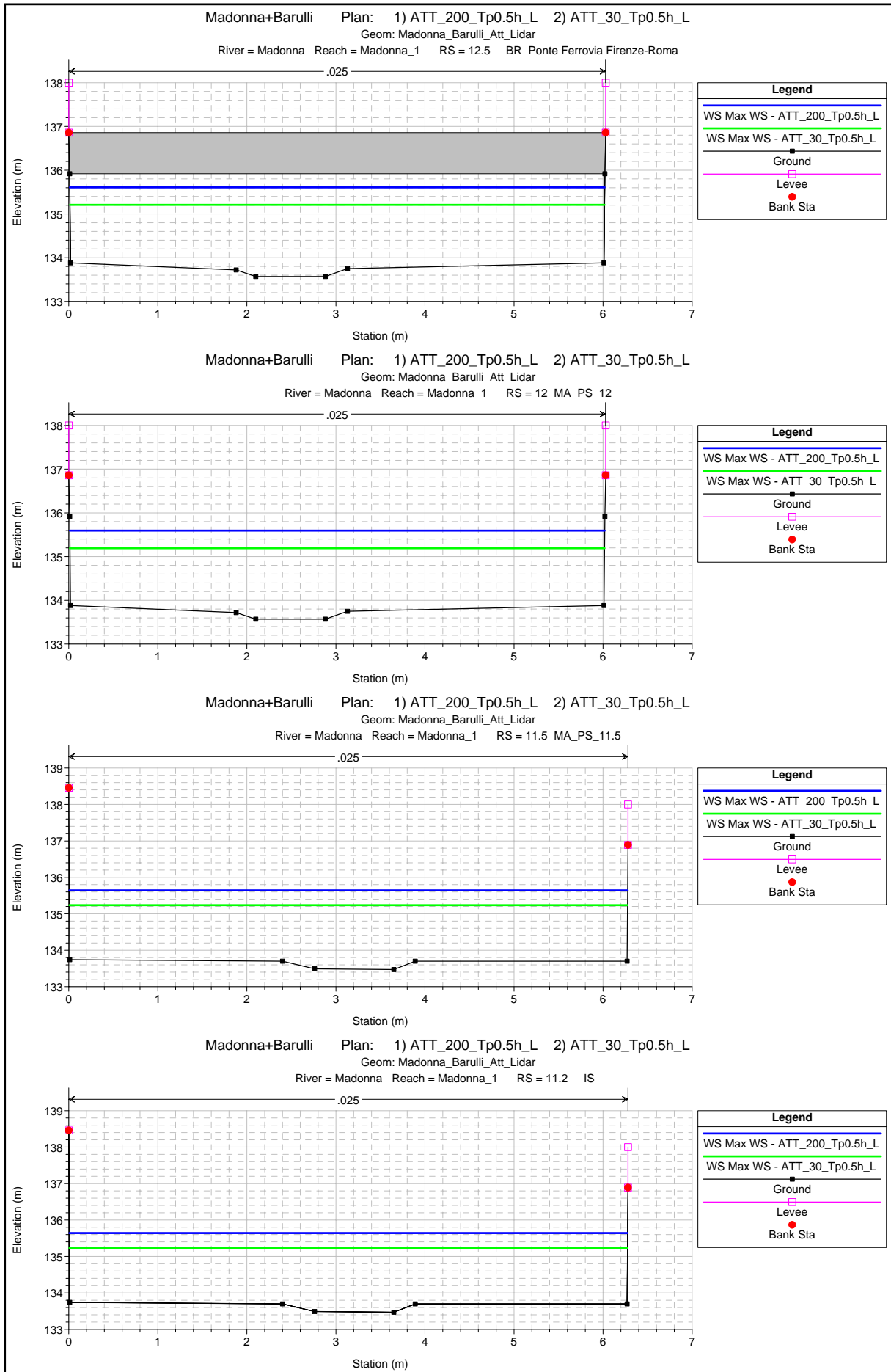


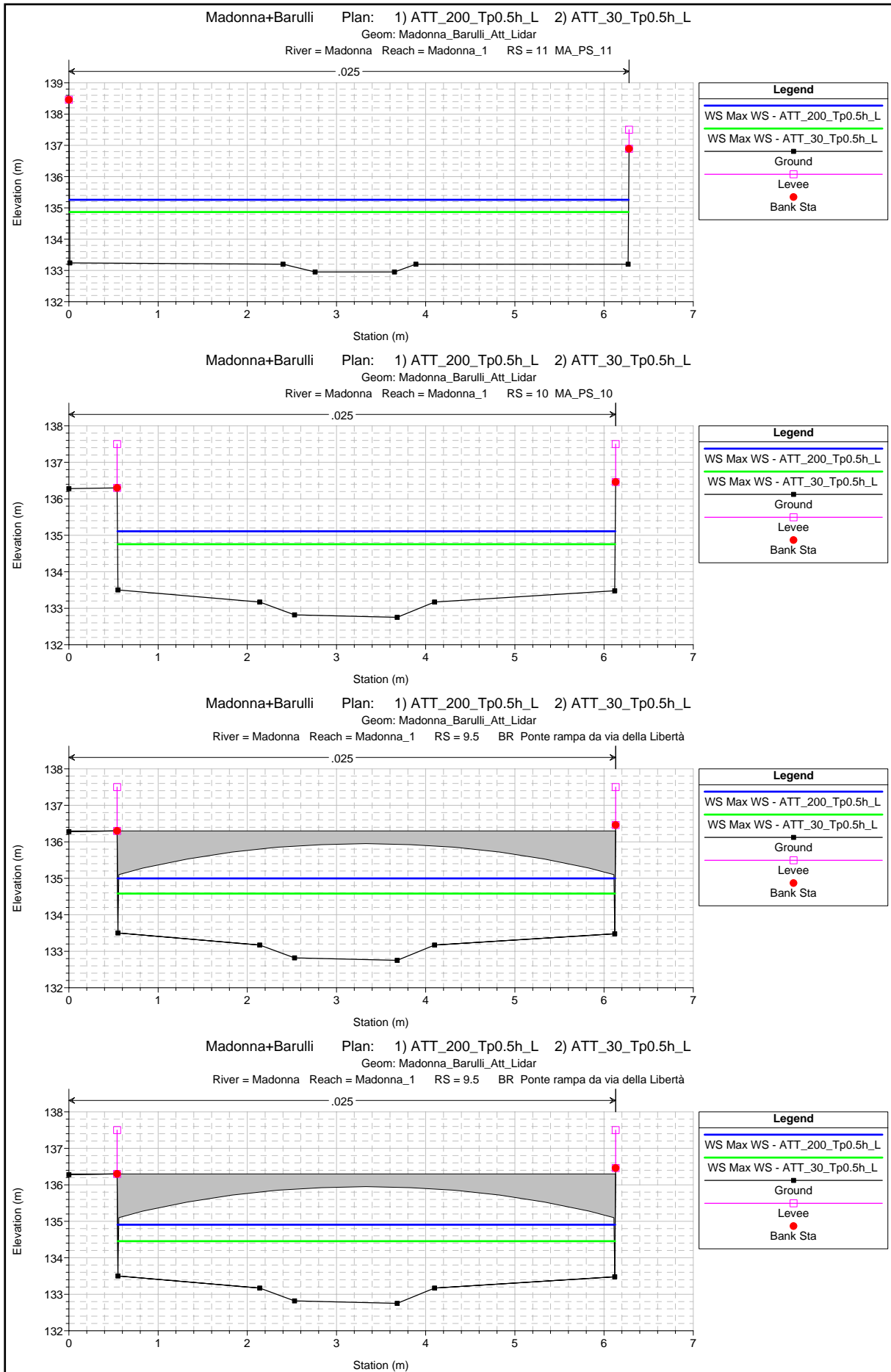


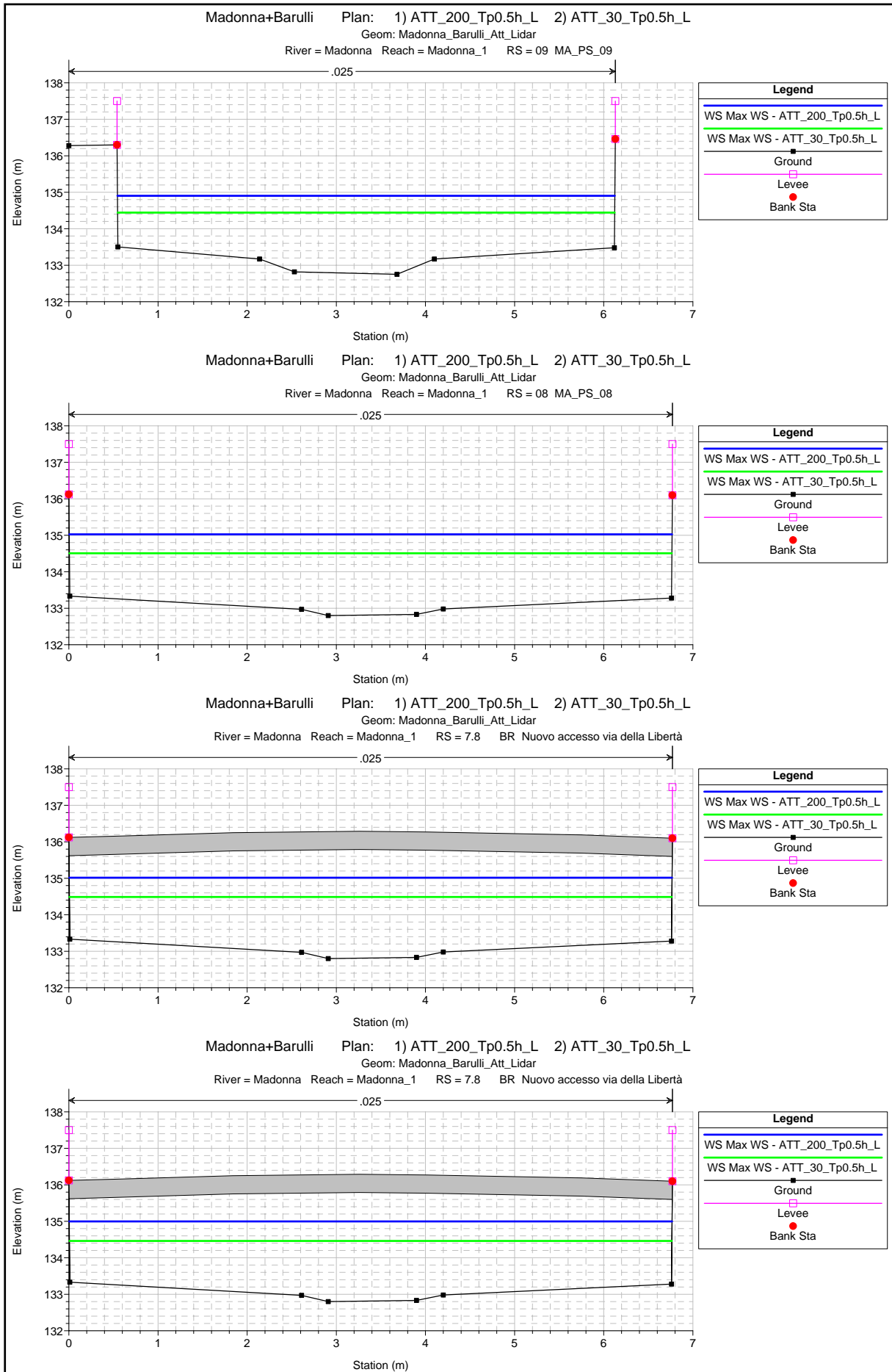




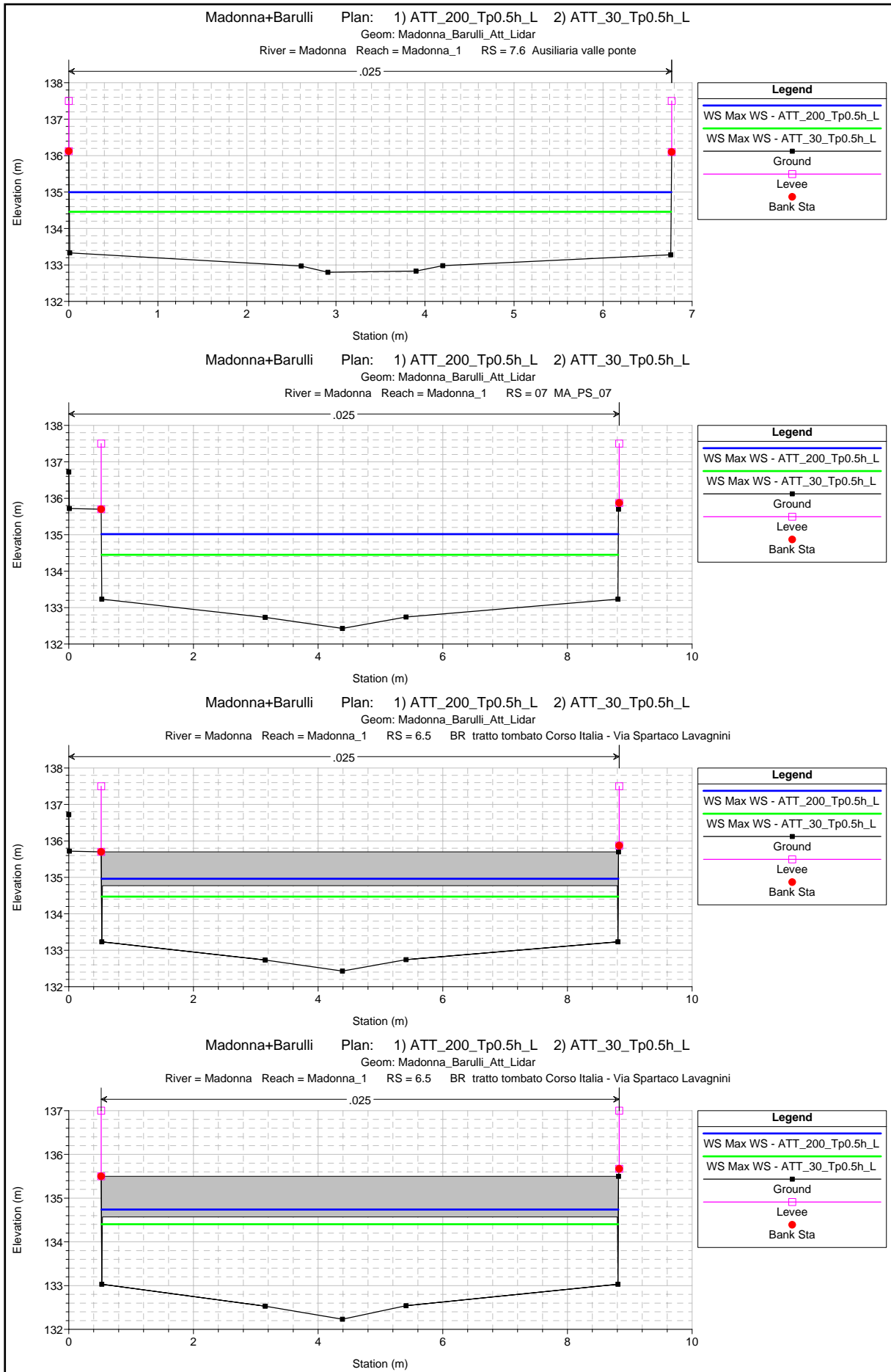


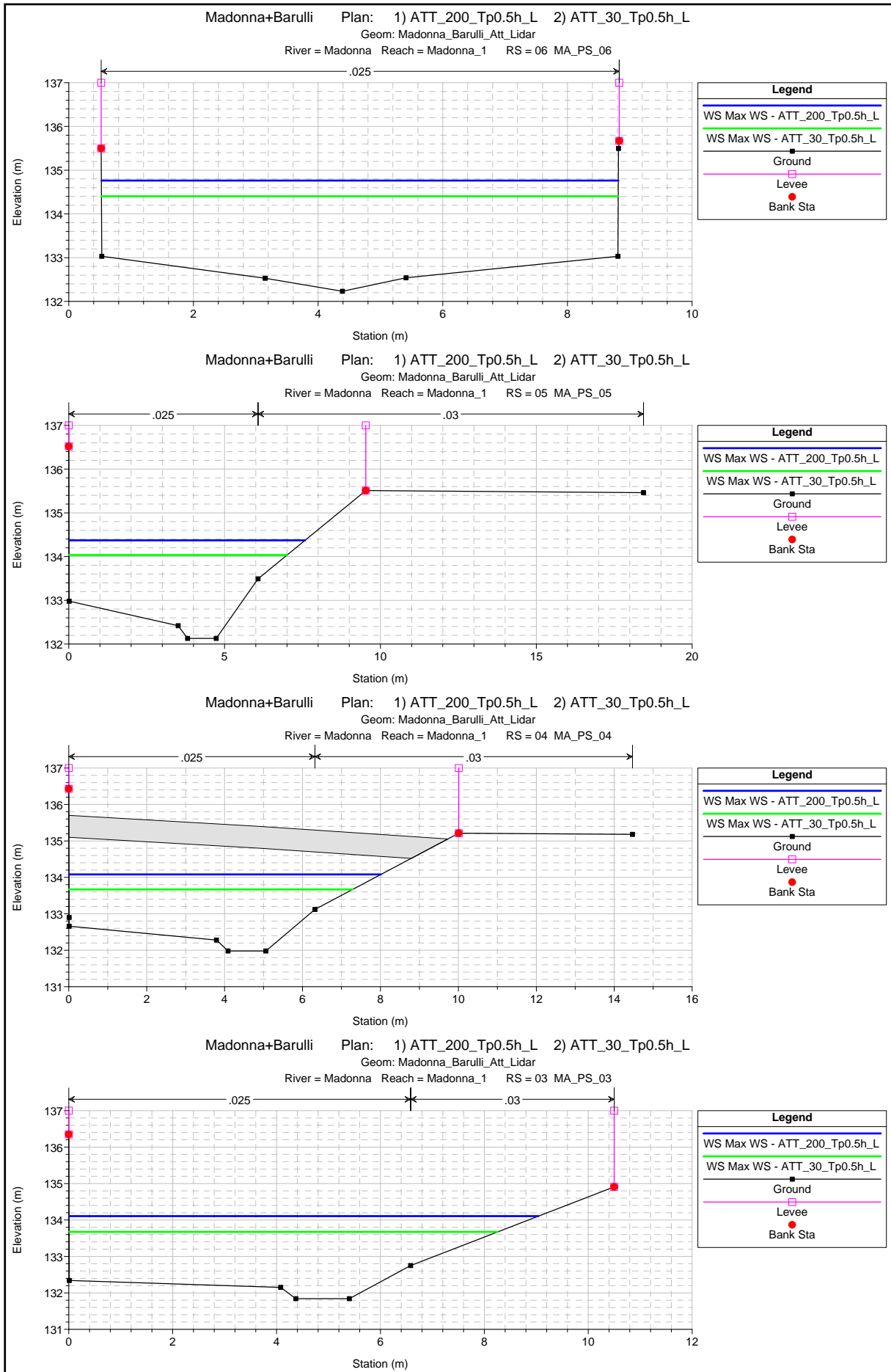


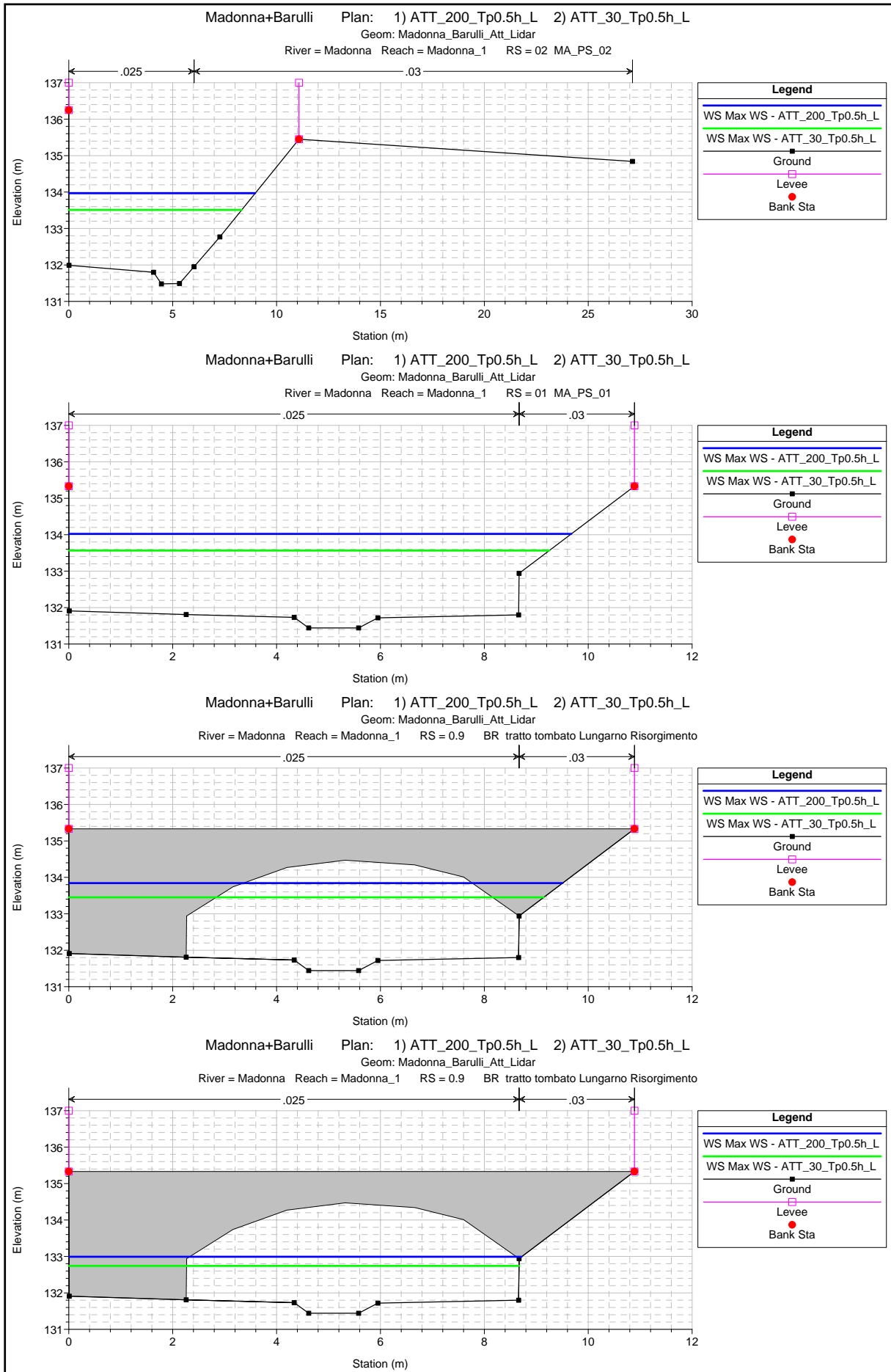


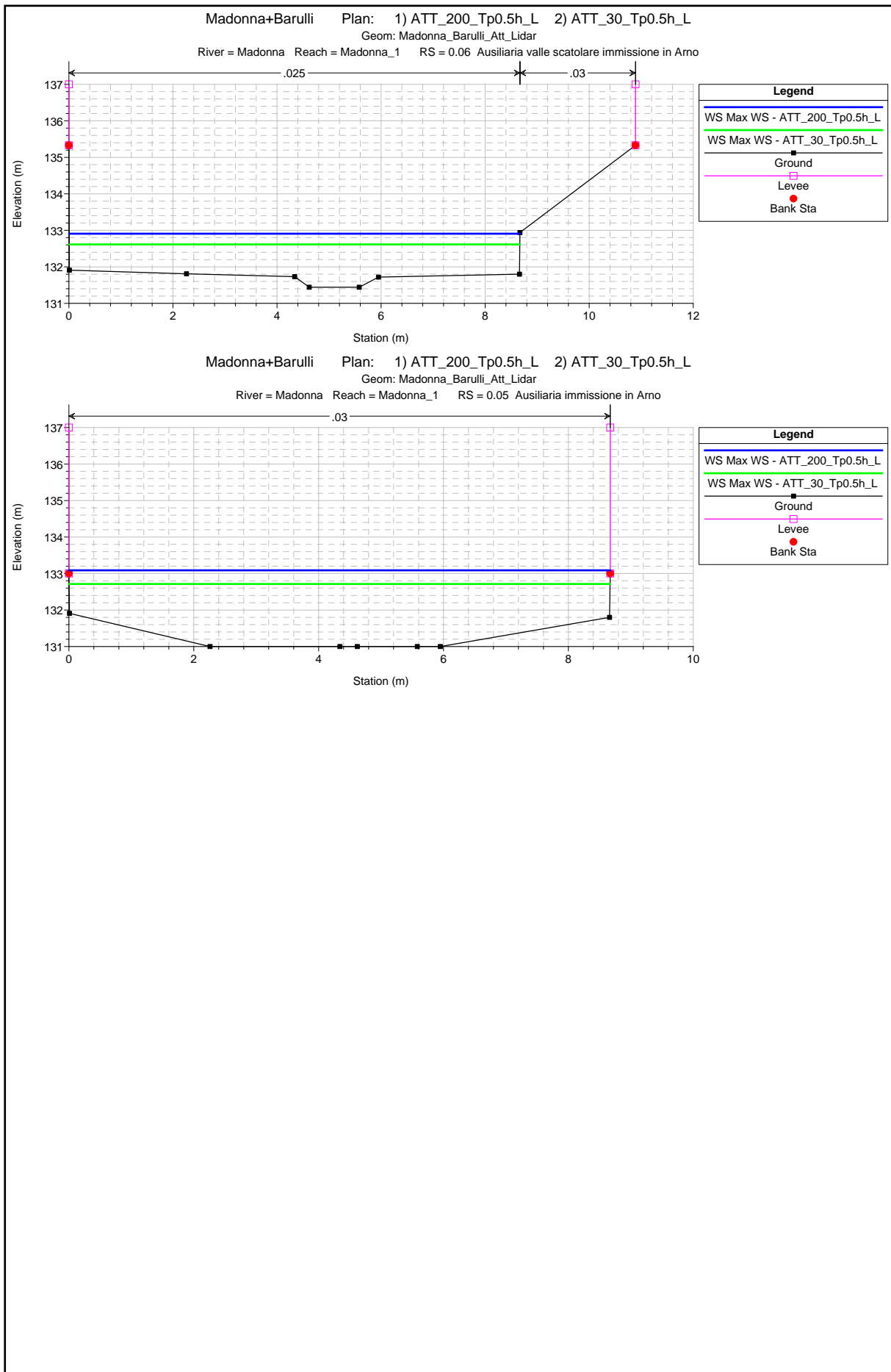












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_2	43	Max WS	ATT_200_Tp0.5h_L	16.25	147.54	149.80		149.87	0.001620	1.27	15.91	26.78	0.33
Madonna_2	43	Max WS	ATT_30_Tp0.5h_L	11.03	147.54	149.74		149.77	0.000981	0.96	14.26	24.88	0.26
Madonna_2	42	Max WS	ATT_200_Tp0.5h_L	16.24	147.70	149.78	149.25	149.83	0.001334	1.08	17.18	24.30	0.27
Madonna_2	42	Max WS	ATT_30_Tp0.5h_L	9.01	147.70	149.73	148.89	149.74	0.000502	0.65	15.90	23.32	0.16
Madonna_2	41.5			Bridge									
Madonna_2	41	Max WS	ATT_200_Tp0.5h_L	16.24	147.70	149.26	149.34	149.58	0.012676	2.72	6.88	16.20	0.85
Madonna_2	41	Max WS	ATT_30_Tp0.5h_L	11.03	147.70	149.13	149.20	149.42	0.013184	2.56	4.92	12.58	0.85
Madonna_2	40	Max WS	ATT_200_Tp0.5h_L	16.21	146.30	148.17	148.24	148.44	0.010187	2.47	7.74	21.41	0.80
Madonna_2	40	Max WS	ATT_30_Tp0.5h_L	11.03	146.30	147.89	147.87	148.26	0.016356	2.72	4.05	5.08	0.97
Madonna_2	39.2	Max WS	ATT_200_Tp0.5h_L	16.11	144.75	147.83		147.87	0.000657	0.97	22.38	32.52	0.21
Madonna_2	39.2	Max WS	ATT_30_Tp0.5h_L	10.91	144.75	147.37		147.43	0.000973	1.03	11.43	15.37	0.26
Madonna_2	39	Max WS	ATT_200_Tp0.5h_L	22.97	144.75	147.71	146.77	147.82	0.001864	1.58	18.66	27.90	0.36
Madonna_2	39	Max WS	ATT_30_Tp0.5h_L	15.75	144.75	147.18	146.45	147.33	0.003139	1.73	9.13	7.96	0.46
Madonna_2	38.8			Bridge									
Madonna_2	38.6	Max WS	ATT_200_Tp0.5h_L	22.97	144.75	147.10		147.46	0.007872	2.67	8.60	6.21	0.72
Madonna_2	38.6	Max WS	ATT_30_Tp0.5h_L	15.75	144.75	146.81		147.08	0.006635	2.28	6.91	5.64	0.66
Madonna_2	38	Max WS	ATT_200_Tp0.5h_L	22.97	144.38	146.70		147.14	0.009123	2.94	8.01	8.14	0.77
Madonna_2	38	Max WS	ATT_30_Tp0.5h_L	15.75	144.38	146.42		146.74	0.008516	2.51	6.29	5.16	0.72
Madonna_2	37	Max WS	ATT_200_Tp0.5h_L	15.07	143.21	145.73		145.80	0.001463	1.26	16.18	32.56	0.31
Madonna_2	37	Max WS	ATT_30_Tp0.5h_L	15.00	143.21	145.73		145.79	0.001454	1.26	16.16	32.54	0.31
Madonna_2	36	Max WS	ATT_200_Tp0.5h_L	14.95	143.04	145.74	144.79	145.77	0.000748	0.97	21.46	38.04	0.23
Madonna_2	36	Max WS	ATT_30_Tp0.5h_L	14.96	143.04	145.74	144.79	145.77	0.000751	0.98	21.44	38.00	0.23
Madonna_2	35.8			Bridge									
Madonna_2	35.6	Max WS	ATT_200_Tp0.5h_L	23.14	143.04	145.42	145.45	145.70	0.006403	2.50	11.57	26.08	0.65
Madonna_2	35.6	Max WS	ATT_30_Tp0.5h_L	17.69	143.04	145.30	144.93	145.55	0.005848	2.27	8.90	20.48	0.62
Madonna_2	35	Max WS	ATT_200_Tp0.5h_L	23.07	142.69	145.39	145.13	145.49	0.002213	1.63	18.26	31.98	0.38
Madonna_2	35	Max WS	ATT_30_Tp0.5h_L	16.77	142.69	145.28	144.60	145.36	0.001872	1.44	14.68	29.60	0.35

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	34.8			Bridge									
Madonna_2	34.6	Max WS	ATT_200_Tp0.5h_L	23.07	142.69	144.81	145.13	145.55	0.019701	3.83	6.18	8.64	1.08
Madonna_2	34.6	Max WS	ATT_30_Tp0.5h_L	16.77	142.69	144.56	144.60	145.17	0.019031	3.45	4.86	4.38	1.04
Madonna_2	34	Max WS	ATT_200_Tp0.5h_L	23.06	142.37	144.38	144.36	144.94	0.014287	3.31	7.04	7.12	0.95
Madonna_2	34	Max WS	ATT_30_Tp0.5h_L	16.61	142.37	144.12		144.58	0.013958	2.99	5.56	5.15	0.92
Madonna_2	33.6	Max WS	ATT_200_Tp0.5h_L	23.00	141.94	143.80	143.79	144.33	0.007081	3.20	7.18	6.57	0.98
Madonna_2	33.6	Max WS	ATT_30_Tp0.5h_L	16.52	141.94	143.54	143.50	143.99	0.007155	2.99	5.53	5.67	0.96
Madonna_2	33	Max WS	ATT_200_Tp0.5h_L	22.98	141.31	143.29		143.59	0.006728	2.41	9.53	7.98	0.70
Madonna_2	33	Max WS	ATT_30_Tp0.5h_L	16.29	141.31	143.01		143.26	0.006652	2.20	7.41	7.12	0.69
Madonna_2	32.6	Max WS	ATT_200_Tp0.5h_L	22.97	141.04	142.99		143.27	0.006576	2.35	9.76	8.38	0.70
Madonna_2	32.6	Max WS	ATT_30_Tp0.5h_L	16.16	141.04	142.62		142.91	0.008947	2.38	6.80	7.52	0.80
Madonna_2	32	Max WS	ATT_200_Tp0.5h_L	22.94	140.65	142.91	142.10	142.99	0.001558	1.41	19.16	25.54	0.33
Madonna_2	32	Max WS	ATT_30_Tp0.5h_L	16.04	140.65	142.19	141.85	142.43	0.006097	2.15	7.47	6.24	0.63
Madonna_2	31.8			Bridge									
Madonna_2	31.6	Max WS	ATT_200_Tp0.5h_L	22.94	140.65	142.14	142.10	142.66	0.014167	3.21	7.15	6.21	0.95
Madonna_2	31.6	Max WS	ATT_30_Tp0.5h_L	16.04	140.65	141.90		142.31	0.013646	2.83	5.67	6.06	0.93
Madonna_2	31	Max WS	ATT_200_Tp0.5h_L	22.94	139.73	140.95		141.31	0.009921	2.64	8.67	7.85	0.80
Madonna_2	31	Max WS	ATT_30_Tp0.5h_L	15.96	139.73	140.70		140.99	0.010501	2.38	6.71	7.74	0.81
Madonna_2	30	Max WS	ATT_200_Tp0.5h_L	20.15	137.68	140.05	138.97	140.17	0.002083	1.54	14.93	26.76	0.35
Madonna_2	30	Max WS	ATT_30_Tp0.5h_L	15.72	137.68	139.45	138.79	139.61	0.003907	1.82	8.64	5.64	0.47
Madonna_2	29.8			Bridge									
Madonna_2	29.6	Max WS	ATT_200_Tp0.5h_L	20.15	137.68	139.77		139.95	0.003746	1.92	10.48	5.87	0.46
Madonna_2	29.6	Max WS	ATT_30_Tp0.5h_L	15.72	137.68	139.35		139.54	0.004692	1.94	8.09	5.57	0.51
Madonna_2	29.4	Max WS	ATT_200_Tp0.5h_L	20.04	136.99	139.86	138.49	139.91	0.000809	1.11	23.02	27.31	0.21
Madonna_2	29.4	Max WS	ATT_30_Tp0.5h_L	15.72	136.99	139.38	138.26	139.49	0.002096	1.57	12.05	17.78	0.33
Madonna_2	29.2			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	29	Max WS	ATT_200_Tp0.5h_L	24.11	136.99	139.16	138.68	139.62	0.008957	3.05	8.67	13.57	0.66
Madonna_2	29	Max WS	ATT_30_Tp0.5h_L	14.27	136.99	138.87		139.11	0.005402	2.16	6.60	3.73	0.50
Madonna_2	28	Max WS	ATT_200_Tp0.5h_L	22.92	136.47	139.04	137.98	139.15	0.001796	1.62	19.13	41.19	0.33
Madonna_2	28	Max WS	ATT_30_Tp0.5h_L	15.41	136.47	138.93	137.67	139.00	0.001143	1.26	15.30	30.51	0.26
Madonna_2	27.8			Bridge									
Madonna_2	27.6	Max WS	ATT_200_Tp0.5h_L	13.93	136.47	138.90		138.96	0.001017	1.17	14.41	27.47	0.25
Madonna_2	27.6	Max WS	ATT_30_Tp0.5h_L	14.24	136.47	138.90		138.97	0.001064	1.20	14.41	27.43	0.25
Madonna_2	27	Max WS	ATT_200_Tp0.5h_L	14.13	136.07	138.92	137.36	138.94	0.000251	0.70	29.58	42.36	0.15
Madonna_2	27	Max WS	ATT_30_Tp0.5h_L	14.10	136.07	138.92	137.36	138.94	0.000250	0.70	29.58	42.36	0.15
Madonna_2	26.5			Bridge									
Madonna_2	26.4	Max WS	ATT_200_Tp0.5h_L	22.92	136.07	137.95		138.54	0.011413	3.42	6.70	4.64	0.91
Madonna_2	26.4	Max WS	ATT_30_Tp0.5h_L	15.72	136.07	137.33	137.45	138.07	0.019355	3.80	4.14	3.78	1.16
Madonna_2	26.3	Max WS	ATT_200_Tp0.5h_L	22.92	136.07	137.95		138.54	0.011438	3.42	6.70	4.64	0.91
Madonna_2	26.3	Max WS	ATT_30_Tp0.5h_L	15.72	136.07	137.33	137.45	138.07	0.019443	3.81	4.13	3.77	1.16
Madonna_2	26	Max WS	ATT_200_Tp0.5h_L	22.92	135.94	137.94		138.30	0.006075	2.68	8.56	4.85	0.64
Madonna_2	26	Max WS	ATT_30_Tp0.5h_L	15.72	135.94	137.31		137.72	0.009561	2.82	5.57	4.69	0.83
Madonna_2	25.4	Max WS	ATT_200_Tp0.5h_L	22.92	135.66	137.87	137.13	138.13	0.004113	2.29	10.01	4.90	0.51
Madonna_2	25.4	Max WS	ATT_30_Tp0.5h_L	15.72	135.66	137.26	136.83	137.51	0.005162	2.23	7.04	4.89	0.59
Madonna_2	25.2			Bridge									
Madonna_2	25	Max WS	ATT_200_Tp0.5h_L	22.92	135.66	137.80		138.09	0.004491	2.36	9.70	4.90	0.54
Madonna_2	25	Max WS	ATT_30_Tp0.5h_L	15.71	135.66	137.15		137.44	0.006512	2.42	6.49	4.89	0.67
Madonna_2	24.8			Lat Struct									
Madonna_2	24	Max WS	ATT_200_Tp0.5h_L	22.66	135.17	137.64	136.76	137.91	0.002956	2.28	9.93	4.35	0.48
Madonna_2	24	Max WS	ATT_30_Tp0.5h_L	15.68	135.17	136.89	136.46	137.17	0.004244	2.36	6.65	4.34	0.61
Madonna_2	23.95			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_2	23.9	Max WS	ATT_200_Tp0.5h_L	22.47	135.05	136.98		137.48	0.007134	3.11	7.22	4.34	0.77
Madonna_2	23.9	Max WS	ATT_30_Tp0.5h_L	15.58	135.05	136.62		137.01	0.006922	2.76	5.64	4.34	0.77
Madonna_2	23.8	Max WS	ATT_200_Tp0.5h_L	22.44	135.05	136.97		137.47	0.007305	3.14	7.16	4.34	0.78
Madonna_2	23.8	Max WS	ATT_30_Tp0.5h_L	15.58	135.05	136.60		137.00	0.007170	2.80	5.57	4.34	0.79
Madonna_1	23	Max WS	ATT_200_Tp0.5h_L	29.12	135.00	136.97		137.43	0.005300	3.00	9.71	5.74	0.74
Madonna_1	23	Max WS	ATT_30_Tp0.5h_L	21.17	135.00	136.60		137.00	0.005657	2.78	7.61	5.74	0.77
Madonna_1	22.95	Max WS	ATT_200_Tp0.5h_L	29.12	135.00	136.96		137.42	0.005341	3.01	9.68	5.74	0.74
Madonna_1	22.95	Max WS	ATT_30_Tp0.5h_L	21.17	135.00	136.60		137.00	0.005722	2.79	7.58	5.74	0.78
Madonna_1	22.9			Lat Struct									
Madonna_1	22.8			Lat Struct									
Madonna_1	22	Max WS	ATT_200_Tp0.5h_L	29.12	134.64	136.75	136.16	137.09	0.003174	2.55	11.40	5.86	0.58
Madonna_1	22	Max WS	ATT_30_Tp0.5h_L	21.15	134.64	136.36	135.90	136.64	0.003152	2.32	9.11	5.85	0.59
Madonna_1	21.5			Bridge									
Madonna_1	21	Max WS	ATT_200_Tp0.5h_L	29.11	134.64	136.57		136.97	0.004186	2.82	10.33	5.85	0.68
Madonna_1	21	Max WS	ATT_30_Tp0.5h_L	21.13	134.64	136.20		136.54	0.004296	2.59	8.17	5.85	0.70
Madonna_1	20.9			Lat Struct									
Madonna_1	20.8			Lat Struct									
Madonna_1	20	Max WS	ATT_200_Tp0.5h_L	28.96	134.41	136.55	135.98	136.87	0.003114	2.51	11.53	6.10	0.58
Madonna_1	20	Max WS	ATT_30_Tp0.5h_L	21.13	134.41	136.16	135.73	136.43	0.003189	2.31	9.16	6.09	0.60
Madonna_1	19.5			Bridge									
Madonna_1	19	Max WS	ATT_200_Tp0.5h_L	28.96	134.41	136.48		136.83	0.003427	2.60	11.14	6.09	0.61
Madonna_1	19	Max WS	ATT_30_Tp0.5h_L	21.13	134.41	136.12		136.41	0.003442	2.37	8.92	6.09	0.62
Madonna_1	18.9			Lat Struct									
Madonna_1	18	Max WS	ATT_200_Tp0.5h_L	28.96	134.36	136.51	135.88	136.80	0.002886	2.42	11.98	6.22	0.56
Madonna_1	18	Max WS	ATT_30_Tp0.5h_L	21.13	134.36	136.14	135.63	136.38	0.002803	2.18	9.71	6.21	0.56



HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	17.5			Inl Struct									
Madonna_1	17.4	Max WS	ATT_200_Tp0.5h_L	28.60	134.08	136.10		136.36	0.002495	2.29	12.52	6.21	0.51
Madonna_1	17.4	Max WS	ATT_30_Tp0.5h_L	19.69	134.08	135.67		135.87	0.002348	2.00	9.84	6.21	0.51
Madonna_1	17	Max WS	ATT_200_Tp0.5h_L	28.60	134.08	136.09	135.38	136.36	0.002507	2.29	12.49	6.21	0.52
Madonna_1	17	Max WS	ATT_30_Tp0.5h_L	19.69	134.08	135.66	135.09	135.87	0.002361	2.01	9.82	6.21	0.51
Madonna_1	16.5			Bridge									
Madonna_1	16	Max WS	ATT_200_Tp0.5h_L	28.60	134.08	136.08		136.35	0.002567	2.31	12.39	6.21	0.52
Madonna_1	16	Max WS	ATT_30_Tp0.5h_L	19.69	134.08	135.65		135.86	0.002429	2.03	9.72	6.21	0.52
Madonna_1	15.9			Lat Struct									
Madonna_1	15	Max WS	ATT_200_Tp0.5h_L	30.32	133.71	135.92	135.27	136.24	0.002928	2.50	12.13	6.00	0.56
Madonna_1	15	Max WS	ATT_30_Tp0.5h_L	21.43	133.71	135.49	134.99	135.75	0.002884	2.25	9.54	6.00	0.57
Madonna_1	14.5			Bridge									
Madonna_1	14	Max WS	ATT_200_Tp0.5h_L	30.30	133.71	135.80		136.16	0.003469	2.66	11.41	6.00	0.61
Madonna_1	14	Max WS	ATT_30_Tp0.5h_L	21.43	133.71	135.40		135.69	0.003385	2.38	9.02	6.00	0.62
Madonna_1	13	Max WS	ATT_200_Tp0.5h_L	30.30	133.60	135.51	135.31	136.05	0.006207	3.27	9.27	5.76	0.82
Madonna_1	13	Max WS	ATT_30_Tp0.5h_L	21.43	133.60	135.12	135.02	135.59	0.006910	3.05	7.03	5.76	0.88
Madonna_1	12.5			Bridge									
Madonna_1	12	Max WS	ATT_200_Tp0.5h_L	30.30	133.57	135.59		135.98	0.003966	2.76	10.96	6.01	0.65
Madonna_1	12	Max WS	ATT_30_Tp0.5h_L	21.43	133.57	135.19		135.51	0.004037	2.51	8.55	6.00	0.67
Madonna_1	11.5	Max WS	ATT_200_Tp0.5h_L	30.30	133.47	135.64	135.00	135.95	0.002906	2.45	12.39	6.27	0.56
Madonna_1	11.5	Max WS	ATT_30_Tp0.5h_L	21.43	133.47	135.24	134.72	135.48	0.002815	2.18	9.83	6.27	0.56
Madonna_1	11.2			Inl Struct									
Madonna_1	11	Max WS	ATT_200_Tp0.5h_L	30.24	132.95	135.26		135.53	0.002455	2.30	13.15	6.27	0.51
Madonna_1	11	Max WS	ATT_30_Tp0.5h_L	21.43	132.95	134.87		135.07	0.002214	2.00	10.70	6.27	0.49
Madonna_1	10	Max WS	ATT_200_Tp0.5h_L	30.23	132.75	135.11	134.61	135.51	0.003889	2.79	10.84	5.58	0.64
Madonna_1	10	Max WS	ATT_30_Tp0.5h_L	21.43	132.75	134.75	134.31	135.05	0.003447	2.42	8.86	5.58	0.61

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	9.5			Bridge									
Madonna_1	09	Max WS	ATT_200_Tp0.5h_L	29.90	132.75	134.90		135.39	0.005213	3.09	9.69	5.58	0.75
Madonna_1	09	Max WS	ATT_30_Tp0.5h_L	21.43	132.75	134.44		134.90	0.006449	3.01	7.12	5.58	0.85
Madonna_1	08	Max WS	ATT_200_Tp0.5h_L	30.07	132.80	135.02	134.34	135.29	0.002334	2.28	13.20	6.76	0.52
Madonna_1	08	Max WS	ATT_30_Tp0.5h_L	21.42	132.80	134.51	134.08	134.76	0.002870	2.21	9.70	6.76	0.59
Madonna_1	7.8			Bridge									
Madonna_1	7.6	Max WS	ATT_200_Tp0.5h_L	29.98	132.80	135.00		135.27	0.002417	2.30	13.01	6.76	0.53
Madonna_1	7.6	Max WS	ATT_30_Tp0.5h_L	21.41	132.80	134.46		134.73	0.003162	2.28	9.38	6.76	0.62
Madonna_1	07	Max WS	ATT_200_Tp0.5h_L	30.05	132.43	135.02	133.98	135.16	0.001064	1.69	17.75	8.29	0.37
Madonna_1	07	Max WS	ATT_30_Tp0.5h_L	21.41	132.43	134.45	133.75	134.59	0.001320	1.64	13.05	8.29	0.42
Madonna_1	6.5			Bridge									
Madonna_1	06	Max WS	ATT_200_Tp0.5h_L	30.00	132.23	134.76		134.92	0.001141	1.73	17.30	8.29	0.38
Madonna_1	06	Max WS	ATT_30_Tp0.5h_L	21.41	132.23	134.40		134.52	0.001003	1.49	14.33	8.29	0.36
Madonna_1	05	Max WS	ATT_200_Tp0.5h_L	29.85	132.13	134.37		134.73	0.003936	2.64	11.31	7.58	0.69
Madonna_1	05	Max WS	ATT_30_Tp0.5h_L	21.39	132.13	134.03		134.33	0.003885	2.42	8.85	7.00	0.69
Madonna_1	04	Max WS	ATT_200_Tp0.5h_L	29.69	131.98	134.08	133.73	134.42	0.003629	2.59	11.45	8.01	0.69
Madonna_1	04	Max WS	ATT_30_Tp0.5h_L	21.36	131.98	133.67	133.47	134.00	0.004630	2.58	8.29	7.28	0.77
Madonna_1	03	Max WS	ATT_200_Tp0.5h_L	29.72	131.84	134.11		134.33	0.002232	2.07	14.34	9.04	0.53
Madonna_1	03	Max WS	ATT_30_Tp0.5h_L	21.35	131.84	133.67		133.88	0.002625	2.02	10.60	8.25	0.57
Madonna_1	02	Max WS	ATT_200_Tp0.5h_L	29.72	131.48	133.97		134.14	0.001604	1.85	16.06	8.97	0.44
Madonna_1	02	Max WS	ATT_30_Tp0.5h_L	21.34	131.48	133.51		133.67	0.001801	1.76	12.11	8.31	0.47
Madonna_1	01	Max WS	ATT_200_Tp0.5h_L	29.72	131.44	134.02	132.80	134.13	0.000820	1.46	20.31	9.67	0.32
Madonna_1	01	Max WS	ATT_30_Tp0.5h_L	21.34	131.44	133.56	132.59	133.66	0.000827	1.33	15.99	9.25	0.32
Madonna_1	0.9			Bridge									
Madonna_1	0.06	Max WS	ATT_200_Tp0.5h_L	29.71	131.44	132.91		133.35	0.006009	2.94	10.12	8.66	0.87
Madonna_1	0.06	Max WS	ATT_30_Tp0.5h_L	21.34	131.44	132.61	132.59	133.02	0.007602	2.82	7.56	8.66	0.96

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Madonna_1	0.05	Max WS	ATT_200_Tp0.5h_L	29.71	131.00	133.09	132.31	133.26	0.001993	1.86	15.96	8.67	0.44
Madonna_1	0.05	Max WS	ATT_30_Tp0.5h_L	21.34	131.00	132.71	132.09	132.86	0.002000	1.68	12.72	8.66	0.44

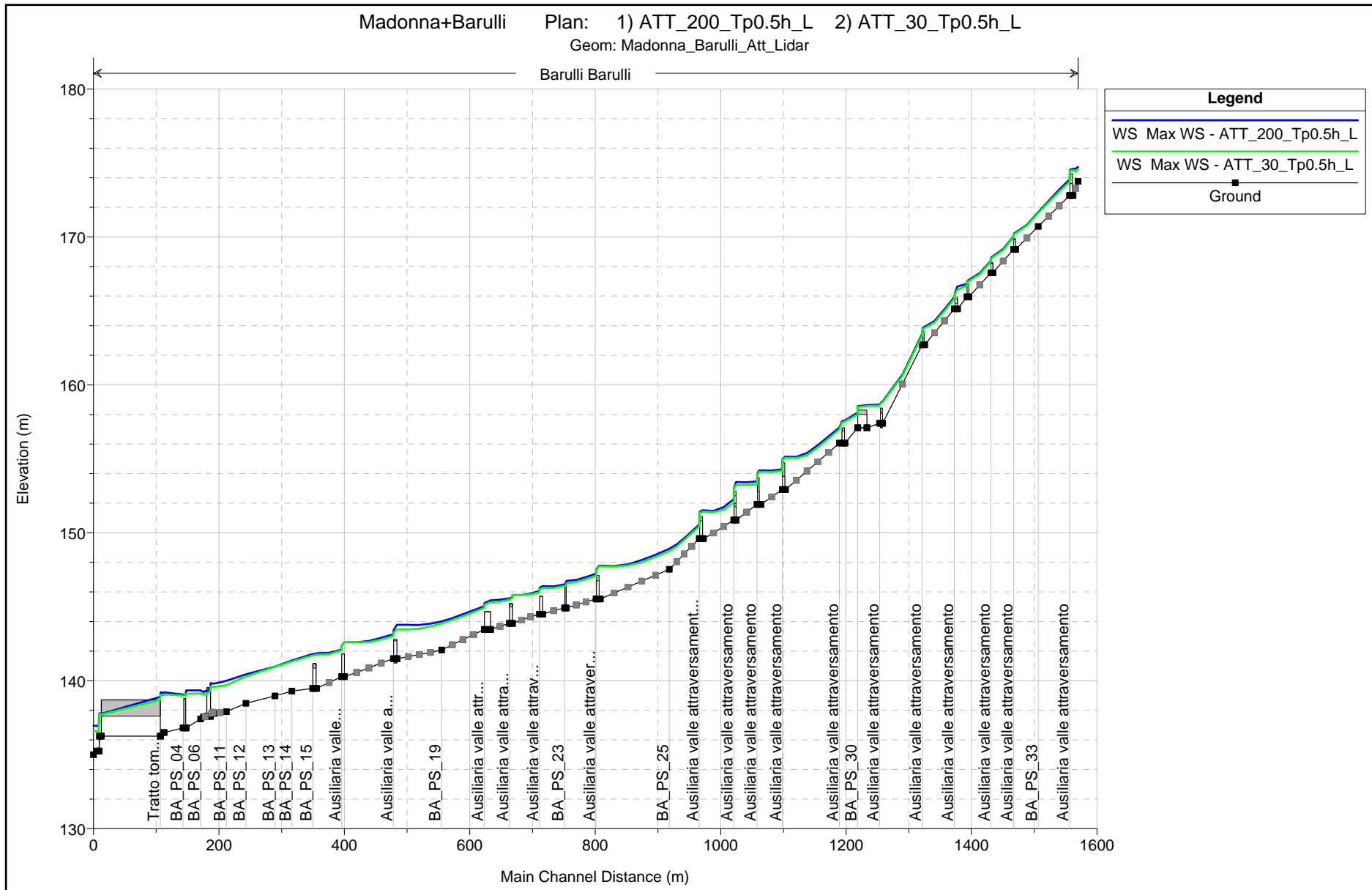
# **VERIFICHE IDRAULICHE**

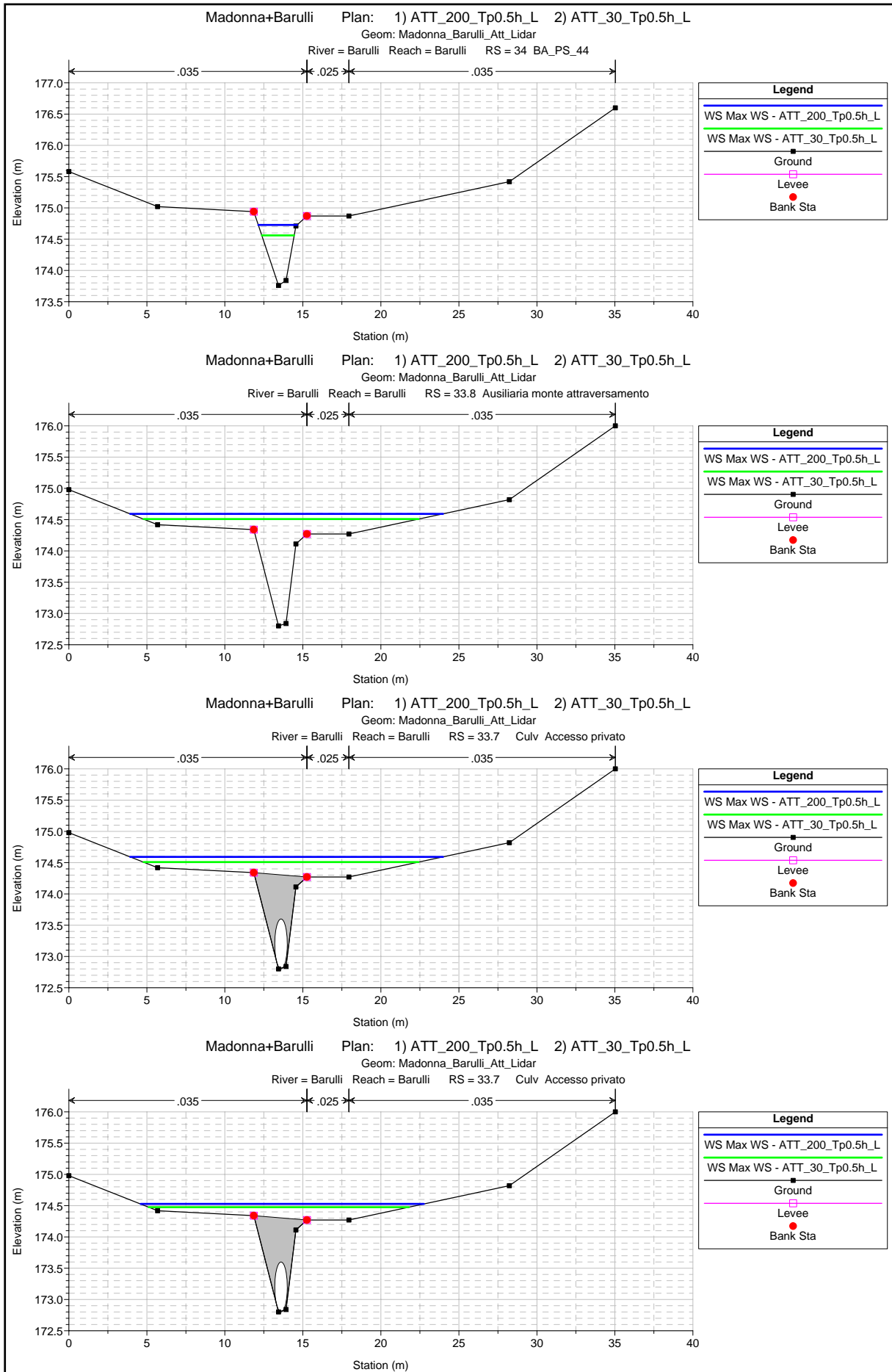
## **STATO ATTUALE**

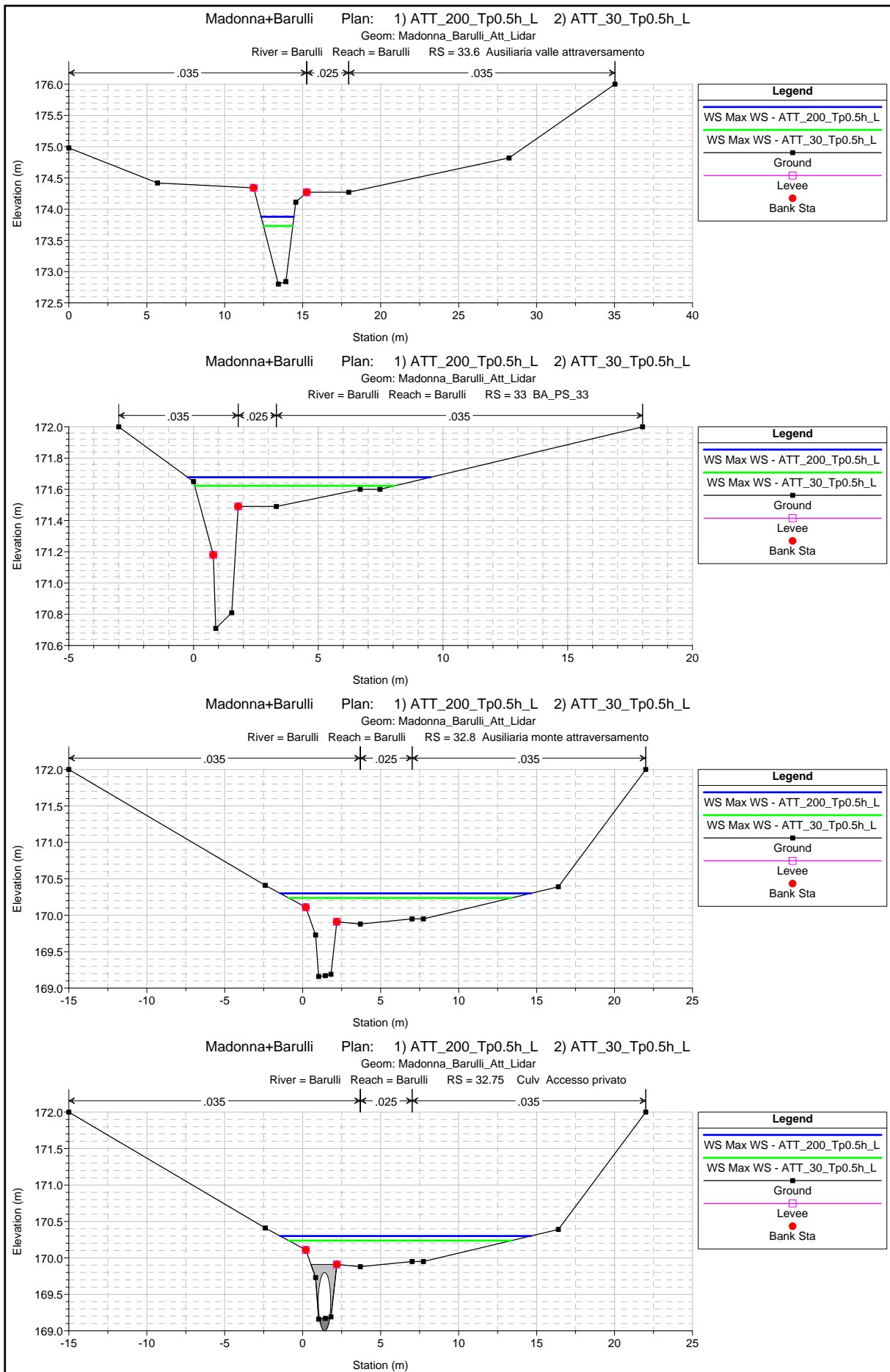
### **BORRO dei BARULLI**

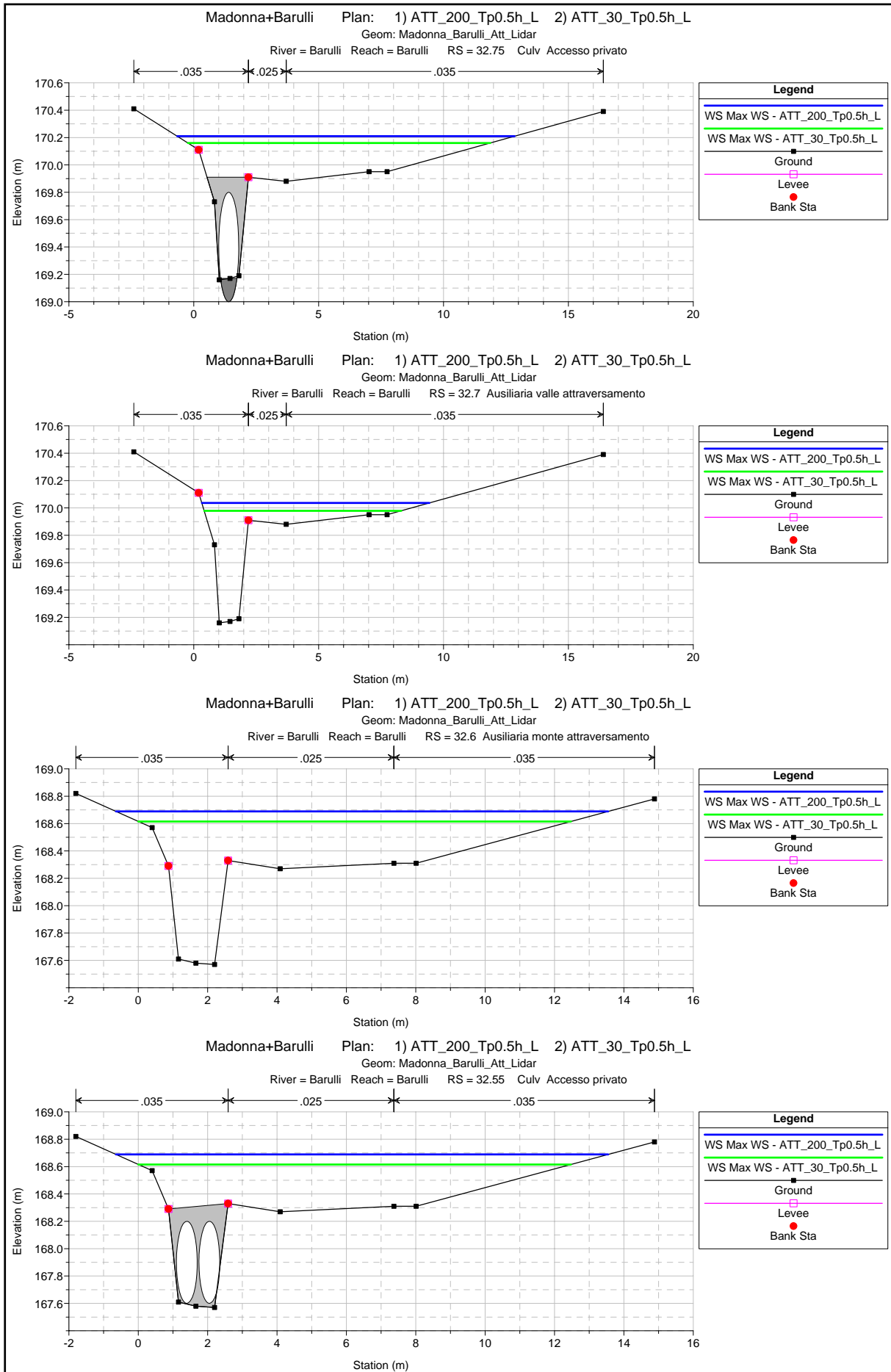
#### **Scenario A2 - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

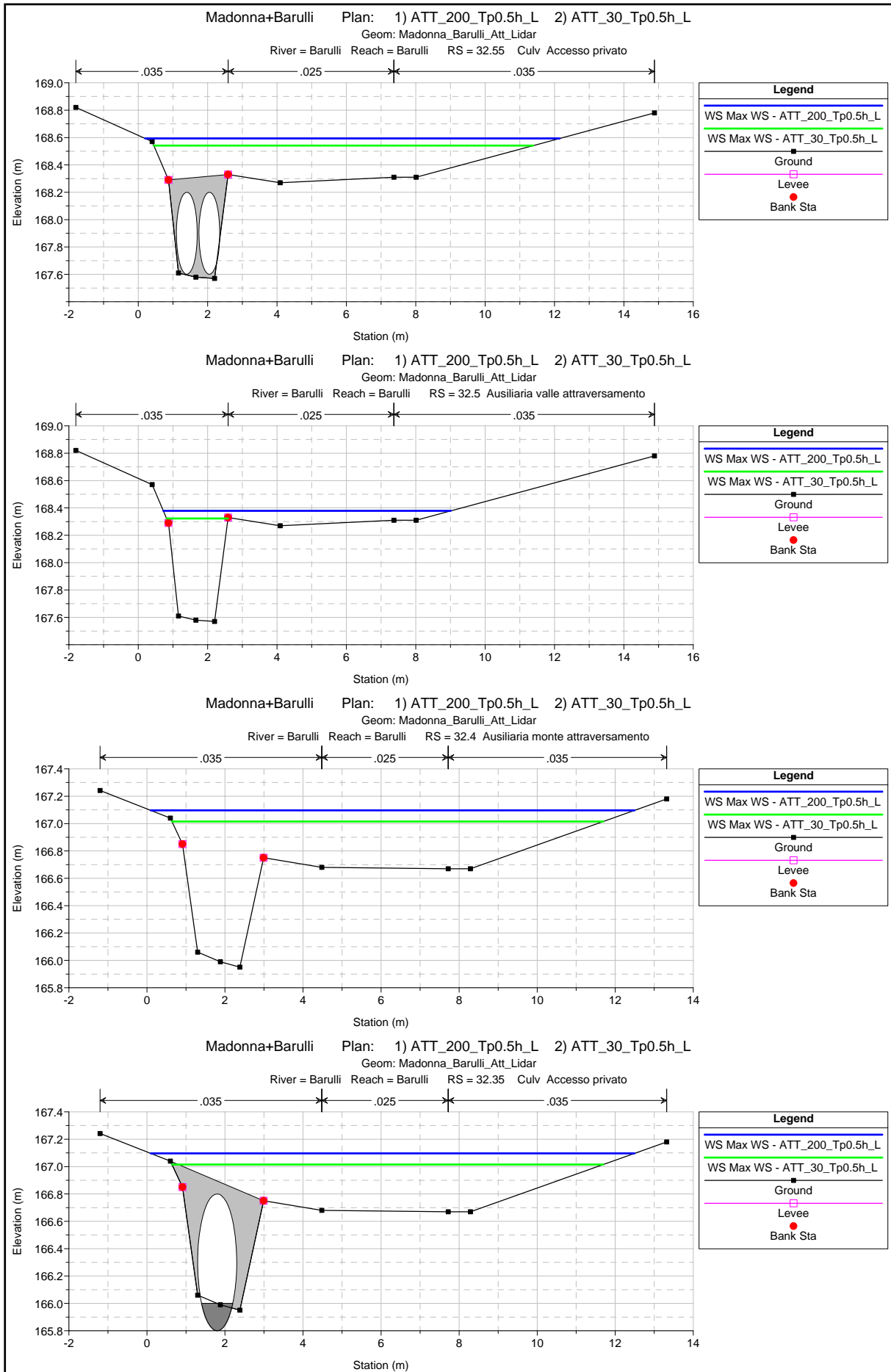


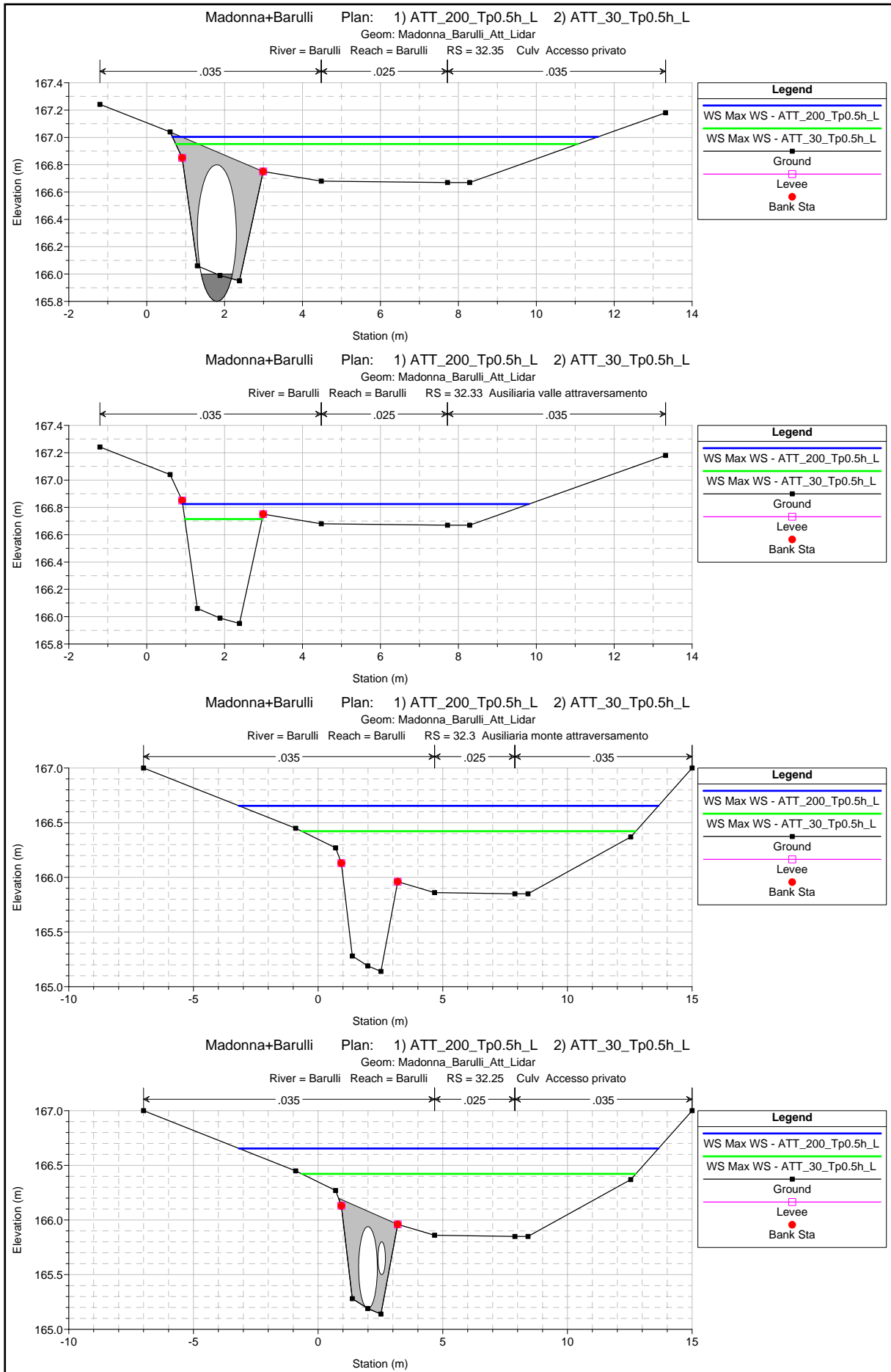


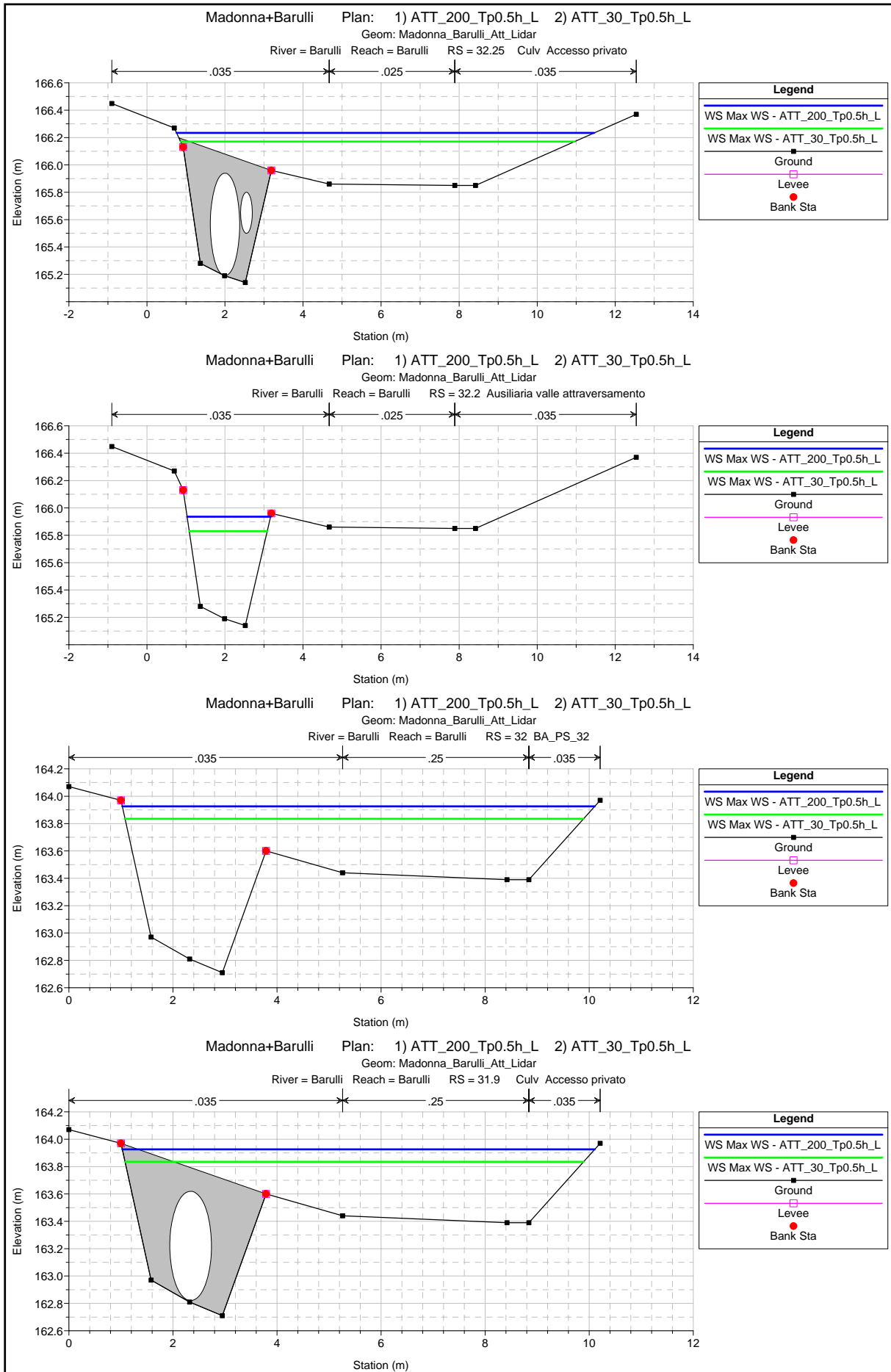


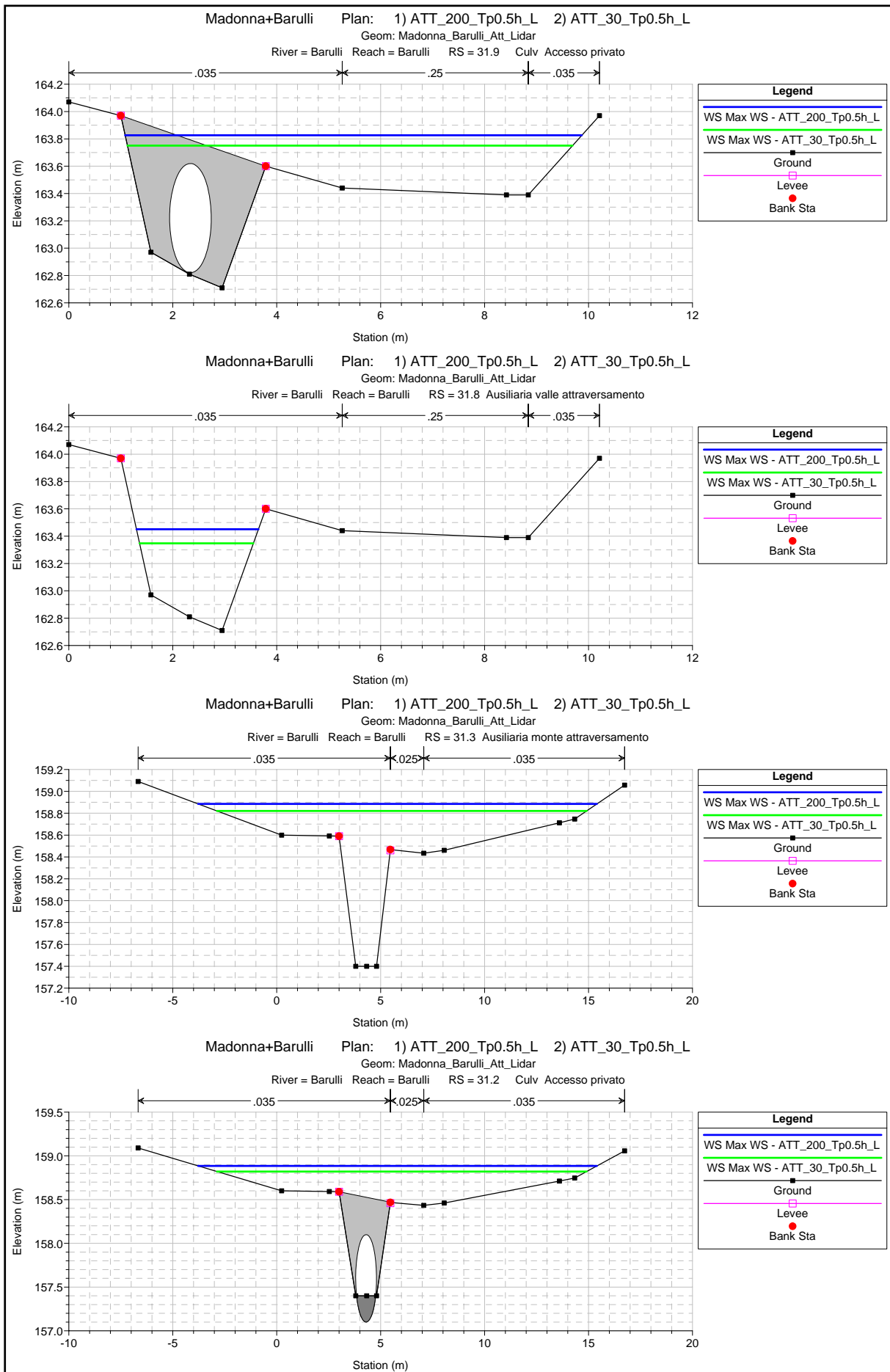


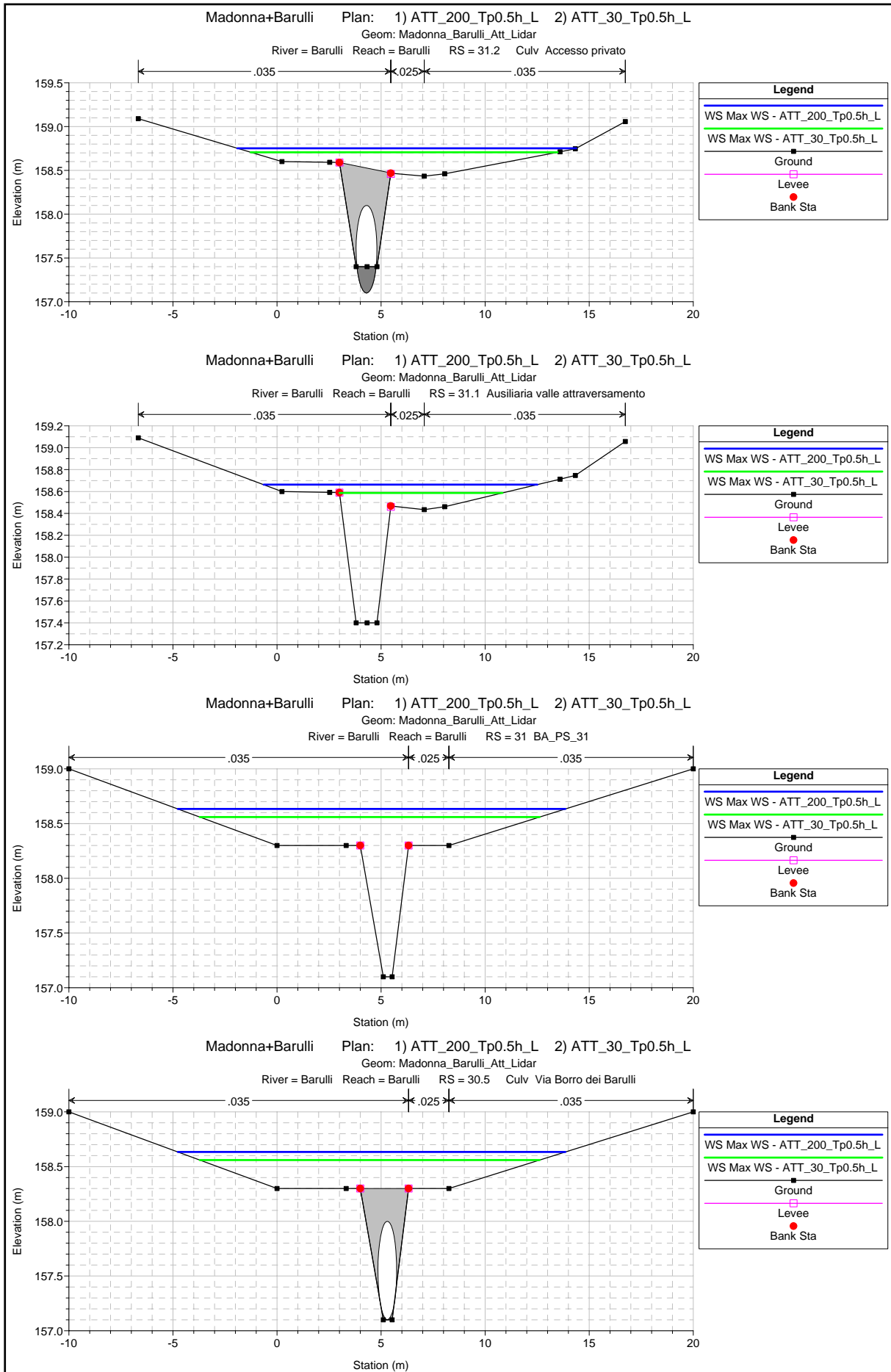


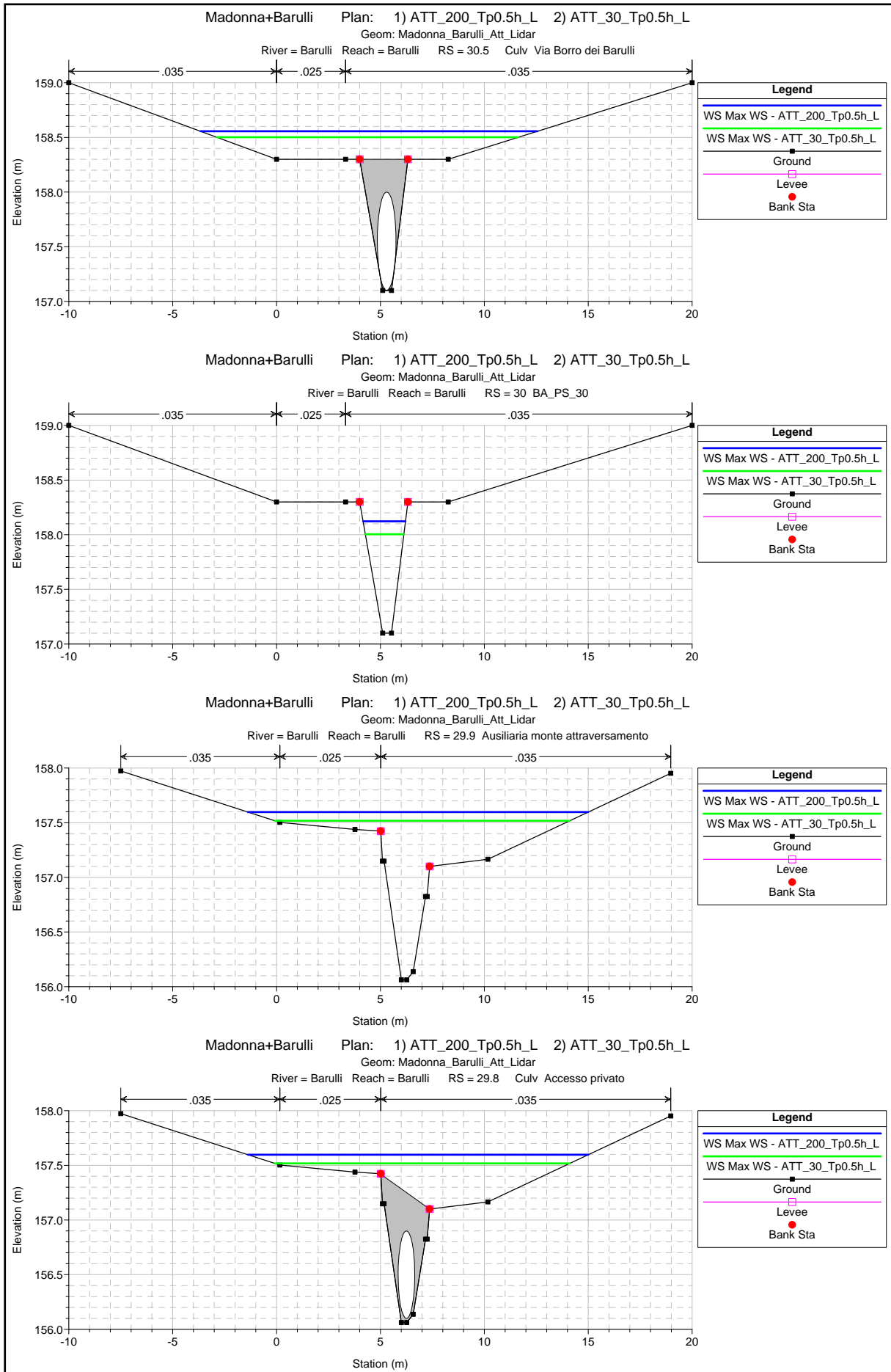


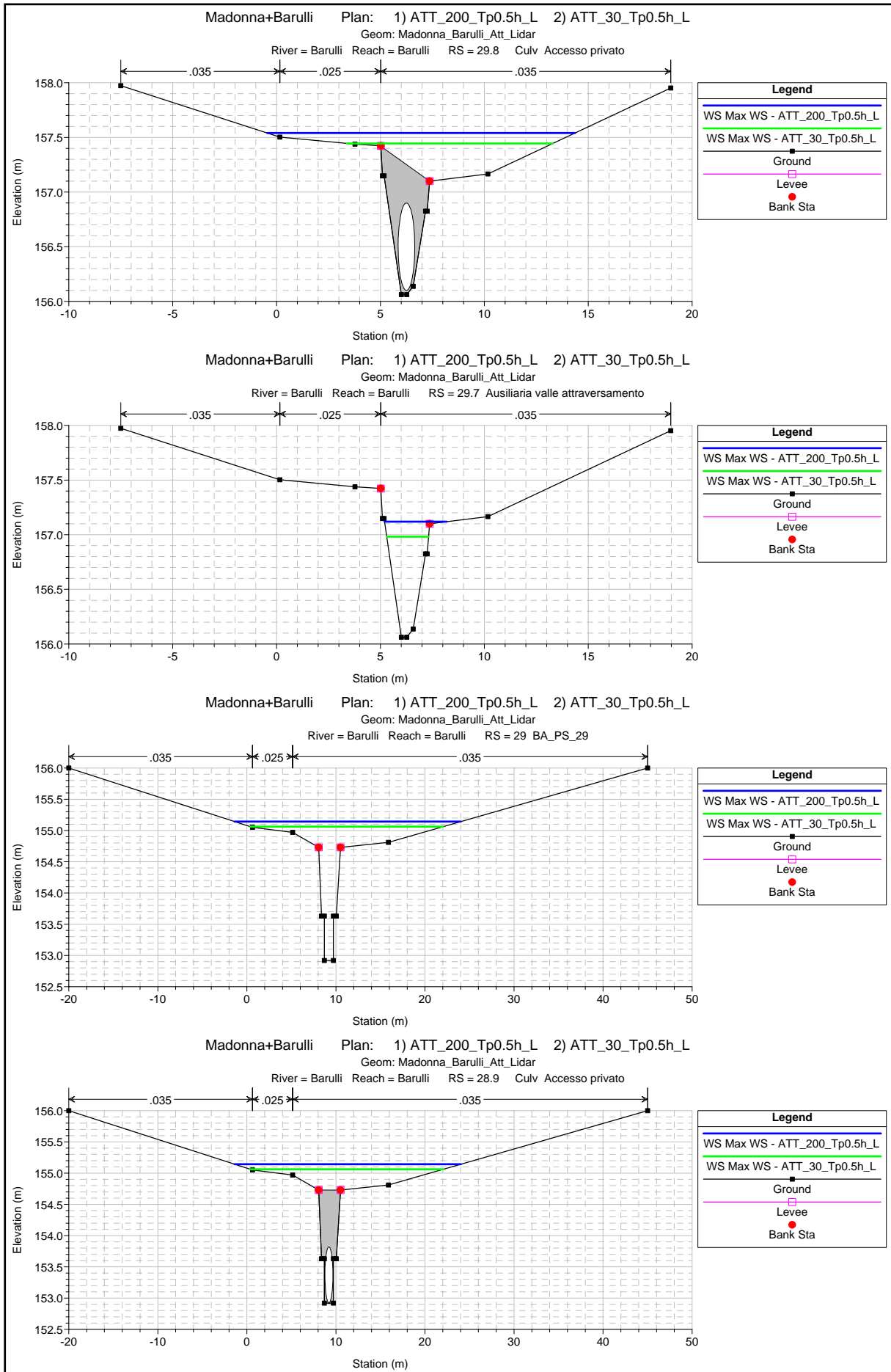


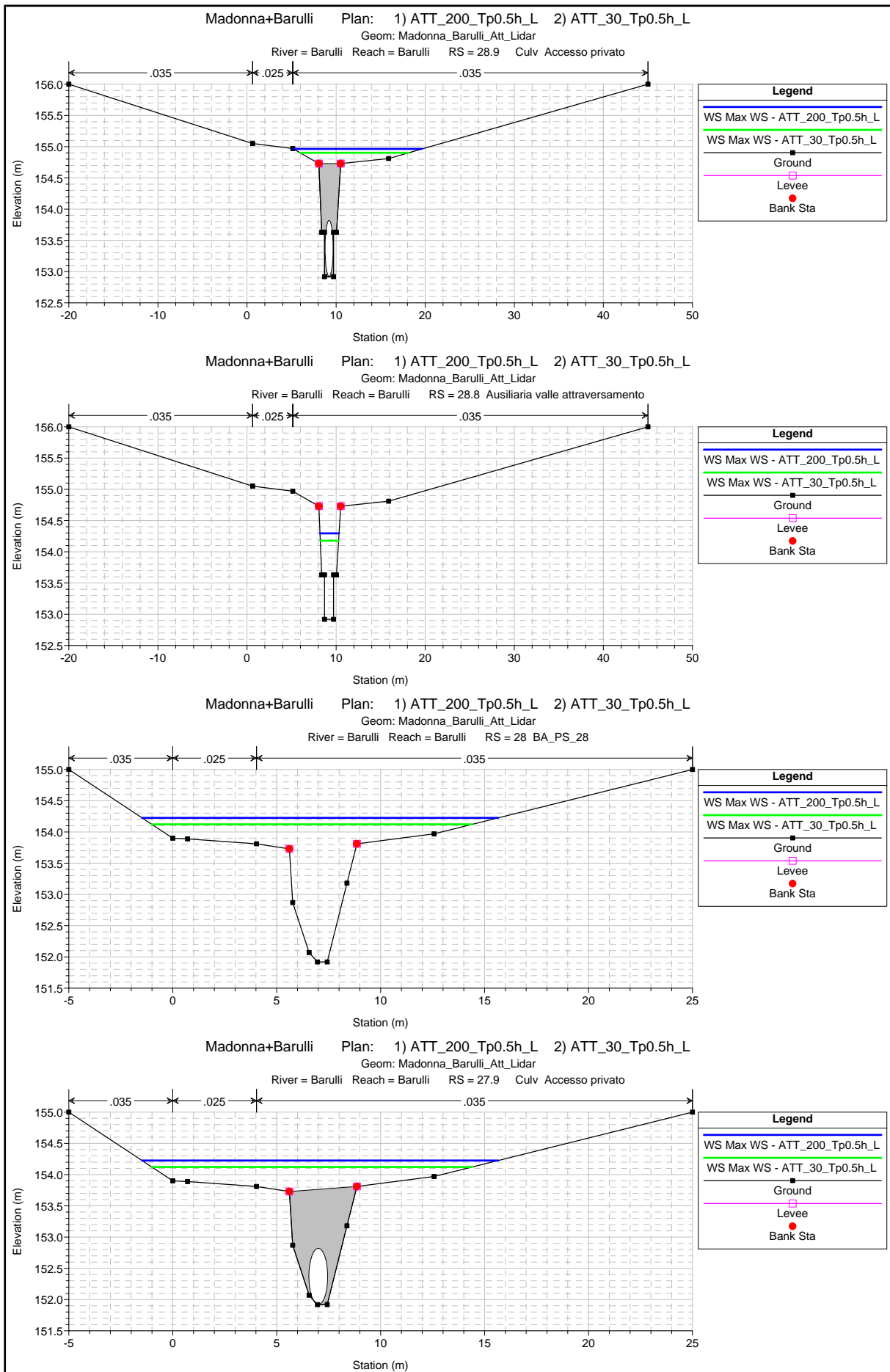




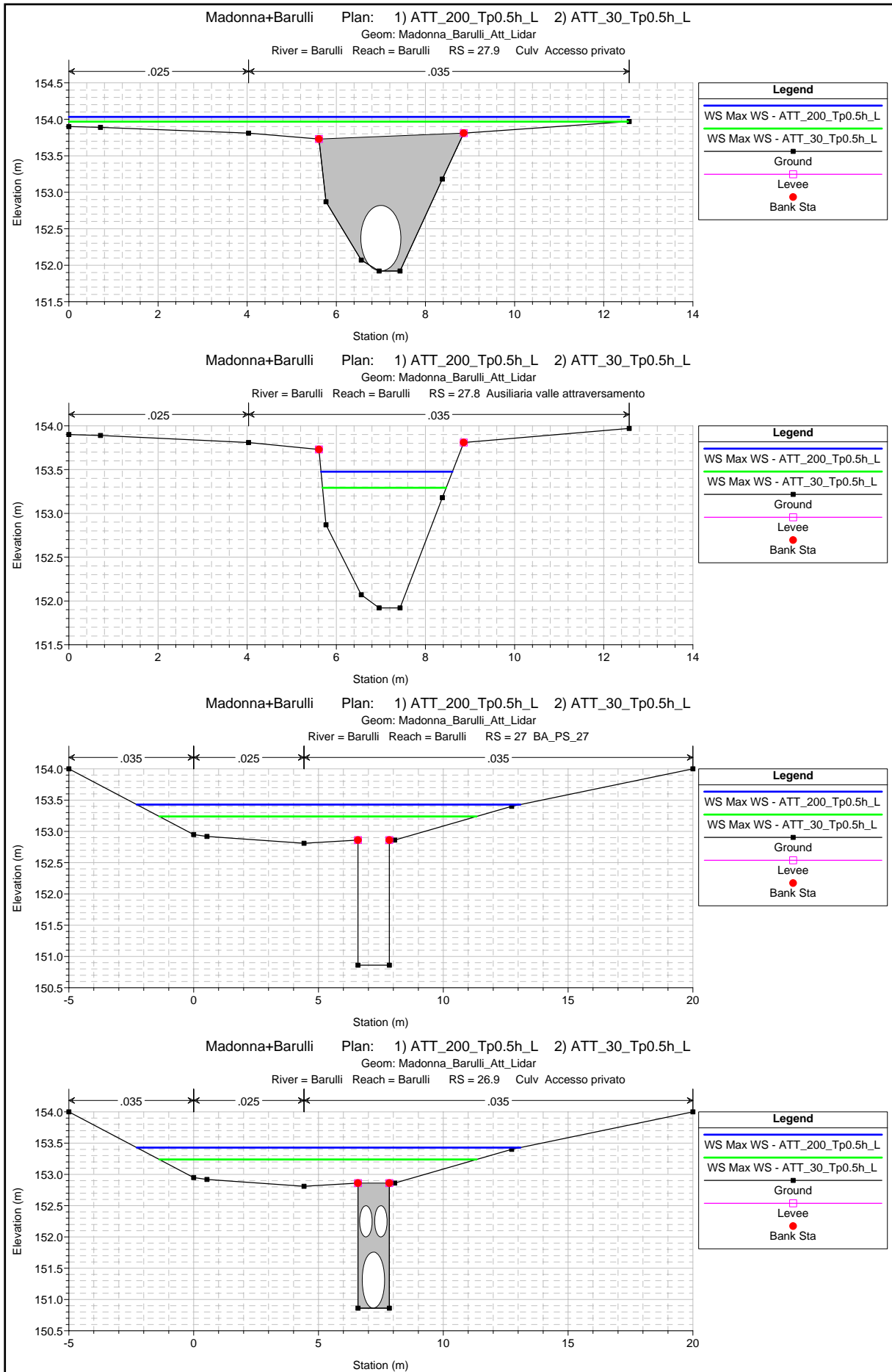


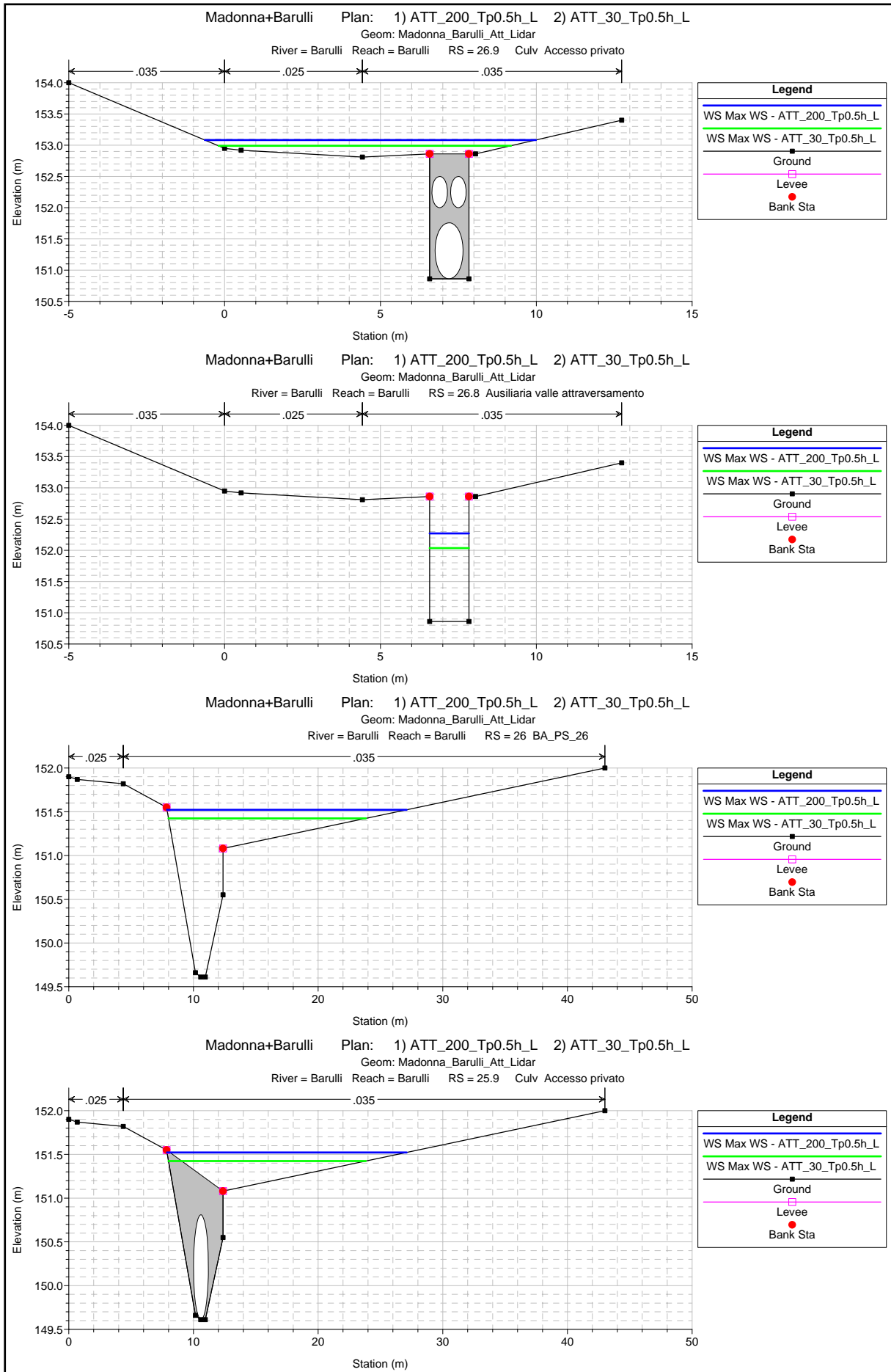


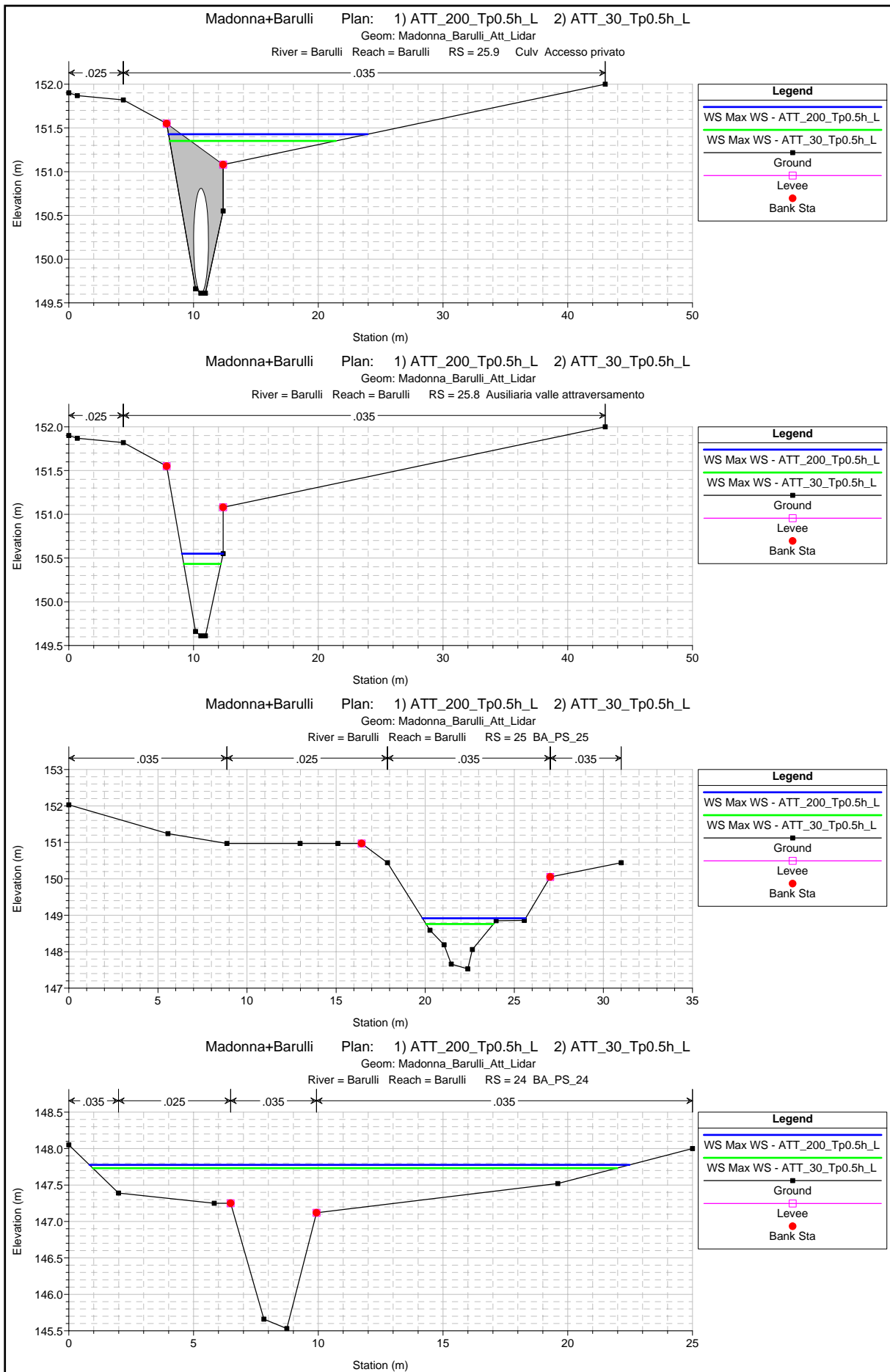


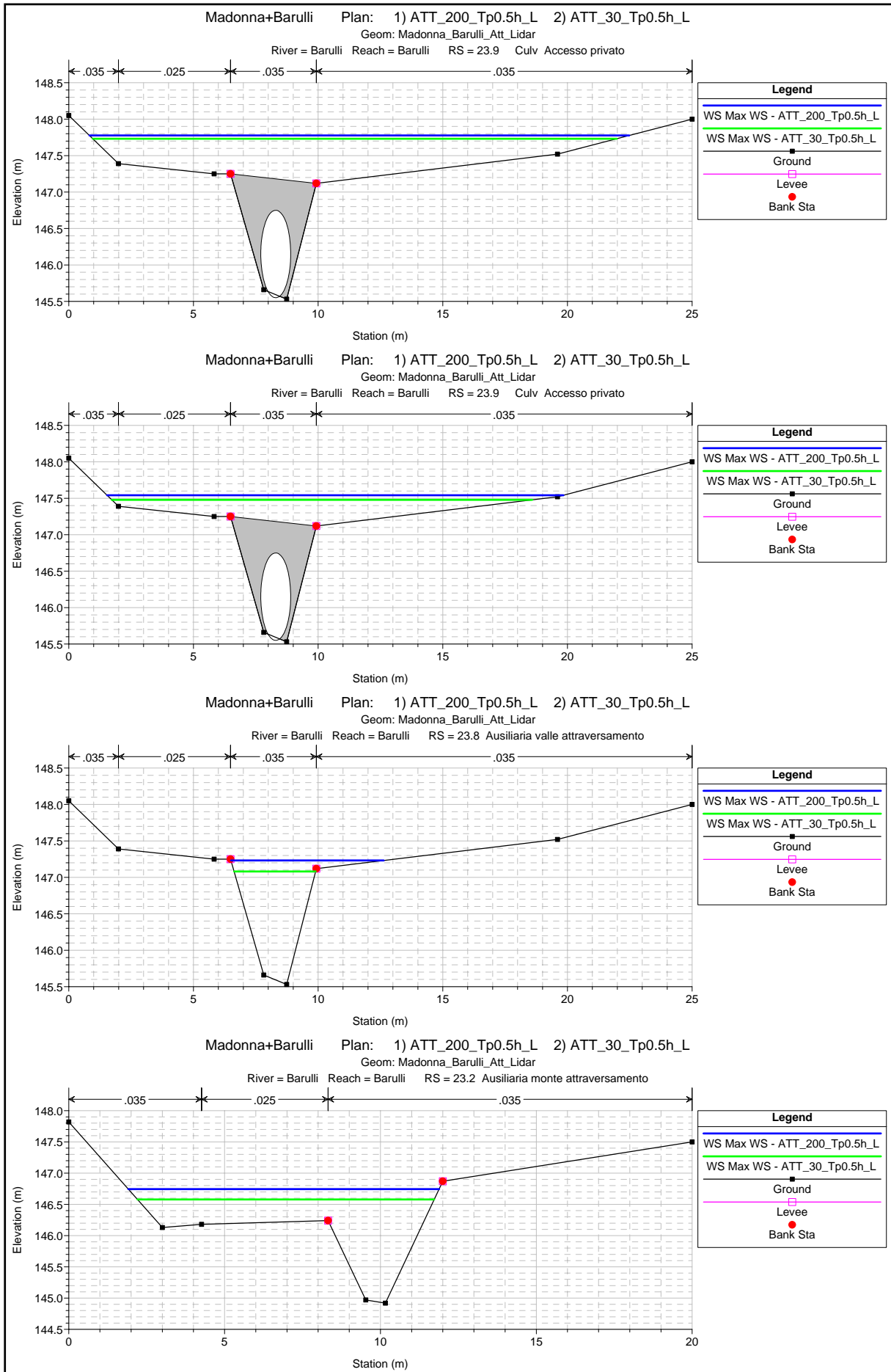


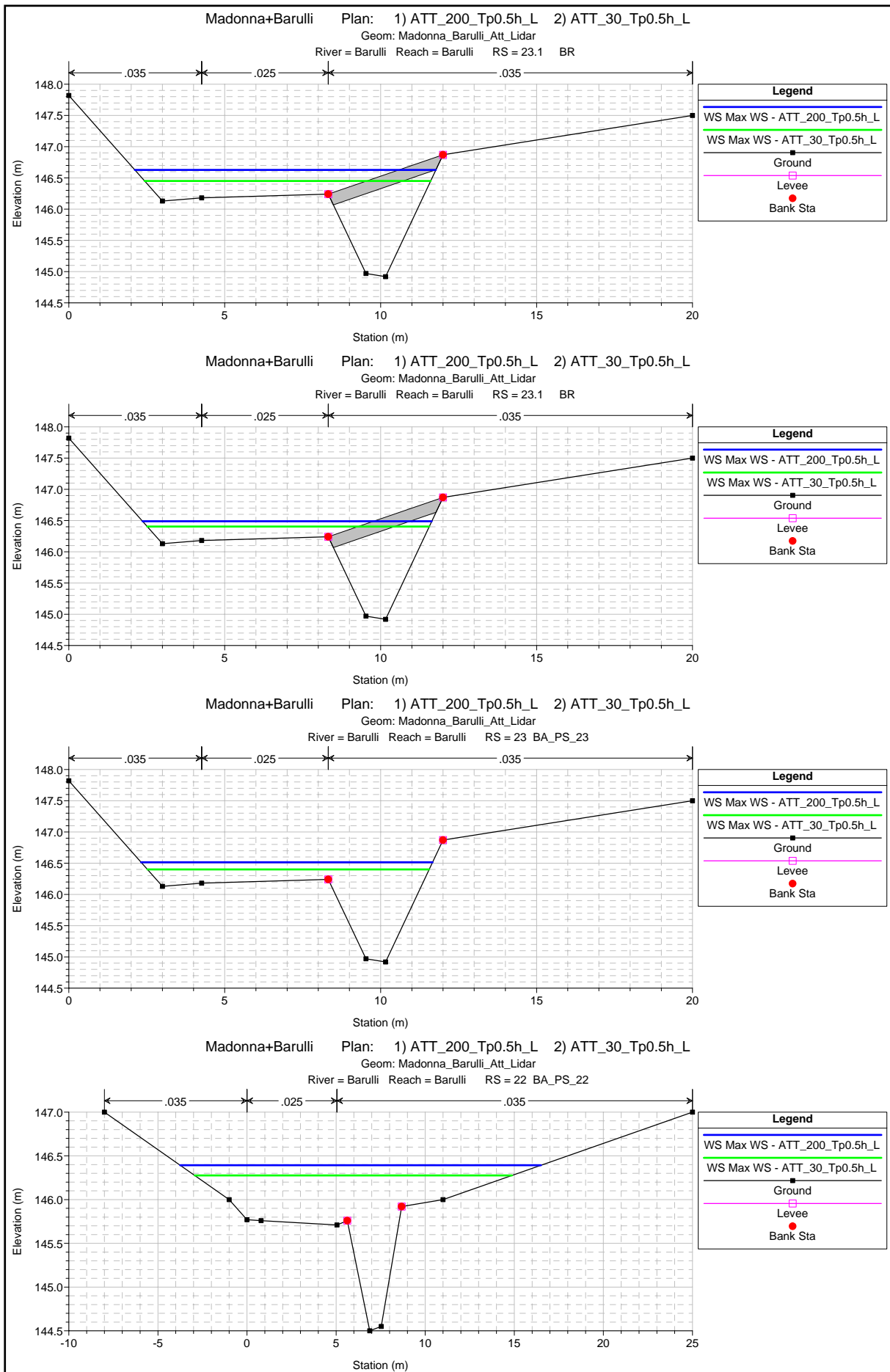


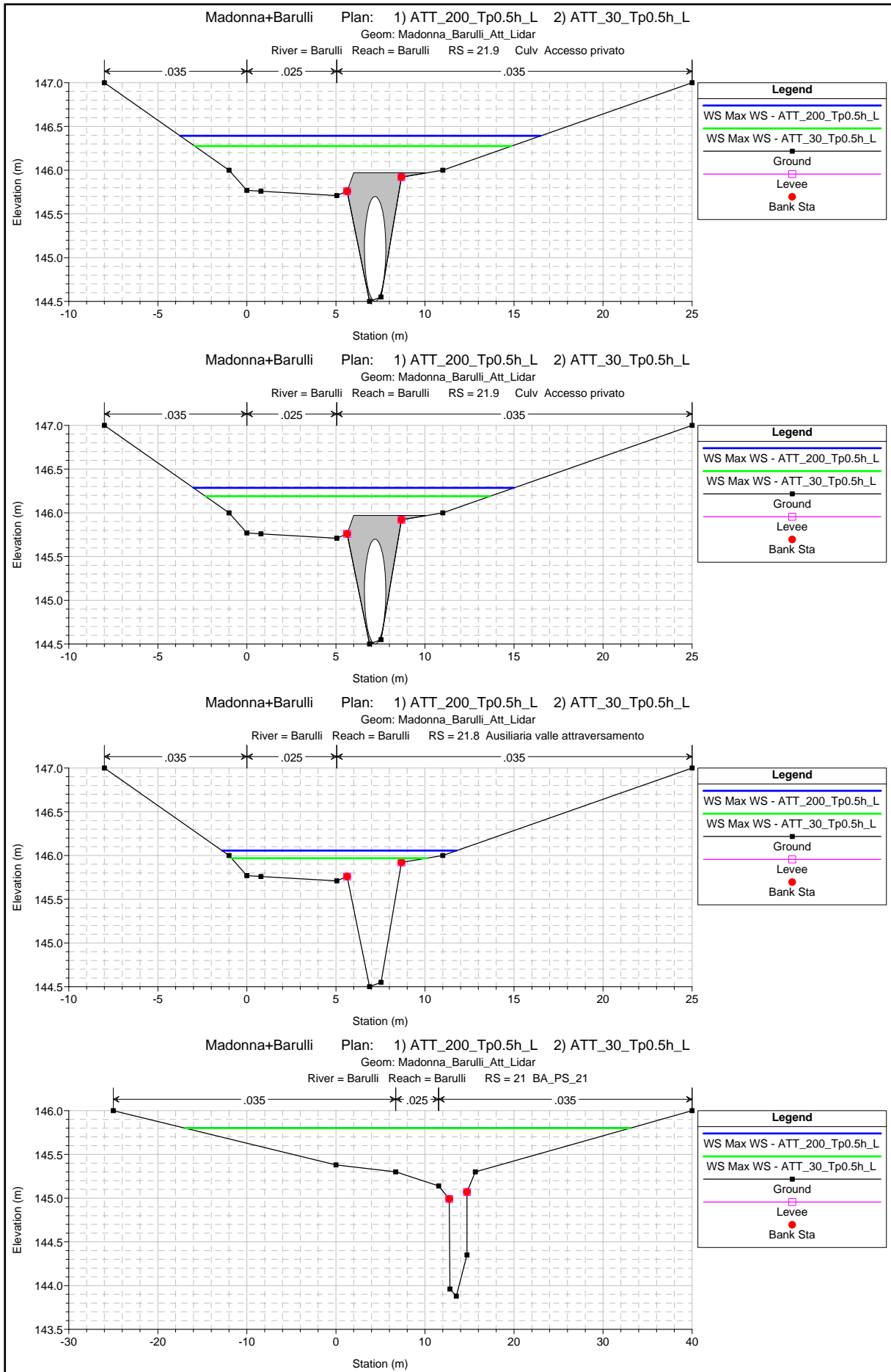


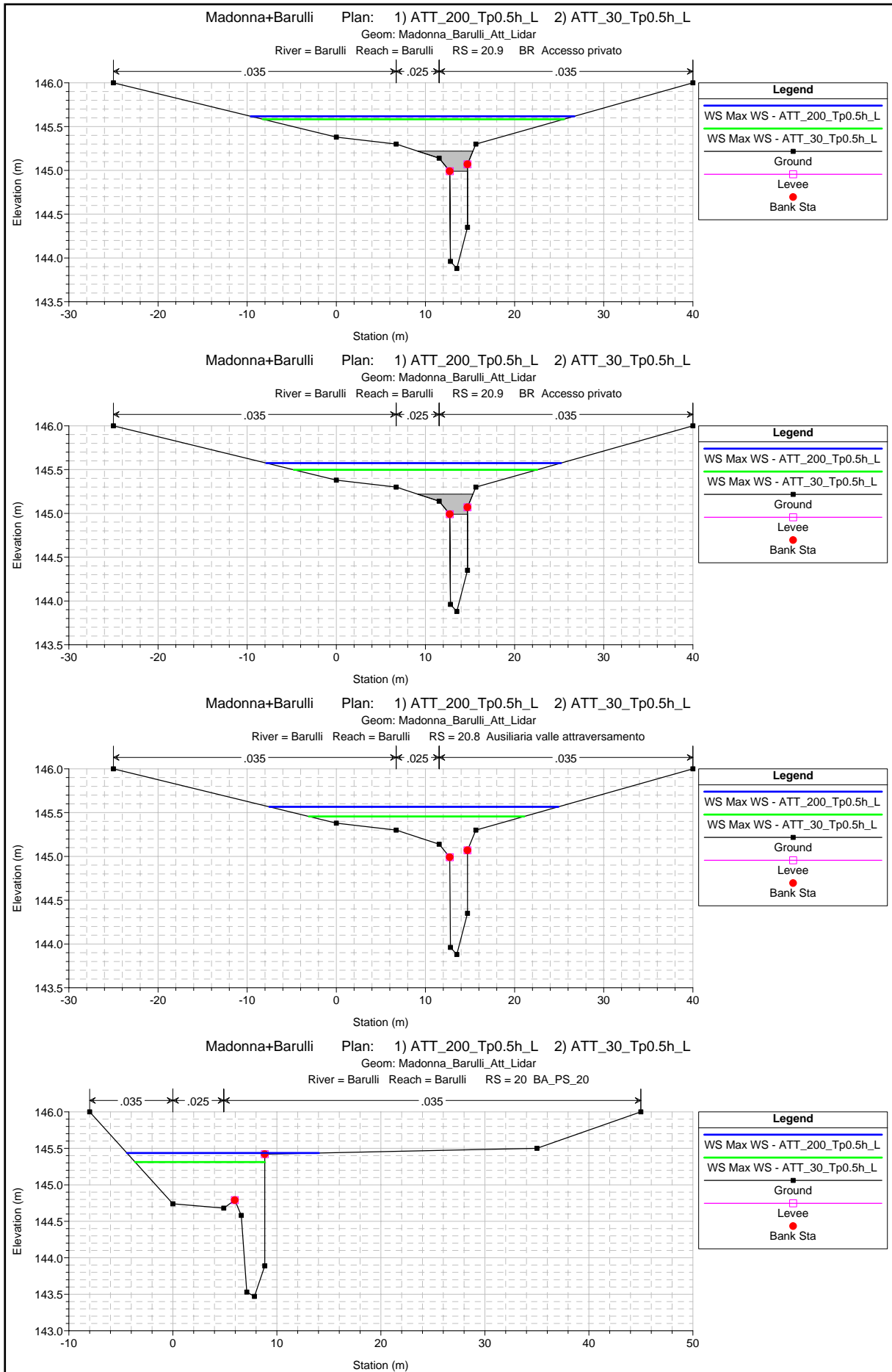


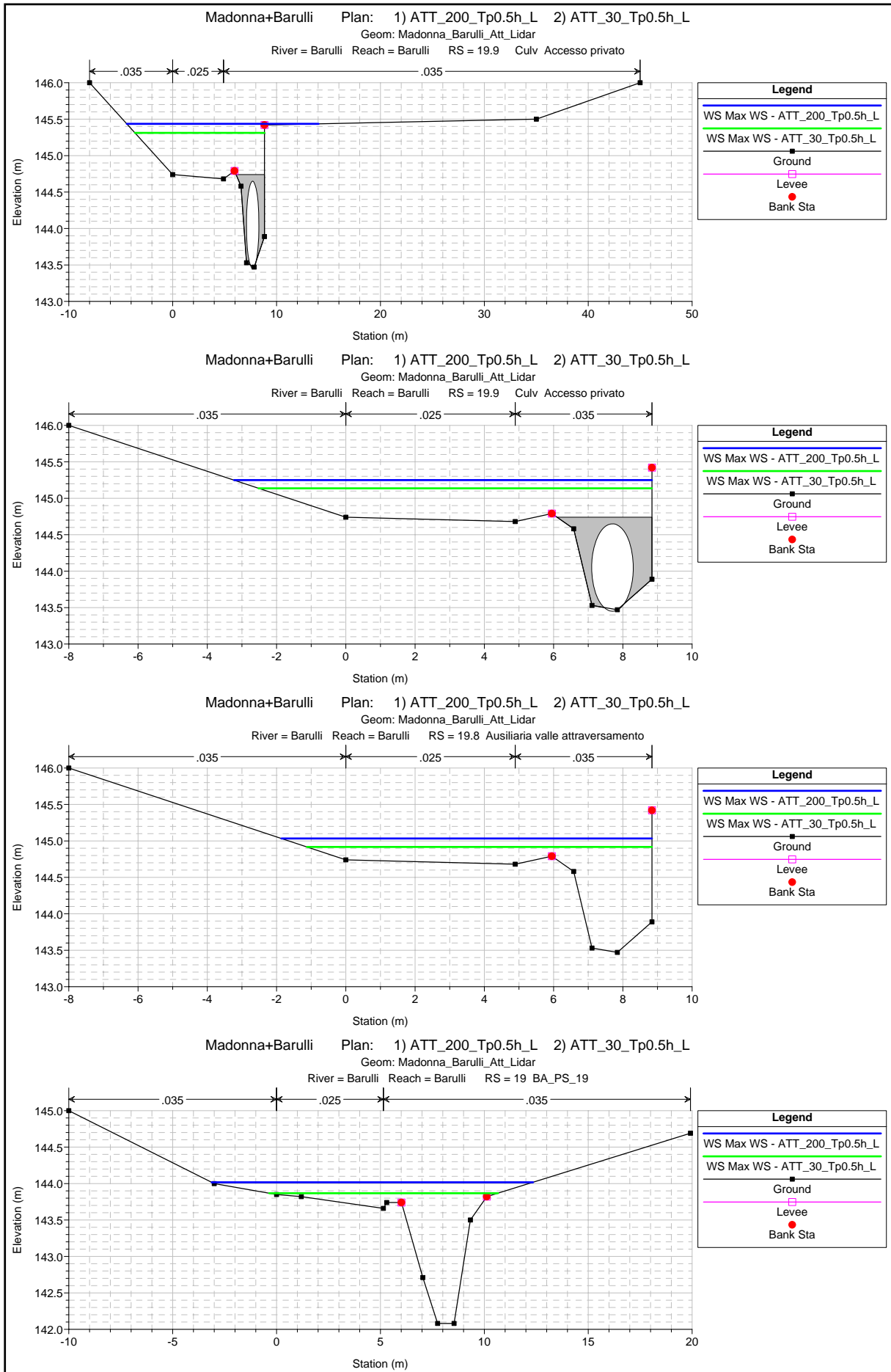




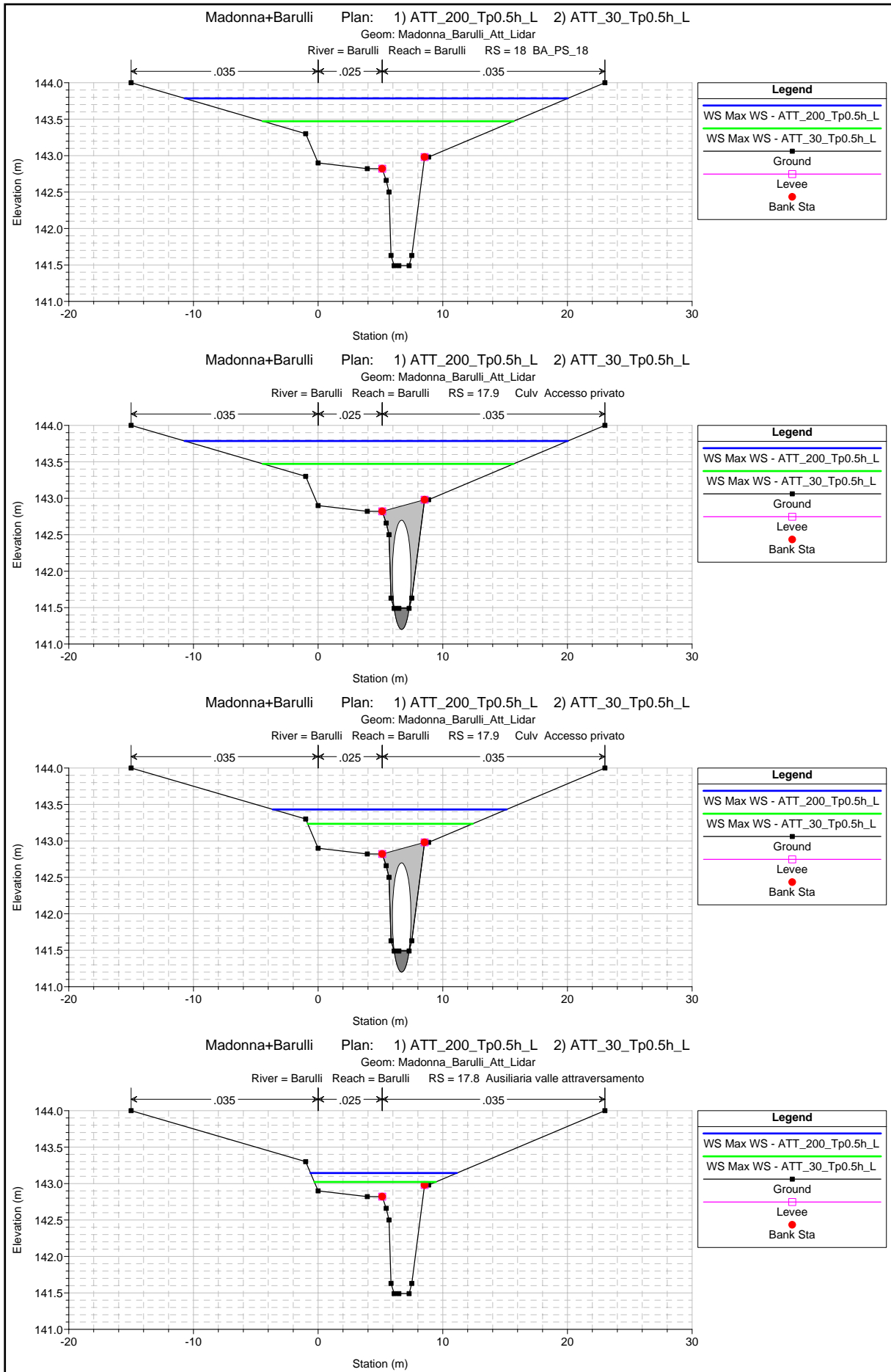


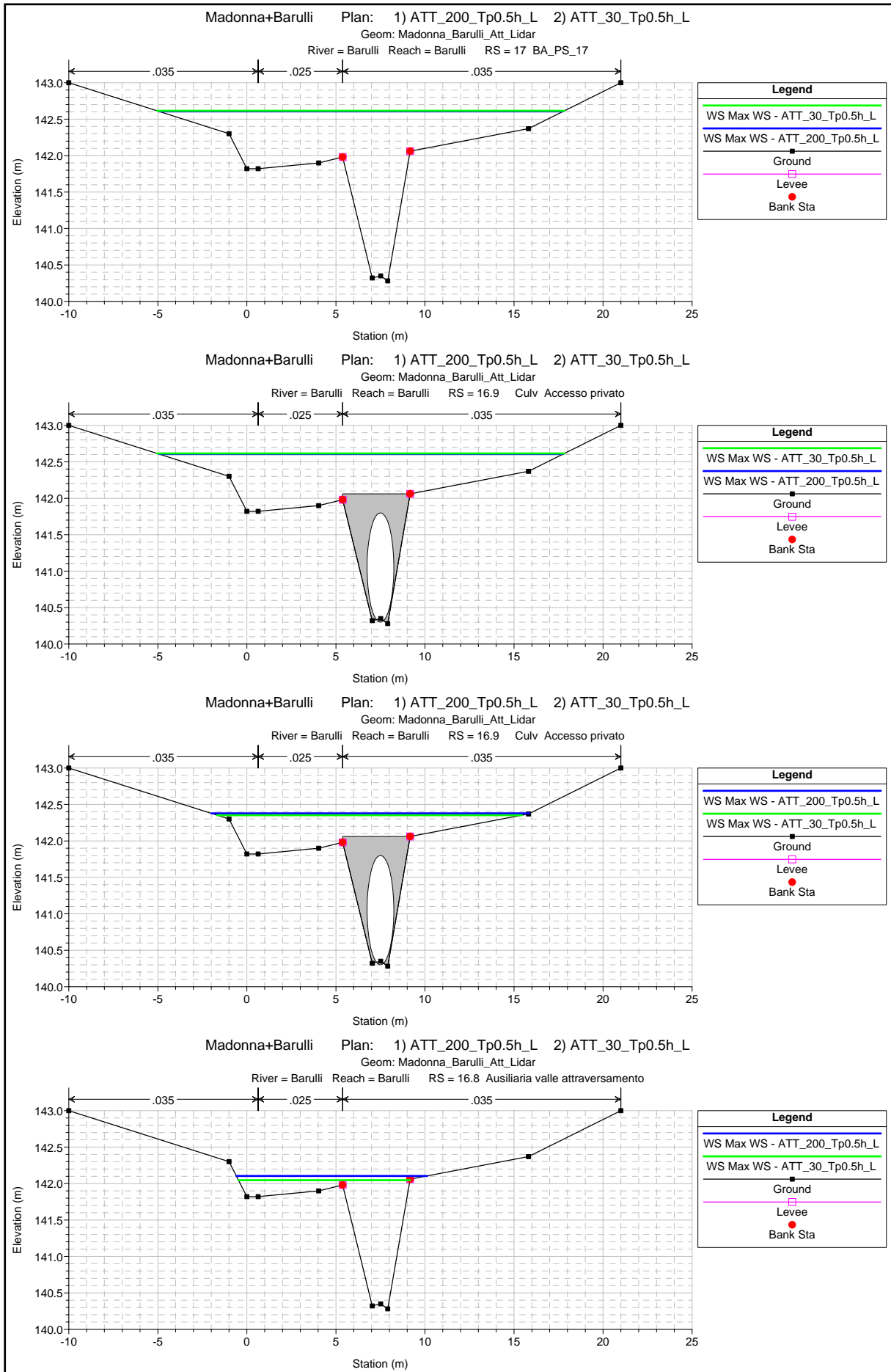


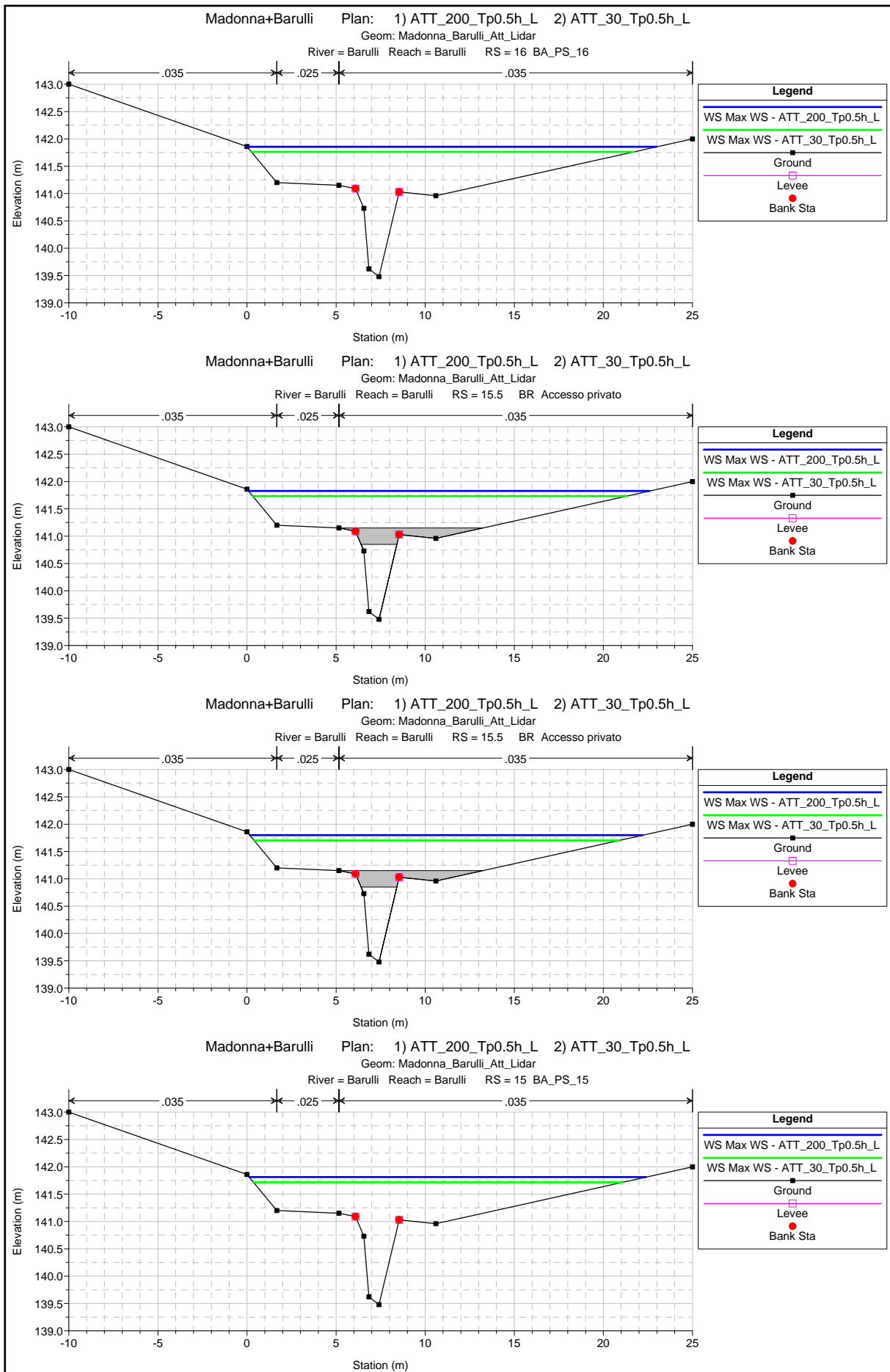


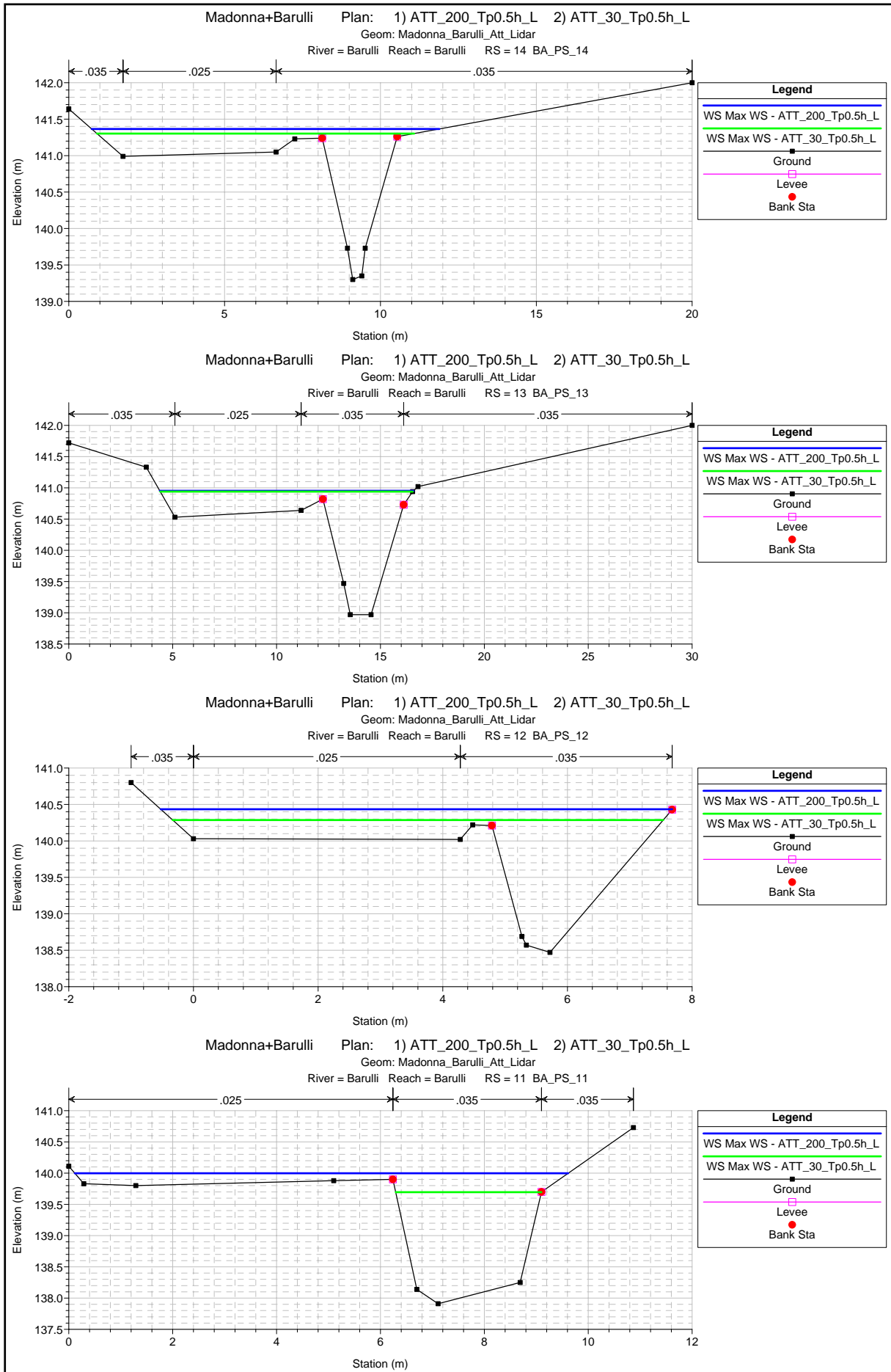


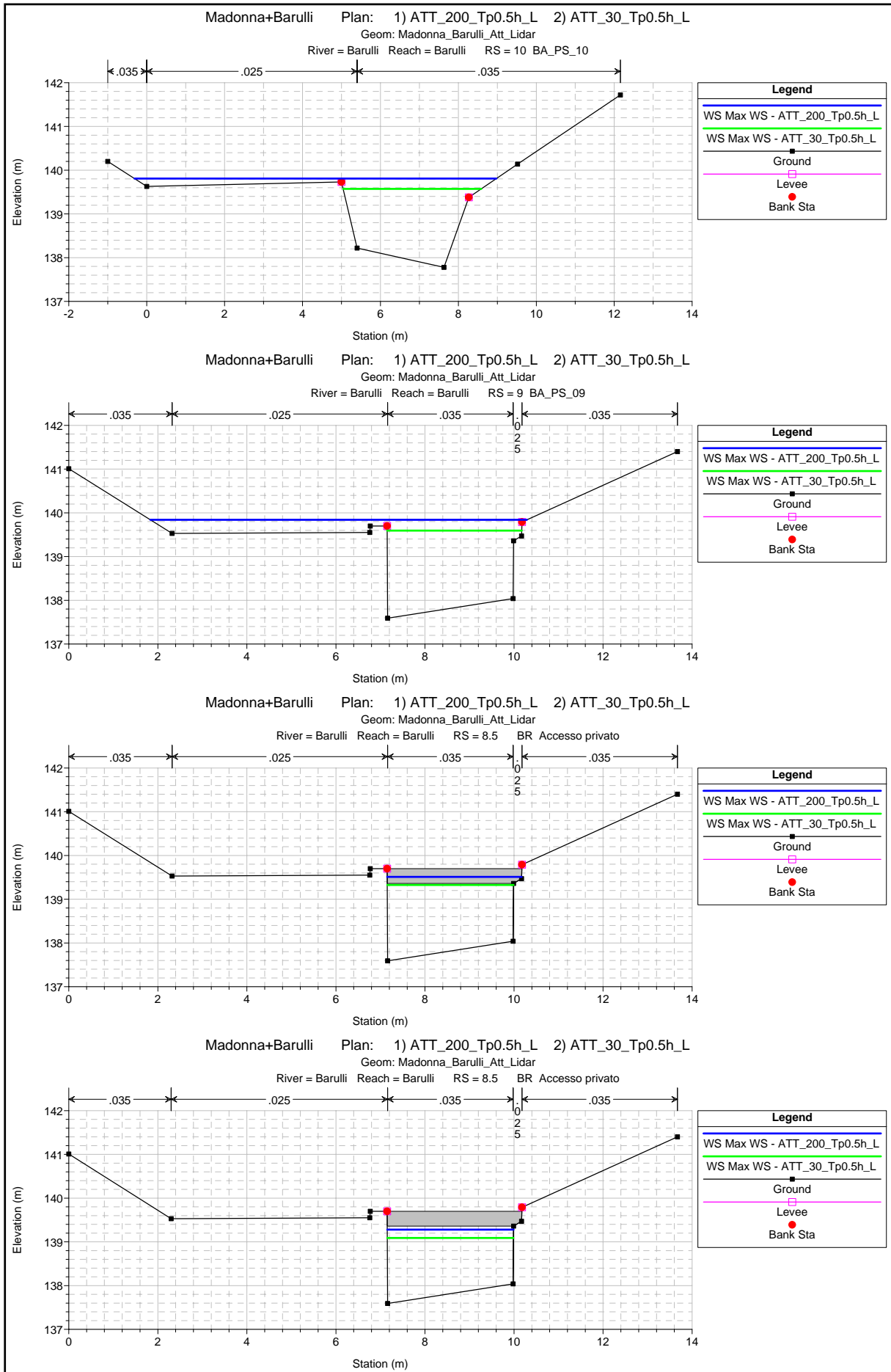


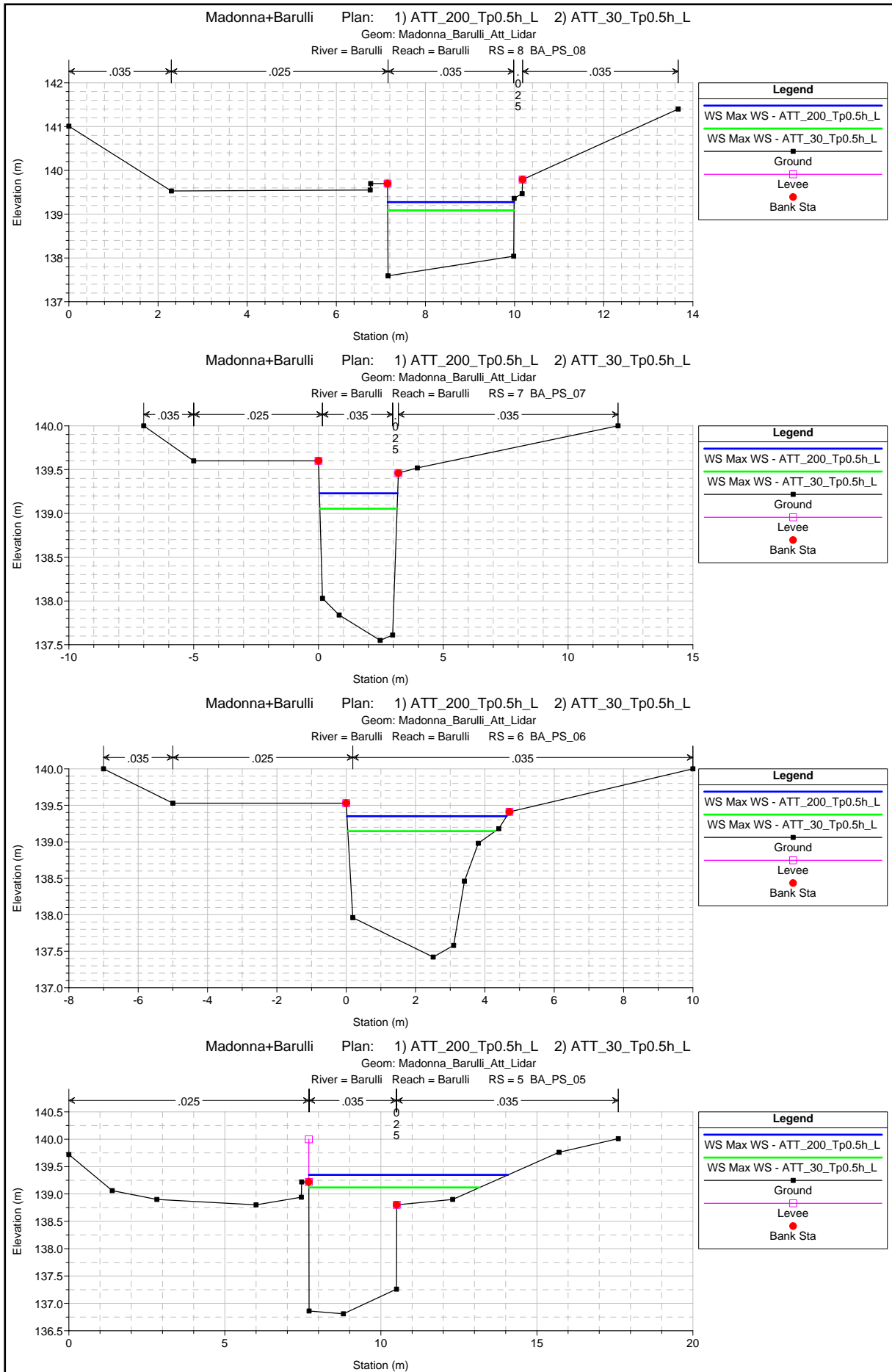


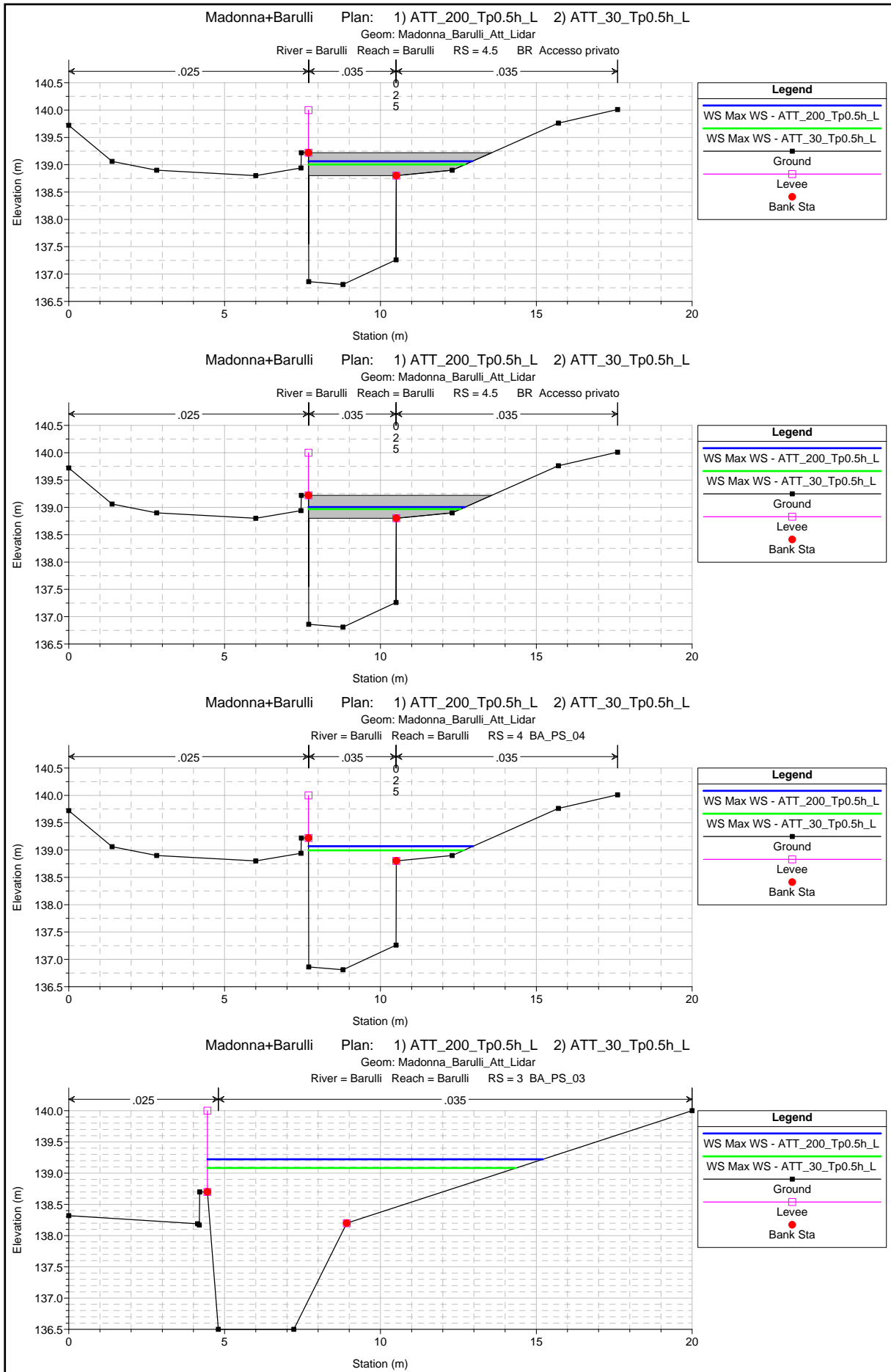


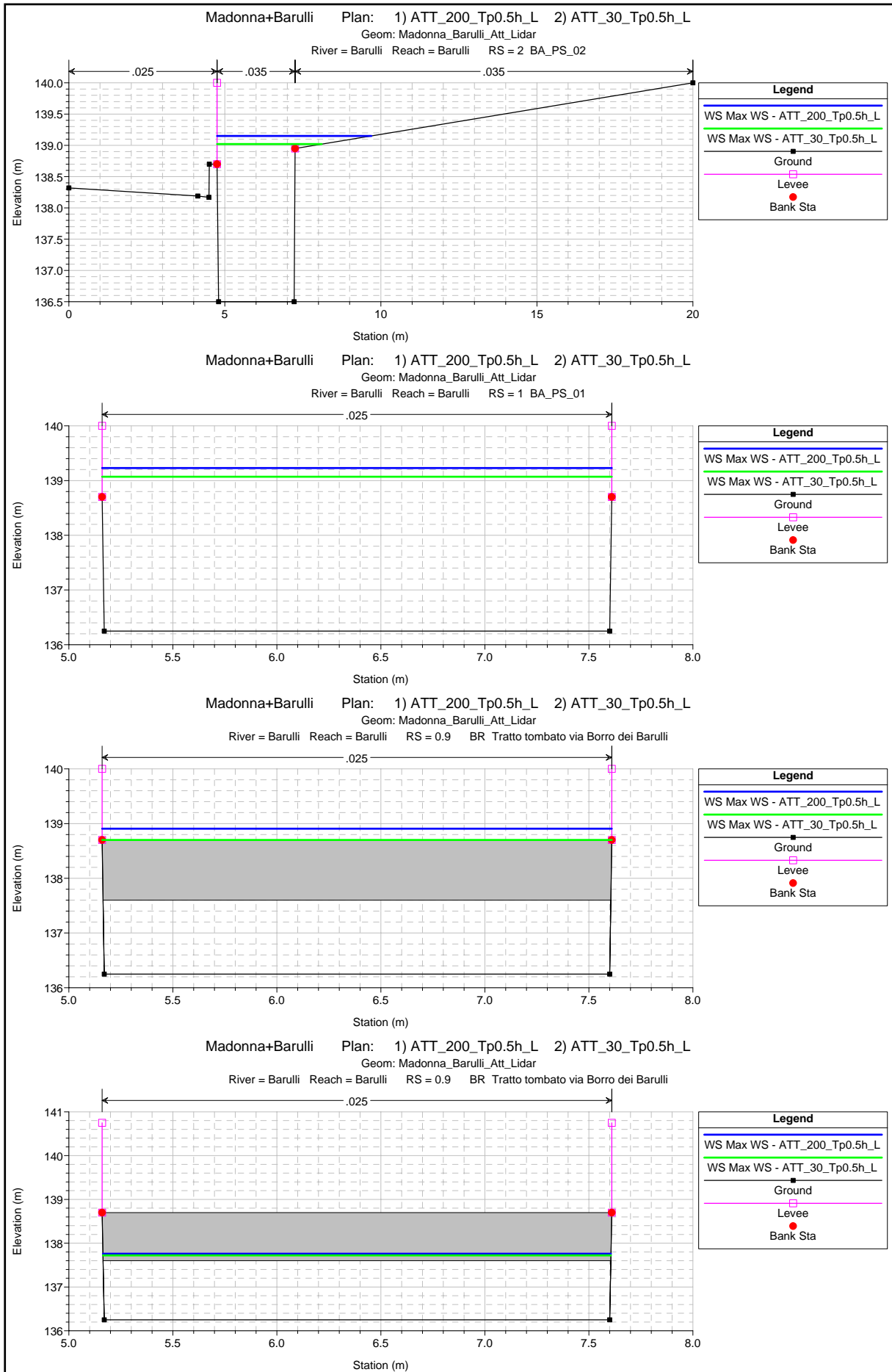




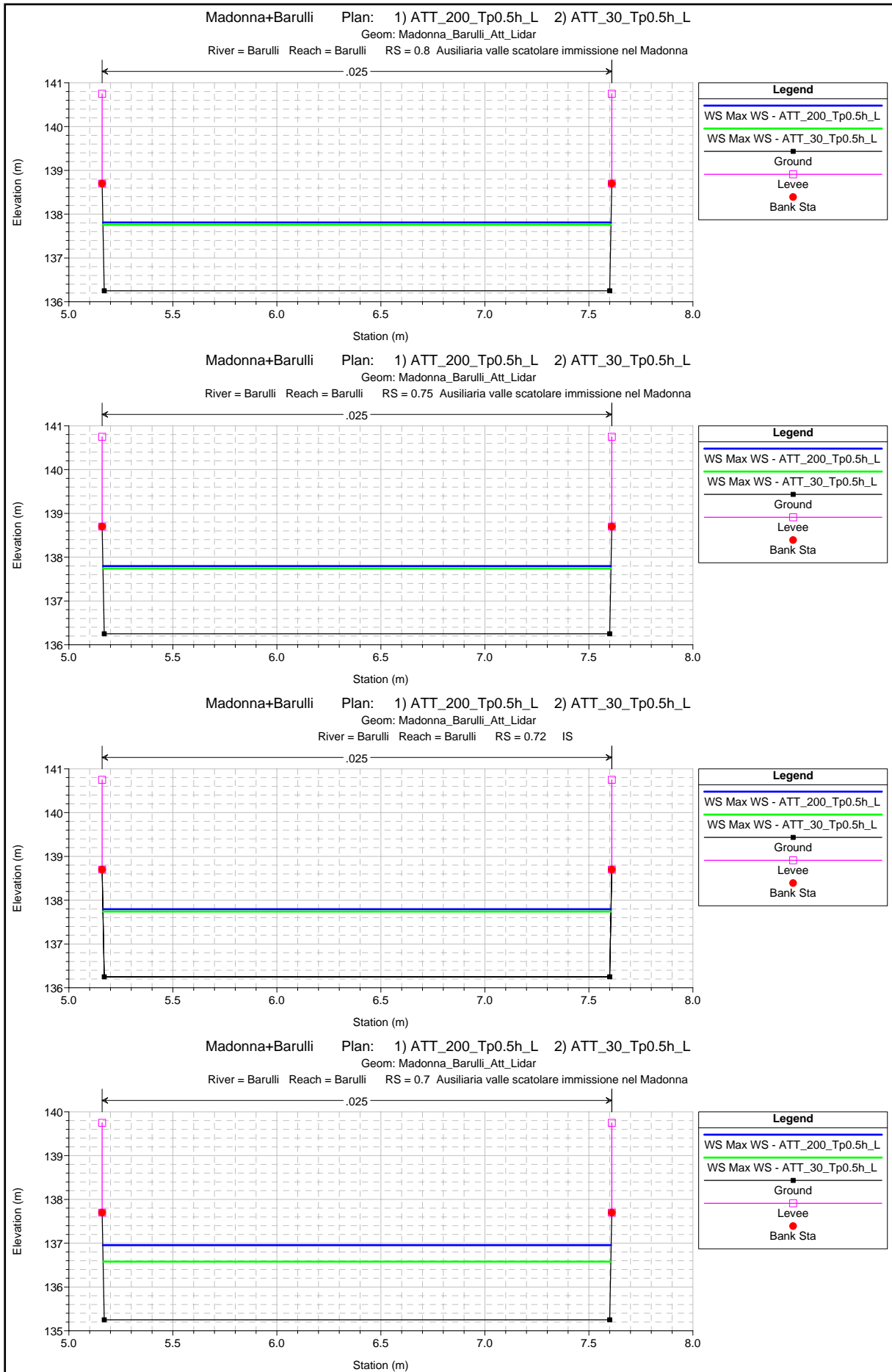


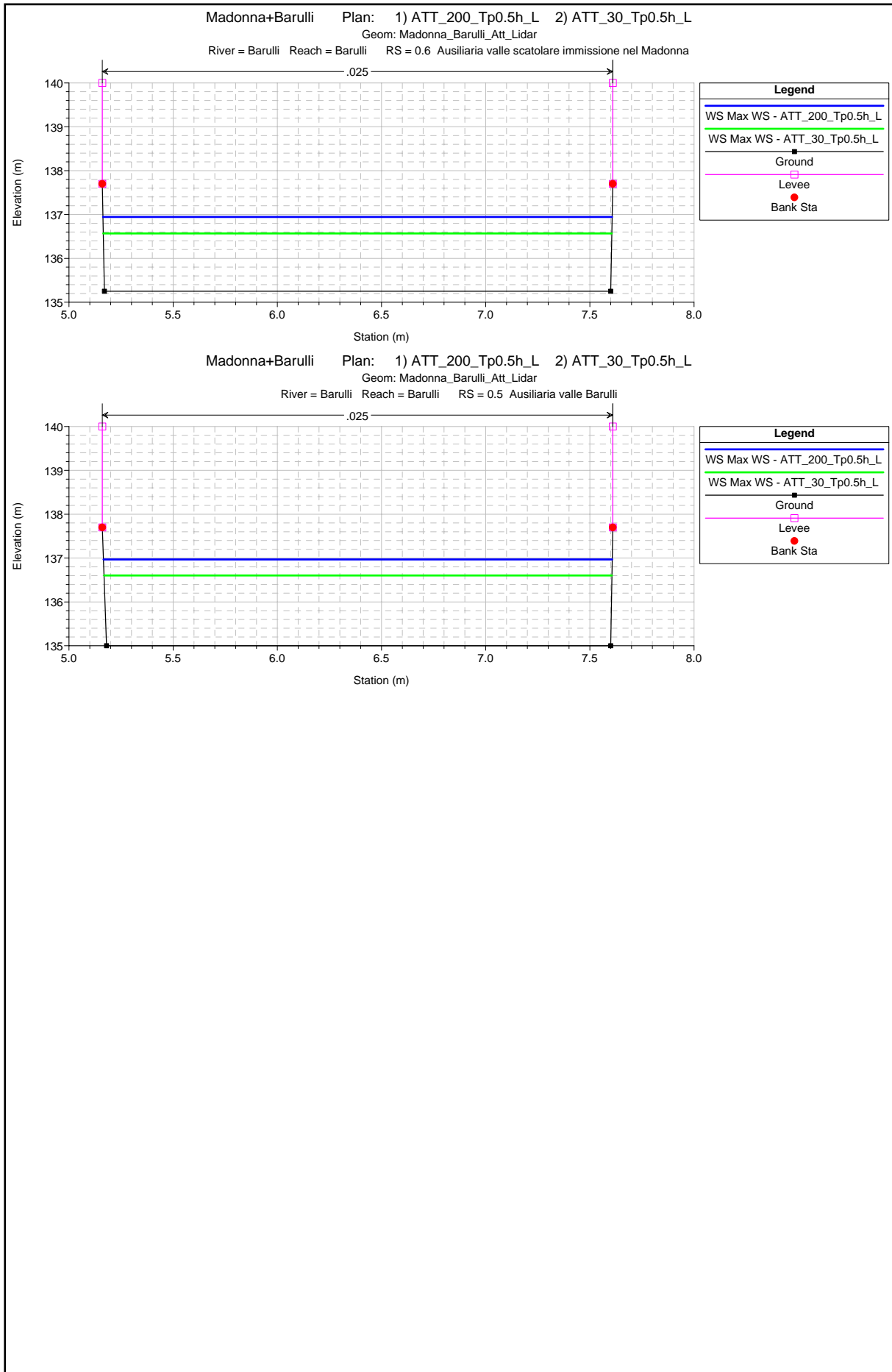












HEC-RAS River: Barulli Reach: Barulli Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	34	Max WS	ATT_200_Tp0.5h_L	4.52	173.76	174.73	175.03	175.29	0.043518	3.33	1.36	2.49	1.44
Barulli	34	Max WS	ATT_30_Tp0.5h_L	3.34	173.76	174.56	174.76	175.15	0.054881	3.40	0.98	2.07	1.58
Barulli	33.8	Max WS	ATT_200_Tp0.5h_L	4.52	172.80	174.59		174.62	0.001487	0.88	6.76	20.05	0.28
Barulli	33.8	Max WS	ATT_30_Tp0.5h_L	3.34	172.80	174.51		174.54	0.001449	0.82	5.18	17.62	0.27
Barulli	33.7			Culvert									
Barulli	33.6	Max WS	ATT_200_Tp0.5h_L	4.52	172.80	173.88	174.02	174.43	0.040788	3.29	1.37	2.10	1.30
Barulli	33.6	Max WS	ATT_30_Tp0.5h_L	3.34	172.80	173.73	173.86	174.22	0.042067	3.10	1.08	1.88	1.30
Barulli	33	Max WS	ATT_200_Tp0.5h_L	4.51	170.71	171.68	171.81	172.07	0.041543	3.32	1.88	9.74	1.19
Barulli	33	Max WS	ATT_30_Tp0.5h_L	3.33	170.71	171.62	171.75	172.01	0.040958	3.14	1.40	8.03	1.16
Barulli	32.8	Max WS	ATT_200_Tp0.5h_L	4.51	169.16	170.30		170.34	0.003071	1.05	5.09	16.09	0.37
Barulli	32.8	Max WS	ATT_30_Tp0.5h_L	3.33	169.16	170.24		170.27	0.002878	0.96	4.12	14.29	0.36
Barulli	32.75			Culvert									
Barulli	32.7	Max WS	ATT_200_Tp0.5h_L	4.51	169.16	170.04	170.16	170.45	0.044966	3.17	1.81	9.11	1.34
Barulli	32.7	Max WS	ATT_30_Tp0.5h_L	3.33	169.16	169.98	170.11	170.40	0.045594	3.06	1.32	7.89	1.33
Barulli	32.6	Max WS	ATT_200_Tp0.5h_L	4.50	167.57	168.69		168.73	0.002529	1.05	5.02	14.19	0.34
Barulli	32.6	Max WS	ATT_30_Tp0.5h_L	3.33	167.57	168.62		168.65	0.002426	0.98	4.04	12.47	0.33
Barulli	32.55			Culvert									
Barulli	32.5	Max WS	ATT_200_Tp0.5h_L	4.50	167.57	168.38	168.53	168.88	0.043874	3.38	1.61	8.29	1.34
Barulli	32.5	Max WS	ATT_30_Tp0.5h_L	3.33	167.57	168.32	168.47	168.86	0.045723	3.26	1.02	1.77	1.35
Barulli	32.4	Max WS	ATT_200_Tp0.5h_L	4.50	165.95	167.10		167.14	0.002393	1.03	5.03	12.40	0.35
Barulli	32.4	Max WS	ATT_30_Tp0.5h_L	3.32	165.95	167.02		167.05	0.002317	0.96	4.08	11.05	0.34
Barulli	32.35			Culvert									
Barulli	32.33	Max WS	ATT_200_Tp0.5h_L	4.50	165.95	166.82	166.90	167.09	0.022526	2.52	2.18	8.89	1.00
Barulli	32.33	Max WS	ATT_30_Tp0.5h_L	3.32	165.95	166.71	166.85	167.18	0.038329	3.02	1.10	1.99	1.29

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	32.3	Max WS	ATT_200_Tp0.5h_L	4.49	165.14	166.65		166.67	0.000330	0.48	10.14	16.83	0.14
Barulli	32.3	Max WS	ATT_30_Tp0.5h_L	3.32	165.14	166.42		166.44	0.000568	0.55	6.63	13.40	0.17
Barulli	32.25			Culvert									
Barulli	32.2	Max WS	ATT_200_Tp0.5h_L	4.49	165.14	165.94	166.09	166.63	0.054186	3.70	1.21	2.14	1.57
Barulli	32.2	Max WS	ATT_30_Tp0.5h_L	3.32	165.14	165.83	166.03	166.40	0.051012	3.34	0.99	2.00	1.51
Barulli	32	Max WS	ATT_200_Tp0.5h_L	4.49	162.71	163.93		164.00	0.004177	1.38	5.19	9.08	0.47
Barulli	32	Max WS	ATT_30_Tp0.5h_L	3.32	162.71	163.84		163.89	0.003539	1.21	4.38	8.81	0.43
Barulli	31.9			Culvert									
Barulli	31.8	Max WS	ATT_200_Tp0.5h_L	4.49	162.71	163.45	163.71	164.19	0.061475	3.82	1.18	2.35	1.72
Barulli	31.8	Max WS	ATT_30_Tp0.5h_L	3.32	162.71	163.35	163.61	163.98	0.062335	3.53	0.94	2.19	1.72
Barulli	31.3	Max WS	ATT_200_Tp0.5h_L	4.49	157.40	158.88		158.91	0.001295	0.86	7.17	19.18	0.26
Barulli	31.3	Max WS	ATT_30_Tp0.5h_L	3.31	157.40	158.82		158.84	0.001083	0.76	5.99	17.78	0.23
Barulli	31.2			Culvert									
Barulli	31.1	Max WS	ATT_200_Tp0.5h_L	4.49	157.40	158.66		158.78	0.006029	1.61	3.50	13.15	0.53
Barulli	31.1	Max WS	ATT_30_Tp0.5h_L	3.31	157.40	158.59		158.68	0.005386	1.44	2.63	7.83	0.50
Barulli	31	Max WS	ATT_200_Tp0.5h_L	4.49	157.10	158.63		158.67	0.002081	1.02	6.13	18.62	0.32
Barulli	31	Max WS	ATT_30_Tp0.5h_L	3.31	157.10	158.56		158.59	0.001950	0.94	4.84	16.33	0.31
Barulli	30.5			Culvert									
Barulli	30	Max WS	ATT_200_Tp0.5h_L	4.49	157.10	158.12	158.46	158.77	0.050463	3.57	1.26	2.04	1.45
Barulli	30	Max WS	ATT_30_Tp0.5h_L	3.31	157.10	158.00	158.16	158.53	0.046947	3.22	1.03	1.85	1.38
Barulli	29.9	Max WS	ATT_200_Tp0.5h_L	4.48	156.06	157.60		157.64	0.002195	1.06	5.64	16.39	0.33
Barulli	29.9	Max WS	ATT_30_Tp0.5h_L	3.31	156.06	157.52		157.56	0.002036	0.97	4.41	14.19	0.31
Barulli	29.8			Culvert									
Barulli	29.7	Max WS	ATT_200_Tp0.5h_L	4.48	156.06	157.12	157.32	157.61	0.034503	3.12	1.45	2.99	1.22

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	29.7	Max WS	ATT_30_Tp0.5h_L	3.31	156.06	156.98	157.07	157.40	0.034720	2.88	1.15	2.02	1.22
Barulli	29	Max WS	ATT_200_Tp0.5h_L	4.44	152.92	155.14		155.16	0.000892	0.70	8.90	25.41	0.17
Barulli	29	Max WS	ATT_30_Tp0.5h_L	3.30	152.92	155.06		155.08	0.000804	0.64	7.00	21.66	0.16
Barulli	28.9			Culvert									
Barulli	28.8	Max WS	ATT_200_Tp0.5h_L	4.43	152.92	154.30		154.55	0.018028	2.23	1.99	2.14	0.74
Barulli	28.8	Max WS	ATT_30_Tp0.5h_L	3.28	152.92	154.18		154.36	0.014270	1.88	1.74	2.06	0.65
Barulli	28	Max WS	ATT_200_Tp0.5h_L	5.12	151.92	154.23		154.24	0.000531	0.67	9.53	17.13	0.17
Barulli	28	Max WS	ATT_30_Tp0.5h_L	3.74	151.92	154.12		154.14	0.000439	0.59	7.84	15.41	0.15
Barulli	27.9			Culvert									
Barulli	27.8	Max WS	ATT_200_Tp0.5h_L	5.12	151.92	153.48		153.62	0.005831	1.67	3.07	2.95	0.52
Barulli	27.8	Max WS	ATT_30_Tp0.5h_L	3.81	151.92	153.29		153.41	0.005350	1.50	2.54	2.77	0.50
Barulli	27	Max WS	ATT_200_Tp0.5h_L	5.78	150.86	153.43		153.45	0.001192	0.58	9.04	15.37	0.11
Barulli	27	Max WS	ATT_30_Tp0.5h_L	4.30	150.86	153.24		153.26	0.001831	0.68	6.37	12.70	0.14
Barulli	26.9			Culvert									
Barulli	26.8	Max WS	ATT_200_Tp0.5h_L	5.78	150.86	152.27		152.81	0.039236	3.25	1.78	1.26	0.87
Barulli	26.8	Max WS	ATT_30_Tp0.5h_L	4.30	150.86	152.03		152.47	0.033994	2.91	1.48	1.26	0.86
Barulli	26	Max WS	ATT_200_Tp0.5h_L	6.75	149.61	151.52		151.56	0.001386	0.97	8.94	19.23	0.28
Barulli	26	Max WS	ATT_30_Tp0.5h_L	5.01	149.61	151.42		151.46	0.001135	0.85	7.22	15.84	0.25
Barulli	25.9			Culvert									
Barulli	25.8	Max WS	ATT_200_Tp0.5h_L	6.75	149.61	150.55	150.74	151.20	0.041359	3.58	1.89	3.30	1.51
Barulli	25.8	Max WS	ATT_30_Tp0.5h_L	5.01	149.61	150.43	150.60	150.99	0.040729	3.30	1.52	2.98	1.48
Barulli	25	Max WS	ATT_200_Tp0.5h_L	7.72	147.53	148.92	148.95	149.23	0.021205	2.47	3.13	5.79	1.07
Barulli	25	Max WS	ATT_30_Tp0.5h_L	5.71	147.53	148.76	148.74	149.05	0.017360	2.39	2.39	3.78	0.96
Barulli	24	Max WS	ATT_200_Tp0.5h_L	8.16	145.53	147.78		147.80	0.000785	0.85	12.59	21.65	0.22

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	24	Max WS	ATT_30_Tp0.5h_L	7.32	145.53	147.73		147.76	0.000771	0.83	11.64	21.02	0.21
Barulli	23.9			Culvert									
Barulli	23.8	Max WS	ATT_200_Tp0.5h_L	10.00	145.53	147.23	147.12	147.61	0.014066	2.74	3.77	6.13	0.85
Barulli	23.8	Max WS	ATT_30_Tp0.5h_L	7.09	145.53	147.08		147.35	0.011082	2.28	3.11	3.27	0.75
Barulli	23.2	Max WS	ATT_200_Tp0.5h_L	10.98	144.92	146.75	146.52	146.86	0.003797	1.56	7.34	9.97	0.47
Barulli	23.2	Max WS	ATT_30_Tp0.5h_L	5.85	144.92	146.58	146.32	146.63	0.002246	1.12	5.72	9.52	0.35
Barulli	23.1			Bridge									
Barulli	23	Max WS	ATT_200_Tp0.5h_L	10.98	144.92	146.51		146.77	0.010937	2.40	5.11	9.35	0.77
Barulli	23	Max WS	ATT_30_Tp0.5h_L	8.02	144.92	146.40		146.63	0.010824	2.25	4.07	9.04	0.76
Barulli	22	Max WS	ATT_200_Tp0.5h_L	11.71	144.50	146.39		146.46	0.002019	1.26	10.93	20.25	0.35
Barulli	22	Max WS	ATT_30_Tp0.5h_L	8.52	144.50	146.28		146.33	0.001875	1.15	8.72	17.81	0.33
Barulli	21.9			Culvert									
Barulli	21.8	Max WS	ATT_200_Tp0.5h_L	11.71	144.50	146.06	146.11	146.34	0.012099	2.56	5.30	13.17	0.81
Barulli	21.8	Max WS	ATT_30_Tp0.5h_L	8.52	144.50	145.97	146.00	146.20	0.010967	2.29	4.24	10.98	0.76
Barulli	21	Max WS	ATT_200_Tp0.5h_L	8.81	143.88	145.80	145.48	145.81	0.000760	0.66	18.70	49.98	0.16
Barulli	21	Max WS	ATT_30_Tp0.5h_L	7.98	143.88	145.80	145.46	145.81	0.000624	0.60	18.70	49.98	0.15
Barulli	20.9			Bridge									
Barulli	20.8	Max WS	ATT_200_Tp0.5h_L	12.62	143.88	145.57		145.70	0.008154	1.97	9.06	32.42	0.51
Barulli	20.8	Max WS	ATT_30_Tp0.5h_L	9.13	143.88	145.46	145.49	145.62	0.010058	2.08	5.94	24.14	0.56
Barulli	20	Max WS	ATT_200_Tp0.5h_L	13.24	143.47	145.44		145.52	0.002876	1.15	10.25	18.45	0.30
Barulli	20	Max WS	ATT_30_Tp0.5h_L	9.59	143.47	145.31		145.38	0.002143	1.13	8.62	12.48	0.31
Barulli	19.9			Culvert									
Barulli	19.8	Max WS	ATT_200_Tp0.5h_L	13.24	143.47	145.03	145.09	145.36	0.015593	2.73	5.38	10.70	0.83
Barulli	19.8	Max WS	ATT_30_Tp0.5h_L	9.59	143.47	144.92	144.99	145.22	0.016062	2.61	4.17	9.96	0.84

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	19	Max WS	ATT_200_Tp0.5h_L	14.63	142.08	144.02	144.06	144.30	0.009801	2.51	6.81	15.47	0.75
Barulli	19	Max WS	ATT_30_Tp0.5h_L	10.64	142.08	143.87	143.92	144.15	0.010999	2.43	4.81	11.01	0.77
Barulli	18	Max WS	ATT_200_Tp0.5h_L	14.41	141.49	143.79		143.82	0.000826	0.95	18.79	30.73	0.23
Barulli	18	Max WS	ATT_30_Tp0.5h_L	7.79	141.49	143.47		143.50	0.000839	0.85	10.82	20.13	0.22
Barulli	17.9			Culvert									
Barulli	17.8	Max WS	ATT_200_Tp0.5h_L	14.41	141.49	143.14	143.22	143.49	0.012701	2.79	5.83	11.74	0.82
Barulli	17.8	Max WS	ATT_30_Tp0.5h_L	10.63	141.49	143.02	143.09	143.34	0.012821	2.61	4.52	9.75	0.81
Barulli	17	Max WS	ATT_200_Tp0.5h_L	9.76	140.28	142.61		142.64	0.000717	0.84	14.12	22.70	0.21
Barulli	17	Max WS	ATT_30_Tp0.5h_L	9.99	140.28	142.61		142.64	0.000727	0.85	14.31	22.87	0.21
Barulli	16.9			Culvert									
Barulli	16.8	Max WS	ATT_200_Tp0.5h_L	14.40	140.28	142.10	142.19	142.48	0.013483	2.85	5.65	10.72	0.85
Barulli	16.8	Max WS	ATT_30_Tp0.5h_L	12.67	140.28	142.05	142.13	142.41	0.013710	2.78	5.06	9.63	0.85
Barulli	16	Max WS	ATT_200_Tp0.5h_L	14.40	139.48	141.86	141.50	141.91	0.001785	1.17	14.96	22.99	0.29
Barulli	16	Max WS	ATT_30_Tp0.5h_L	11.60	139.48	141.76	141.43	141.81	0.001738	1.11	12.88	21.46	0.28
Barulli	15.5			Bridge									
Barulli	15	Max WS	ATT_200_Tp0.5h_L	14.40	139.48	141.81		141.87	0.002145	1.26	13.98	22.28	0.32
Barulli	15	Max WS	ATT_30_Tp0.5h_L	11.52	139.48	141.72		141.77	0.002122	1.20	11.91	20.70	0.31
Barulli	14	Max WS	ATT_200_Tp0.5h_L	14.39	139.30	141.37	141.49	141.81	0.024816	3.12	4.93	11.16	0.94
Barulli	14	Max WS	ATT_30_Tp0.5h_L	11.42	139.30	141.30	141.41	141.68	0.023334	2.91	4.25	10.18	0.90
Barulli	13	Max WS	ATT_200_Tp0.5h_L	14.39	138.97	140.95		141.14	0.006036	2.07	7.75	12.21	0.58
Barulli	13	Max WS	ATT_30_Tp0.5h_L	8.66	138.97	140.94		141.01	0.002304	1.27	7.60	12.15	0.36
Barulli	12	Max WS	ATT_200_Tp0.5h_L	14.39	138.47	140.43	140.48	140.82	0.016640	2.80	5.24	8.20	0.84
Barulli	12	Max WS	ATT_30_Tp0.5h_L	11.48	138.47	140.29	140.39	140.71	0.022292	3.05	4.06	7.87	0.96
Barulli	11	Max WS	ATT_200_Tp0.5h_L	14.38	137.91	140.00	139.71	140.37	0.011563	2.80	5.72	9.50	0.70

HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	11	Max WS	ATT_30_Tp0.5h_L	10.83	137.91	139.70		140.10	0.014445	2.81	3.85	2.81	0.77
Barulli	10	Max WS	ATT_200_Tp0.5h_L	14.38	137.78	139.81	139.48	140.15	0.008104	2.65	5.98	9.29	0.67
Barulli	10	Max WS	ATT_30_Tp0.5h_L	10.93	137.78	139.57		139.89	0.008649	2.49	4.42	3.55	0.68
Barulli	9	Max WS	ATT_200_Tp0.5h_L	14.38	137.59	139.84	139.20	140.06	0.005056	2.18	7.28	8.46	0.50
Barulli	9	Max WS	ATT_30_Tp0.5h_L	10.89	137.59	139.59	138.97	139.83	0.005659	2.15	5.07	3.02	0.53
Barulli	8.5			Bridge									
Barulli	8	Max WS	ATT_200_Tp0.5h_L	14.38	137.59	139.27		139.89	0.017264	3.48	4.13	2.84	0.92
Barulli	8	Max WS	ATT_30_Tp0.5h_L	11.42	137.59	139.09		139.60	0.016152	3.18	3.59	2.84	0.90
Barulli	7	Max WS	ATT_200_Tp0.5h_L	14.38	137.55	139.23		139.76	0.013337	3.23	4.44	3.13	0.87
Barulli	7	Max WS	ATT_30_Tp0.5h_L	11.39	137.55	139.05		139.49	0.012190	2.92	3.89	3.09	0.83
Barulli	6	Max WS	ATT_200_Tp0.5h_L	14.38	137.42	139.35		139.65	0.007971	2.43	5.91	4.61	0.69
Barulli	6	Max WS	ATT_30_Tp0.5h_L	11.36	137.42	139.15		139.41	0.007777	2.27	4.99	4.25	0.67
Barulli	5.9			Lat Struct									
Barulli	5	Max WS	ATT_200_Tp0.5h_L	14.08	136.81	139.35	138.33	139.53	0.003331	1.93	8.02	6.39	0.40
Barulli	5	Max WS	ATT_30_Tp0.5h_L	11.14	136.81	139.12	138.13	139.28	0.003121	1.78	6.65	5.47	0.39
Barulli	4.5			Bridge									
Barulli	4	Max WS	ATT_200_Tp0.5h_L	14.08	136.81	139.07		139.34	0.005424	2.32	6.39	5.28	0.51
Barulli	4	Max WS	ATT_30_Tp0.5h_L	10.88	136.81	138.99		139.17	0.003683	1.88	6.00	4.98	0.42
Barulli	3.9			Lat Struct									
Barulli	3	Max WS	ATT_200_Tp0.5h_L	10.24	136.50	139.22		139.26	0.000493	0.87	13.55	10.76	0.18
Barulli	3	Max WS	ATT_30_Tp0.5h_L	8.96	136.50	139.08		139.11	0.000487	0.83	12.11	9.90	0.18
Barulli	2	Max WS	ATT_200_Tp0.5h_L	10.05	136.50	139.15		139.27	0.003431	1.52	6.78	4.94	0.30
Barulli	2	Max WS	ATT_30_Tp0.5h_L	8.84	136.50	139.02		139.12	0.003131	1.42	6.24	3.35	0.29
Barulli	1	Max WS	ATT_200_Tp0.5h_L	8.13	136.25	139.23	137.29	139.29	0.000945	1.12	7.27	2.45	0.21



HEC-RAS River: Barulli Reach: Barulli Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Barulli	1	Max WS	ATT_30_Tp0.5h_L	7.71	136.25	139.07	137.26	139.13	0.000968	1.12	6.89	2.45	0.21
Barulli	0.9			Bridge									
Barulli	0.8	Max WS	ATT_200_Tp0.5h_L	8.13	136.25	137.81		138.04	0.004745	2.14	3.80	2.44	0.55
Barulli	0.8	Max WS	ATT_30_Tp0.5h_L	7.71	136.25	137.76		137.98	0.004674	2.10	3.67	2.44	0.55
Barulli	0.75	Max WS	ATT_200_Tp0.5h_L	8.13	136.25	137.80	137.29	138.03	0.004855	2.16	3.77	2.44	0.56
Barulli	0.75	Max WS	ATT_30_Tp0.5h_L	7.71	136.25	137.74	137.25	137.97	0.004787	2.12	3.63	2.44	0.56
Barulli	0.72			Inl Struct									
Barulli	0.7	Max WS	ATT_200_Tp0.5h_L	6.60	135.25	136.95		137.08	0.002484	1.59	4.15	2.44	0.39
Barulli	0.7	Max WS	ATT_30_Tp0.5h_L	5.53	135.25	136.58		136.73	0.003324	1.71	3.24	2.44	0.47
Barulli	0.6	Max WS	ATT_200_Tp0.5h_L	6.60	135.25	136.95		137.08	0.002518	1.60	4.13	2.44	0.39
Barulli	0.6	Max WS	ATT_30_Tp0.5h_L	5.46	135.25	136.57		136.72	0.003329	1.70	3.21	2.44	0.47
Barulli	0.5	Max WS	ATT_200_Tp0.5h_L	6.68	135.00	136.97		137.07	0.001781	1.40	4.78	2.44	0.32
Barulli	0.5	Max WS	ATT_30_Tp0.5h_L	5.59	135.00	136.60		136.71	0.002105	1.44	3.89	2.44	0.36

# **VERIFICHE IDRAULICHE**

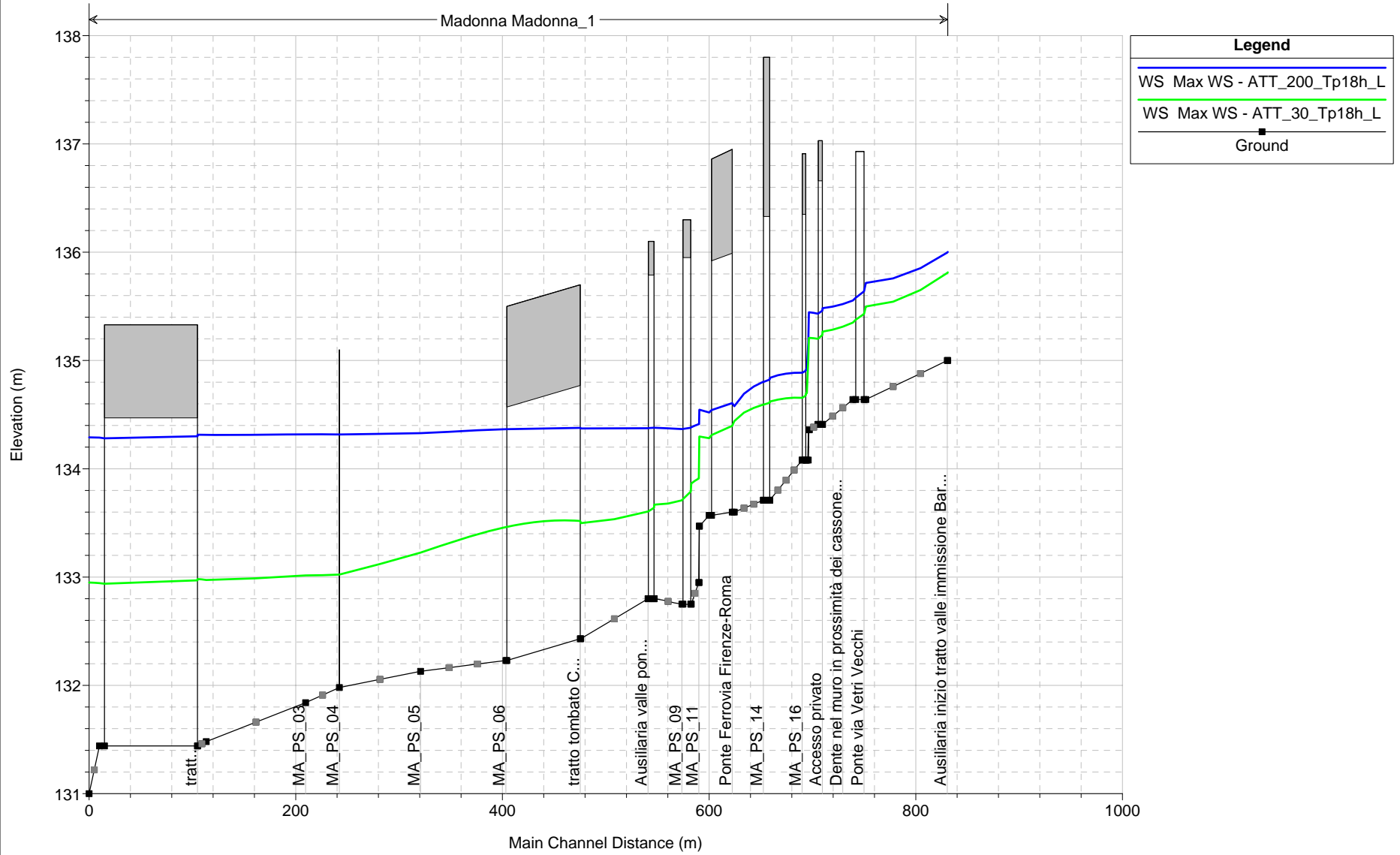
## **STATO ATTUALE**

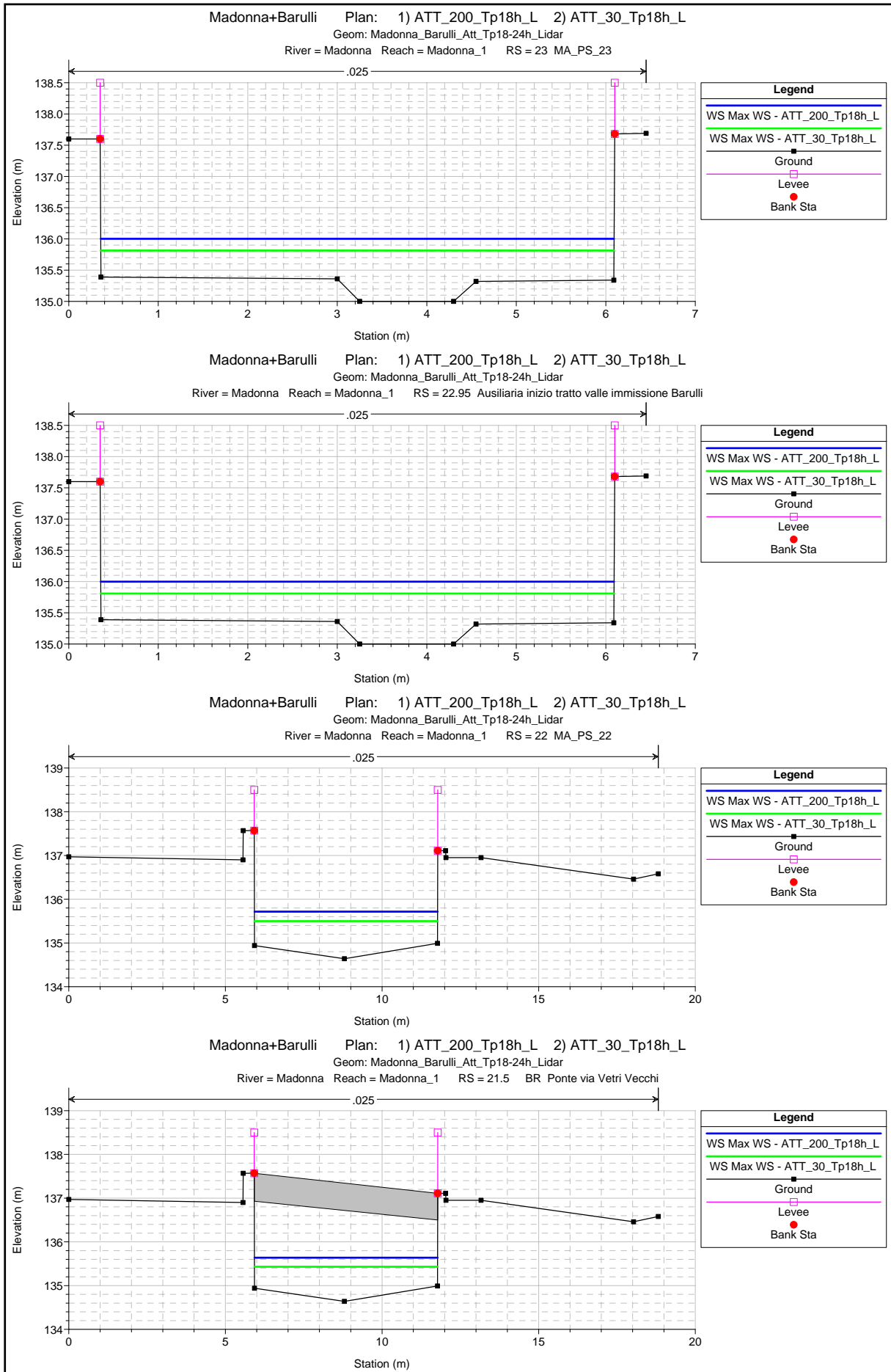
### **BORRO della MADONNA**

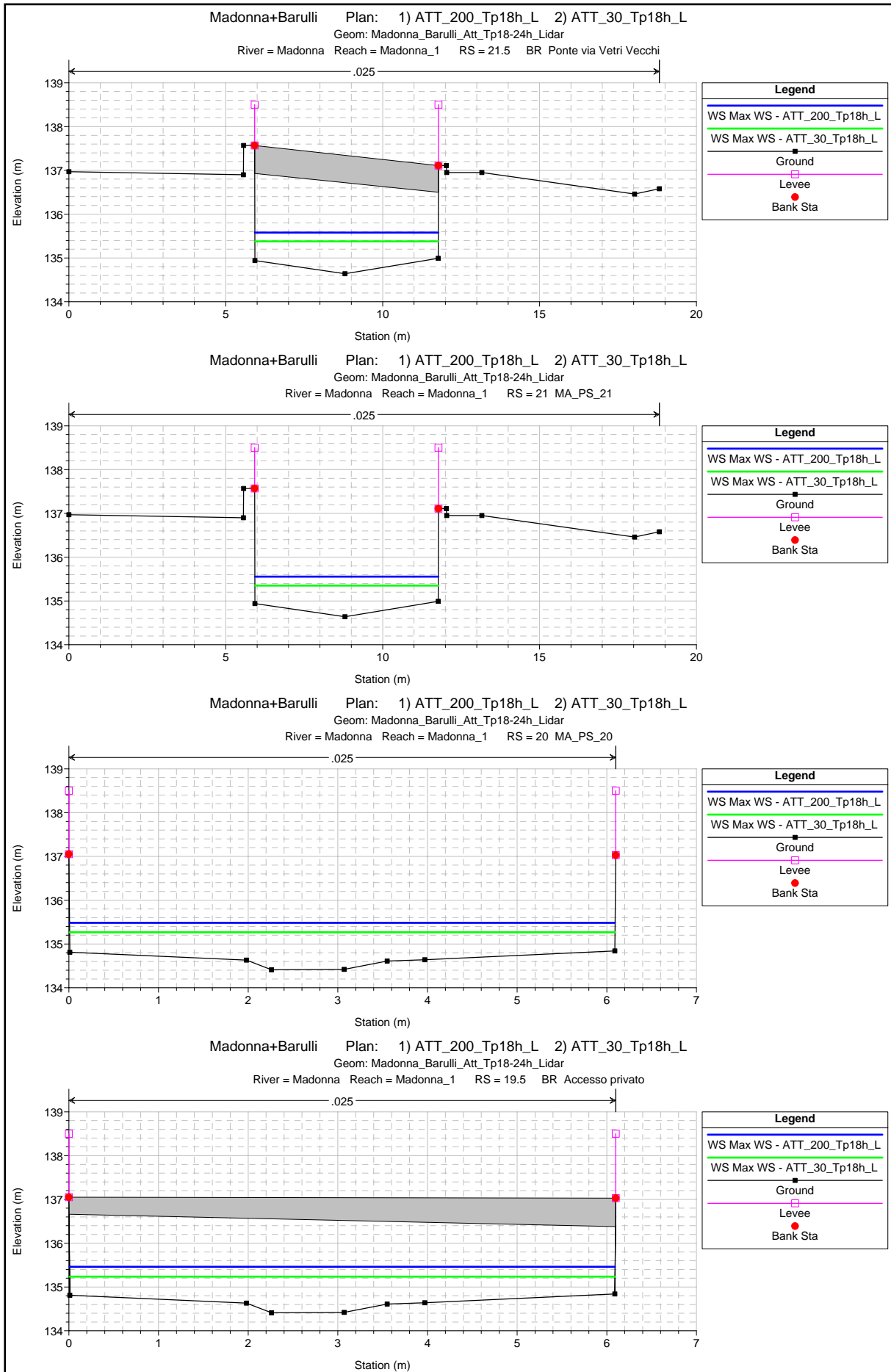
#### **Scenario B - Tr 200 e 30 anni**

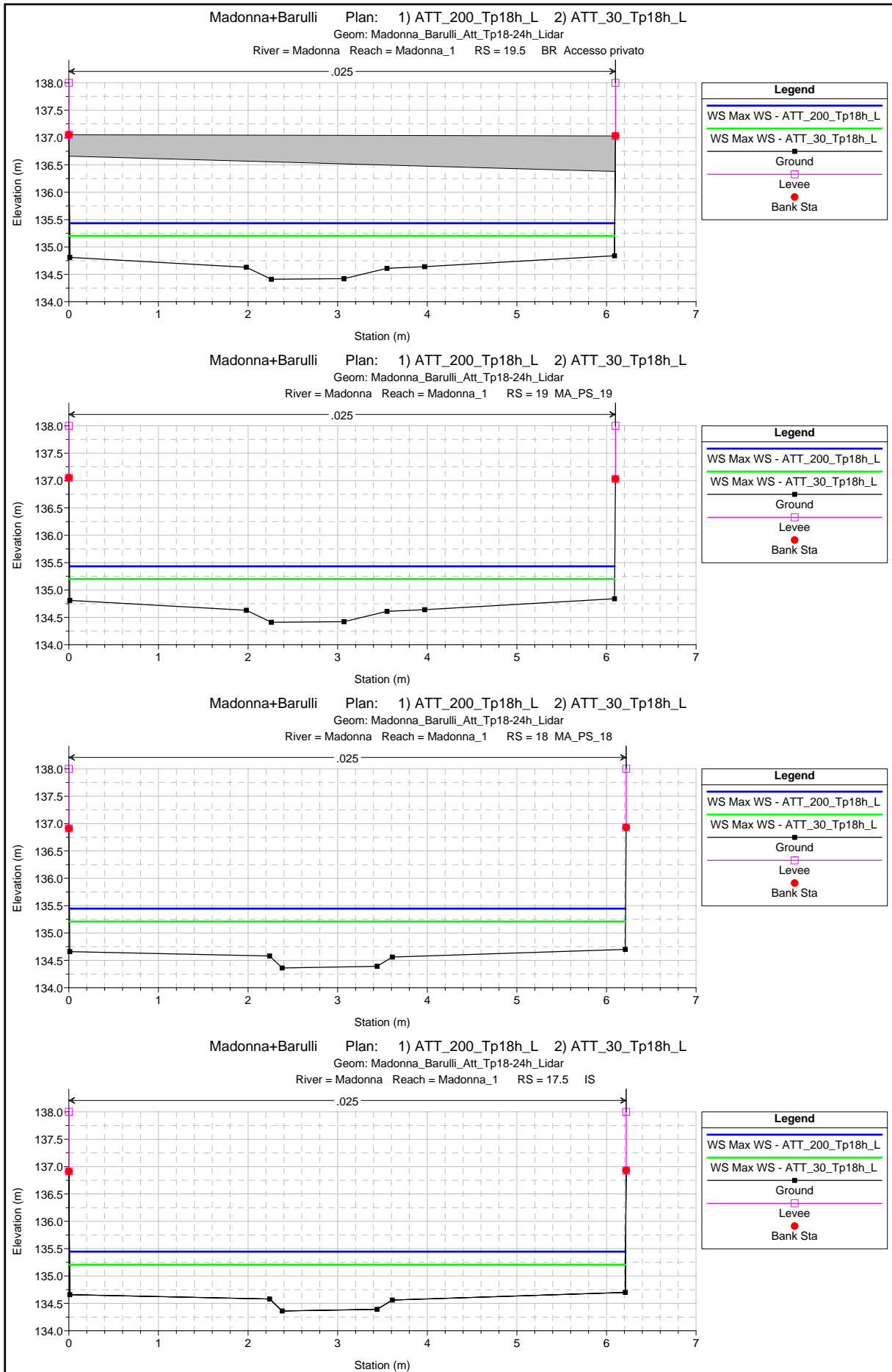
- Profili
- Sezioni di verifica
- Tabelle di output

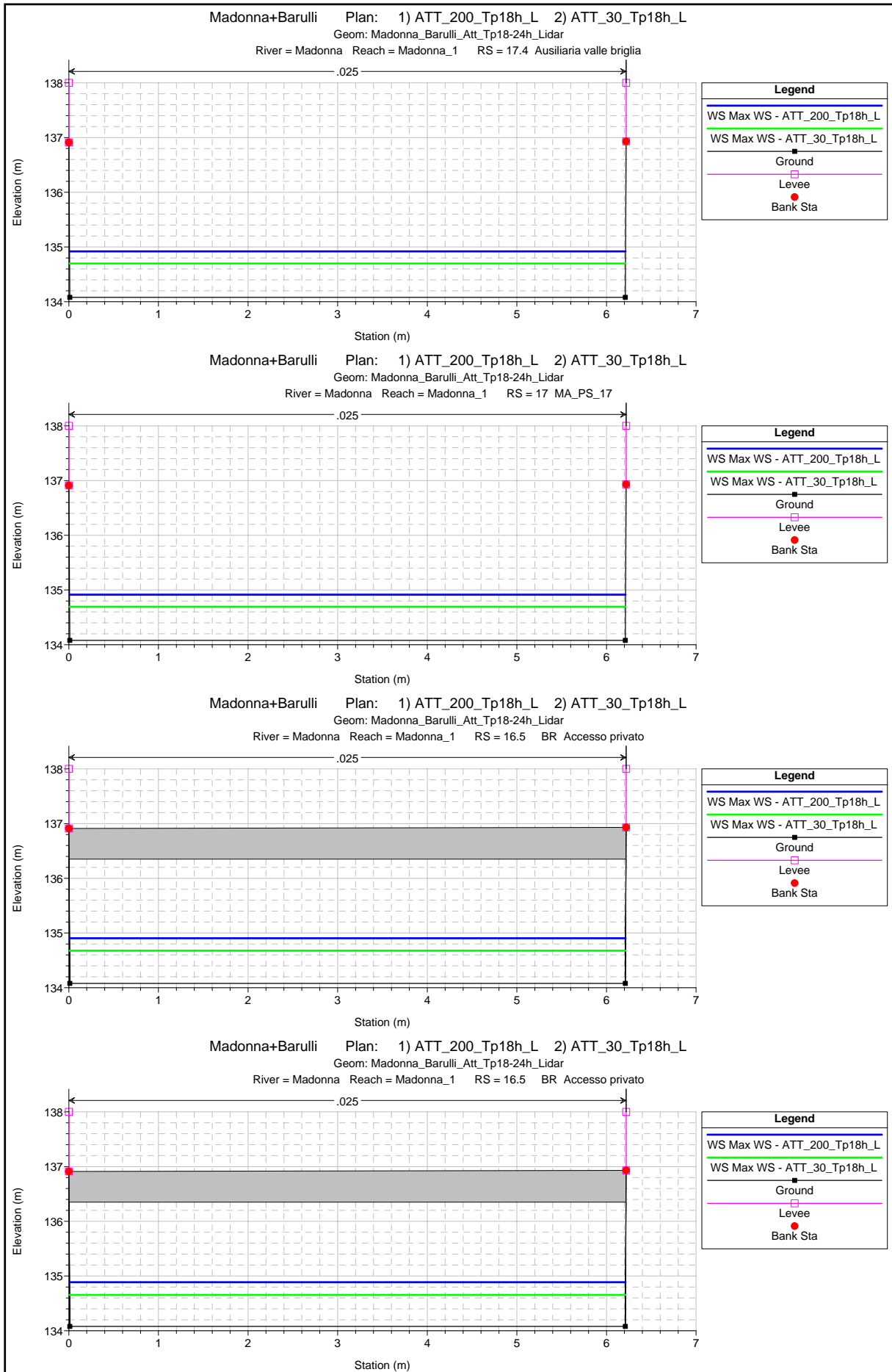
Madonna+Barulli Plan: 1) ATT\_200\_Tp18h\_L 2) ATT\_30\_Tp18h\_L  
 Geom: Madonna\_Barulli\_Att\_Tp18-24h\_Lidar

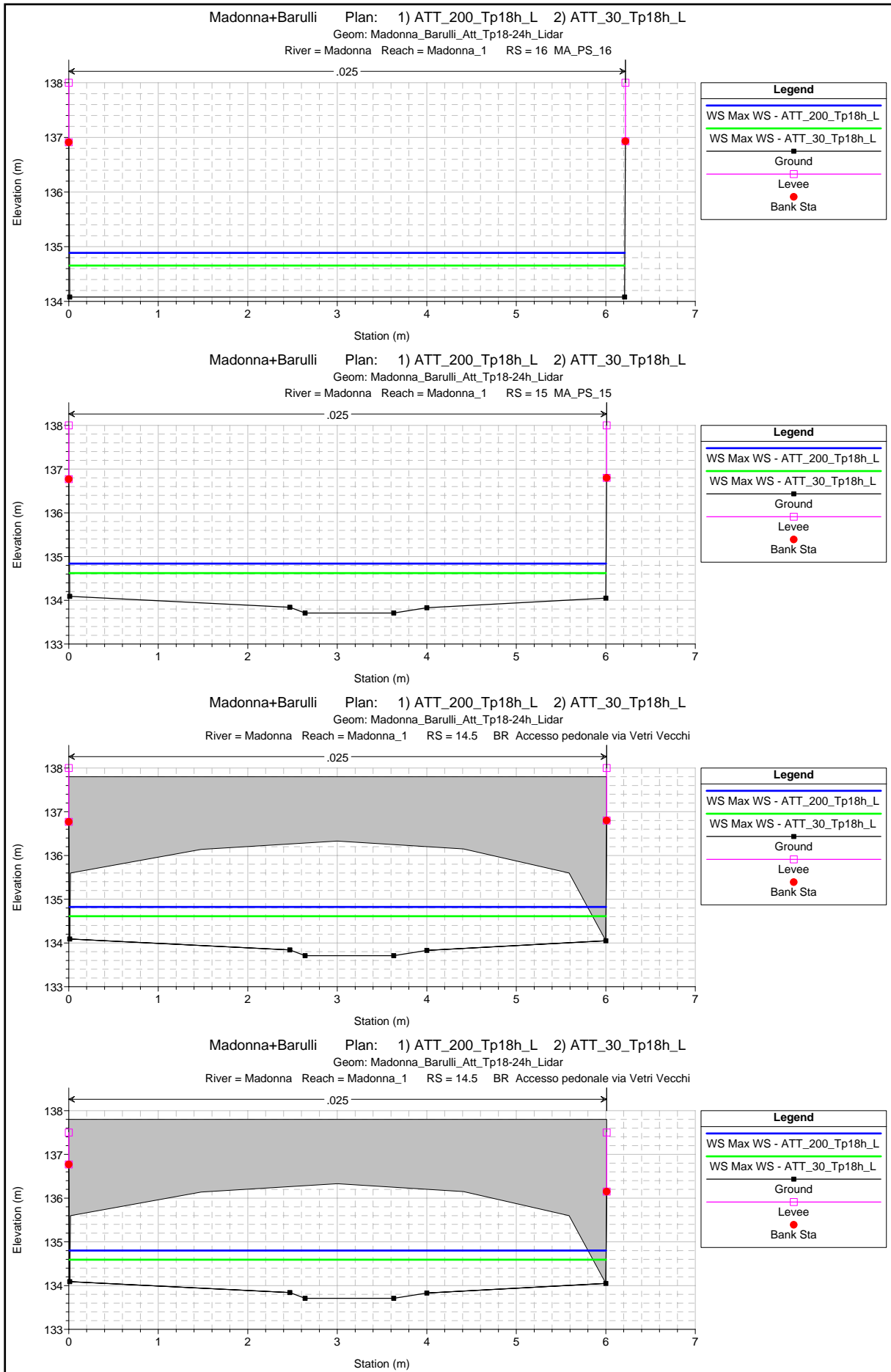




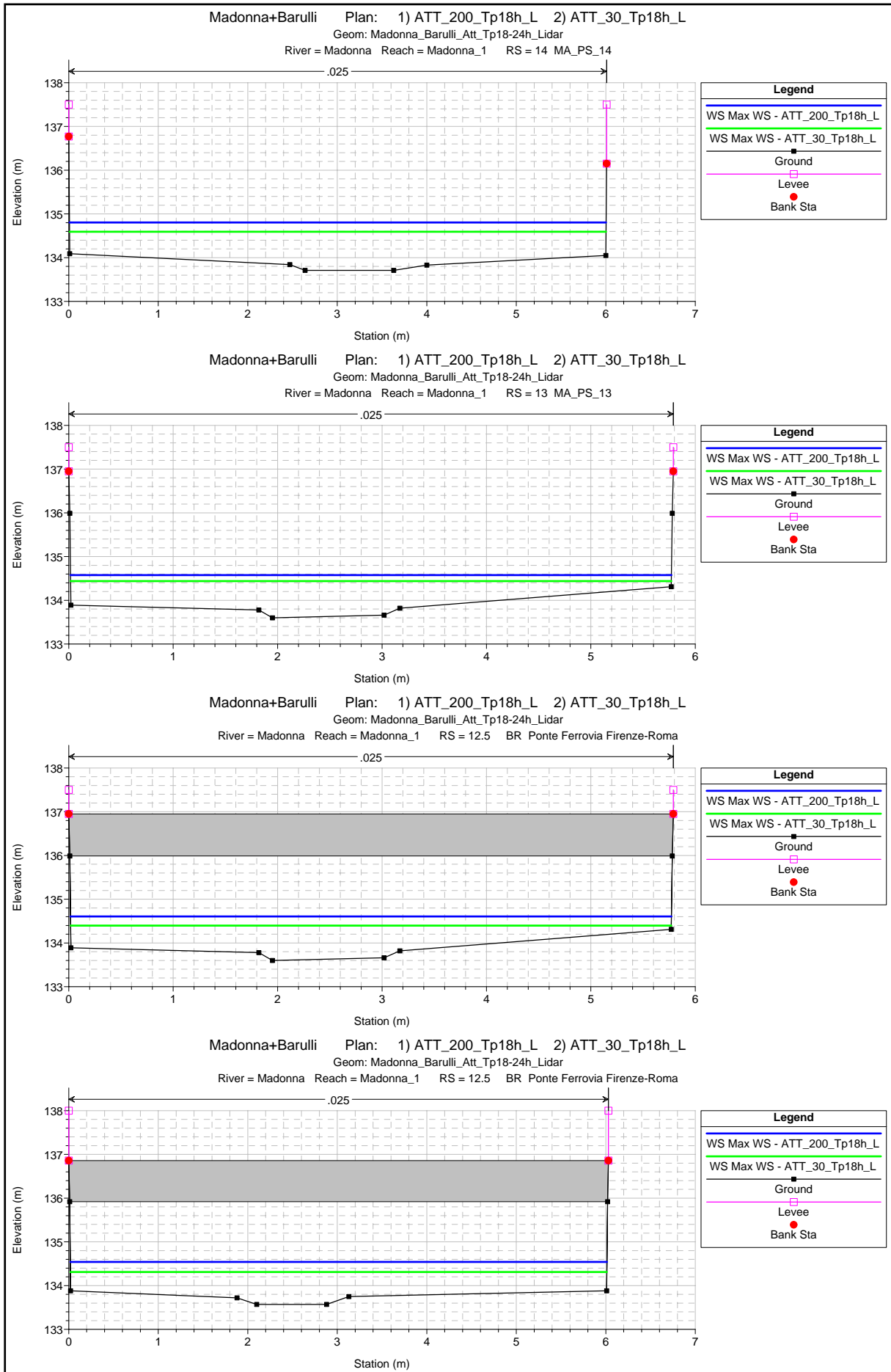


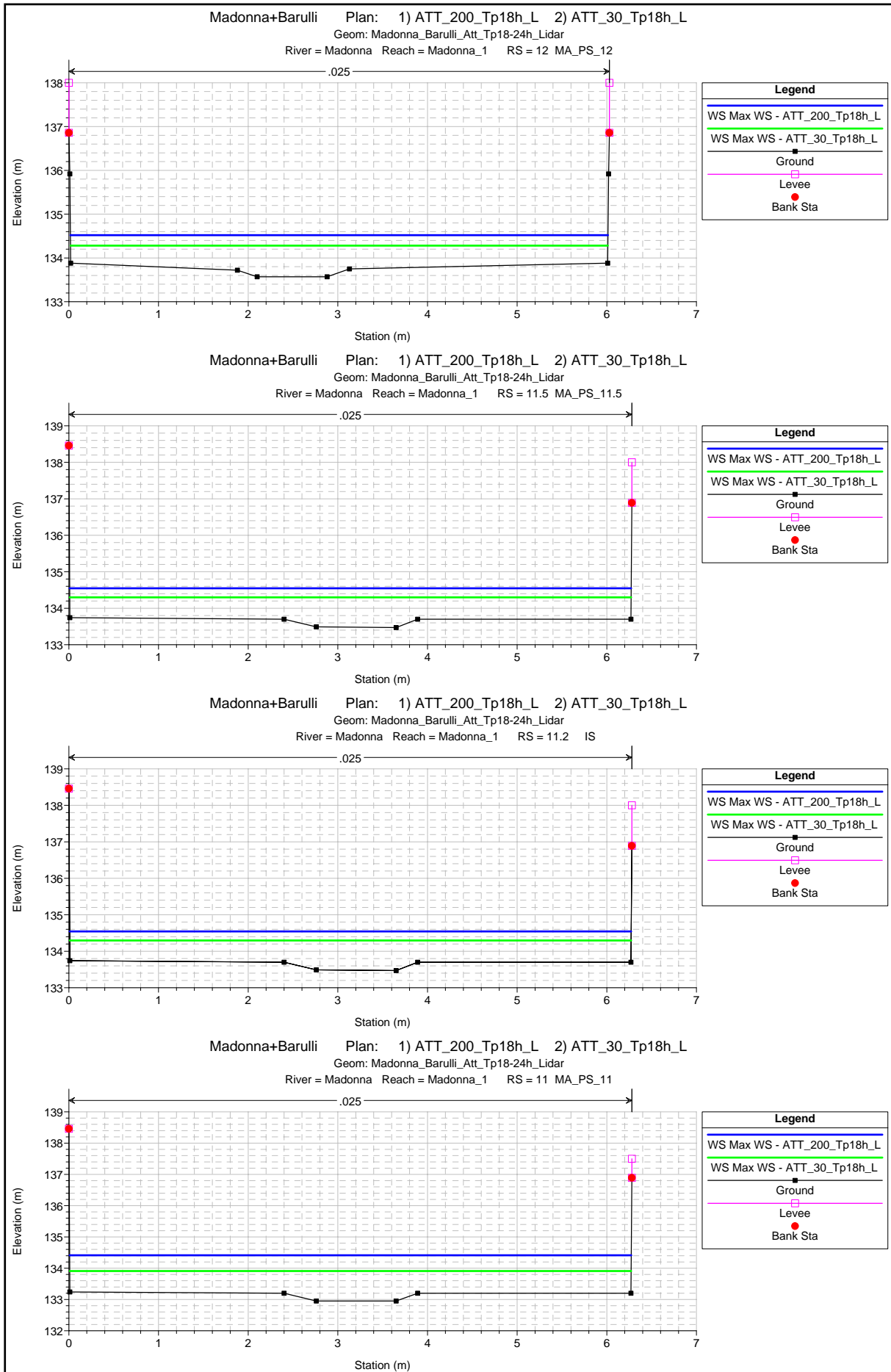


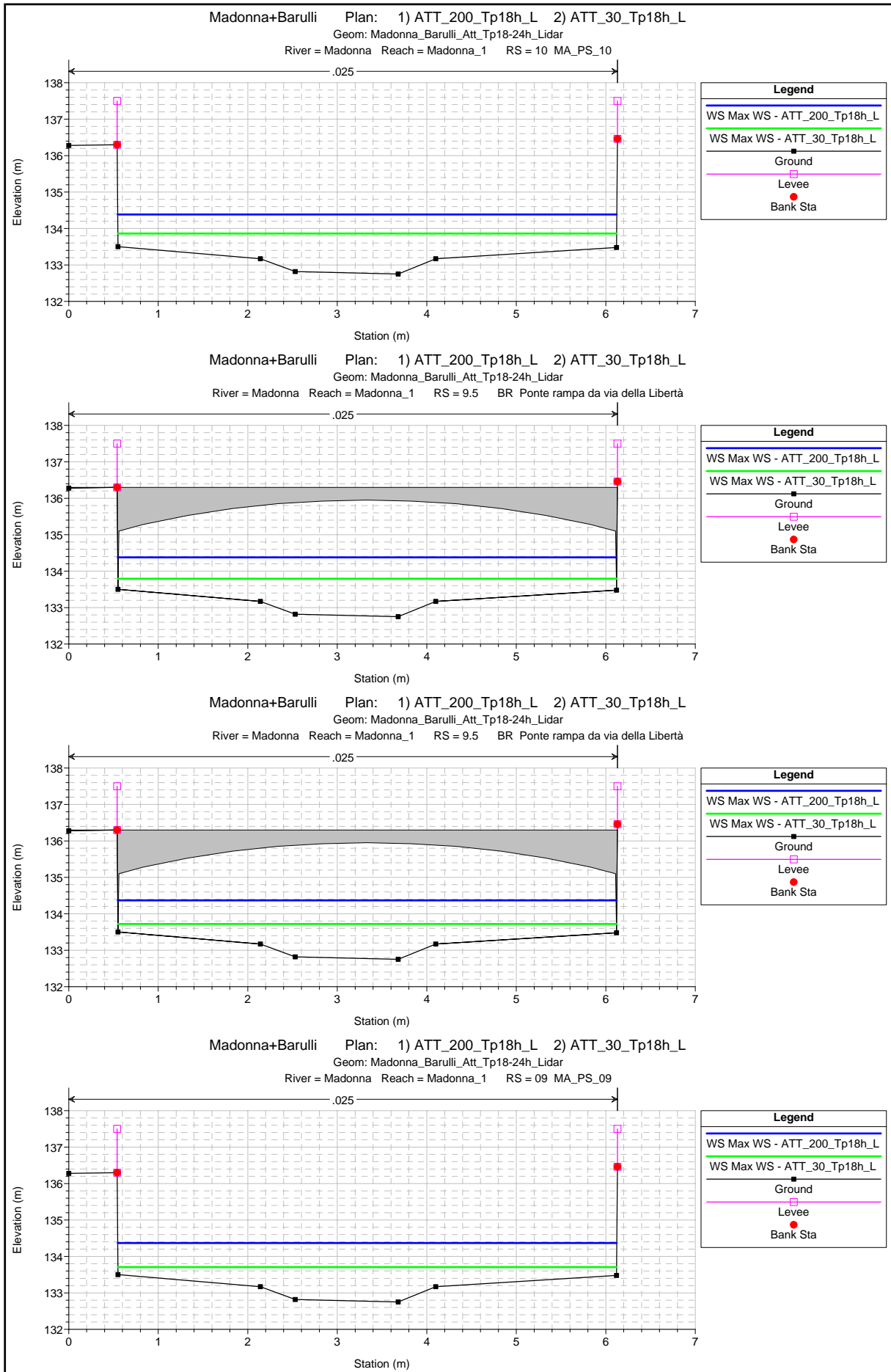


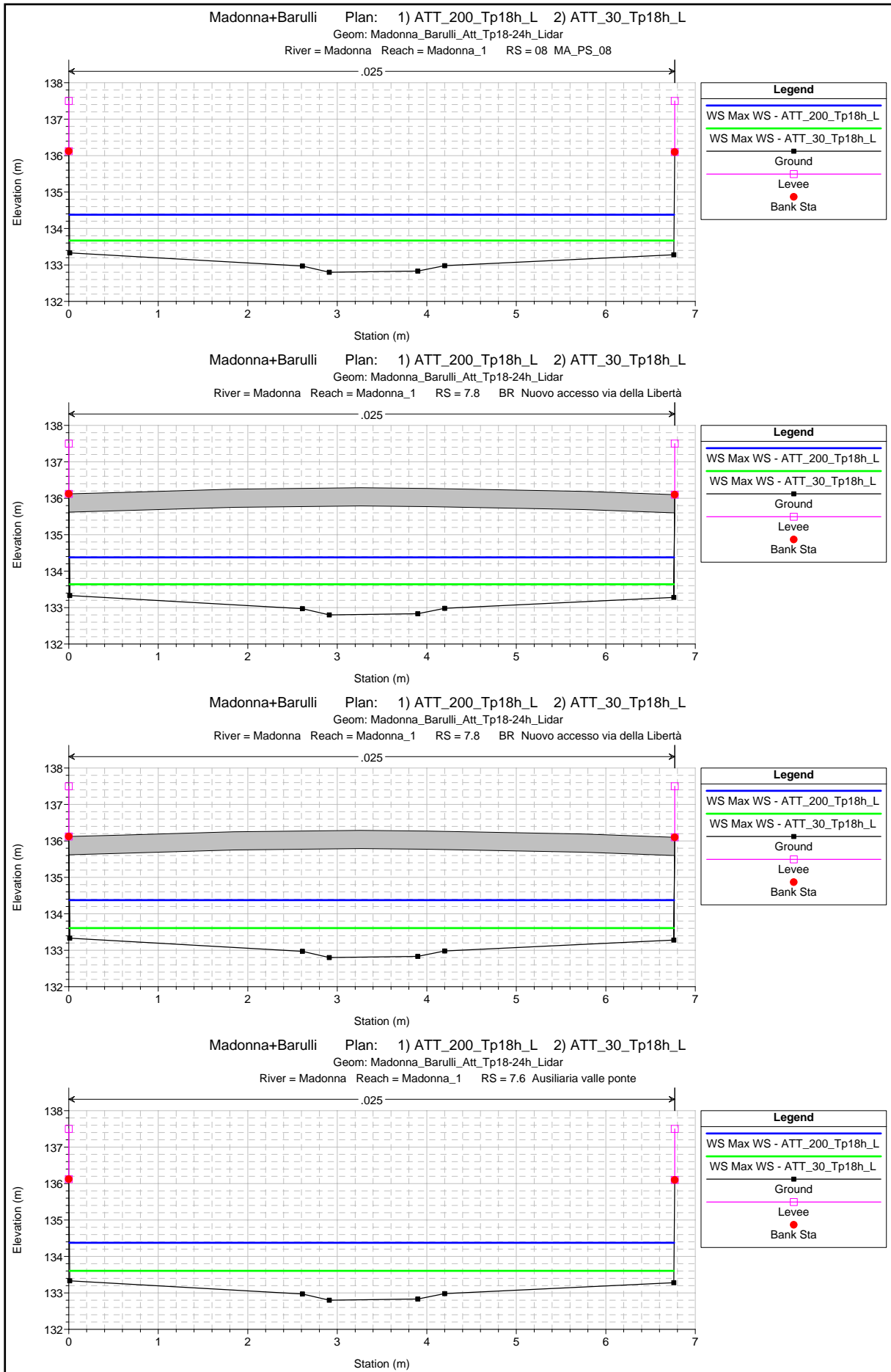


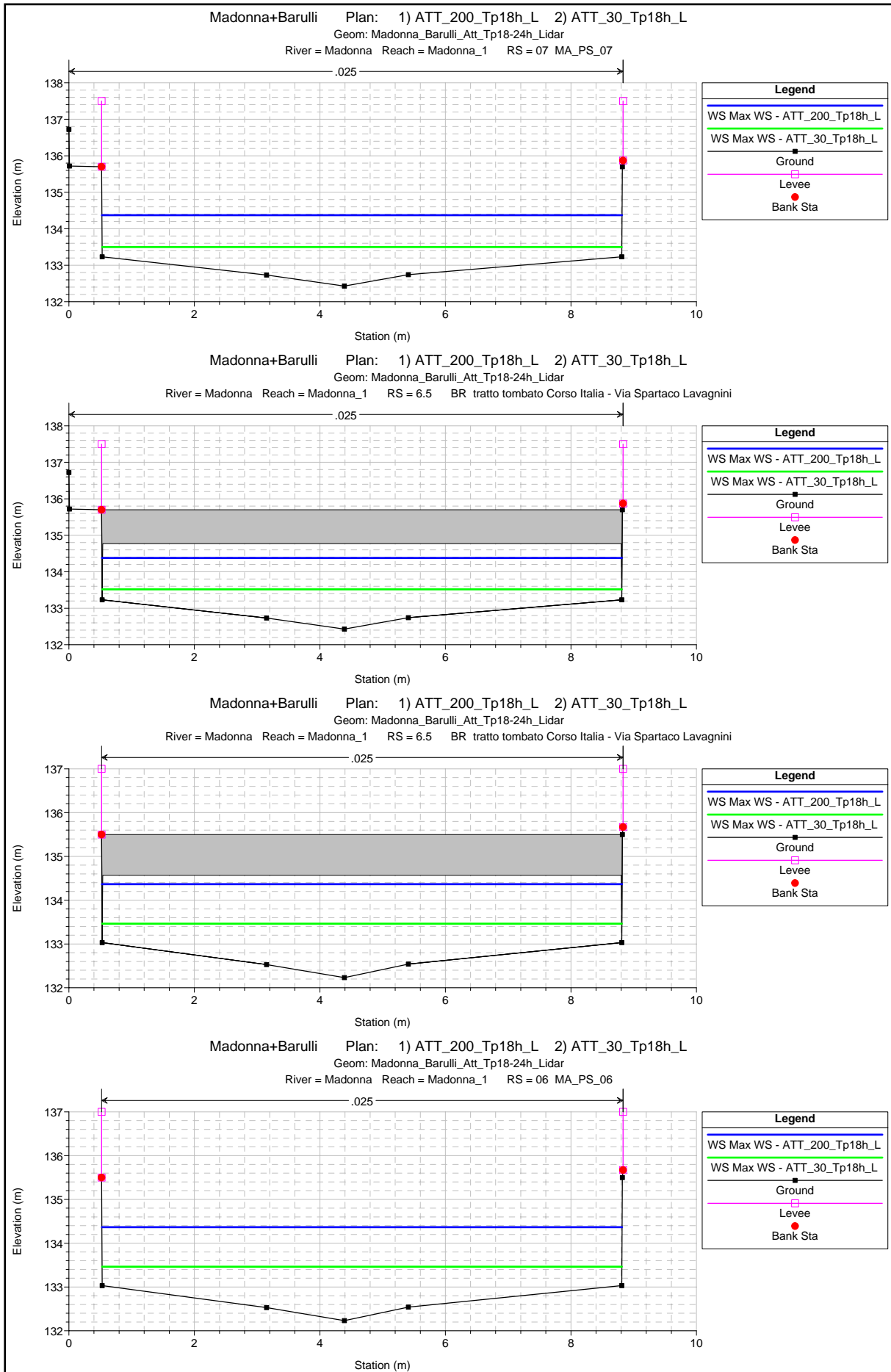


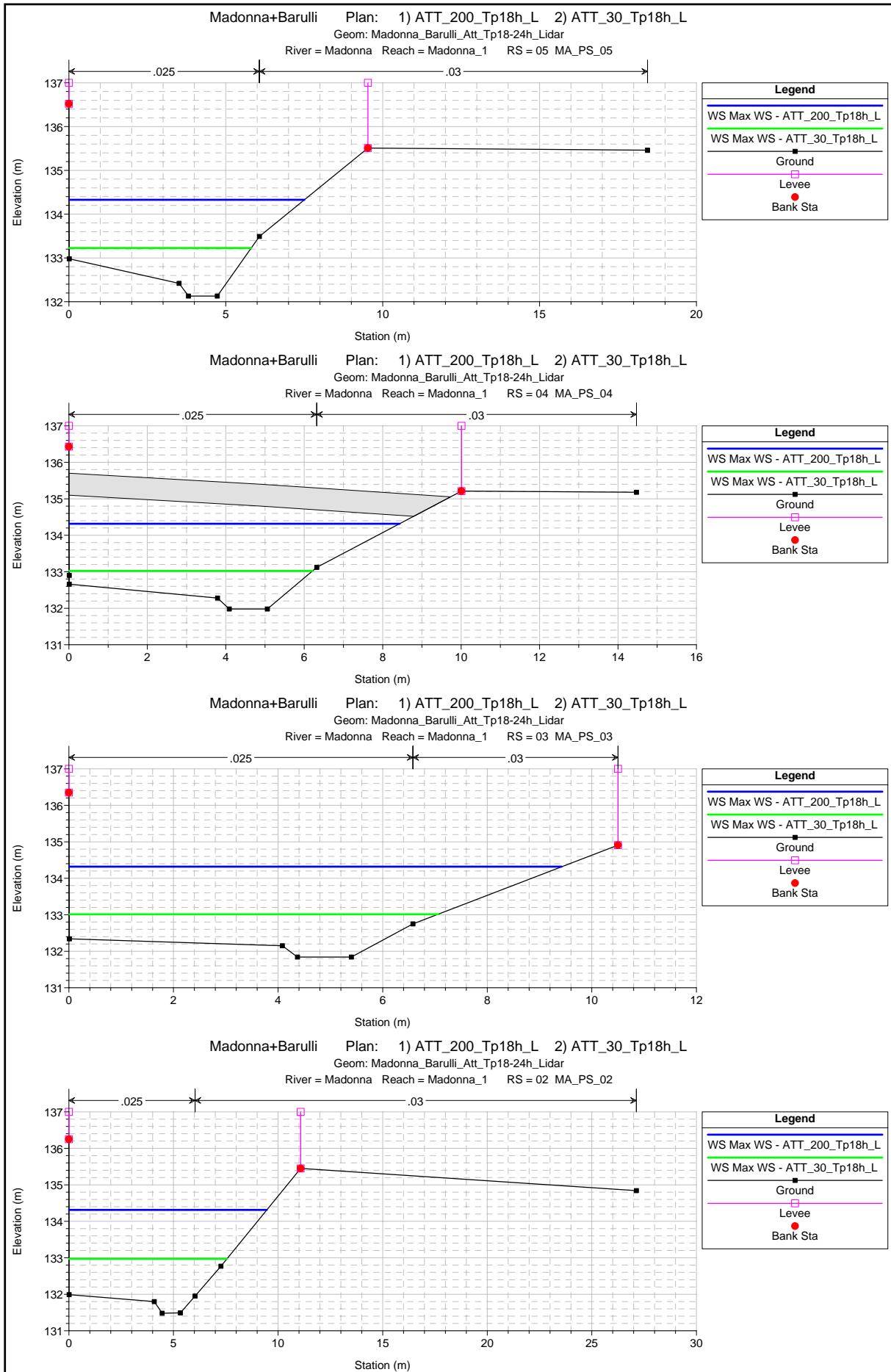


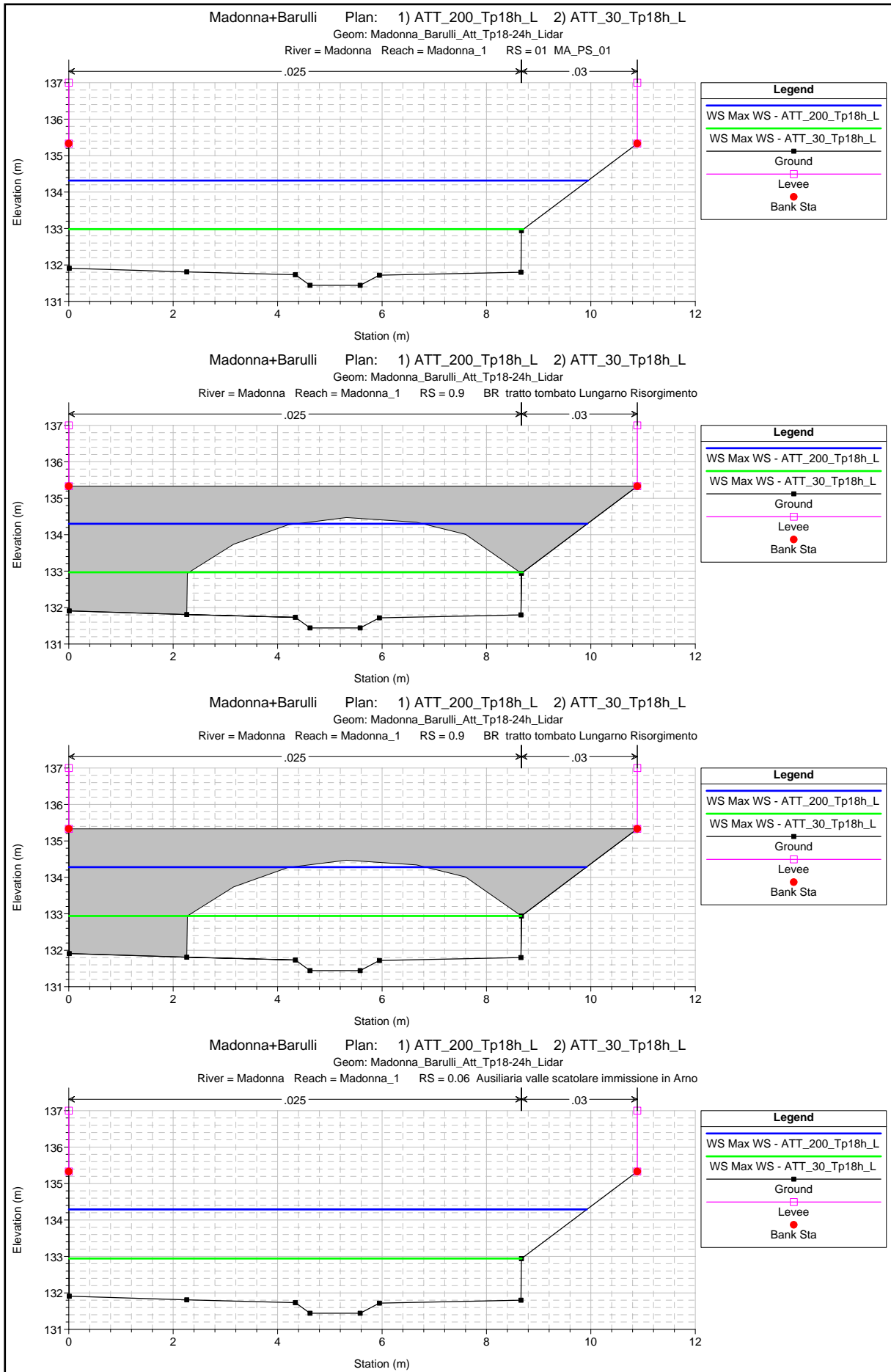








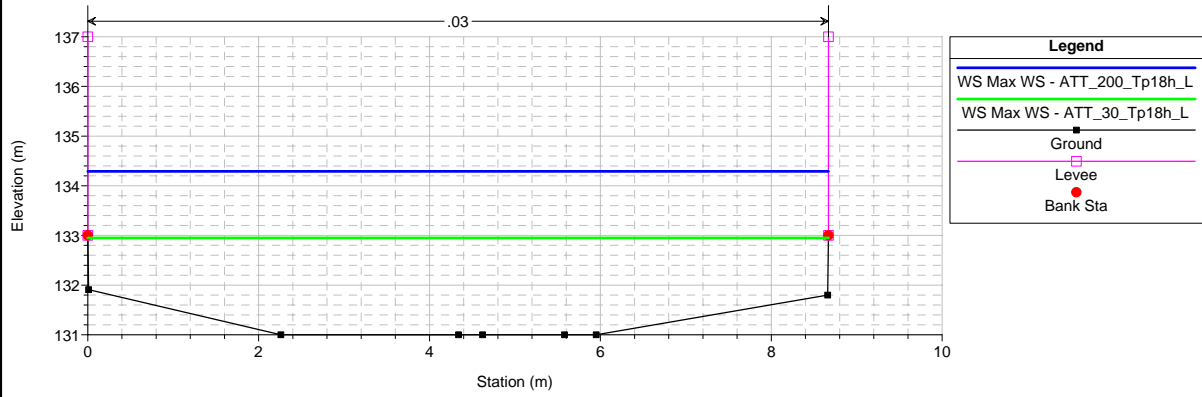




Madonna+Barulli Plan: 1) ATT\_200\_Tp18h\_L 2) ATT\_30\_Tp18h\_L

Geom: Madonna\_Barulli\_Att\_Tp18-24h\_Lidar

River = Madonna Reach = Madonna\_1 RS = 0.05 Ausiliaria immissione in Arno





HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	23	Max WS	ATT_200_Tp18h_L	8.80	135.00	136.00		136.23	0.005954	2.11	4.16	5.74	0.79
Madonna_1	23	Max WS	ATT_30_Tp18h_L	5.50	135.00	135.81		135.98	0.005931	1.79	3.08	5.73	0.78
Madonna_1	22.95	Max WS	ATT_200_Tp18h_L	8.80	135.00	136.00		136.23	0.006094	2.13	4.13	5.74	0.80
Madonna_1	22.95	Max WS	ATT_30_Tp18h_L	5.50	135.00	135.81		135.97	0.006113	1.80	3.05	5.73	0.79
Madonna_1	22.9			Lat Struct									
Madonna_1	22.8			Lat Struct									
Madonna_1	22	Max WS	ATT_200_Tp18h_L	8.80	134.64	135.72	135.42	135.85	0.002612	1.65	5.34	5.85	0.55
Madonna_1	22	Max WS	ATT_30_Tp18h_L	5.48	134.64	135.50	135.25	135.59	0.002324	1.35	4.06	5.84	0.52
Madonna_1	21.5			Bridge									
Madonna_1	21	Max WS	ATT_200_Tp18h_L	8.80	134.64	135.55		135.76	0.004736	2.01	4.39	5.84	0.74
Madonna_1	21	Max WS	ATT_30_Tp18h_L	5.50	134.64	135.35		135.50	0.004903	1.72	3.20	5.84	0.74
Madonna_1	20.9			Lat Struct									
Madonna_1	20.8			Lat Struct									
Madonna_1	20	Max WS	ATT_200_Tp18h_L	8.80	134.41	135.48	135.25	135.64	0.003250	1.75	5.04	6.09	0.61
Madonna_1	20	Max WS	ATT_30_Tp18h_L	5.50	134.41	135.27	135.09	135.38	0.003221	1.48	3.72	6.08	0.60
Madonna_1	19.5			Bridge									
Madonna_1	19	Max WS	ATT_200_Tp18h_L	8.80	134.41	135.43		135.61	0.003941	1.86	4.73	6.09	0.67
Madonna_1	19	Max WS	ATT_30_Tp18h_L	5.50	134.41	135.20		135.34	0.004612	1.66	3.32	6.08	0.72
Madonna_1	18.9			Lat Struct									
Madonna_1	18	Max WS	ATT_200_Tp18h_L	8.80	134.36	135.45	135.16	135.58	0.002772	1.63	5.40	6.21	0.56
Madonna_1	18	Max WS	ATT_30_Tp18h_L	5.50	134.36	135.21	135.01	135.31	0.002867	1.40	3.93	6.20	0.56
Madonna_1	17.5			Inl Struct									
Madonna_1	17.4	Max WS	ATT_200_Tp18h_L	8.73	134.08	134.92		135.06	0.003045	1.68	5.21	6.21	0.58
Madonna_1	17.4	Max WS	ATT_30_Tp18h_L	5.49	134.08	134.70		134.80	0.003100	1.43	3.84	6.20	0.58

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	17	Max WS	ATT_200_Tp18h_L	8.73	134.08	134.92	134.67	135.06	0.003101	1.69	5.18	6.21	0.59
Madonna_1	17	Max WS	ATT_30_Tp18h_L	5.49	134.08	134.69	134.51	134.80	0.003172	1.44	3.81	6.20	0.59
Madonna_1	16.5			Bridge									
Madonna_1	16	Max WS	ATT_200_Tp18h_L	8.73	134.08	134.89		135.04	0.003446	1.74	5.00	6.21	0.62
Madonna_1	16	Max WS	ATT_30_Tp18h_L	5.50	134.08	134.65		134.78	0.003906	1.54	3.57	6.20	0.65
Madonna_1	15.9			Lat Struct									
Madonna_1	15	Max WS	ATT_200_Tp18h_L	8.81	133.71	134.84	134.50	134.96	0.002263	1.56	5.65	6.00	0.51
Madonna_1	15	Max WS	ATT_30_Tp18h_L	5.50	133.71	134.62	134.34	134.70	0.001969	1.27	4.34	5.99	0.48
Madonna_1	14.5			Bridge									
Madonna_1	14	Max WS	ATT_200_Tp18h_L	8.81	133.71	134.80		134.94	0.002538	1.62	5.44	6.00	0.54
Madonna_1	14	Max WS	ATT_30_Tp18h_L	5.50	133.71	134.59		134.68	0.002217	1.32	4.17	5.99	0.50
Madonna_1	13	Max WS	ATT_200_Tp18h_L	9.02	133.60	134.58	134.52	134.85	0.007026	2.30	3.92	5.75	0.89
Madonna_1	13	Max WS	ATT_30_Tp18h_L	5.50	133.60	134.44	134.35	134.60	0.005232	1.75	3.14	5.75	0.76
Madonna_1	12.5			Bridge									
Madonna_1	12	Max WS	ATT_200_Tp18h_L	9.02	133.57	134.52		134.72	0.004783	1.99	4.52	6.00	0.73
Madonna_1	12	Max WS	ATT_30_Tp18h_L	5.51	133.57	134.28		134.44	0.005778	1.78	3.09	5.99	0.79
Madonna_1	11.5	Max WS	ATT_200_Tp18h_L	9.01	133.47	134.55	134.26	134.68	0.002780	1.64	5.51	6.26	0.56
Madonna_1	11.5	Max WS	ATT_30_Tp18h_L	5.51	133.47	134.30	134.09	134.40	0.002874	1.39	3.96	6.26	0.56
Madonna_1	11.2			Inl Struct									
Madonna_1	11	Max WS	ATT_200_Tp18h_L	8.80	132.95	134.41		134.48	0.000921	1.12	7.84	6.27	0.32
Madonna_1	11	Max WS	ATT_30_Tp18h_L	5.51	132.95	133.91		133.98	0.001690	1.17	4.70	6.26	0.43
Madonna_1	10	Max WS	ATT_200_Tp18h_L	8.80	132.75	134.38	133.80	134.47	0.001251	1.30	6.78	5.58	0.38
Madonna_1	10	Max WS	ATT_30_Tp18h_L	5.50	132.75	133.86	133.63	133.97	0.002570	1.41	3.89	5.57	0.54
Madonna_1	9.5			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	09	Max WS	ATT_200_Tp18h_L	8.80	132.75	134.37		134.46	0.001299	1.31	6.70	5.58	0.38
Madonna_1	09	Max WS	ATT_30_Tp18h_L	5.51	132.75	133.71		133.88	0.005582	1.82	3.03	5.57	0.79
Madonna_1	08	Max WS	ATT_200_Tp18h_L	8.80	132.80	134.38	133.63	134.43	0.000637	1.00	8.84	6.76	0.28
Madonna_1	08	Max WS	ATT_30_Tp18h_L	5.50	132.80	133.67	133.48	133.76	0.002693	1.36	4.04	6.75	0.56
Madonna_1	7.8			Bridge									
Madonna_1	7.6	Max WS	ATT_200_Tp18h_L	8.80	132.80	134.38		134.43	0.000643	1.00	8.81	6.76	0.28
Madonna_1	7.6	Max WS	ATT_30_Tp18h_L	5.50	132.80	133.61		133.72	0.003833	1.52	3.61	6.75	0.67
Madonna_1	07	Max WS	ATT_200_Tp18h_L	8.80	132.43	134.37	133.36	134.40	0.000258	0.71	12.42	8.29	0.18
Madonna_1	07	Max WS	ATT_30_Tp18h_L	5.50	132.43	133.50	133.23	133.56	0.001479	1.06	5.17	8.28	0.43
Madonna_1	6.5			Bridge									
Madonna_1	06	Max WS	ATT_200_Tp18h_L	8.80	132.23	134.37		134.39	0.000181	0.63	14.02	8.29	0.15
Madonna_1	06	Max WS	ATT_30_Tp18h_L	5.50	132.23	133.46		133.50	0.000711	0.84	6.53	8.28	0.30
Madonna_1	05	Max WS	ATT_200_Tp18h_L	8.80	132.13	134.33		134.36	0.000369	0.80	10.98	7.50	0.21
Madonna_1	05	Max WS	ATT_30_Tp18h_L	5.50	132.13	133.23		133.34	0.002948	1.47	3.73	5.80	0.59
Madonna_1	04	Max WS	ATT_200_Tp18h_L	8.79	131.98	134.32	132.97	134.34	0.000207	0.66	13.40	8.43	0.17
Madonna_1	04	Max WS	ATT_30_Tp18h_L	5.50	131.98	133.02	132.80	133.12	0.002602	1.38	3.97	6.20	0.55
Madonna_1	03	Max WS	ATT_200_Tp18h_L	8.79	131.84	134.32		134.33	0.000139	0.54	16.29	9.42	0.13
Madonna_1	03	Max WS	ATT_30_Tp18h_L	5.49	131.84	133.01		133.06	0.001065	0.99	5.55	7.05	0.36
Madonna_1	02	Max WS	ATT_200_Tp18h_L	8.79	131.48	134.31		134.32	0.000086	0.46	19.24	9.46	0.10
Madonna_1	02	Max WS	ATT_30_Tp18h_L	5.48	131.48	132.97		133.00	0.000402	0.70	7.86	7.55	0.22
Madonna_1	01	Max WS	ATT_200_Tp18h_L	8.79	131.44	134.31	132.21	134.32	0.000050	0.38	23.18	9.94	0.08
Madonna_1	01	Max WS	ATT_30_Tp18h_L	5.48	131.44	132.98	132.08	133.00	0.000170	0.51	10.76	8.70	0.15
Madonna_1	0.9			Bridge									
Madonna_1	0.06	Max WS	ATT_200_Tp18h_L	8.79	131.44	134.29		134.30	0.000051	0.38	22.92	9.92	0.08
Madonna_1	0.06	Max WS	ATT_30_Tp18h_L	5.48	131.44	132.94		132.96	0.000187	0.53	10.43	8.67	0.15

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	0.05	Max WS	ATT_200_Tp18h_L	8.79	131.00	134.29	131.69	134.30	0.000042	0.33	26.39	8.67	0.06
Madonna_1	0.05	Max WS	ATT_30_Tp18h_L	5.48	131.00	132.95	131.53	132.96	0.000085	0.37	14.77	8.67	0.09

# **VERIFICHE IDRAULICHE**

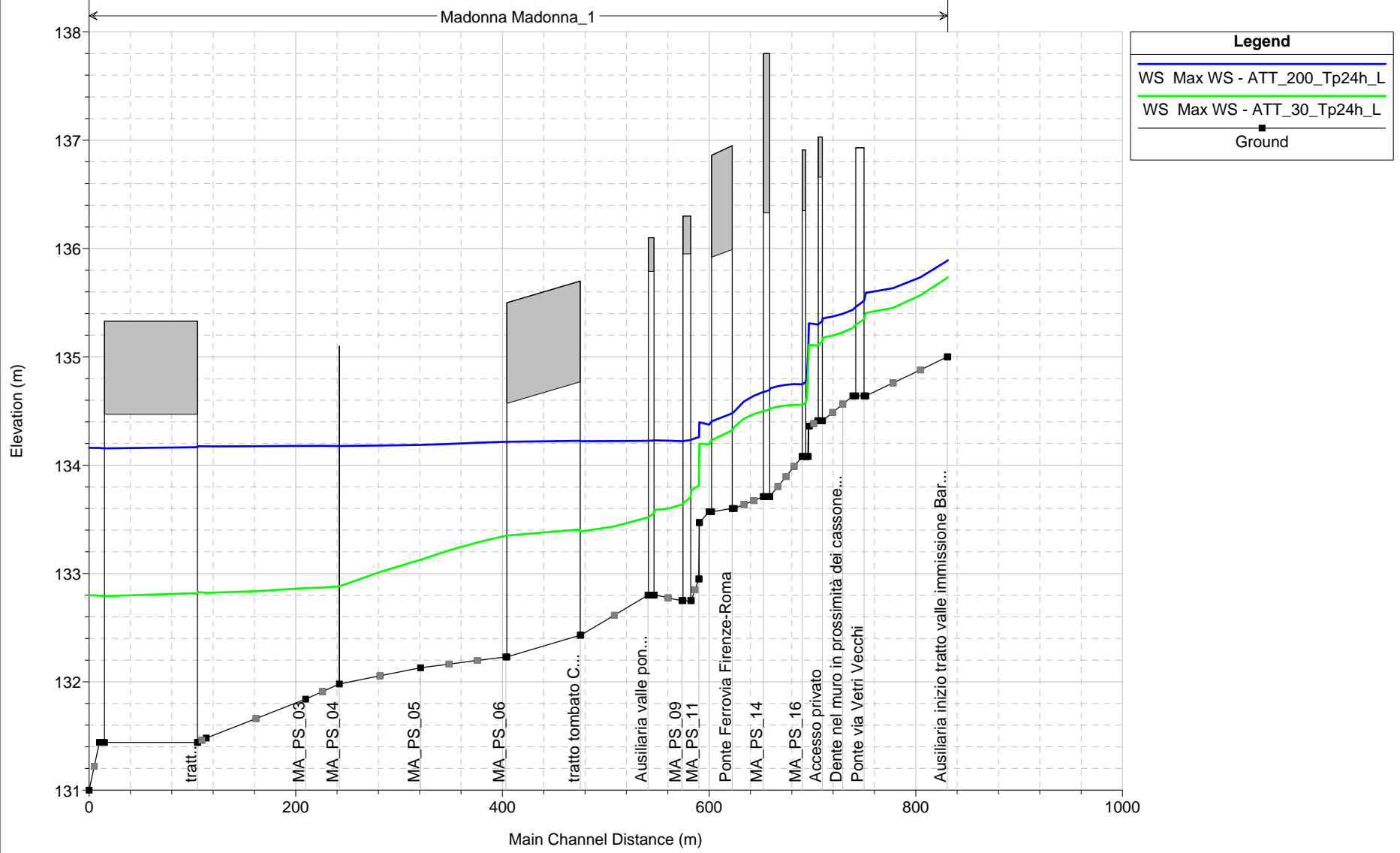
## **STATO ATTUALE**

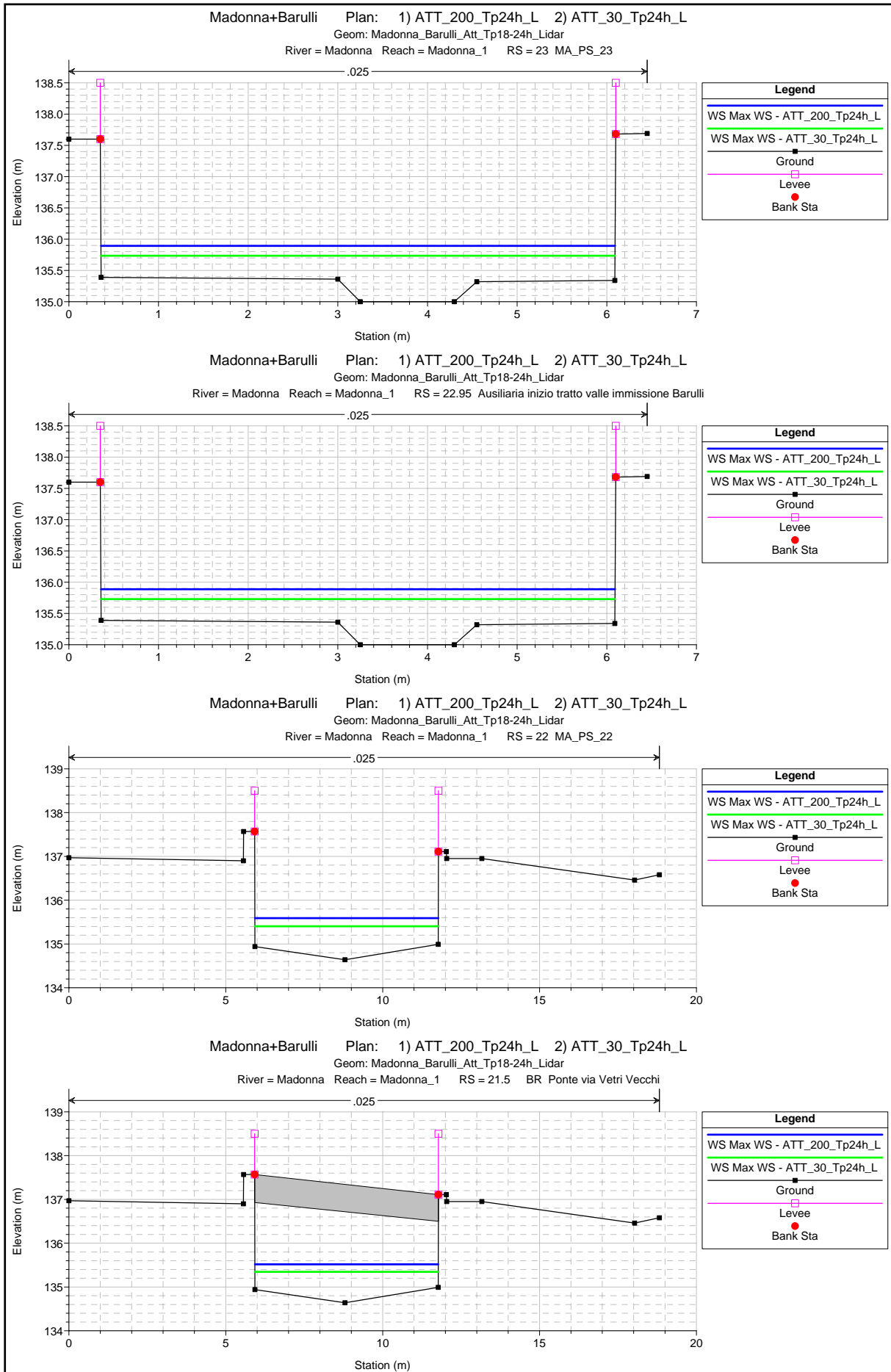
### **BORRO della MADONNA**

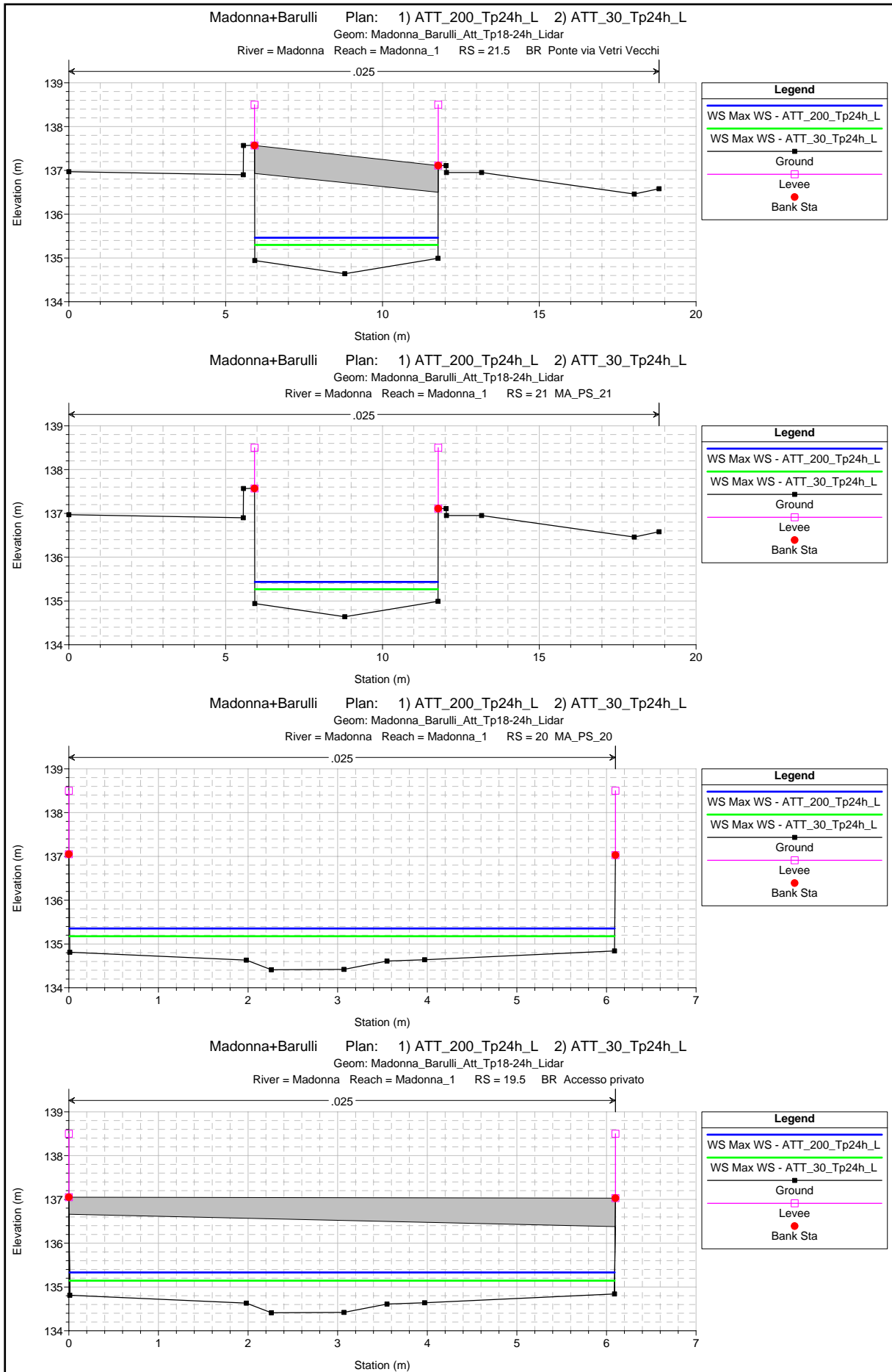
#### **Scenario C - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

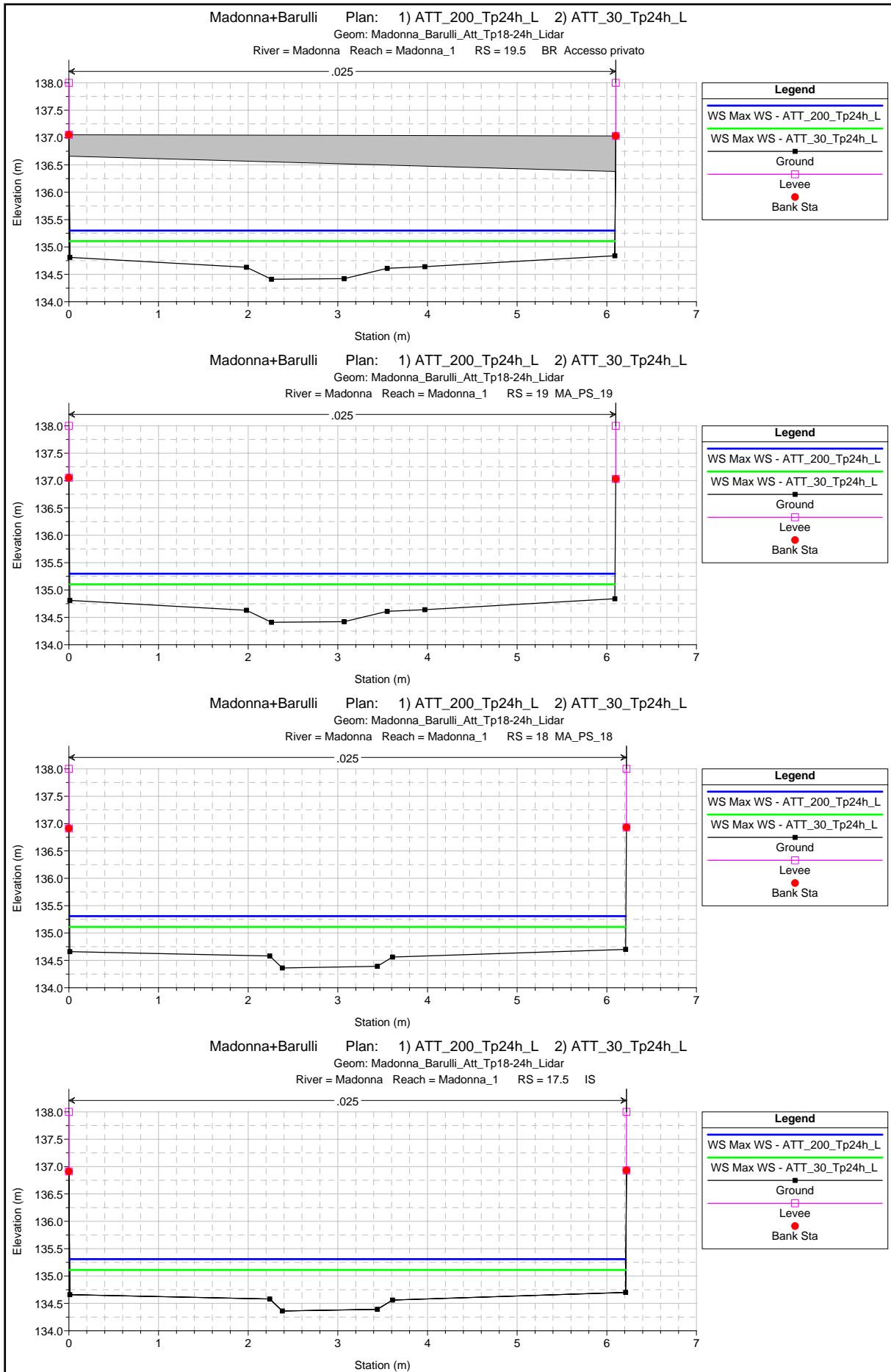
Madonna+Barulli Plan: 1) ATT\_200\_Tp24h\_L 2) ATT\_30\_Tp24h\_L  
 Geom: Madonna\_Barulli\_Att\_Tp18-24h\_Lidar

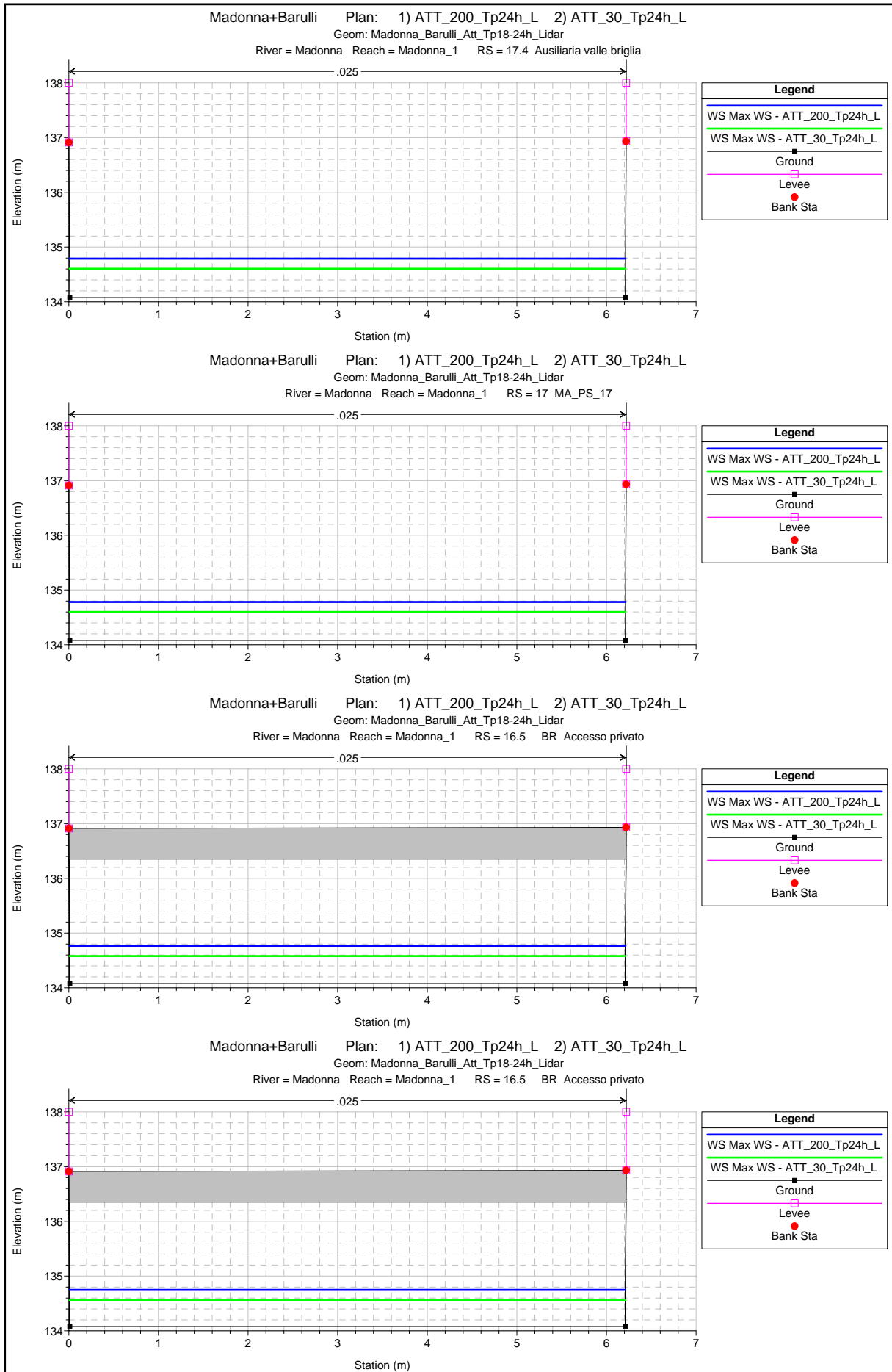


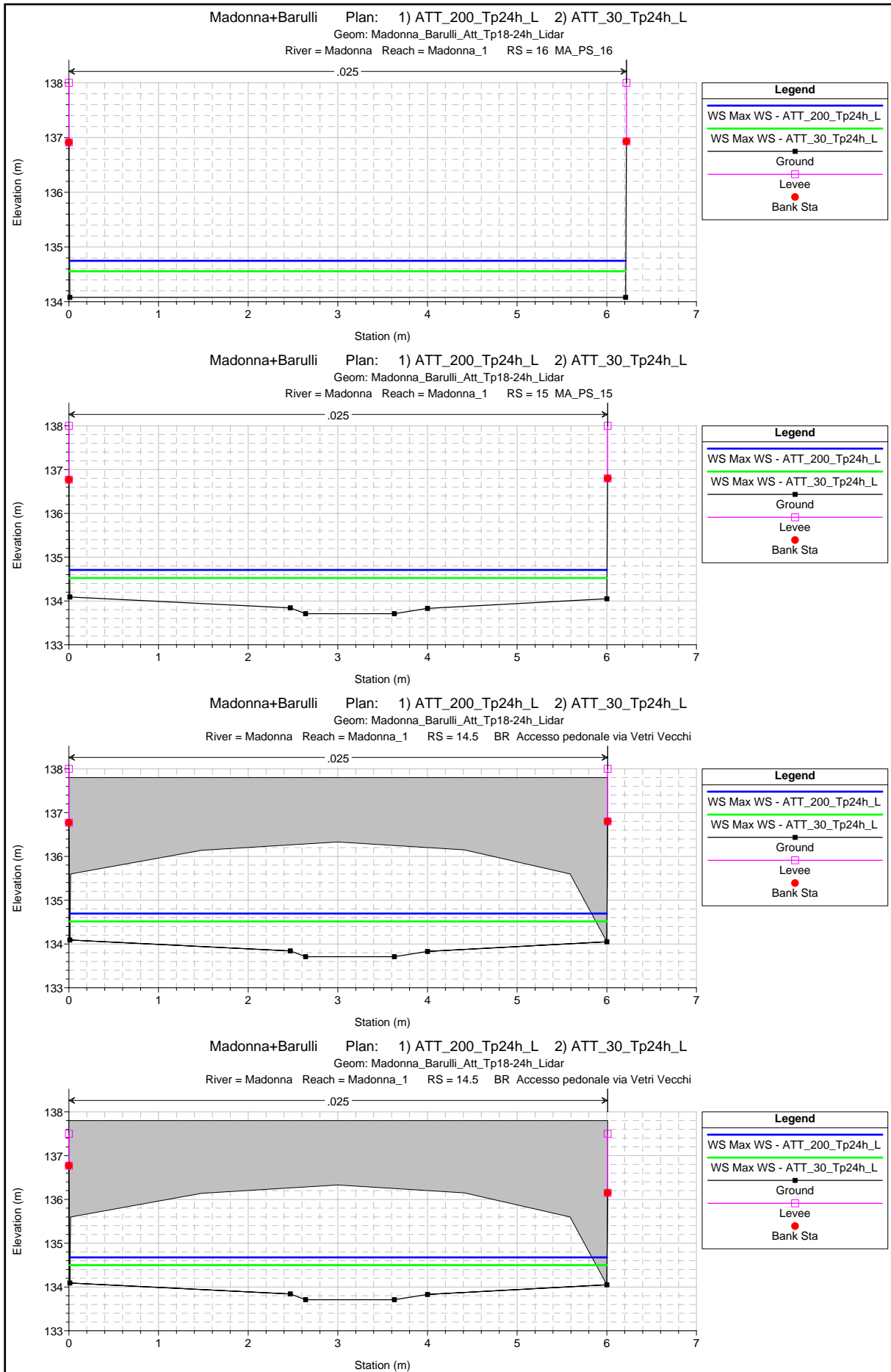


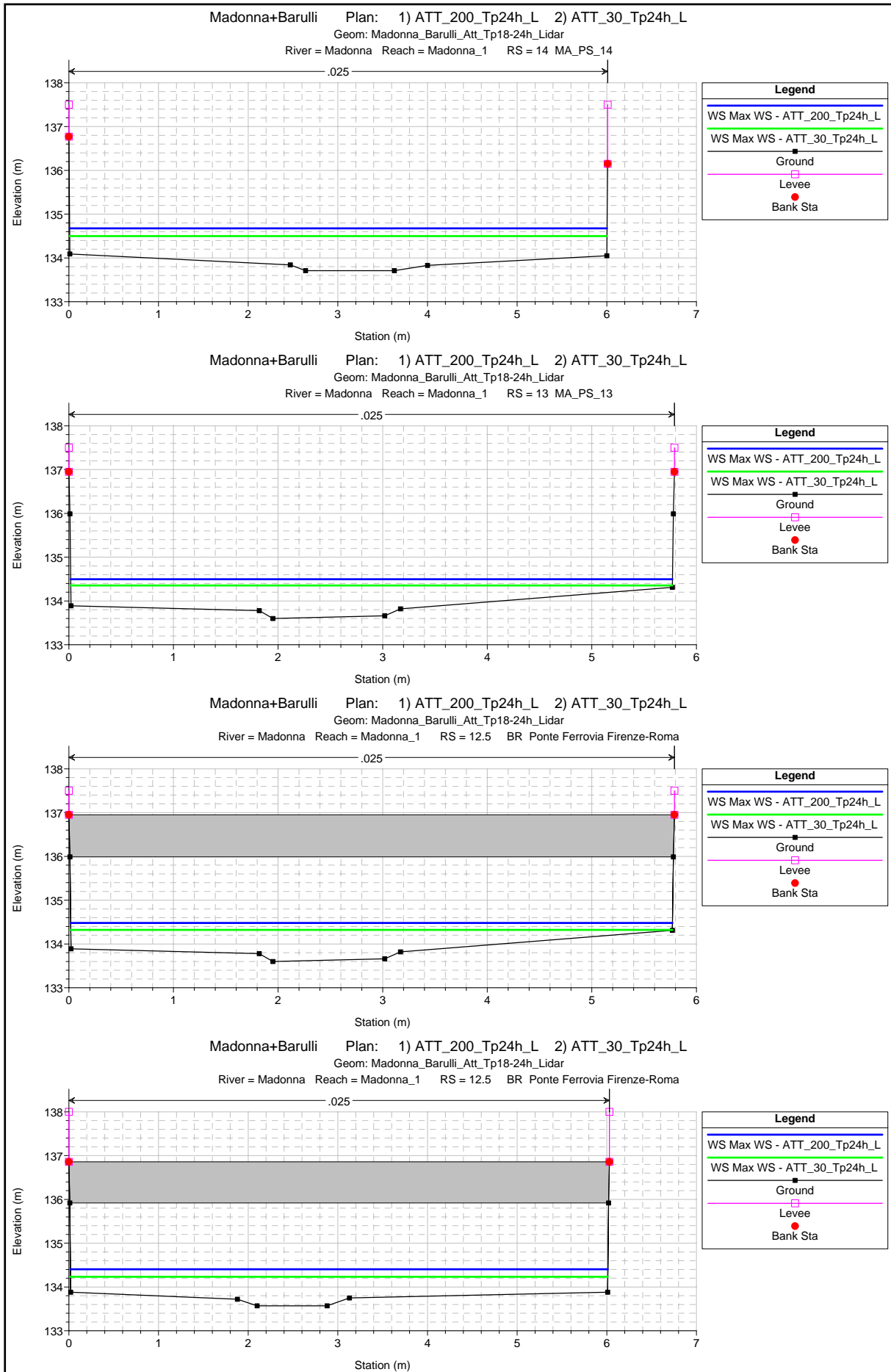


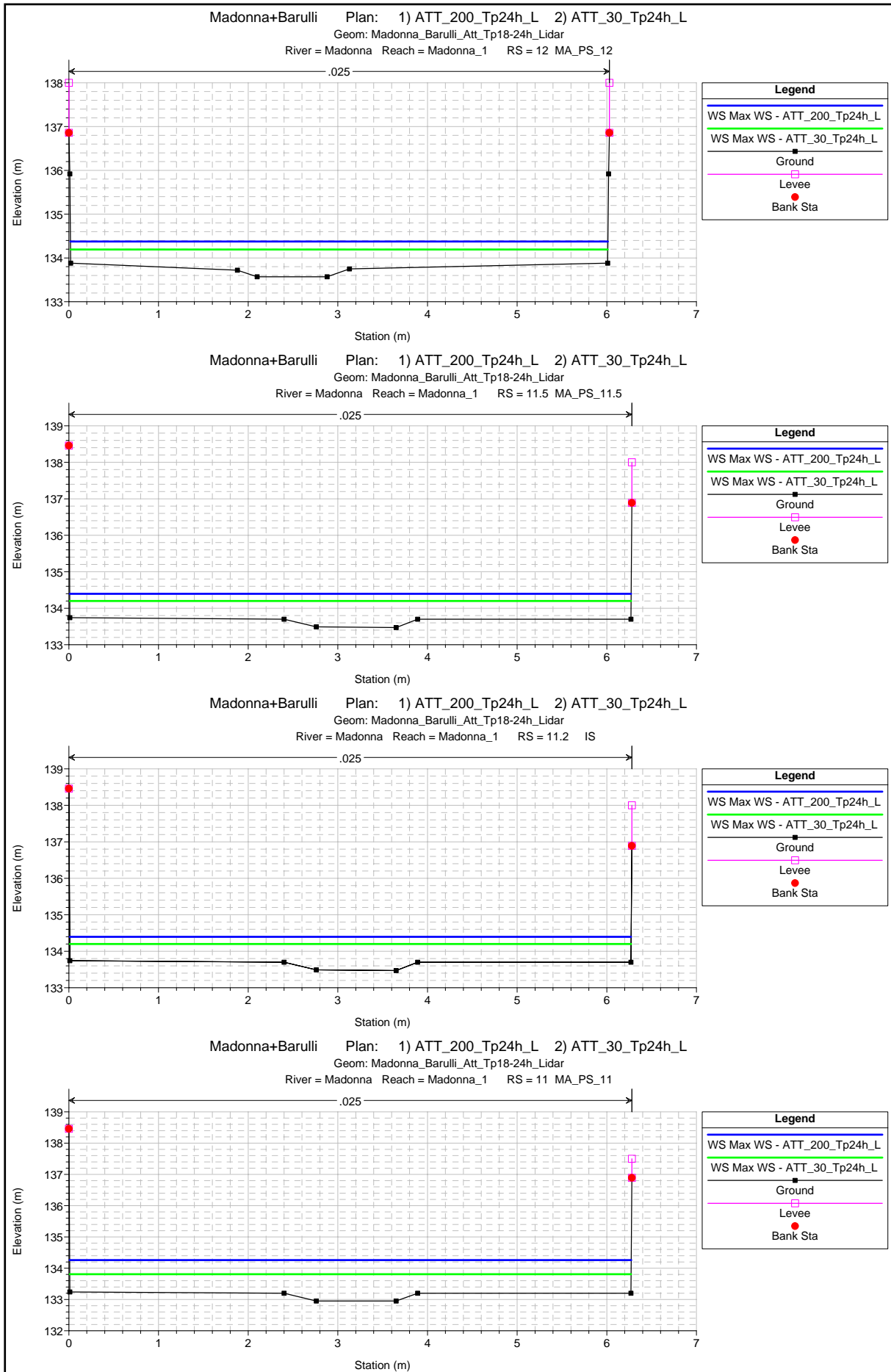


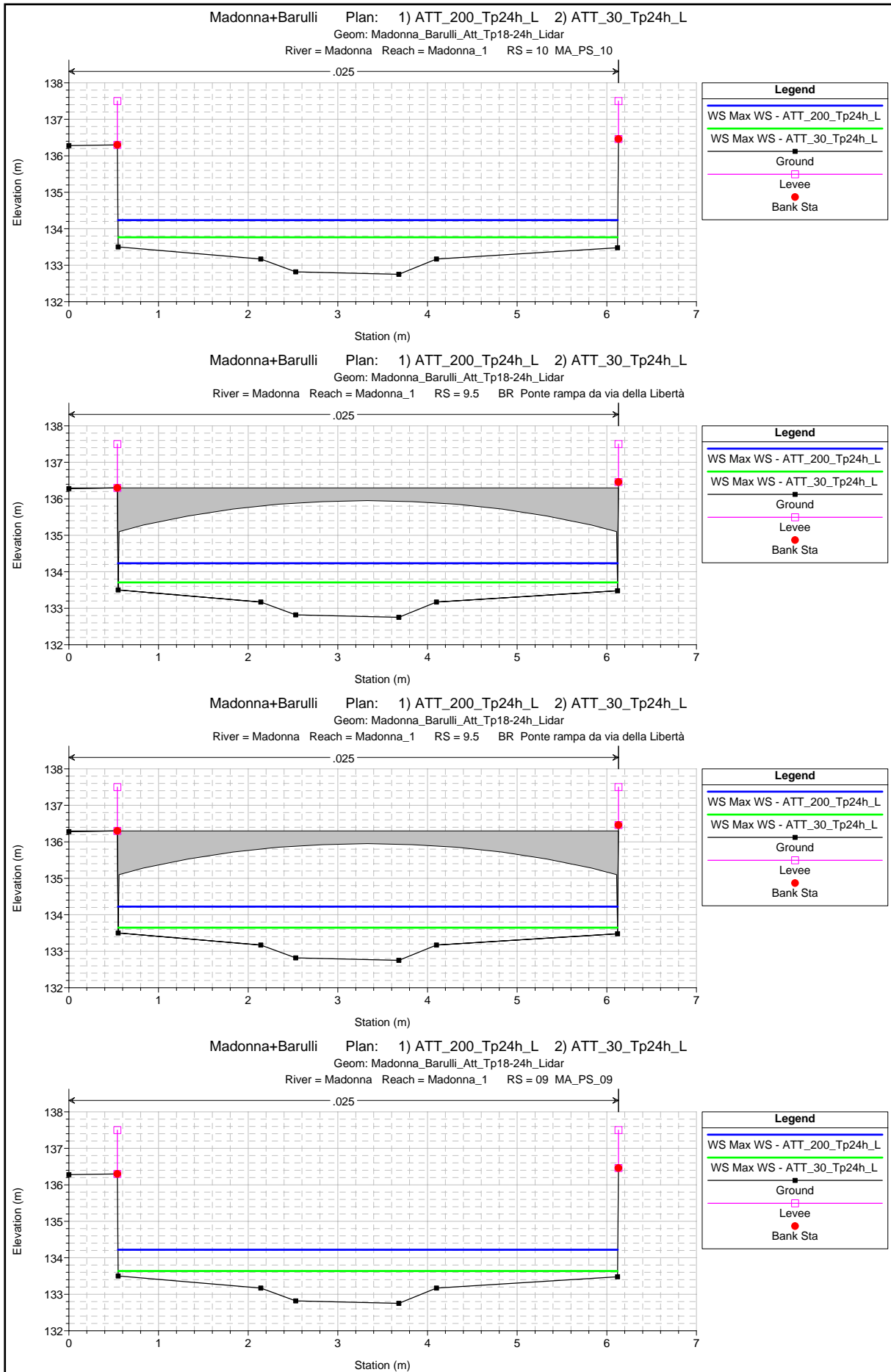


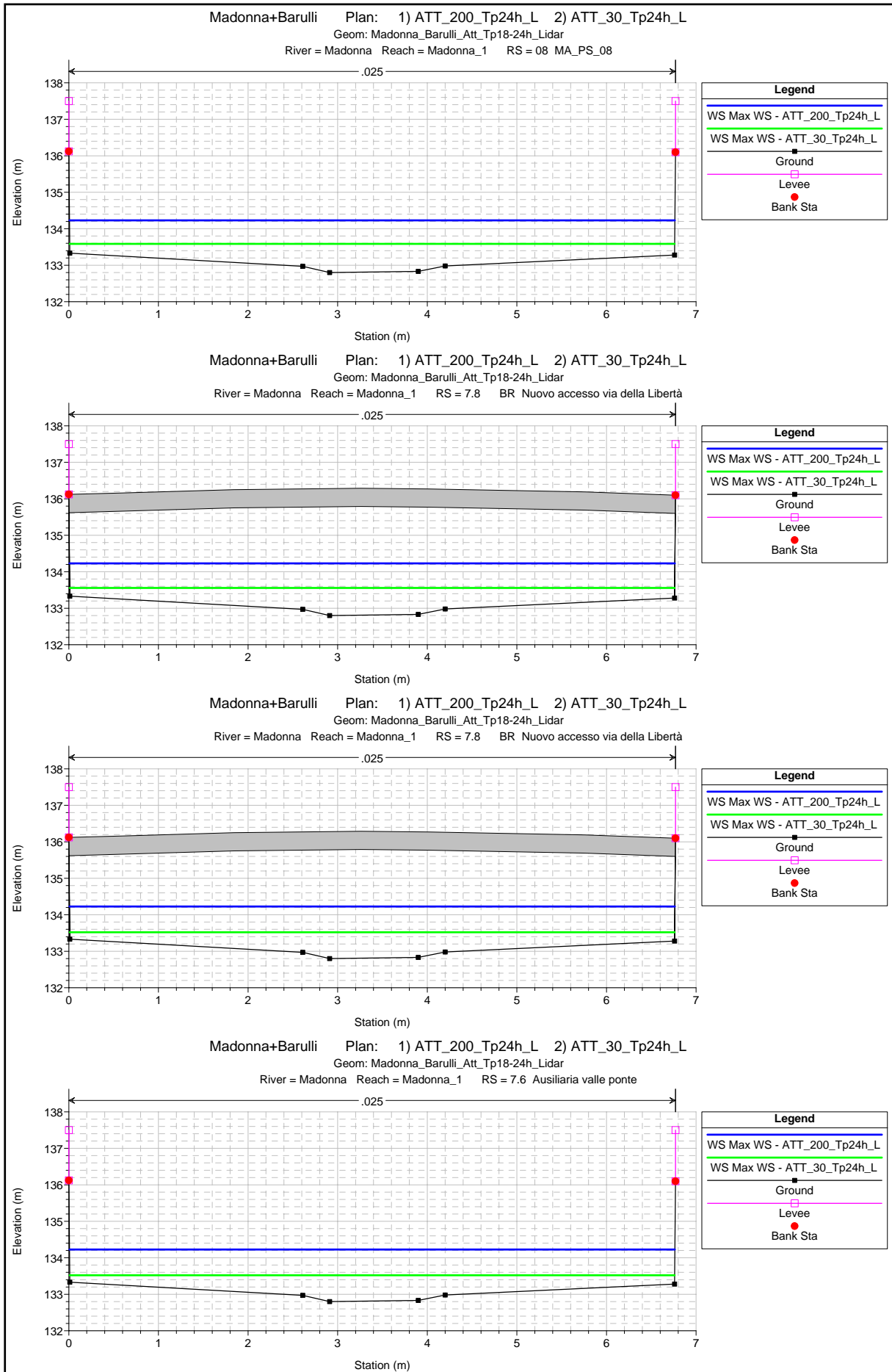


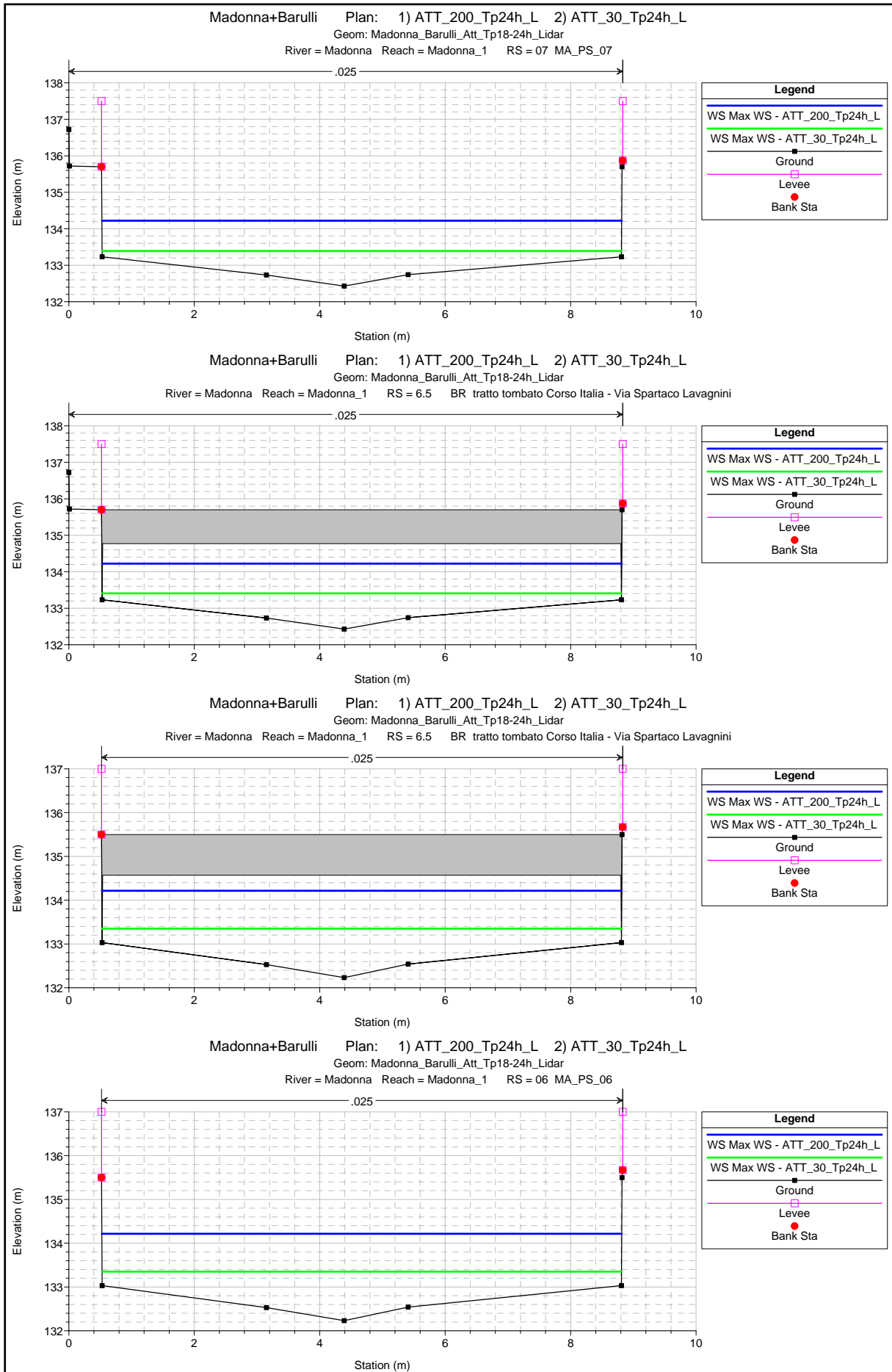




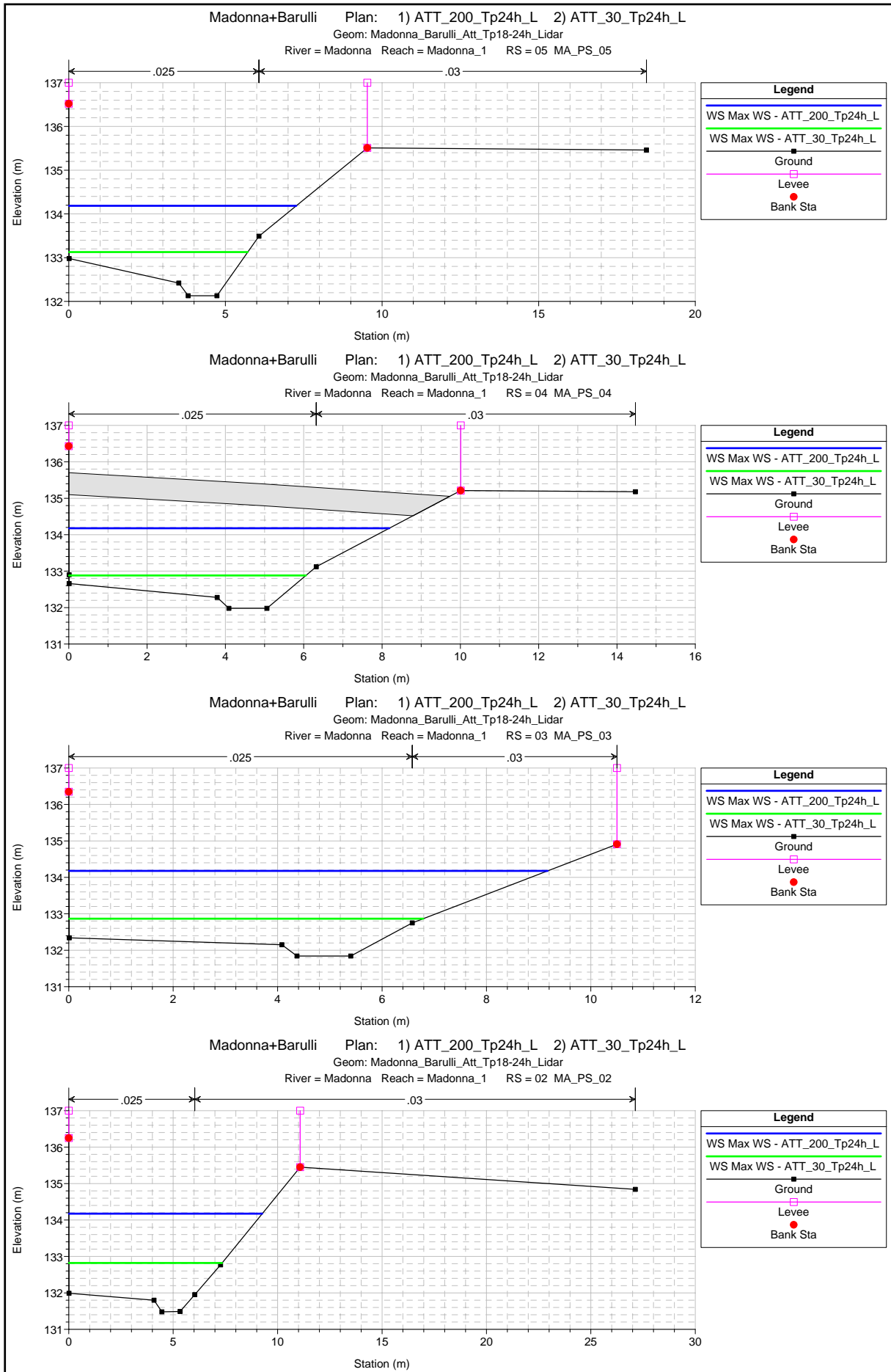


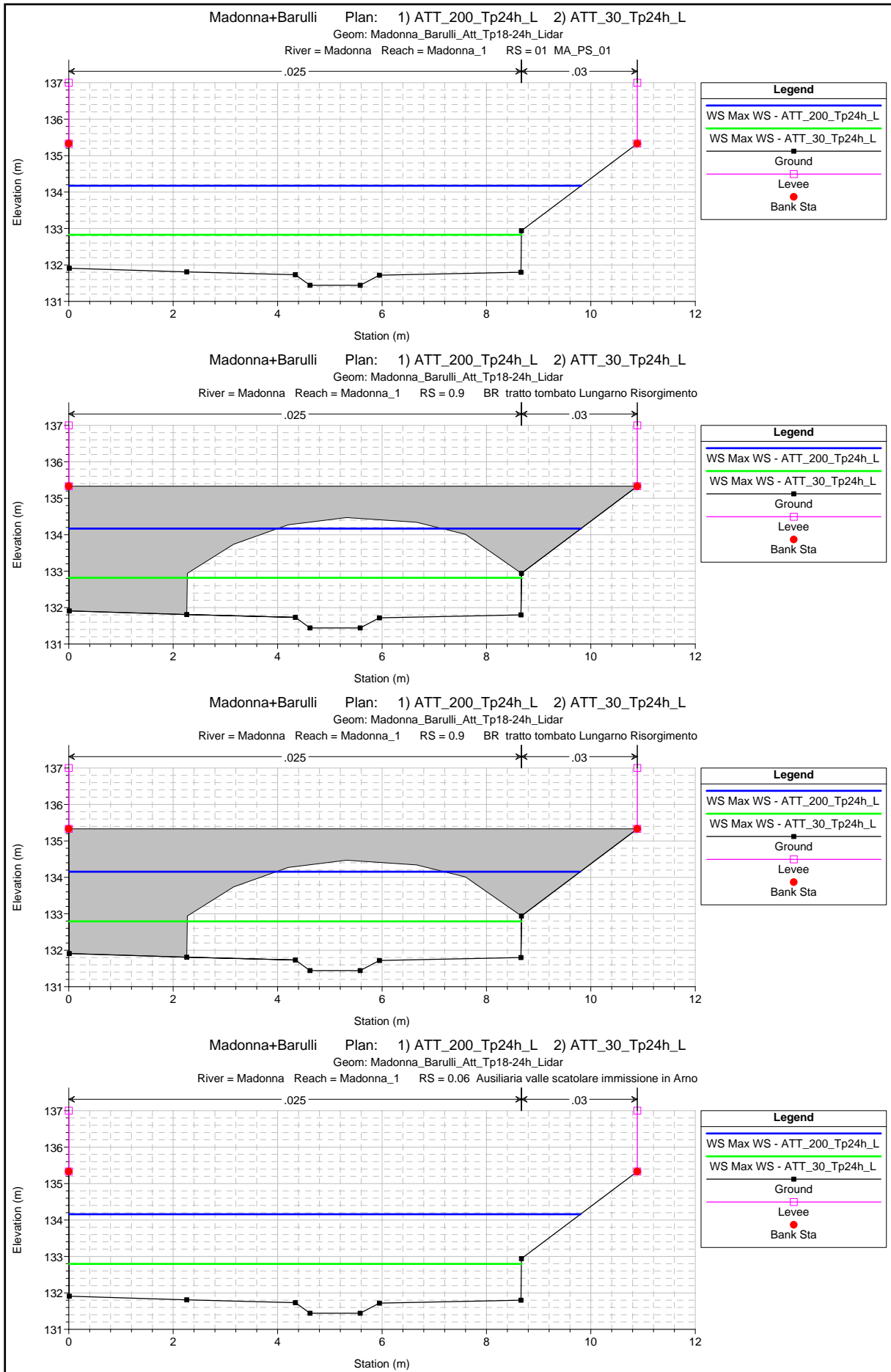








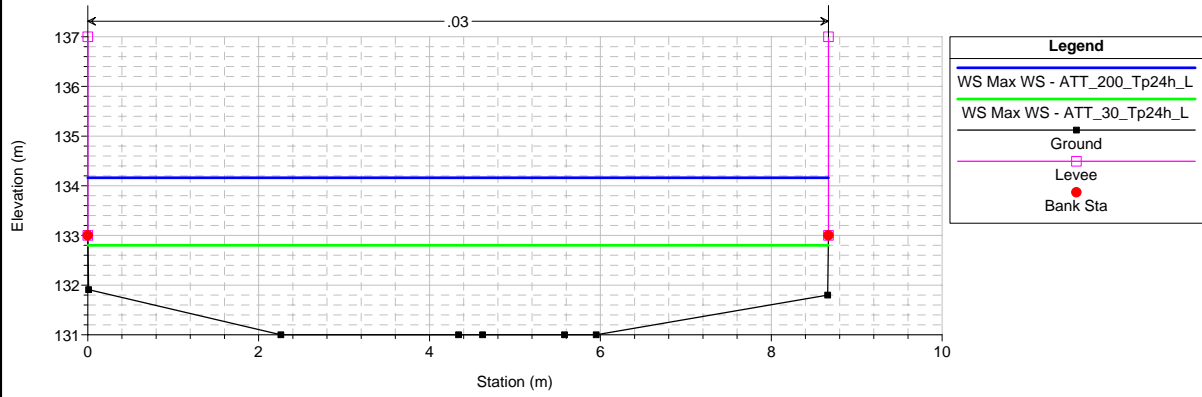




Madonna+Barulli Plan: 1) ATT\_200\_Tp24h\_L 2) ATT\_30\_Tp24h\_L

Geom: Madonna\_Barulli\_Att\_Tp18-24h\_Lidar

River = Madonna Reach = Madonna\_1 RS = 0.05 Ausiliaria immissione in Arno



HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	23	Max WS	ATT_200_Tp24h_L	6.83	135.00	135.89		136.08	0.005965	1.93	3.53	5.73	0.79
Madonna_1	23	Max WS	ATT_30_Tp24h_L	4.29	135.00	135.74		135.87	0.005903	1.63	2.63	5.73	0.77
Madonna_1	22.95	Max WS	ATT_200_Tp24h_L	6.83	135.00	135.89		136.08	0.006133	1.95	3.50	5.73	0.80
Madonna_1	22.95	Max WS	ATT_30_Tp24h_L	4.29	135.00	135.73		135.87	0.006131	1.65	2.60	5.73	0.78
Madonna_1	22.9			Lat Struct									
Madonna_1	22.8			Lat Struct									
Madonna_1	22	Max WS	ATT_200_Tp24h_L	6.83	134.64	135.59	135.32	135.70	0.002461	1.48	4.60	5.85	0.53
Madonna_1	22	Max WS	ATT_30_Tp24h_L	4.29	134.64	135.41	135.18	135.48	0.002221	1.22	3.52	5.84	0.50
Madonna_1	21.5			Bridge									
Madonna_1	21	Max WS	ATT_200_Tp24h_L	6.83	134.64	135.43		135.61	0.004857	1.85	3.69	5.84	0.74
Madonna_1	21	Max WS	ATT_30_Tp24h_L	4.29	134.64	135.27		135.40	0.004976	1.58	2.72	5.84	0.74
Madonna_1	20.9			Lat Struct									
Madonna_1	20.8			Lat Struct									
Madonna_1	20	Max WS	ATT_200_Tp24h_L	6.83	134.41	135.35	135.16	135.49	0.003278	1.60	4.26	6.08	0.61
Madonna_1	20	Max WS	ATT_30_Tp24h_L	4.29	134.41	135.18	135.02	135.27	0.003214	1.35	3.18	6.08	0.60
Madonna_1	19.5			Bridge									
Madonna_1	19	Max WS	ATT_200_Tp24h_L	6.83	134.41	135.30		135.45	0.004254	1.74	3.91	6.08	0.69
Madonna_1	19	Max WS	ATT_30_Tp24h_L	4.29	134.41	135.10		135.23	0.005142	1.57	2.74	6.08	0.75
Madonna_1	18.9			Lat Struct									
Madonna_1	18	Max WS	ATT_200_Tp24h_L	6.83	134.36	135.31	135.07	135.42	0.002816	1.50	4.55	6.21	0.56
Madonna_1	18	Max WS	ATT_30_Tp24h_L	4.29	134.36	135.11	134.94	135.20	0.002954	1.29	3.32	6.20	0.56
Madonna_1	17.5			Inl Struct									
Madonna_1	17.4	Max WS	ATT_200_Tp24h_L	6.83	134.08	134.79		134.91	0.003151	1.56	4.39	6.20	0.59
Madonna_1	17.4	Max WS	ATT_30_Tp24h_L	4.29	134.08	134.60		134.69	0.003179	1.32	3.25	6.20	0.58

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	17	Max WS	ATT_200_Tp24h_L	6.83	134.08	134.78	134.58	134.91	0.003219	1.57	4.36	6.20	0.60
Madonna_1	17	Max WS	ATT_30_Tp24h_L	4.29	134.08	134.60	134.45	134.69	0.003274	1.33	3.22	6.20	0.59
Madonna_1	16.5			Bridge									
Madonna_1	16	Max WS	ATT_200_Tp24h_L	6.83	134.08	134.75		134.89	0.003790	1.65	4.14	6.20	0.65
Madonna_1	16	Max WS	ATT_30_Tp24h_L	4.29	134.08	134.56		134.66	0.004297	1.45	2.95	6.20	0.67
Madonna_1	15.9			Lat Struct									
Madonna_1	15	Max WS	ATT_200_Tp24h_L	6.83	133.71	134.71	134.41	134.81	0.002137	1.40	4.87	5.99	0.50
Madonna_1	15	Max WS	ATT_30_Tp24h_L	4.29	133.71	134.52	134.27	134.59	0.001872	1.14	3.75	5.99	0.46
Madonna_1	14.5			Bridge									
Madonna_1	14	Max WS	ATT_200_Tp24h_L	6.83	133.71	134.68		134.79	0.002424	1.46	4.67	6.00	0.53
Madonna_1	14	Max WS	ATT_30_Tp24h_L	4.29	133.71	134.50		134.57	0.002111	1.19	3.61	5.99	0.49
Madonna_1	13	Max WS	ATT_200_Tp24h_L	6.83	133.60	134.50	134.42	134.69	0.005992	1.98	3.45	5.75	0.82
Madonna_1	13	Max WS	ATT_30_Tp24h_L	4.29	133.60	134.35	134.28	134.49	0.005490	1.63	2.64	5.75	0.77
Madonna_1	12.5			Bridge									
Madonna_1	12	Max WS	ATT_200_Tp24h_L	6.83	133.57	134.37		134.55	0.005312	1.87	3.65	5.99	0.77
Madonna_1	12	Max WS	ATT_30_Tp24h_L	4.29	133.57	134.19		134.34	0.006373	1.68	2.56	5.99	0.82
Madonna_1	11.5	Max WS	ATT_200_Tp24h_L	6.83	133.47	134.40	134.16	134.51	0.002825	1.49	4.57	6.26	0.56
Madonna_1	11.5	Max WS	ATT_30_Tp24h_L	4.29	133.47	134.20	134.03	134.28	0.002957	1.28	3.34	6.26	0.56
Madonna_1	11.2			Inl Struct									
Madonna_1	11	Max WS	ATT_200_Tp24h_L	6.83	132.95	134.26		134.31	0.000820	0.99	6.88	6.26	0.30
Madonna_1	11	Max WS	ATT_30_Tp24h_L	4.29	132.95	133.81		133.87	0.001622	1.06	4.06	6.26	0.42
Madonna_1	10	Max WS	ATT_200_Tp24h_L	6.83	132.75	134.24	133.70	134.30	0.001101	1.15	5.96	5.58	0.35
Madonna_1	10	Max WS	ATT_30_Tp24h_L	4.29	132.75	133.77	133.56	133.85	0.002476	1.28	3.35	5.57	0.53
Madonna_1	9.5			Bridge									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	09	Max WS	ATT_200_Tp24h_L	6.83	132.75	134.22		134.29	0.001145	1.16	5.88	5.58	0.36
Madonna_1	09	Max WS	ATT_30_Tp24h_L	4.29	132.75	133.64		133.77	0.005306	1.64	2.62	5.57	0.76
Madonna_1	08	Max WS	ATT_200_Tp24h_L	6.83	132.80	134.23	133.54	134.27	0.000550	0.87	7.82	6.76	0.26
Madonna_1	08	Max WS	ATT_30_Tp24h_L	4.29	132.80	133.59	133.42	133.66	0.002629	1.24	3.47	6.75	0.55
Madonna_1	7.8			Bridge									
Madonna_1	7.6	Max WS	ATT_200_Tp24h_L	6.83	132.80	134.23		134.26	0.000556	0.88	7.80	6.76	0.26
Madonna_1	7.6	Max WS	ATT_30_Tp24h_L	4.29	132.80	133.52		133.62	0.004051	1.42	3.03	6.75	0.67
Madonna_1	07	Max WS	ATT_200_Tp24h_L	6.82	132.43	134.22	133.28	134.24	0.000213	0.61	11.16	8.29	0.17
Madonna_1	07	Max WS	ATT_30_Tp24h_L	4.29	132.43	133.39	133.16	133.44	0.001661	1.01	4.26	8.28	0.45
Madonna_1	6.5			Bridge									
Madonna_1	06	Max WS	ATT_200_Tp24h_L	6.83	132.23	134.22		134.23	0.000143	0.53	12.77	8.29	0.14
Madonna_1	06	Max WS	ATT_30_Tp24h_L	4.29	132.23	133.35		133.38	0.000700	0.77	5.60	8.28	0.30
Madonna_1	05	Max WS	ATT_200_Tp24h_L	6.81	132.13	134.19		134.21	0.000290	0.69	9.93	7.26	0.19
Madonna_1	05	Max WS	ATT_30_Tp24h_L	4.29	132.13	133.13		133.22	0.002973	1.36	3.16	5.70	0.58
Madonna_1	04	Max WS	ATT_200_Tp24h_L	6.81	131.98	134.18	132.87	134.19	0.000159	0.56	12.24	8.18	0.15
Madonna_1	04	Max WS	ATT_30_Tp24h_L	4.29	131.98	132.88	132.73	132.98	0.003364	1.38	3.11	6.05	0.62
Madonna_1	03	Max WS	ATT_200_Tp24h_L	6.81	131.84	134.18		134.19	0.000104	0.45	14.99	9.17	0.11
Madonna_1	03	Max WS	ATT_30_Tp24h_L	4.29	131.84	132.87		132.91	0.001179	0.95	4.52	6.78	0.37
Madonna_1	02	Max WS	ATT_200_Tp24h_L	6.80	131.48	134.17		134.18	0.000062	0.38	17.95	9.26	0.09
Madonna_1	02	Max WS	ATT_30_Tp24h_L	4.28	131.48	132.82		132.84	0.000384	0.64	6.72	7.33	0.21
Madonna_1	01	Max WS	ATT_200_Tp24h_L	6.79	131.44	134.18	132.14	134.18	0.000035	0.31	21.80	9.81	0.07
Madonna_1	01	Max WS	ATT_30_Tp24h_L	4.28	131.44	132.83	132.03	132.84	0.000155	0.45	9.42	8.66	0.14
Madonna_1	0.9			Bridge									
Madonna_1	0.06	Max WS	ATT_200_Tp24h_L	6.79	131.44	134.16		134.16	0.000036	0.31	21.65	9.80	0.07
Madonna_1	0.06	Max WS	ATT_30_Tp24h_L	4.28	131.44	132.80		132.81	0.000171	0.47	9.14	8.66	0.15

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Madonna_1	0.05	Max WS	ATT_200_Tp24h_L	6.79	131.00	134.16	131.60	134.16	0.000028	0.27	25.26	8.67	0.05
Madonna_1	0.05	Max WS	ATT_30_Tp24h_L	4.28	131.00	132.80	131.45	132.81	0.000068	0.32	13.47	8.67	0.08

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

**BORRO dei FRATI, BORRO della QUERCIA, BORRO della RIGIAIA e  
BORRO del QUERCIO**

- Tempo di pioggia critico – Scenario A1
- Tempo di pioggia affluente – Scenario A2
- Tempo di pioggia 18 h – Scenario B
- Tempo di pioggia 24 h – Scenario C



# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

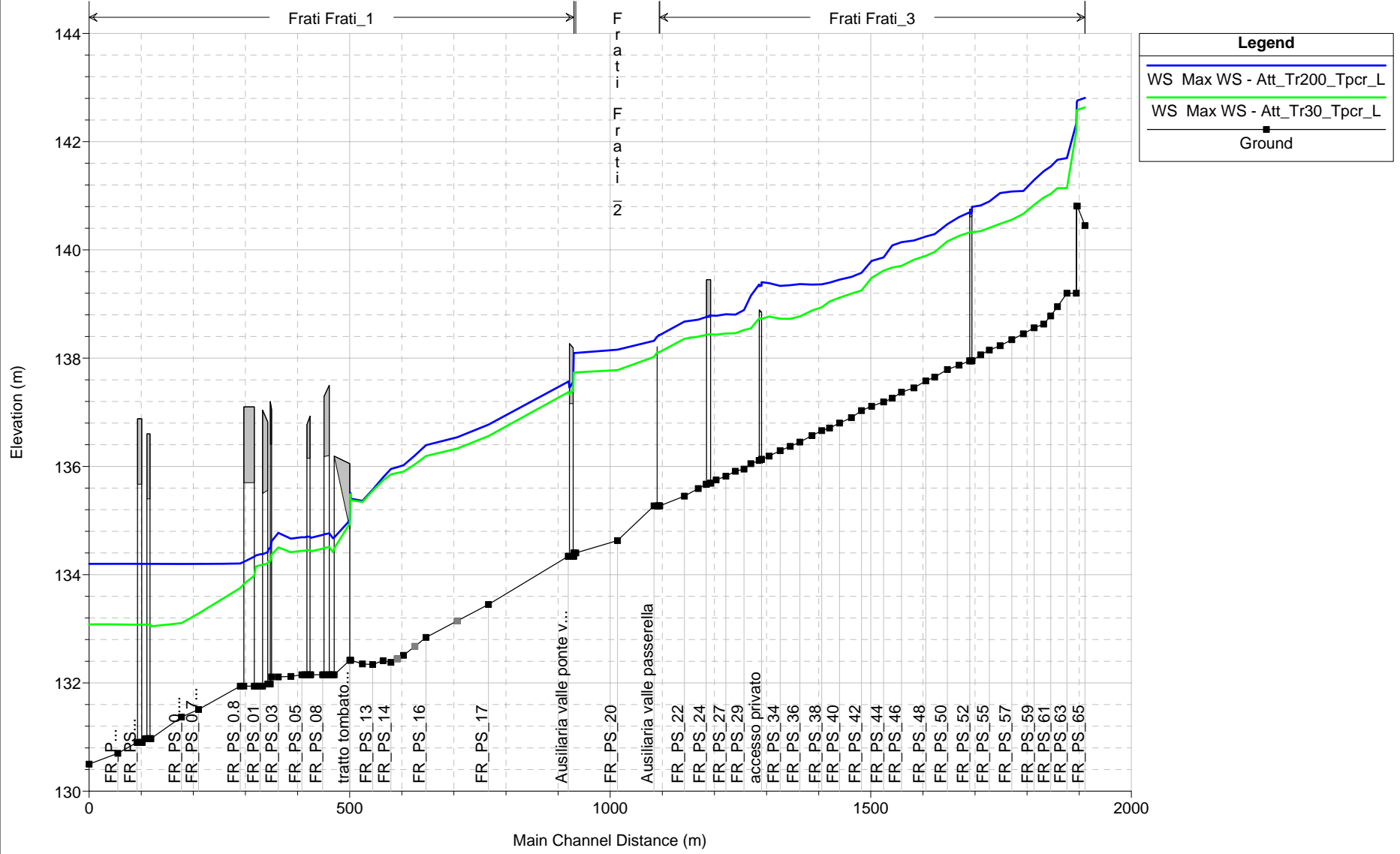
### **BORRO dei FRATI**

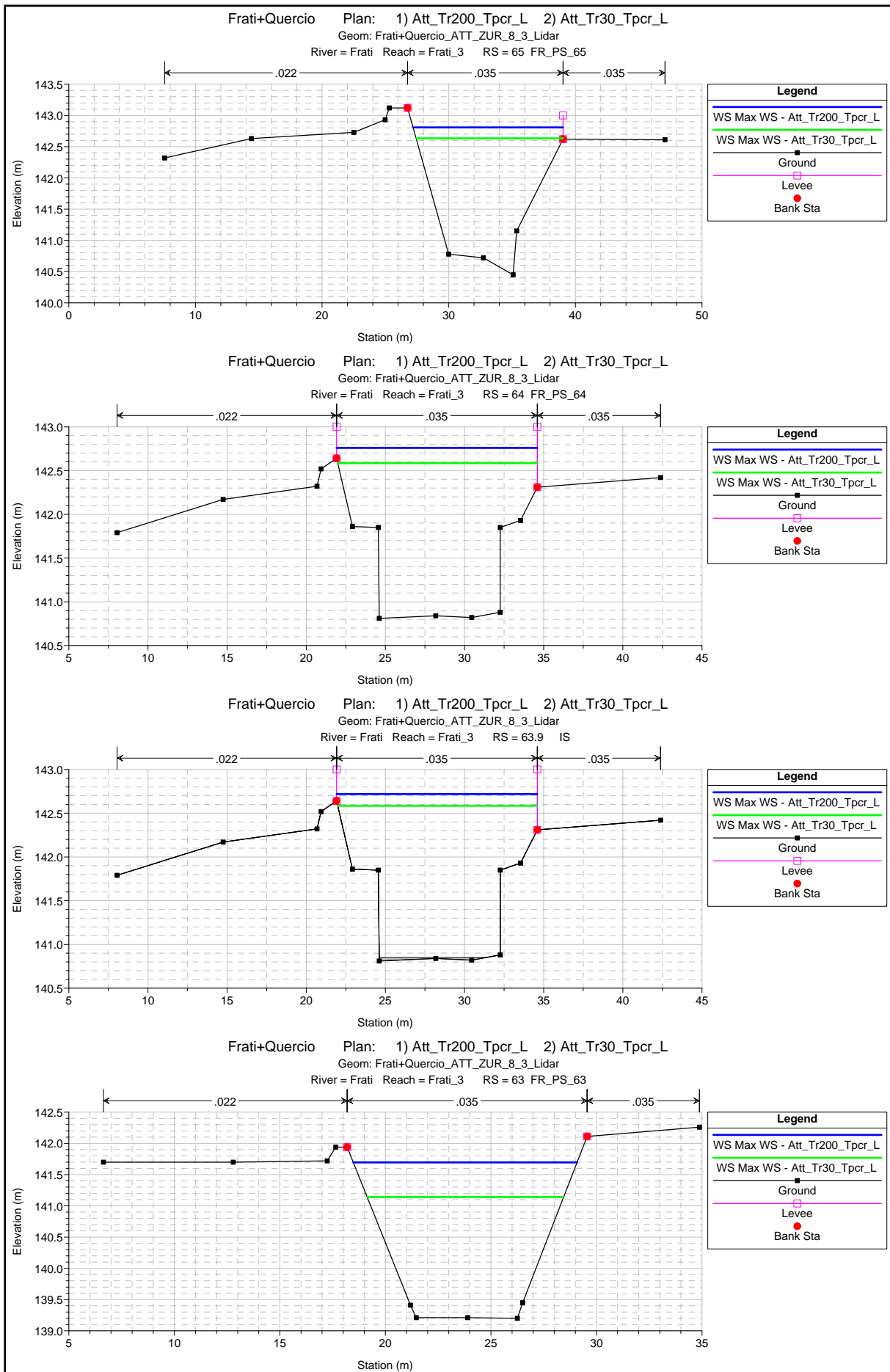
#### **Scenario A1 - Tr 200 e 30 anni**

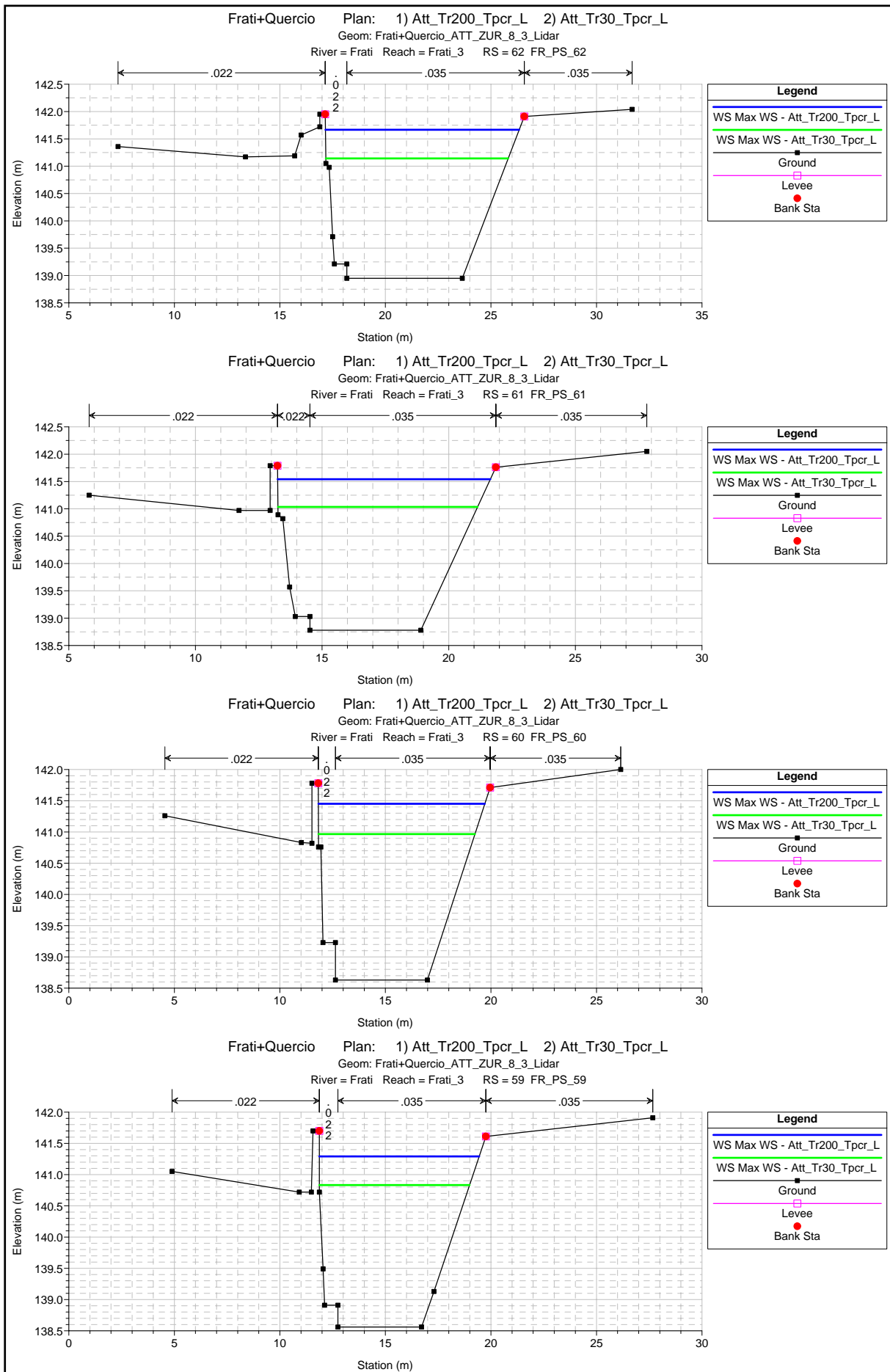
- Profili
- Sezioni di verifica
- Tabelle di output

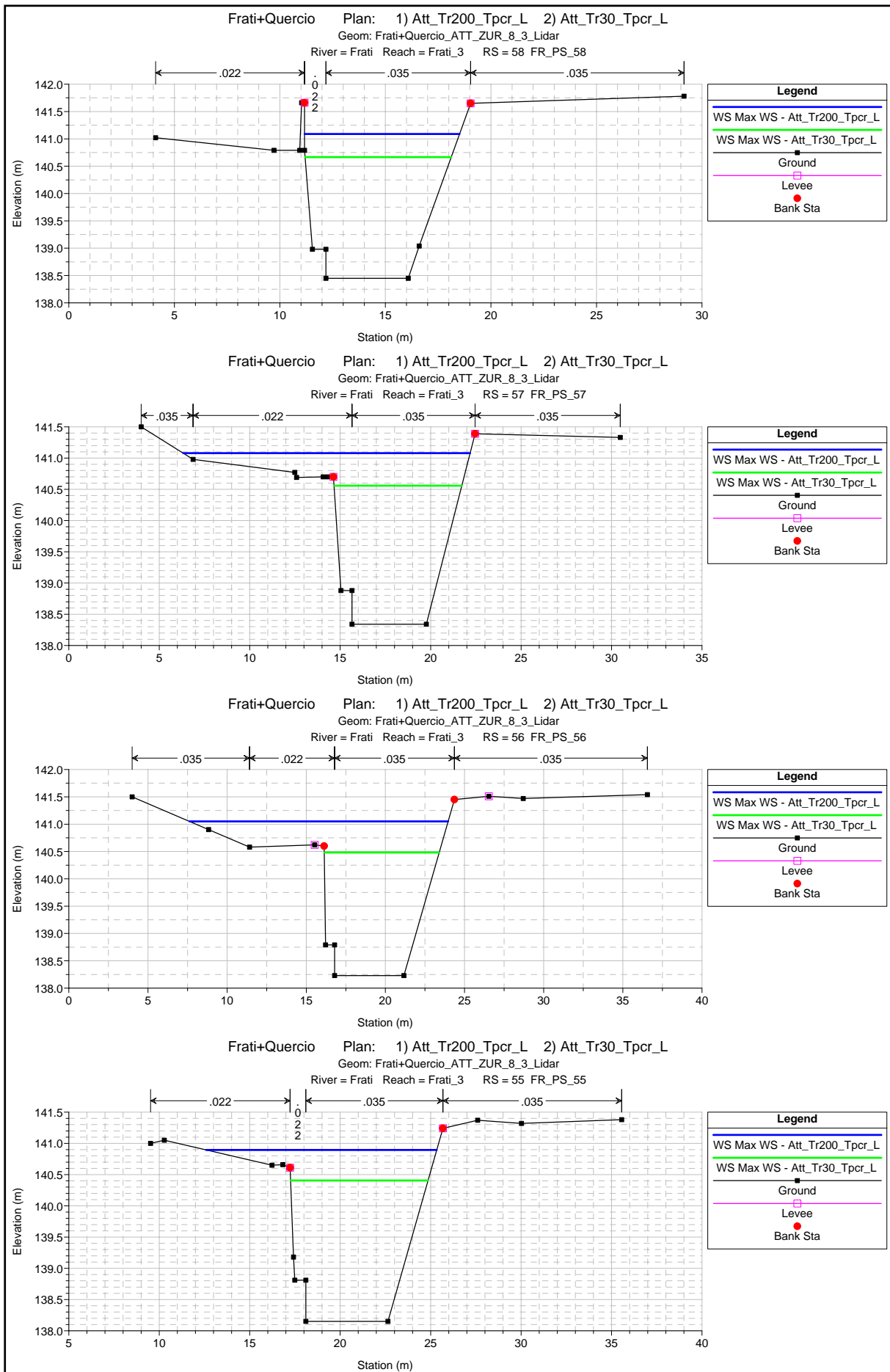
Frati+Quercio Plan: 1) Att\_Tr200\_Tpcr\_L 2) Att\_Tr30\_Tpcr\_L

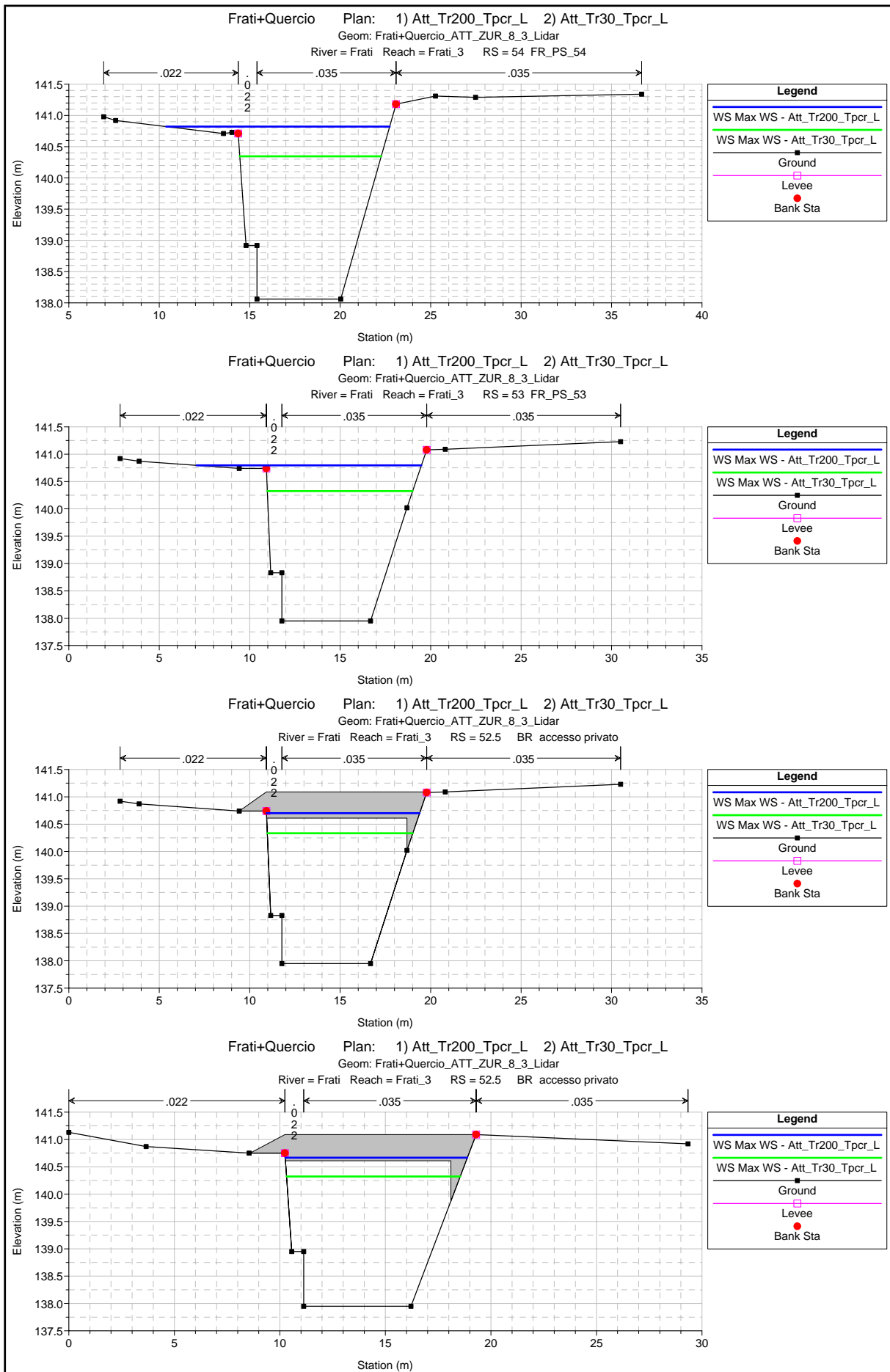
Geom: Frati+Quercio\_ATT\_ZUR\_8\_3\_Lidar

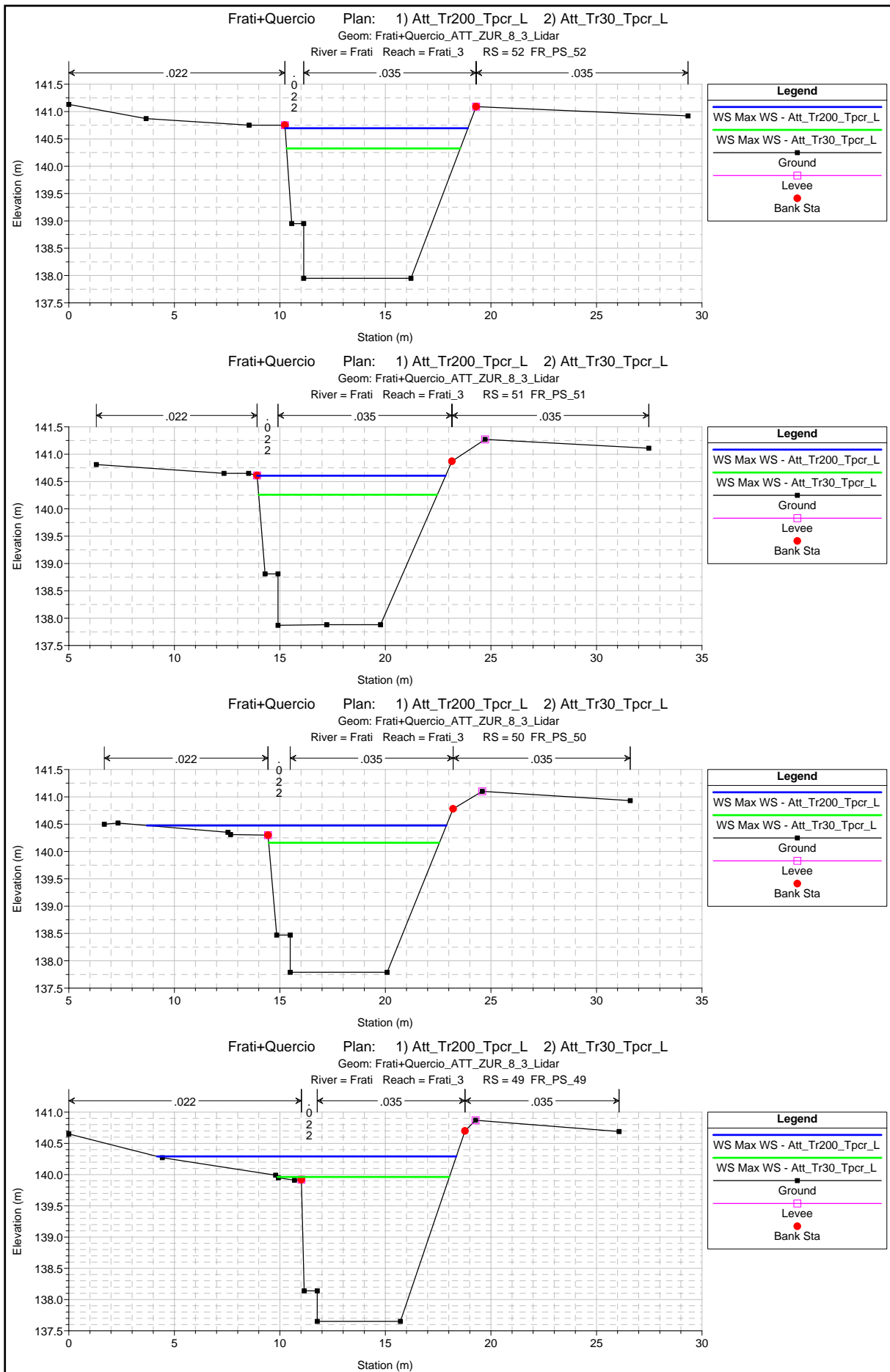


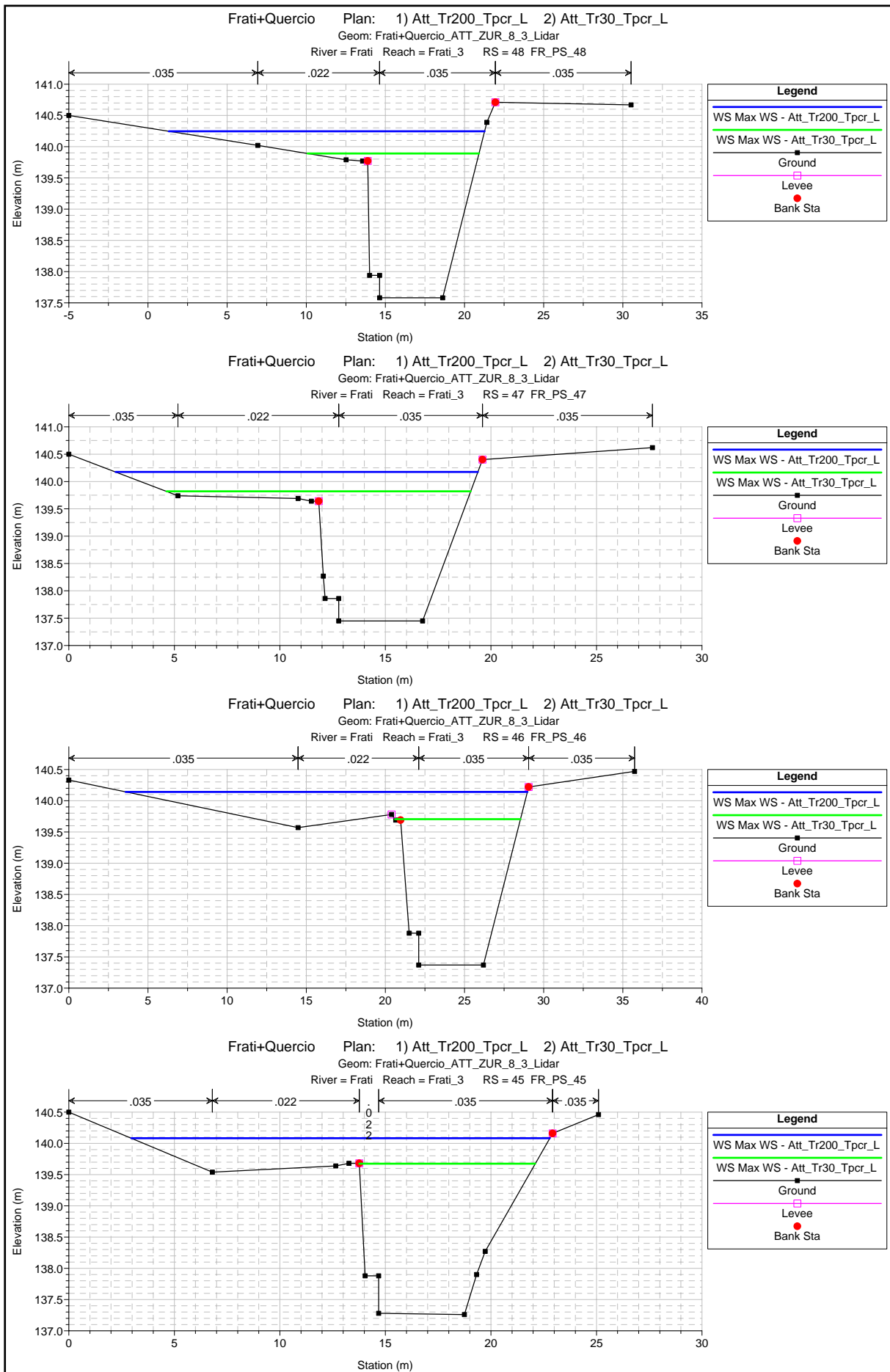




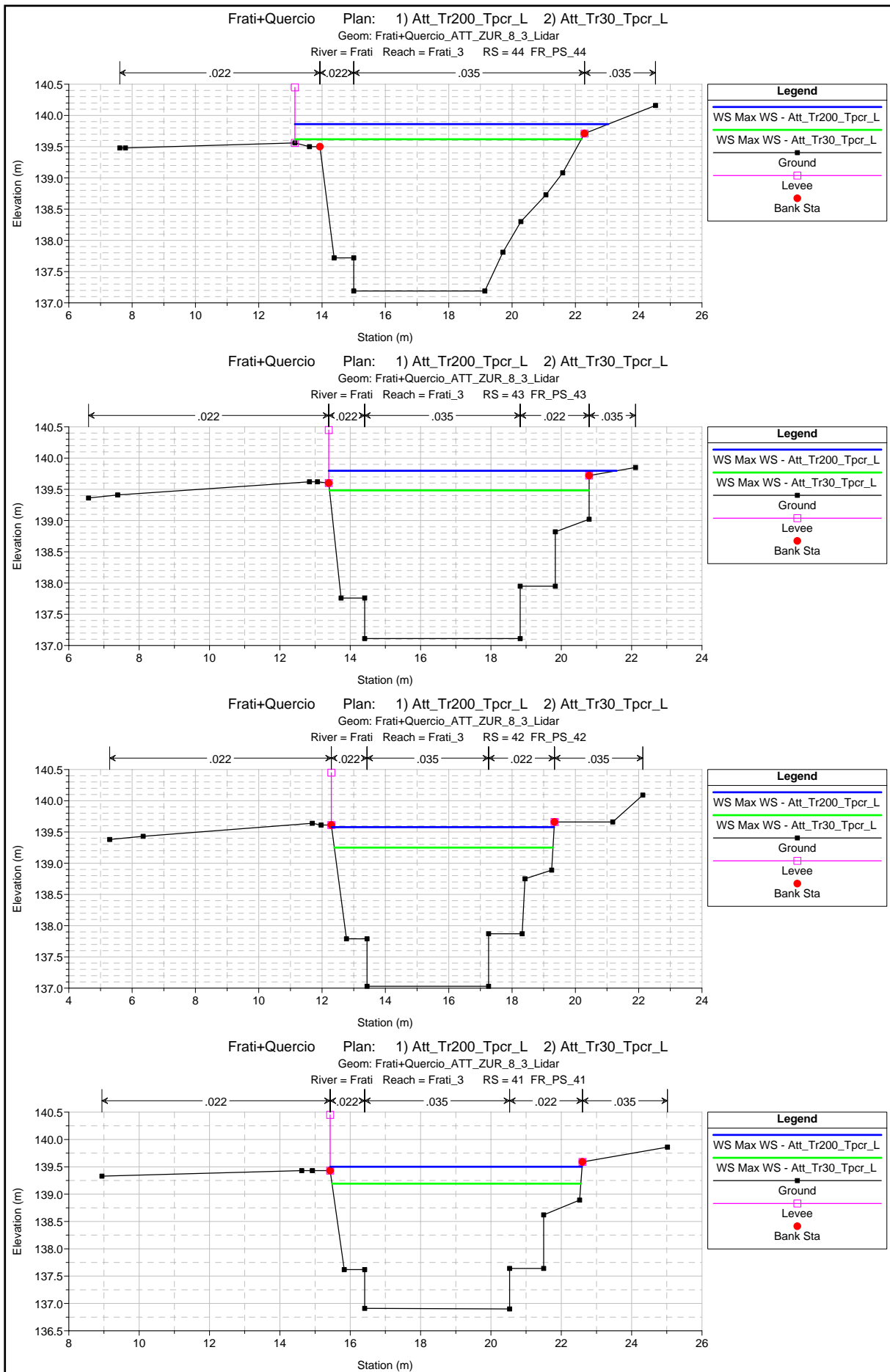


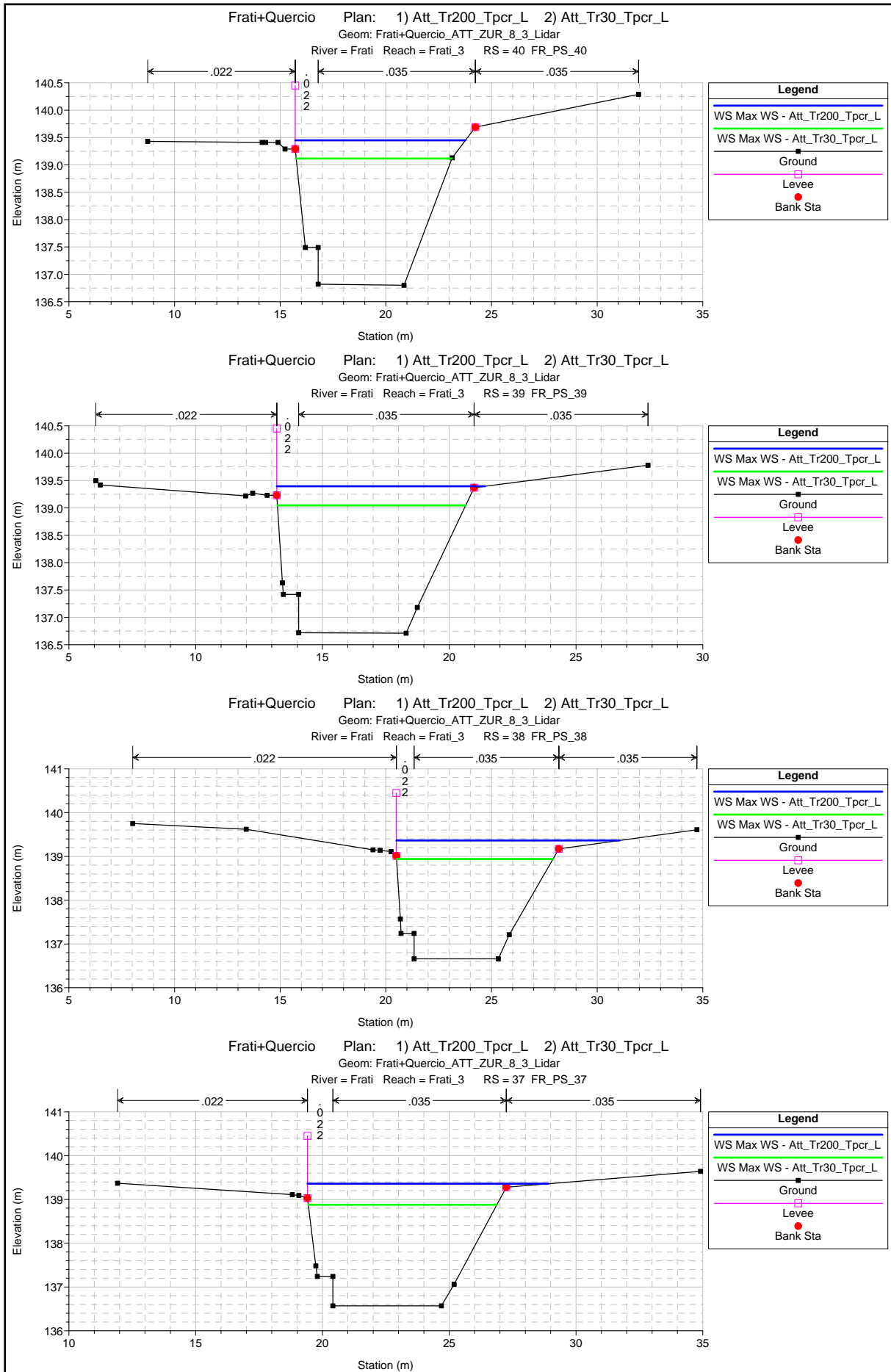


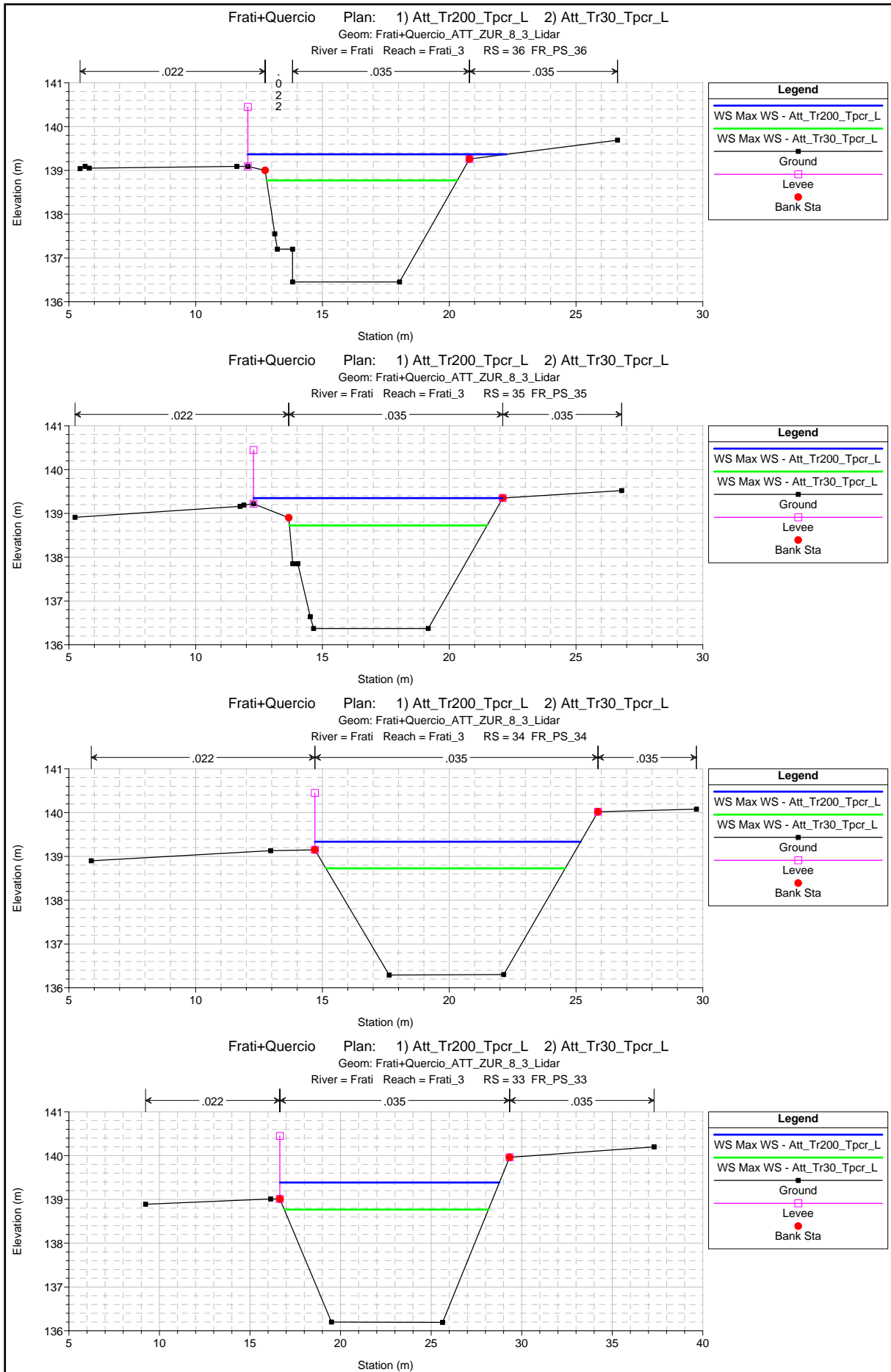


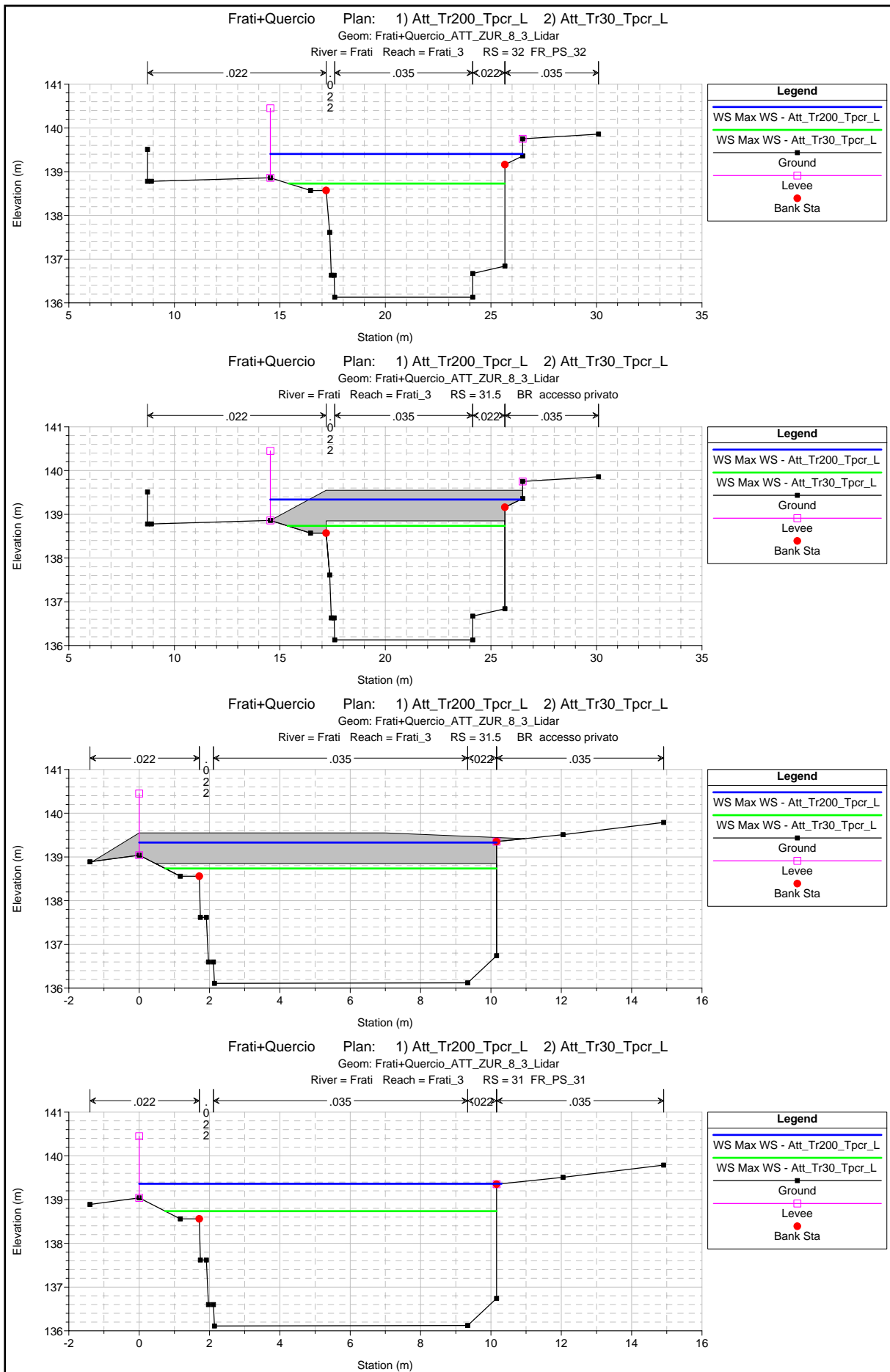


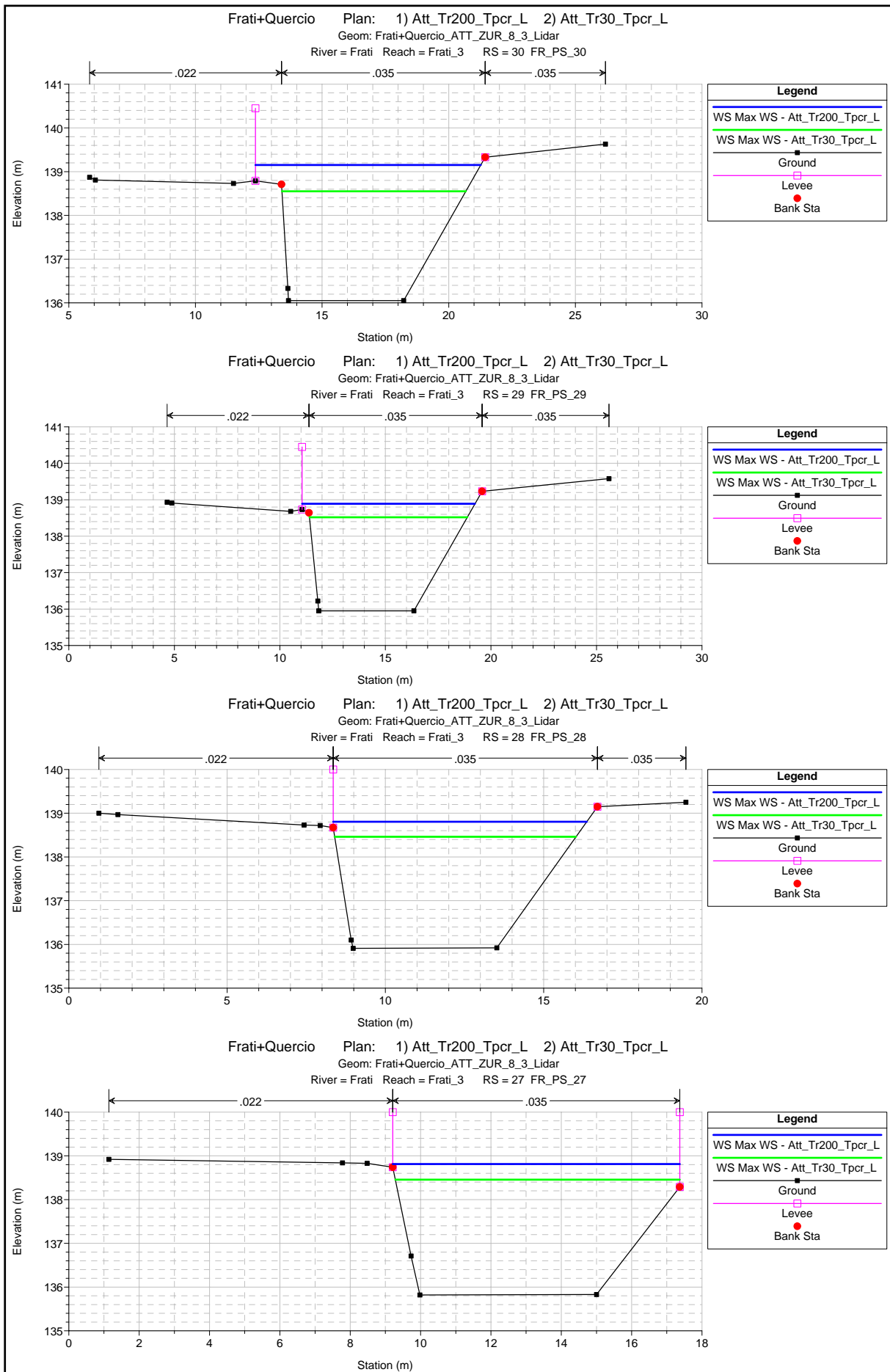


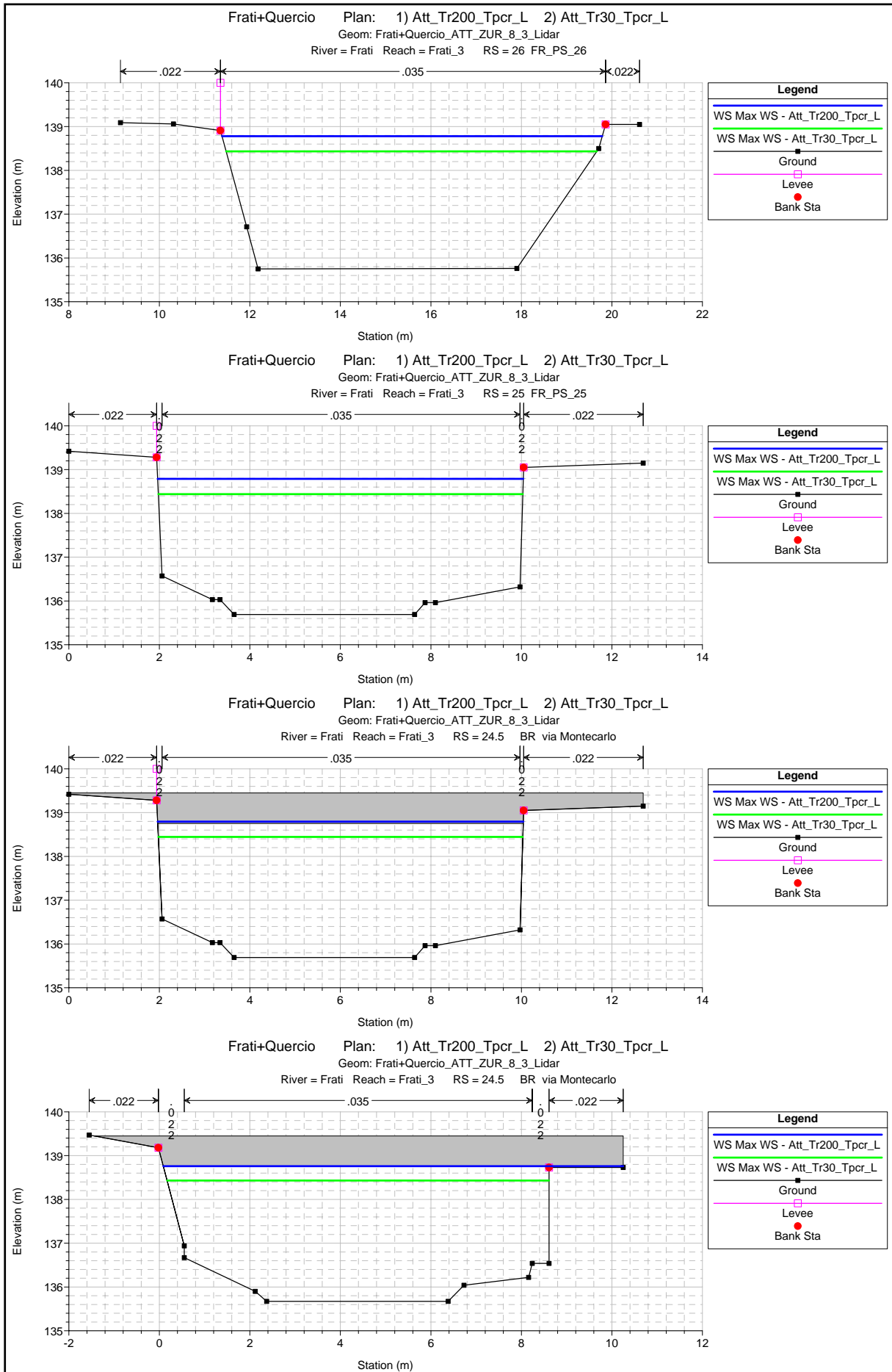


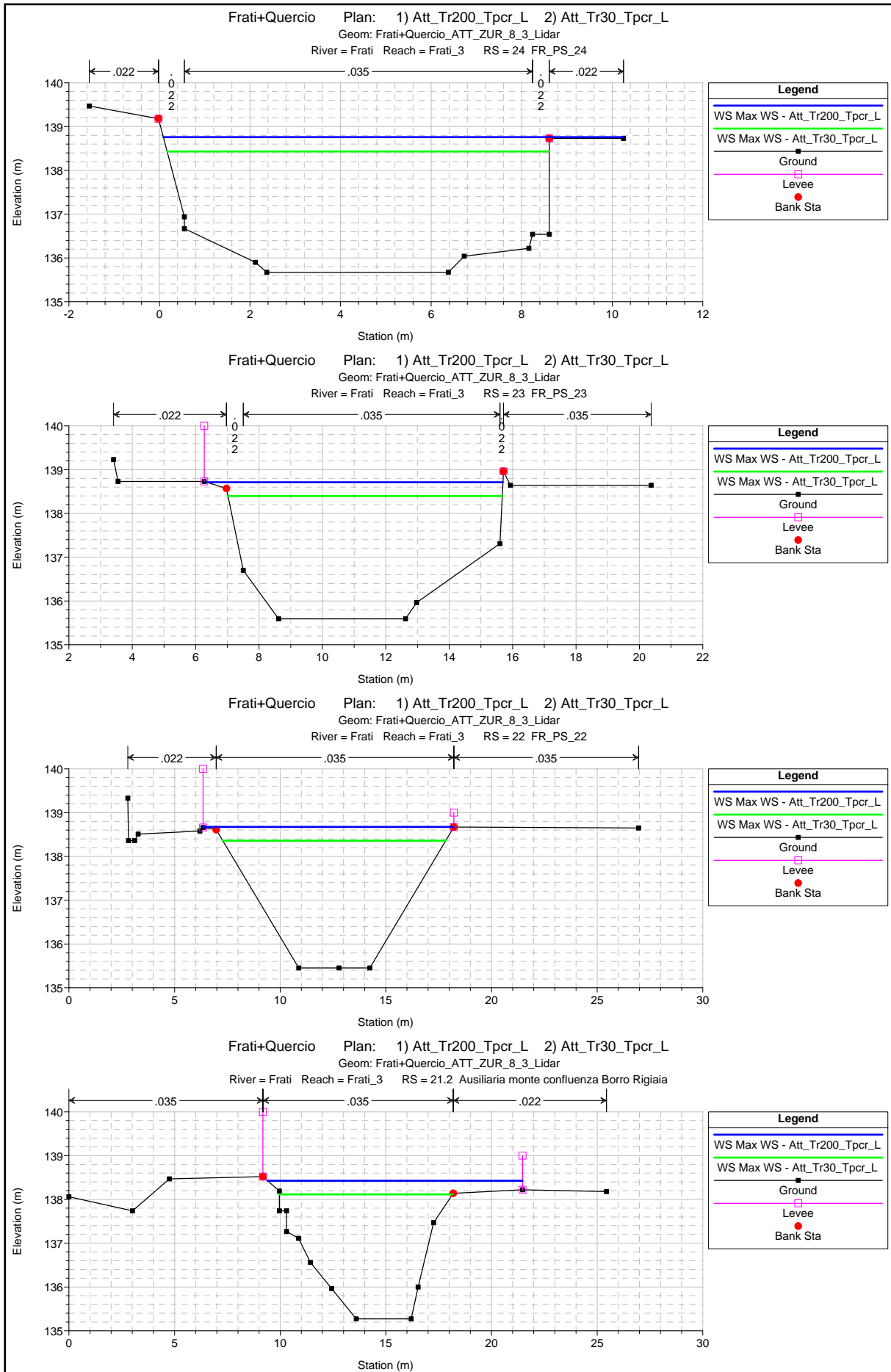


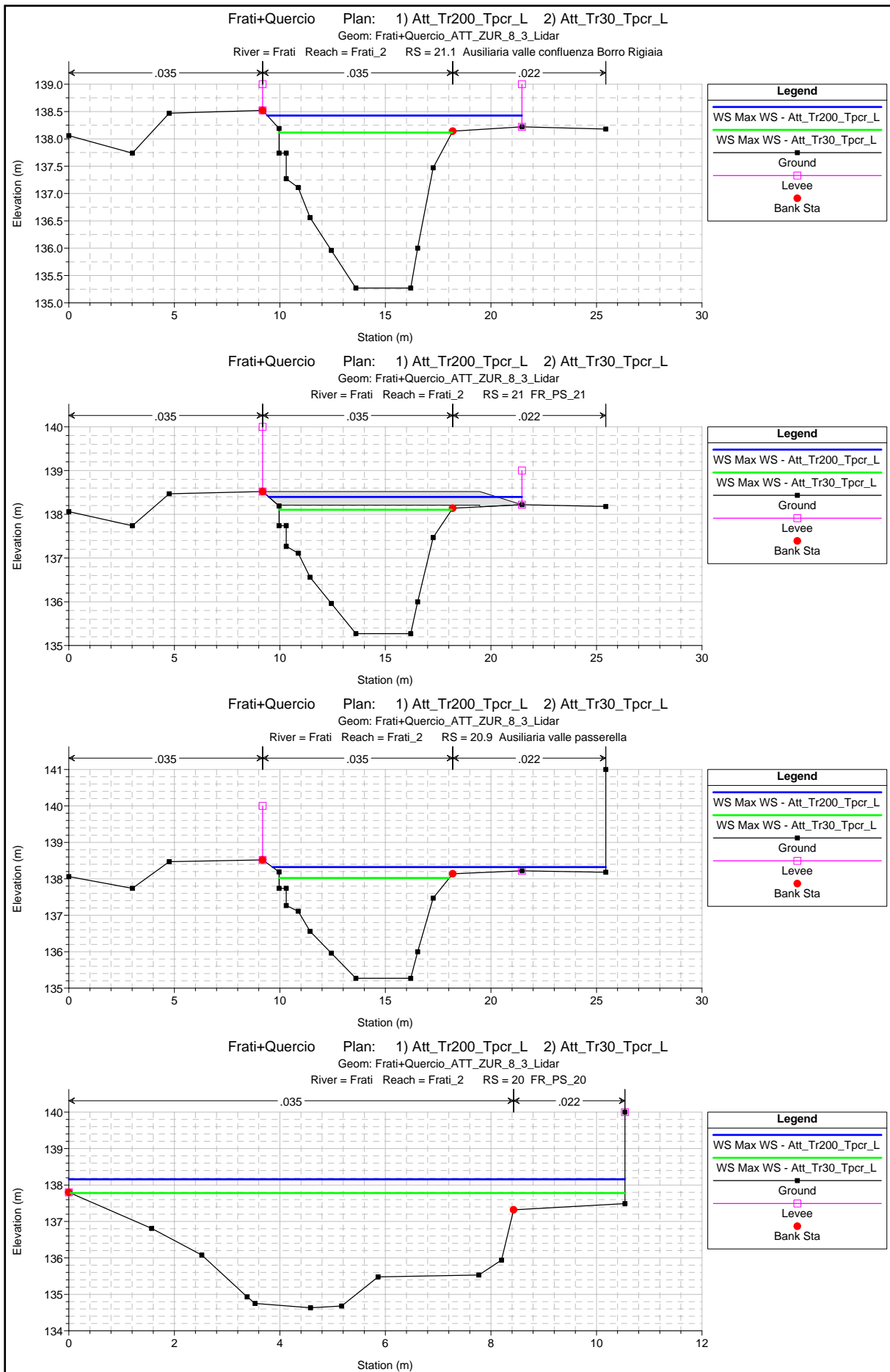




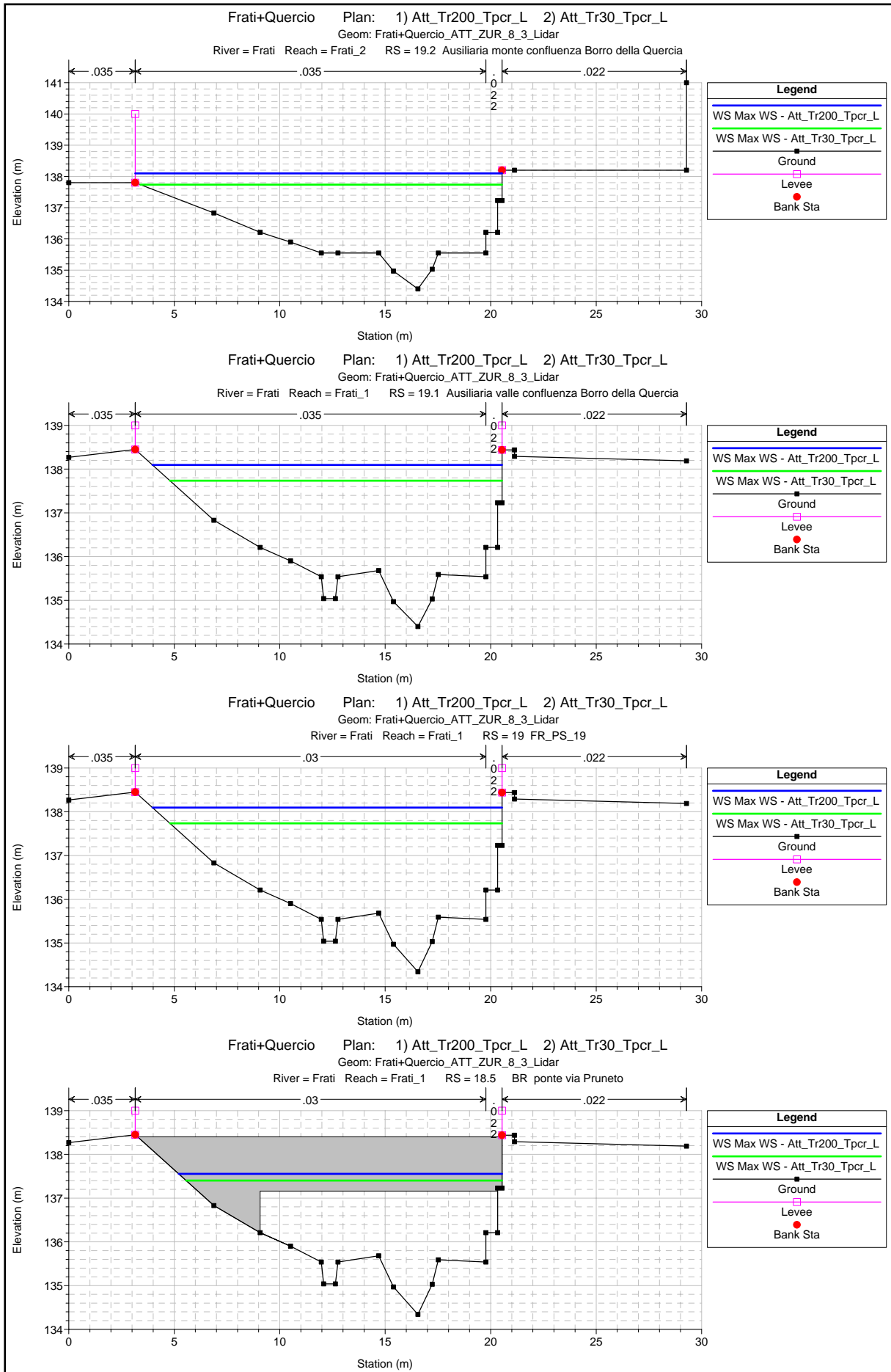


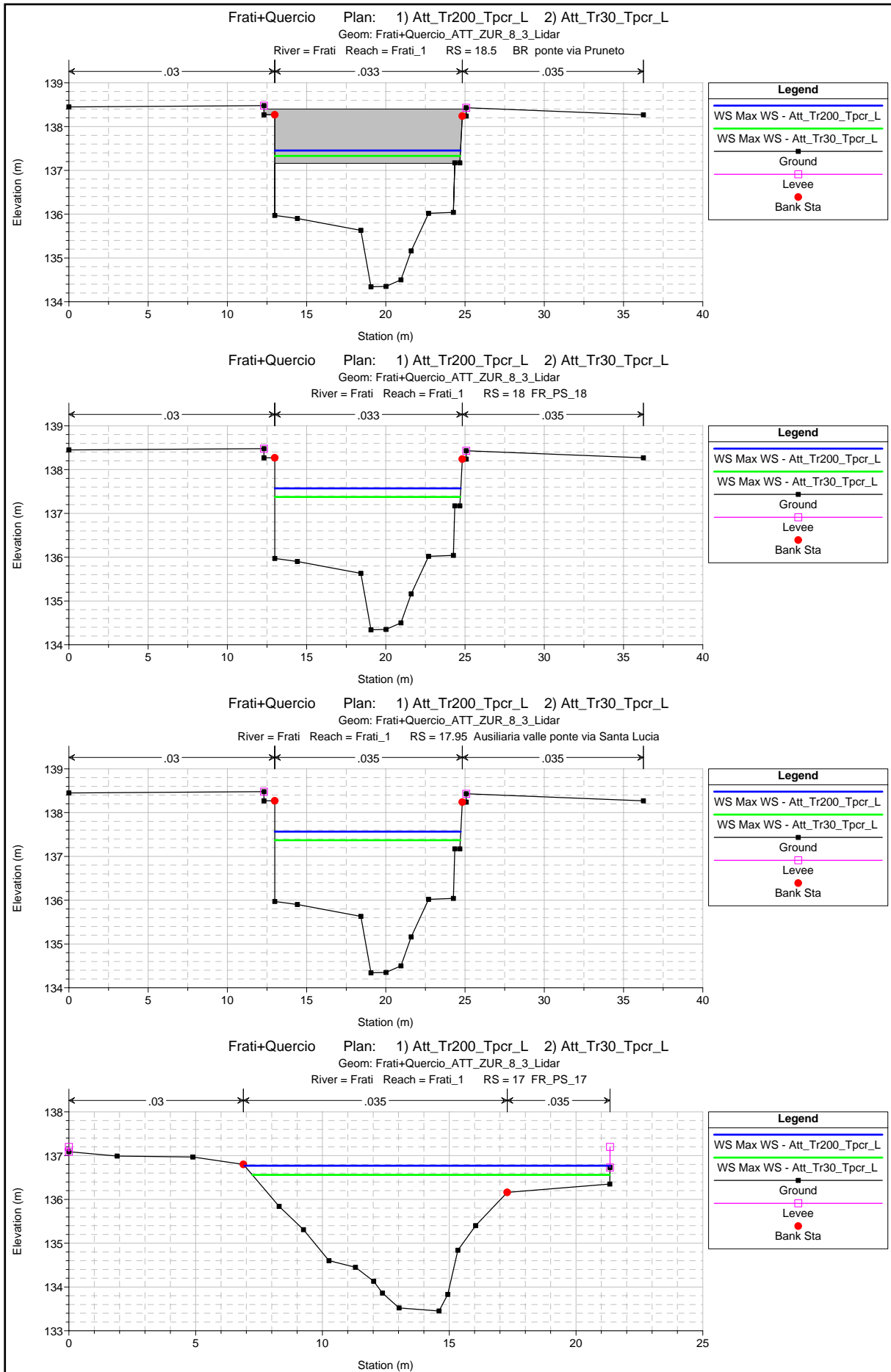


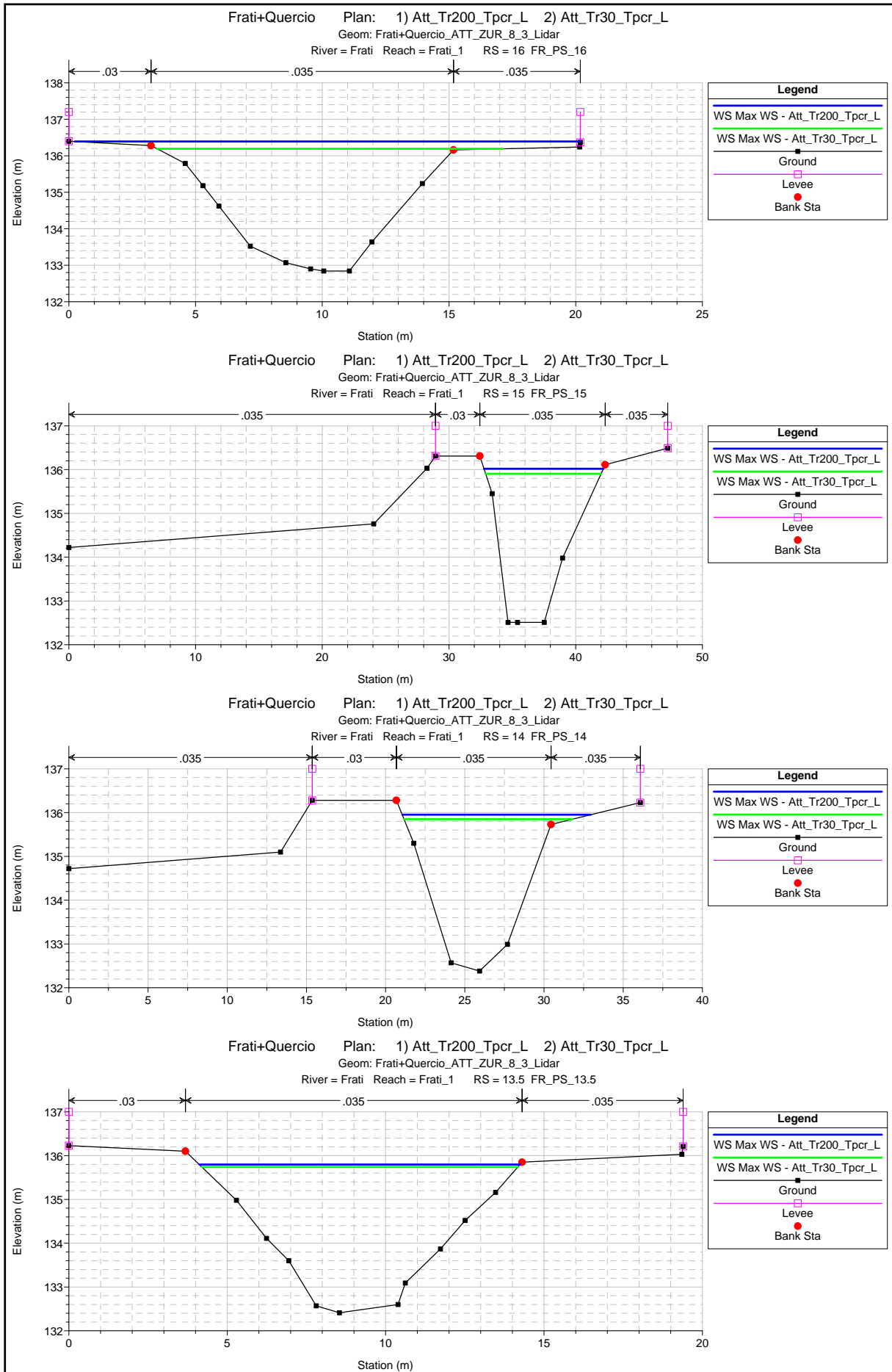


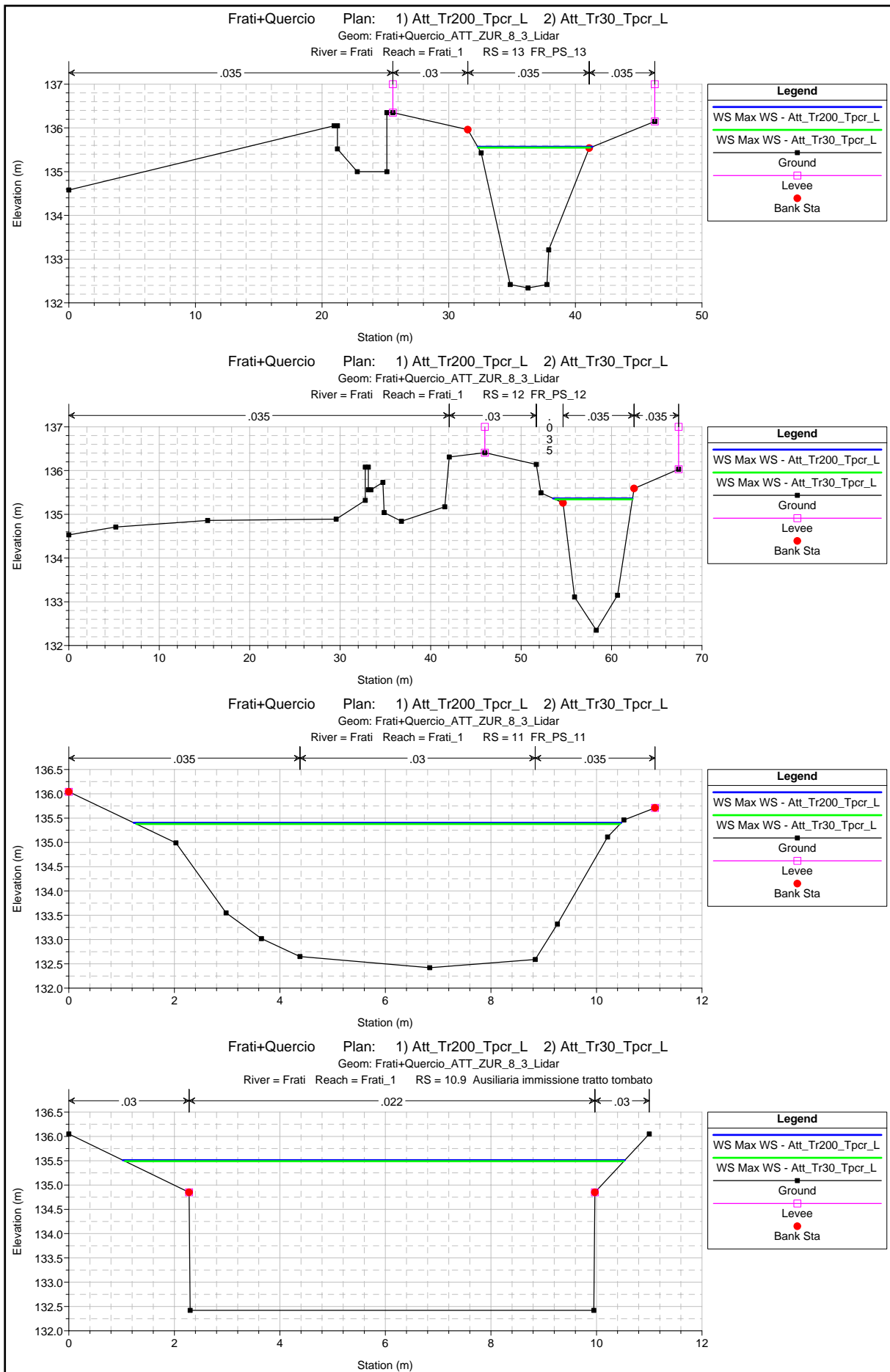


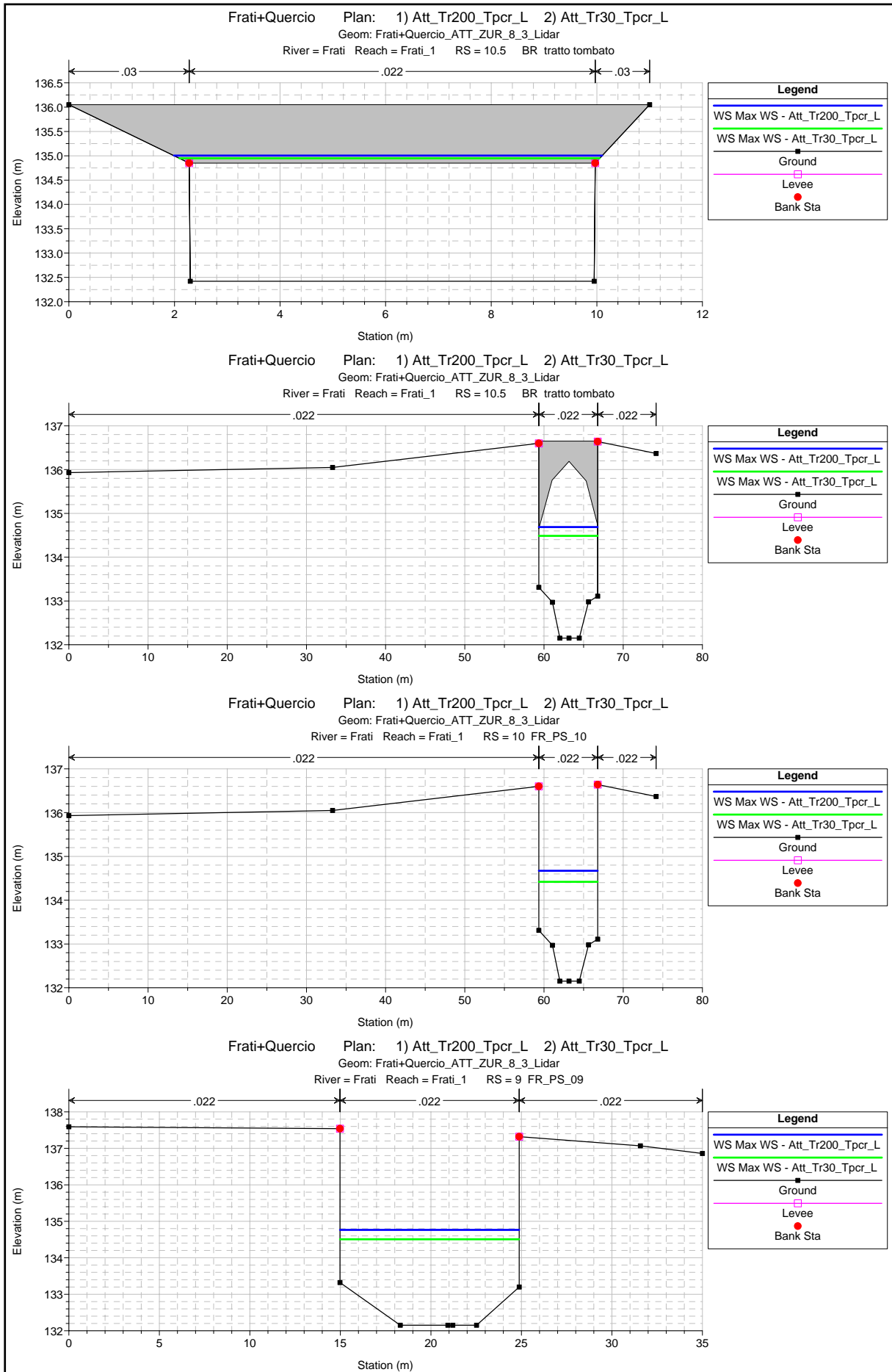


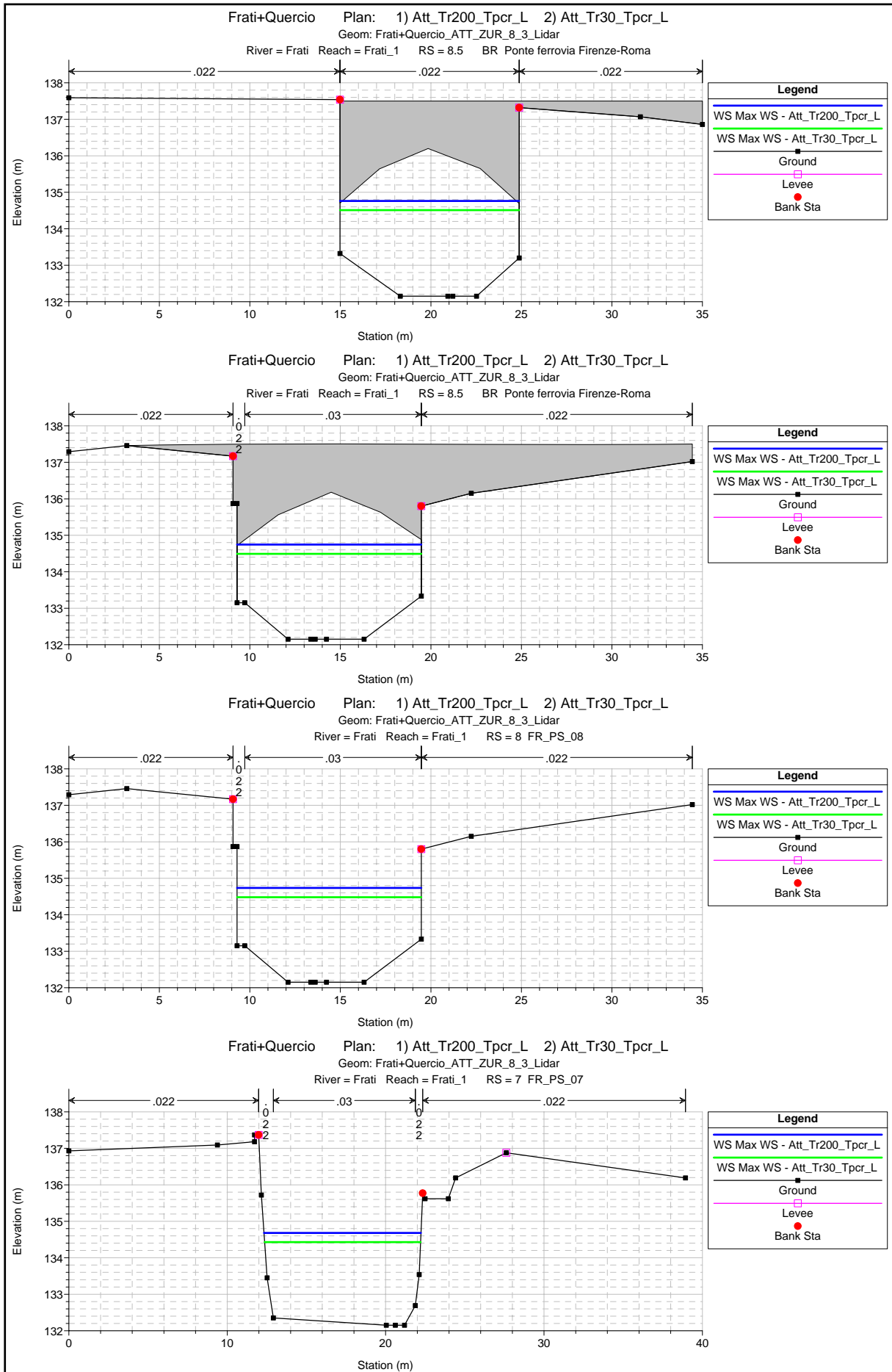


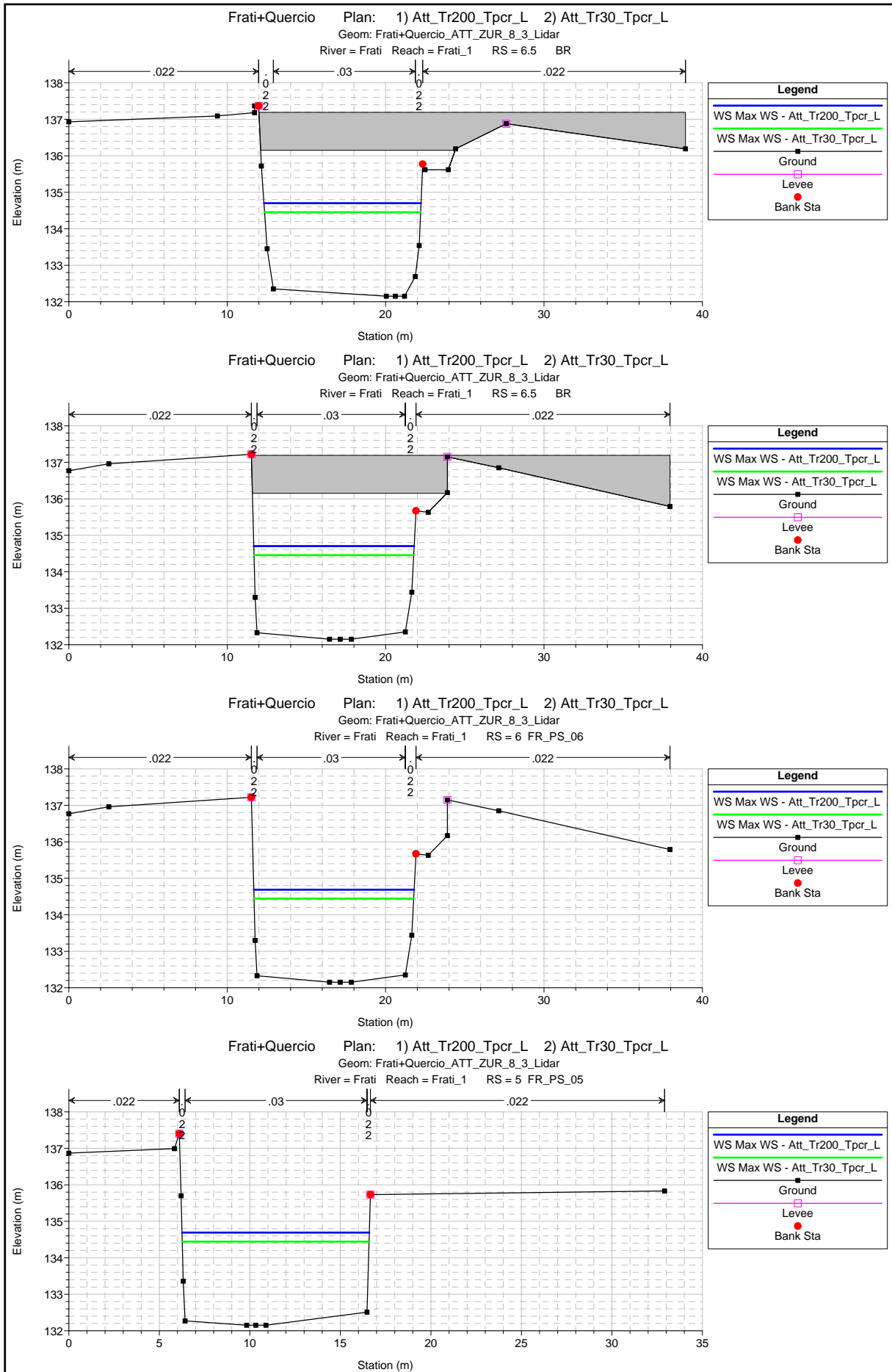


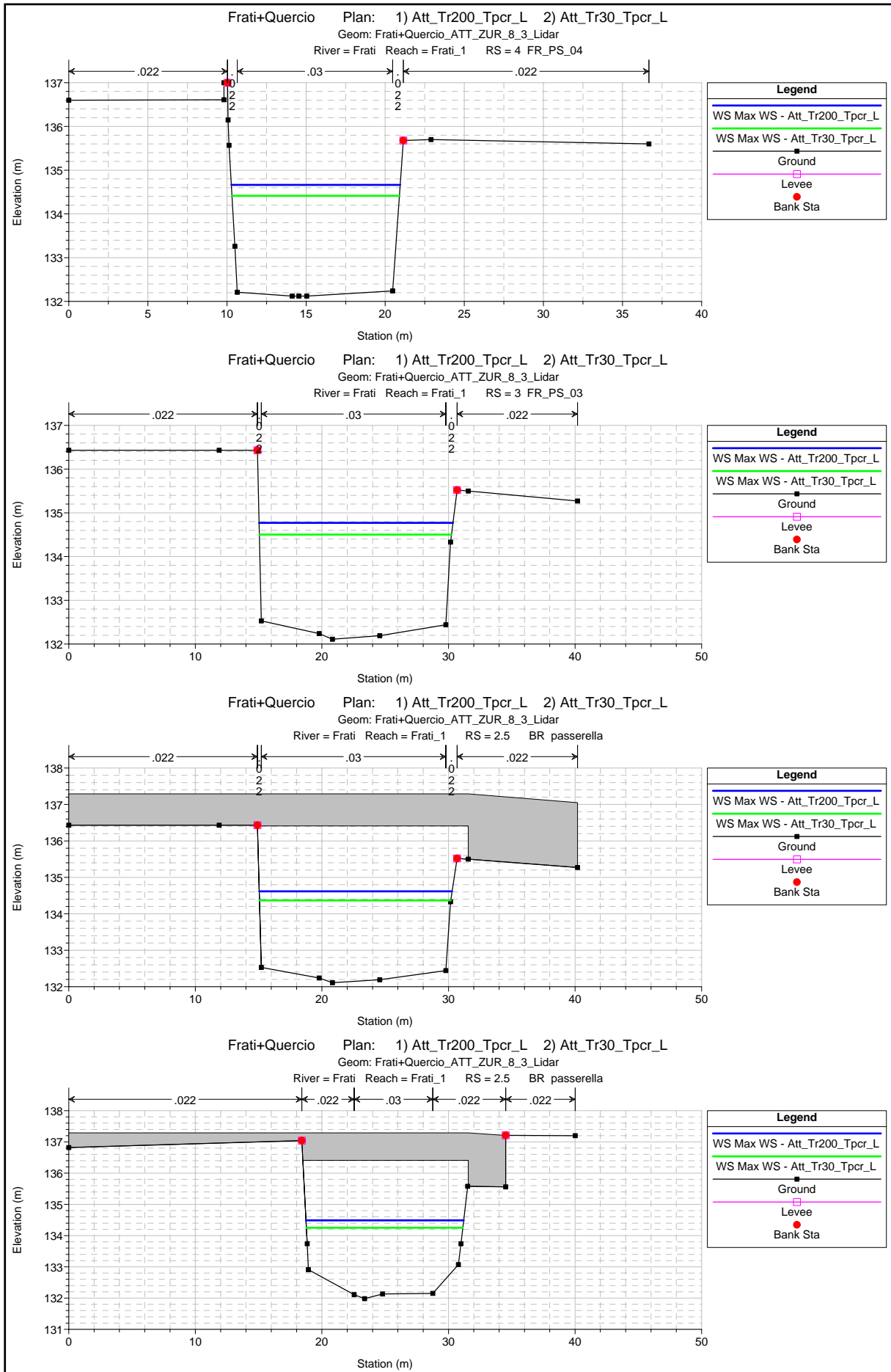




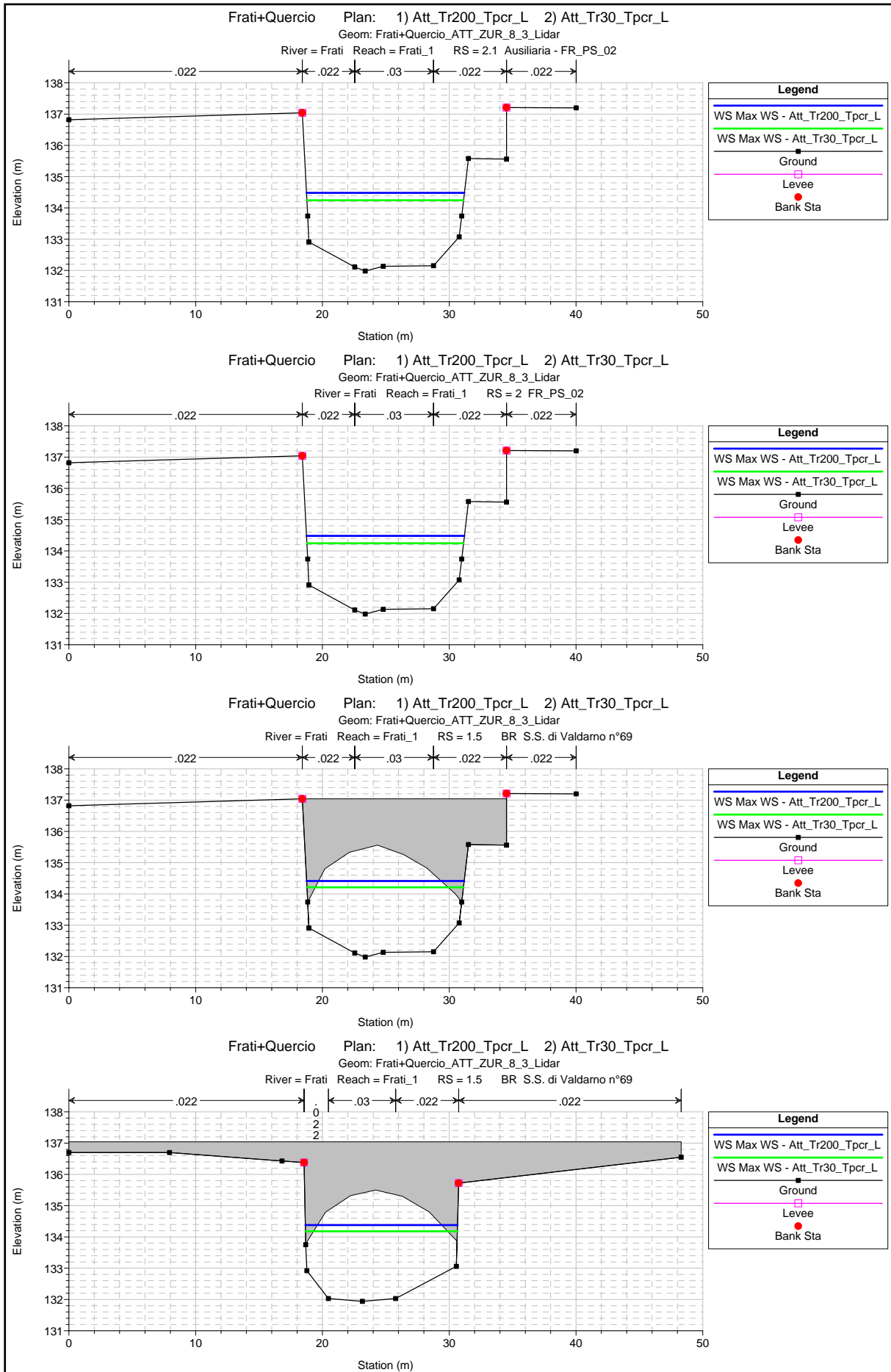


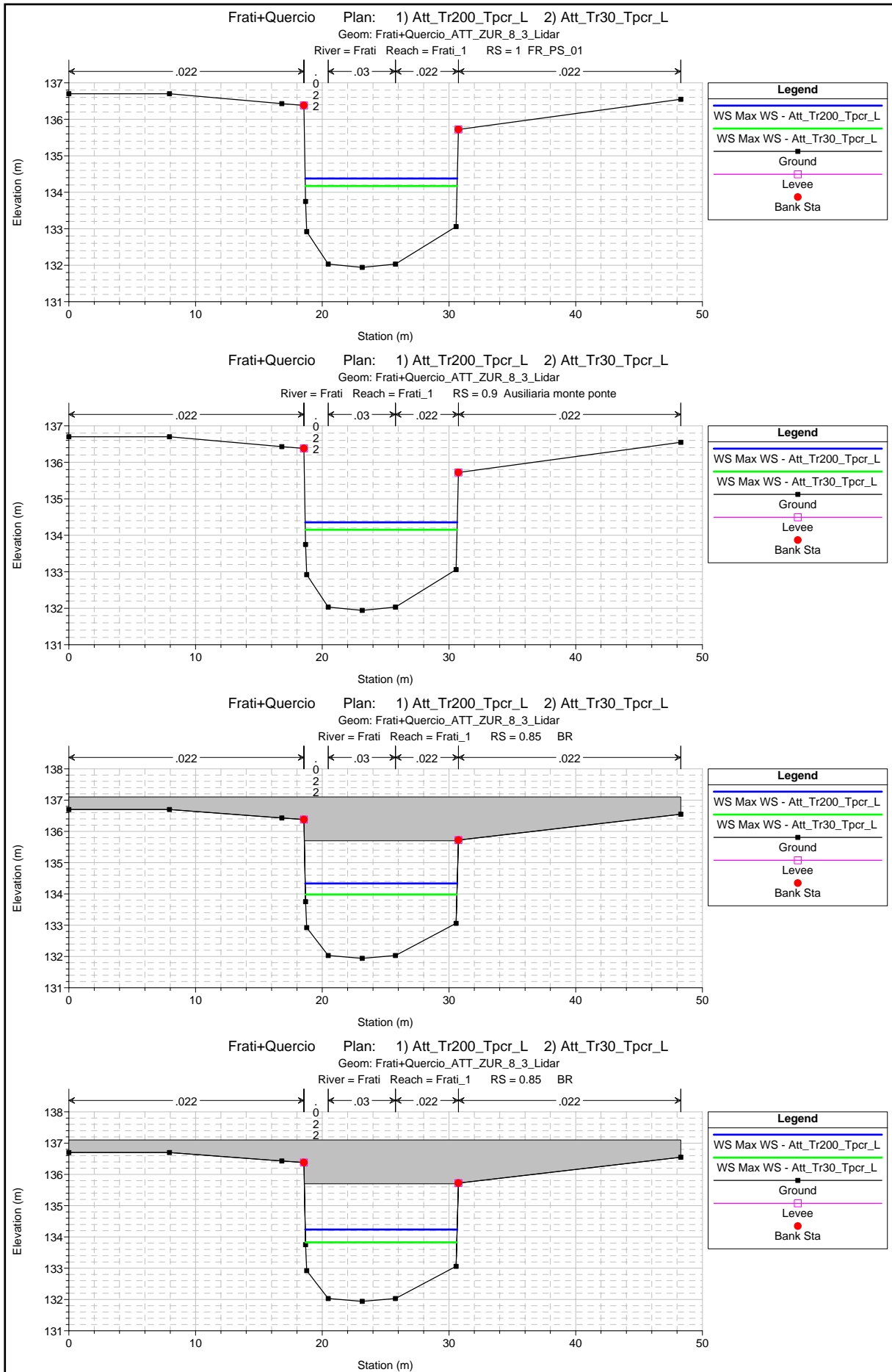


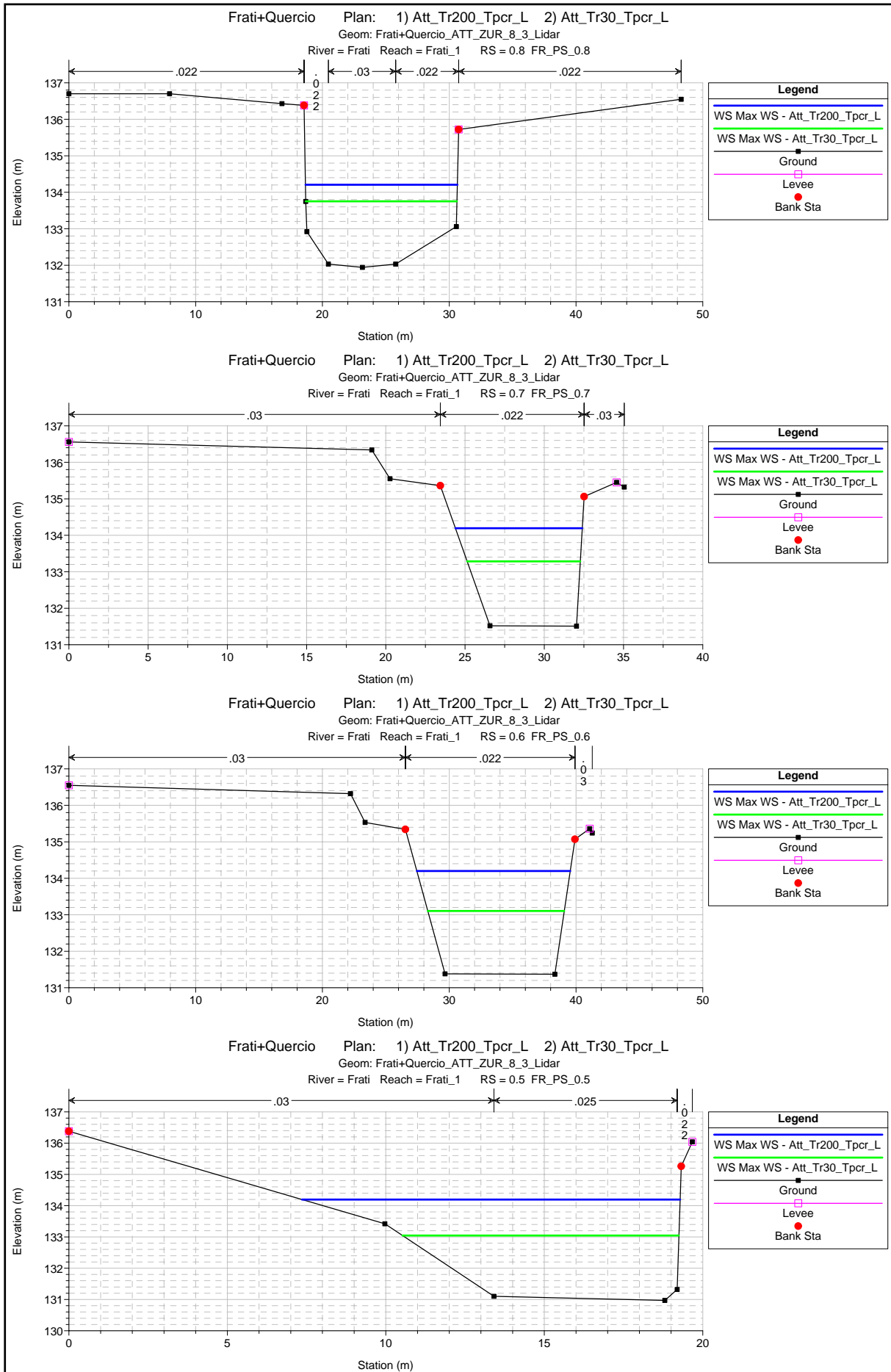


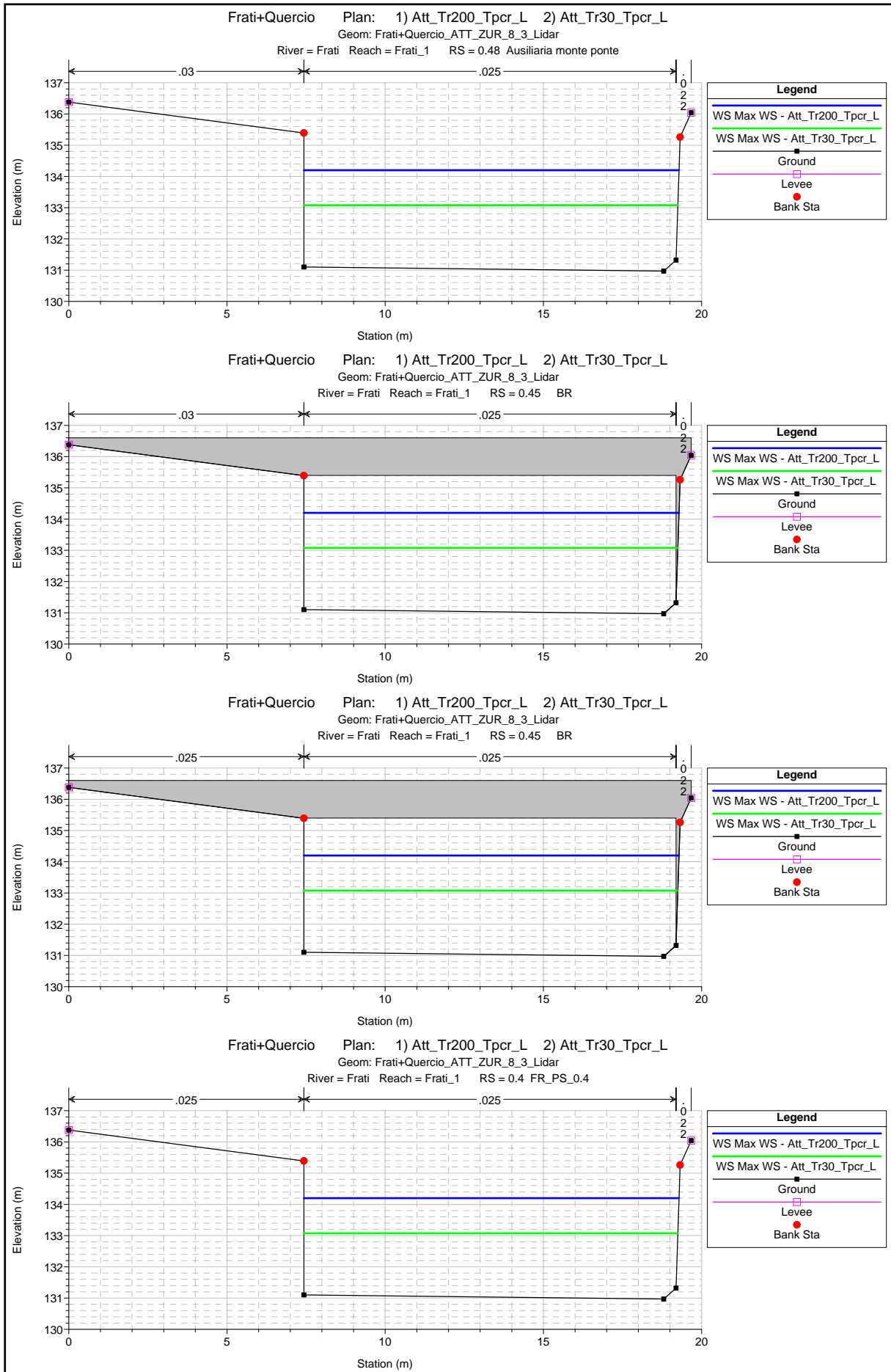


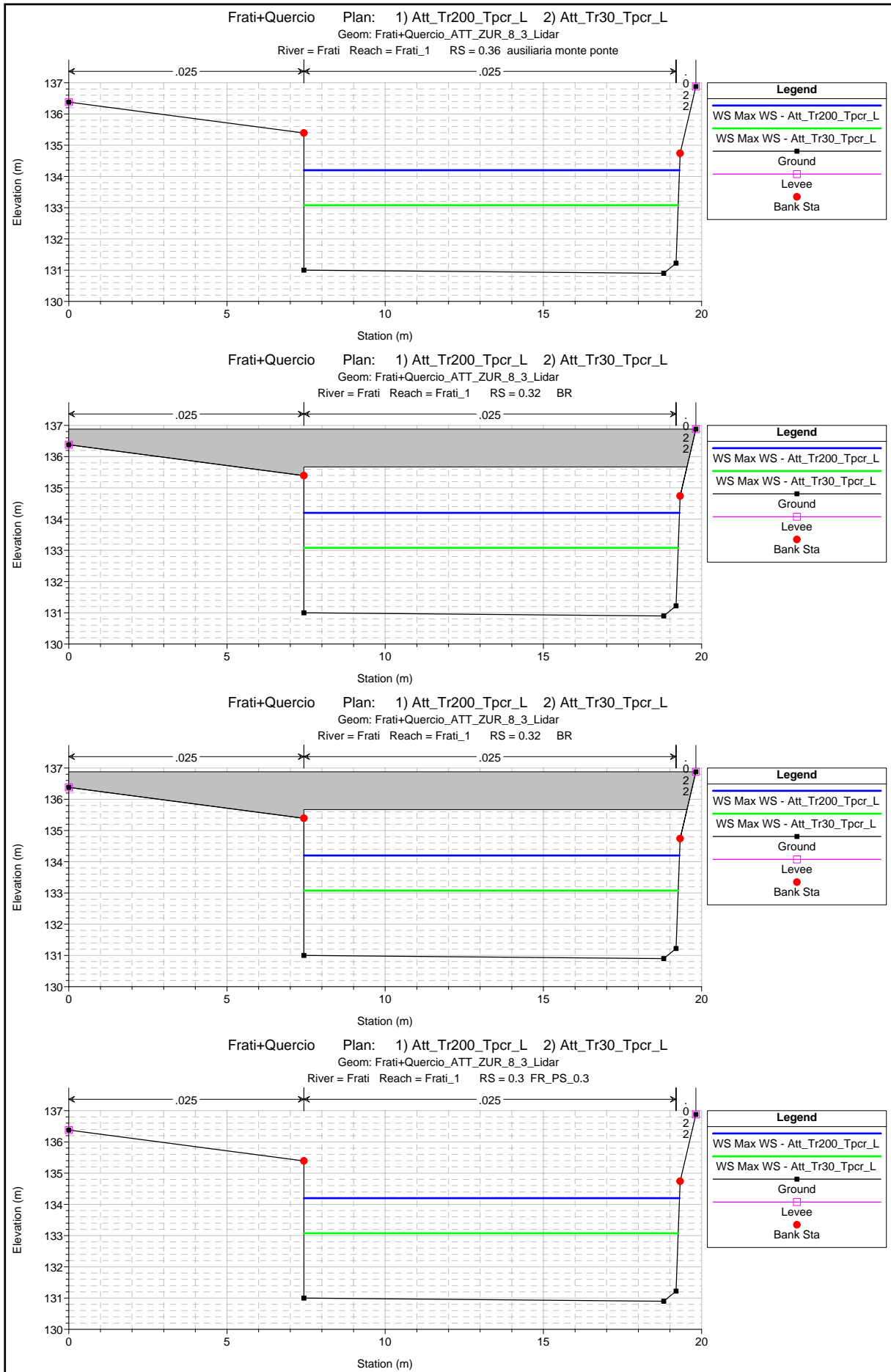


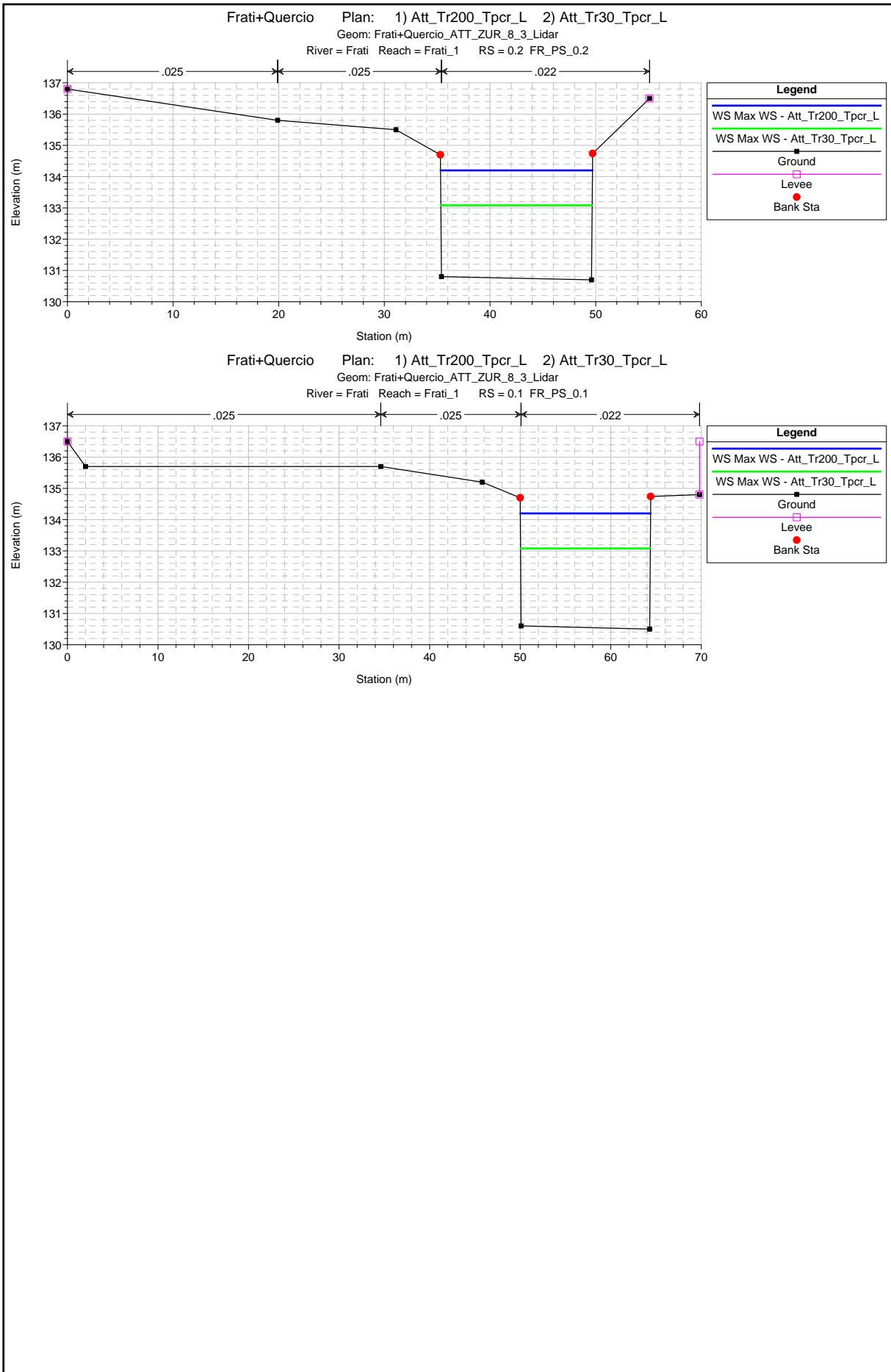












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_3	65	Max WS	Att_Tr200_Tpcr_L	45.73	140.45	142.81		143.15	0.005733	2.59	17.65	11.85	0.68
Fрати_3	65	Max WS	Att_Tr30_Tpcr_L	34.90	140.45	142.63		142.89	0.004790	2.23	15.62	11.61	0.61
Fрати_3	64	Max WS	Att_Tr200_Tpcr_L	42.39	140.81	142.76	142.32	143.02	0.005016	2.28	18.59	12.68	0.60
Fрати_3	64	Max WS	Att_Tr30_Tpcr_L	34.89	140.81	142.59	142.17	142.82	0.005001	2.13	16.39	12.61	0.60
Fрати_3	63.9			Inl Struct									
Fрати_3	63	Max WS	Att_Tr200_Tpcr_L	50.47	139.20	141.70		142.05	0.004784	2.63	19.16	10.61	0.63
Fрати_3	63	Max WS	Att_Tr30_Tpcr_L	34.89	139.20	141.14		141.48	0.005837	2.56	13.64	9.31	0.67
Fрати_3	62	Max WS	Att_Tr200_Tpcr_L	50.37	138.95	141.67		141.97	0.003297	2.46	20.47	9.18	0.53
Fрати_3	62	Max WS	Att_Tr30_Tpcr_L	34.88	138.95	141.14		141.39	0.003309	2.21	15.79	8.64	0.52
Fрати_3	61	Max WS	Att_Tr200_Tpcr_L	50.37	138.78	141.54		141.93	0.004215	2.75	18.33	8.40	0.59
Fрати_3	61	Max WS	Att_Tr30_Tpcr_L	34.88	138.78	141.03		141.34	0.004139	2.46	14.20	7.88	0.58
Fрати_3	60	Max WS	Att_Tr200_Tpcr_L	50.35	138.63	141.45		141.87	0.004860	2.85	17.68	7.89	0.61
Fрати_3	60	Max WS	Att_Tr30_Tpcr_L	34.87	138.63	140.97		141.28	0.004527	2.50	13.96	7.41	0.58
Fрати_3	59	Max WS	Att_Tr200_Tpcr_L	50.35	138.56	141.29		141.77	0.005671	3.06	16.44	7.57	0.66
Fрати_3	59	Max WS	Att_Tr30_Tpcr_L	34.87	138.56	140.83		141.20	0.005151	2.67	13.07	7.12	0.63
Fрати_3	58	Max WS	Att_Tr200_Tpcr_L	50.24	138.45	141.09		141.64	0.006963	3.29	15.26	7.34	0.73
Fрати_3	58	Max WS	Att_Tr30_Tpcr_L	34.86	138.45	140.67		141.08	0.006205	2.85	12.25	6.93	0.68
Fрати_3	57	Max WS	Att_Tr200_Tpcr_L	50.33	138.34	141.08		141.49	0.005008	2.91	18.43	15.86	0.63
Fрати_3	57	Max WS	Att_Tr30_Tpcr_L	34.85	138.34	140.56		140.95	0.005732	2.76	12.63	7.06	0.66
Fрати_3	56	Max WS	Att_Tr200_Tpcr_L	50.32	138.23	141.05		141.38	0.003940	2.61	20.72	16.35	0.55
Fрати_3	56	Max WS	Att_Tr30_Tpcr_L	34.83	138.23	140.48		140.83	0.005031	2.60	13.41	7.26	0.61
Fрати_3	55	Max WS	Att_Tr200_Tpcr_L	50.36	138.15	140.89		141.29	0.004626	2.80	18.45	12.75	0.60
Fрати_3	55	Max WS	Att_Tr30_Tpcr_L	34.83	138.15	140.41		140.73	0.004592	2.50	13.92	7.60	0.59
Fрати_3	54	Max WS	Att_Tr200_Tpcr_L	50.36	138.06	140.82		141.21	0.004599	2.77	18.37	12.36	0.60
Fрати_3	54	Max WS	Att_Tr30_Tpcr_L	34.83	138.06	140.35		140.65	0.004393	2.44	14.25	7.82	0.58
Fрати_3	53	Max WS	Att_Tr200_Tpcr_L	50.36	137.95	140.80	139.95	141.14	0.003921	2.60	19.50	12.42	0.55
Fрати_3	53	Max WS	Att_Tr30_Tpcr_L	34.83	137.95	140.32	139.55	140.58	0.003567	2.26	15.44	8.03	0.52

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_3	52.5			Bridge									
Fрати_3	52	Max WS	Att_Tr200_Tpcr_L	50.36	137.95	140.70		141.06	0.004263	2.66	18.92	8.66	0.57
Fрати_3	52	Max WS	Att_Tr30_Tpcr_L	34.83	137.95	140.33		140.57	0.003409	2.21	15.79	8.23	0.51
Fрати_3	51	Max WS	Att_Tr200_Tpcr_L	50.36	137.87	140.61		140.97	0.004295	2.66	18.90	8.93	0.58
Fрати_3	51	Max WS	Att_Tr30_Tpcr_L	34.82	137.87	140.26		140.50	0.003371	2.19	15.87	8.46	0.51
Fрати_3	50	Max WS	Att_Tr200_Tpcr_L	50.36	137.79	140.48		140.87	0.004700	2.80	18.39	14.19	0.62
Fрати_3	50	Max WS	Att_Tr30_Tpcr_L	34.82	137.79	140.16		140.43	0.003613	2.29	15.21	8.09	0.53
Fрати_3	49	Max WS	Att_Tr200_Tpcr_L	50.36	137.65	140.29		140.79	0.006331	3.17	16.72	14.18	0.70
Fрати_3	49	Max WS	Att_Tr30_Tpcr_L	34.79	137.65	139.96		140.32	0.005234	2.67	13.08	8.14	0.62
Fрати_3	48	Max WS	Att_Tr200_Tpcr_L	50.36	137.58	140.25		140.65	0.005124	2.90	18.96	19.95	0.63
Fрати_3	48	Max WS	Att_Tr30_Tpcr_L	34.79	137.58	139.89		140.24	0.004911	2.62	13.50	10.83	0.61
Fрати_3	47	Max WS	Att_Tr200_Tpcr_L	50.36	137.45	140.17		140.52	0.004309	2.71	20.09	17.17	0.59
Fрати_3	47	Max WS	Att_Tr30_Tpcr_L	34.78	137.45	139.82		140.13	0.004288	2.50	14.49	14.41	0.58
Fрати_3	46	Max WS	Att_Tr200_Tpcr_L	50.36	137.37	140.14		140.42	0.003572	2.50	23.40	25.39	0.54
Fрати_3	46	Max WS	Att_Tr30_Tpcr_L	34.78	137.37	139.71		140.03	0.004411	2.51	13.89	7.93	0.59
Fрати_3	45	Max WS	Att_Tr200_Tpcr_L	50.35	137.26	140.08		140.36	0.003583	2.42	22.61	19.83	0.54
Fрати_3	45	Max WS	Att_Tr30_Tpcr_L	34.77	137.26	139.67		139.96	0.004140	2.37	14.69	8.34	0.57
Fрати_3	44	Max WS	Att_Tr200_Tpcr_L	50.35	137.19	139.86		140.29	0.004973	2.90	17.55	9.90	0.65
Fрати_3	44	Max WS	Att_Tr30_Tpcr_L	34.77	137.19	139.62		139.88	0.003582	2.29	15.26	9.05	0.54
Fрати_3	43.9			Lat Struct									
Fрати_3	43	Max WS	Att_Tr200_Tpcr_L	47.35	137.11	139.80		140.23	0.004934	2.90	16.35	8.18	0.62
Fрати_3	43	Max WS	Att_Tr30_Tpcr_L	34.71	137.11	139.48		139.80	0.004035	2.48	14.00	7.38	0.57
Fрати_3	42	Max WS	Att_Tr200_Tpcr_L	46.89	137.03	139.58		140.15	0.007065	3.36	13.95	7.03	0.76
Fрати_3	42	Max WS	Att_Tr30_Tpcr_L	34.71	137.03	139.25		139.70	0.006634	2.97	11.68	6.91	0.73
Fрати_3	41	Max WS	Att_Tr200_Tpcr_L	46.80	136.90	139.50		140.01	0.006006	3.17	14.77	7.16	0.70
Fрати_3	41	Max WS	Att_Tr30_Tpcr_L	34.70	136.90	139.19		139.58	0.005381	2.76	12.57	7.07	0.66



HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_3	40	Max WS	Att_Tr200_Tpcr_L	46.14	136.80	139.45		139.88	0.005551	2.90	15.91	8.06	0.66
Frati_3	40	Max WS	Att_Tr30_Tpcr_L	34.67	136.80	139.12		139.46	0.004982	2.60	13.34	7.37	0.62
Frati_3	39.9			Lat Struct									
Frati_3	39	Max WS	Att_Tr200_Tpcr_L	45.28	136.71	139.40		139.78	0.004808	2.76	16.43	8.21	0.61
Frati_3	39	Max WS	Att_Tr30_Tpcr_L	34.67	136.71	139.05		139.37	0.004653	2.52	13.77	7.42	0.59
Frati_3	38	Max WS	Att_Tr200_Tpcr_L	44.15	136.66	139.36		139.73	0.004449	2.69	16.64	10.57	0.59
Frati_3	38	Max WS	Att_Tr30_Tpcr_L	34.67	136.66	138.94		139.30	0.005289	2.64	13.14	7.41	0.63
Frati_3	37	Max WS	Att_Tr200_Tpcr_L	43.10	136.57	139.36		139.67	0.003597	2.47	17.49	9.51	0.53
Frati_3	37	Max WS	Att_Tr30_Tpcr_L	34.63	136.57	138.88		139.20	0.004591	2.52	13.75	7.44	0.59
Frati_3	36	Max WS	Att_Tr200_Tpcr_L	41.24	136.45	139.37		139.62	0.002749	2.23	18.70	10.20	0.47
Frati_3	36	Max WS	Att_Tr30_Tpcr_L	34.63	136.45	138.77		139.10	0.004676	2.53	13.71	7.52	0.60
Frati_3	35	Max WS	Att_Tr200_Tpcr_L	41.41	136.37	139.35		139.57	0.002618	2.08	20.09	9.83	0.44
Frati_3	35	Max WS	Att_Tr30_Tpcr_L	34.58	136.37	138.73		139.01	0.004402	2.36	14.64	7.80	0.55
Frati_3	34	Max WS	Att_Tr200_Tpcr_L	42.56	136.29	139.33		139.51	0.001957	1.84	23.08	10.48	0.40
Frati_3	34	Max WS	Att_Tr30_Tpcr_L	34.58	136.29	138.73		138.94	0.002996	2.04	16.99	9.45	0.48
Frati_3	33	Max WS	Att_Tr200_Tpcr_L	41.71	136.19	139.39		139.49	0.000977	1.41	29.64	12.12	0.29
Frati_3	33	Max WS	Att_Tr30_Tpcr_L	34.62	136.19	138.77		138.89	0.001478	1.55	22.39	11.27	0.35
Frati_3	32	Max WS	Att_Tr200_Tpcr_L	37.51	136.13	139.40	137.53	139.50	0.000653	1.36	28.34	11.95	0.25
Frati_3	32	Max WS	Att_Tr30_Tpcr_L	34.62	136.13	138.73	137.47	138.87	0.001335	1.68	20.76	10.24	0.34
Frati_3	31.5			Bridge									
Frati_3	31	Max WS	Att_Tr200_Tpcr_L	37.47	136.11	139.36		139.46	0.000783	1.37	27.82	10.30	0.25
Frati_3	31	Max WS	Att_Tr30_Tpcr_L	34.62	136.11	138.74		138.87	0.001202	1.61	21.58	9.42	0.32
Frati_3	30.9			Lat Struct									
Frati_3	30	Max WS	Att_Tr200_Tpcr_L	42.66	136.05	139.15		139.39	0.002952	2.18	19.73	8.90	0.44
Frati_3	30	Max WS	Att_Tr30_Tpcr_L	34.58	136.05	138.55		138.83	0.004315	2.34	14.75	7.26	0.52

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_3	29	Max WS	Att_Tr200_Tpcr_L	49.27	135.95	138.89		139.26	0.004755	2.70	18.30	8.19	0.57
Fрати_3	29	Max WS	Att_Tr30_Tpcr_L	34.54	135.95	138.52		138.78	0.003805	2.24	15.40	7.48	0.50
Fрати_3	28	Max WS	Att_Tr200_Tpcr_L	49.27	135.91	138.81		139.18	0.004902	2.71	18.20	8.01	0.57
Fрати_3	28	Max WS	Att_Tr30_Tpcr_L	34.54	135.91	138.46		138.71	0.003723	2.23	15.50	7.62	0.50
Fрати_3	27.9			Lat Struct									
Fрати_3	27	Max WS	Att_Tr200_Tpcr_L	48.94	135.82	138.81		139.11	0.003524	2.41	20.35	8.16	0.49
Fрати_3	27	Max WS	Att_Tr30_Tpcr_L	34.54	135.82	138.46		138.66	0.002695	1.98	17.45	8.09	0.43
Fрати_3	26	Max WS	Att_Tr200_Tpcr_L	48.94	135.75	138.78		139.05	0.003050	2.27	21.52	8.40	0.45
Fрати_3	26	Max WS	Att_Tr30_Tpcr_L	34.53	135.75	138.43		138.61	0.002264	1.85	18.63	8.19	0.39
Fрати_3	25	Max WS	Att_Tr200_Tpcr_L	48.94	135.69	138.79	137.48	139.02	0.002001	2.13	22.98	8.08	0.40
Fрати_3	25	Max WS	Att_Tr30_Tpcr_L	34.53	135.69	138.44	137.16	138.59	0.001470	1.71	20.18	8.05	0.35
Fрати_3	24.5			Bridge									
Fрати_3	24	Max WS	Att_Tr200_Tpcr_L	48.94	135.67	138.76		138.99	0.002241	2.11	23.28	10.16	0.41
Fрати_3	24	Max WS	Att_Tr30_Tpcr_L	34.53	135.67	138.43		138.58	0.001447	1.69	20.44	8.44	0.35
Fрати_3	23	Max WS	Att_Tr200_Tpcr_L	48.94	135.59	138.71		138.95	0.002158	2.18	22.53	9.34	0.43
Fрати_3	23	Max WS	Att_Tr30_Tpcr_L	34.53	135.59	138.40		138.55	0.001605	1.75	19.75	8.65	0.37
Fрати_3	22.9			Lat Struct									
Fрати_3	22.8			Lat Struct									
Fрати_3	22	Max WS	Att_Tr200_Tpcr_L	48.93	135.45	138.67		138.89	0.002471	2.07	23.71	11.87	0.45
Fрати_3	22	Max WS	Att_Tr30_Tpcr_L	34.53	135.45	138.36		138.51	0.001899	1.71	20.23	10.55	0.39
Fрати_3	21.2	Max WS	Att_Tr200_Tpcr_L	46.96	135.27	138.43		138.74	0.004404	2.52	19.10	12.07	0.56
Fрати_3	21.2	Max WS	Att_Tr30_Tpcr_L	34.86	135.27	138.12		138.37	0.003900	2.23	15.66	8.20	0.51
Fрати_2	21.1	Max WS	Att_Tr200_Tpcr_L	49.00	135.27	138.43		138.77	0.004794	2.63	19.10	12.07	0.58
Fрати_2	21.1	Max WS	Att_Tr30_Tpcr_L	40.40	135.27	138.12		138.45	0.005236	2.58	15.66	8.20	0.60
Fрати_2	21	Max WS	Att_Tr200_Tpcr_L	49.00	135.27	138.40	137.66	138.74	0.011344	2.70	19.41	9.73	0.46
Fрати_2	21	Max WS	Att_Tr30_Tpcr_L	40.40	135.27	138.10	137.43	138.43	0.005180	2.56	16.34	12.06	0.59

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_2	20.9	Max WS	Att_Tr200_Tpcr_L	48.86	135.27	138.32		138.71	0.005525	2.77	18.31	15.79	0.62
Fрати_2	20.9	Max WS	Att_Tr30_Tpcr_L	40.40	135.27	138.02		138.40	0.005974	2.71	14.92	8.07	0.64
Fрати_2	20.89			Lat Struct									
Fрати_2	20	Max WS	Att_Tr200_Tpcr_L	47.02	134.63	138.16		138.40	0.002931	2.21	21.61	10.54	0.46
Fрати_2	20	Max WS	Att_Tr30_Tpcr_L	40.30	134.63	137.78		138.05	0.003901	2.33	17.63	10.51	0.52
Fрати_2	19.2	Max WS	Att_Tr200_Tpcr_L	51.31	134.40	138.10		138.20	0.001173	1.44	35.71	17.39	0.32
Fрати_2	19.2	Max WS	Att_Tr30_Tpcr_L	40.30	134.40	137.74		137.83	0.001308	1.37	29.46	17.14	0.33
Fрати_1	19.1	Max WS	Att_Tr200_Tpcr_L	59.70	134.40	138.10		138.25	0.001728	1.72	34.80	16.58	0.38
Fрати_1	19.1	Max WS	Att_Tr30_Tpcr_L	50.18	134.40	137.74		137.89	0.002086	1.73	28.98	15.75	0.41
Fрати_1	19	Max WS	Att_Tr200_Tpcr_L	59.70	134.34	138.10	136.93	138.25	0.001299	1.71	34.85	16.57	0.38
Fрати_1	19	Max WS	Att_Tr30_Tpcr_L	50.18	134.34	137.74	136.77	137.89	0.001563	1.73	29.03	15.75	0.41
Fрати_1	18.5			Bridge									
Fрати_1	18	Max WS	Att_Tr200_Tpcr_L	59.70	134.34	137.57		137.89	0.004055	2.50	23.84	11.74	0.56
Fрати_1	18	Max WS	Att_Tr30_Tpcr_L	50.18	134.34	137.38		137.65	0.003879	2.33	21.55	11.71	0.55
Fрати_1	17.95	Max WS	Att_Tr200_Tpcr_L	59.70	134.34	137.57		137.89	0.004602	2.51	23.77	11.74	0.56
Fрати_1	17.95	Max WS	Att_Tr30_Tpcr_L	50.18	134.34	137.37		137.65	0.004405	2.34	21.49	11.71	0.55
Fрати_1	17	Max WS	Att_Tr200_Tpcr_L	59.67	133.45	136.77		137.16	0.005062	2.81	22.43	14.42	0.64
Fрати_1	17	Max WS	Att_Tr30_Tpcr_L	50.07	133.45	136.56		136.92	0.005182	2.69	19.43	14.10	0.64
Fрати_1	16	Max WS	Att_Tr200_Tpcr_L	59.66	132.84	136.39		136.66	0.002979	2.31	26.68	19.94	0.50
Fрати_1	16	Max WS	Att_Tr30_Tpcr_L	50.04	132.84	136.19		136.43	0.002881	2.16	23.22	13.65	0.49
Fрати_1	15	Max WS	Att_Tr200_Tpcr_L	59.61	132.51	136.02		136.47	0.005936	2.97	20.07	9.43	0.65
Fрати_1	15	Max WS	Att_Tr30_Tpcr_L	50.04	132.51	135.90		136.26	0.004822	2.64	18.99	9.11	0.58
Fрати_1	14	Max WS	Att_Tr200_Tpcr_L	59.63	132.38	135.95		136.35	0.004476	2.79	21.64	11.90	0.59
Fрати_1	14	Max WS	Att_Tr30_Tpcr_L	50.03	132.38	135.85		136.16	0.003613	2.45	20.50	10.65	0.53
Fрати_1	13.8			Lat Struct									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_1	13.5	Max WS	Att_Tr200_Tpcr_L	59.63	132.41	135.80		136.27	0.006351	3.05	19.55	10.13	0.70
Fрати_1	13.5	Max WS	Att_Tr30_Tpcr_L	50.03	132.41	135.74		136.09	0.004820	2.63	19.00	9.98	0.61
Fрати_1	13	Max WS	Att_Tr200_Tpcr_L	50.95	132.34	135.57		136.01	0.006394	2.95	17.27	9.06	0.67
Fрати_1	13	Max WS	Att_Tr30_Tpcr_L	50.02	132.34	135.55		135.99	0.006341	2.93	17.10	8.85	0.67
Fрати_1	12	Max WS	Att_Tr200_Tpcr_L	50.86	132.35	135.36		135.89	0.007143	3.22	15.85	8.77	0.72
Fрати_1	12	Max WS	Att_Tr30_Tpcr_L	50.03	132.35	135.34		135.86	0.007125	3.20	15.68	8.54	0.72
Fрати_1	11	Max WS	Att_Tr200_Tpcr_L	50.74	132.42	135.40		135.75	0.003861	2.59	19.59	9.24	0.57
Fрати_1	11	Max WS	Att_Tr30_Tpcr_L	50.03	132.42	135.38		135.72	0.003864	2.58	19.35	9.17	0.57
Fрати_1	10.9	Max WS	Att_Tr200_Tpcr_L	50.74	132.42	135.51	134.07	135.74	0.000934	2.13	24.33	9.52	0.39
Fрати_1	10.9	Max WS	Att_Tr30_Tpcr_L	50.03	132.42	135.49	134.05	135.72	0.000931	2.11	24.11	9.45	0.39
Fрати_1	10.5			Bridge									
Fрати_1	10	Max WS	Att_Tr200_Tpcr_L	59.66	132.15	134.67		135.46	0.004886	3.94	15.15	7.44	0.88
Fрати_1	10	Max WS	Att_Tr30_Tpcr_L	49.45	132.15	134.42		135.13	0.004904	3.73	13.27	7.44	0.89
Fрати_1	9	Max WS	Att_Tr200_Tpcr_L	59.61	132.15	134.77	134.02	135.12	0.001640	2.63	22.71	9.90	0.55
Fрати_1	9	Max WS	Att_Tr30_Tpcr_L	50.02	132.15	134.51	133.85	134.82	0.001635	2.48	20.14	9.90	0.56
Fрати_1	8.5			Bridge									
Fрати_1	8	Max WS	Att_Tr200_Tpcr_L	59.61	132.15	134.74		135.08	0.002849	2.61	22.83	10.18	0.56
Fрати_1	8	Max WS	Att_Tr30_Tpcr_L	50.02	132.15	134.48		134.79	0.002872	2.47	20.23	10.18	0.56
Fрати_1	7	Max WS	Att_Tr200_Tpcr_L	59.60	132.15	134.68	133.88	135.02	0.002506	2.59	23.04	9.91	0.54
Fрати_1	7	Max WS	Att_Tr30_Tpcr_L	50.02	132.15	134.43	133.71	134.73	0.002488	2.43	20.57	9.85	0.54
Fрати_1	6.5			Bridge									
Fрати_1	6	Max WS	Att_Tr200_Tpcr_L	59.60	132.15	134.69		135.00	0.002256	2.47	24.13	10.13	0.51
Fрати_1	6	Max WS	Att_Tr30_Tpcr_L	50.02	132.15	134.44		134.71	0.002212	2.31	21.62	10.08	0.50
Fрати_1	5.8			Lat Struct									
Fрати_1	5	Max WS	Att_Tr200_Tpcr_L	59.60	132.15	134.69		134.99	0.002218	2.41	24.70	10.35	0.50
Fрати_1	5	Max WS	Att_Tr30_Tpcr_L	50.02	132.15	134.44		134.70	0.002182	2.26	22.13	10.32	0.49

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_1	4	Max WS	Att_Tr200_Tpcr_L	59.59	132.12	134.66		134.94	0.001979	2.33	25.53	10.67	0.48
Fрати_1	4	Max WS	Att_Tr30_Tpcr_L	50.02	132.12	134.41		134.66	0.001947	2.19	22.87	10.58	0.47
Fрати_1	3	Max WS	Att_Tr200_Tpcr_L	59.58	132.11	134.77	133.48	134.90	0.000861	1.61	37.01	15.32	0.33
Fрати_1	3	Max WS	Att_Tr30_Tpcr_L	50.02	132.11	134.50	133.34	134.62	0.000873	1.52	32.92	15.18	0.33
Fрати_1	2.5			Bridge									
Fрати_1	2.1	Max WS	Att_Tr200_Tpcr_L	59.58	131.98	134.48		134.75	0.001639	2.28	26.11	12.46	0.50
Fрати_1	2.1	Max WS	Att_Tr30_Tpcr_L	50.02	131.98	134.25		134.48	0.001660	2.16	23.17	12.36	0.50
Fрати_1	2	Max WS	Att_Tr200_Tpcr_L	59.58	131.98	134.48	133.69	134.75	0.001643	2.28	26.09	12.46	0.50
Fрати_1	2	Max WS	Att_Tr30_Tpcr_L	50.02	131.98	134.24	133.54	134.48	0.001664	2.16	23.15	12.36	0.50
Fрати_1	1.5			Bridge									
Fрати_1	1	Max WS	Att_Tr200_Tpcr_L	59.97	131.94	134.38		134.67	0.001840	2.41	24.85	12.00	0.54
Fрати_1	1	Max WS	Att_Tr30_Tpcr_L	50.02	131.94	134.17		134.43	0.001756	2.23	22.39	11.98	0.52
Fрати_1	0.9	Max WS	Att_Tr200_Tpcr_L	59.97	131.94	134.36	133.67	134.66	0.001899	2.44	24.59	12.00	0.54
Fрати_1	0.9	Max WS	Att_Tr30_Tpcr_L	50.02	131.94	134.15	133.51	134.41	0.001813	2.26	22.16	11.98	0.53
Fрати_1	0.85			Bridge									
Fрати_1	0.8	Max WS	Att_Tr200_Tpcr_L	9.09	131.94	134.21		134.21	0.000055	0.40	22.80	11.98	0.09
Fрати_1	0.8	Max WS	Att_Tr30_Tpcr_L	50.02	131.94	133.75		134.17	0.003833	2.88	17.38	11.93	0.76
Fрати_1	0.78			Lat Struct									
Fрати_1	0.7	Max WS	Att_Tr200_Tpcr_L	8.97	131.51	134.19		134.21	0.000067	0.50	18.04	8.00	0.11
Fрати_1	0.7	Max WS	Att_Tr30_Tpcr_L	50.02	131.51	133.28	133.45	134.31	0.007931	4.49	11.13	7.14	1.15
Fрати_1	0.6	Max WS	Att_Tr200_Tpcr_L	8.97	131.37	134.20		134.21	0.000019	0.31	29.33	12.11	0.06
Fрати_1	0.6	Max WS	Att_Tr30_Tpcr_L	50.02	131.37	133.11		133.56	0.002965	2.98	16.81	10.77	0.76
Fрати_1	0.5	Max WS	Att_Tr200_Tpcr_L	8.84	130.97	134.20		134.20	0.000042	0.34	26.05	11.93	0.07
Fрати_1	0.5	Max WS	Att_Tr30_Tpcr_L	15.00	130.97	133.05		133.10	0.000523	1.04	14.43	8.72	0.26
Fрати_1	0.48	Max WS	Att_Tr200_Tpcr_L	8.84	130.97	134.20	131.43	134.20	0.000013	0.24	37.31	11.85	0.04

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m <sup>2</sup> )	Top Width (m)	Froude # Chl
Frati_1	0.48	Max WS	Att_Tr30_Tpccr_L	15.00	130.97	133.08	131.59	133.10	0.000134	0.62	24.03	11.82	0.14
Frati_1	0.45			Bridge									
Frati_1	0.4	Max WS	Att_Tr200_Tpccr_L	8.88	130.97	134.20		134.20	0.000013	0.24	37.31	11.85	0.04
Frati_1	0.4	Max WS	Att_Tr30_Tpccr_L	15.00	130.97	133.08		133.10	0.000134	0.62	24.02	11.82	0.14
Frati_1	0.36	Max WS	Att_Tr200_Tpccr_L	8.88	130.90	134.20	131.34	134.20	0.000012	0.23	38.34	11.87	0.04
Frati_1	0.36	Max WS	Att_Tr30_Tpccr_L	15.00	130.90	133.08	131.50	133.10	0.000118	0.60	25.04	11.83	0.13
Frati_1	0.32			Bridge									
Frati_1	0.3	Max WS	Att_Tr200_Tpccr_L	8.88	130.90	134.20		134.20	0.000012	0.23	38.33	11.87	0.04
Frati_1	0.3	Max WS	Att_Tr30_Tpccr_L	15.00	130.90	133.08		133.09	0.000118	0.60	25.02	11.83	0.13
Frati_1	0.2	Max WS	Att_Tr200_Tpccr_L	8.83	130.70	134.20		134.20	0.000005	0.18	49.32	14.39	0.03
Frati_1	0.2	Max WS	Att_Tr30_Tpccr_L	15.00	130.70	133.08		133.09	0.000048	0.45	33.25	14.33	0.09
Frati_1	0.1	Max WS	Att_Tr200_Tpccr_L	8.83	130.50	134.20	130.89	134.20	0.000004	0.17	52.18	14.39	0.03
Frati_1	0.1	Max WS	Att_Tr30_Tpccr_L	14.99	130.50	133.08	131.03	133.09	0.000037	0.42	36.09	14.33	0.08

# **VERIFICHE IDRAULICHE**

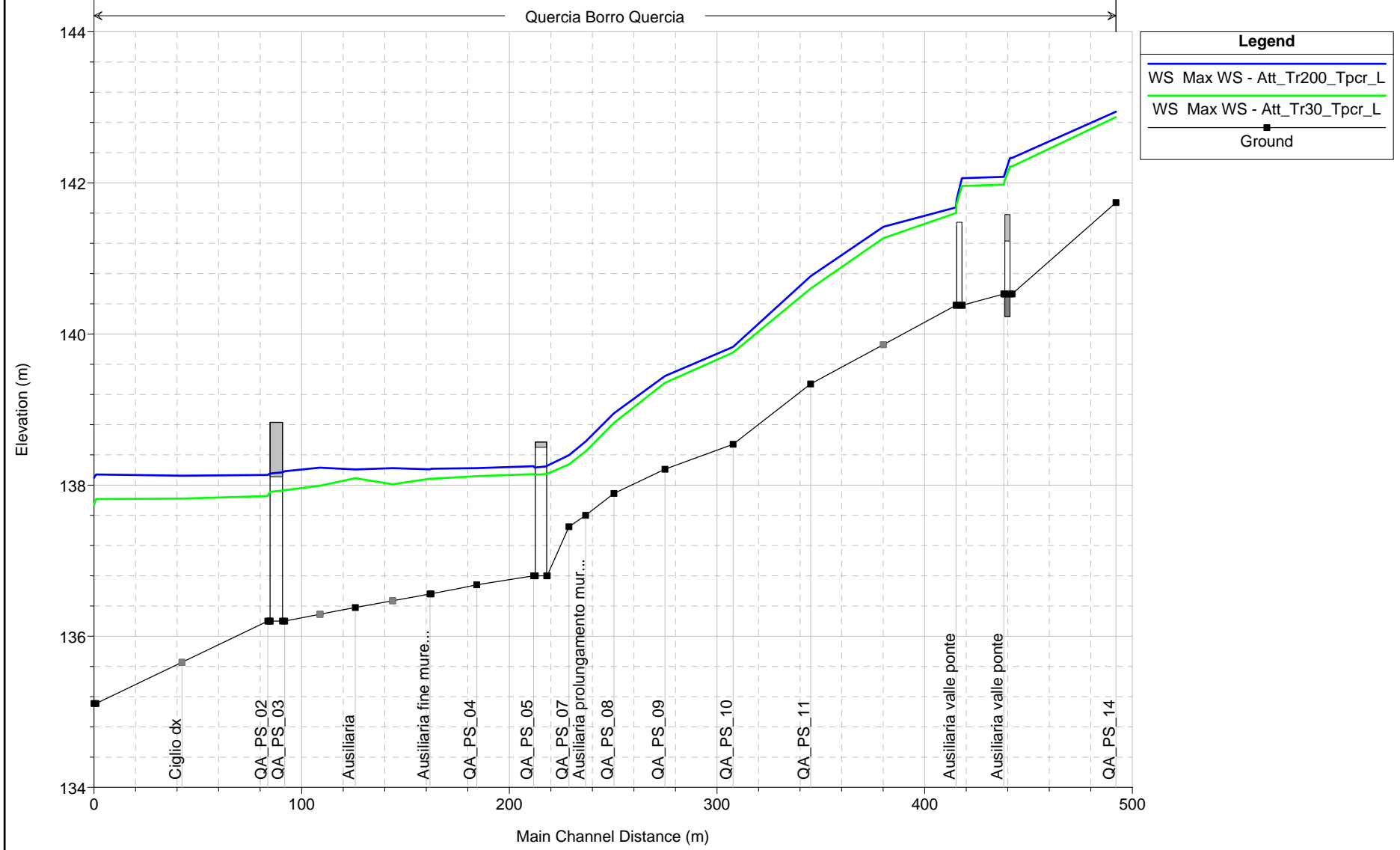
## **STATO ATTUALE**

### **BORRO della QUERCIA**

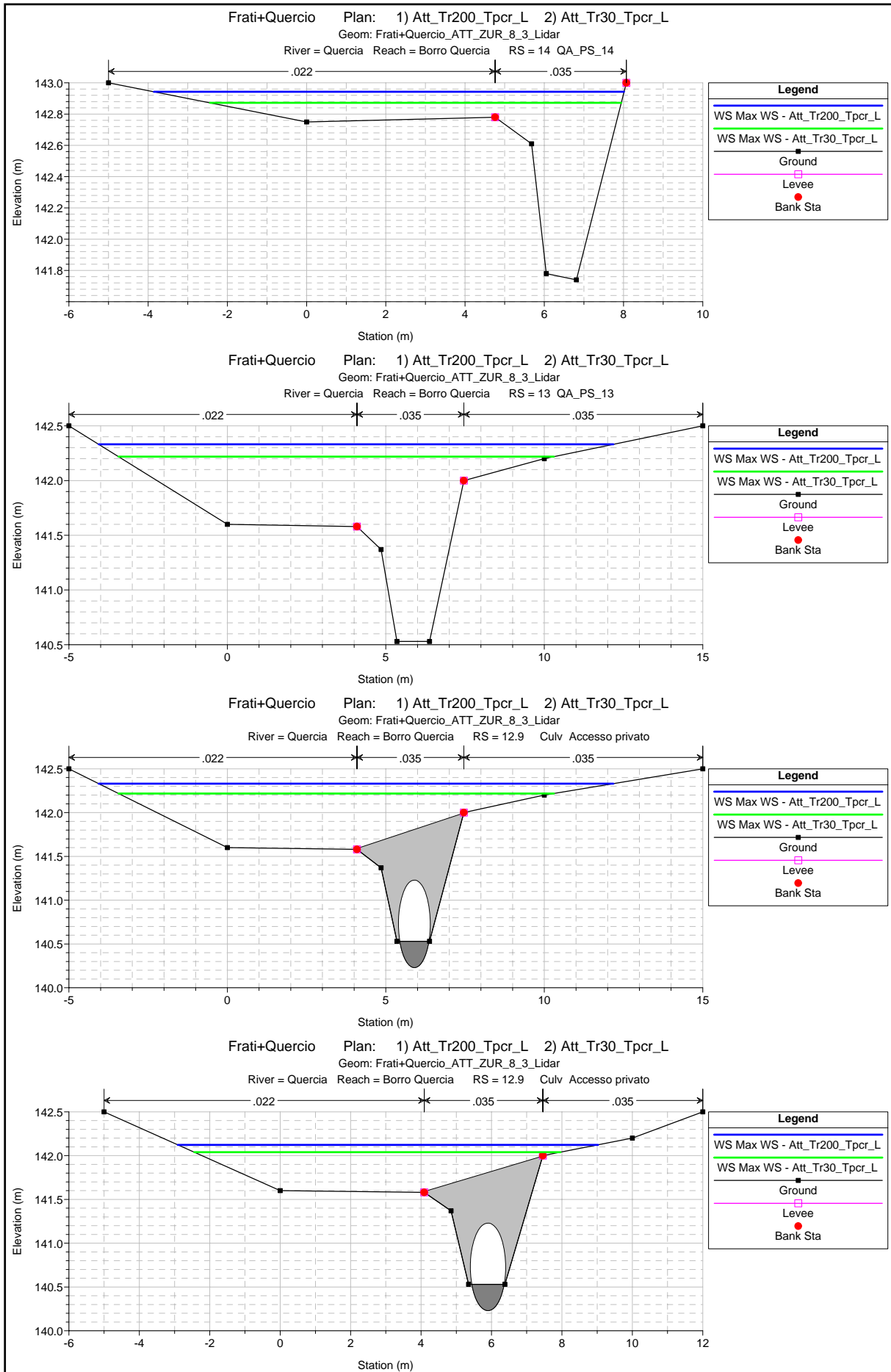
#### **Scenario A1 - Tr 200 e 30 anni**

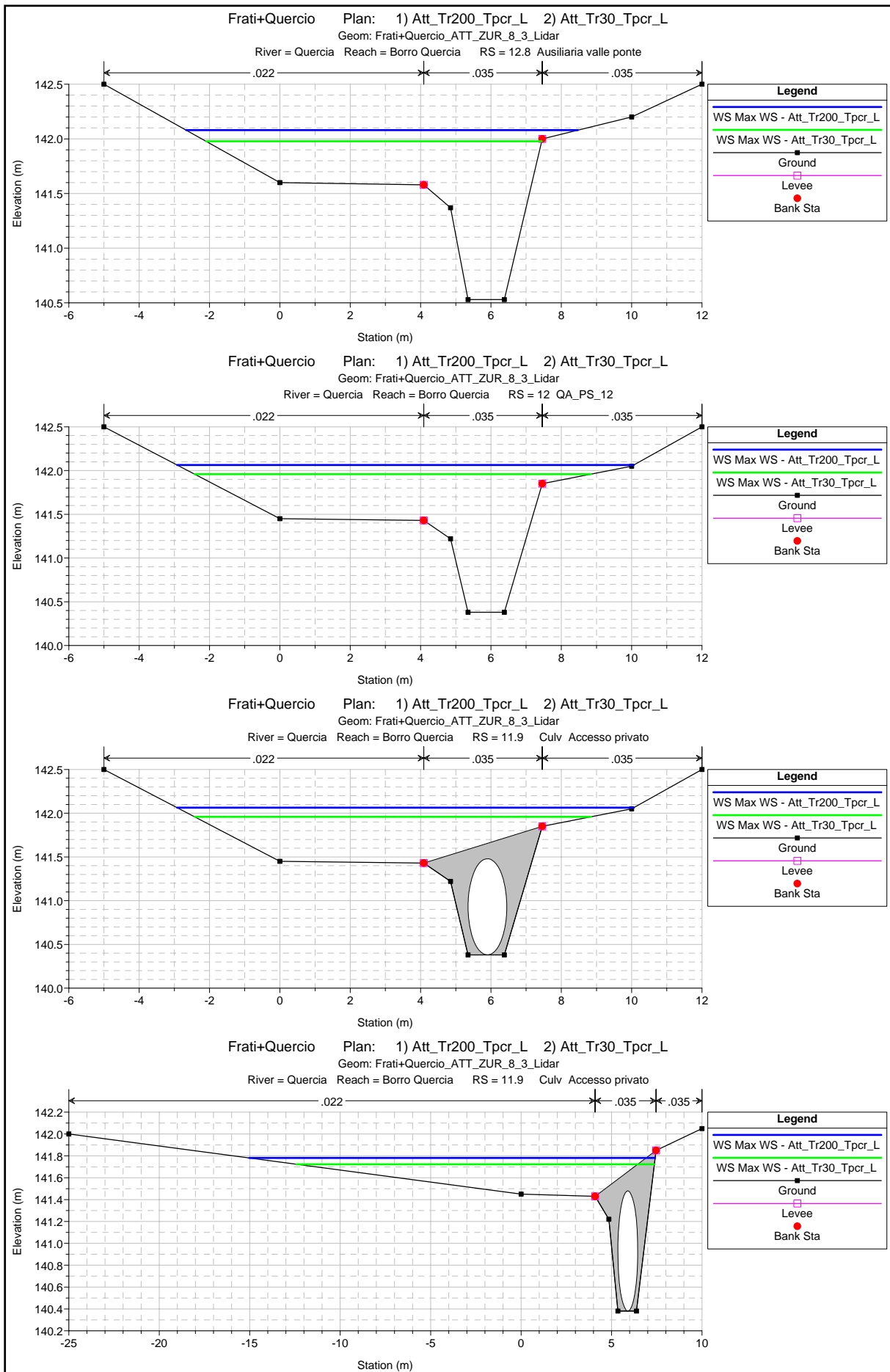
- Profili
- Sezioni di verifica
- Tabelle di output

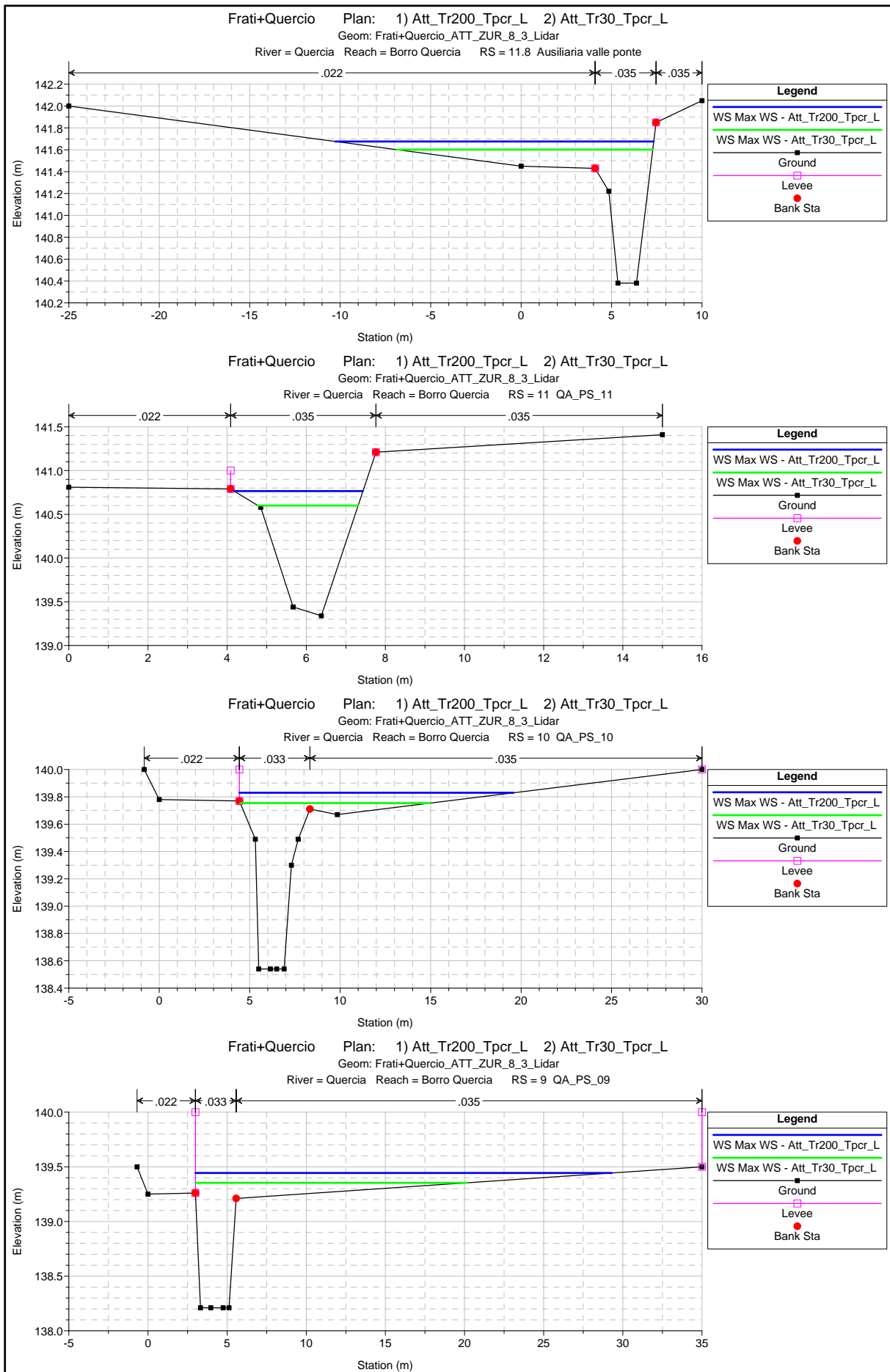
Frati+Quercio Plan: 1) Att\_Tr200\_Tpcr\_L 2) Att\_Tr30\_Tpcr\_L  
 Geom: Frati+Quercio\_ATT\_ZUR\_8\_3\_Lidar

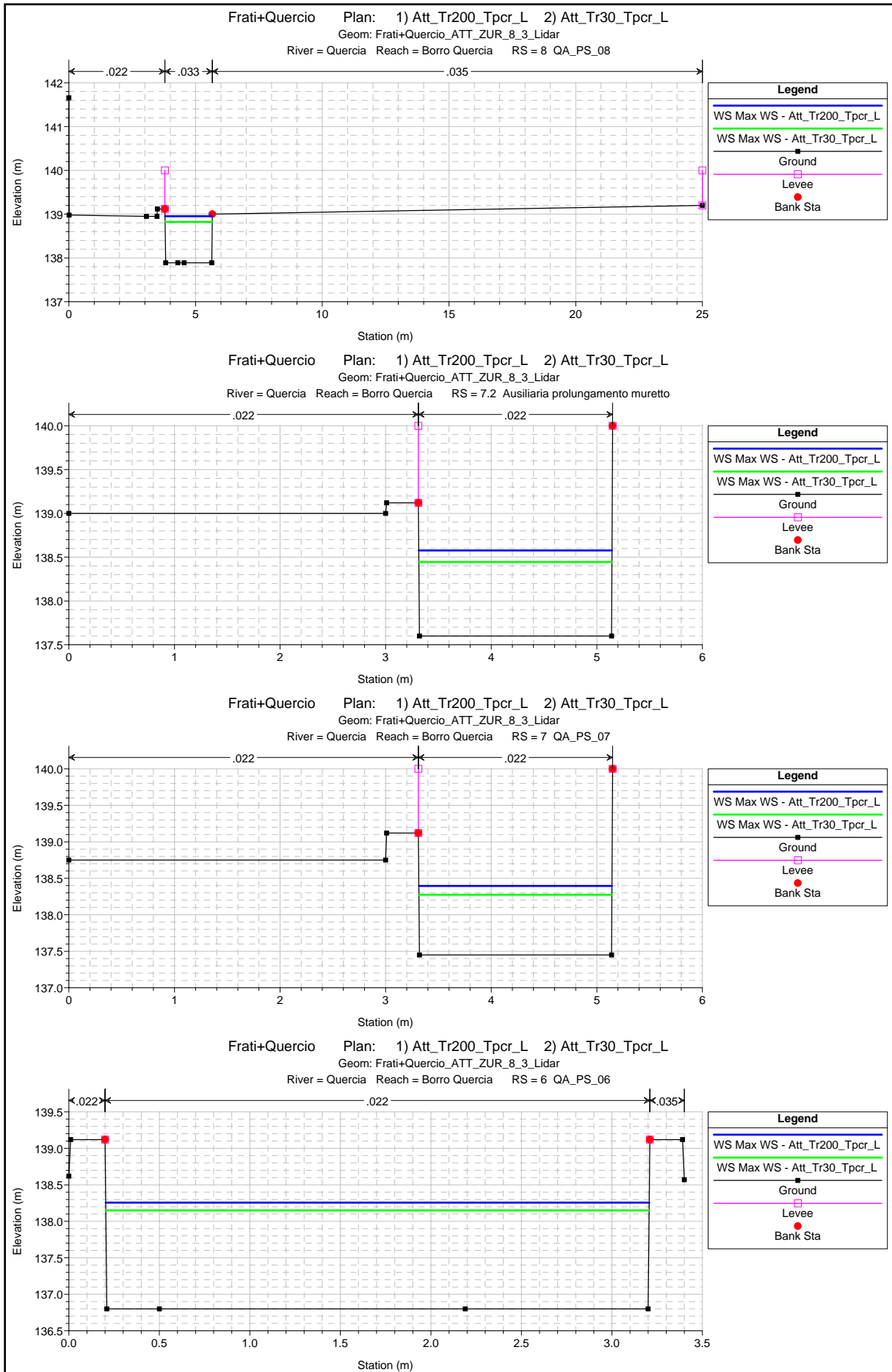


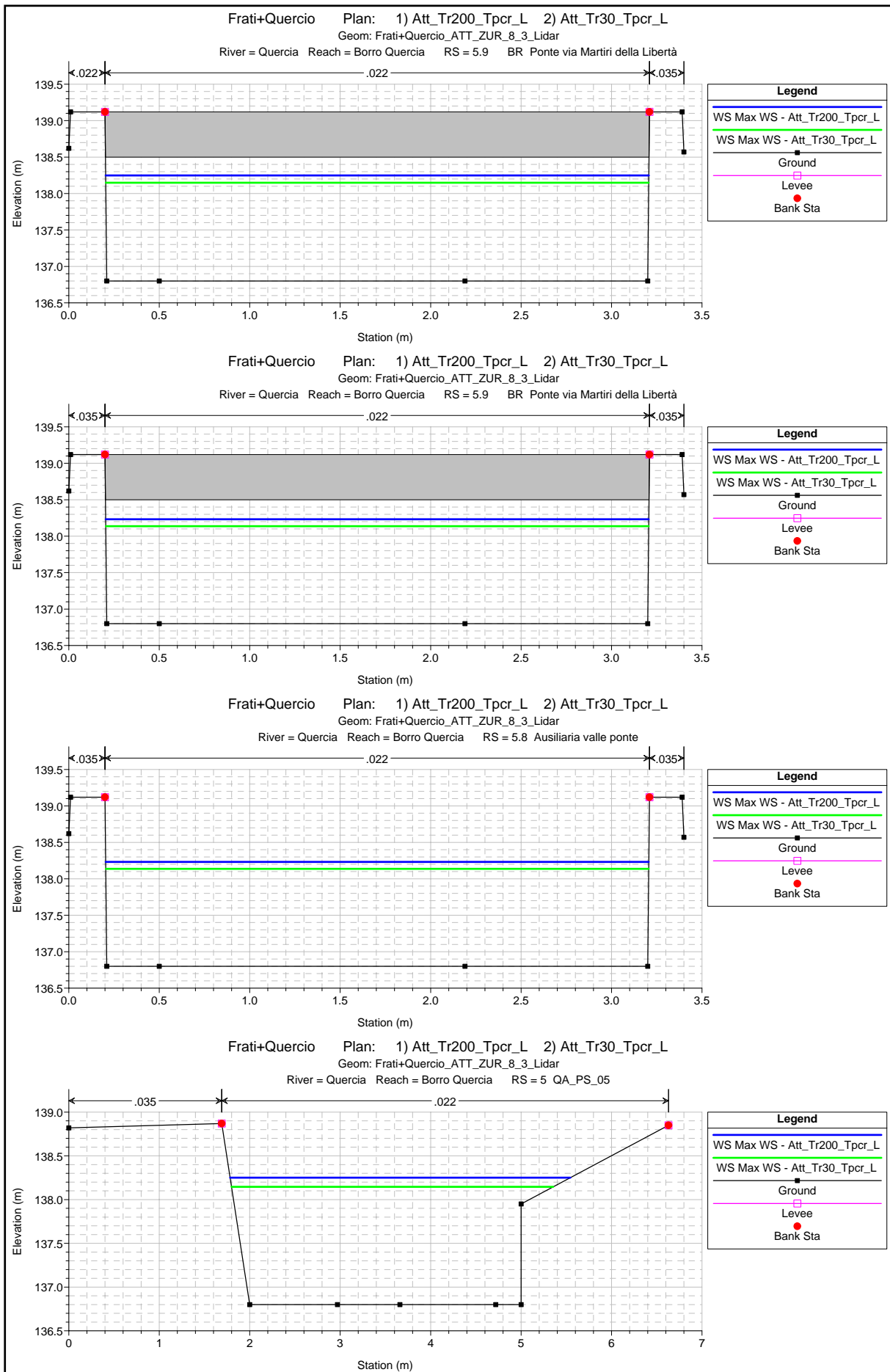


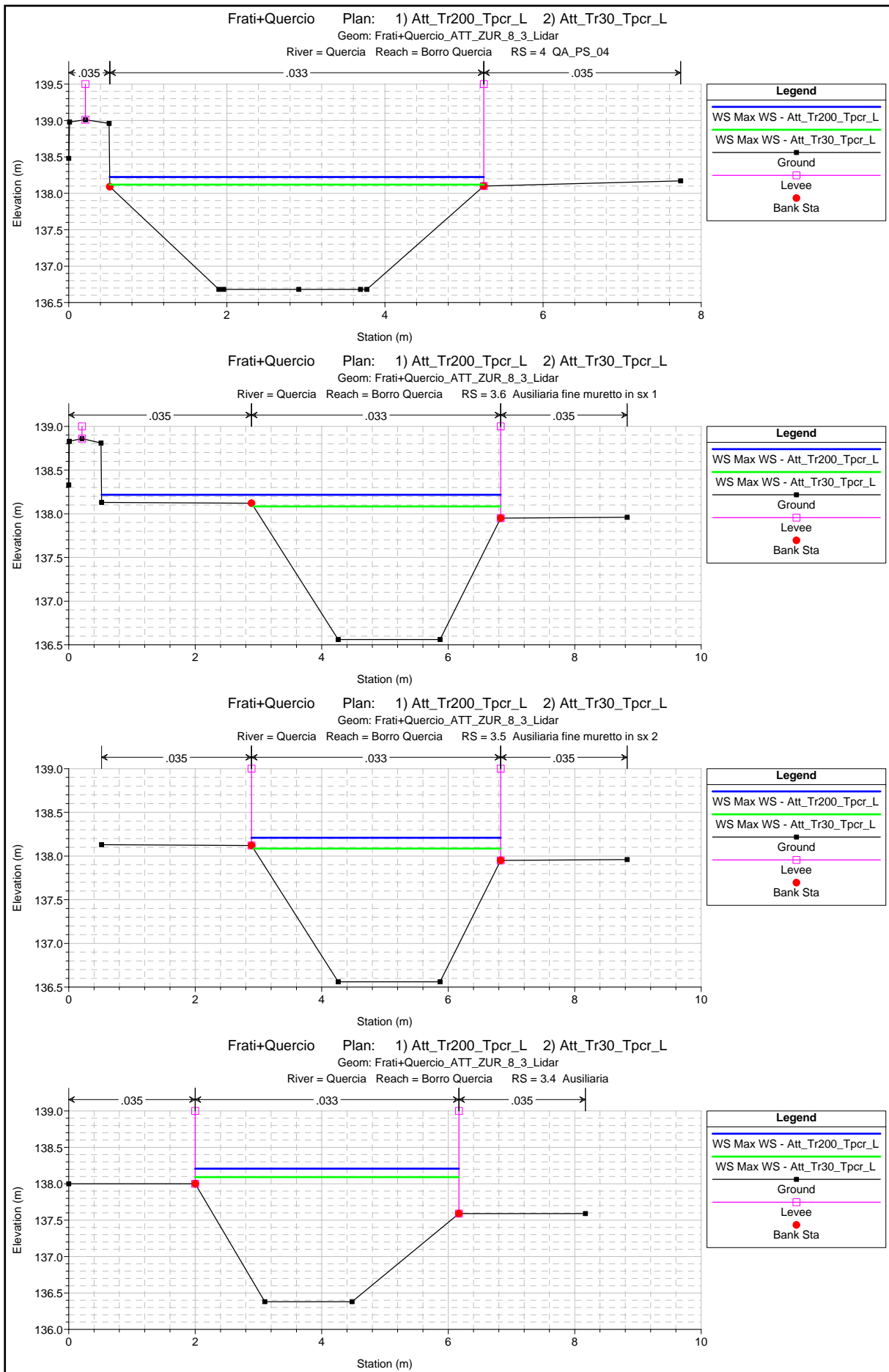


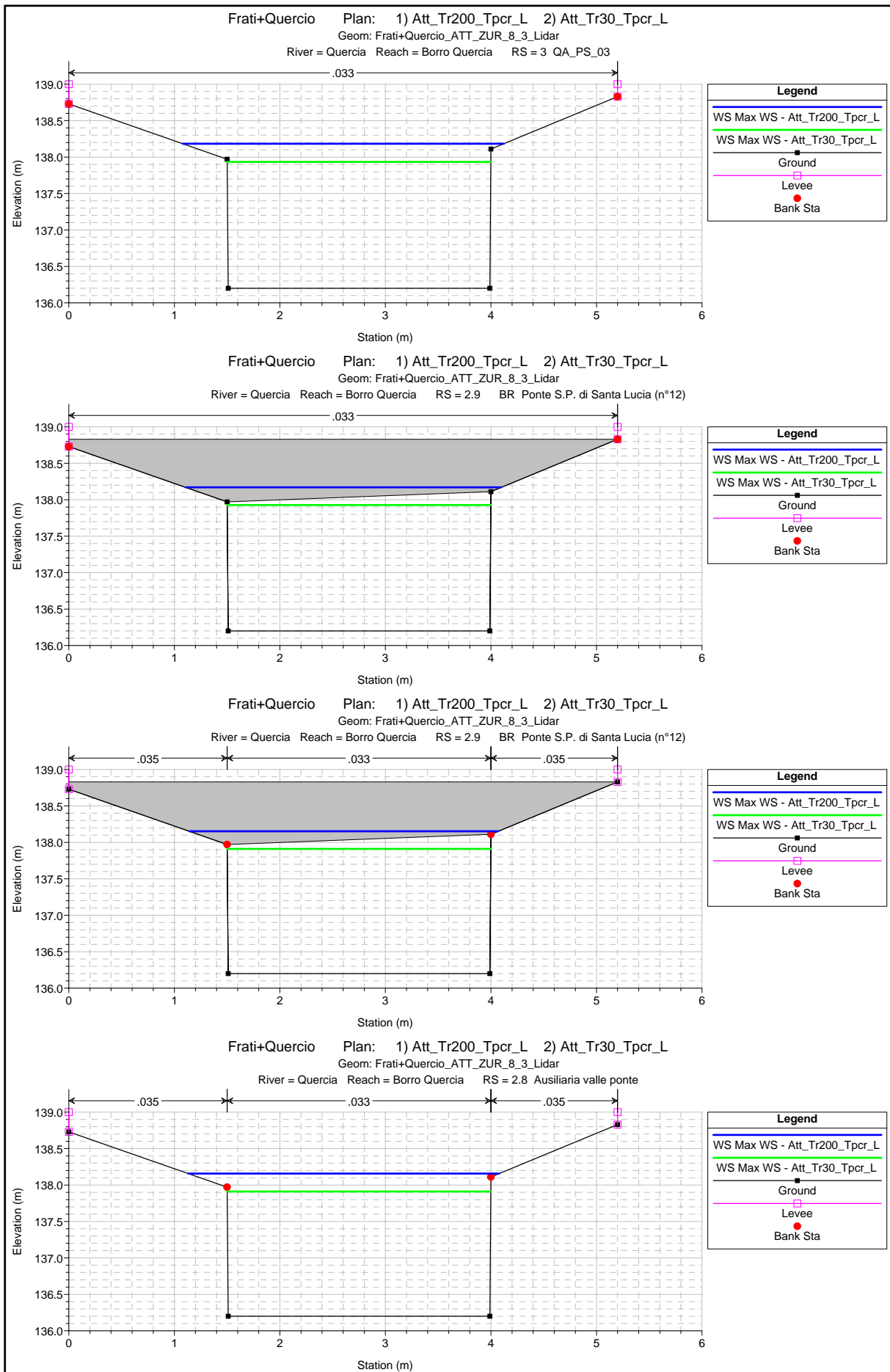


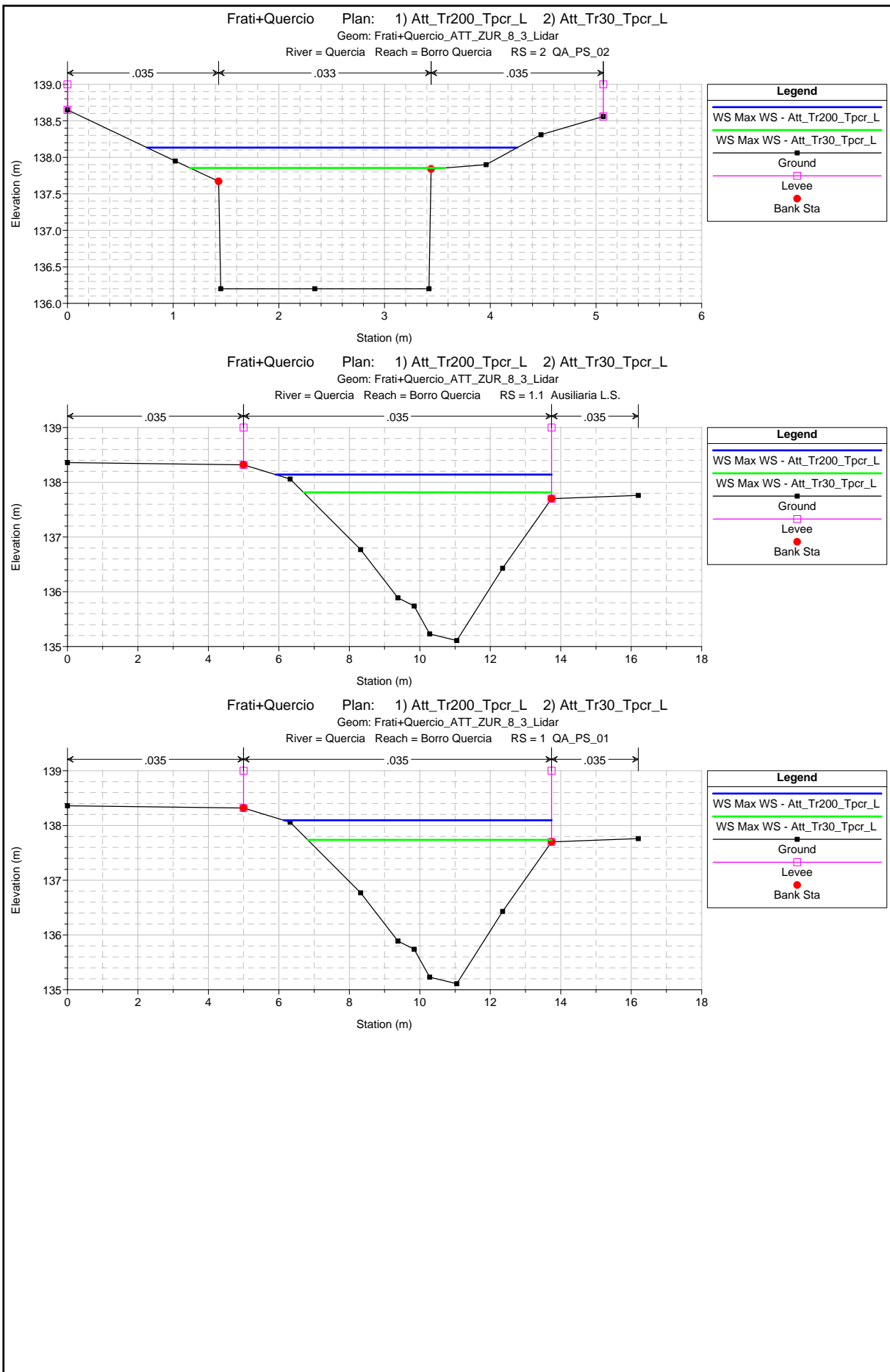














HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch EI (m)	W.S. Elev (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
Borro Quercia	14	Max WS	Att_Tr200_Tpcr_L	8.15	141.74	142.94	143.04	143.27	0.023685	2.75	3.34	11.87	1.08
Borro Quercia	14	Max WS	Att_Tr30_Tpcr_L	6.07	141.74	142.87	142.98	143.20	0.025514	2.69	2.56	10.38	1.11
Borro Quercia	13	Max WS	Att_Tr200_Tpcr_L	8.15	140.53	142.33		142.37	0.000961	0.85	9.59	16.24	0.24
Borro Quercia	13	Max WS	Att_Tr30_Tpcr_L	6.07	140.53	142.22		142.25	0.000873	0.76	7.90	13.74	0.22
Borro Quercia	12.9			Culvert									
Borro Quercia	12.8	Max WS	Att_Tr200_Tpcr_L	8.15	140.53	142.08		142.17	0.003063	1.31	6.18	11.14	0.41
Borro Quercia	12.8	Max WS	Att_Tr30_Tpcr_L	6.07	140.53	141.98		142.05	0.002922	1.20	5.14	9.54	0.40
Borro Quercia	12	Max WS	Att_Tr200_Tpcr_L	8.15	140.38	142.06		142.12	0.001652	1.05	7.68	12.98	0.31
Borro Quercia	12	Max WS	Att_Tr30_Tpcr_L	6.07	140.38	141.96		142.01	0.001496	0.94	6.42	11.27	0.29
Borro Quercia	11.9			Culvert									
Borro Quercia	11.8	Max WS	Att_Tr200_Tpcr_L	8.15	140.38	141.68	141.71	141.85	0.010070	2.05	4.78	17.60	0.72
Borro Quercia	11.8	Max WS	Att_Tr30_Tpcr_L	6.07	140.38	141.60	141.64	141.77	0.010563	2.00	3.60	14.15	0.73
Borro Quercia	11	Max WS	Att_Tr200_Tpcr_L	8.15	139.34	140.77	140.90	141.35	0.033167	3.39	2.41	3.25	1.26
Borro Quercia	11	Max WS	Att_Tr30_Tpcr_L	6.07	139.34	140.60	140.71	141.10	0.029454	3.14	1.93	2.54	1.15
Borro Quercia	10.9			Lat Struct									
Borro Quercia	10	Max WS	Att_Tr200_Tpcr_L	8.04	138.54	139.83	139.95	140.14	0.017204	2.60	3.80	15.15	0.98
Borro Quercia	10	Max WS	Att_Tr30_Tpcr_L	6.06	138.54	139.75	139.85	140.03	0.015832	2.35	2.83	10.48	0.93
Borro Quercia	9	Max WS	Att_Tr200_Tpcr_L	6.54	138.21	139.44		139.58	0.006190	1.82	5.55	26.31	0.56
Borro Quercia	9	Max WS	Att_Tr30_Tpcr_L	5.74	138.21	139.35	139.16	139.55	0.008735	2.07	3.59	17.14	0.66
Borro Quercia	8	Max WS	Att_Tr200_Tpcr_L	6.90	137.89	138.95	139.27	139.59	0.034511	3.53	1.96	1.87	1.10
Borro Quercia	8	Max WS	Att_Tr30_Tpcr_L	5.82	137.89	138.82	138.90	139.41	0.034682	3.39	1.72	1.86	1.13
Borro Quercia	7.2	Max WS	Att_Tr200_Tpcr_L	7.11	137.60	138.58	138.76	139.39	0.020918	3.99	1.78	1.83	1.29
Borro Quercia	7.2	Max WS	Att_Tr30_Tpcr_L	5.82	137.60	138.44	138.61	139.17	0.020689	3.78	1.54	1.83	1.31
Borro Quercia	7	Max WS	Att_Tr200_Tpcr_L	7.35	137.45	138.40	138.63	139.32	0.024351	4.26	1.73	1.83	1.40
Borro Quercia	7	Max WS	Att_Tr30_Tpcr_L	5.82	137.45	138.27	138.46	139.04	0.022080	3.87	1.50	1.83	1.36
Borro Quercia	6	Max WS	Att_Tr200_Tpcr_L	7.66	136.80	138.26	137.68	138.41	0.002231	1.76	4.36	3.00	0.46
Borro Quercia	6	Max WS	Att_Tr30_Tpcr_L	5.82	136.80	138.15	137.53	138.26	0.001576	1.44	4.05	3.00	0.40

HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Quercia	5.9			Bridge									
Borro Quercia	5.8	Max WS	Att_Tr200_Tpcr_L	7.66	136.80	138.23		138.39	0.002337	1.79	4.29	3.00	0.48
Borro Quercia	5.8	Max WS	Att_Tr30_Tpcr_L	5.81	136.80	138.14		138.24	0.001618	1.45	4.00	3.00	0.40
Borro Quercia	5	Max WS	Att_Tr200_Tpcr_L	7.66	136.80	138.25		138.39	0.002028	1.67	4.59	3.76	0.48
Borro Quercia	5	Max WS	Att_Tr30_Tpcr_L	5.81	136.80	138.15		138.24	0.001453	1.38	4.21	3.56	0.41
Borro Quercia	4.9			Lat Struct									
Borro Quercia	4.8			Lat Struct									
Borro Quercia	4	Max WS	Att_Tr200_Tpcr_L	7.55	136.68	138.22		138.33	0.002654	1.43	5.28	4.73	0.43
Borro Quercia	4	Max WS	Att_Tr30_Tpcr_L	5.80	136.68	138.12		138.19	0.002126	1.21	4.78	4.73	0.39
Borro Quercia	3.6	Max WS	Att_Tr200_Tpcr_L	6.32	136.56	138.22		138.30	0.002307	1.31	5.01	6.31	0.38
Borro Quercia	3.6	Max WS	Att_Tr30_Tpcr_L	5.23	136.56	138.08		138.16	0.002269	1.23	4.27	3.91	0.37
Borro Quercia	3.5	Max WS	Att_Tr200_Tpcr_L	6.36	136.56	138.21		138.30	0.002477	1.33	4.76	3.94	0.39
Borro Quercia	3.5	Max WS	Att_Tr30_Tpcr_L	5.20	136.56	138.09		138.16	0.002241	1.22	4.27	3.91	0.37
Borro Quercia	3.4	Max WS	Att_Tr200_Tpcr_L	5.64	136.38	138.21		138.26	0.001197	0.99	5.71	4.17	0.27
Borro Quercia	3.4	Max WS	Att_Tr30_Tpcr_L	3.48	136.38	138.09		138.11	0.000583	0.67	5.23	4.17	0.19
Borro Quercia	3	Max WS	Att_Tr200_Tpcr_L	4.83	136.20	138.18	136.93	138.23	0.001535	0.97	4.99	3.04	0.24
Borro Quercia	3	Max WS	Att_Tr30_Tpcr_L	5.35	136.20	137.93	136.98	138.01	0.002565	1.24	4.31	2.50	0.30
Borro Quercia	2.9			Bridge									
Borro Quercia	2.8	Max WS	Att_Tr200_Tpcr_L	4.83	136.20	138.16		138.21	0.001457	0.99	4.91	2.95	0.23
Borro Quercia	2.8	Max WS	Att_Tr30_Tpcr_L	5.33	136.20	137.91		137.99	0.002634	1.25	4.26	2.50	0.31
Borro Quercia	2	Max WS	Att_Tr200_Tpcr_L	4.82	136.20	138.13		138.21	0.002306	1.21	4.19	3.50	0.28
Borro Quercia	2	Max WS	Att_Tr30_Tpcr_L	5.27	136.20	137.86		137.98	0.004937	1.60	3.32	2.41	0.40
Borro Quercia	1.9			Lat Struct									
Borro Quercia	1.8			Lat Struct									
Borro Quercia	1.1	Max WS	Att_Tr200_Tpcr_L	2.01	135.11	138.14		138.14	0.000025	0.16	12.50	7.83	0.04

HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Quercia	1.1	Max WS	Att_Tr30_Tpcr_L	5.19	135.11	137.82		137.83	0.000281	0.51	10.11	7.04	0.14
Borro Quercia	1	Max WS	Att_Tr200_Tpcr_L	8.40	135.11	138.10		138.12	0.000452	0.69	12.15	7.60	0.17
Borro Quercia	1	Max WS	Att_Tr30_Tpcr_L	9.89	135.11	137.74		137.79	0.001188	1.03	9.55	6.92	0.28

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

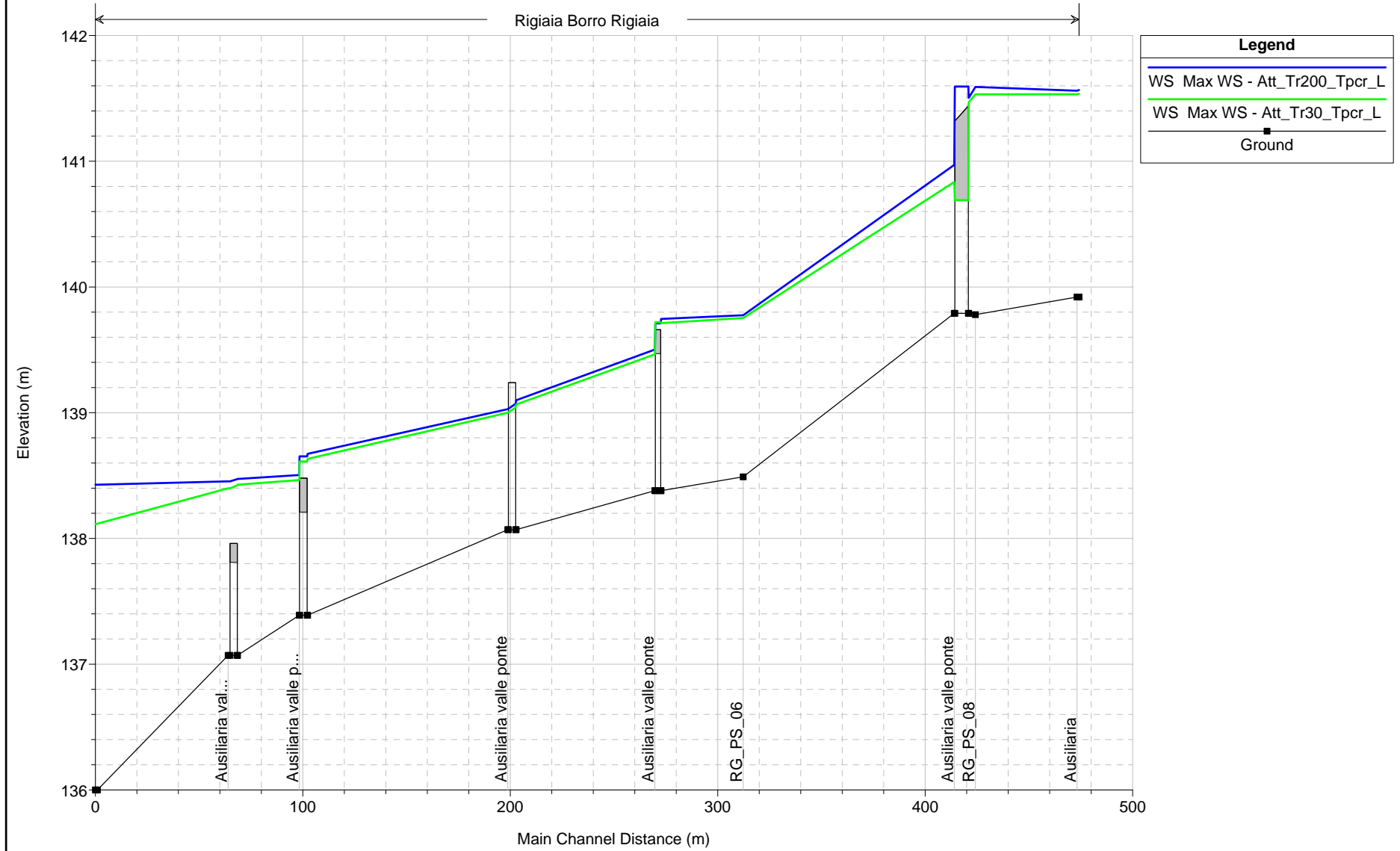
### **BORRO della RIGIAIA**

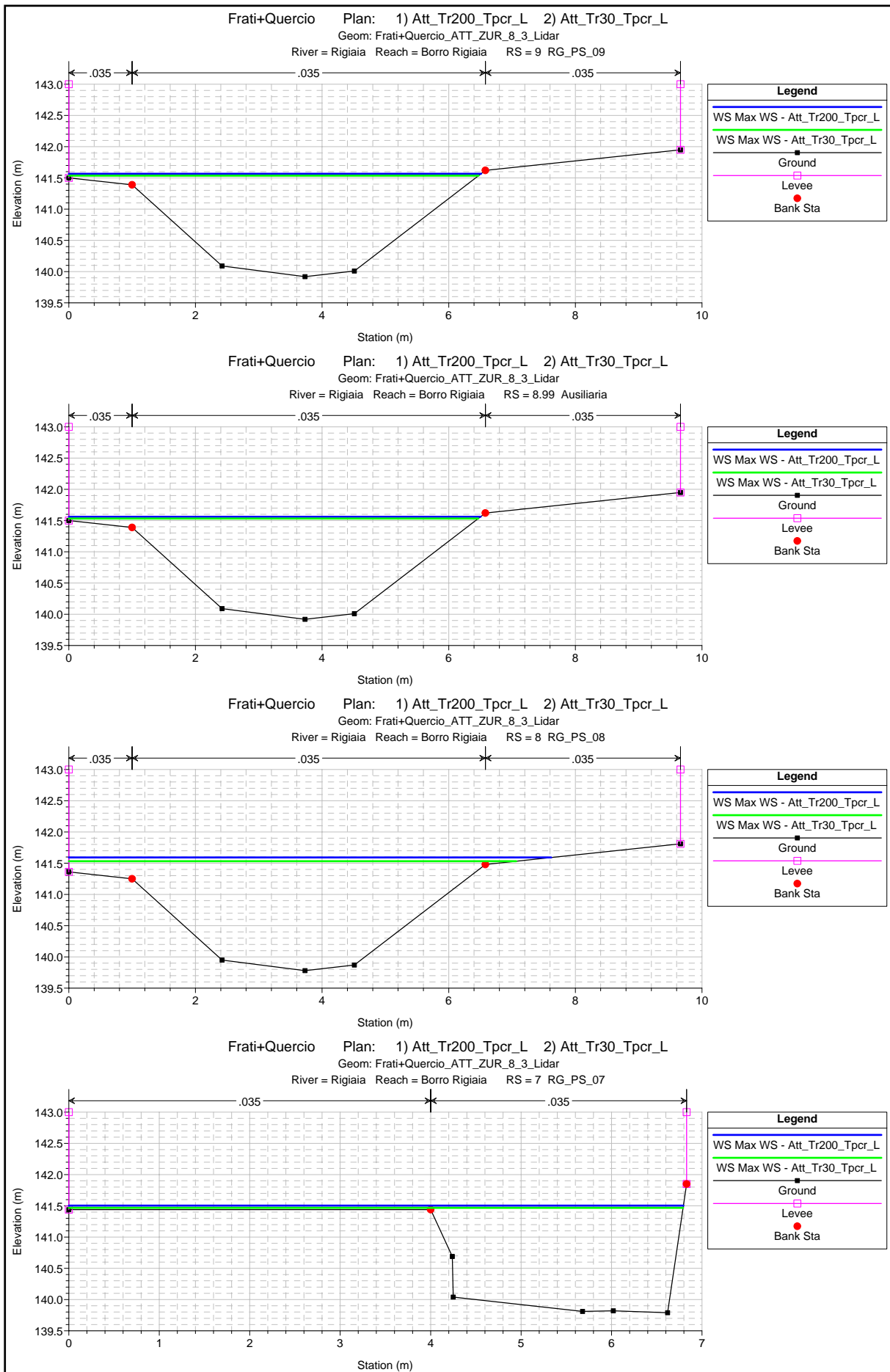
#### **Scenario A1 - Tr 200 e 30 anni**

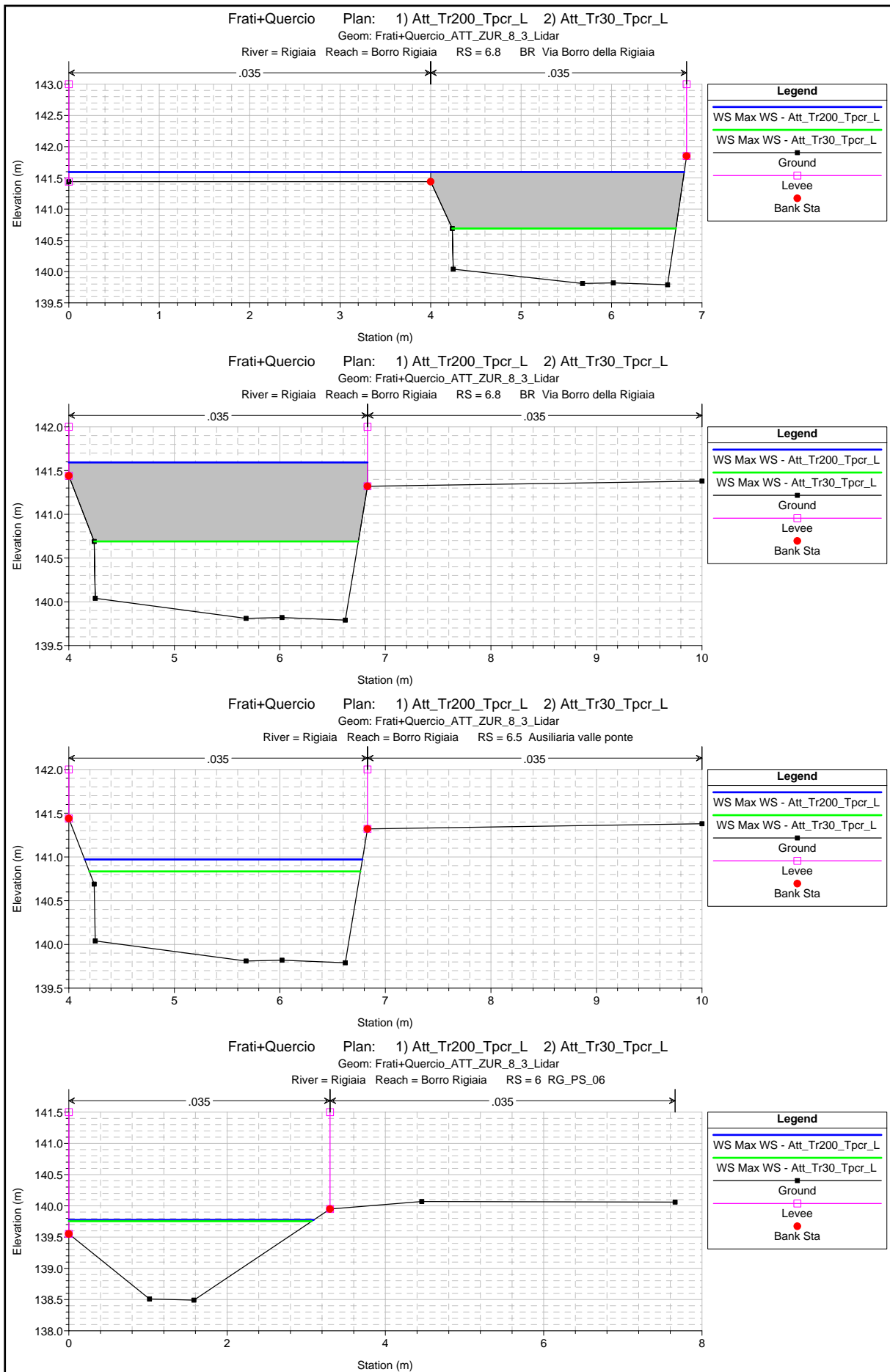
- Profili
- Sezioni di verifica
- Tabelle di output

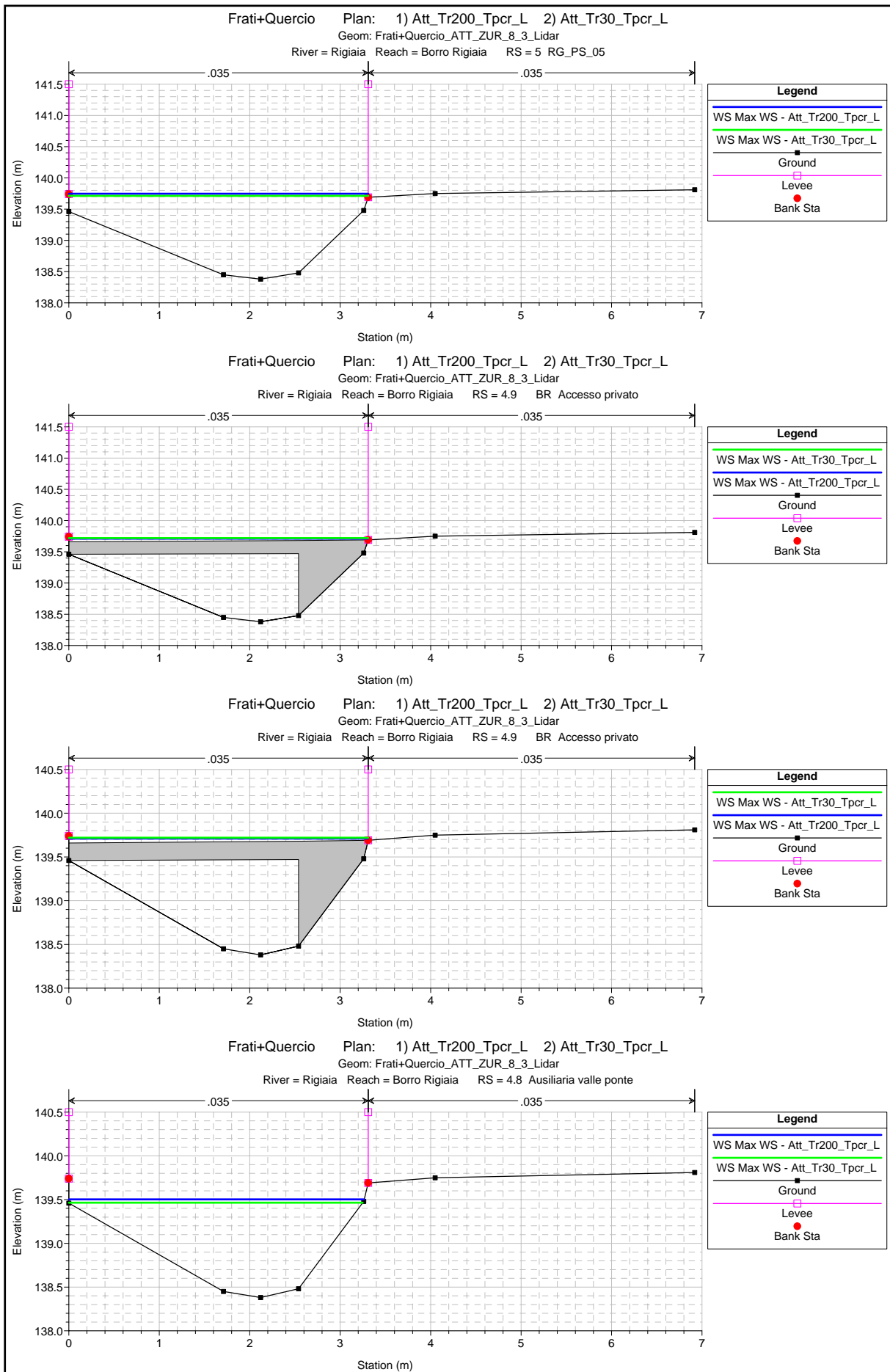
Frati+Quercio Plan: 1) Att\_Tr200\_Tpcr\_L 2) Att\_Tr30\_Tpcr\_L

Geom: Frati+Quercio\_ATT\_ZUR\_8\_3\_Lidar

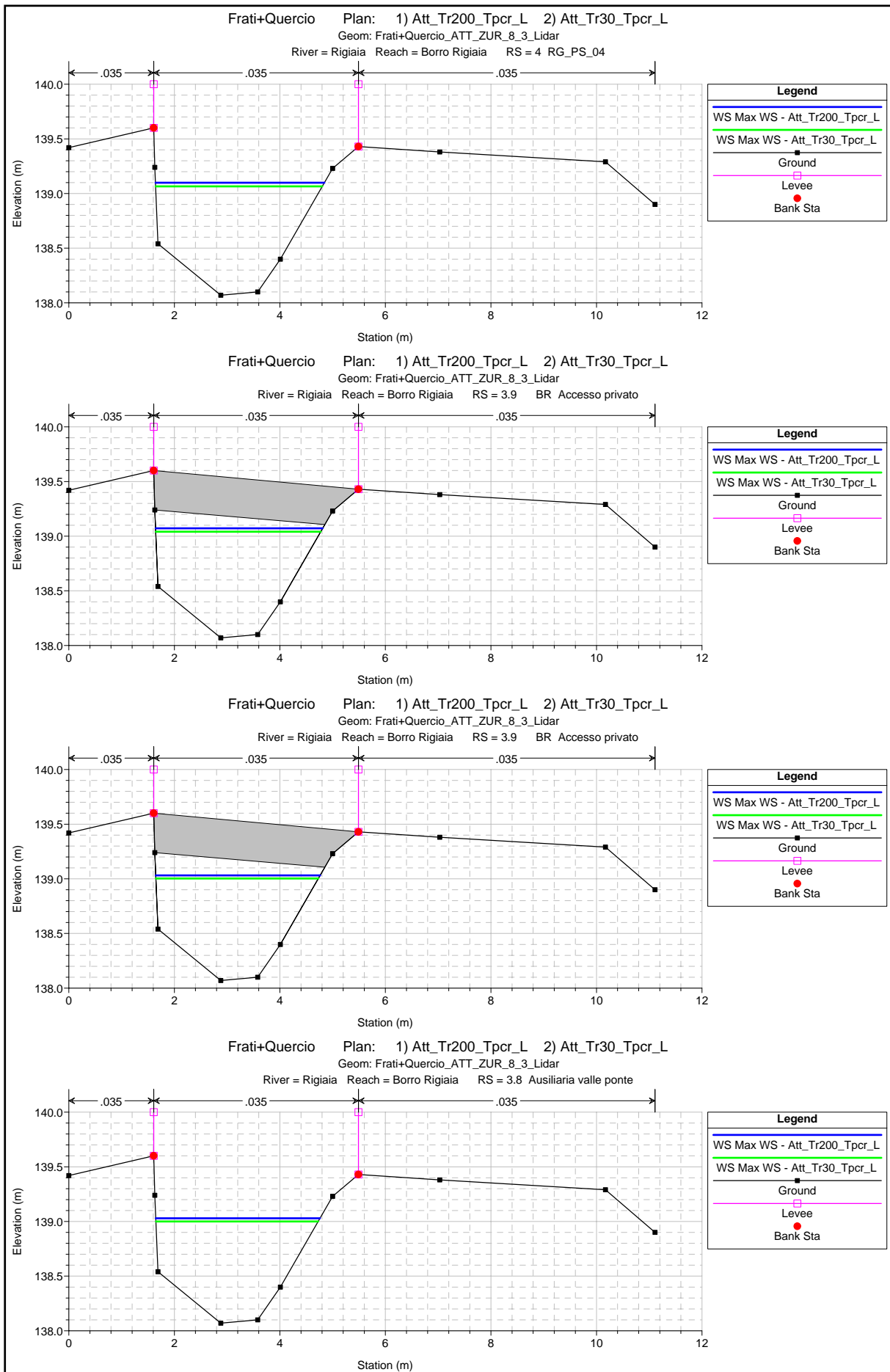


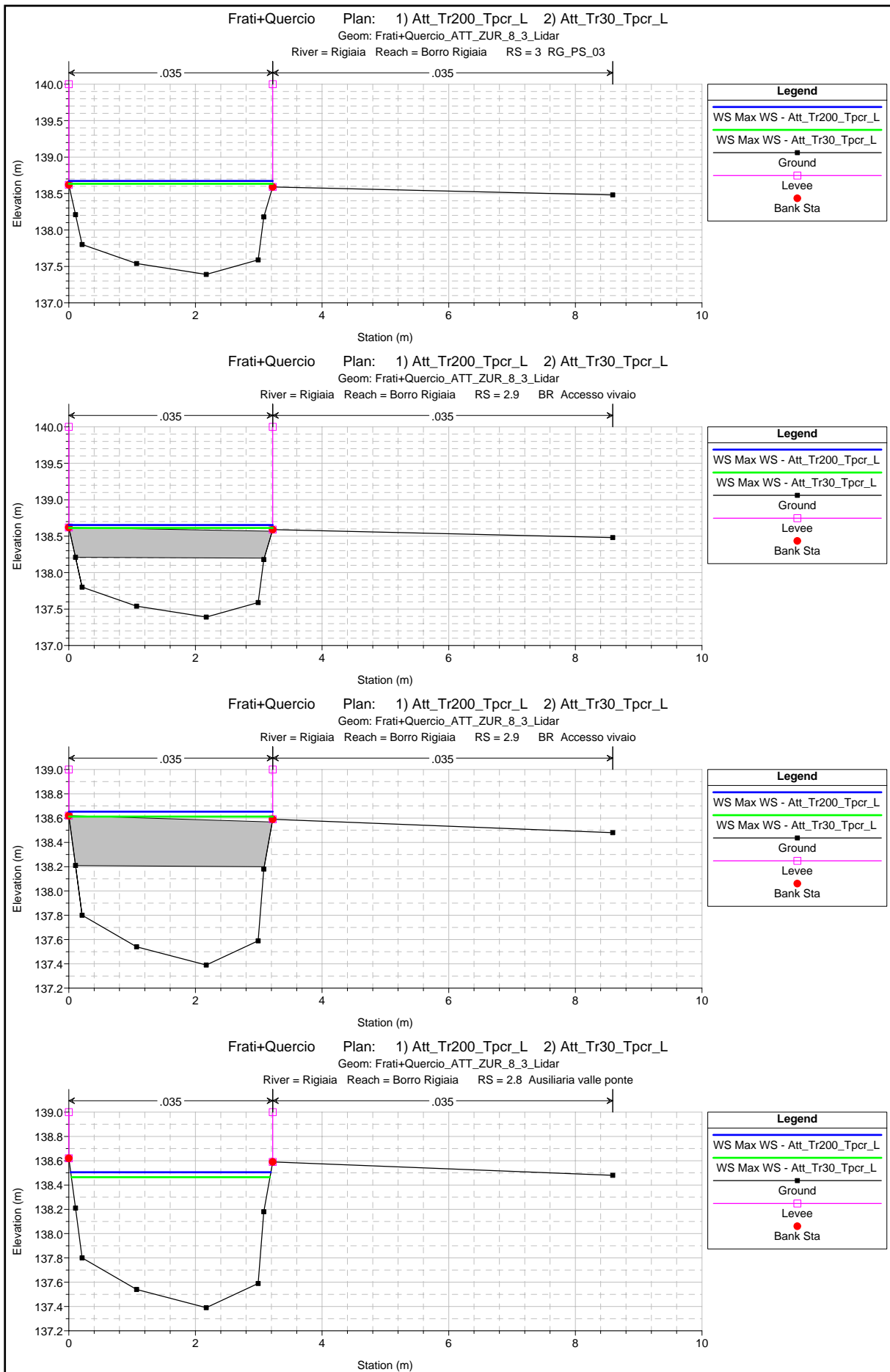


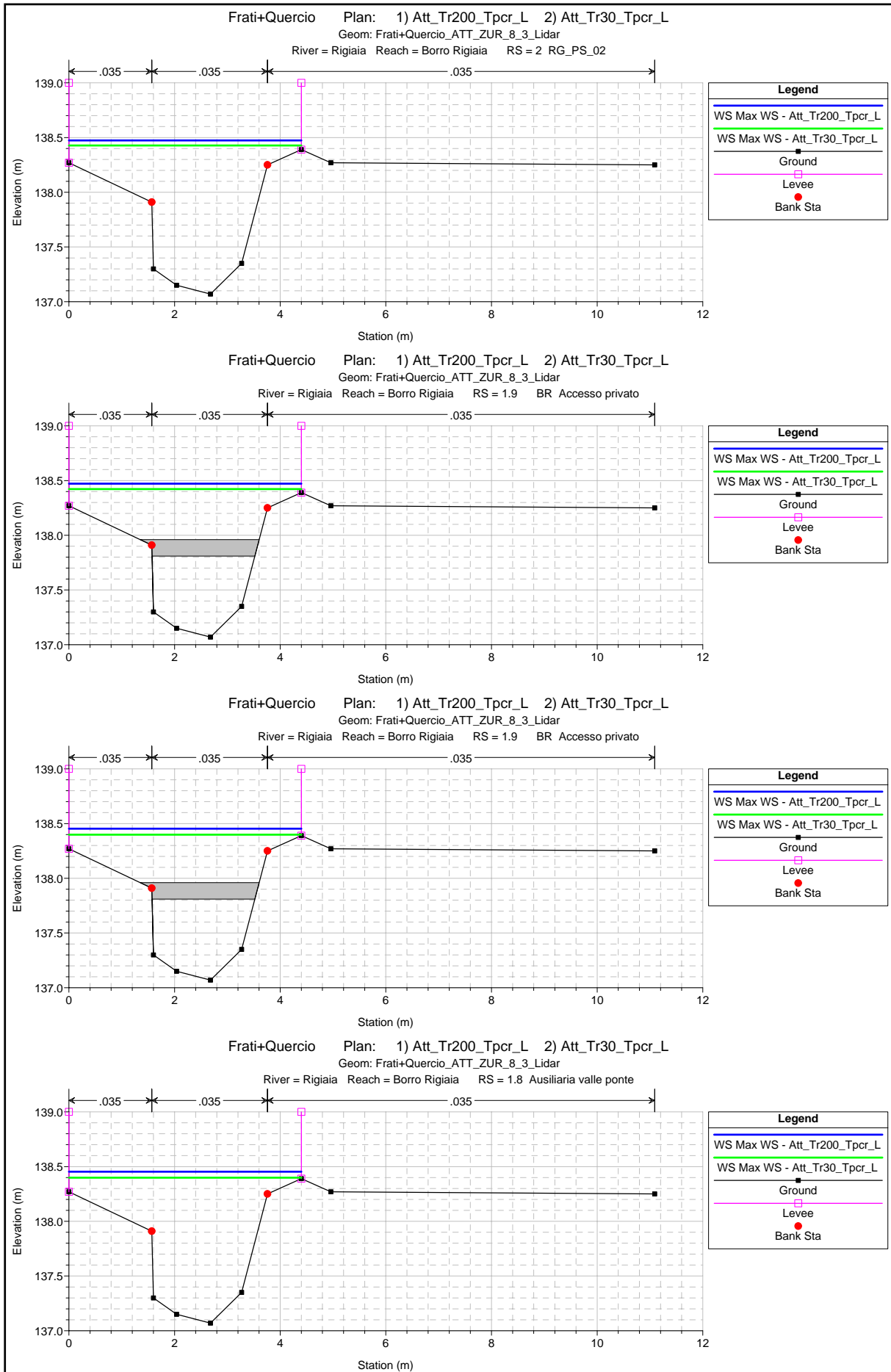


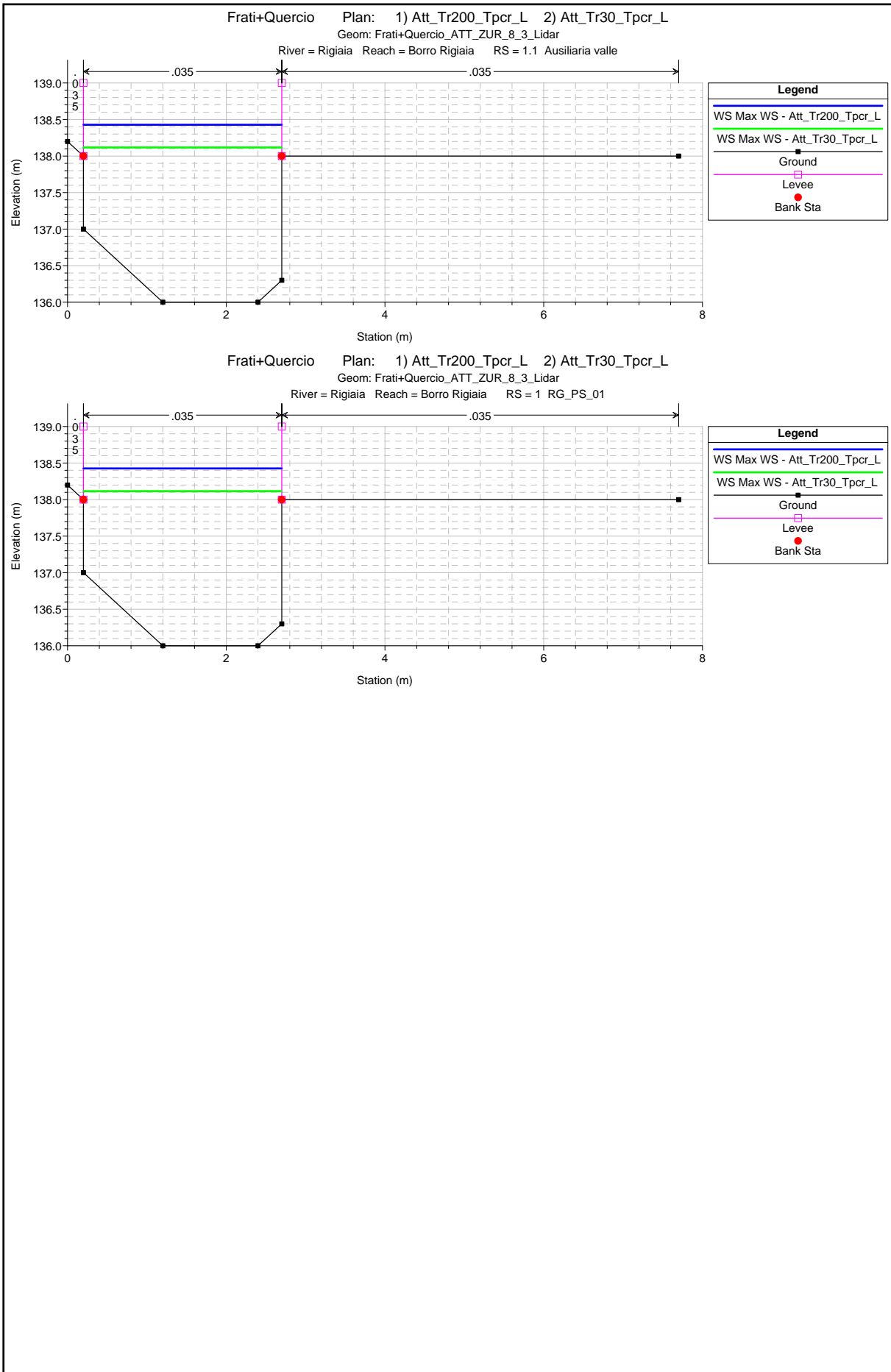












HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Rigiaia	9	Max WS	Att_Tr200_Tpcr_L	9.97	139.92	141.57		141.70	0.003728	1.65	6.15	6.51	0.50
Borro Rigiaia	9	Max WS	Att_Tr30_Tpcr_L	7.45	139.92	141.54		141.62	0.002272	1.27	5.95	6.47	0.39
Borro Rigiaia	8.99	Max WS	Att_Tr200_Tpcr_L	9.97	139.92	141.56		141.70	0.003783	1.66	6.11	6.50	0.51
Borro Rigiaia	8.99	Max WS	Att_Tr30_Tpcr_L	7.45	139.92	141.53		141.61	0.002290	1.27	5.93	6.47	0.39
Borro Rigiaia	8.9			Lat Struct									
Borro Rigiaia	8.8			Lat Struct									
Borro Rigiaia	8	Max WS	Att_Tr200_Tpcr_L	6.85	139.78	141.59		141.64	0.001092	0.97	7.29	7.62	0.28
Borro Rigiaia	8	Max WS	Att_Tr30_Tpcr_L	5.59	139.78	141.53		141.57	0.000863	0.84	6.85	7.07	0.25
Borro Rigiaia	7	Max WS	Att_Tr200_Tpcr_L	6.85	139.79	141.50	140.82	141.64	0.004944	1.65	4.37	6.79	0.43
Borro Rigiaia	7	Max WS	Att_Tr30_Tpcr_L	5.11	139.79	141.47	140.65	141.55	0.003006	1.27	4.13	6.79	0.34
Borro Rigiaia	6.8			Bridge									
Borro Rigiaia	6.5	Max WS	Att_Tr200_Tpcr_L	6.85	139.79	140.97		141.30	0.015671	2.54	2.70	2.63	0.80
Borro Rigiaia	6.5	Max WS	Att_Tr30_Tpcr_L	5.59	139.79	140.84		141.12	0.015295	2.38	2.35	2.57	0.80
Borro Rigiaia	6.49			Lat Struct									
Borro Rigiaia	6.48			Lat Struct									
Borro Rigiaia	6	Max WS	Att_Tr200_Tpcr_L	5.31	138.49	139.78		140.02	0.011954	2.17	2.45	3.09	0.78
Borro Rigiaia	6	Max WS	Att_Tr30_Tpcr_L	4.56	138.49	139.75		139.94	0.009498	1.92	2.38	3.07	0.69
Borro Rigiaia	5	Max WS	Att_Tr200_Tpcr_L	3.41	138.38	139.75	139.27	139.81	0.002785	1.13	3.01	3.31	0.38
Borro Rigiaia	5	Max WS	Att_Tr30_Tpcr_L	3.16	138.38	139.71	139.23	139.77	0.002656	1.09	2.90	3.31	0.37
Borro Rigiaia	4.9			Bridge									
Borro Rigiaia	4.8	Max WS	Att_Tr200_Tpcr_L	3.41	138.38	139.50		139.62	0.006721	1.54	2.21	3.27	0.60
Borro Rigiaia	4.8	Max WS	Att_Tr30_Tpcr_L	3.16	138.38	139.46		139.58	0.006807	1.51	2.09	3.25	0.60
Borro Rigiaia	4.79			Lat Struct									
Borro Rigiaia	4.78			Lat Struct									

HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Rigiaia	4	Max WS	Att_Tr200_Tpcr_L	3.41	138.07	139.10	138.83	139.21	0.005726	1.47	2.32	3.20	0.55
Borro Rigiaia	4	Max WS	Att_Tr30_Tpcr_L	3.16	138.07	139.07	138.80	139.17	0.005576	1.42	2.22	3.16	0.54
Borro Rigiaia	3.9			Bridge									
Borro Rigiaia	3.8	Max WS	Att_Tr200_Tpcr_L	3.41	138.07	139.03		139.16	0.007523	1.62	2.10	3.11	0.63
Borro Rigiaia	3.8	Max WS	Att_Tr30_Tpcr_L	3.16	138.07	139.00		139.13	0.007266	1.57	2.01	3.08	0.62
Borro Rigiaia	3.79			Lat Struct									
Borro Rigiaia	3.78			Lat Struct									
Borro Rigiaia	3	Max WS	Att_Tr200_Tpcr_L	3.18	137.39	138.67	138.05	138.72	0.001784	0.94	3.37	3.22	0.29
Borro Rigiaia	3	Max WS	Att_Tr30_Tpcr_L	3.11	137.39	138.63	138.04	138.68	0.001899	0.96	3.24	3.22	0.31
Borro Rigiaia	2.9			Bridge									
Borro Rigiaia	2.8	Max WS	Att_Tr200_Tpcr_L	3.18	137.39	138.50		138.57	0.002890	1.12	2.83	3.16	0.38
Borro Rigiaia	2.8	Max WS	Att_Tr30_Tpcr_L	3.10	137.39	138.46		138.53	0.003123	1.15	2.70	3.14	0.39
Borro Rigiaia	2.79			Lat Struct									
Borro Rigiaia	2.78			Lat Struct									
Borro Rigiaia	2	Max WS	Att_Tr200_Tpcr_L	2.73	137.07	138.47	137.82	138.51	0.001608	0.94	3.22	4.40	0.28
Borro Rigiaia	2	Max WS	Att_Tr30_Tpcr_L	2.66	137.07	138.43	137.81	138.47	0.001819	0.97	3.02	4.40	0.30
Borro Rigiaia	1.9			Bridge									
Borro Rigiaia	1.8	Max WS	Att_Tr200_Tpcr_L	2.73	137.07	138.45		138.50	0.001731	0.96	3.14	4.40	0.29
Borro Rigiaia	1.8	Max WS	Att_Tr30_Tpcr_L	2.66	137.07	138.40		138.45	0.002035	1.01	2.89	4.40	0.31
Borro Rigiaia	1.79			Lat Struct									
Borro Rigiaia	1.78			Lat Struct									
Borro Rigiaia	1.1	Max WS	Att_Tr200_Tpcr_L	2.03	136.00	138.43		138.43	0.000210	0.37	5.52	2.50	0.08
Borro Rigiaia	1.1	Max WS	Att_Tr30_Tpcr_L	5.53	136.00	138.12		138.19	0.002257	1.16	4.75	2.50	0.27

HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Rigiaia	1	Max WS	Att_Tr200_Tpcr_L	2.03	136.00	138.43		138.43	0.000211	0.37	5.52	2.50	0.08
Borro Rigiaia	1	Max WS	Att_Tr30_Tpcr_L	5.53	136.00	138.12		138.18	0.002264	1.17	4.74	2.50	0.27

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

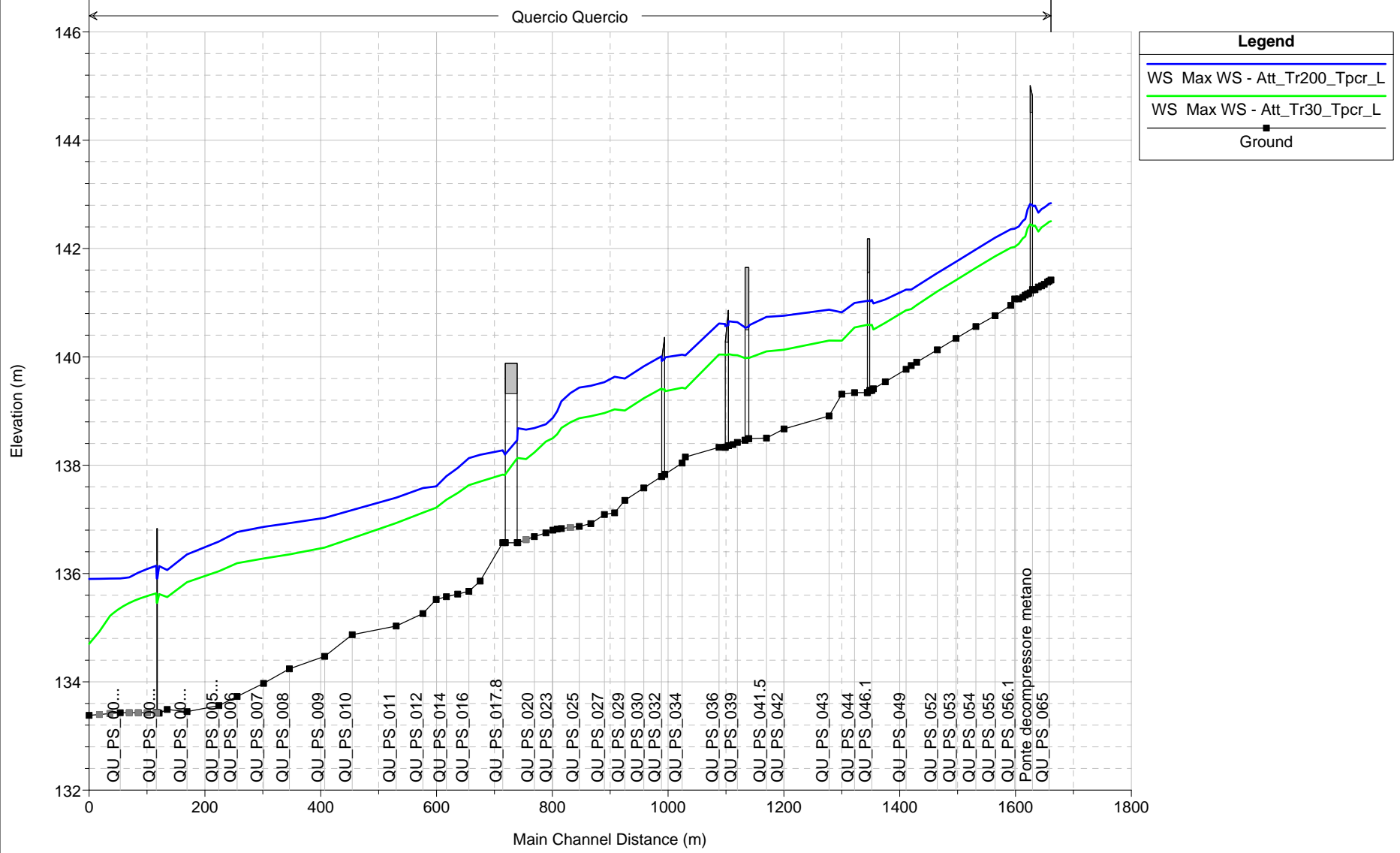
### **BORRO del QUERCIO**

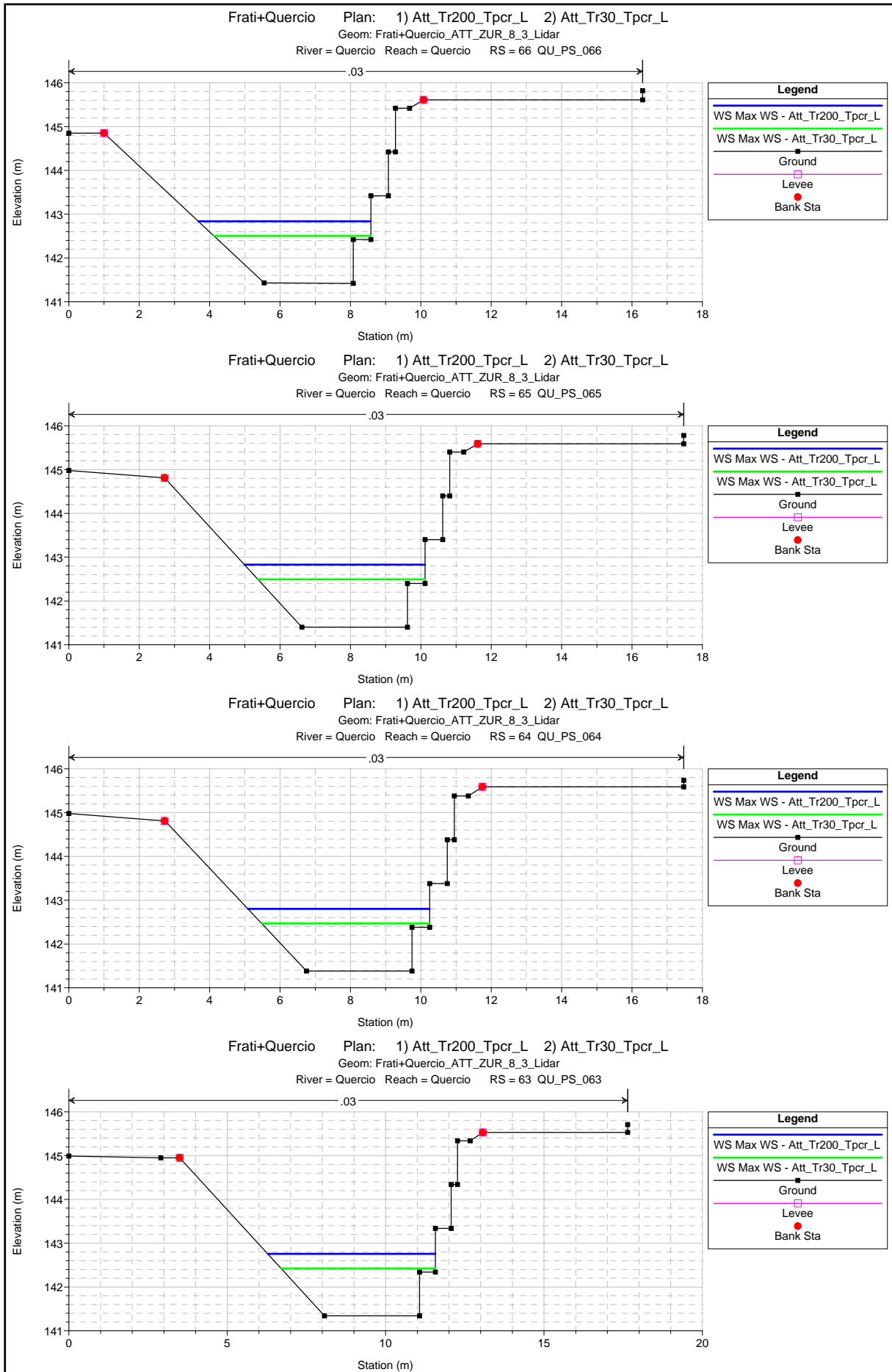
#### **Scenario A1 - Tr 200 e 30 anni**

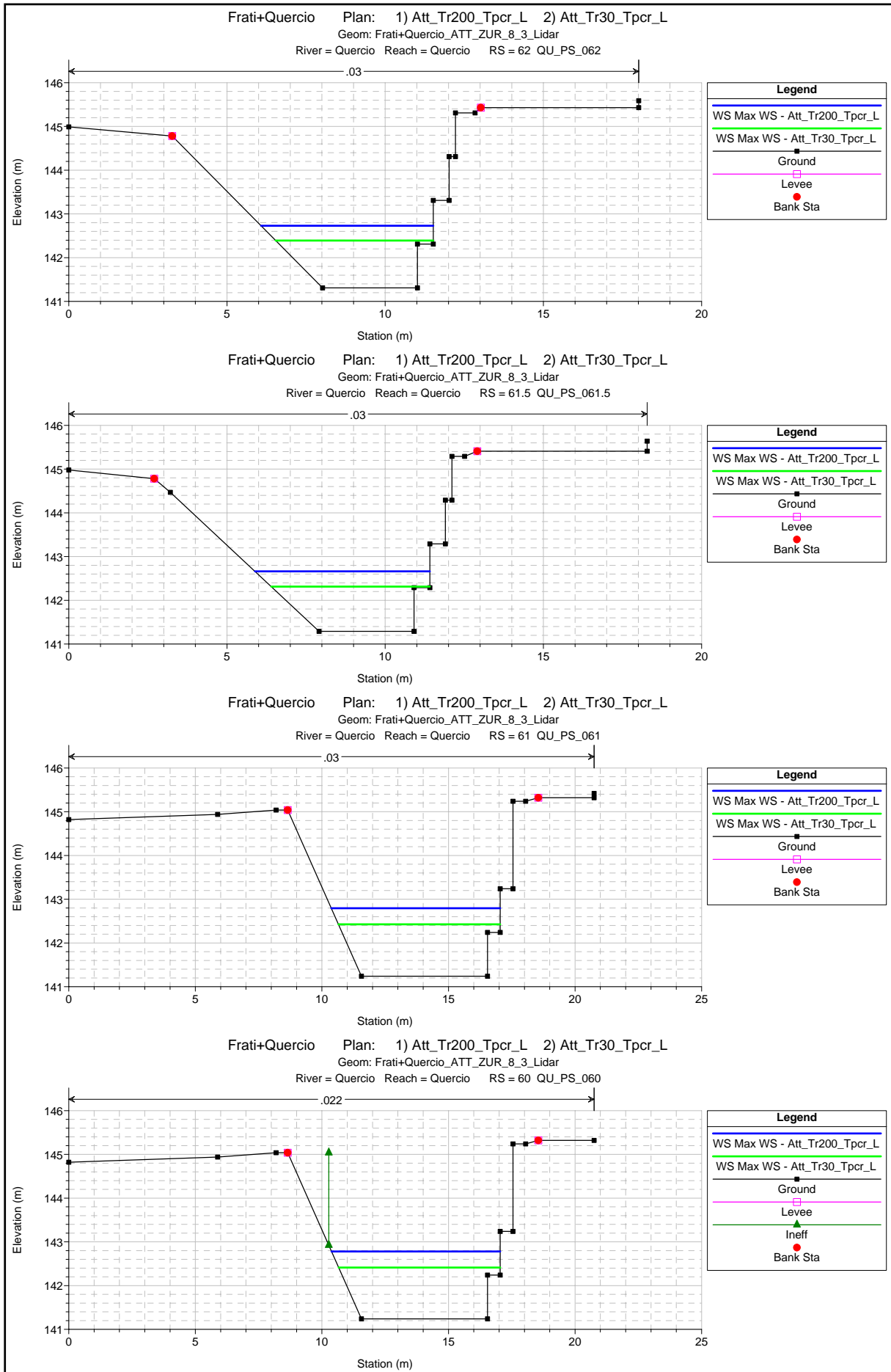
- Profili
- Sezioni di verifica
- Tabelle di output

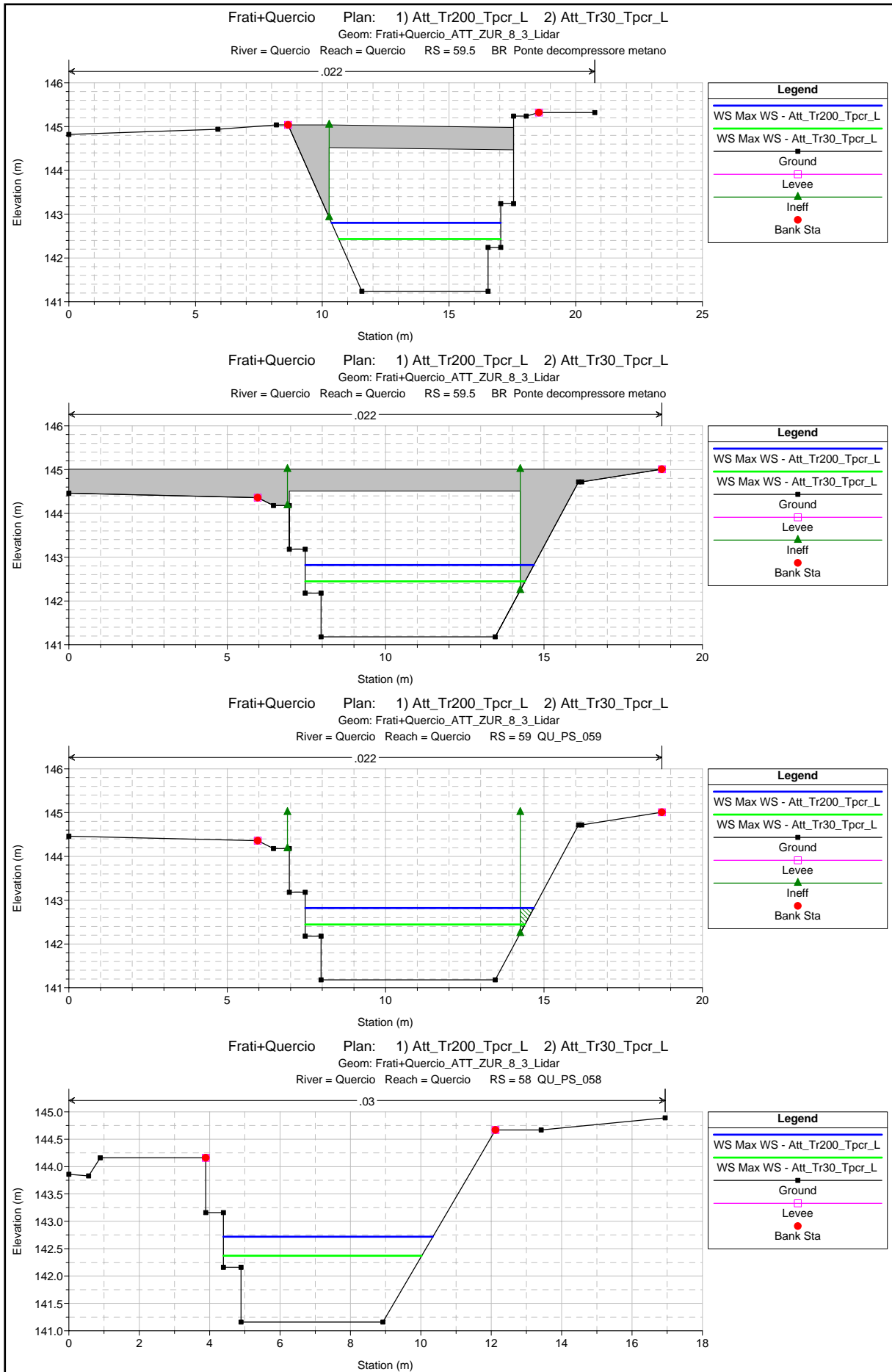


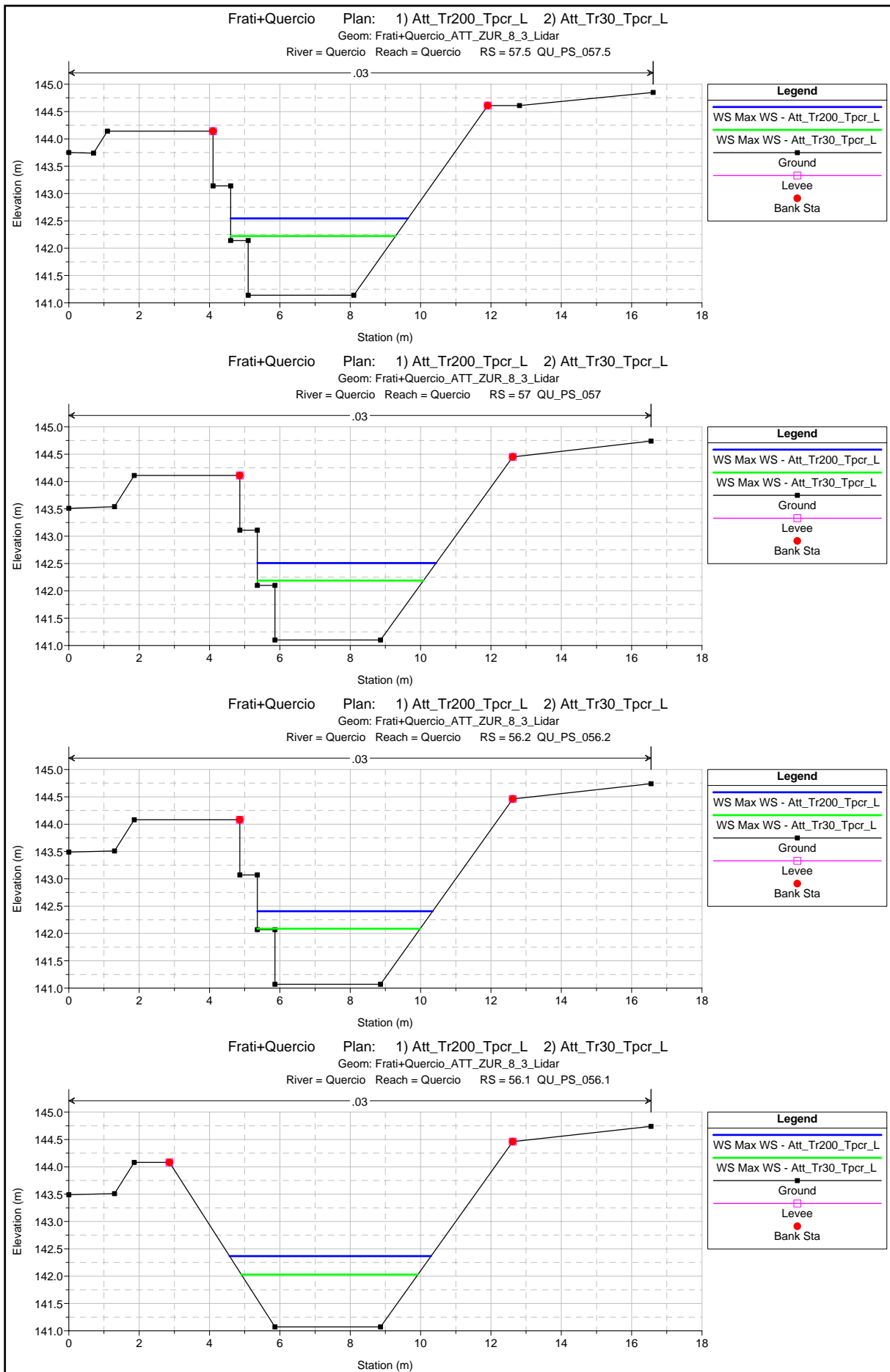
Frati+Quercio Plan: 1) Att\_Tr200\_Tpcr\_L 2) Att\_Tr30\_Tpcr\_L  
 Geom: Frati+Quercio\_ATT\_ZUR\_8\_3\_Lidar

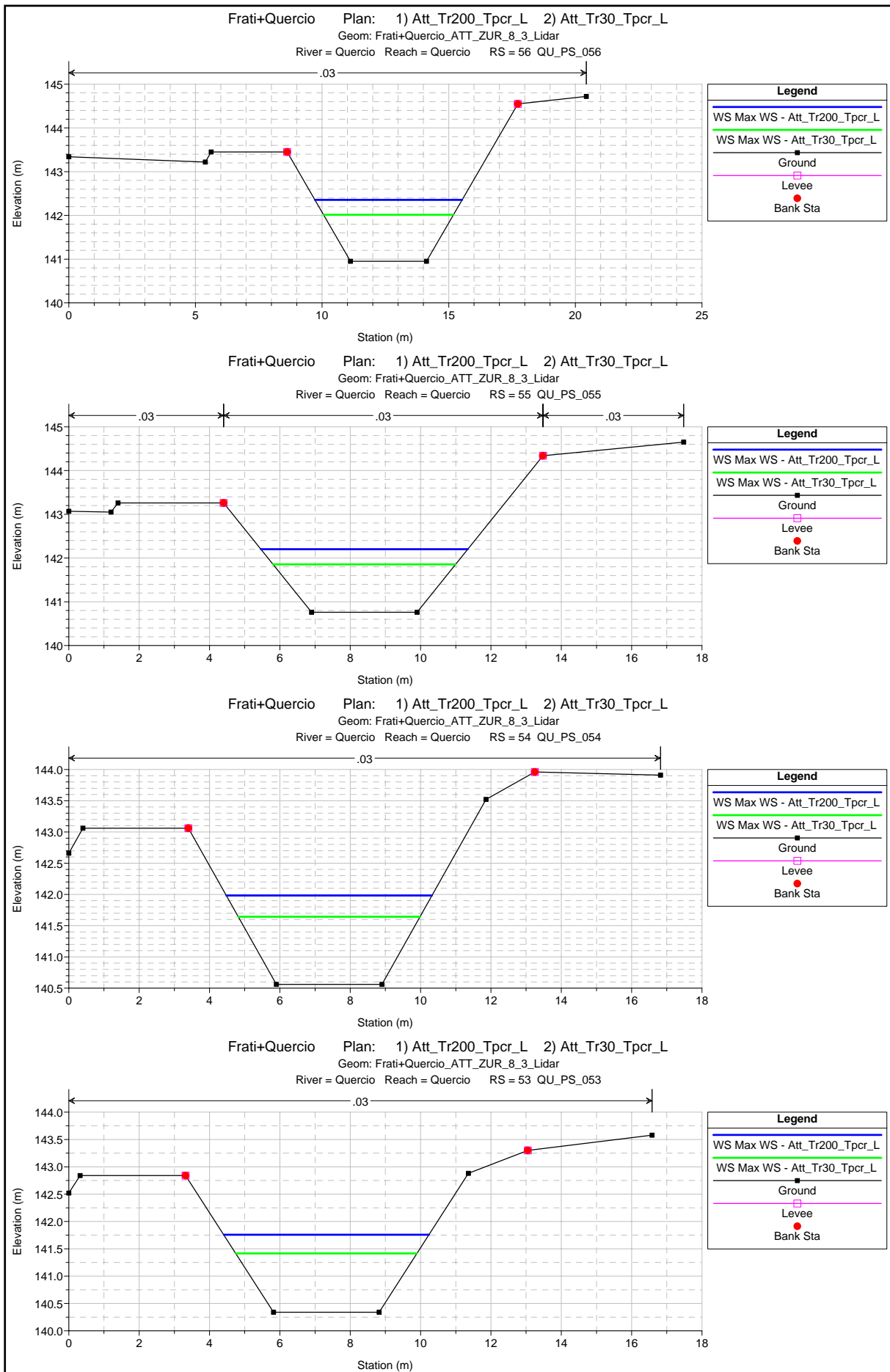


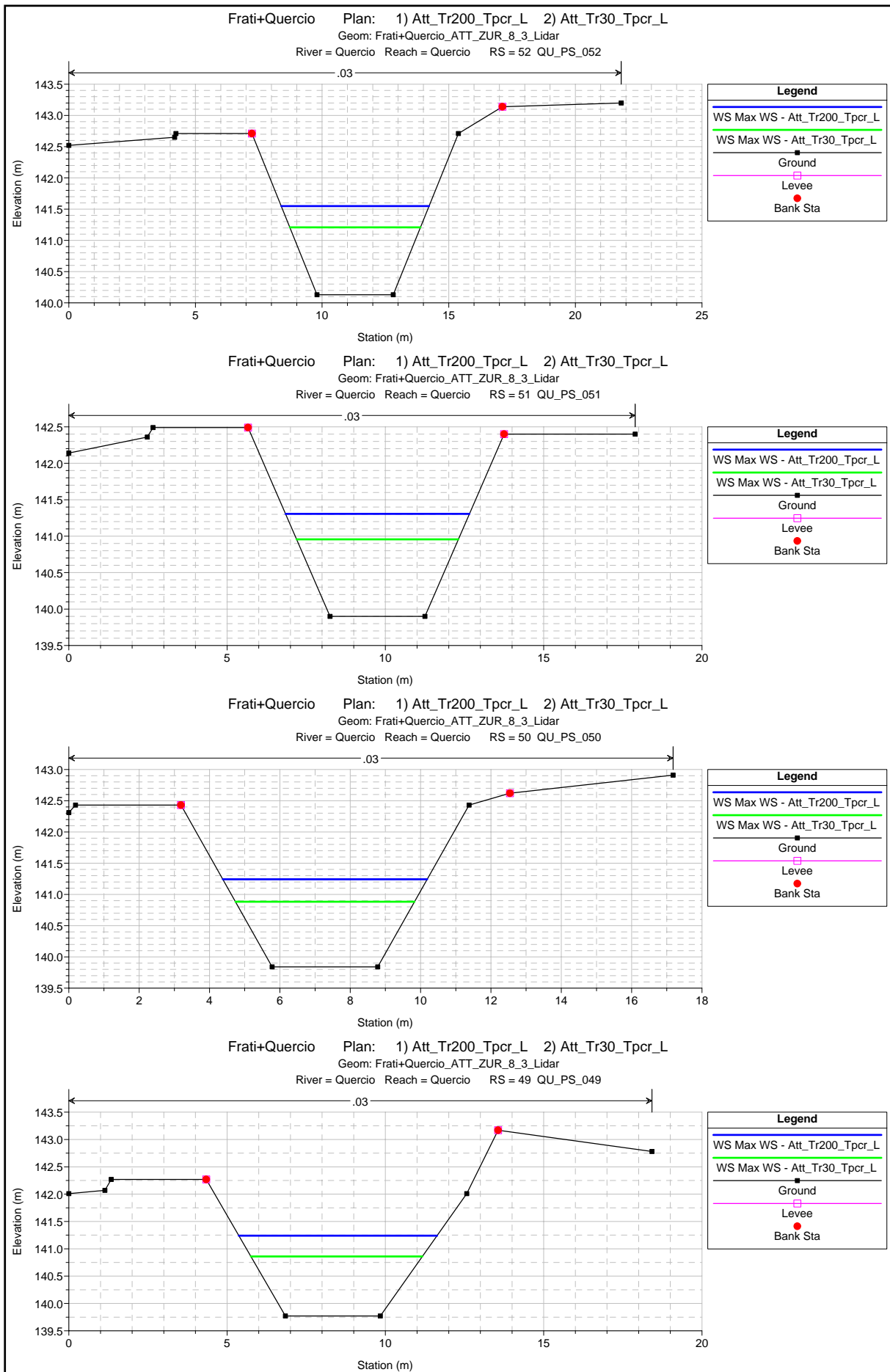


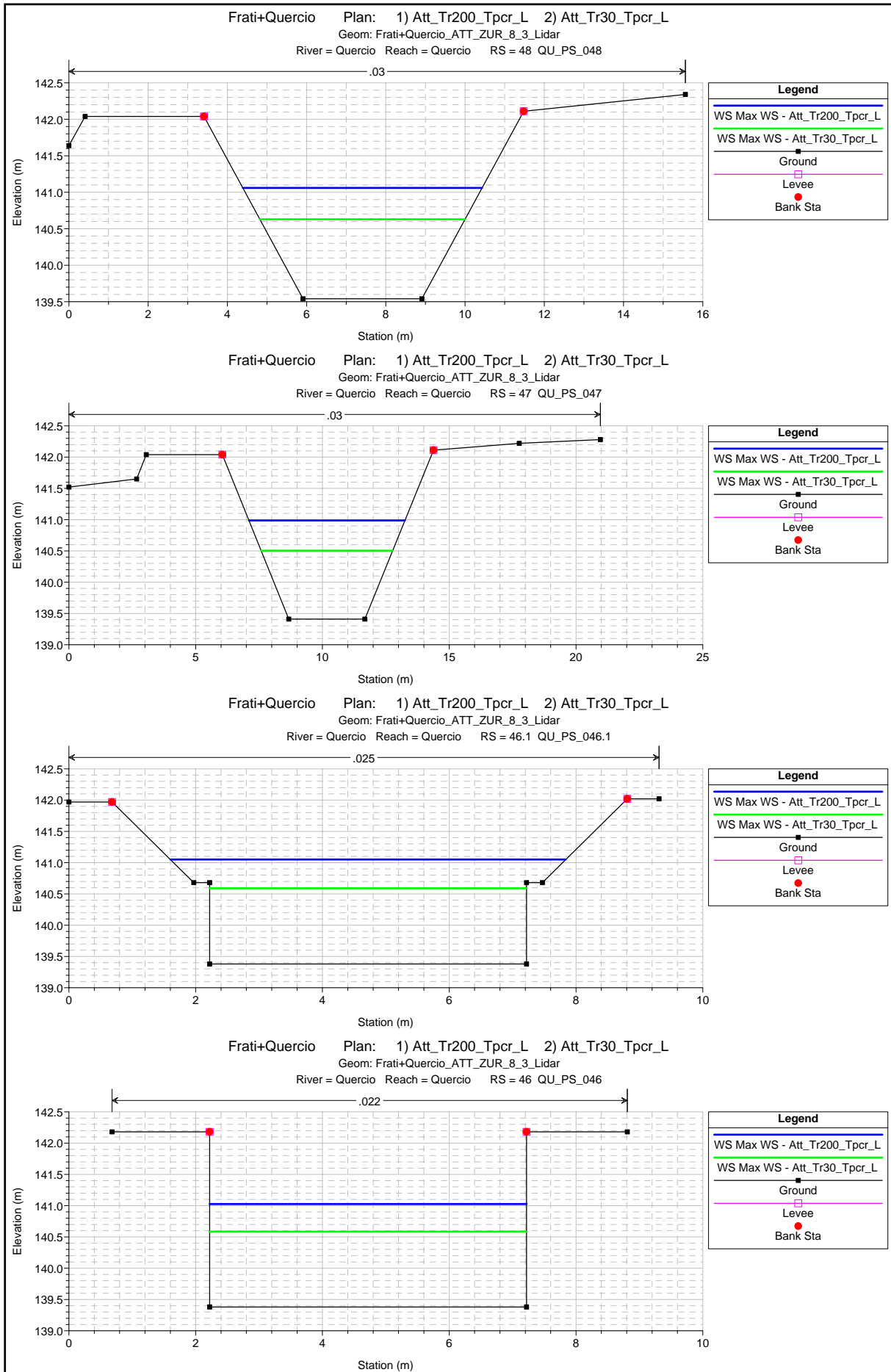




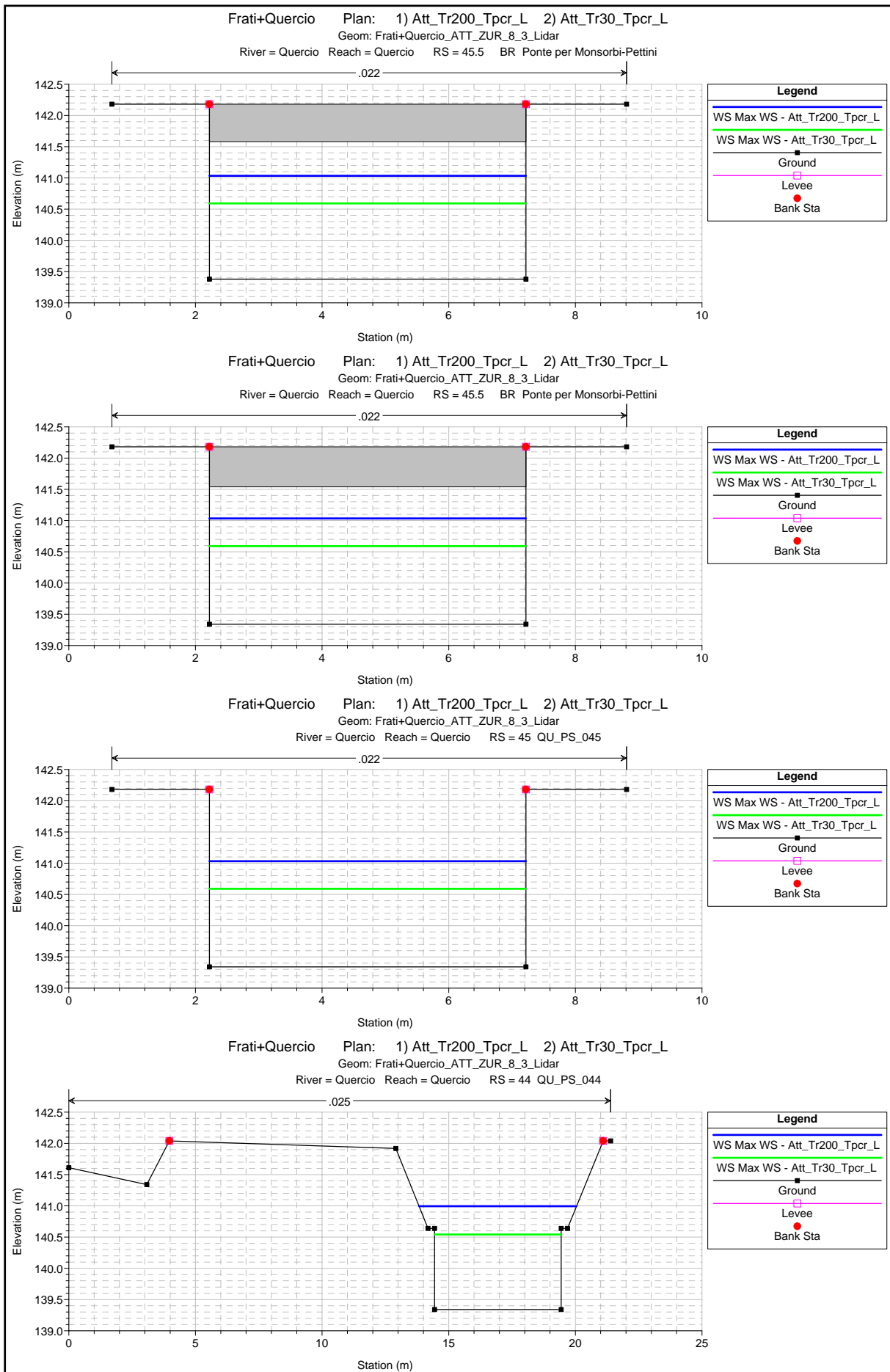


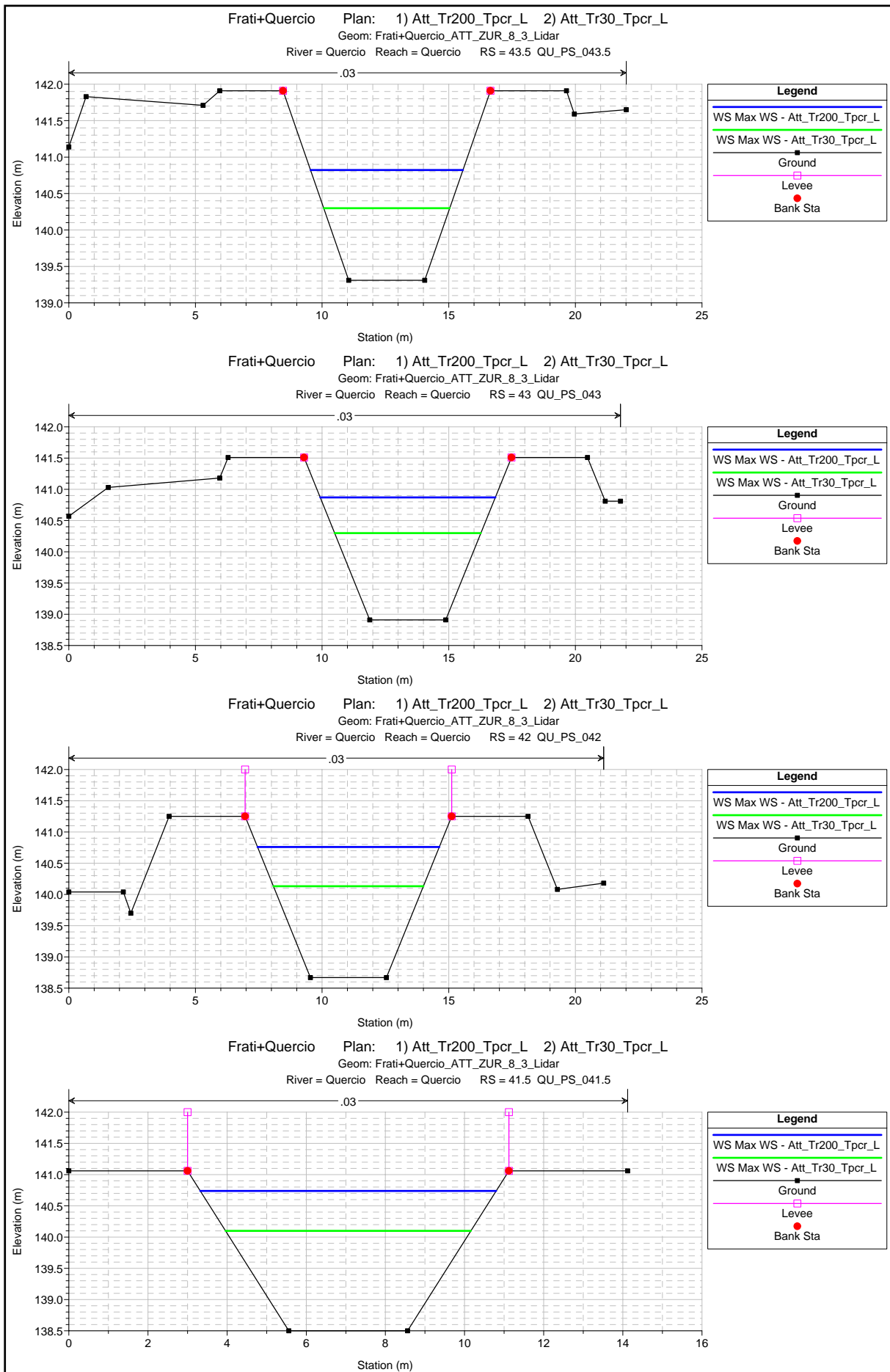


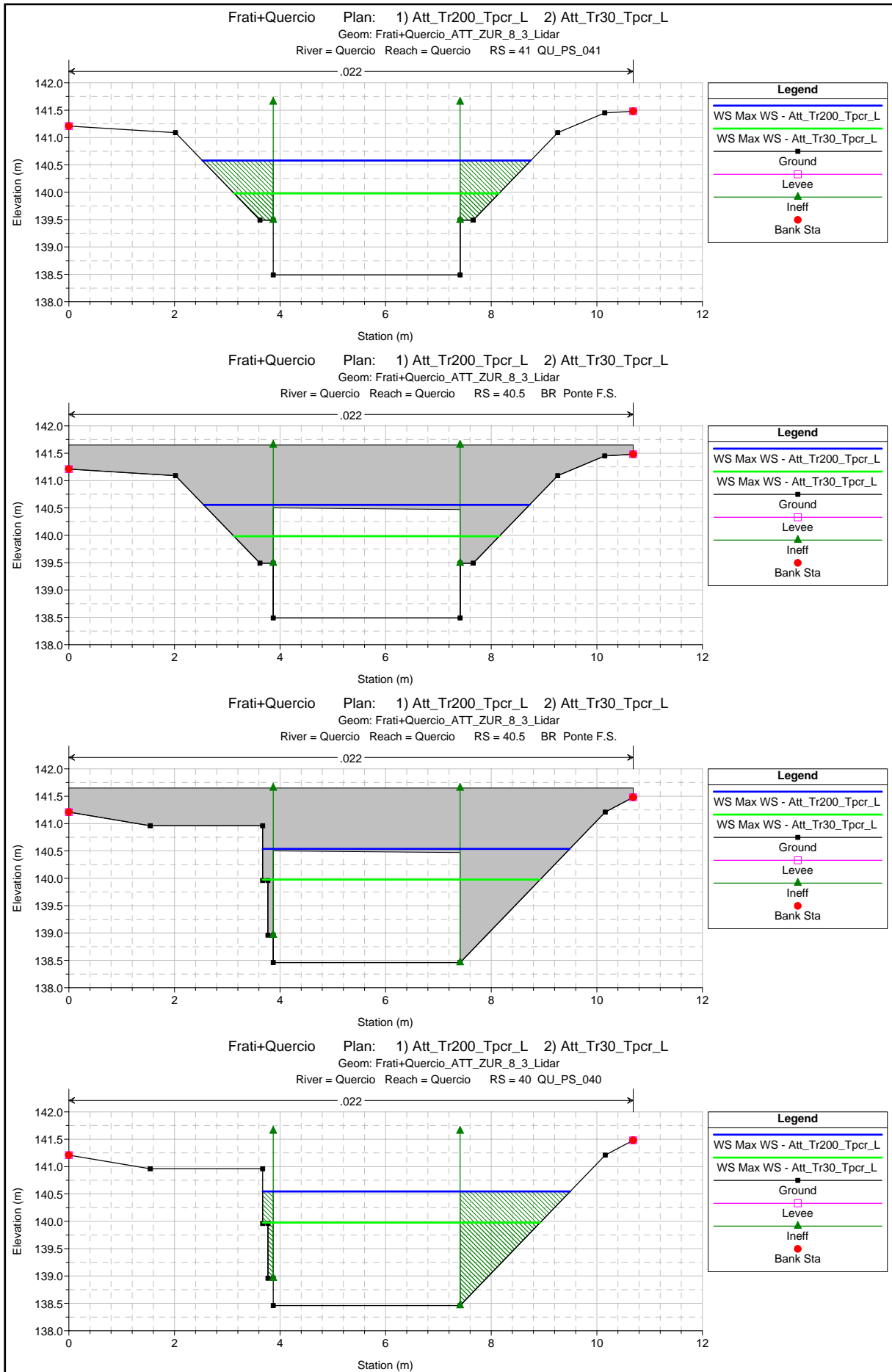


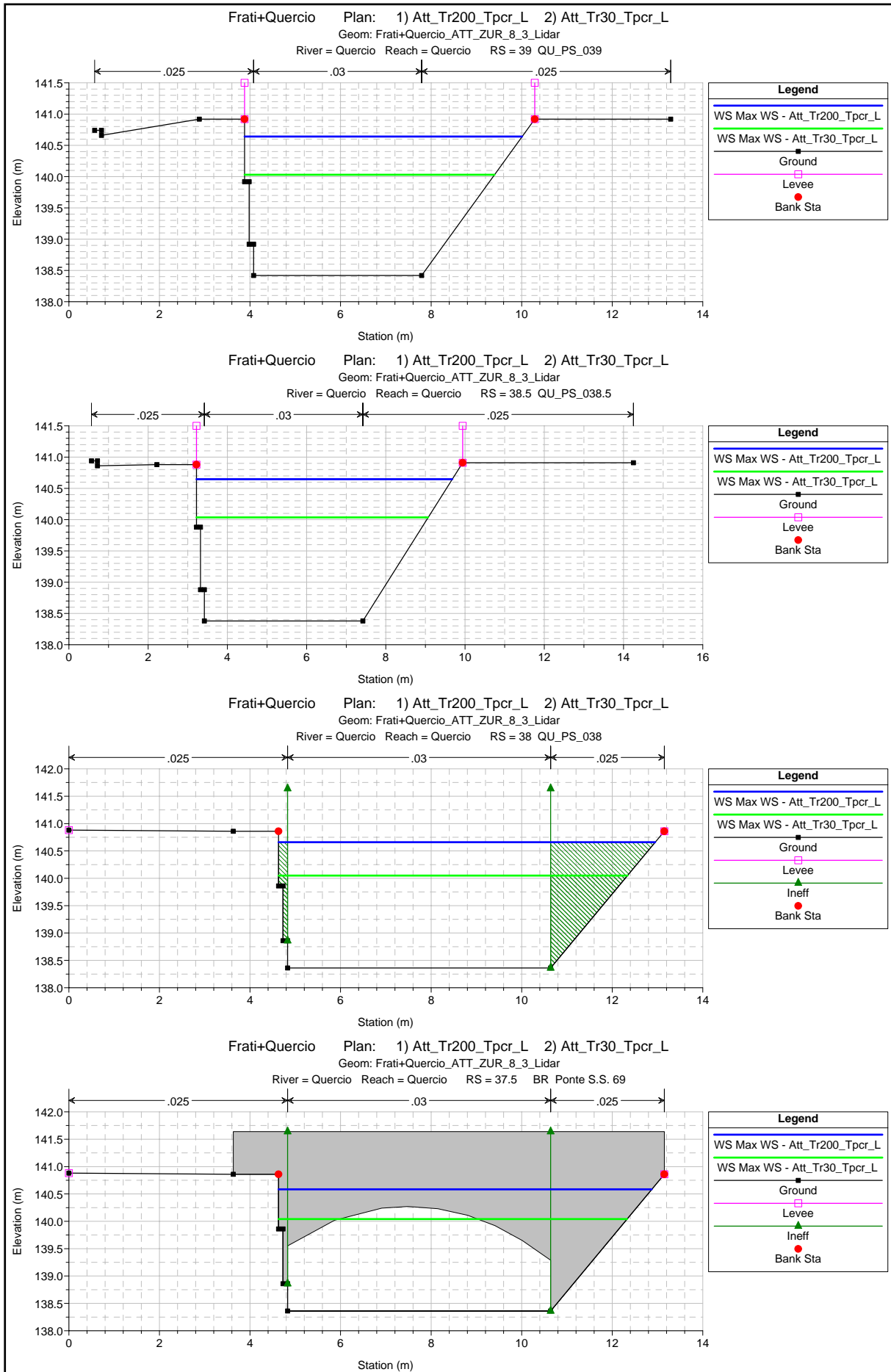


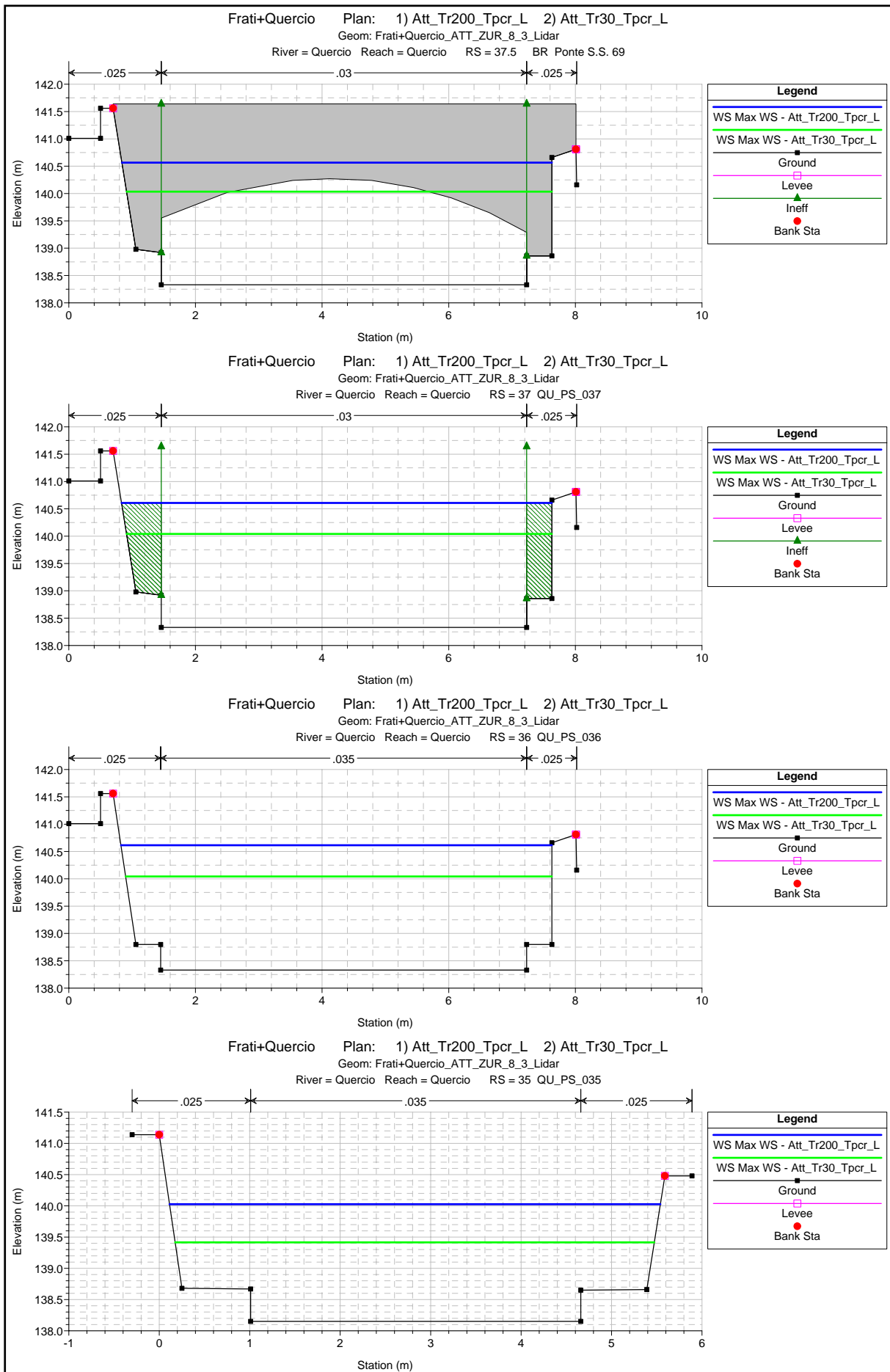


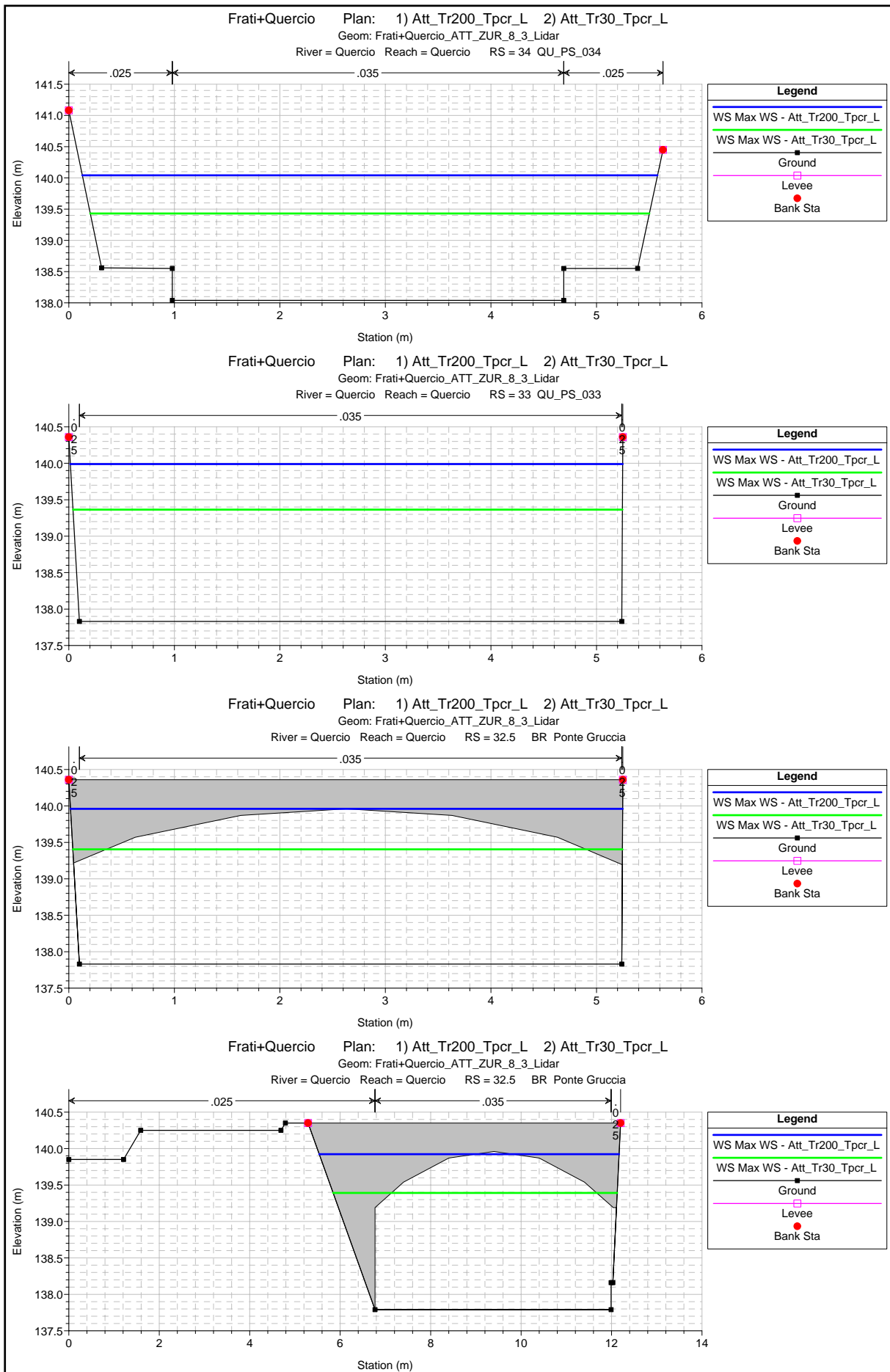


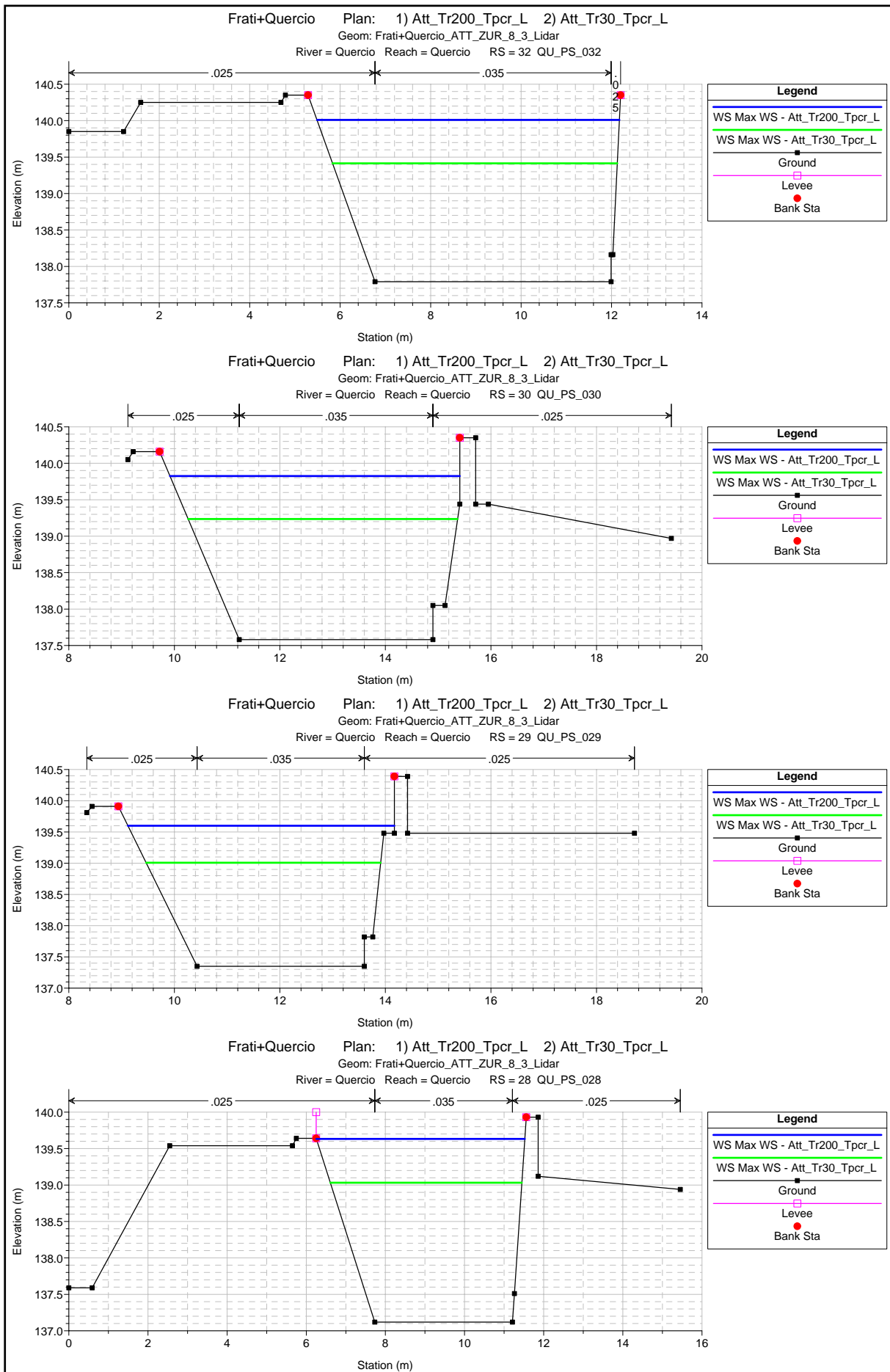


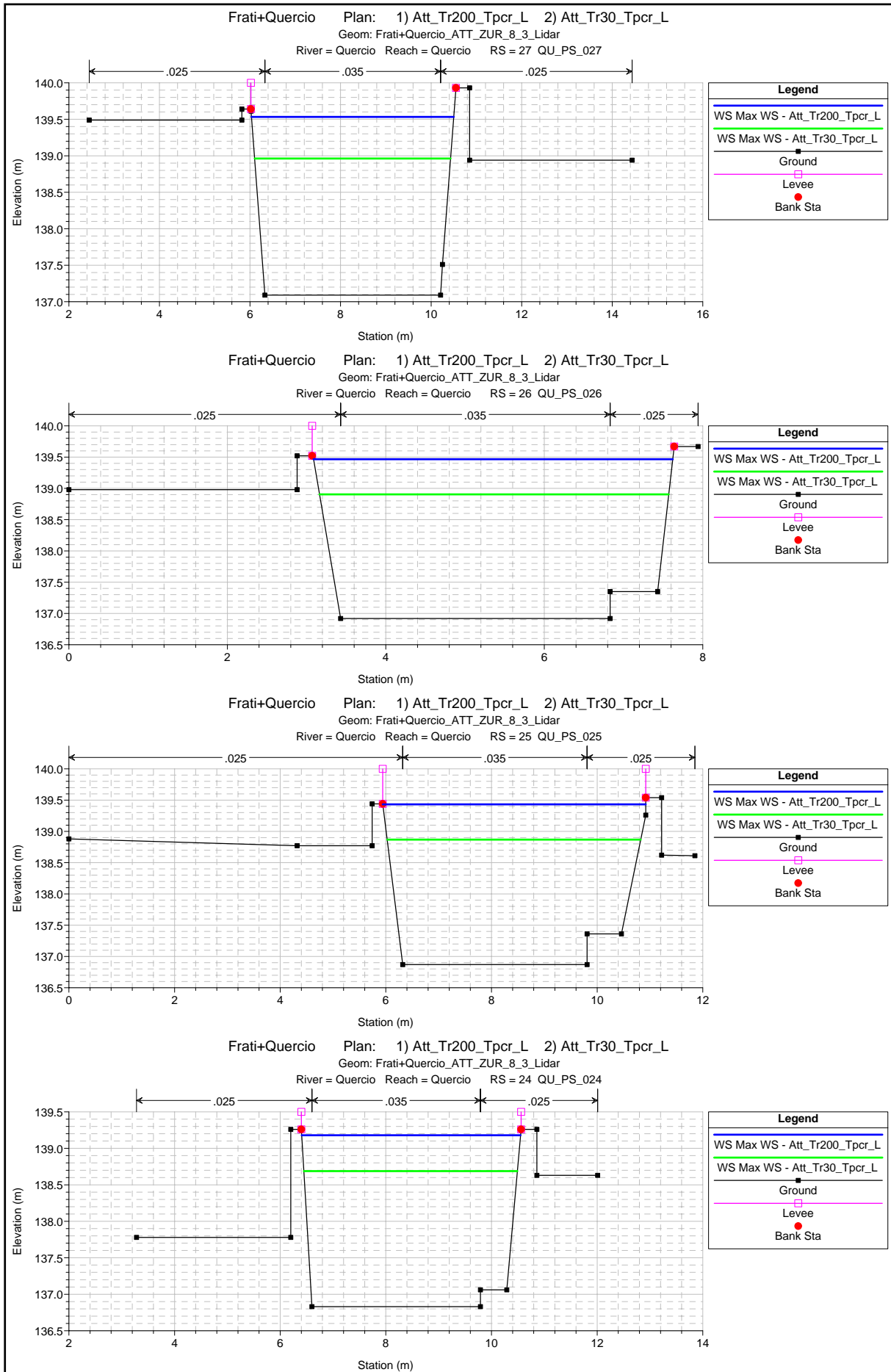




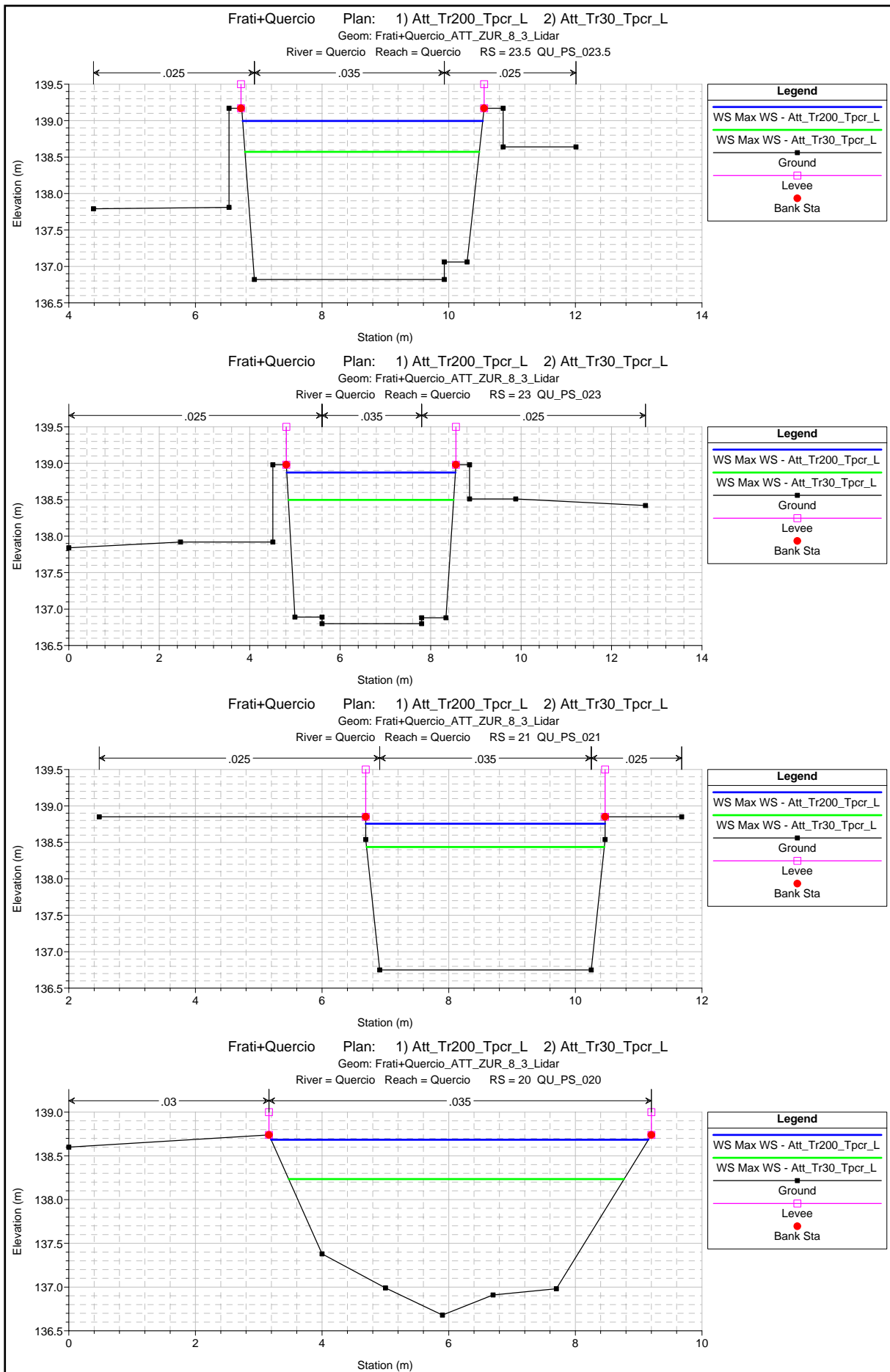


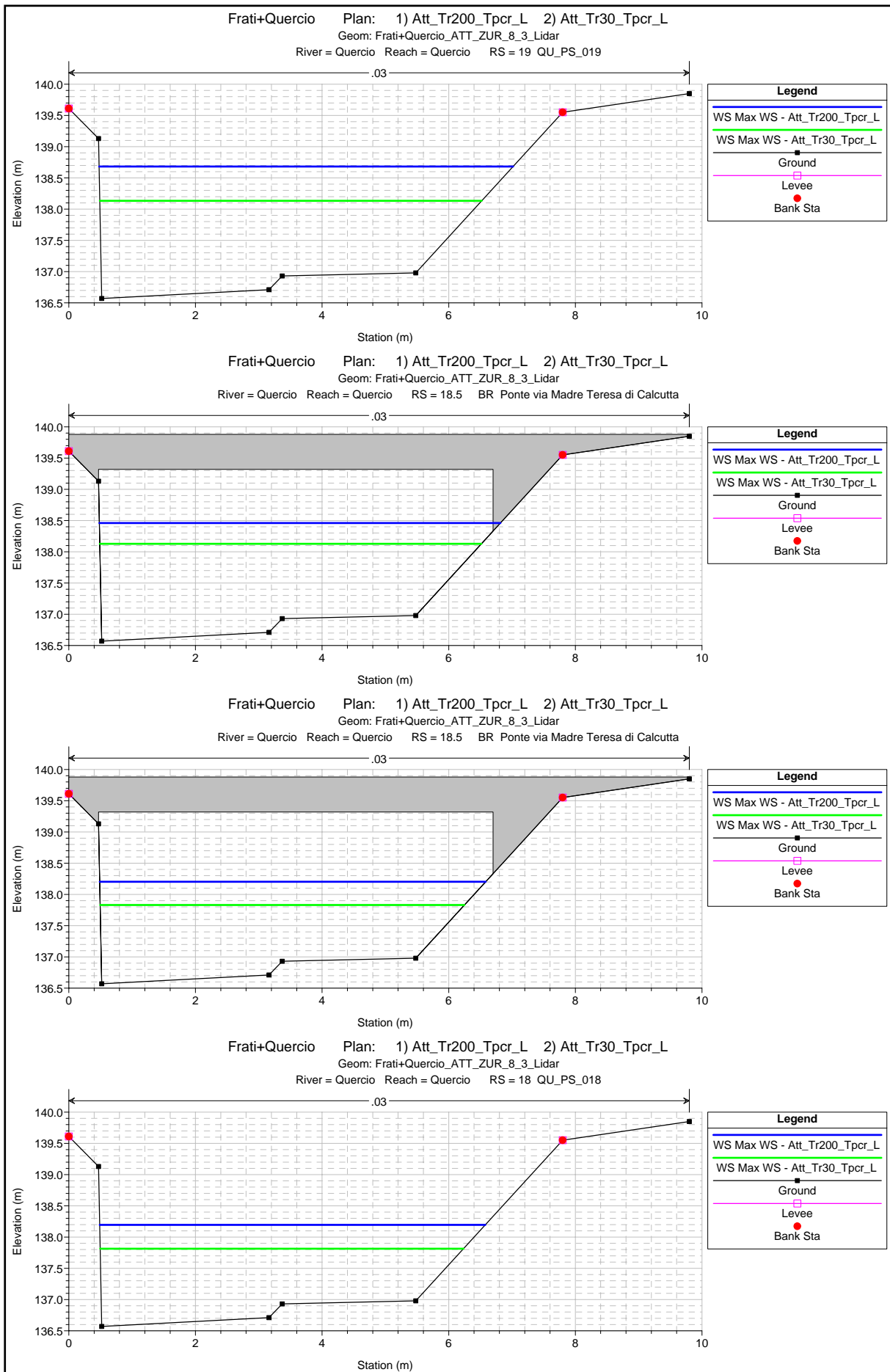


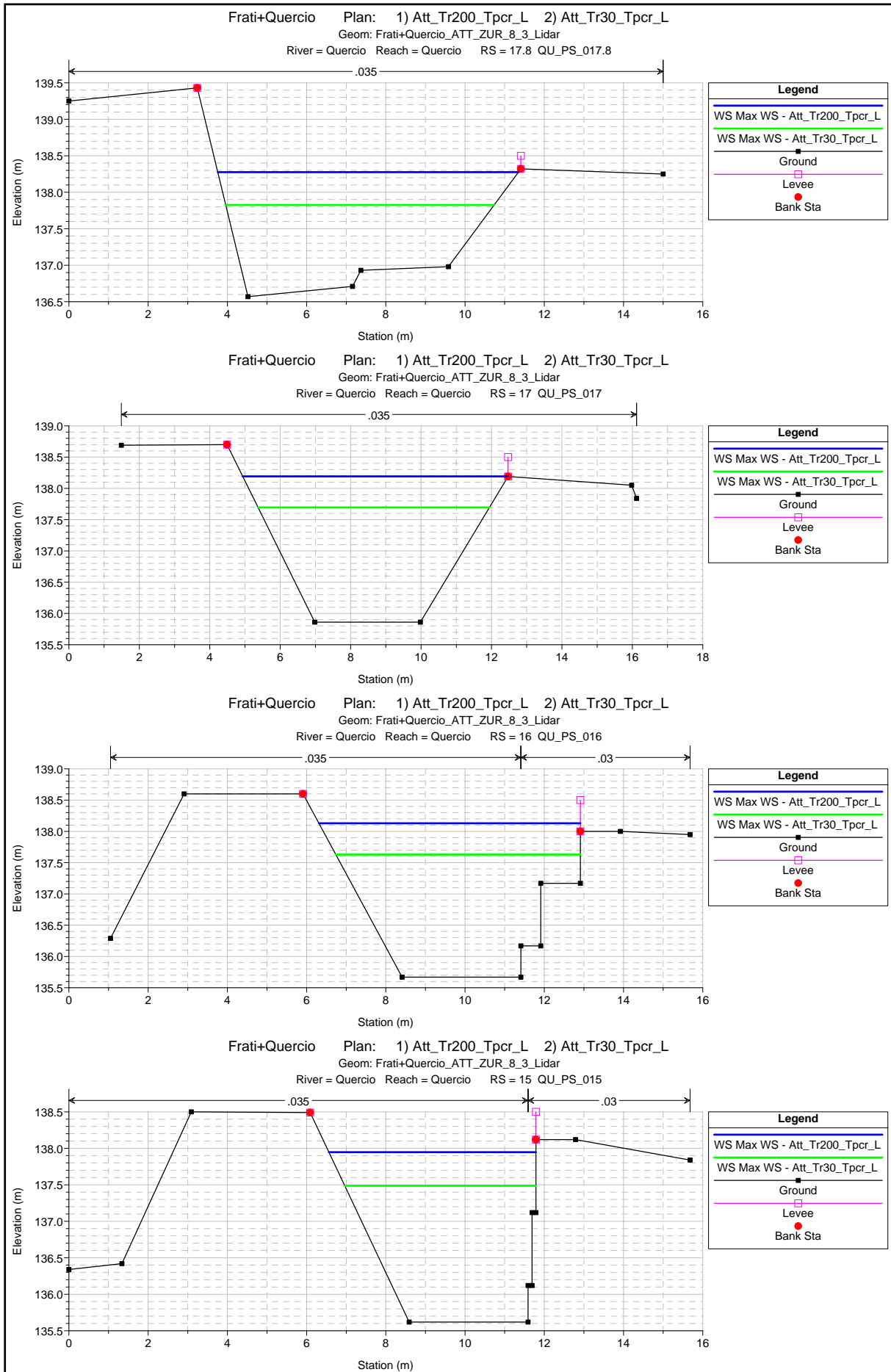


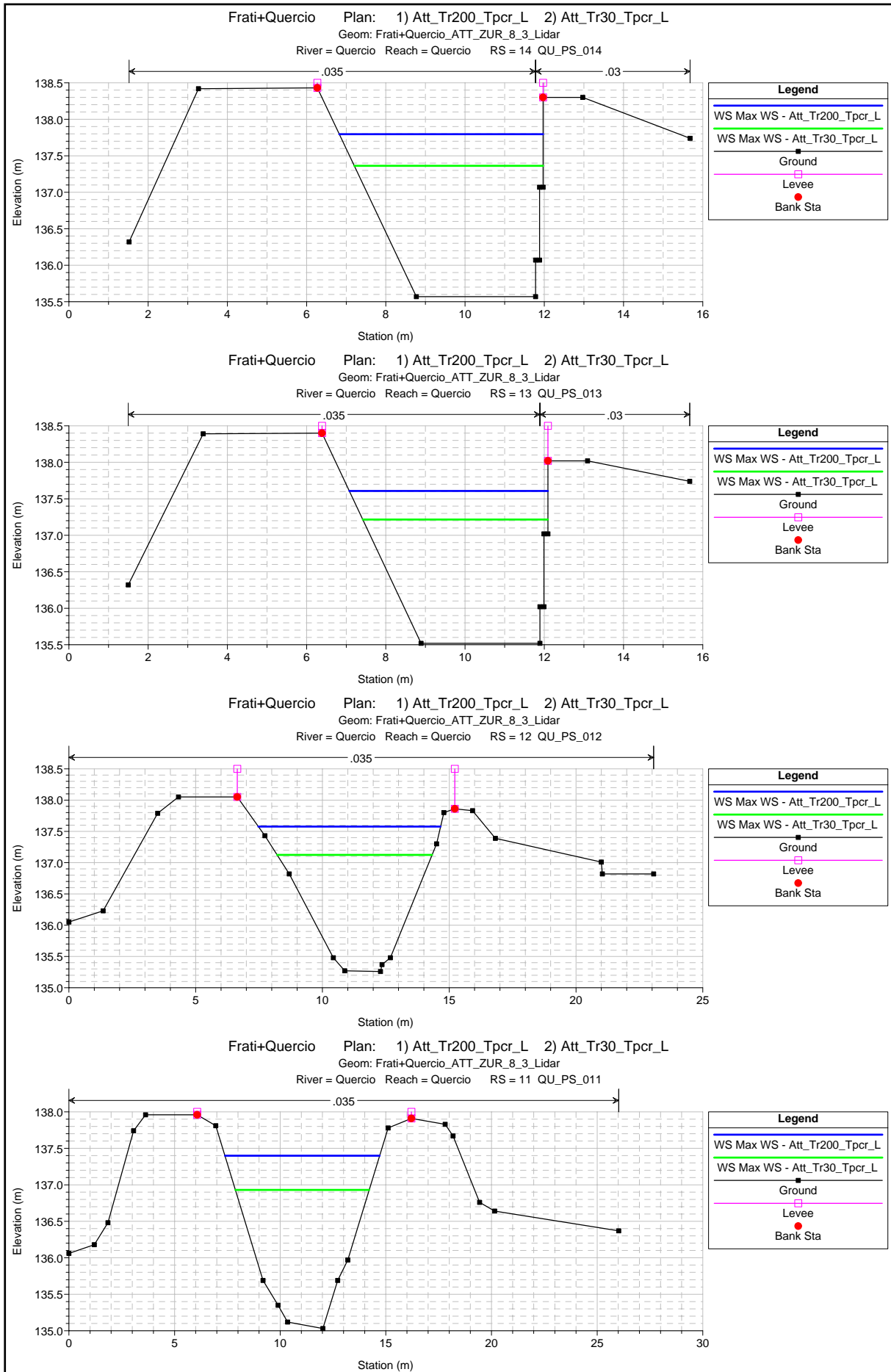


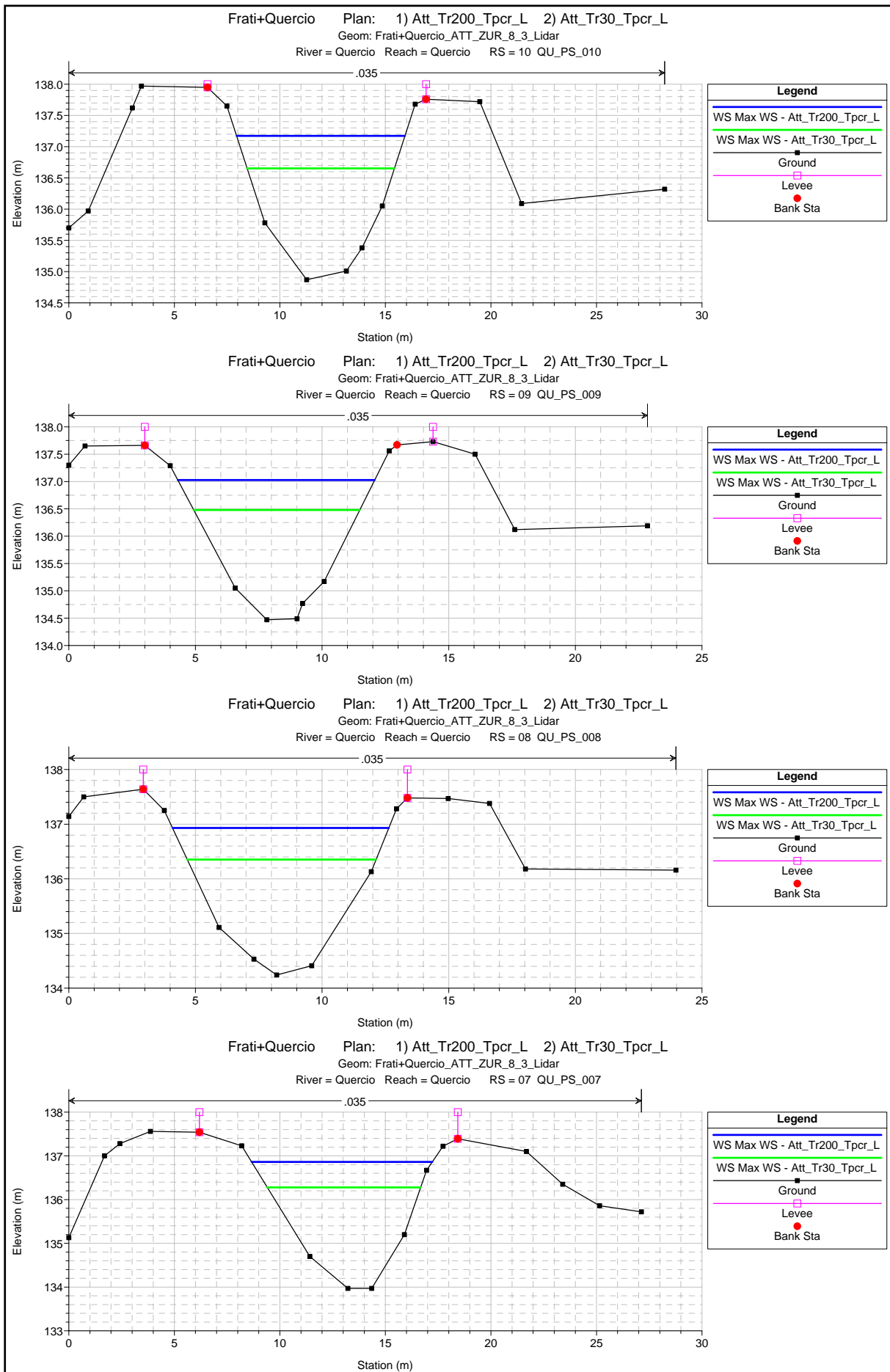


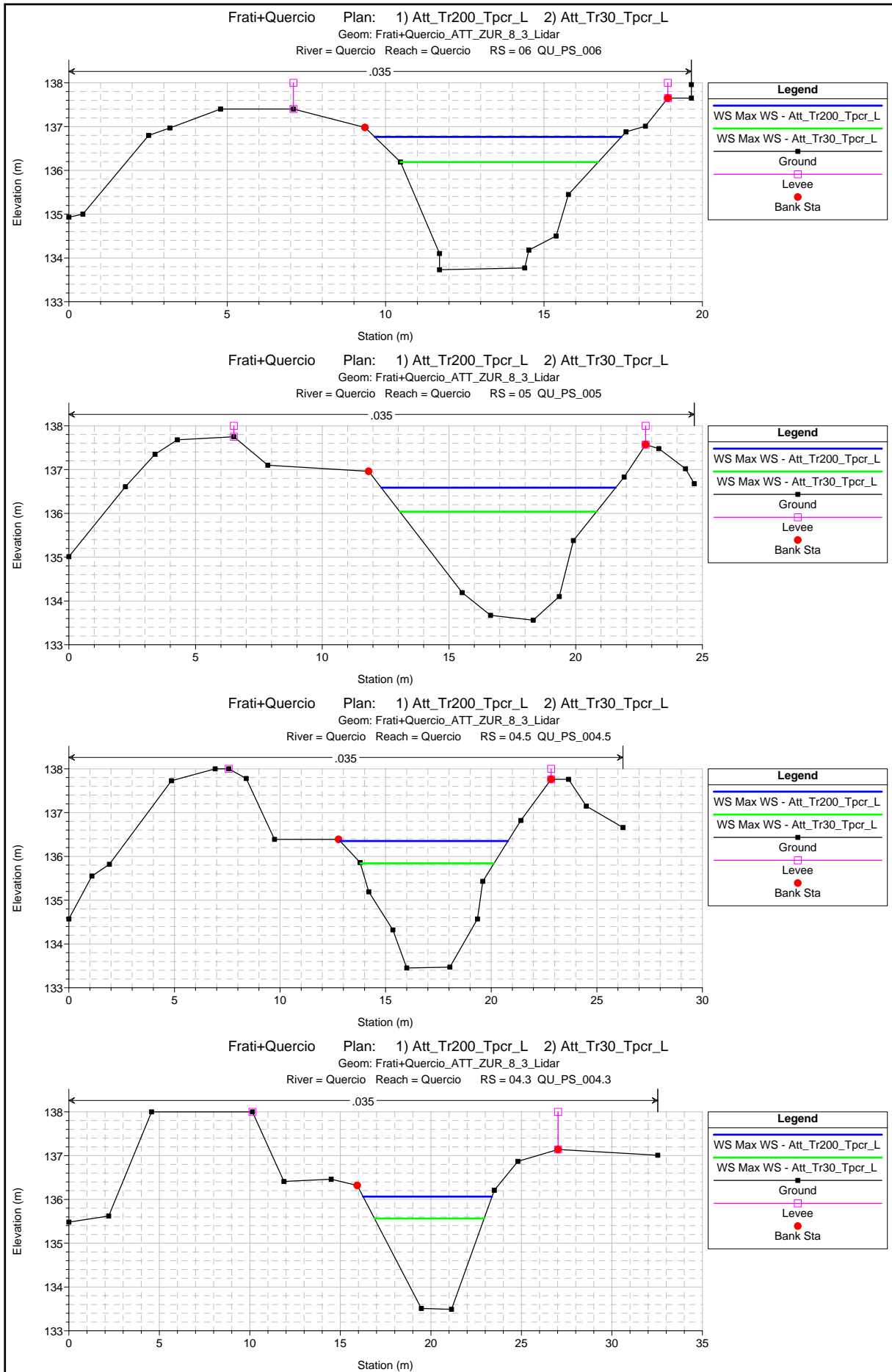


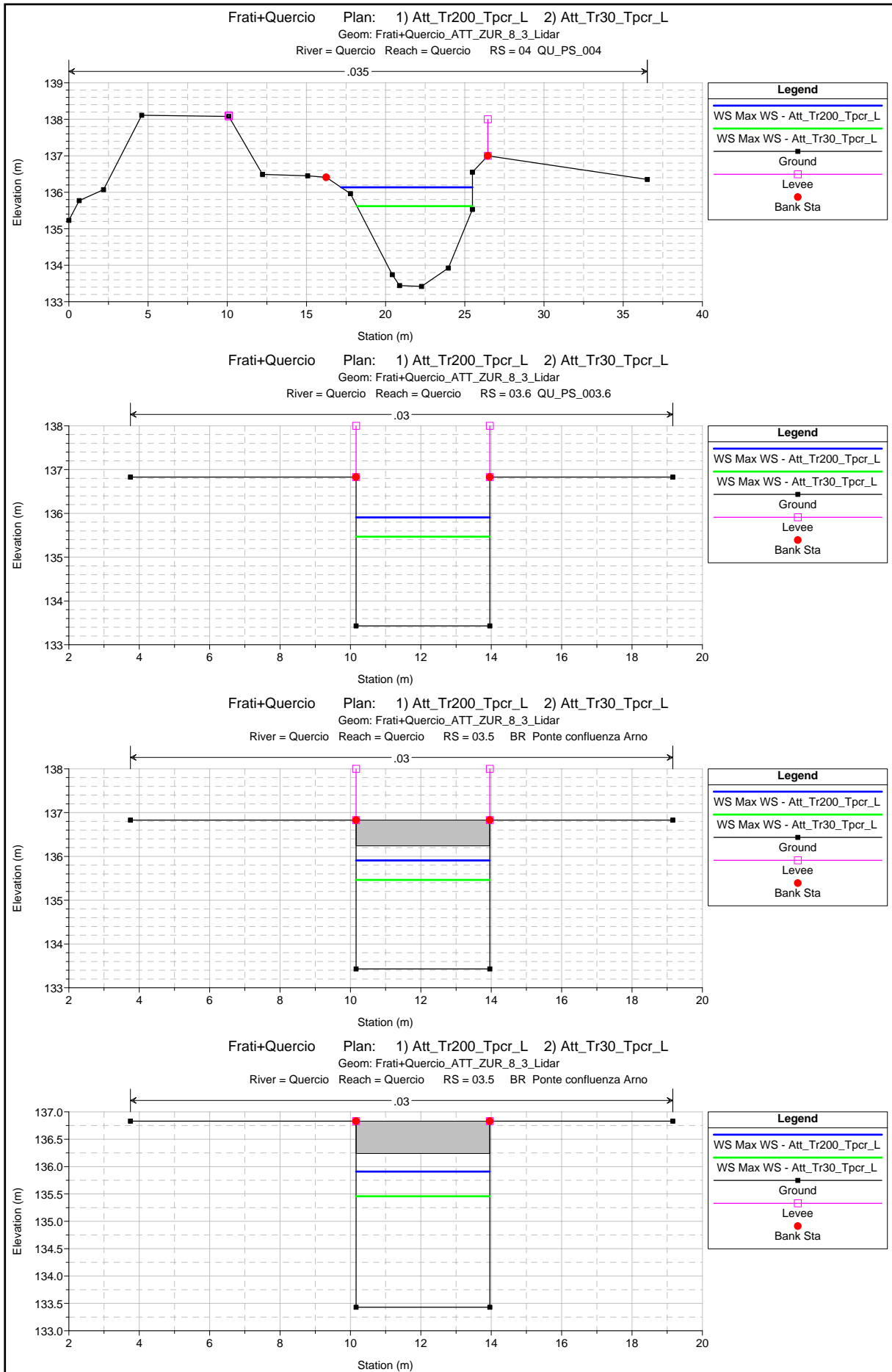


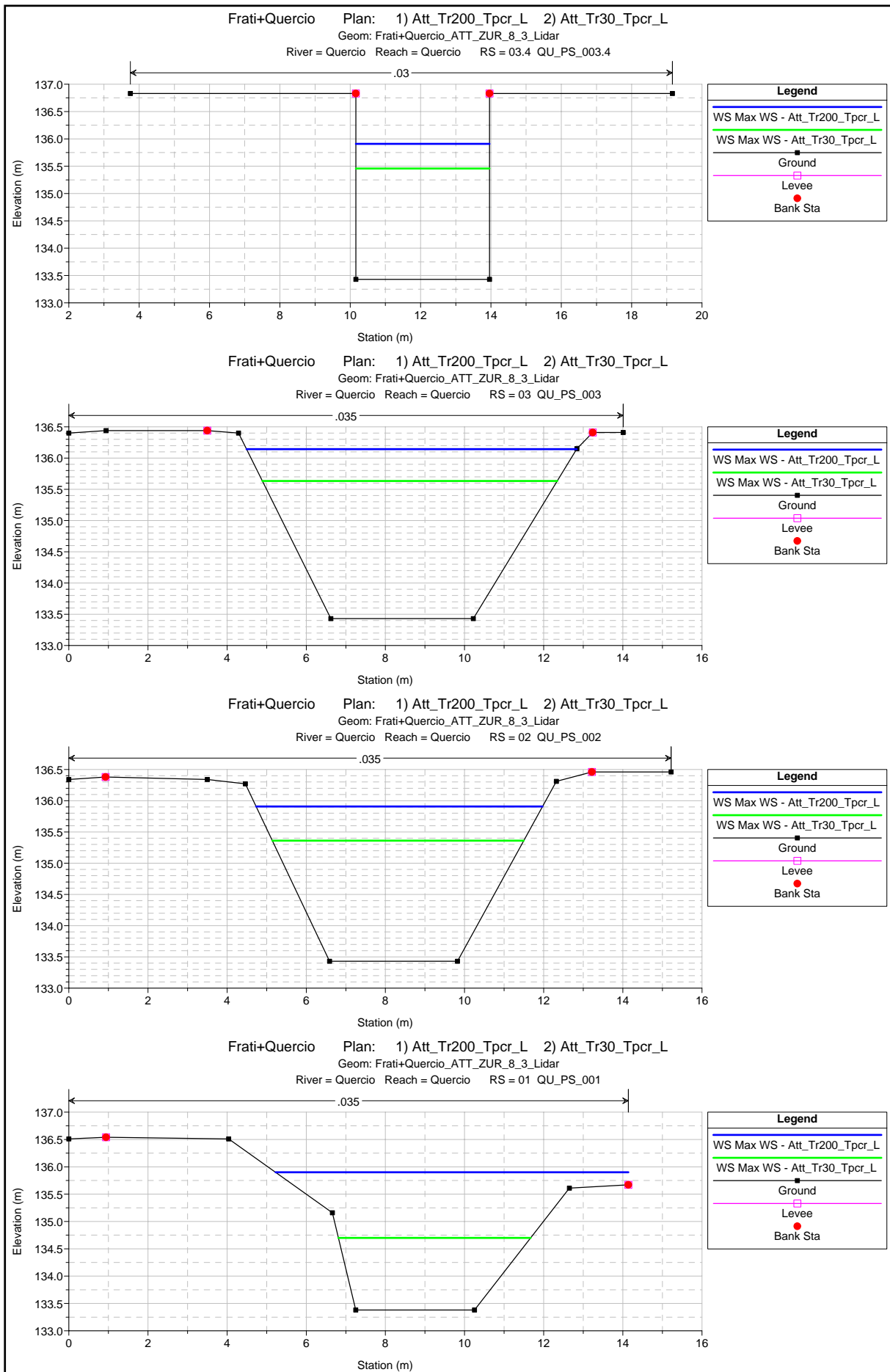














HEC-RAS River: Quercio Reach: Quercio Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	66	Max WS	Att_Tr200_Tpcr_L	15.72	141.42	142.84	142.81	143.32	0.012552	3.08	5.10	4.90	0.97
Quercio	66	Max WS	Att_Tr30_Tpcr_L	9.57	141.42	142.50	142.49	142.88	0.012994	2.70	3.54	4.46	0.97
Quercio	65	Max WS	Att_Tr200_Tpcr_L	15.72	141.40	142.83		143.22	0.009363	2.78	5.66	5.13	0.84
Quercio	65	Max WS	Att_Tr30_Tpcr_L	9.57	141.40	142.49		142.78	0.009279	2.39	4.01	4.75	0.83
Quercio	64	Max WS	Att_Tr200_Tpcr_L	15.72	141.38	142.80		143.19	0.009405	2.78	5.66	5.17	0.85
Quercio	64	Max WS	Att_Tr30_Tpcr_L	9.57	141.38	142.47		142.76	0.009343	2.39	4.00	4.78	0.83
Quercio	63	Max WS	Att_Tr200_Tpcr_L	15.72	141.34	142.76		143.14	0.009183	2.74	5.73	5.29	0.84
Quercio	63	Max WS	Att_Tr30_Tpcr_L	9.57	141.34	142.42		142.71	0.009225	2.37	4.04	4.87	0.83
Quercio	62	Max WS	Att_Tr200_Tpcr_L	15.71	141.31	142.73		143.10	0.008794	2.69	5.84	5.44	0.83
Quercio	62	Max WS	Att_Tr30_Tpcr_L	9.57	141.31	142.39		142.67	0.008982	2.34	4.09	4.98	0.82
Quercio	61.5	Max WS	Att_Tr200_Tpcr_L	15.71	141.29	142.66		143.05	0.009588	2.76	5.69	5.53	0.87
Quercio	61.5	Max WS	Att_Tr30_Tpcr_L	9.57	141.29	142.31		142.63	0.010811	2.48	3.85	5.01	0.90
Quercio	61	Max WS	Att_Tr200_Tpcr_L	15.71	141.24	142.79		142.95	0.002807	1.76	8.93	6.67	0.49
Quercio	61	Max WS	Att_Tr30_Tpcr_L	9.57	141.24	142.42		142.53	0.002601	1.47	6.53	6.39	0.46
Quercio	60	Max WS	Att_Tr200_Tpcr_L	15.71	141.24	142.78	142.22	142.94	0.001551	1.78	8.85	6.66	0.49
Quercio	60	Max WS	Att_Tr30_Tpcr_L	9.57	141.24	142.41	141.95	142.53	0.001445	1.48	6.46	6.38	0.47
Quercio	59.5			Bridge									
Quercio	59	Max WS	Att_Tr200_Tpcr_L	15.71	141.18	142.82		142.94	0.000961	1.54	10.22	7.22	0.40
Quercio	59	Max WS	Att_Tr30_Tpcr_L	9.57	141.18	142.45		142.53	0.000874	1.25	7.68	6.94	0.37
Quercio	58	Max WS	Att_Tr200_Tpcr_L	15.71	141.16	142.72		142.93	0.004125	2.05	7.67	5.95	0.58
Quercio	58	Max WS	Att_Tr30_Tpcr_L	9.57	141.16	142.37		142.52	0.003670	1.69	5.66	5.63	0.54
Quercio	57.5	Max WS	Att_Tr200_Tpcr_L	15.71	141.14	142.54		142.96	0.010135	2.86	5.49	5.04	0.87
Quercio	57.5	Max WS	Att_Tr30_Tpcr_L	9.57	141.14	142.22		142.52	0.009766	2.43	3.93	4.69	0.85
Quercio	57	Max WS	Att_Tr200_Tpcr_L	15.70	141.10	142.51		142.92	0.009926	2.83	5.54	5.08	0.87
Quercio	57	Max WS	Att_Tr30_Tpcr_L	9.57	141.10	142.19		142.48	0.009480	2.41	3.98	4.72	0.84
Quercio	56.2	Max WS	Att_Tr200_Tpcr_L	15.70	141.07	142.41	142.37	142.88	0.012022	3.04	5.17	4.98	0.95
Quercio	56.2	Max WS	Att_Tr30_Tpcr_L	9.57	141.07	142.09	142.02	142.44	0.012268	2.63	3.63	4.63	0.95

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	56.1	Max WS	Att_Tr200_Tpcr_L	15.70	141.07	142.37		142.76	0.008802	2.78	5.66	5.73	0.89
Quercio	56.1	Max WS	Att_Tr30_Tpcr_L	9.57	141.07	142.03		142.34	0.009582	2.49	3.85	5.02	0.91
Quercio	56	Max WS	Att_Tr200_Tpcr_L	15.70	140.95	142.36		142.68	0.006758	2.53	6.20	5.82	0.78
Quercio	56	Max WS	Att_Tr30_Tpcr_L	9.57	140.95	142.01		142.26	0.006836	2.21	4.32	5.13	0.77
Quercio	55	Max WS	Att_Tr200_Tpcr_L	15.68	140.76	142.20		142.51	0.006172	2.45	6.40	5.88	0.75
Quercio	55	Max WS	Att_Tr30_Tpcr_L	9.57	140.76	141.86		142.09	0.006140	2.13	4.49	5.19	0.73
Quercio	54	Max WS	Att_Tr200_Tpcr_L	15.68	140.56	141.98		142.30	0.006454	2.49	6.30	5.85	0.77
Quercio	54	Max WS	Att_Tr30_Tpcr_L	9.57	140.56	141.64		141.88	0.006432	2.17	4.42	5.16	0.75
Quercio	53	Max WS	Att_Tr200_Tpcr_L	15.67	140.34	141.76		142.08	0.006551	2.50	6.26	5.84	0.77
Quercio	53	Max WS	Att_Tr30_Tpcr_L	9.57	140.34	141.42		141.66	0.006553	2.18	4.39	5.15	0.75
Quercio	52	Max WS	Att_Tr200_Tpcr_L	15.67	140.13	141.55		141.87	0.006506	2.50	6.28	5.84	0.77
Quercio	52	Max WS	Att_Tr30_Tpcr_L	9.57	140.13	141.21		141.45	0.006494	2.17	4.40	5.16	0.75
Quercio	51	Max WS	Att_Tr200_Tpcr_L	15.66	139.90	141.31		141.63	0.006739	2.53	6.19	5.81	0.78
Quercio	51	Max WS	Att_Tr30_Tpcr_L	9.56	139.90	140.96		141.21	0.007011	2.23	4.28	5.11	0.78
Quercio	50	Max WS	Att_Tr200_Tpcr_L	15.66	139.84	141.24		141.57	0.006796	2.54	6.18	5.81	0.78
Quercio	50	Max WS	Att_Tr30_Tpcr_L	9.56	139.84	140.88		141.14	0.007326	2.27	4.22	5.09	0.80
Quercio	49	Max WS	Att_Tr200_Tpcr_L	15.66	139.77	141.24		141.51	0.005309	2.30	6.81	6.26	0.70
Quercio	49	Max WS	Att_Tr30_Tpcr_L	9.56	139.77	140.86		141.08	0.005918	2.08	4.59	5.42	0.72
Quercio	48	Max WS	Att_Tr200_Tpcr_L	15.61	139.54	141.06		141.32	0.005039	2.27	6.87	6.04	0.68
Quercio	48	Max WS	Att_Tr30_Tpcr_L	9.56	139.54	140.63		140.86	0.006279	2.15	4.45	5.18	0.74
Quercio	47	Max WS	Att_Tr200_Tpcr_L	15.53	139.41	140.99		141.22	0.004350	2.15	7.22	6.15	0.63
Quercio	47	Max WS	Att_Tr30_Tpcr_L	9.54	139.41	140.50		140.74	0.006165	2.13	4.48	5.19	0.73
Quercio	46.1	Max WS	Att_Tr200_Tpcr_L	15.61	139.38	141.05		141.22	0.002175	1.80	8.67	6.24	0.49
Quercio	46.1	Max WS	Att_Tr30_Tpcr_L	9.54	139.38	140.59		140.72	0.002037	1.58	6.05	5.00	0.46
Quercio	46	Max WS	Att_Tr200_Tpcr_L	15.61	139.38	141.03	140.38	141.21	0.001757	1.90	8.23	5.00	0.47
Quercio	46	Max WS	Att_Tr30_Tpcr_L	9.54	139.38	140.58	140.10	140.71	0.001602	1.58	6.02	5.00	0.46

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	45.5			Bridge									
Quercio	45	Max WS	Att_Tr200_Tpcr_L	15.61	139.34	141.03		141.21	0.001626	1.84	8.46	5.00	0.45
Quercio	45	Max WS	Att_Tr30_Tpcr_L	9.55	139.34	140.59		140.71	0.001439	1.53	6.25	5.00	0.44
Quercio	44	Max WS	Att_Tr200_Tpcr_L	15.61	139.34	141.00		141.16	0.002240	1.82	8.58	6.22	0.49
Quercio	44	Max WS	Att_Tr30_Tpcr_L	9.54	139.34	140.54		140.67	0.002081	1.59	6.01	5.00	0.46
Quercio	43.5	Max WS	Att_Tr200_Tpcr_L	15.37	139.31	140.82		141.08	0.004987	2.25	6.82	6.02	0.68
Quercio	43.5	Max WS	Att_Tr30_Tpcr_L	9.52	139.31	140.30		140.60	0.008798	2.42	3.94	4.97	0.87
Quercio	43	Max WS	Att_Tr200_Tpcr_L	15.37	138.91	140.87		141.00	0.001893	1.58	9.72	6.91	0.43
Quercio	43	Max WS	Att_Tr30_Tpcr_L	9.47	138.91	140.30		140.42	0.002572	1.55	6.10	5.77	0.48
Quercio	42	Max WS	Att_Tr200_Tpcr_L	15.22	138.67	140.76		140.86	0.001456	1.43	10.64	7.18	0.38
Quercio	42	Max WS	Att_Tr30_Tpcr_L	9.37	138.67	140.13		140.24	0.002091	1.44	6.53	5.92	0.44
Quercio	41.5	Max WS	Att_Tr200_Tpcr_L	15.22	138.50	140.74		140.82	0.001118	1.30	11.73	7.48	0.33
Quercio	41.5	Max WS	Att_Tr30_Tpcr_L	9.32	138.50	140.10		140.18	0.001487	1.27	7.36	6.20	0.37
Quercio	41	Max WS	Att_Tr200_Tpcr_L	15.00	138.49	140.58	139.72	140.79	0.001352	2.03	7.40	6.22	0.45
Quercio	41	Max WS	Att_Tr30_Tpcr_L	9.17	138.49	139.98	139.37	140.13	0.001567	1.74	5.27	5.02	0.46
Quercio	40.5			Bridge									
Quercio	40	Max WS	Att_Tr200_Tpcr_L	14.74	138.46	140.55		140.75	0.000864	2.00	7.38	5.83	0.44
Quercio	40	Max WS	Att_Tr30_Tpcr_L	9.17	138.46	139.98		140.13	0.000966	1.71	5.37	5.26	0.44
Quercio	39	Max WS	Att_Tr200_Tpcr_L	15.00	138.42	140.64		140.74	0.001123	1.37	10.95	6.13	0.33
Quercio	39	Max WS	Att_Tr30_Tpcr_L	9.28	138.42	140.03		140.11	0.001302	1.25	7.39	5.52	0.35
Quercio	38.5	Max WS	Att_Tr200_Tpcr_L	15.00	138.38	140.65		140.73	0.000907	1.26	11.88	6.46	0.30
Quercio	38.5	Max WS	Att_Tr30_Tpcr_L	9.28	138.38	140.03		140.10	0.001023	1.14	8.11	5.85	0.31
Quercio	38	Max WS	Att_Tr200_Tpcr_L	14.99	138.36	140.66	139.24	140.72	0.000418	1.12	13.35	8.32	0.24
Quercio	38	Max WS	Att_Tr30_Tpcr_L	9.32	138.36	140.05	139.00	140.10	0.000450	0.95	9.82	7.71	0.23
Quercio	37.5			Bridge									
Quercio	37	Max WS	Att_Tr200_Tpcr_L	14.99	138.33	140.61		140.67	0.000496	1.14	13.14	6.80	0.24

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	37	Max WS	Att_Tr30_Tpcr_L	9.32	138.33	140.04		140.09	0.000498	0.94	9.87	6.72	0.23
Quercio	36	Max WS	Att_Tr200_Tpcr_L	14.99	138.33	140.61		140.67	0.000678	1.01	14.85	6.81	0.22
Quercio	36	Max WS	Att_Tr30_Tpcr_L	9.32	138.33	140.04		140.08	0.000648	0.85	10.98	6.73	0.21
Quercio	35	Max WS	Att_Tr200_Tpcr_L	23.61	138.15	140.03		140.37	0.006106	2.60	9.08	5.43	0.64
Quercio	35	Max WS	Att_Tr30_Tpcr_L	14.86	138.15	139.42		139.75	0.009333	2.56	5.80	5.30	0.78
Quercio	34	Max WS	Att_Tr200_Tpcr_L	23.61	138.04	140.04		140.34	0.004956	2.42	9.74	5.45	0.58
Quercio	34	Max WS	Att_Tr30_Tpcr_L	14.86	138.04	139.43		139.70	0.006704	2.30	6.46	5.30	0.67
Quercio	33	Max WS	Att_Tr200_Tpcr_L	23.61	137.83	139.99	139.12	140.22	0.003329	2.11	11.20	5.23	0.46
Quercio	33	Max WS	Att_Tr30_Tpcr_L	14.86	137.83	139.36	138.78	139.54	0.003621	1.87	7.94	5.21	0.48
Quercio	32.5			Bridge									
Quercio	32	Max WS	Att_Tr200_Tpcr_L	23.61	137.79	140.01		140.17	0.002096	1.79	13.22	6.69	0.41
Quercio	32	Max WS	Att_Tr30_Tpcr_L	14.86	137.79	139.41		139.54	0.002306	1.59	9.35	6.30	0.42
Quercio	30	Max WS	Att_Tr200_Tpcr_L	23.61	137.58	139.82		140.09	0.003652	2.27	10.42	5.49	0.52
Quercio	30	Max WS	Att_Tr30_Tpcr_L	14.86	137.58	139.24		139.45	0.004066	2.04	7.29	5.11	0.54
Quercio	29	Max WS	Att_Tr200_Tpcr_L	23.60	137.35	139.60		139.94	0.005248	2.59	9.11	5.05	0.62
Quercio	29	Max WS	Att_Tr30_Tpcr_L	14.85	137.35	139.01		139.29	0.005726	2.34	6.34	4.45	0.63
Quercio	28.99			Lat Struct									
Quercio	28	Max WS	Att_Tr200_Tpcr_L	23.60	137.12	139.63		139.87	0.002958	2.15	10.99	5.27	0.47
Quercio	28	Max WS	Att_Tr30_Tpcr_L	14.85	137.12	139.03		139.21	0.002915	1.87	7.96	4.84	0.46
Quercio	27	Max WS	Att_Tr200_Tpcr_L	23.60	137.09	139.53		139.81	0.003875	2.32	10.19	4.47	0.49
Quercio	27	Max WS	Att_Tr30_Tpcr_L	14.85	137.09	138.96		139.15	0.003412	1.93	7.68	4.33	0.46
Quercio	26	Max WS	Att_Tr200_Tpcr_L	23.60	136.92	139.47		139.72	0.003550	2.23	10.56	4.53	0.47
Quercio	26	Max WS	Att_Tr30_Tpcr_L	14.85	136.92	138.91		139.08	0.003024	1.84	8.06	4.41	0.44
Quercio	25	Max WS	Att_Tr200_Tpcr_L	23.60	136.87	139.43		139.66	0.002946	2.09	11.29	4.98	0.44
Quercio	25	Max WS	Att_Tr30_Tpcr_L	14.84	136.87	138.87		139.02	0.002606	1.74	8.52	4.80	0.42
Quercio	24.8			Lat Struct									

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	24	Max WS	Att_Tr200_Tpcr_L	23.60	136.83	139.18		139.52	0.005273	2.61	9.06	4.14	0.56
Quercio	24	Max WS	Att_Tr30_Tpcr_L	14.84	136.83	138.69		138.91	0.004235	2.11	7.04	4.04	0.51
Quercio	23.5	Max WS	Att_Tr200_Tpcr_L	23.60	136.82	139.00		139.48	0.008282	3.08	7.67	3.79	0.69
Quercio	23.5	Max WS	Att_Tr30_Tpcr_L	14.84	136.82	138.57		138.88	0.006313	2.44	6.07	3.70	0.61
Quercio	23	Max WS	Att_Tr200_Tpcr_L	23.60	136.80	138.87		139.42	0.009062	3.27	7.21	3.73	0.75
Quercio	23	Max WS	Att_Tr30_Tpcr_L	14.84	136.80	138.50		138.83	0.006501	2.55	5.83	3.66	0.64
Quercio	21	Max WS	Att_Tr200_Tpcr_L	23.60	136.75	138.76		139.31	0.009863	3.28	7.19	3.78	0.76
Quercio	21	Max WS	Att_Tr30_Tpcr_L	14.84	136.75	138.44		138.75	0.006573	2.48	5.98	3.75	0.63
Quercio	20	Max WS	Att_Tr200_Tpcr_L	21.77	136.68	138.68		139.05	0.007921	2.66	8.18	5.96	0.73
Quercio	20	Max WS	Att_Tr30_Tpcr_L	14.84	136.68	138.24		138.59	0.010227	2.63	5.65	5.30	0.81
Quercio	19	Max WS	Att_Tr200_Tpcr_L	21.76	136.57	138.68	138.01	138.89	0.003084	2.02	10.78	6.54	0.50
Quercio	19	Max WS	Att_Tr30_Tpcr_L	14.84	136.57	138.13	137.74	138.34	0.004272	2.03	7.33	6.03	0.59
Quercio	18.5			Bridge									
Quercio	18	Max WS	Att_Tr200_Tpcr_L	23.59	136.57	138.20		138.67	0.009357	3.06	7.70	6.09	0.87
Quercio	18	Max WS	Att_Tr30_Tpcr_L	14.84	136.57	137.81		138.19	0.010076	2.72	5.45	5.74	0.89
Quercio	17.99			Lat Struct									
Quercio	17.98			Lat Struct									
Quercio	17.8	Max WS	Att_Tr200_Tpcr_L	23.59	136.57	138.28		138.60	0.007690	2.53	9.34	7.59	0.73
Quercio	17.8	Max WS	Att_Tr30_Tpcr_L	14.84	136.57	137.83		138.13	0.010285	2.43	6.11	6.78	0.82
Quercio	17	Max WS	Att_Tr200_Tpcr_L	23.59	135.86	138.19		138.38	0.003206	1.92	12.29	7.54	0.48
Quercio	17	Max WS	Att_Tr30_Tpcr_L	14.83	135.86	137.70		137.84	0.003144	1.69	8.79	6.57	0.47
Quercio	16	Max WS	Att_Tr200_Tpcr_L	23.18	135.67	138.13		138.32	0.003432	1.95	11.90	6.60	0.46
Quercio	16	Max WS	Att_Tr30_Tpcr_L	14.83	135.67	137.63		137.78	0.003398	1.70	8.71	6.17	0.46
Quercio	15	Max WS	Att_Tr200_Tpcr_L	22.99	135.62	137.95		138.24	0.005674	2.39	9.61	5.23	0.56
Quercio	15	Max WS	Att_Tr30_Tpcr_L	14.83	135.62	137.49		137.70	0.005000	2.03	7.29	4.83	0.53

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	14	Max WS	Att_Tr200_Tpcr_L	22.98	135.57	137.80		138.12	0.006546	2.52	9.11	5.15	0.61
Quercio	14	Max WS	Att_Tr30_Tpcr_L	14.83	135.57	137.36		137.59	0.005686	2.13	6.96	4.77	0.56
Quercio	13	Max WS	Att_Tr200_Tpcr_L	22.94	135.52	137.61		137.99	0.008200	2.74	8.37	5.01	0.68
Quercio	13	Max WS	Att_Tr30_Tpcr_L	14.82	135.52	137.22		137.48	0.006925	2.29	6.47	4.67	0.62
Quercio	12	Max WS	Att_Tr200_Tpcr_L	22.92	135.26	137.58		137.83	0.005139	2.24	10.21	7.19	0.60
Quercio	12	Max WS	Att_Tr30_Tpcr_L	14.80	135.26	137.12		137.34	0.005454	2.06	7.19	6.11	0.61
Quercio	11	Max WS	Att_Tr200_Tpcr_L	22.89	135.03	137.40		137.62	0.004095	2.08	10.99	7.32	0.54
Quercio	11	Max WS	Att_Tr30_Tpcr_L	14.79	135.03	136.93		137.11	0.004333	1.90	7.79	6.33	0.55
Quercio	10	Max WS	Att_Tr200_Tpcr_L	22.83	134.87	137.17		137.35	0.003050	1.86	12.25	7.97	0.48
Quercio	10	Max WS	Att_Tr30_Tpcr_L	14.74	134.87	136.65		136.81	0.003643	1.76	8.37	6.98	0.51
Quercio	09	Max WS	Att_Tr200_Tpcr_L	22.80	134.47	137.03		137.20	0.003076	1.86	12.24	7.78	0.47
Quercio	09	Max WS	Att_Tr30_Tpcr_L	14.68	134.47	136.48		136.64	0.003612	1.77	8.31	6.56	0.50
Quercio	08	Max WS	Att_Tr200_Tpcr_L	22.80	134.24	136.93		137.05	0.001879	1.56	14.64	8.54	0.38
Quercio	08	Max WS	Att_Tr30_Tpcr_L	14.65	134.24	136.35		136.46	0.002202	1.46	10.02	7.46	0.40
Quercio	07	Max WS	Att_Tr200_Tpcr_L	22.77	133.97	136.86		136.97	0.001675	1.49	15.32	8.56	0.35
Quercio	07	Max WS	Att_Tr30_Tpcr_L	14.64	133.97	136.28		136.37	0.001786	1.36	10.73	7.26	0.36
Quercio	06	Max WS	Att_Tr200_Tpcr_L	22.77	133.73	136.77		136.89	0.002046	1.56	14.58	7.79	0.36
Quercio	06	Max WS	Att_Tr30_Tpcr_L	14.64	133.73	136.19		136.29	0.001923	1.39	10.55	6.24	0.34
Quercio	05	Max WS	Att_Tr200_Tpcr_L	29.46	133.56	136.59		136.75	0.002331	1.77	16.69	9.25	0.42
Quercio	05	Max WS	Att_Tr30_Tpcr_L	18.85	133.56	136.04		136.17	0.002254	1.57	12.03	7.77	0.40
Quercio	04.5	Max WS	Att_Tr200_Tpcr_L	29.45	133.45	136.35		136.58	0.003830	2.12	13.87	7.95	0.51
Quercio	04.5	Max WS	Att_Tr30_Tpcr_L	18.85	133.45	135.84		136.01	0.003318	1.85	10.22	6.33	0.46
Quercio	04.3	Max WS	Att_Tr200_Tpcr_L	29.43	133.49	136.06		136.41	0.006370	2.61	11.26	7.12	0.66
Quercio	04.3	Max WS	Att_Tr30_Tpcr_L	18.84	133.49	135.56		135.85	0.006560	2.36	7.97	6.06	0.66
Quercio	04	Max WS	Att_Tr200_Tpcr_L	29.44	133.42	136.14		136.34	0.003181	2.00	14.69	8.30	0.48
Quercio	04	Max WS	Att_Tr30_Tpcr_L	18.85	133.42	135.62		135.78	0.002950	1.75	10.74	7.30	0.46
Quercio	03.6	Max WS	Att_Tr200_Tpcr_L	4.99	133.43	135.91	133.99	135.92	0.000229	0.53	9.42	3.80	0.11

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	03.6	Max WS	Att_Tr30_Tpccr_L	18.84	133.43	135.47	134.79	135.77	0.005450	2.43	7.74	3.80	0.54
Quercio	03.5			Bridge									
Quercio	03.4	Max WS	Att_Tr200_Tpccr_L	4.99	133.43	135.91		135.92	0.000229	0.53	9.42	3.80	0.11
Quercio	03.4	Max WS	Att_Tr30_Tpccr_L	18.84	133.43	135.46		135.76	0.005524	2.45	7.70	3.80	0.55
Quercio	03	Max WS	Att_Tr200_Tpccr_L	29.43	133.43	136.14		136.31	0.002360	1.82	16.20	8.34	0.42
Quercio	03	Max WS	Att_Tr30_Tpccr_L	18.85	133.43	135.63		135.76	0.002096	1.55	12.18	7.45	0.39
Quercio	2.98			Lat Struct									
Quercio	02	Max WS	Att_Tr200_Tpccr_L	4.98	133.43	135.91		135.92	0.000121	0.38	12.97	7.24	0.09
Quercio	02	Max WS	Att_Tr30_Tpccr_L	18.84	133.43	135.36		135.57	0.004325	2.04	9.25	6.35	0.54
Quercio	01	Max WS	Att_Tr200_Tpccr_L	4.98	133.38	135.90	134.00	135.91	0.000160	0.39	12.81	8.92	0.10
Quercio	01	Max WS	Att_Tr30_Tpccr_L	8.00	133.38	134.70	134.21	134.82	0.003797	1.54	5.19	4.86	0.48

# **VERIFICHE IDRAULICHE**

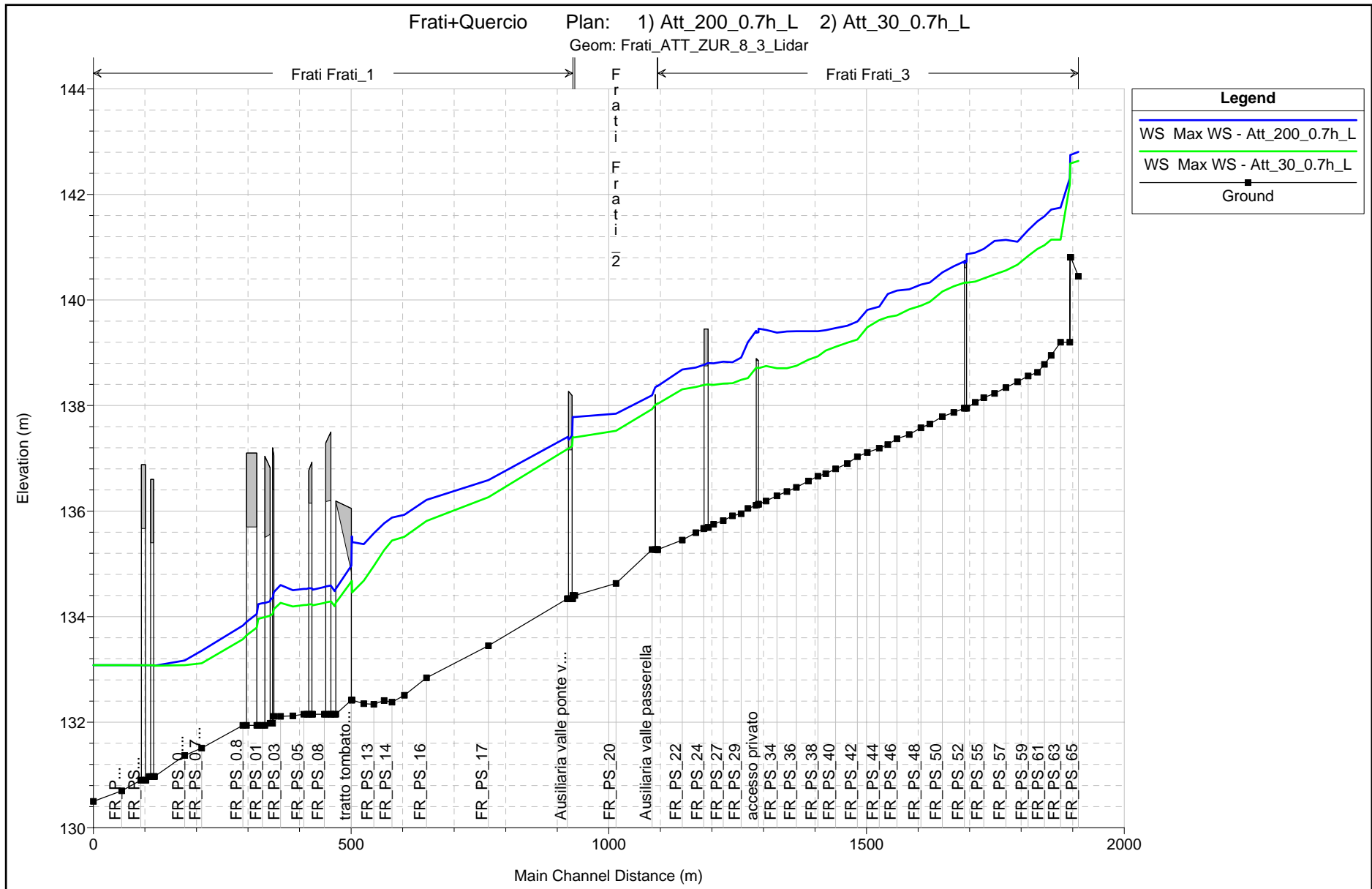
## **STATO ATTUALE**

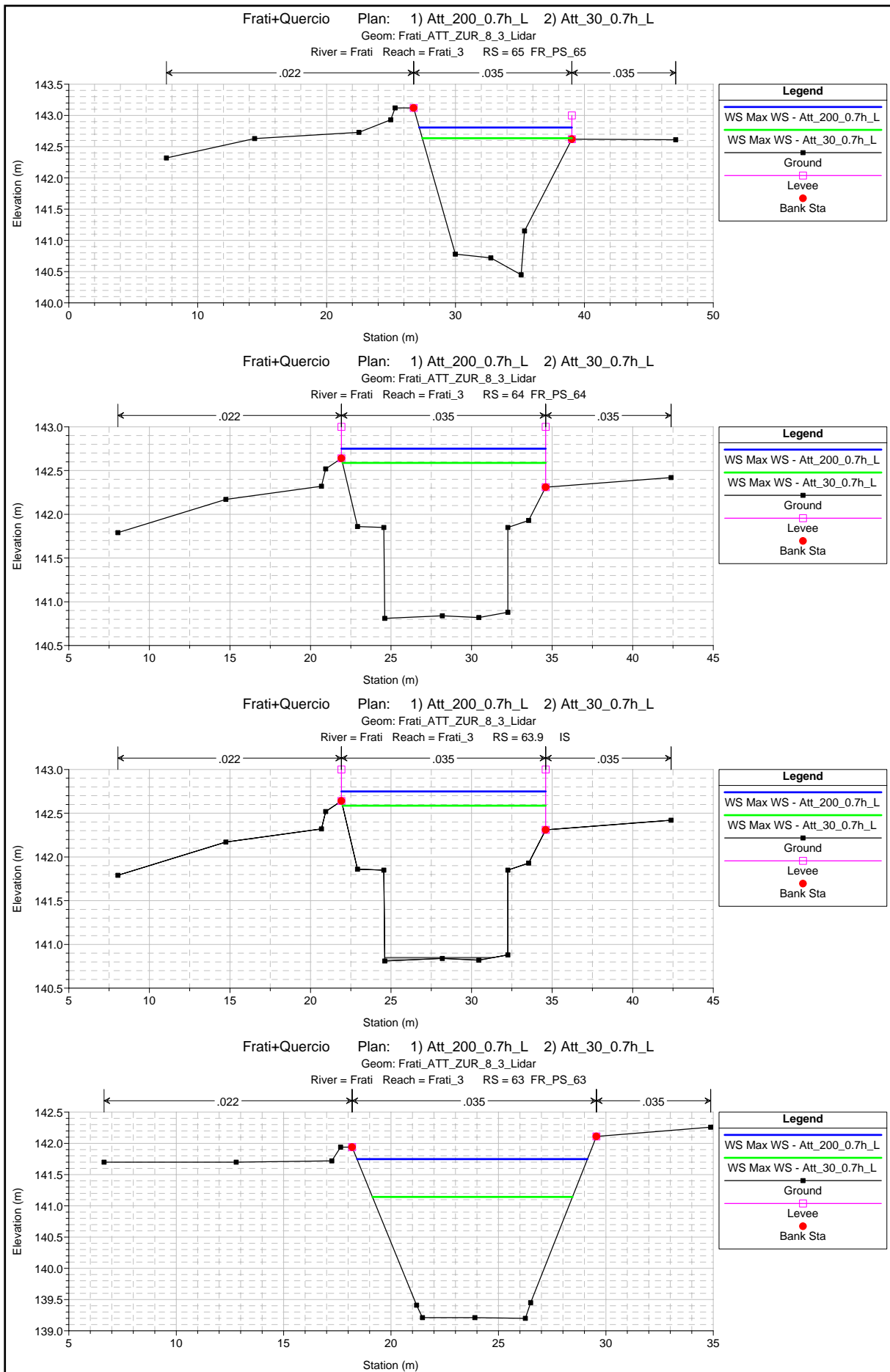
### **BORRO dei FRATI**

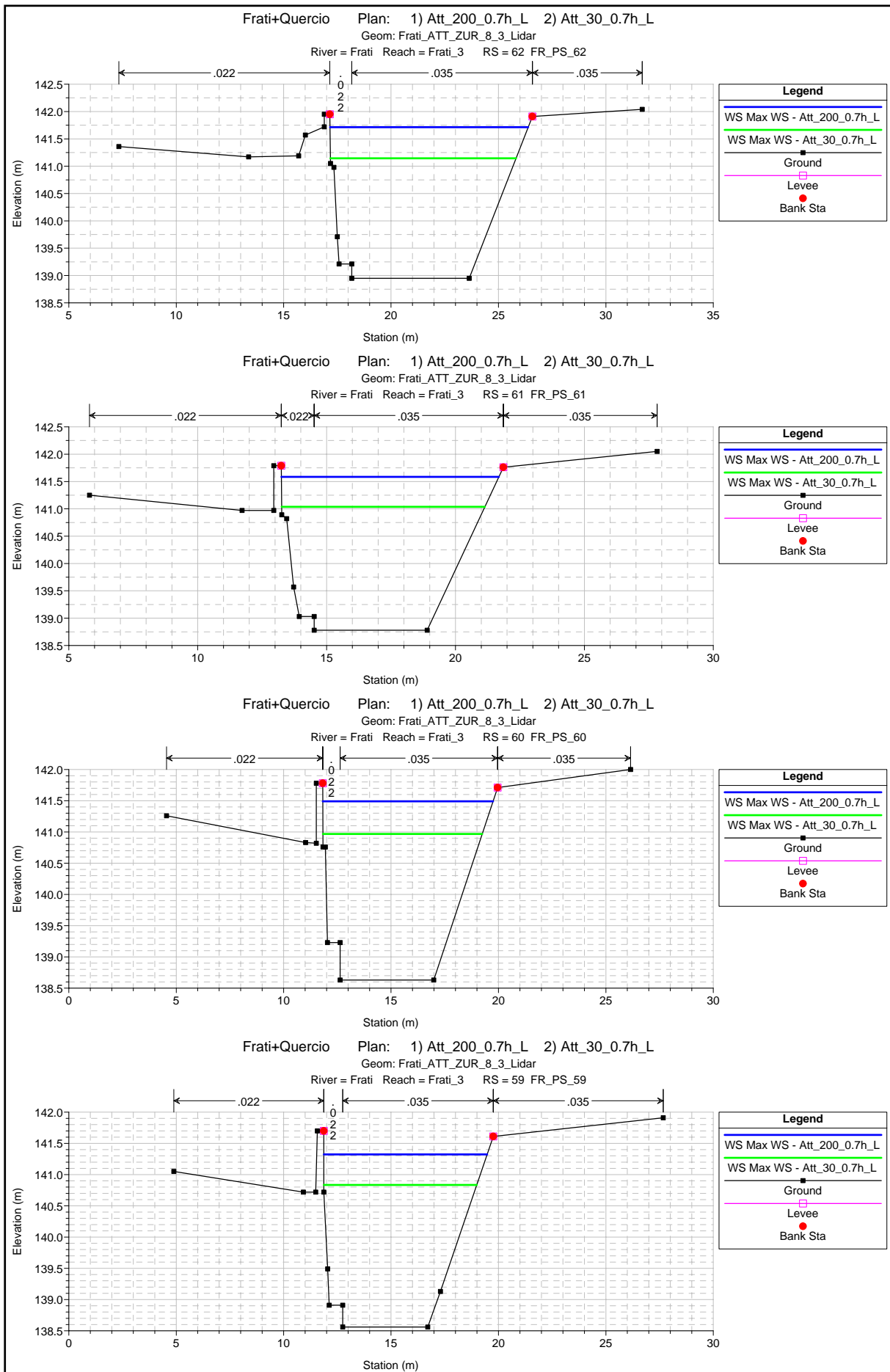
#### **Scenario A2 - Tr 200 e 30 anni**

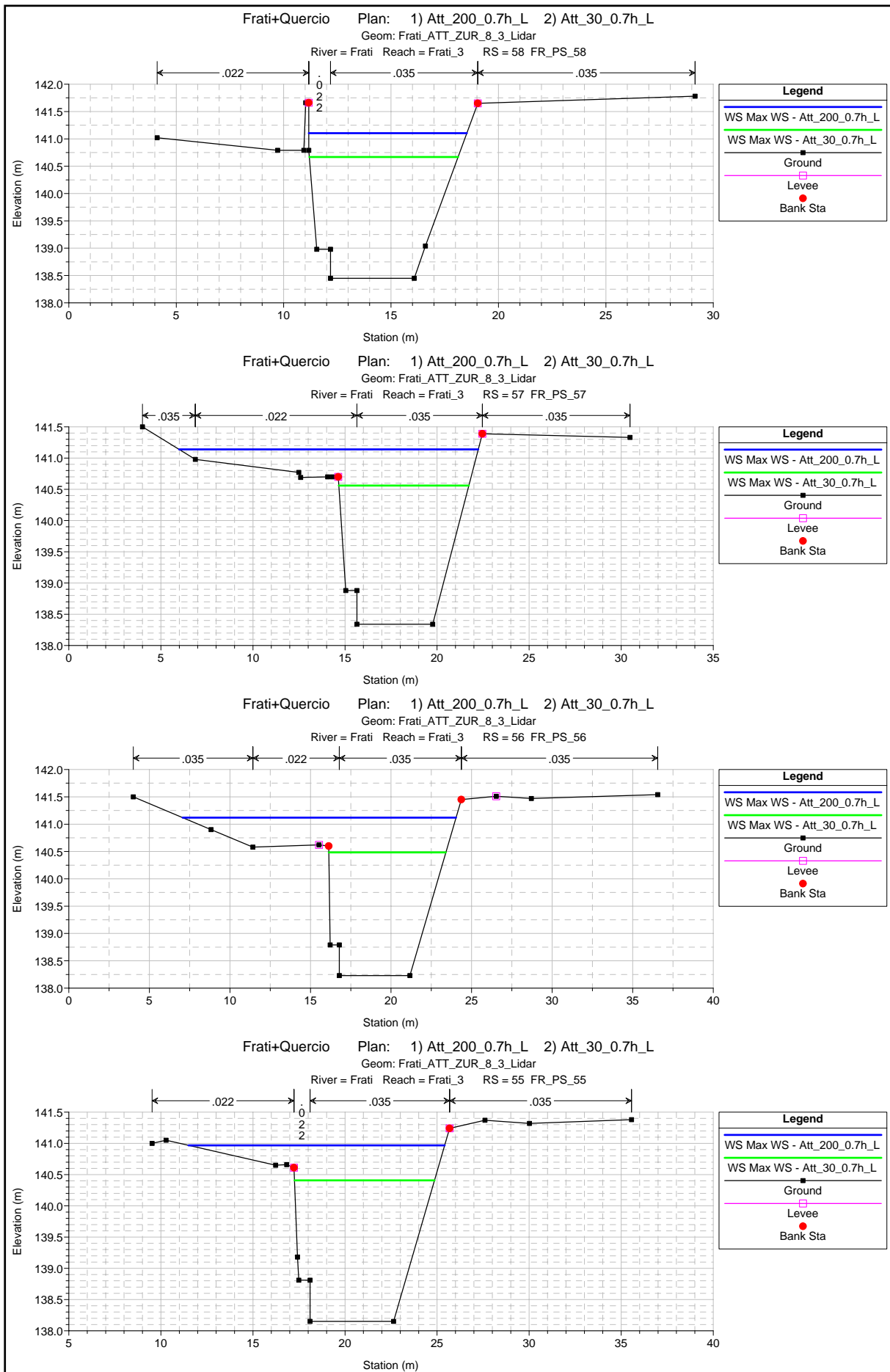
- Profili
- Sezioni di verifica
- Tabelle di output

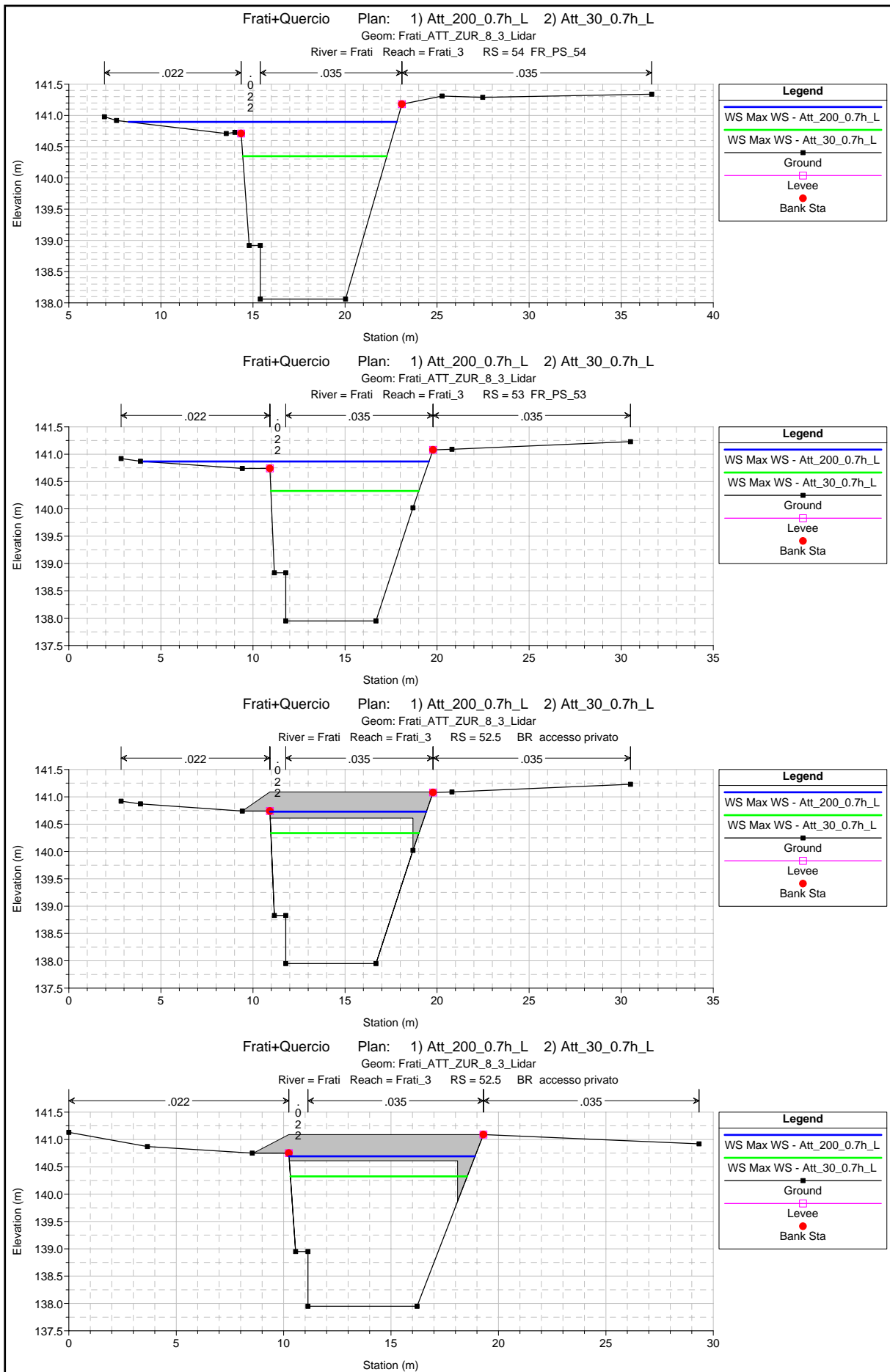


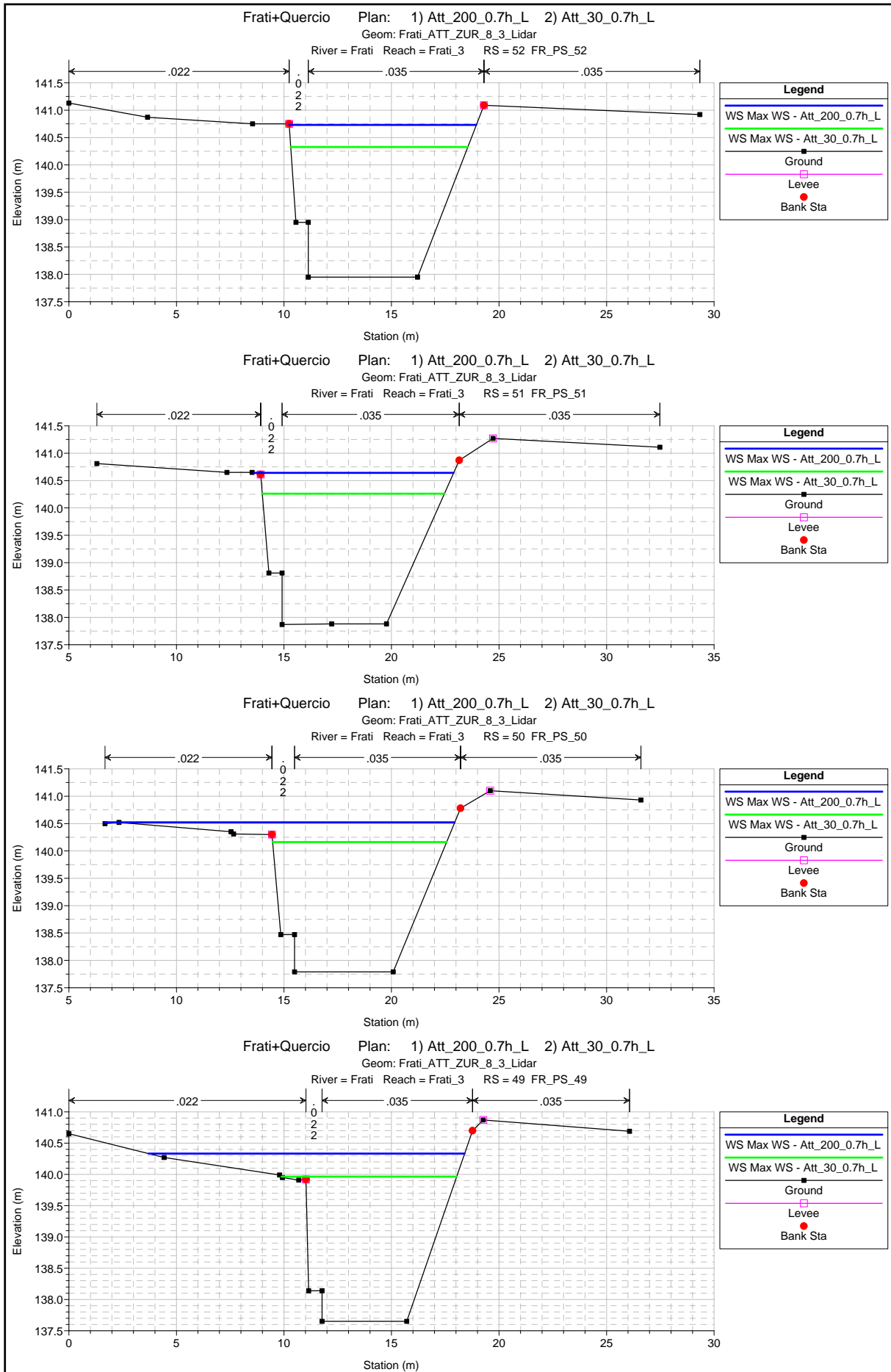


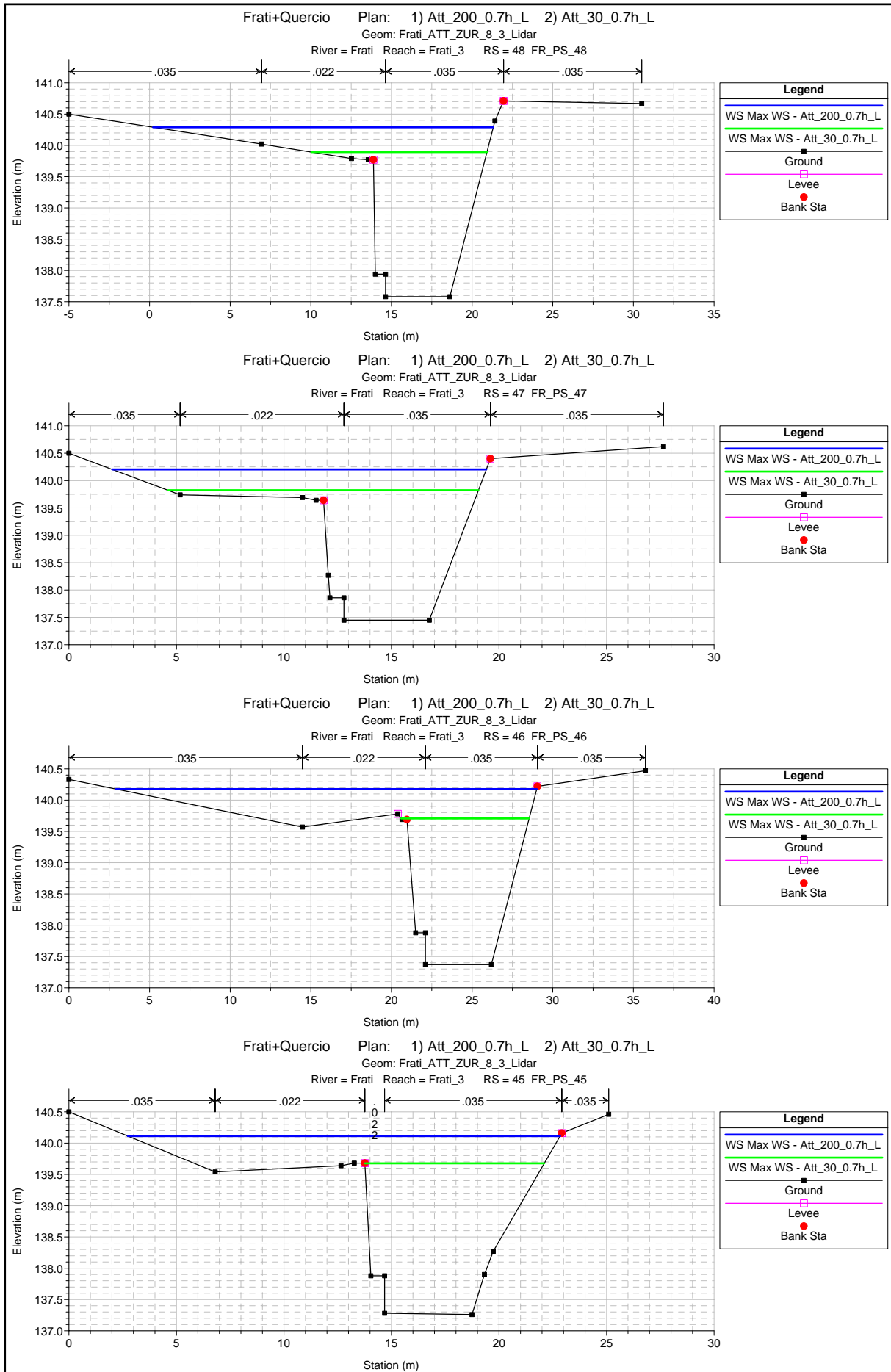


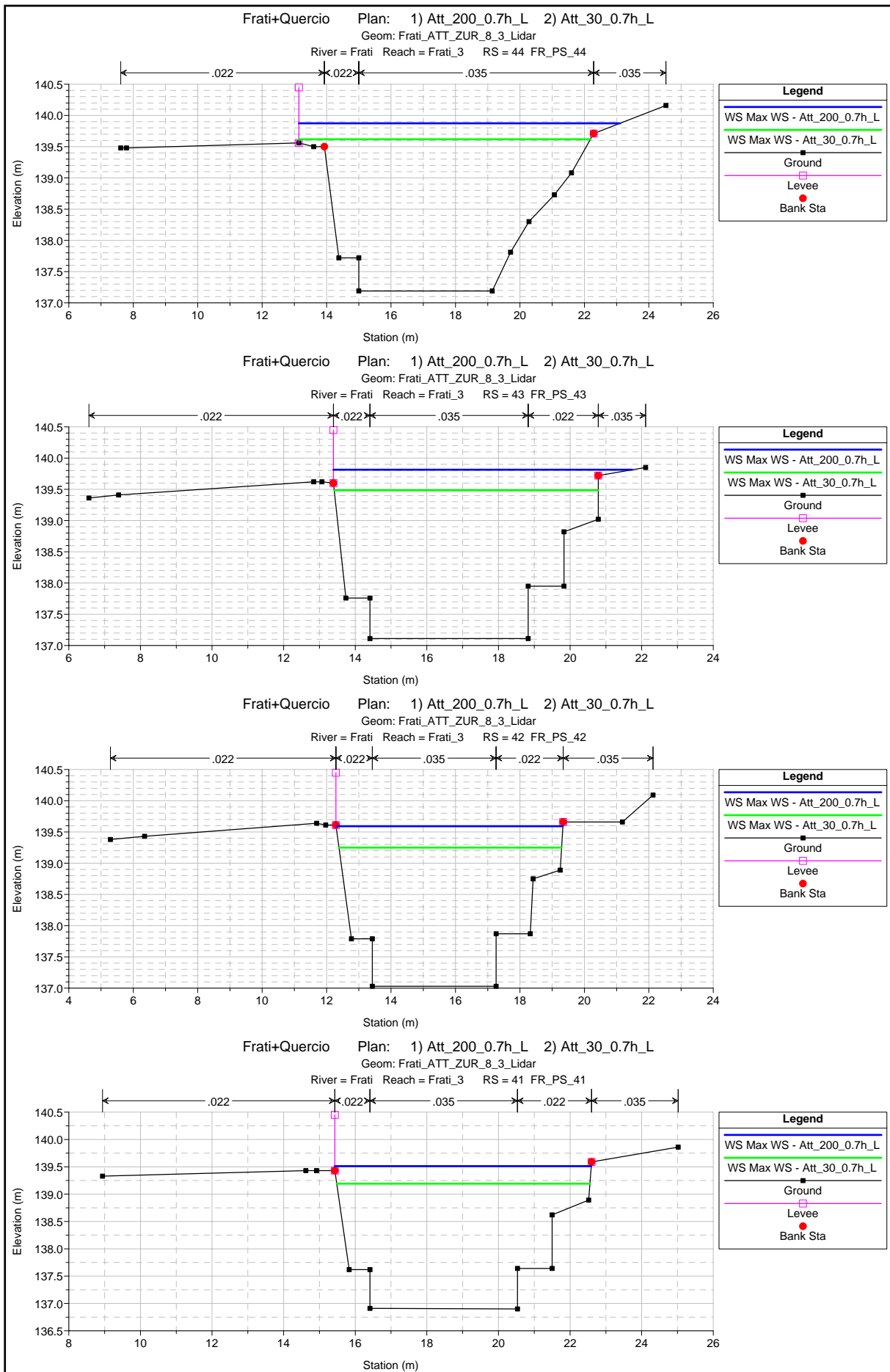




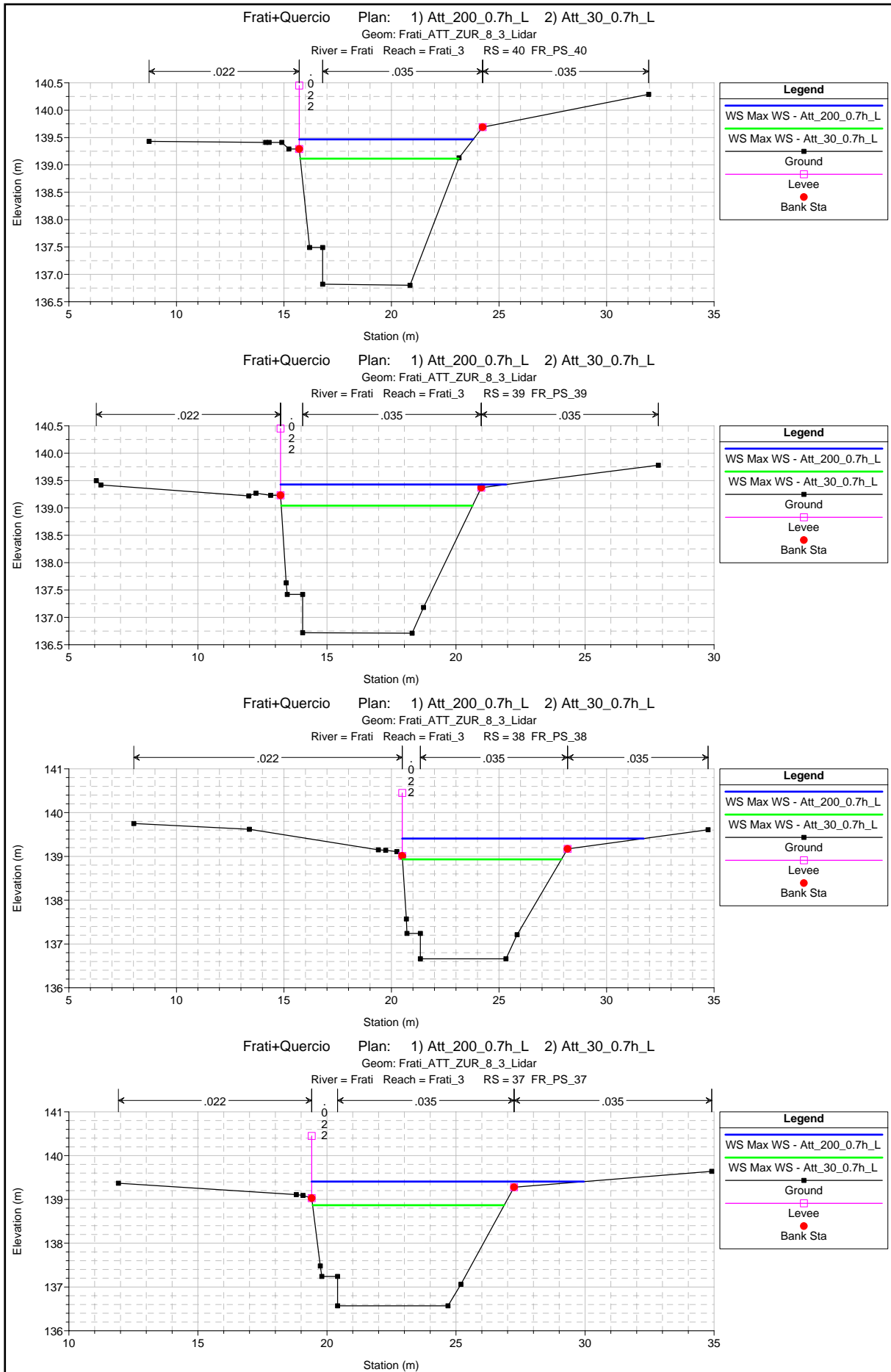


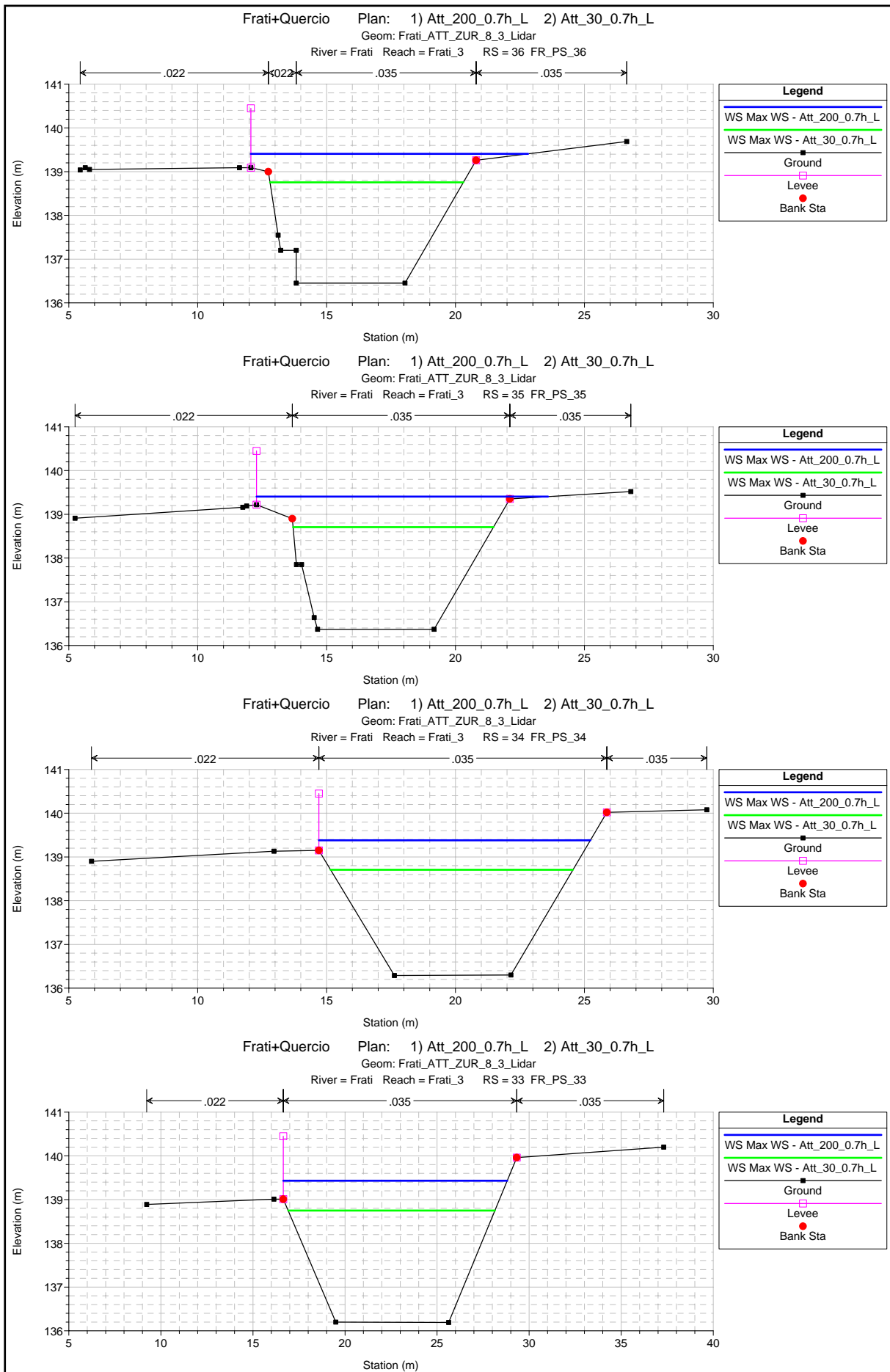


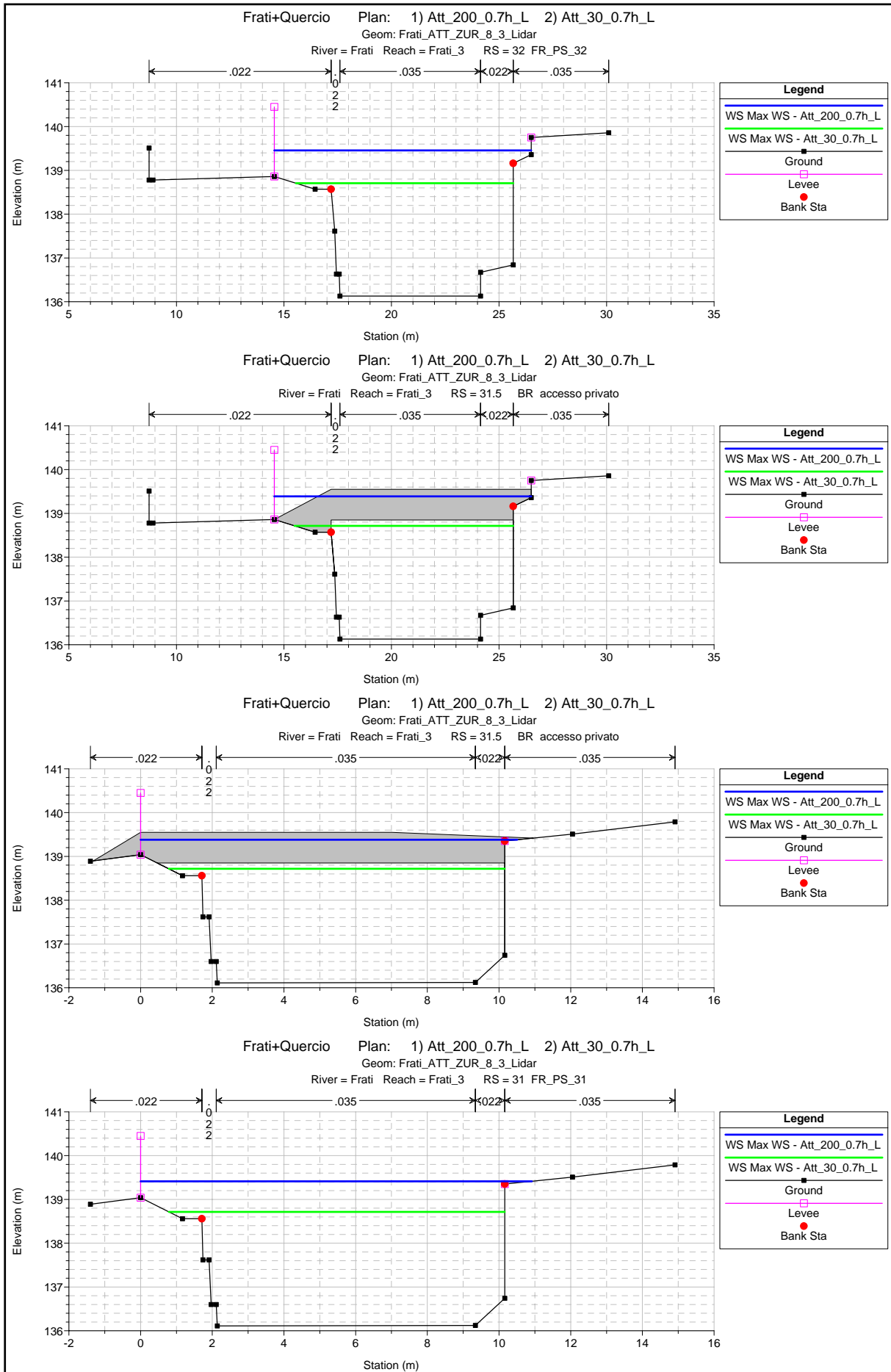


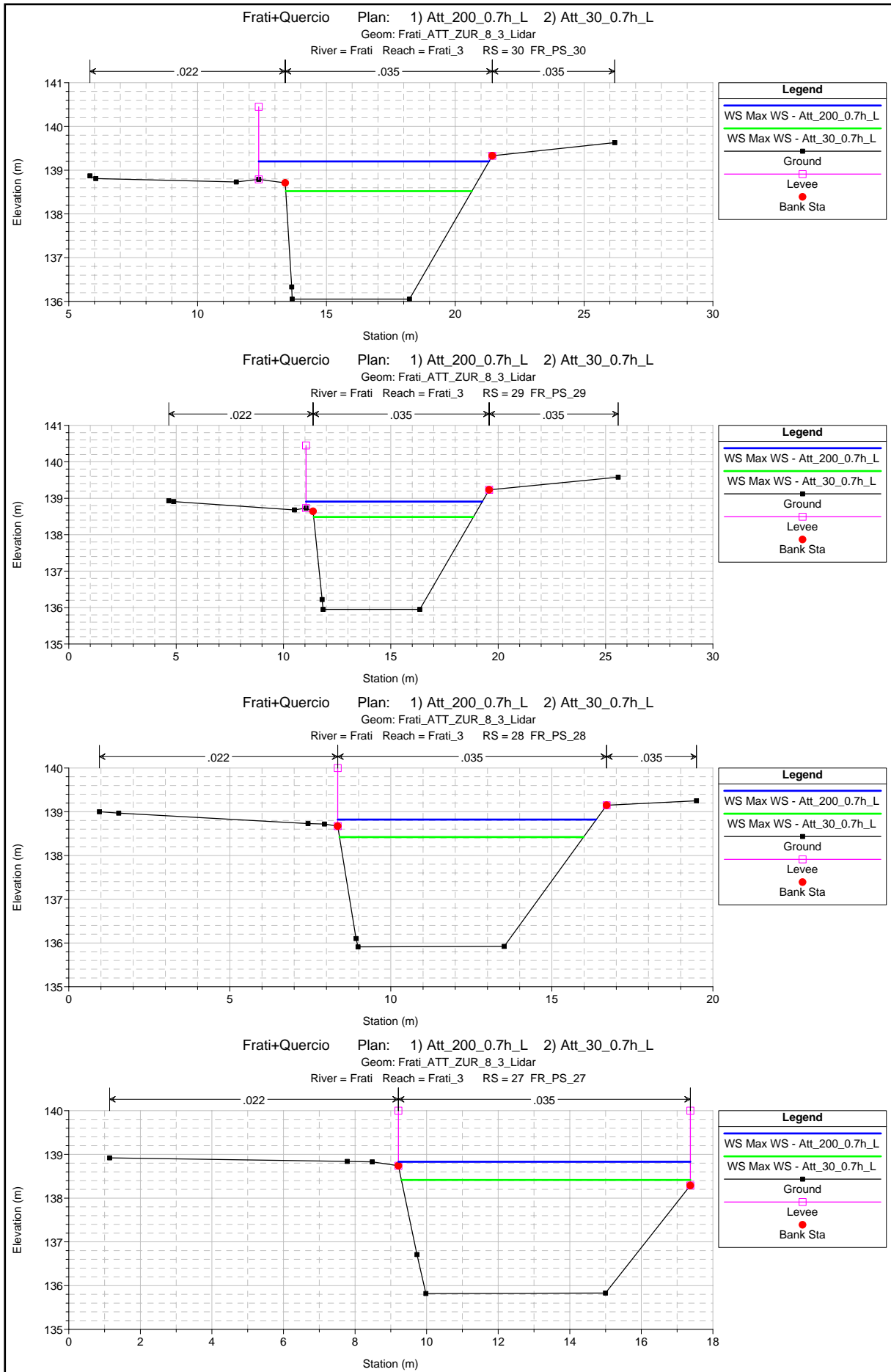


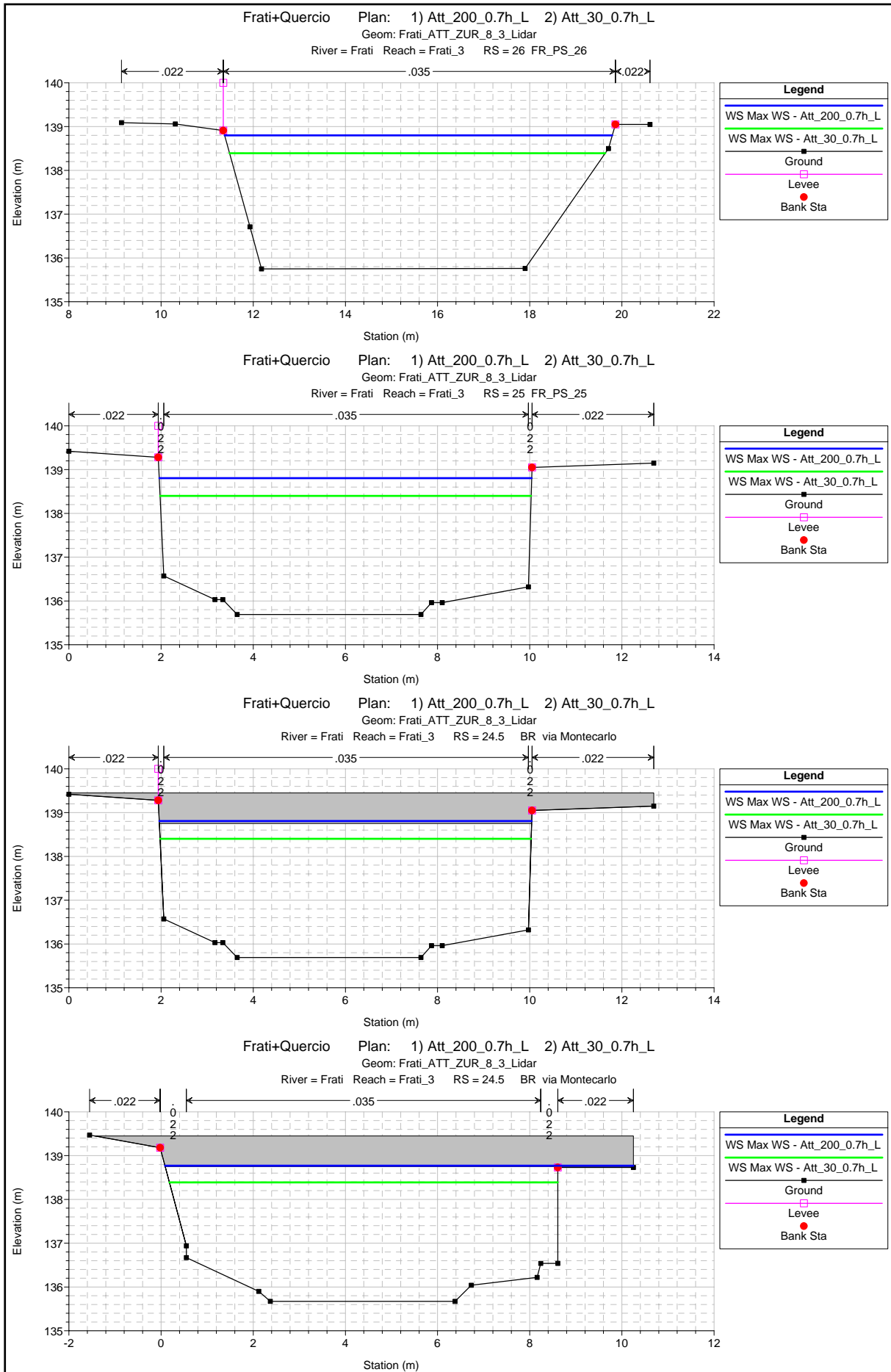


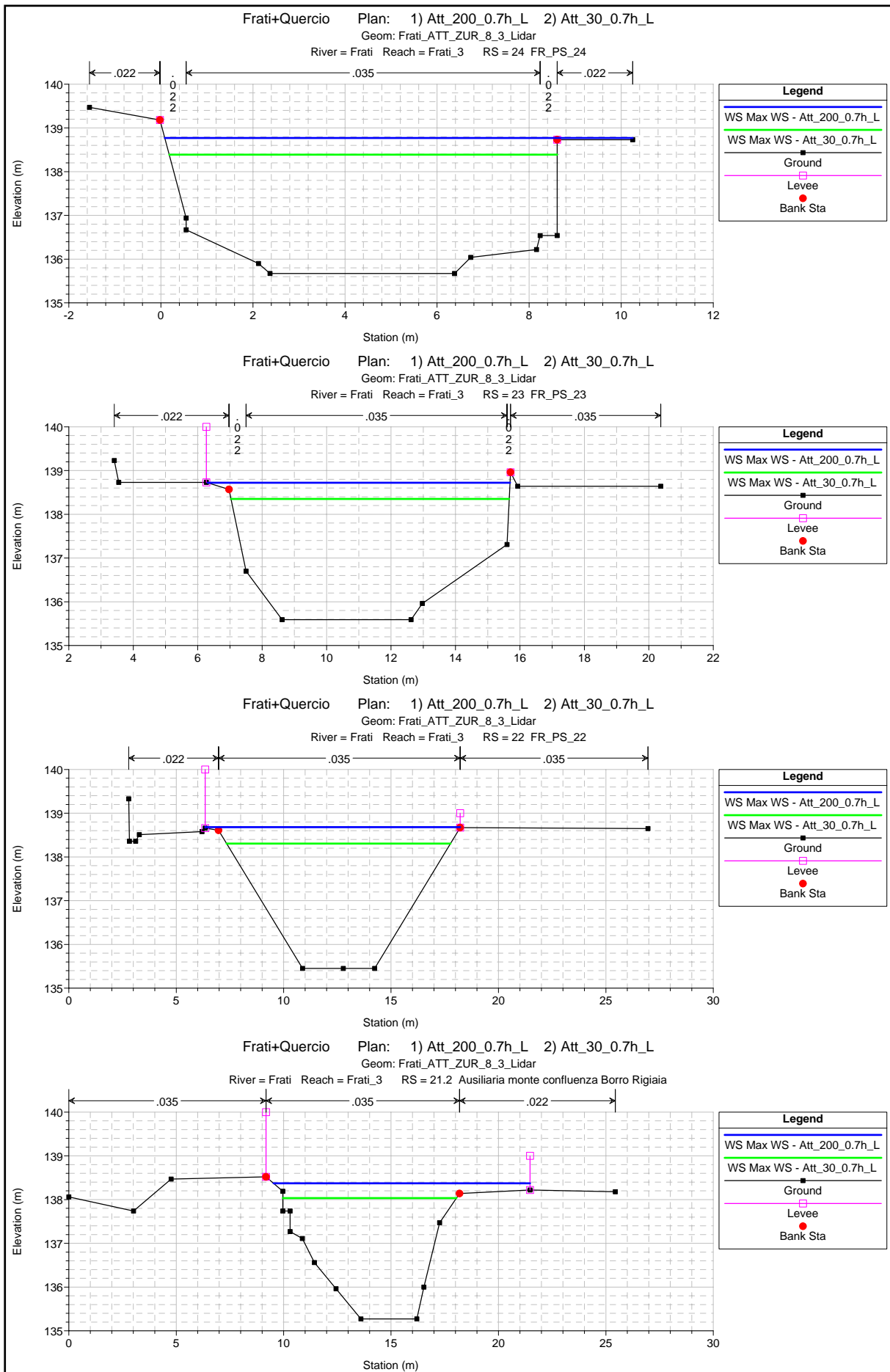


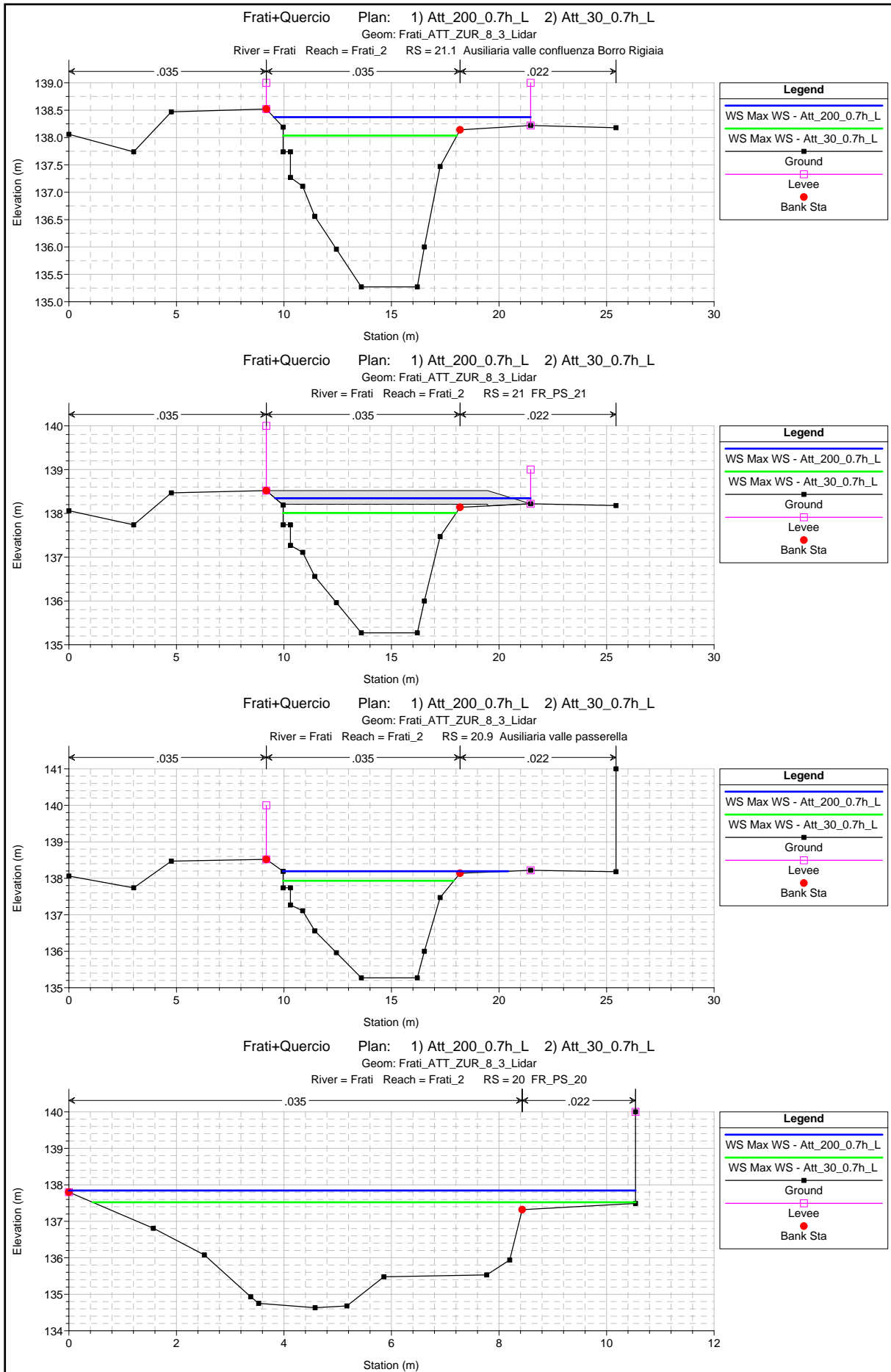


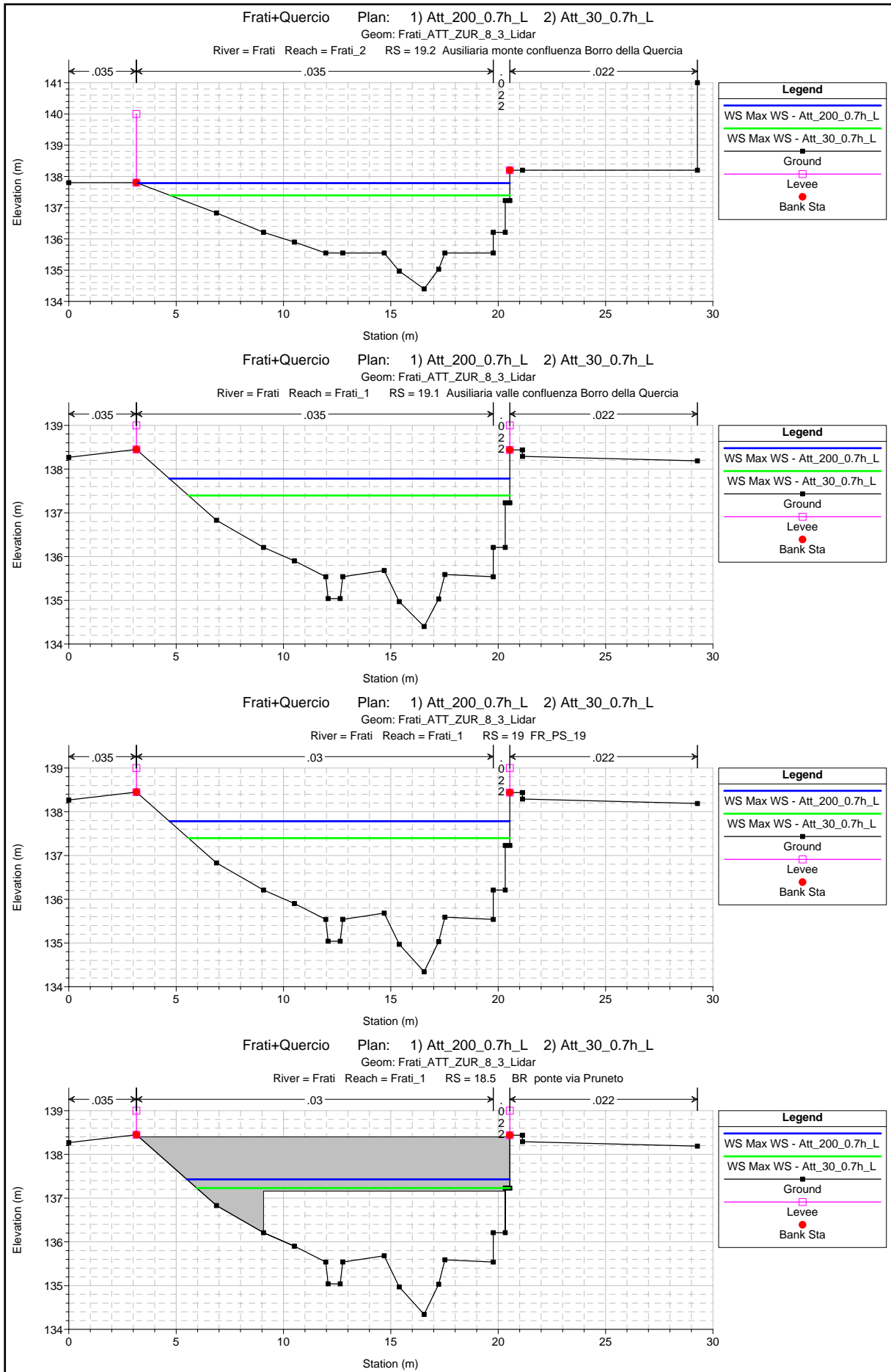




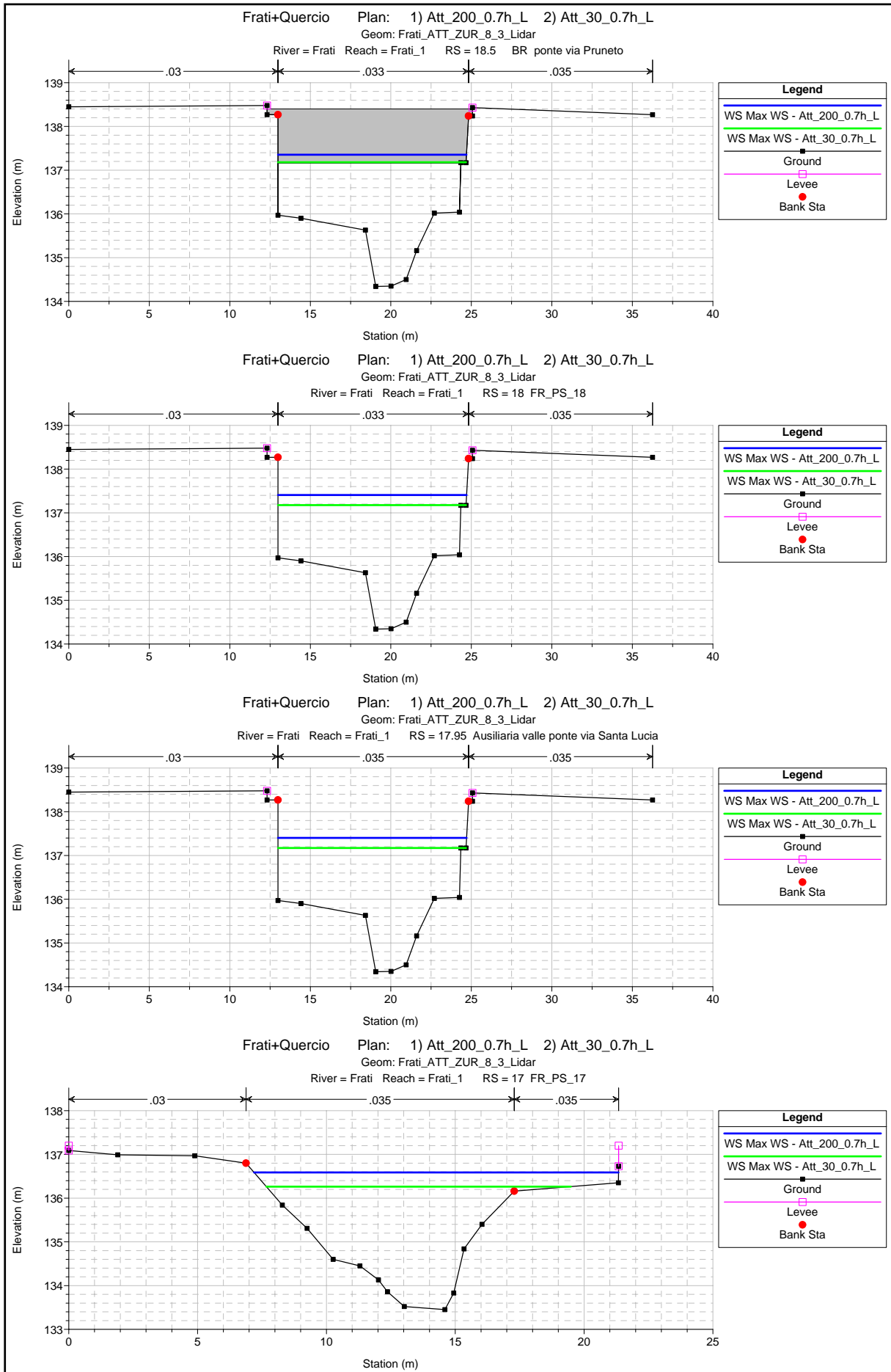


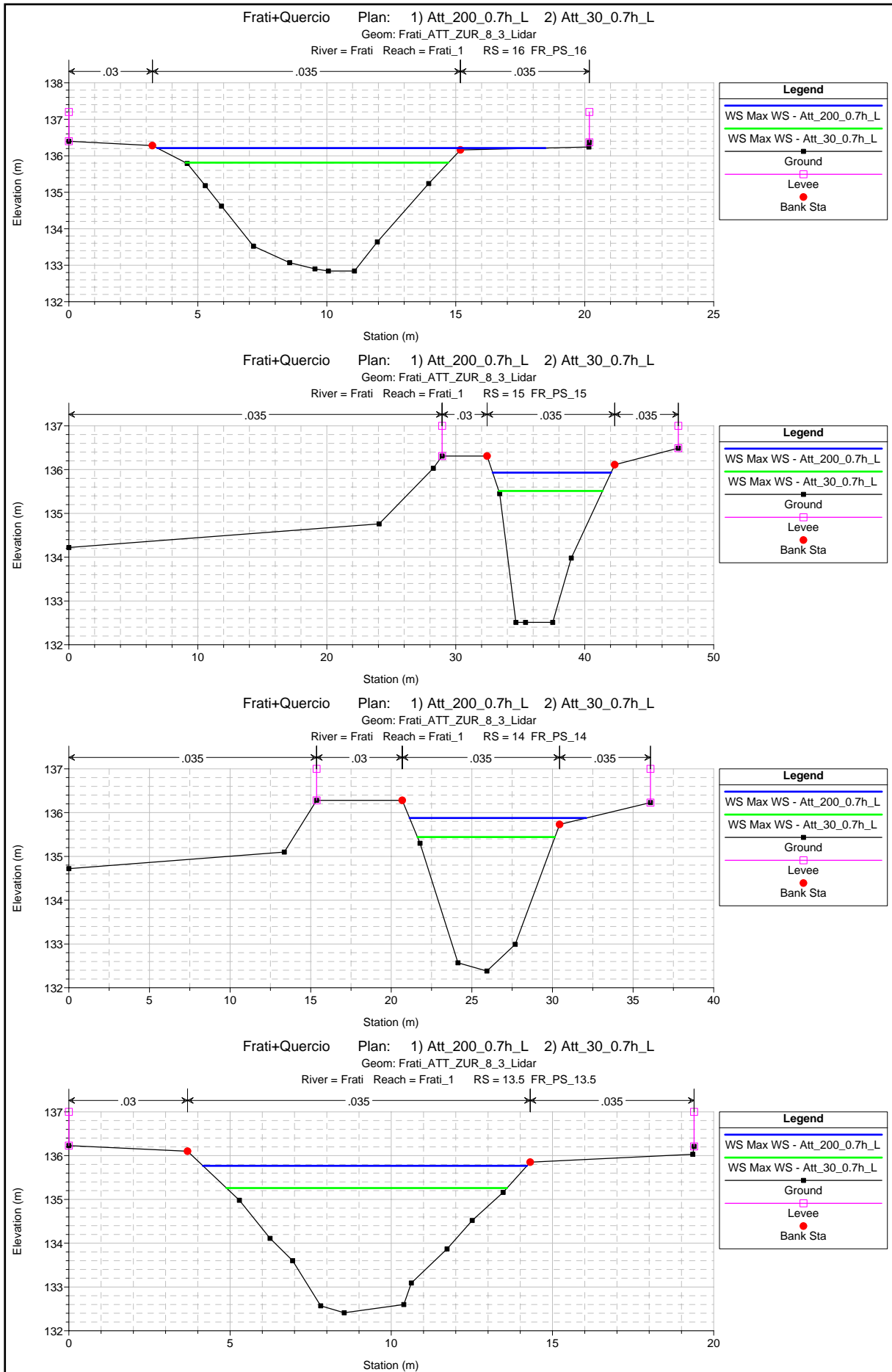


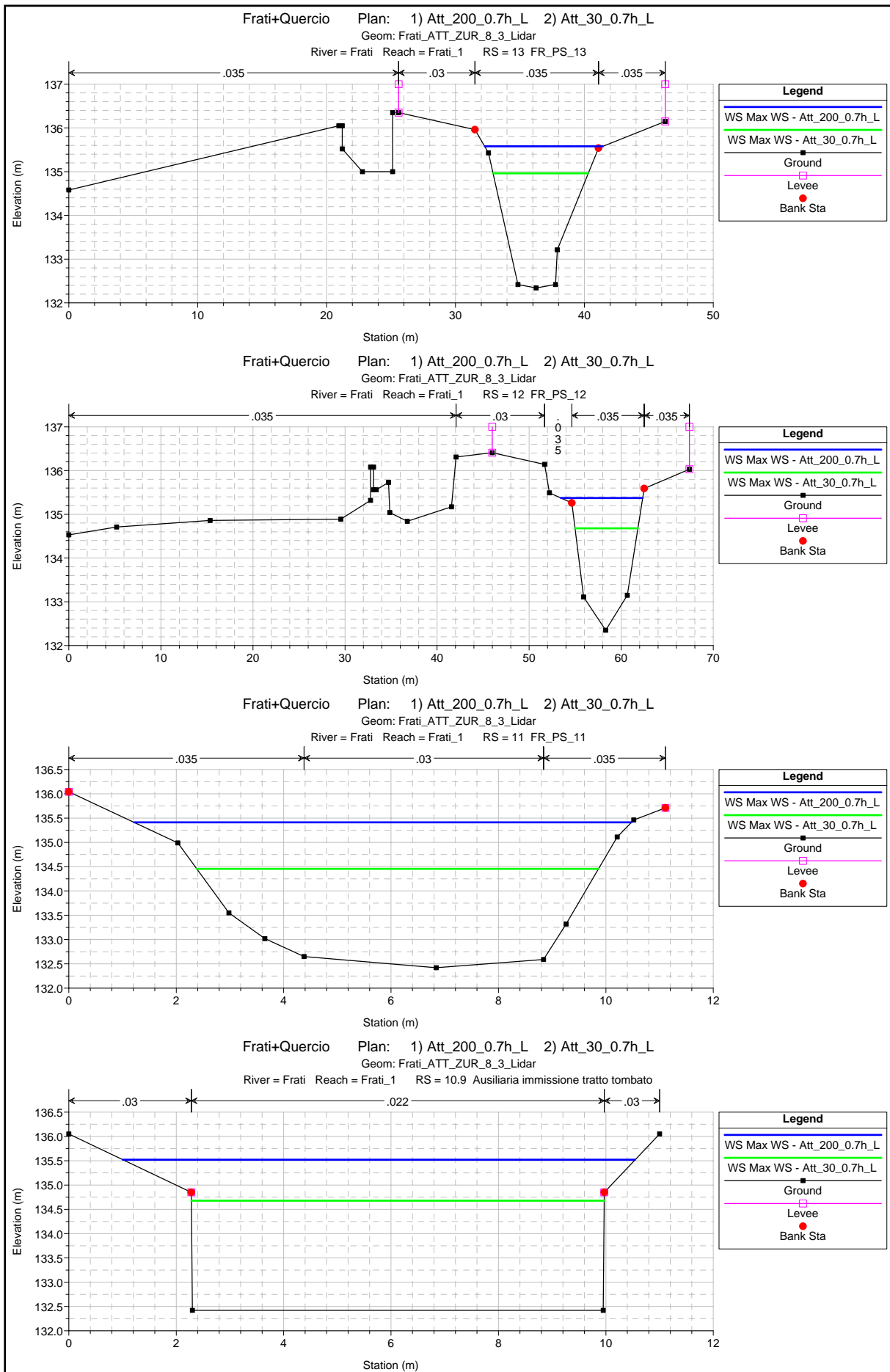


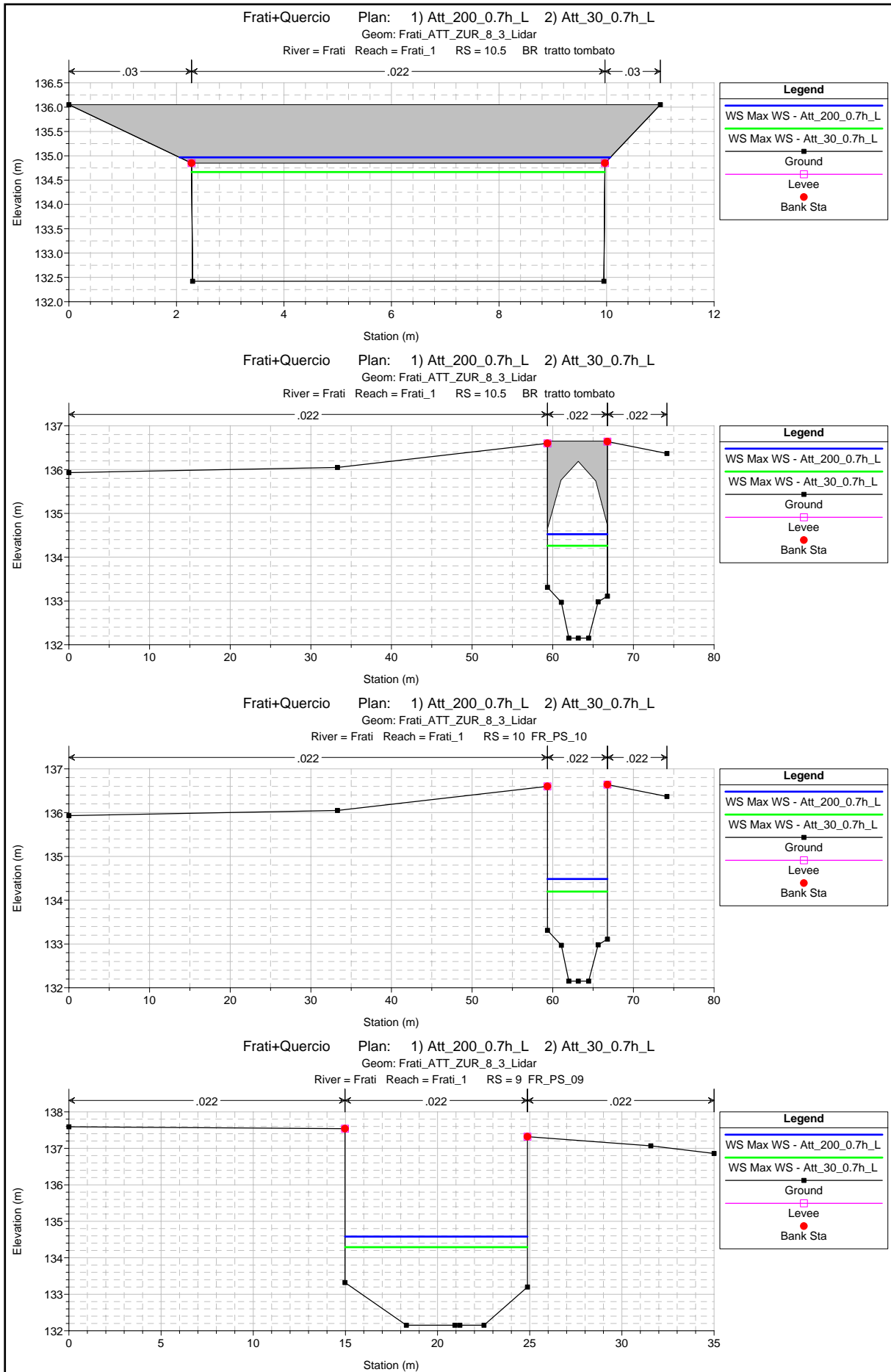


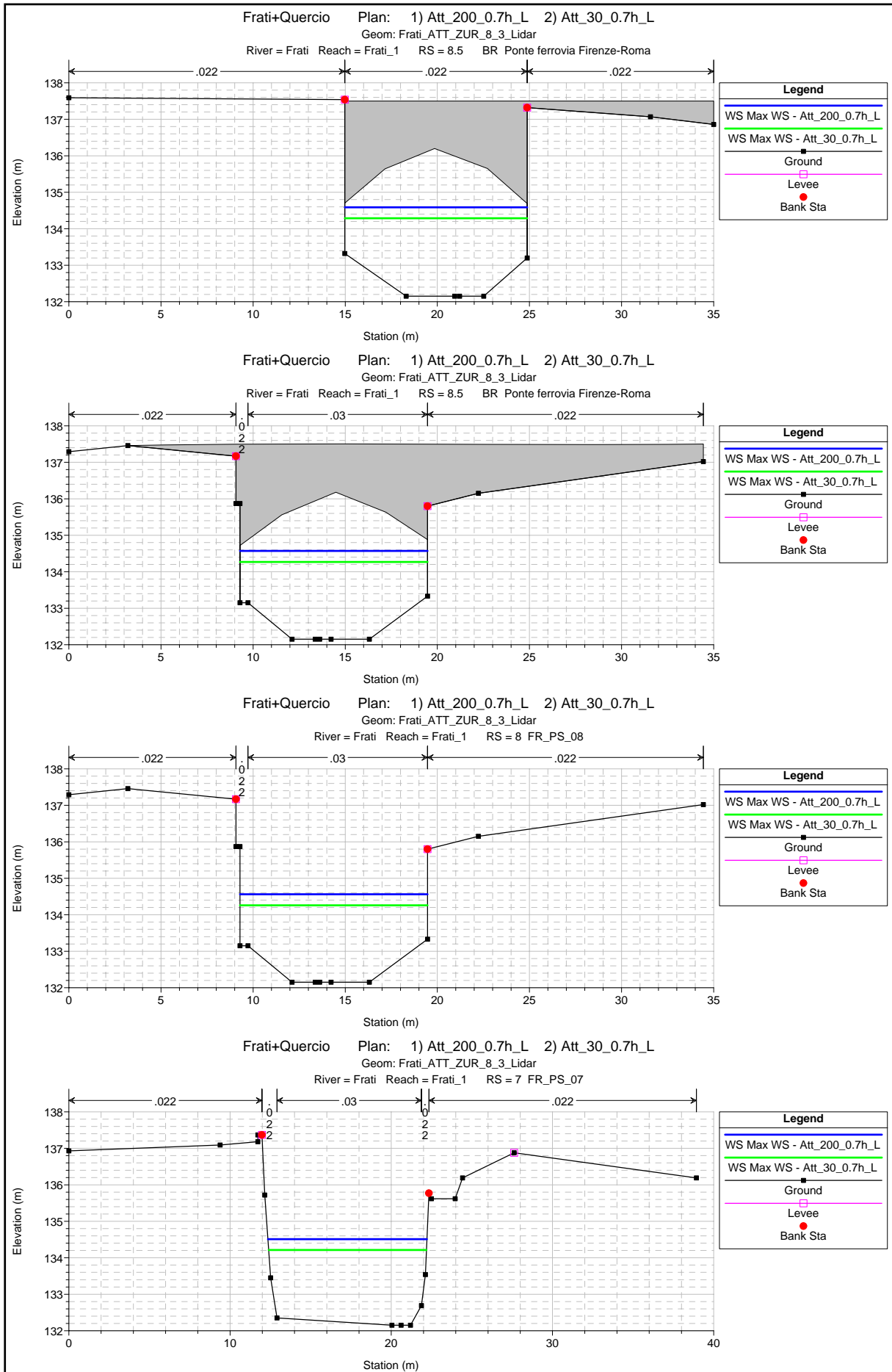


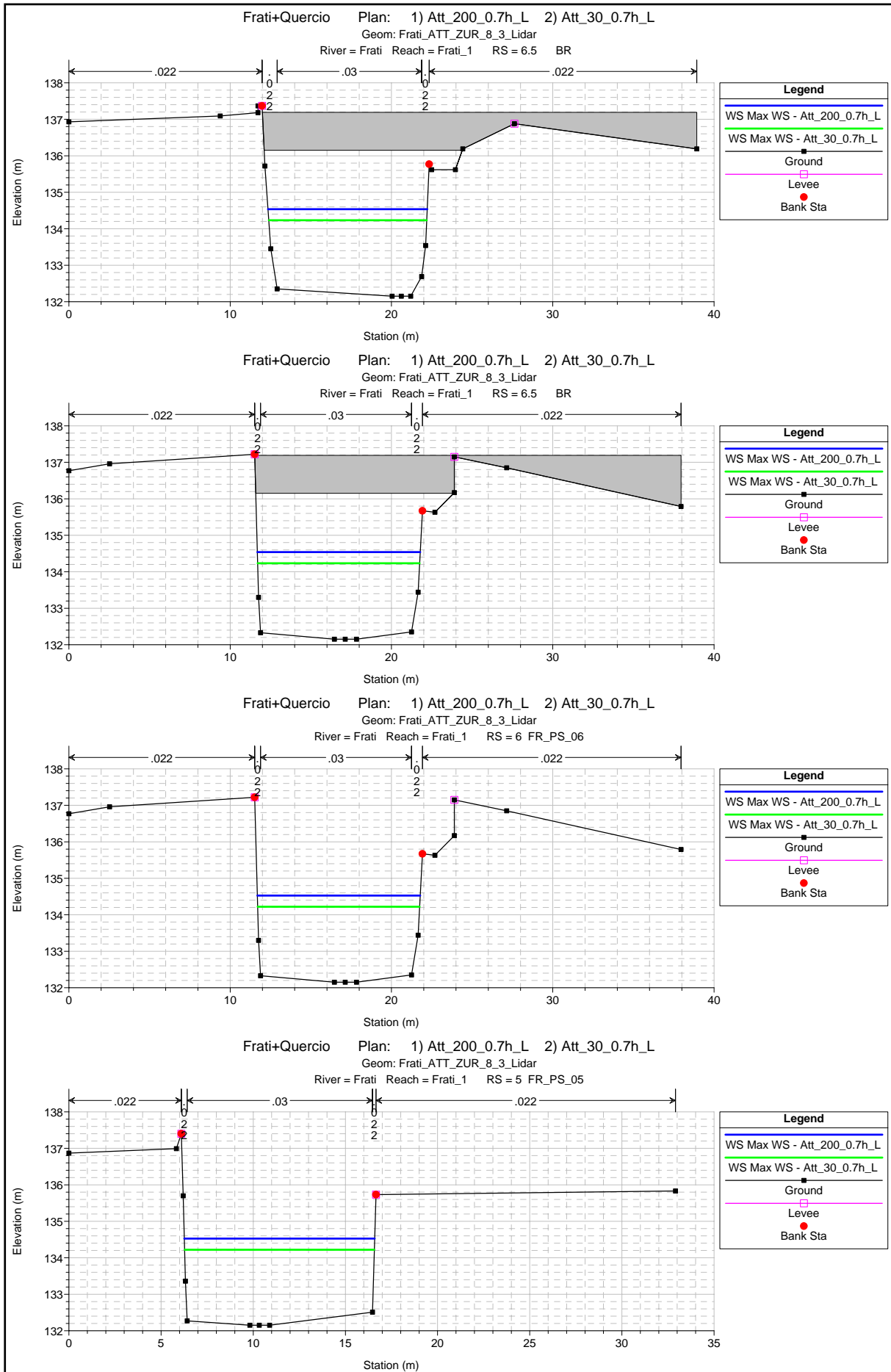


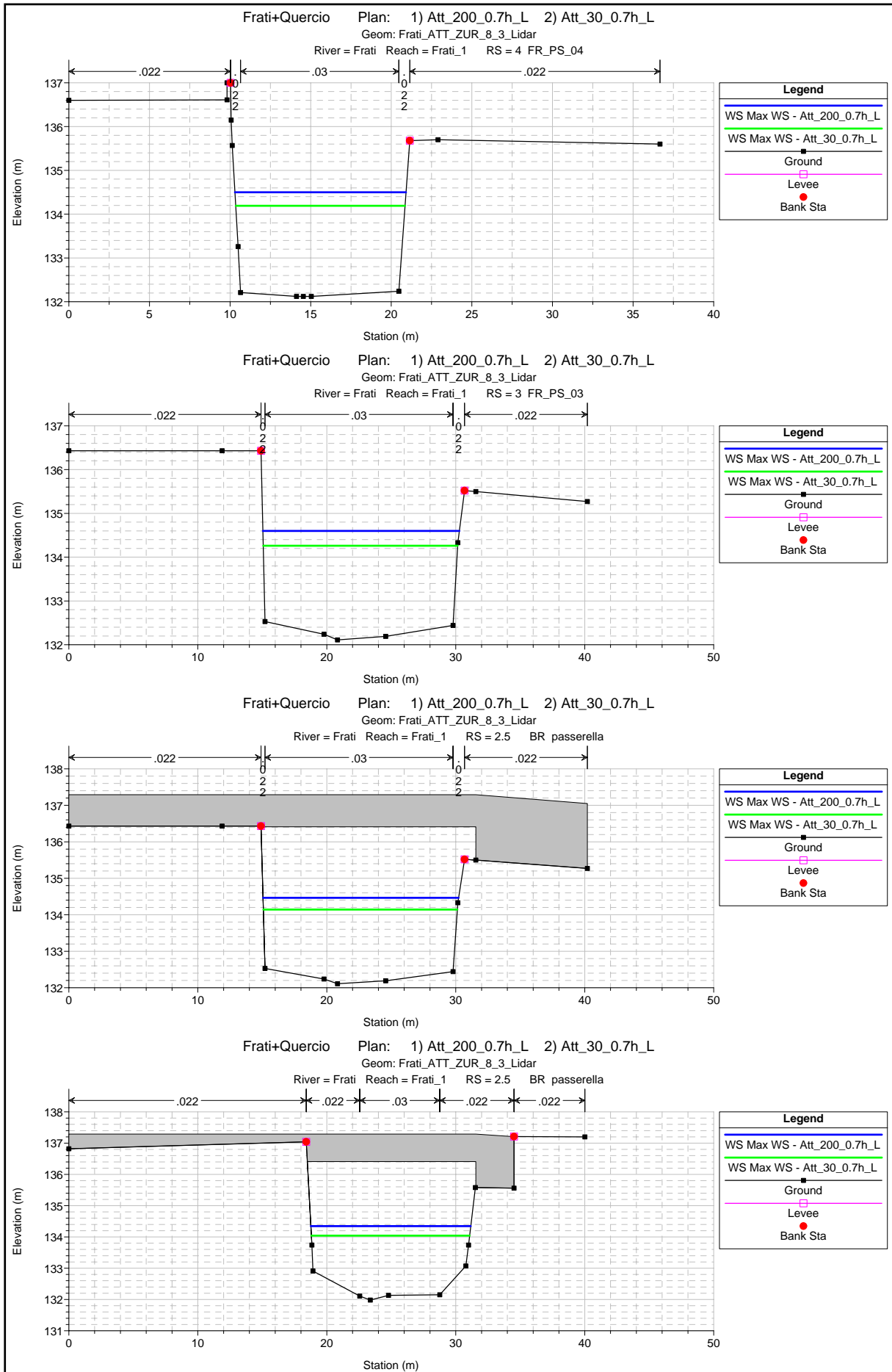


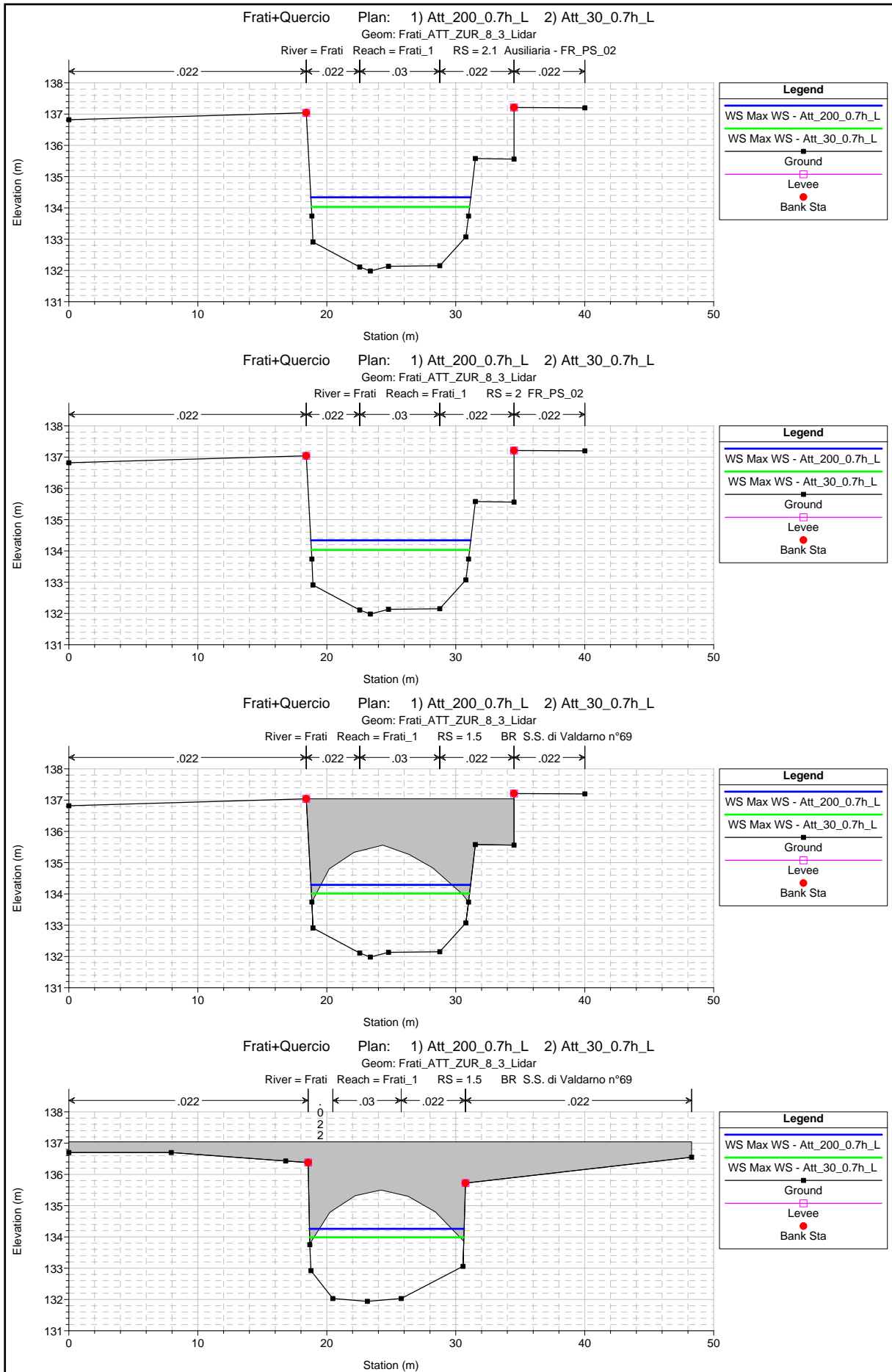




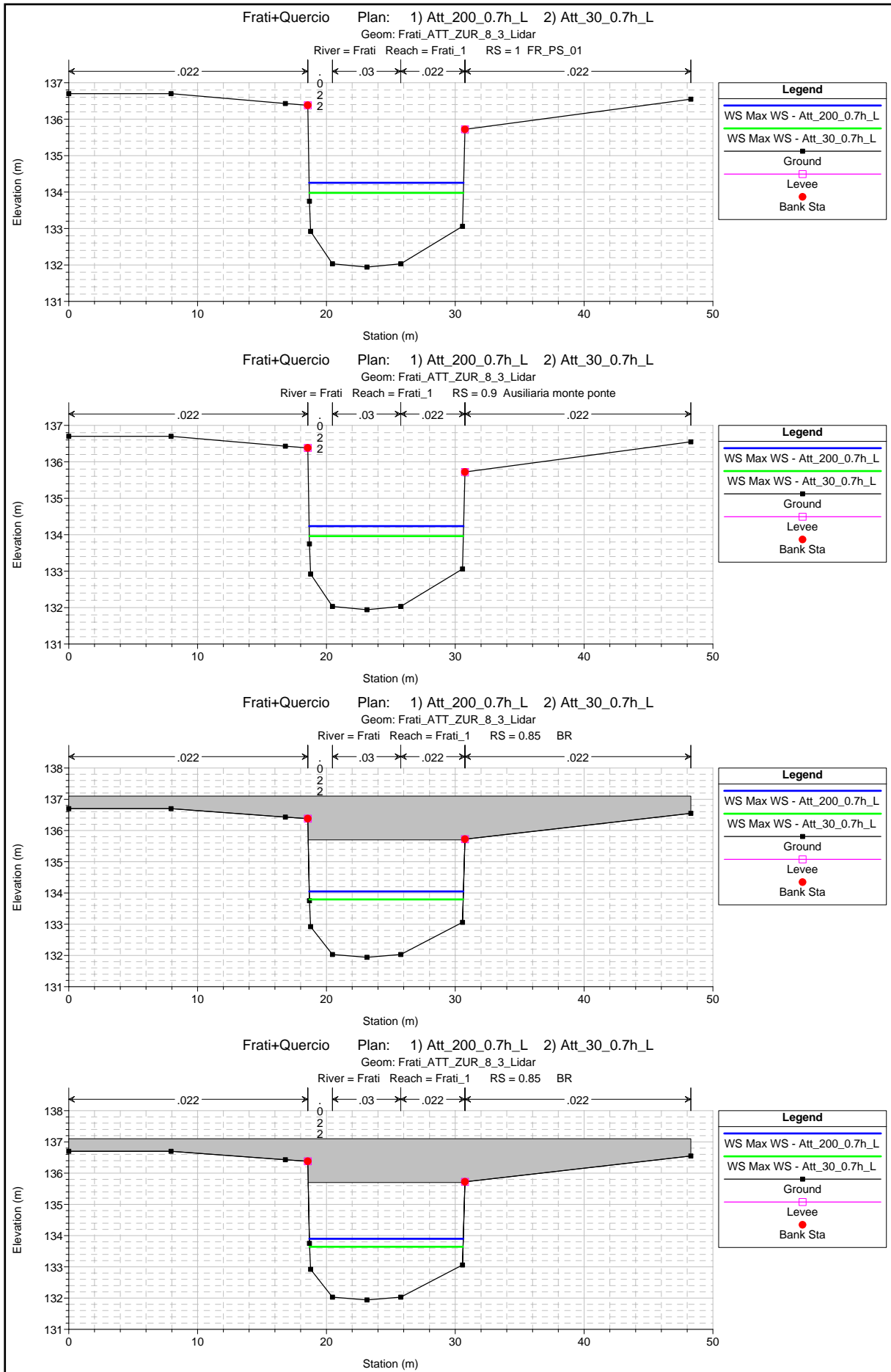


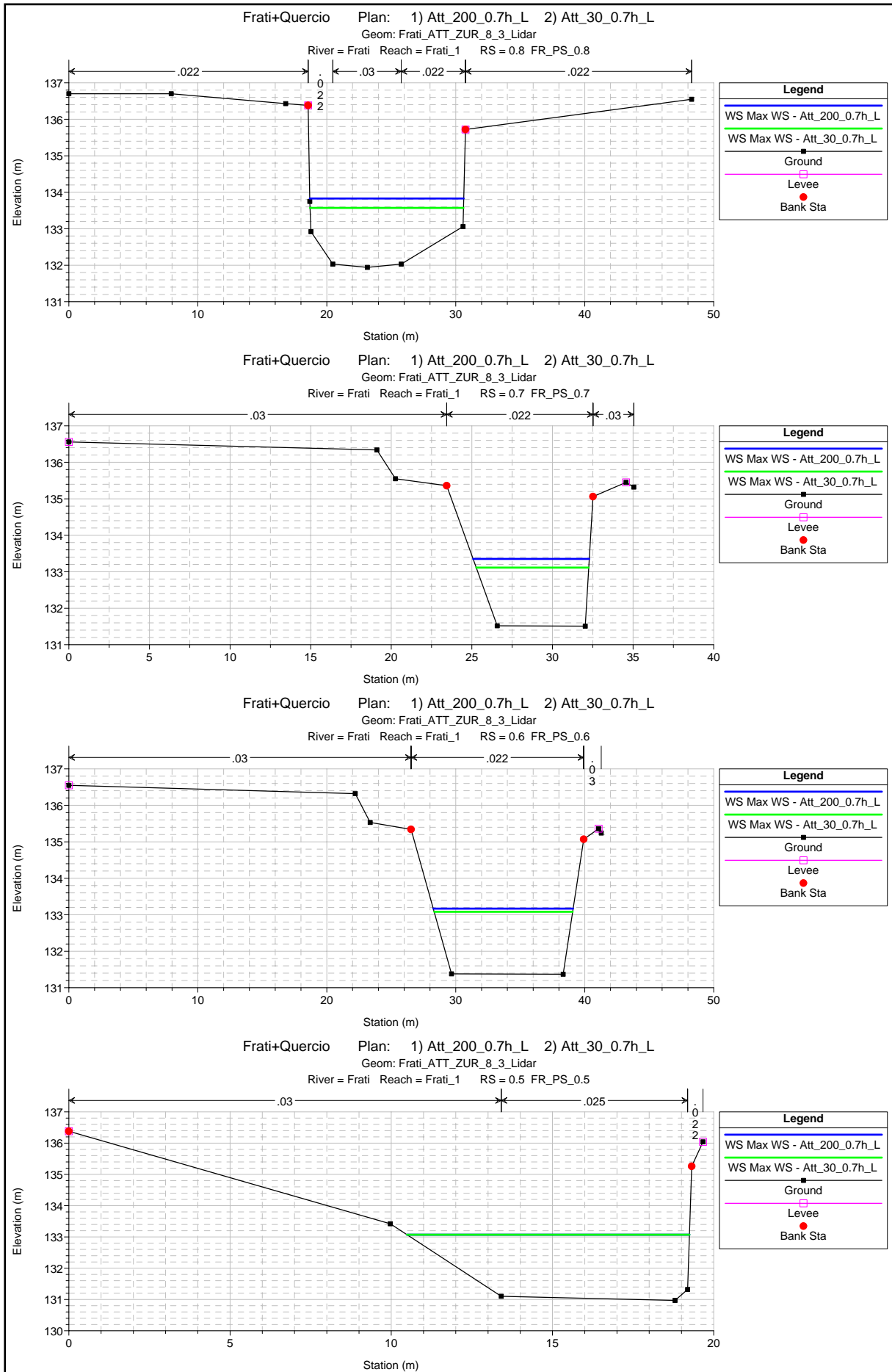


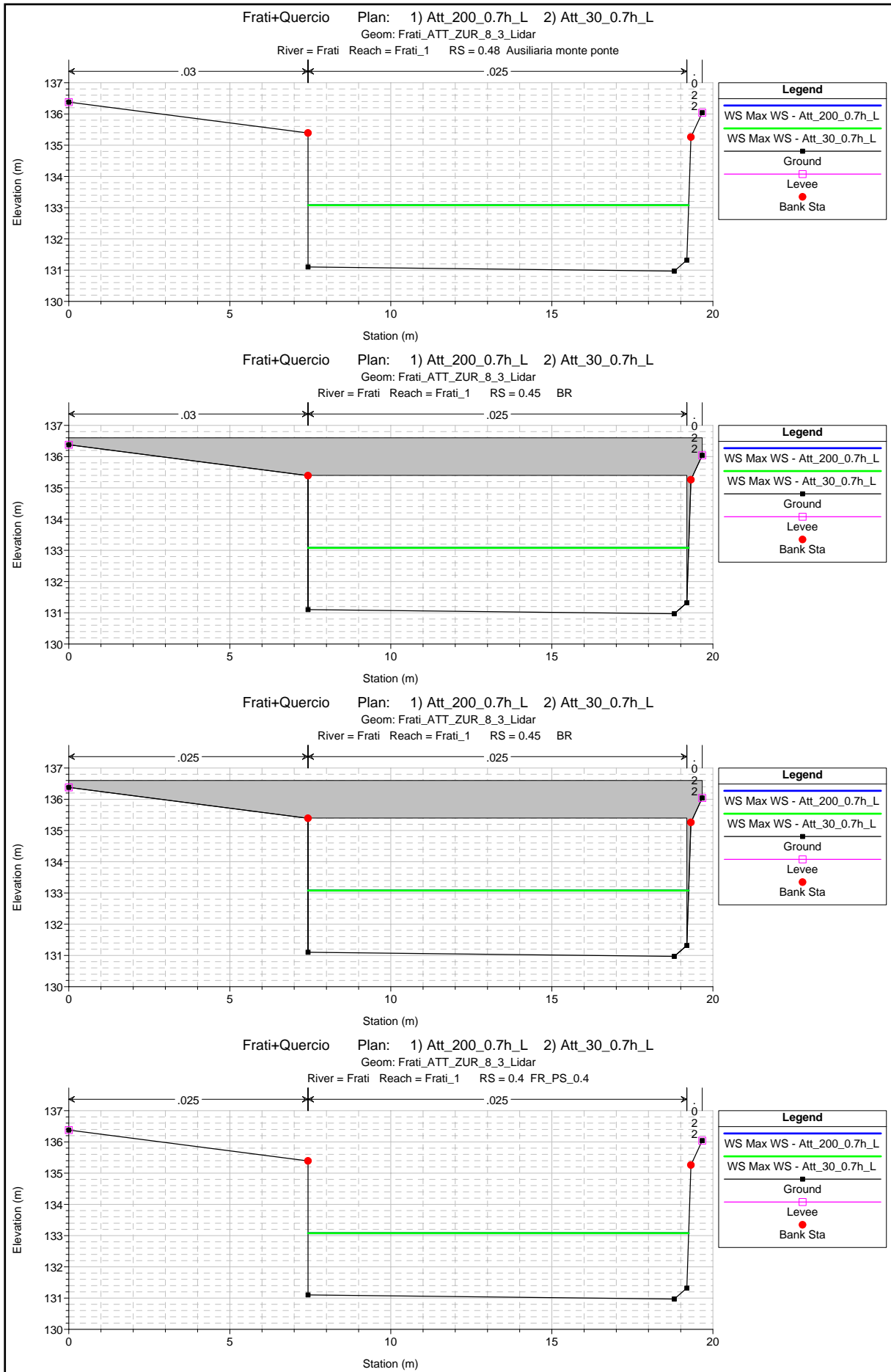


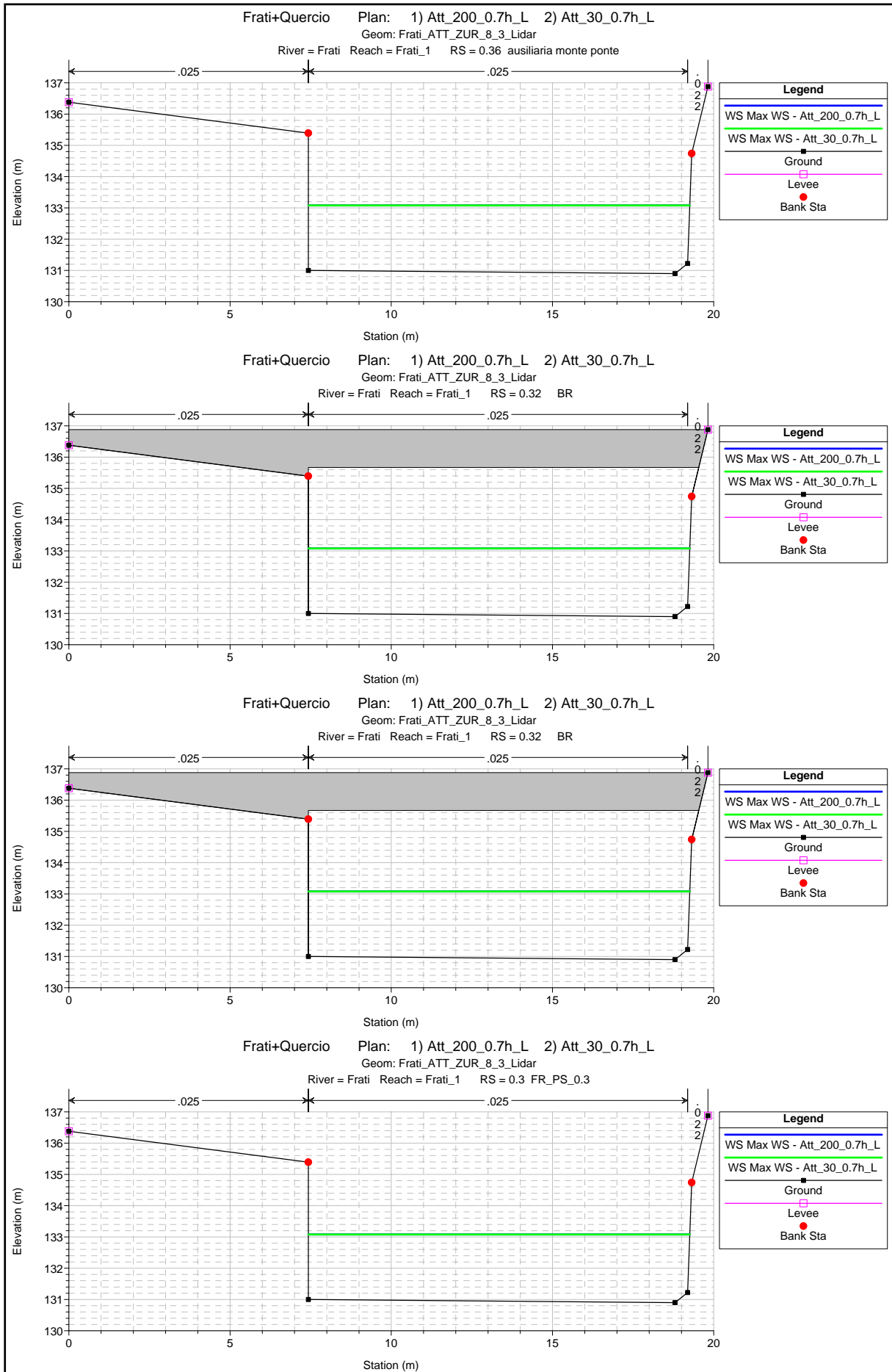


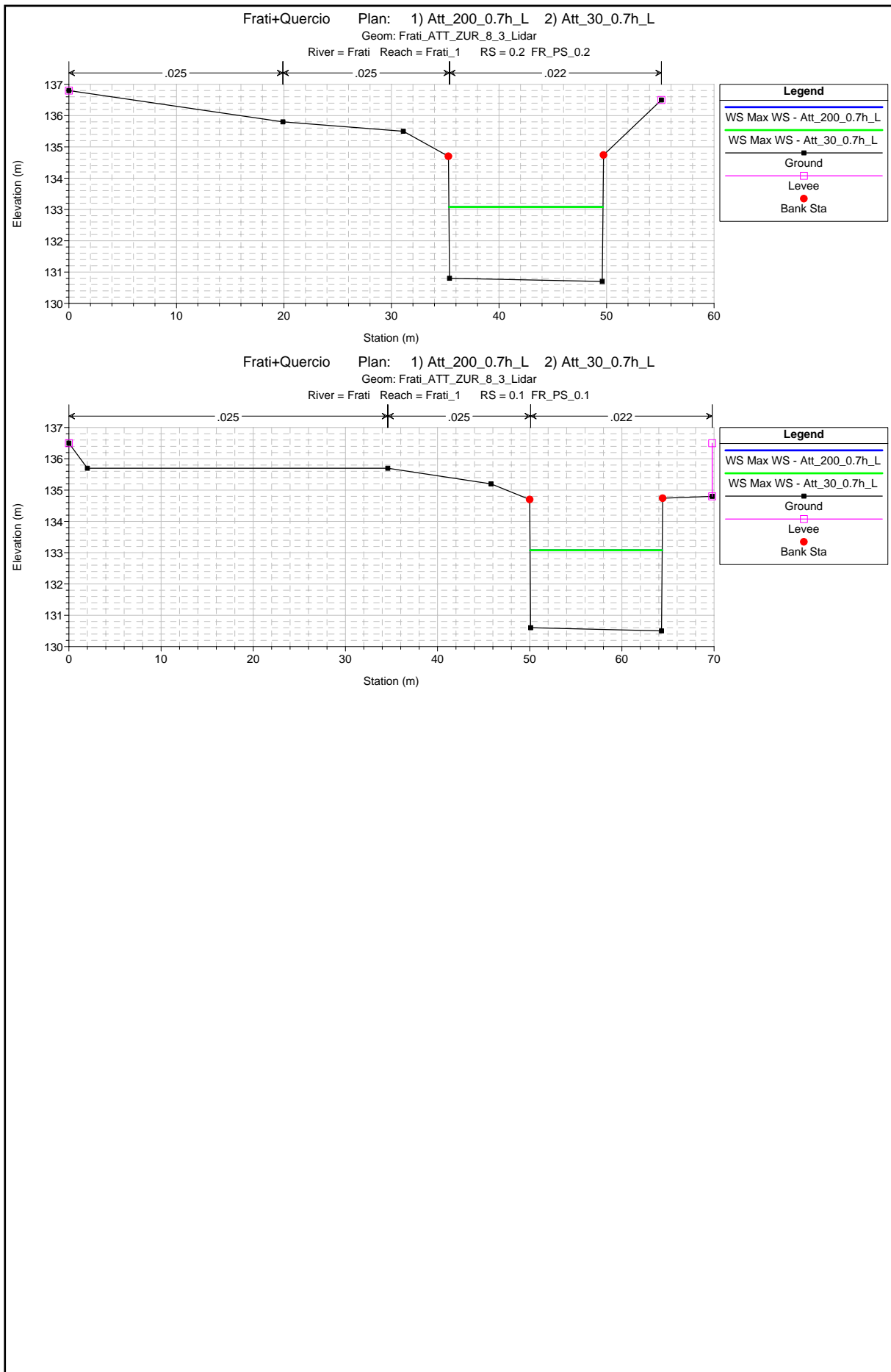












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_3	65	Max WS	Att_200_0.7h_L	43.93	140.45	142.81		143.12	0.005306	2.49	17.63	11.84	0.65
Frati_3	65	Max WS	Att_30_0.7h_L	34.97	140.45	142.64		142.89	0.004790	2.24	15.64	11.61	0.61
Frati_3	64	Max WS	Att_200_0.7h_L	40.95	140.81	142.75	142.29	143.00	0.004770	2.22	18.48	12.68	0.59
Frati_3	64	Max WS	Att_30_0.7h_L	34.96	140.81	142.59	142.17	142.82	0.004999	2.13	16.41	12.61	0.60
Frati_3	63.9			Inl Struct									
Frati_3	63	Max WS	Att_200_0.7h_L	52.40	139.20	141.75		142.11	0.004766	2.66	19.72	10.73	0.63
Frati_3	63	Max WS	Att_30_0.7h_L	34.94	139.20	141.14		141.48	0.005830	2.56	13.66	9.31	0.67
Frati_3	62	Max WS	Att_200_0.7h_L	52.31	138.95	141.71		142.03	0.003347	2.50	20.91	9.23	0.53
Frati_3	62	Max WS	Att_30_0.7h_L	34.94	138.95	141.14		141.39	0.003309	2.21	15.81	8.64	0.52
Frati_3	61	Max WS	Att_200_0.7h_L	52.26	138.78	141.58		141.98	0.004294	2.80	18.70	8.44	0.60
Frati_3	61	Max WS	Att_30_0.7h_L	34.94	138.78	141.04		141.34	0.004137	2.46	14.22	7.88	0.58
Frati_3	60	Max WS	Att_200_0.7h_L	52.22	138.63	141.49		141.92	0.004980	2.90	17.99	7.93	0.62
Frati_3	60	Max WS	Att_30_0.7h_L	34.94	138.63	140.97		141.29	0.004529	2.50	13.97	7.42	0.58
Frati_3	59	Max WS	Att_200_0.7h_L	52.17	138.56	141.32		141.82	0.005852	3.13	16.68	7.61	0.67
Frati_3	59	Max WS	Att_30_0.7h_L	34.93	138.56	140.84		141.20	0.005154	2.67	13.09	7.12	0.63
Frati_3	58	Max WS	Att_200_0.7h_L	52.13	138.45	141.10		141.69	0.007333	3.39	15.38	7.36	0.75
Frati_3	58	Max WS	Att_30_0.7h_L	34.91	138.45	140.67		141.08	0.006201	2.85	12.27	6.93	0.68
Frati_3	57	Max WS	Att_200_0.7h_L	52.23	138.34	141.14		141.54	0.004789	2.88	19.41	16.25	0.62
Frati_3	57	Max WS	Att_30_0.7h_L	34.91	138.34	140.56		140.95	0.005730	2.76	12.65	7.06	0.66
Frati_3	56	Max WS	Att_200_0.7h_L	52.20	138.23	141.12		141.43	0.003733	2.57	21.87	16.97	0.54
Frati_3	56	Max WS	Att_30_0.7h_L	34.91	138.23	140.48		140.83	0.005035	2.60	13.43	7.27	0.61
Frati_3	55	Max WS	Att_200_0.7h_L	52.14	138.15	140.97		141.36	0.004423	2.78	19.43	13.92	0.59
Frati_3	55	Max WS	Att_30_0.7h_L	34.91	138.15	140.41		140.73	0.004595	2.50	13.94	7.61	0.59
Frati_3	54	Max WS	Att_200_0.7h_L	52.14	138.06	140.90		141.28	0.004405	2.76	19.38	14.56	0.59
Frati_3	54	Max WS	Att_30_0.7h_L	34.91	138.06	140.35		140.65	0.004396	2.45	14.27	7.83	0.58
Frati_3	53	Max WS	Att_200_0.7h_L	52.13	137.95	140.87	140.00	141.21	0.003805	2.60	20.49	15.50	0.55

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_3	53	Max WS	Att_30_0.7h_L	34.89	137.95	140.33	139.56	140.59	0.003568	2.26	15.46	8.03	0.52
Frati_3	52.5			Bridge									
Frati_3	52	Max WS	Att_200_0.7h_L	52.13	137.95	140.73		141.11	0.004361	2.71	19.23	8.70	0.58
Frati_3	52	Max WS	Att_30_0.7h_L	34.89	137.95	140.33		140.58	0.003411	2.21	15.81	8.23	0.51
Frati_3	51	Max WS	Att_200_0.7h_L	52.13	137.87	140.64		141.02	0.004389	2.71	19.21	9.28	0.59
Frati_3	51	Max WS	Att_30_0.7h_L	34.89	137.87	140.26		140.51	0.003373	2.20	15.89	8.47	0.51
Frati_3	50	Max WS	Att_200_0.7h_L	52.13	137.79	140.52		140.92	0.004667	2.82	19.11	16.26	0.62
Frati_3	50	Max WS	Att_30_0.7h_L	34.89	137.79	140.16		140.43	0.003614	2.29	15.23	8.09	0.53
Frati_3	49	Max WS	Att_200_0.7h_L	52.13	137.65	140.33		140.83	0.006296	3.19	17.31	14.70	0.70
Frati_3	49	Max WS	Att_30_0.7h_L	34.87	137.65	139.96		140.33	0.005241	2.67	13.10	8.15	0.62
Frati_3	48	Max WS	Att_200_0.7h_L	52.12	137.58	140.29		140.68	0.004991	2.89	19.87	21.10	0.63
Frati_3	48	Max WS	Att_30_0.7h_L	34.85	137.58	139.89		140.24	0.004911	2.62	13.52	10.88	0.61
Frati_3	47	Max WS	Att_200_0.7h_L	52.09	137.45	140.20		140.55	0.004345	2.74	20.59	17.39	0.59
Frati_3	47	Max WS	Att_30_0.7h_L	34.85	137.45	139.82		140.14	0.004284	2.50	14.53	14.43	0.58
Frati_3	46	Max WS	Att_200_0.7h_L	52.09	137.37	140.18		140.46	0.003523	2.50	24.32	26.10	0.54
Frati_3	46	Max WS	Att_30_0.7h_L	34.85	137.37	139.71		140.03	0.004416	2.51	13.90	7.93	0.59
Frati_3	45	Max WS	Att_200_0.7h_L	52.09	137.26	140.11		140.39	0.003584	2.43	23.24	20.10	0.54
Frati_3	45	Max WS	Att_30_0.7h_L	34.85	137.26	139.68		139.96	0.004146	2.37	14.71	8.34	0.57
Frati_3	44	Max WS	Att_200_0.7h_L	52.09	137.19	139.87		140.33	0.005204	2.98	17.68	9.97	0.66
Frati_3	44	Max WS	Att_30_0.7h_L	34.85	137.19	139.62		139.89	0.003589	2.29	15.28	9.05	0.54
Frati_3	43.9			Lat Struct									
Frati_3	43	Max WS	Att_200_0.7h_L	48.82	137.11	139.81		140.26	0.005126	2.97	16.48	8.35	0.64
Frati_3	43	Max WS	Att_30_0.7h_L	34.80	137.11	139.48		139.80	0.004051	2.48	14.01	7.38	0.58
Frati_3	42	Max WS	Att_200_0.7h_L	48.24	137.03	139.59		140.19	0.007299	3.43	14.06	7.04	0.77
Frati_3	42	Max WS	Att_30_0.7h_L	34.79	137.03	139.25		139.70	0.006678	2.98	11.67	6.91	0.73

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_3	41	Max WS	Att_200_0.7h_L	47.93	136.90	139.51		140.04	0.006206	3.23	14.84	7.16	0.72
Frati_3	41	Max WS	Att_30_0.7h_L	34.79	136.90	139.19		139.58	0.005425	2.77	12.56	7.07	0.66
Frati_3	40	Max WS	Att_200_0.7h_L	46.74	136.80	139.47		139.90	0.005568	2.91	16.05	8.09	0.66
Frati_3	40	Max WS	Att_30_0.7h_L	34.79	136.80	139.11		139.46	0.005042	2.61	13.31	7.37	0.62
Frati_3	39.9			Lat Struct									
Frati_3	39	Max WS	Att_200_0.7h_L	45.98	136.71	139.43		139.81	0.004725	2.76	16.70	8.74	0.60
Frati_3	39	Max WS	Att_30_0.7h_L	34.79	136.71	139.04		139.37	0.004721	2.53	13.73	7.42	0.59
Frati_3	38	Max WS	Att_200_0.7h_L	44.69	136.66	139.41		139.77	0.004254	2.66	17.12	11.23	0.58
Frati_3	38	Max WS	Att_30_0.7h_L	34.79	136.66	138.93		139.29	0.005393	2.66	13.08	7.40	0.64
Frati_3	37	Max WS	Att_200_0.7h_L	43.55	136.57	139.41		139.71	0.003422	2.44	17.98	10.54	0.52
Frati_3	37	Max WS	Att_30_0.7h_L	34.79	136.57	138.87		139.20	0.004711	2.54	13.68	7.42	0.60
Frati_3	36	Max WS	Att_200_0.7h_L	41.92	136.45	139.41		139.66	0.002672	2.22	19.13	10.76	0.47
Frati_3	36	Max WS	Att_30_0.7h_L	34.79	136.45	138.75		139.09	0.004840	2.56	13.59	7.50	0.61
Frati_3	35	Max WS	Att_200_0.7h_L	41.58	136.37	139.40		139.61	0.002429	2.04	20.68	11.31	0.42
Frati_3	35	Max WS	Att_30_0.7h_L	34.79	136.37	138.71		139.00	0.004584	2.40	14.49	7.78	0.56
Frati_3	34	Max WS	Att_200_0.7h_L	43.36	136.29	139.38		139.55	0.001914	1.84	23.57	10.53	0.39
Frati_3	34	Max WS	Att_30_0.7h_L	34.79	136.29	138.71		138.93	0.003130	2.07	16.80	9.40	0.49
Frati_3	33	Max WS	Att_200_0.7h_L	42.14	136.19	139.43		139.53	0.000945	1.39	30.21	12.16	0.28
Frati_3	33	Max WS	Att_30_0.7h_L	34.79	136.19	138.75		138.87	0.001534	1.57	22.17	11.23	0.36
Frati_3	32	Max WS	Att_200_0.7h_L	37.25	136.13	139.46	137.53	139.54	0.000605	1.33	28.97	11.95	0.24
Frati_3	32	Max WS	Att_30_0.7h_L	34.79	136.13	138.71	137.48	138.85	0.001387	1.70	20.55	10.10	0.35
Frati_3	31.5			Bridge									
Frati_3	31	Max WS	Att_200_0.7h_L	37.25	136.11	139.41		139.50	0.000730	1.34	28.37	10.92	0.24
Frati_3	31	Max WS	Att_30_0.7h_L	34.79	136.11	138.72		138.85	0.001247	1.63	21.38	9.37	0.33
Frati_3	30.9			Lat Struct									



HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_3	30	Max WS	Att_200_0.7h_L	43.26	136.05	139.20		139.44	0.002861	2.17	20.16	8.94	0.44
Frati_3	30	Max WS	Att_30_0.7h_L	34.79	136.05	138.52		138.81	0.004546	2.39	14.53	7.23	0.54
Frati_3	29	Max WS	Att_200_0.7h_L	50.67	135.95	138.91		139.29	0.004904	2.75	18.46	8.21	0.58
Frati_3	29	Max WS	Att_30_0.7h_L	34.76	135.95	138.49		138.76	0.004024	2.29	15.15	7.44	0.51
Frati_3	28	Max WS	Att_200_0.7h_L	50.66	135.91	138.82		139.21	0.005094	2.77	18.31	8.03	0.58
Frati_3	28	Max WS	Att_30_0.7h_L	34.76	135.91	138.42		138.69	0.003970	2.29	15.21	7.58	0.52
Frati_3	27.9			Lat Struct									
Frati_3	27	Max WS	Att_200_0.7h_L	50.24	135.82	138.83		139.14	0.003637	2.45	20.50	8.16	0.49
Frati_3	27	Max WS	Att_30_0.7h_L	34.76	135.82	138.42		138.63	0.002875	2.03	17.14	8.08	0.44
Frati_3	26	Max WS	Att_200_0.7h_L	50.24	135.75	138.80		139.07	0.003154	2.32	21.66	8.41	0.46
Frati_3	26	Max WS	Att_30_0.7h_L	34.76	135.75	138.39		138.58	0.002413	1.90	18.29	8.15	0.40
Frati_3	25	Max WS	Att_200_0.7h_L	50.22	135.69	138.80	137.51	139.05	0.002069	2.17	23.12	8.08	0.41
Frati_3	25	Max WS	Att_30_0.7h_L	34.76	135.69	138.40	137.16	138.56	0.001566	1.75	19.85	8.05	0.36
Frati_3	24.5			Bridge									
Frati_3	24	Max WS	Att_200_0.7h_L	50.22	135.67	138.77		139.01	0.002327	2.15	23.40	10.17	0.42
Frati_3	24	Max WS	Att_30_0.7h_L	34.76	135.67	138.39		138.54	0.001546	1.73	20.08	8.43	0.36
Frati_3	23	Max WS	Att_200_0.7h_L	50.22	135.59	138.72		138.97	0.002245	2.22	22.62	9.38	0.44
Frati_3	23	Max WS	Att_30_0.7h_L	34.76	135.59	138.35		138.52	0.001729	1.80	19.36	8.64	0.38
Frati_3	22.9			Lat Struct									
Frati_3	22.8			Lat Struct									
Frati_3	22	Max WS	Att_200_0.7h_L	50.19	135.45	138.68		138.91	0.002568	2.11	23.81	11.87	0.46
Frati_3	22	Max WS	Att_30_0.7h_L	34.71	135.45	138.31		138.47	0.002065	1.76	19.69	10.43	0.41
Frati_3	21.2	Max WS	Att_200_0.7h_L	48.98	135.27	138.37		138.74	0.005216	2.71	18.44	11.94	0.60
Frati_3	21.2	Max WS	Att_30_0.7h_L	34.70	135.27	138.04		138.31	0.004339	2.31	15.01	8.08	0.54
Frati_2	21.1	Max WS	Att_200_0.7h_L	50.06	135.27	138.37		138.76	0.005446	2.77	18.44	11.94	0.62

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_2	21.1	Max WS	Att_30_0.7h_L	40.49	135.27	138.04		138.41	0.005905	2.70	15.01	8.08	0.63
Fрати_2	21	Max WS	Att_200_0.7h_L	50.06	135.27	138.35	137.68	138.73	0.012366	2.82	18.92	9.27	0.48
Fрати_2	21	Max WS	Att_30_0.7h_L	40.49	135.27	138.01	137.43	138.38	0.006040	2.72	15.25	11.25	0.64
Fрати_2	20.9	Max WS	Att_200_0.7h_L	50.06	135.27	138.19		138.67	0.007115	3.07	16.37	10.49	0.70
Fрати_2	20.9	Max WS	Att_30_0.7h_L	40.49	135.27	137.93		138.35	0.006881	2.85	14.19	7.94	0.68
Fрати_2	20.89			Lat Struct									
Fрати_2	20	Max WS	Att_200_0.7h_L	50.00	134.63	137.84		138.23	0.005382	2.78	18.32	10.54	0.62
Fрати_2	20	Max WS	Att_30_0.7h_L	40.39	134.63	137.52		137.90	0.006036	2.73	14.98	10.10	0.64
Fрати_2	19.2	Max WS	Att_200_0.7h_L	50.00	134.40	137.78		137.92	0.001863	1.65	30.30	17.33	0.40
Fрати_2	19.2	Max WS	Att_30_0.7h_L	40.39	134.40	137.40		137.54	0.002381	1.69	23.86	15.84	0.44
Fрати_1	19.1	Max WS	Att_200_0.7h_L	51.31	134.40	137.78		137.94	0.002020	1.73	29.75	15.86	0.40
Fрати_1	19.1	Max WS	Att_30_0.7h_L	41.38	134.40	137.40		137.55	0.002554	1.74	23.76	14.96	0.44
Fрати_1	19	Max WS	Att_200_0.7h_L	51.31	134.34	137.78	136.79	137.94	0.001514	1.72	29.80	15.86	0.40
Fрати_1	19	Max WS	Att_30_0.7h_L	41.38	134.34	137.40	136.62	137.55	0.001909	1.74	23.81	14.96	0.44
Fрати_1	18.5			Bridge									
Fрати_1	18	Max WS	Att_200_0.7h_L	51.31	134.34	137.41		137.69	0.003853	2.34	21.93	11.72	0.55
Fрати_1	18	Max WS	Att_30_0.7h_L	41.37	134.34	137.18		137.41	0.003728	2.15	19.23	11.68	0.54
Fрати_1	17.95	Max WS	Att_200_0.7h_L	51.31	134.34	137.40		137.68	0.004375	2.35	21.86	11.71	0.55
Fрати_1	17.95	Max WS	Att_30_0.7h_L	41.37	134.34	137.17		137.41	0.004236	2.16	19.17	11.68	0.54
Fрати_1	17	Max WS	Att_200_0.7h_L	51.26	133.45	136.59		136.95	0.005172	2.71	19.81	14.14	0.64
Fрати_1	17	Max WS	Att_30_0.7h_L	41.34	133.45	136.26		136.64	0.006243	2.71	15.38	11.82	0.69
Fрати_1	16	Max WS	Att_200_0.7h_L	51.07	132.84	136.21		136.45	0.002910	2.18	23.53	15.05	0.49
Fрати_1	16	Max WS	Att_30_0.7h_L	41.33	132.84	135.81		136.05	0.003194	2.17	19.03	10.19	0.51
Fрати_1	15	Max WS	Att_200_0.7h_L	50.87	132.51	135.93		136.29	0.004821	2.64	19.23	9.19	0.58
Fрати_1	15	Max WS	Att_30_0.7h_L	41.32	132.51	135.51		135.87	0.005407	2.64	15.63	8.05	0.61

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	14	Max WS	Att_200_0.7h_L	50.87	132.38	135.88		136.19	0.003611	2.46	20.77	10.96	0.53
Frati_1	14	Max WS	Att_30_0.7h_L	41.32	132.38	135.44		135.75	0.004234	2.47	16.75	8.53	0.56
Frati_1	13.8			Lat Struct									
Frati_1	13.5	Max WS	Att_200_0.7h_L	50.86	132.41	135.77		136.12	0.004805	2.64	19.26	10.05	0.61
Frati_1	13.5	Max WS	Att_30_0.7h_L	41.32	132.41	135.26		135.67	0.006723	2.85	14.51	8.71	0.70
Frati_1	13	Max WS	Att_200_0.7h_L	50.86	132.34	135.58		136.02	0.006267	2.93	17.37	9.18	0.67
Frati_1	13	Max WS	Att_30_0.7h_L	41.32	132.34	134.96		135.53	0.010134	3.34	12.37	7.39	0.82
Frati_1	12	Max WS	Att_200_0.7h_L	50.85	132.35	135.37		135.89	0.007027	3.20	15.95	8.90	0.71
Frati_1	12	Max WS	Att_30_0.7h_L	41.32	132.35	134.68	134.64	135.42	0.013410	3.82	10.83	6.83	0.97
Frati_1	11	Max WS	Att_200_0.7h_L	50.84	132.42	135.41		135.75	0.003833	2.58	19.68	9.27	0.57
Frati_1	11	Max WS	Att_30_0.7h_L	41.32	132.42	134.46		135.08	0.009505	3.49	11.84	7.48	0.89
Frati_1	10.9	Max WS	Att_200_0.7h_L	50.84	132.42	135.52	134.07	135.75	0.000927	2.13	24.42	9.54	0.39
Frati_1	10.9	Max WS	Att_30_0.7h_L	40.95	132.42	134.68	133.85	134.96	0.001692	2.37	17.31	7.69	0.50
Frati_1	10.5			Bridge									
Frati_1	10	Max WS	Att_200_0.7h_L	52.66	132.15	134.48		135.23	0.005019	3.83	13.75	7.44	0.90
Frati_1	10	Max WS	Att_30_0.7h_L	40.83	132.15	134.20		134.83	0.004912	3.51	11.62	7.44	0.90
Frati_1	9	Max WS	Att_200_0.7h_L	52.20	132.15	134.58	133.89	134.90	0.001599	2.50	20.90	9.90	0.55
Frati_1	9	Max WS	Att_30_0.7h_L	41.36	132.15	134.29	133.68	134.56	0.001552	2.30	18.00	9.90	0.54
Frati_1	8.5			Bridge									
Frati_1	8	Max WS	Att_200_0.7h_L	55.07	132.15	134.56		134.91	0.003085	2.61	21.06	10.18	0.58
Frati_1	8	Max WS	Att_30_0.7h_L	41.36	132.15	134.26		134.53	0.002799	2.30	17.97	10.18	0.55
Frati_1	7	Max WS	Att_200_0.7h_L	53.52	132.15	134.51	133.77	134.83	0.002539	2.51	21.36	9.87	0.54
Frati_1	7	Max WS	Att_30_0.7h_L	41.33	132.15	134.21	133.54	134.47	0.002362	2.24	18.45	9.79	0.52
Frati_1	6.5			Bridge									
Frati_1	6	Max WS	Att_200_0.7h_L	54.65	132.15	134.53		134.83	0.002352	2.43	22.47	10.10	0.52

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_1	6	Max WS	Att_30_0.7h_L	41.33	132.15	134.22		134.45	0.002100	2.13	19.41	10.04	0.49
Fрати_1	5.8			Lat Struct									
Fрати_1	5	Max WS	Att_200_0.7h_L	54.53	132.15	134.53		134.81	0.002307	2.37	22.99	10.33	0.51
Fрати_1	5	Max WS	Att_30_0.7h_L	41.32	132.15	134.22		134.44	0.002081	2.08	19.83	10.29	0.48
Fрати_1	4	Max WS	Att_200_0.7h_L	53.51	132.12	134.50		134.76	0.001976	2.25	23.79	10.62	0.48
Fрати_1	4	Max WS	Att_30_0.7h_L	41.31	132.12	134.19		134.40	0.001845	2.01	20.53	10.51	0.46
Fрати_1	3	Max WS	Att_200_0.7h_L	53.47	132.11	134.60	133.39	134.72	0.000872	1.56	34.37	15.23	0.33
Fрати_1	3	Max WS	Att_30_0.7h_L	41.28	132.11	134.26	133.22	134.36	0.000858	1.41	29.27	15.07	0.32
Fрати_1	2.5			Bridge									
Fрати_1	2.1	Max WS	Att_200_0.7h_L	53.38	131.98	134.34		134.58	0.001633	2.20	24.32	12.40	0.50
Fрати_1	2.1	Max WS	Att_30_0.7h_L	41.28	131.98	134.03		134.24	0.001629	2.01	20.57	12.27	0.49
Fрати_1	2	Max WS	Att_200_0.7h_L	53.36	131.98	134.34	133.59	134.58	0.001634	2.20	24.30	12.40	0.50
Fрати_1	2	Max WS	Att_30_0.7h_L	41.28	131.98	134.03	133.39	134.24	0.001634	2.01	20.55	12.27	0.50
Fрати_1	1.5			Bridge									
Fрати_1	1	Max WS	Att_200_0.7h_L	53.36	131.94	134.25		134.52	0.001754	2.28	23.37	11.99	0.52
Fрати_1	1	Max WS	Att_30_0.7h_L	41.33	131.94	133.98		134.19	0.001675	2.06	20.08	11.96	0.51
Fрати_1	0.9	Max WS	Att_200_0.7h_L	53.14	131.94	134.24	133.56	134.50	0.001789	2.29	23.16	11.99	0.53
Fрати_1	0.9	Max WS	Att_30_0.7h_L	41.33	131.94	133.96	133.36	134.18	0.001733	2.08	19.86	11.95	0.52
Fрати_1	0.85			Bridge									
Fрати_1	0.8	Max WS	Att_200_0.7h_L	53.49	131.94	133.83		134.27	0.003727	2.92	18.31	11.94	0.75
Fрати_1	0.8	Max WS	Att_30_0.7h_L	41.33	131.94	133.57		133.95	0.003958	2.72	15.21	11.90	0.77
Fрати_1	0.78			Lat Struct									
Fрати_1	0.7	Max WS	Att_200_0.7h_L	53.10	131.51	133.35	133.52	134.41	0.007901	4.57	11.63	7.20	1.15
Fрати_1	0.7	Max WS	Att_30_0.7h_L	41.31	131.51	133.12	133.22	133.99	0.007451	4.15	9.95	6.98	1.11

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	0.6	Max WS	Att_200_0.7h_L	53.51	131.37	133.17		133.65	0.003017	3.06	17.49	10.85	0.77
Frati_1	0.6	Max WS	Att_30_0.7h_L	8.00	131.37	133.08		133.09	0.000079	0.48	16.54	10.74	0.12
Frati_1	0.5	Max WS	Att_200_0.7h_L	8.00	130.97	133.07		133.09	0.000143	0.55	14.65	8.76	0.13
Frati_1	0.5	Max WS	Att_30_0.7h_L	8.00	130.97	133.07		133.09	0.000143	0.55	14.65	8.76	0.13
Frati_1	0.48	Max WS	Att_200_0.7h_L	8.00	130.97	133.08	131.40	133.09	0.000038	0.33	24.05	11.82	0.07
Frati_1	0.48	Max WS	Att_30_0.7h_L	8.00	130.97	133.08	131.40	133.09	0.000038	0.33	24.05	11.82	0.07
Frati_1	0.45			Bridge									
Frati_1	0.4	Max WS	Att_200_0.7h_L	8.00	130.97	133.08		133.08	0.000038	0.33	24.05	11.82	0.07
Frati_1	0.4	Max WS	Att_30_0.7h_L	8.00	130.97	133.08		133.08	0.000038	0.33	24.05	11.82	0.07
Frati_1	0.36	Max WS	Att_200_0.7h_L	8.00	130.90	133.08	131.32	133.08	0.000033	0.32	25.06	11.83	0.07
Frati_1	0.36	Max WS	Att_30_0.7h_L	8.00	130.90	133.08	131.32	133.08	0.000033	0.32	25.06	11.83	0.07
Frati_1	0.32			Bridge									
Frati_1	0.3	Max WS	Att_200_0.7h_L	8.00	130.90	133.08		133.08	0.000034	0.32	25.06	11.83	0.07
Frati_1	0.3	Max WS	Att_30_0.7h_L	8.00	130.90	133.08		133.08	0.000034	0.32	25.06	11.83	0.07
Frati_1	0.2	Max WS	Att_200_0.7h_L	8.00	130.70	133.08		133.08	0.000014	0.24	33.24	14.33	0.05
Frati_1	0.2	Max WS	Att_30_0.7h_L	8.00	130.70	133.08		133.08	0.000014	0.24	33.24	14.33	0.05
Frati_1	0.1	Max WS	Att_200_0.7h_L	7.99	130.50	133.08	130.87	133.08	0.000011	0.22	36.09	14.33	0.04
Frati_1	0.1	Max WS	Att_30_0.7h_L	7.98	130.50	133.08	130.87	133.08	0.000011	0.22	36.09	14.33	0.04

# **VERIFICHE IDRAULICHE**

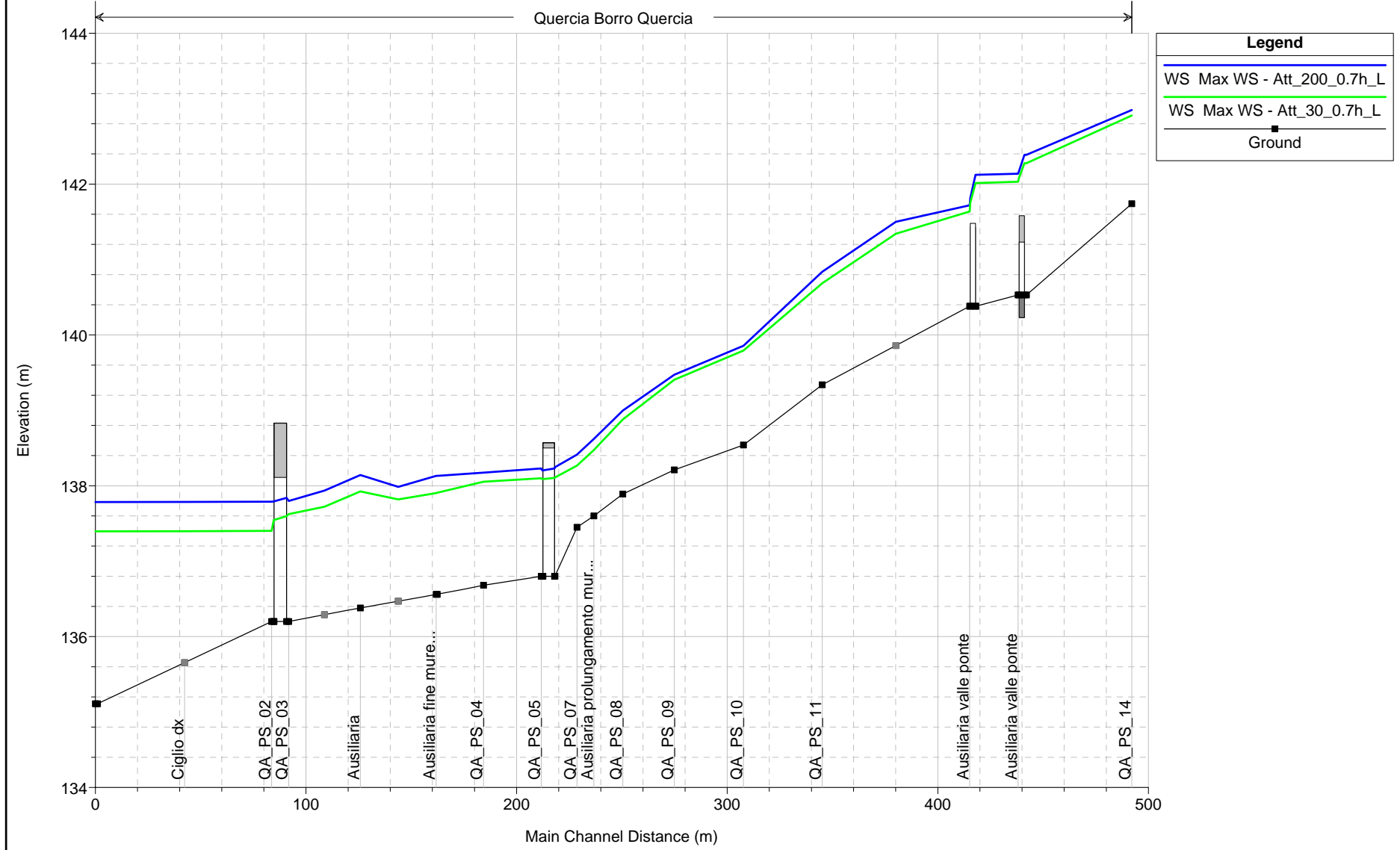
## **STATO ATTUALE**

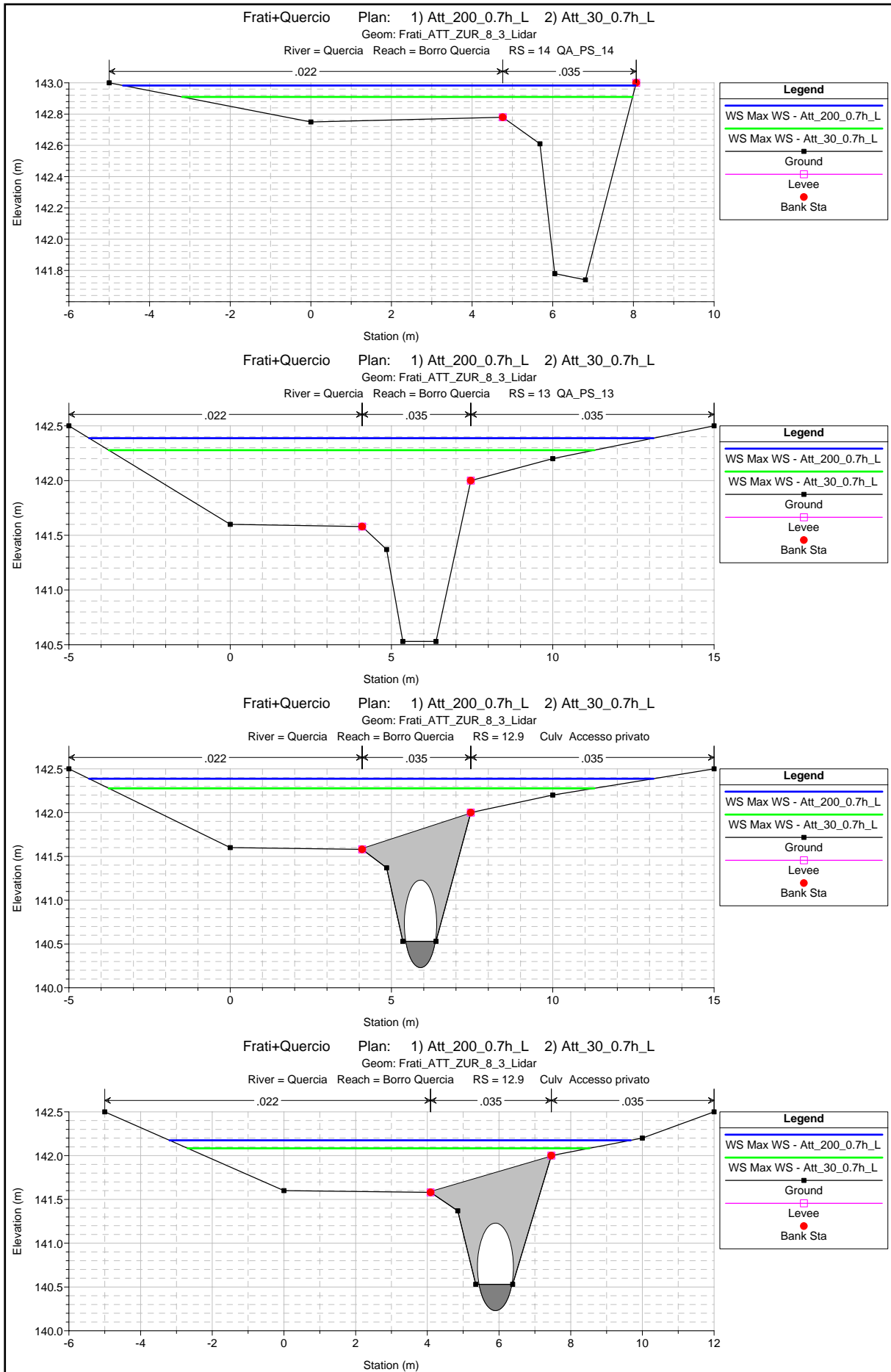
### **BORRO della QUERCIA**

#### **Scenario A2 - Tr 200 e 30 anni**

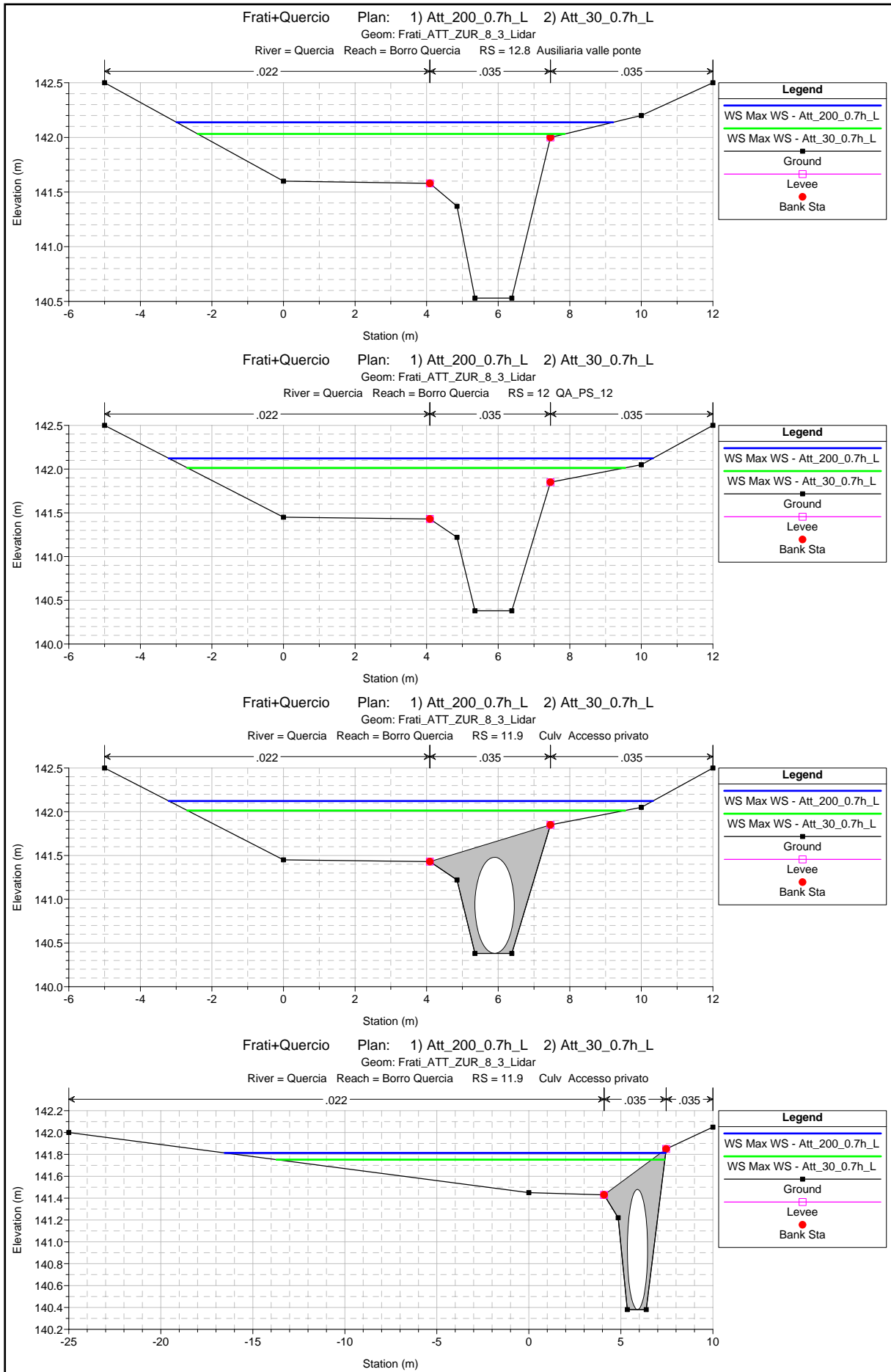
- Profili
- Sezioni di verifica
- Tabelle di output

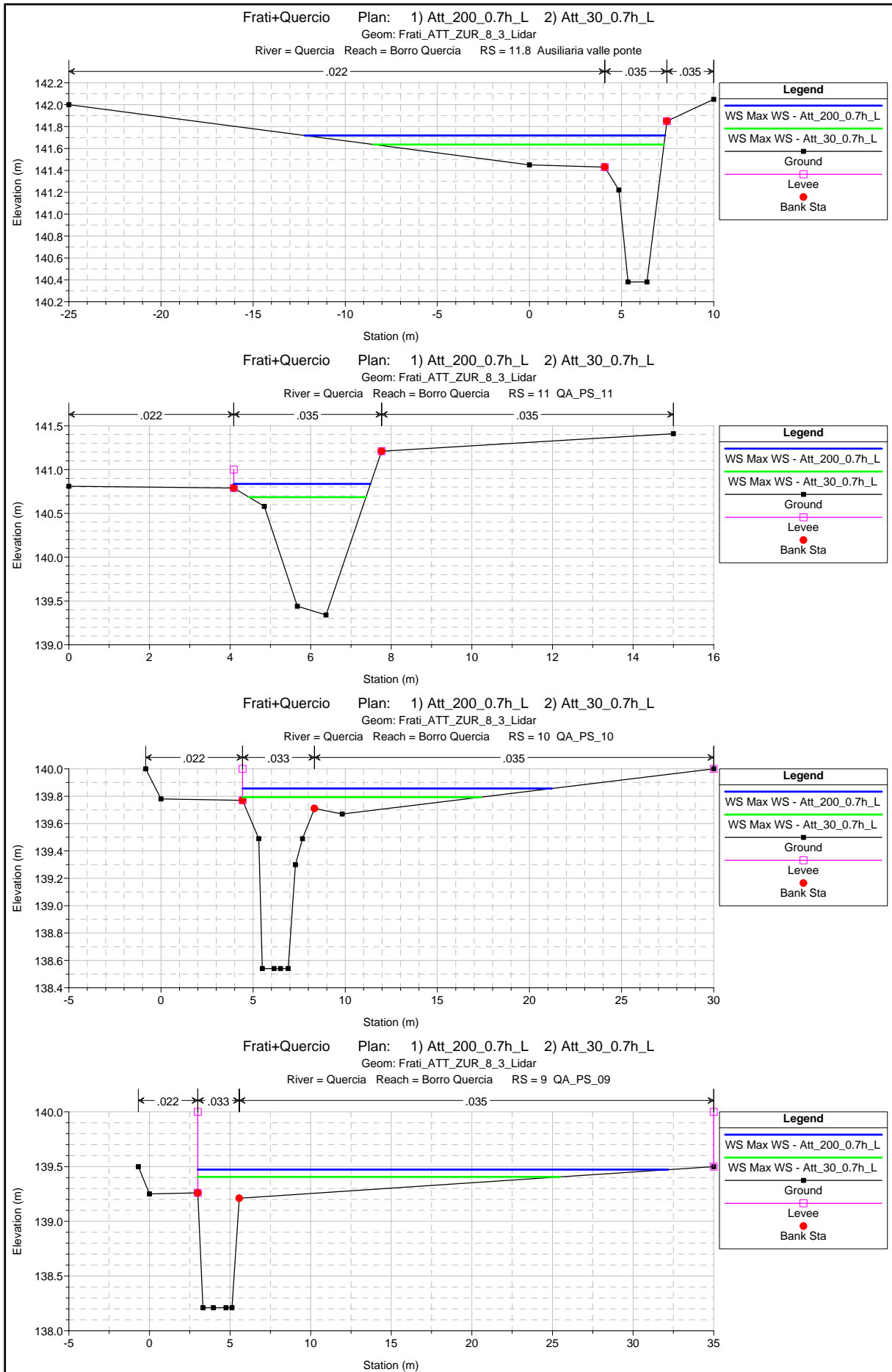
Frati+Quercio Plan: 1) Att\_200\_0.7h\_L 2) Att\_30\_0.7h\_L  
 Geom: Frati\_ATT\_ZUR\_8\_3\_Lidar

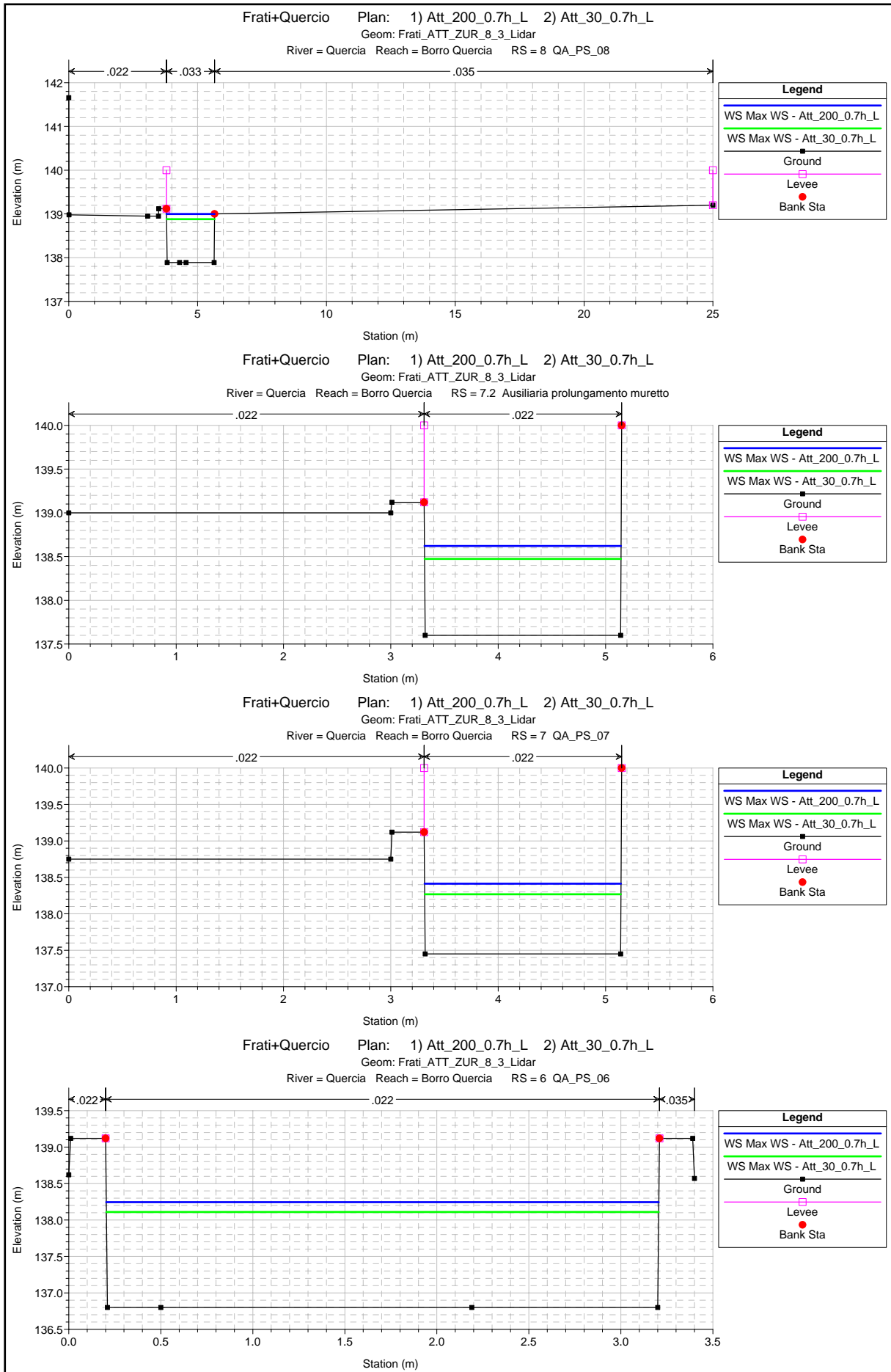


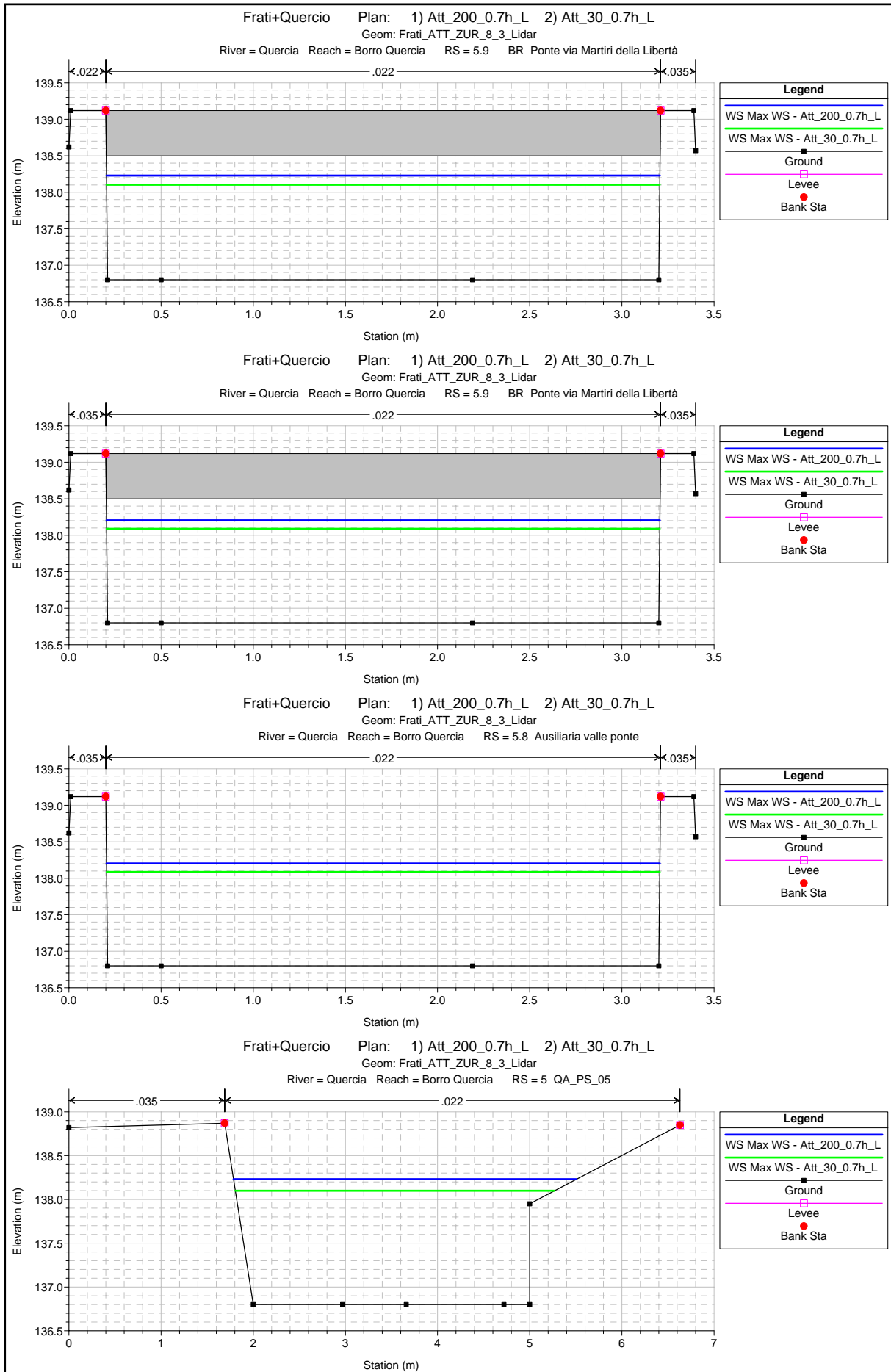


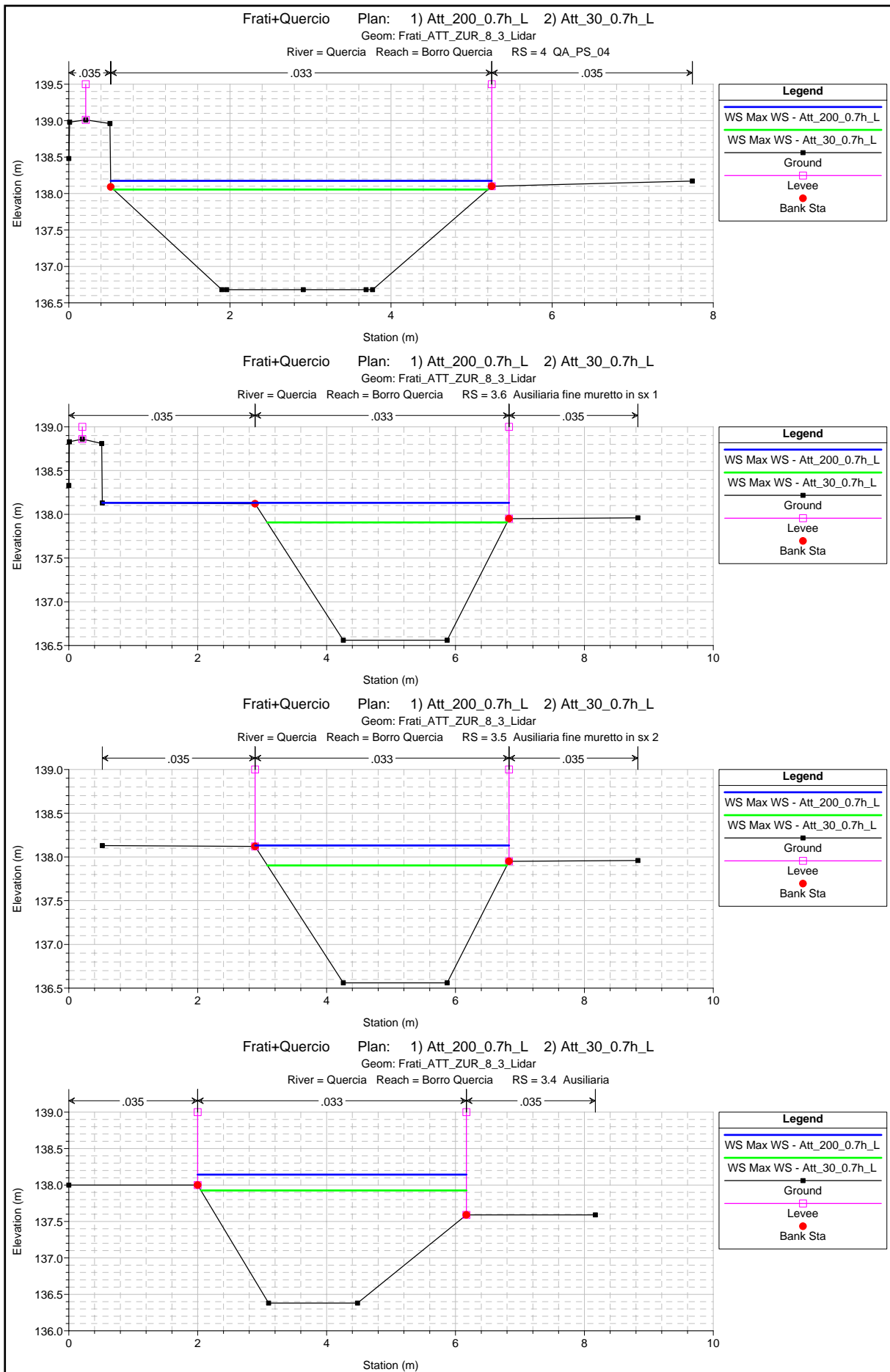


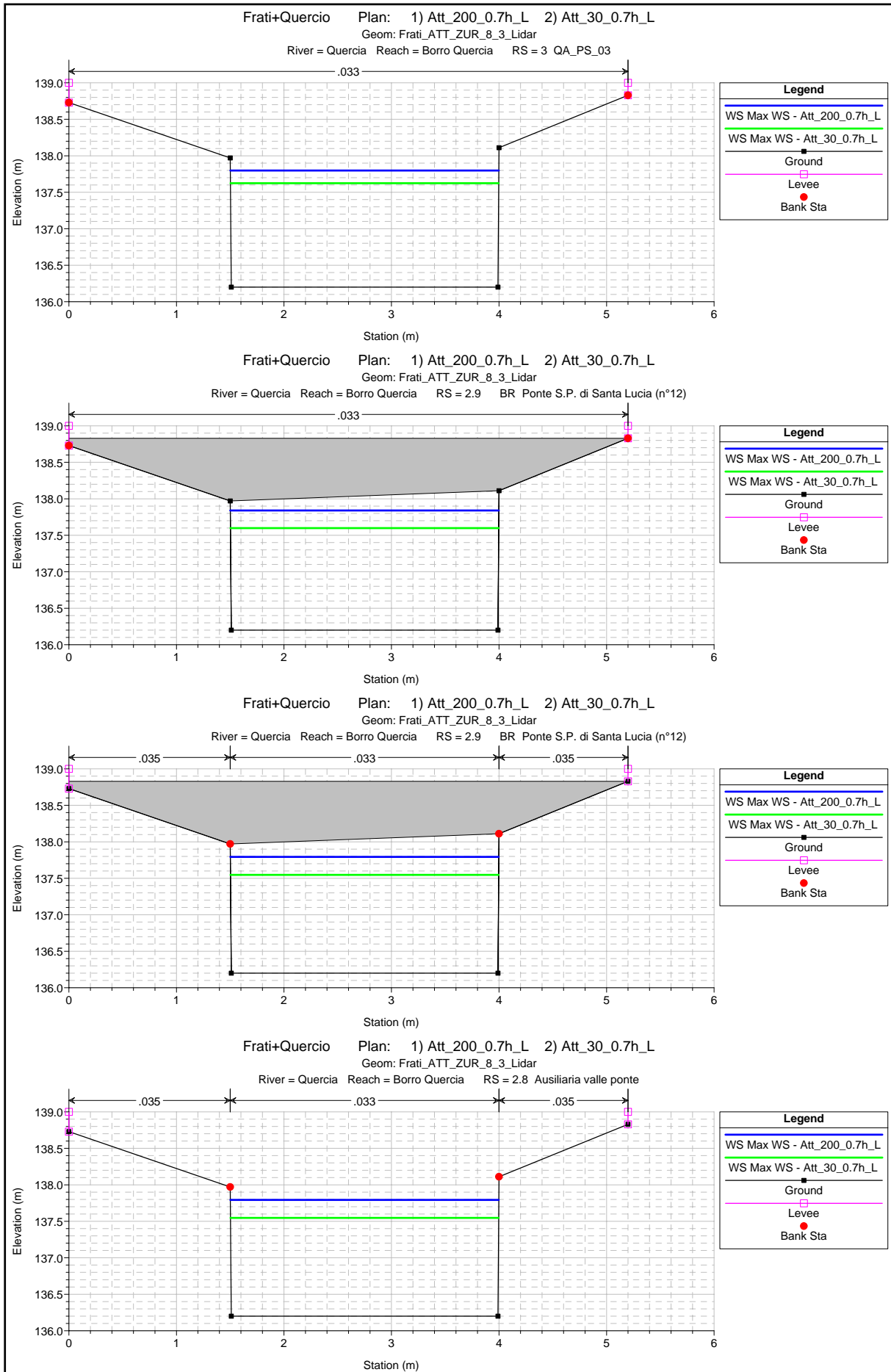


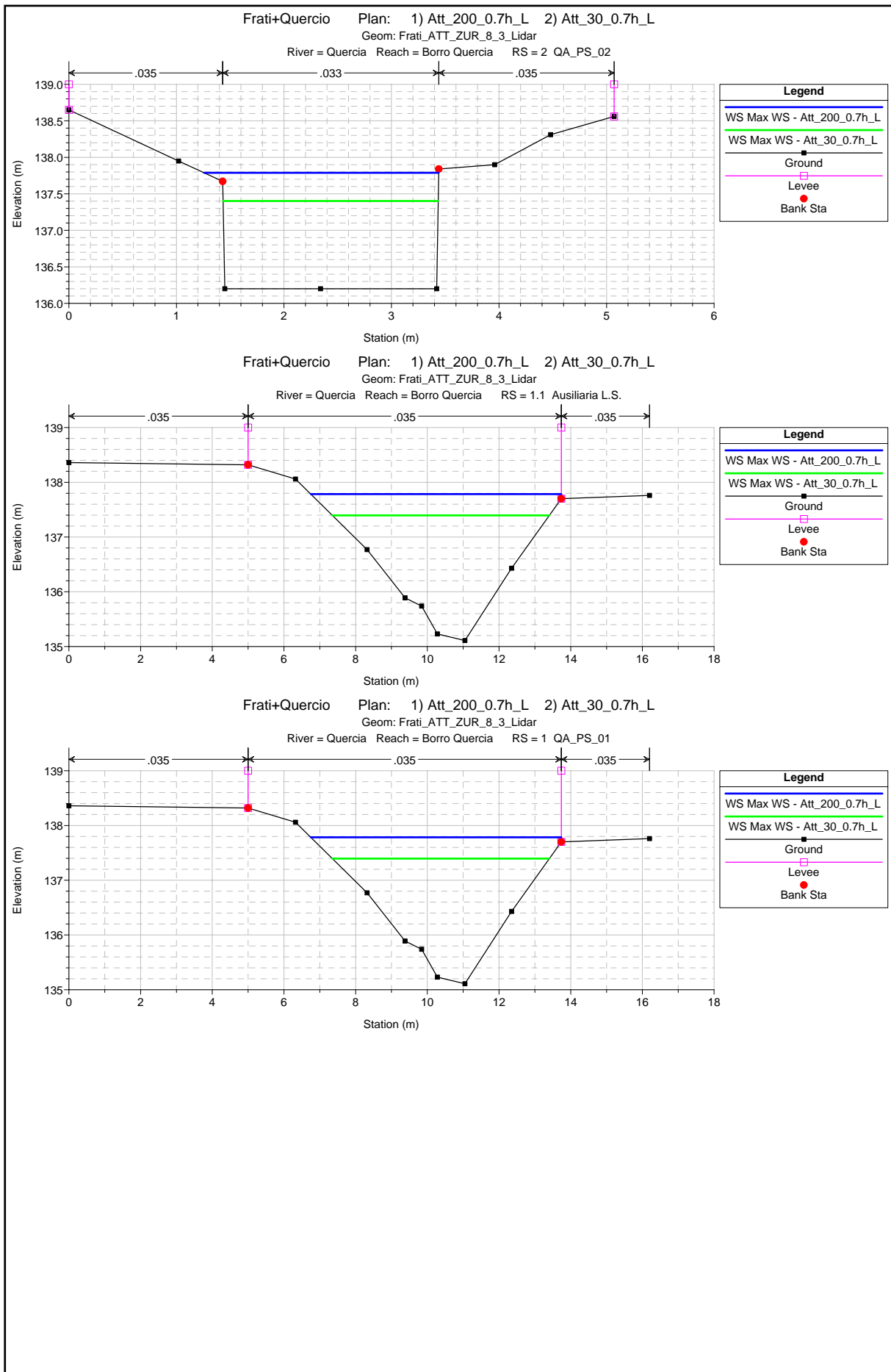












HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Quercia	14	Max WS	Att_200_0.7h_L	9.59	141.74	142.98	143.08	143.32	0.022861	2.78	3.84	12.71	1.07
Borro Quercia	14	Max WS	Att_30_0.7h_L	7.13	141.74	142.91	143.02	143.24	0.024664	2.73	2.96	11.17	1.10
Borro Quercia	13	Max WS	Att_200_0.7h_L	9.51	140.53	142.39		142.43	0.001035	0.91	10.54	17.50	0.25
Borro Quercia	13	Max WS	Att_30_0.7h_L	7.09	140.53	142.28		142.31	0.000915	0.81	8.75	15.05	0.23
Borro Quercia	12.9			Culvert									
Borro Quercia	12.8	Max WS	Att_200_0.7h_L	9.51	140.53	142.14		142.24	0.003124	1.38	6.86	12.20	0.42
Borro Quercia	12.8	Max WS	Att_30_0.7h_L	7.09	140.53	142.03		142.11	0.002982	1.26	5.67	10.25	0.40
Borro Quercia	12	Max WS	Att_200_0.7h_L	9.50	140.38	142.12		142.19	0.001722	1.10	8.48	13.53	0.32
Borro Quercia	12	Max WS	Att_30_0.7h_L	7.08	140.38	142.01		142.07	0.001561	0.99	7.06	12.23	0.30
Borro Quercia	11.9			Culvert									
Borro Quercia	11.8	Max WS	Att_200_0.7h_L	9.49	140.38	141.72	141.74	141.88	0.009499	2.04	5.57	19.57	0.70
Borro Quercia	11.8	Max WS	Att_30_0.7h_L	7.08	140.38	141.64	141.68	141.81	0.010633	2.05	4.12	15.78	0.74
Borro Quercia	11	Max WS	Att_200_0.7h_L	9.44	139.34	140.84	141.03	141.48	0.034612	3.57	2.65	3.39	1.29
Borro Quercia	11	Max WS	Att_30_0.7h_L	7.03	139.34	140.68	140.81	141.22	0.031350	3.25	2.16	2.90	1.20
Borro Quercia	10.9			Lat Struct									
Borro Quercia	10	Max WS	Att_200_0.7h_L	8.94	138.54	139.86	140.00	140.18	0.017688	2.69	4.23	16.78	0.99
Borro Quercia	10	Max WS	Att_30_0.7h_L	7.01	138.54	139.79	139.91	140.09	0.016652	2.48	3.29	12.93	0.96
Borro Quercia	9	Max WS	Att_200_0.7h_L	6.72	138.21	139.47		139.58	0.005287	1.70	6.34	29.18	0.52
Borro Quercia	9	Max WS	Att_30_0.7h_L	6.11	138.21	139.41		139.56	0.007085	1.91	4.63	22.47	0.60
Borro Quercia	8	Max WS	Att_200_0.7h_L	7.37	137.89	139.00	139.29	139.66	0.035244	3.61	2.04	1.87	1.10
Borro Quercia	8	Max WS	Att_30_0.7h_L	6.42	137.89	138.88	138.97	139.51	0.036032	3.52	1.82	1.86	1.14
Borro Quercia	7.2	Max WS	Att_200_0.7h_L	7.85	137.60	138.62	138.84	139.53	0.022688	4.21	1.86	1.83	1.33
Borro Quercia	7.2	Max WS	Att_30_0.7h_L	6.46	137.60	138.47	138.68	139.31	0.023317	4.06	1.59	1.83	1.39
Borro Quercia	7	Max WS	Att_200_0.7h_L	8.23	137.45	138.41	138.72	139.53	0.029086	4.68	1.76	1.83	1.52
Borro Quercia	7	Max WS	Att_30_0.7h_L	6.49	137.45	138.27	138.54	139.23	0.028109	4.35	1.49	1.83	1.54
Borro Quercia	6	Max WS	Att_200_0.7h_L	8.72	136.80	138.24	137.75	138.45	0.002957	2.02	4.33	3.00	0.54



HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Quercia	6	Max WS	Att_30_0.7h_L	6.49	136.80	138.11	137.58	138.25	0.002137	1.66	3.92	3.00	0.46
Borro Quercia	5.9			Bridge									
Borro Quercia	5.8	Max WS	Att_200_0.7h_L	8.72	136.80	138.20		138.42	0.003200	2.08	4.20	3.00	0.56
Borro Quercia	5.8	Max WS	Att_30_0.7h_L	6.42	136.80	138.09		138.23	0.002190	1.67	3.86	3.00	0.47
Borro Quercia	5	Max WS	Att_200_0.7h_L	8.72	136.80	138.23		138.42	0.002745	1.93	4.51	3.72	0.56
Borro Quercia	5	Max WS	Att_30_0.7h_L	6.49	136.80	138.10		138.23	0.002005	1.61	4.04	3.46	0.47
Borro Quercia	4.9			Lat Struct									
Borro Quercia	4.8			Lat Struct									
Borro Quercia	4	Max WS	Att_200_0.7h_L	8.67	136.68	138.17		138.33	0.004022	1.72	5.05	4.73	0.53
Borro Quercia	4	Max WS	Att_30_0.7h_L	6.34	136.68	138.05		138.16	0.003063	1.42	4.48	4.65	0.46
Borro Quercia	3.6	Max WS	Att_200_0.7h_L	6.81	136.56	138.13		138.25	0.003418	1.53	4.47	6.31	0.46
Borro Quercia	3.6	Max WS	Att_30_0.7h_L	6.26	136.56	137.91		138.06	0.005185	1.74	3.59	3.72	0.57
Borro Quercia	3.5	Max WS	Att_200_0.7h_L	6.77	136.56	138.13		138.25	0.003384	1.52	4.46	3.94	0.46
Borro Quercia	3.5	Max WS	Att_30_0.7h_L	6.26	136.56	137.90		138.06	0.005242	1.75	3.58	3.72	0.57
Borro Quercia	3.4	Max WS	Att_200_0.7h_L	4.18	136.38	138.14		138.17	0.000753	0.77	5.44	4.17	0.22
Borro Quercia	3.4	Max WS	Att_30_0.7h_L	4.25	136.38	137.93		137.97	0.001286	0.94	4.53	4.12	0.29
Borro Quercia	3	Max WS	Att_200_0.7h_L	7.45	136.20	137.80	137.17	137.98	0.006138	1.87	3.98	2.50	0.47
Borro Quercia	3	Max WS	Att_30_0.7h_L	6.13	136.20	137.62	137.05	137.78	0.005625	1.73	3.54	2.50	0.46
Borro Quercia	2.9			Bridge									
Borro Quercia	2.8	Max WS	Att_200_0.7h_L	1.35	136.20	137.79		137.80	0.000205	0.34	3.96	2.50	0.09
Borro Quercia	2.8	Max WS	Att_30_0.7h_L	6.13	136.20	137.55		137.72	0.006524	1.83	3.35	2.49	0.50
Borro Quercia	2	Max WS	Att_200_0.7h_L	1.35	136.20	137.79		137.80	0.000370	0.43	3.17	2.18	0.11
Borro Quercia	2	Max WS	Att_30_0.7h_L	1.01	136.20	137.40		137.41	0.000434	0.42	2.39	2.00	0.12
Borro Quercia	1.9			Lat Struct									
Borro Quercia	1.8			Lat Struct									

HEC-RAS River: Quercia Reach: Borro Quercia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Quercia	1.1	Max WS	Att_200_0.7h_L	1.31	135.11	137.78		137.79	0.000019	0.13	9.89	6.99	0.04
Borro Quercia	1.1	Max WS	Att_30_0.7h_L	1.00	135.11	137.40		137.40	0.000024	0.14	7.34	6.06	0.04
Borro Quercia	1	Max WS	Att_200_0.7h_L	1.31	135.11	137.78		137.79	0.000019	0.13	9.89	6.99	0.04
Borro Quercia	1	Max WS	Att_30_0.7h_L	1.00	135.11	137.40		137.40	0.000024	0.14	7.34	6.06	0.04

# **VERIFICHE IDRAULICHE**

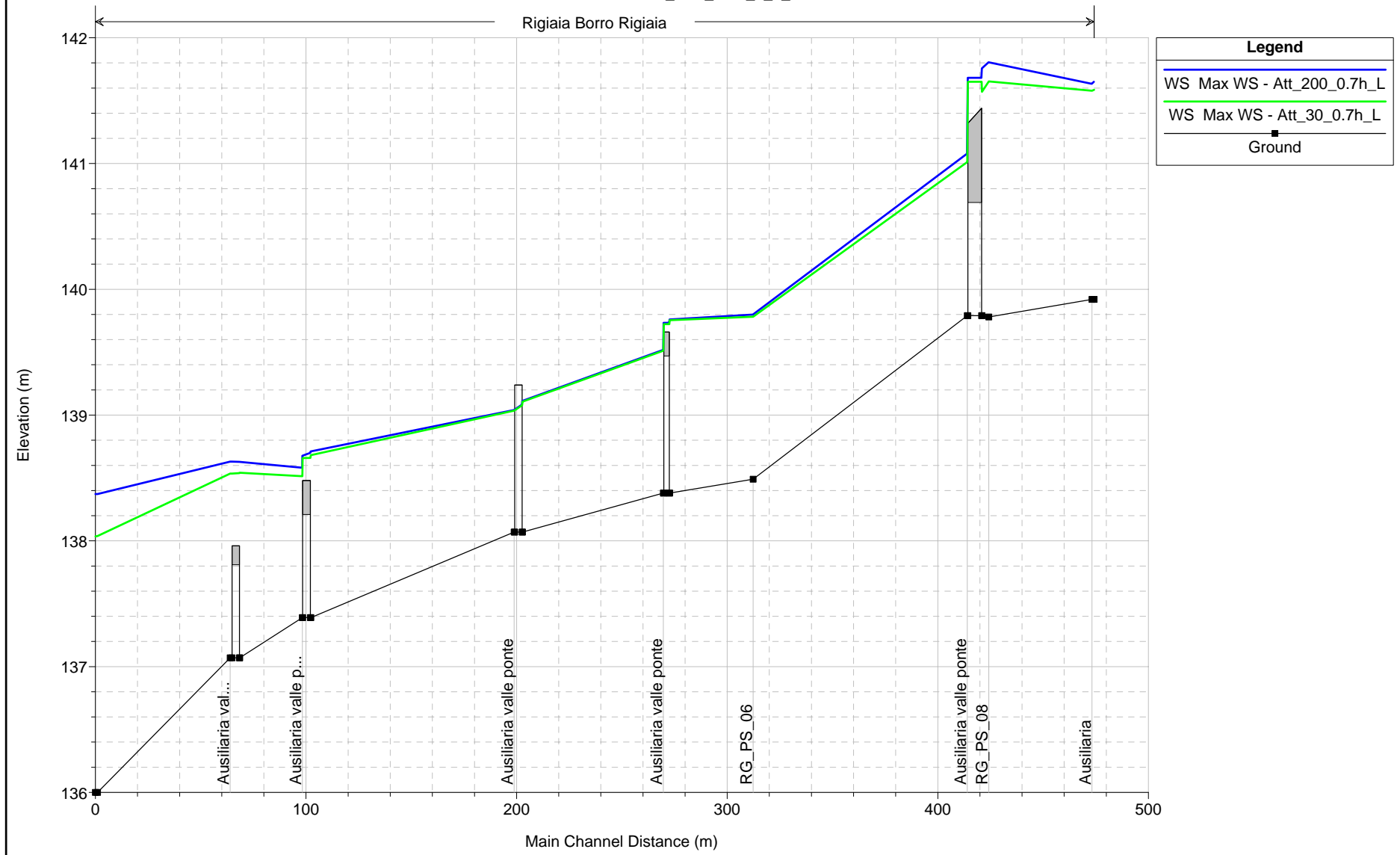
## **STATO ATTUALE**

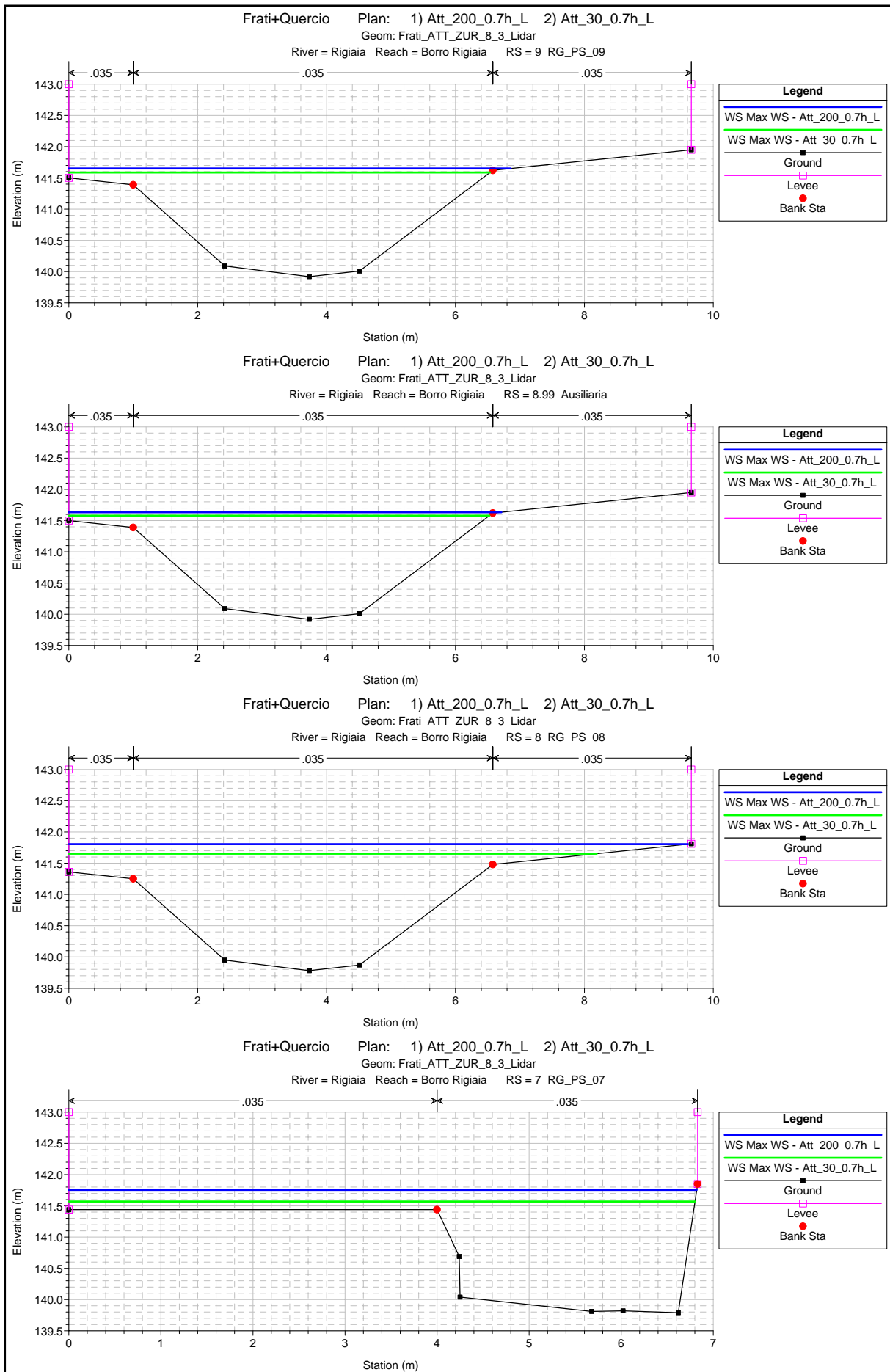
### **BORRO della RIGIAIA**

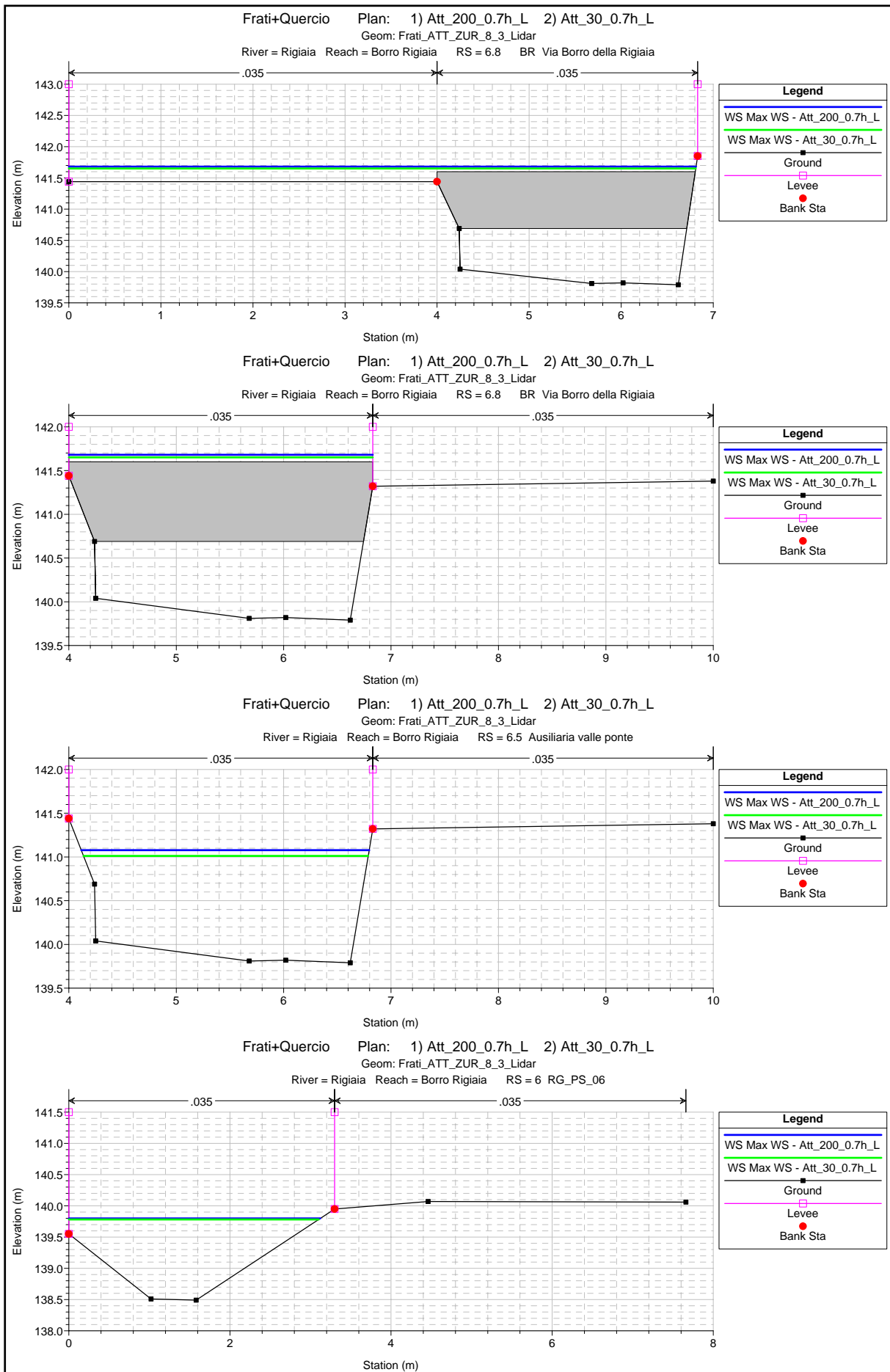
#### **Scenario A2 - Tr 200 e 30 anni**

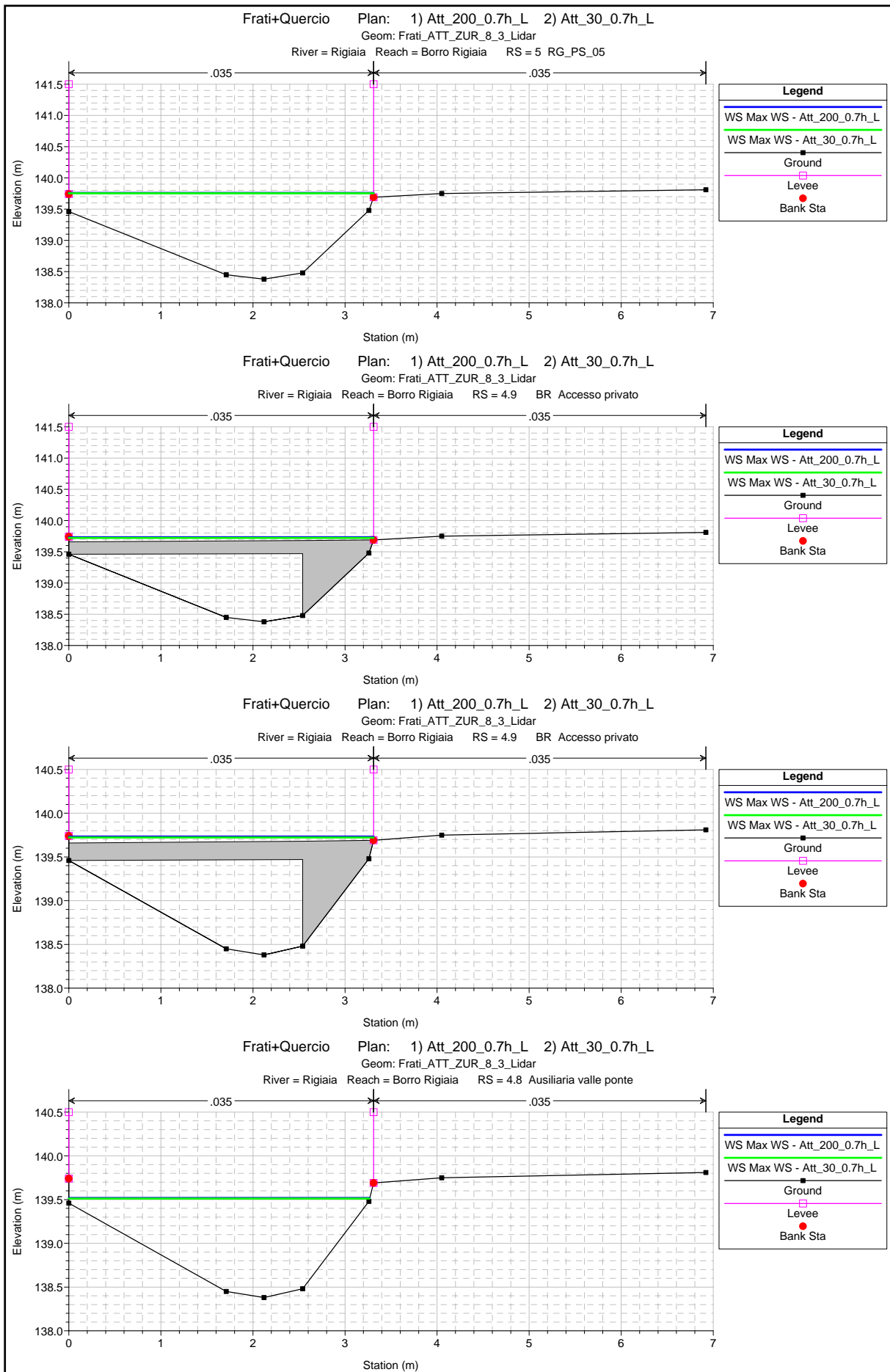
- Profili
- Sezioni di verifica
- Tabelle di output

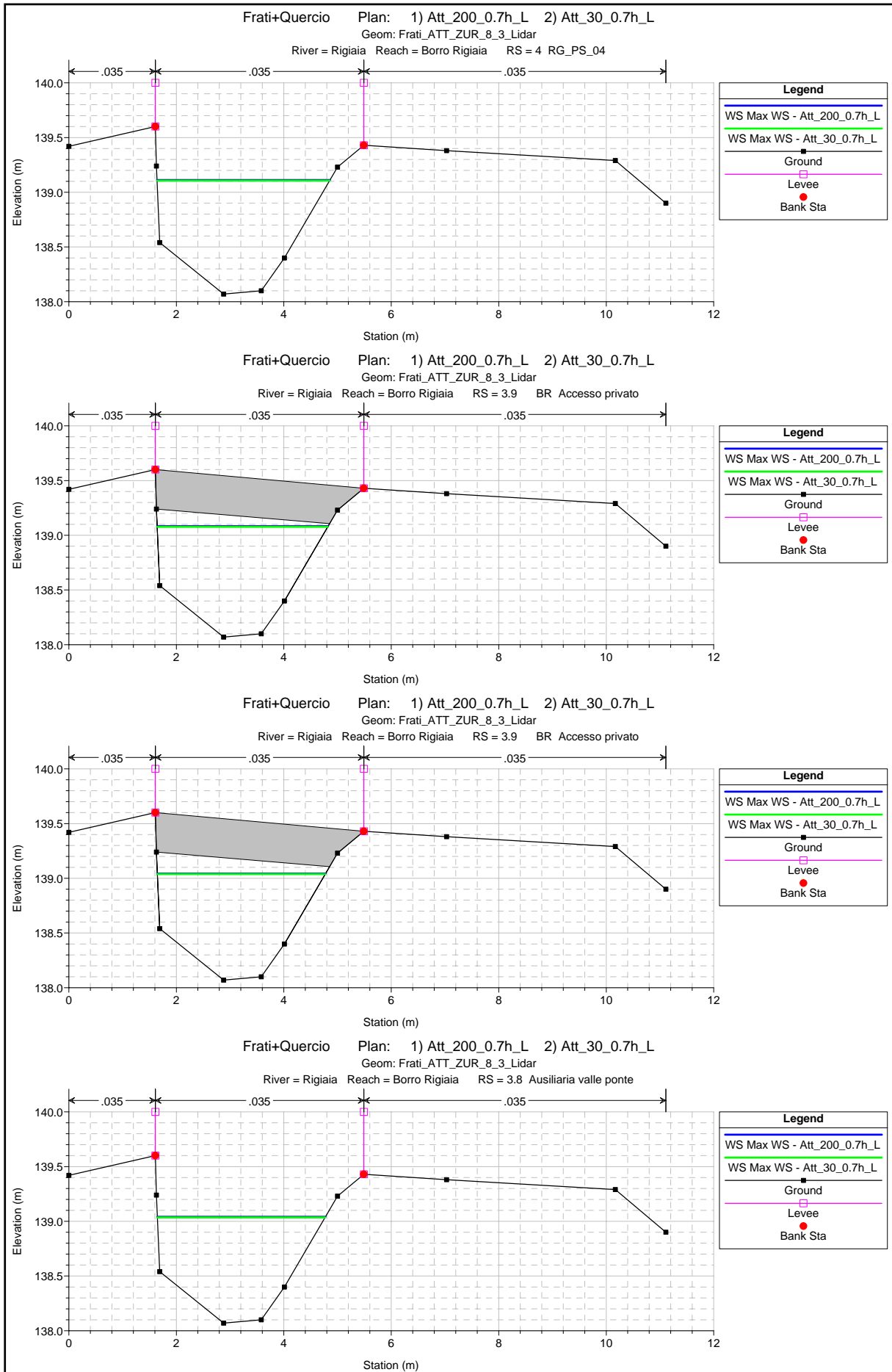
Frati+Quercio Plan: 1) Att\_200\_0.7h\_L 2) Att\_30\_0.7h\_L  
 Geom: Frati\_ATT\_ZUR\_8\_3\_Lidar



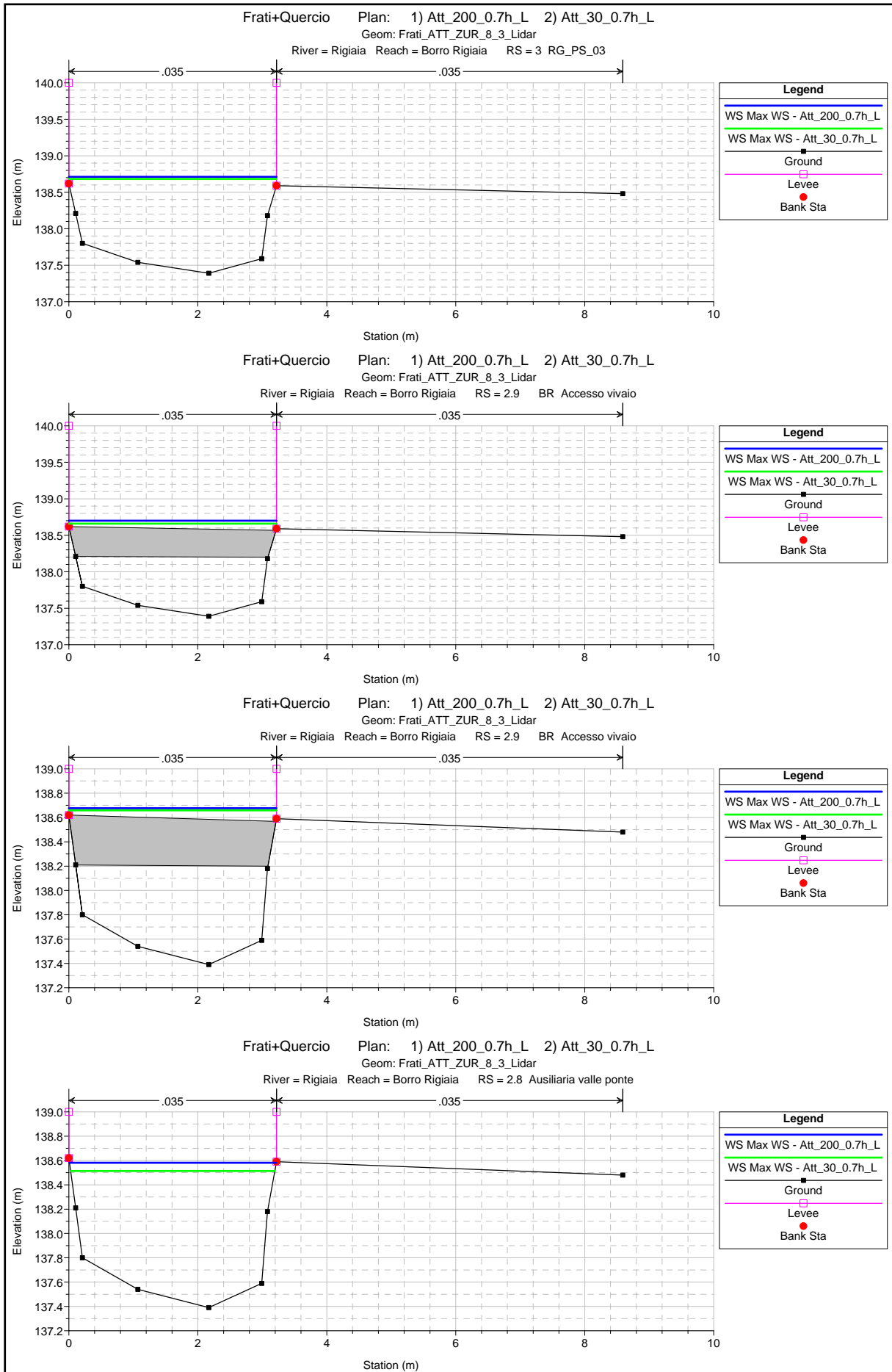


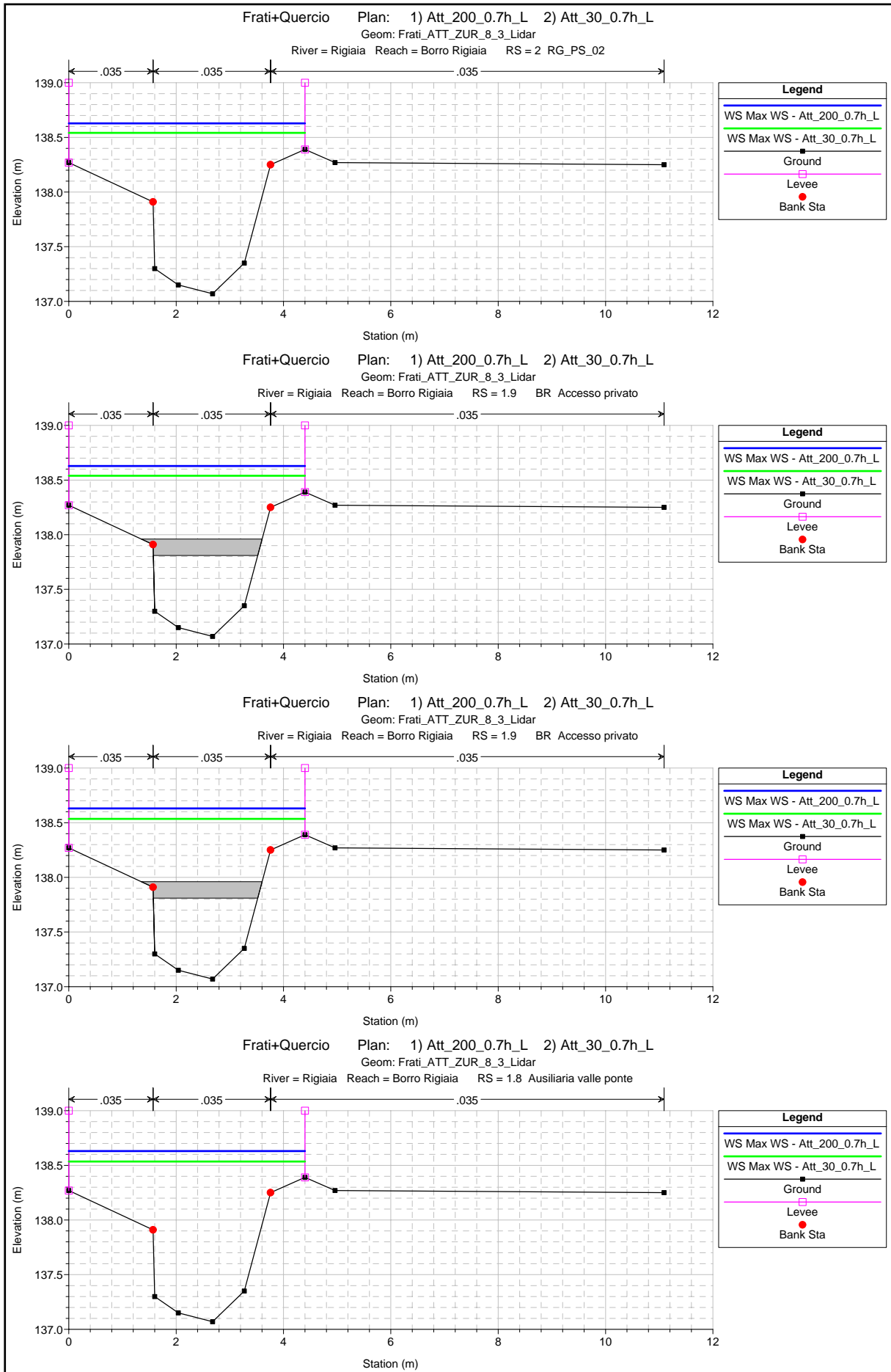


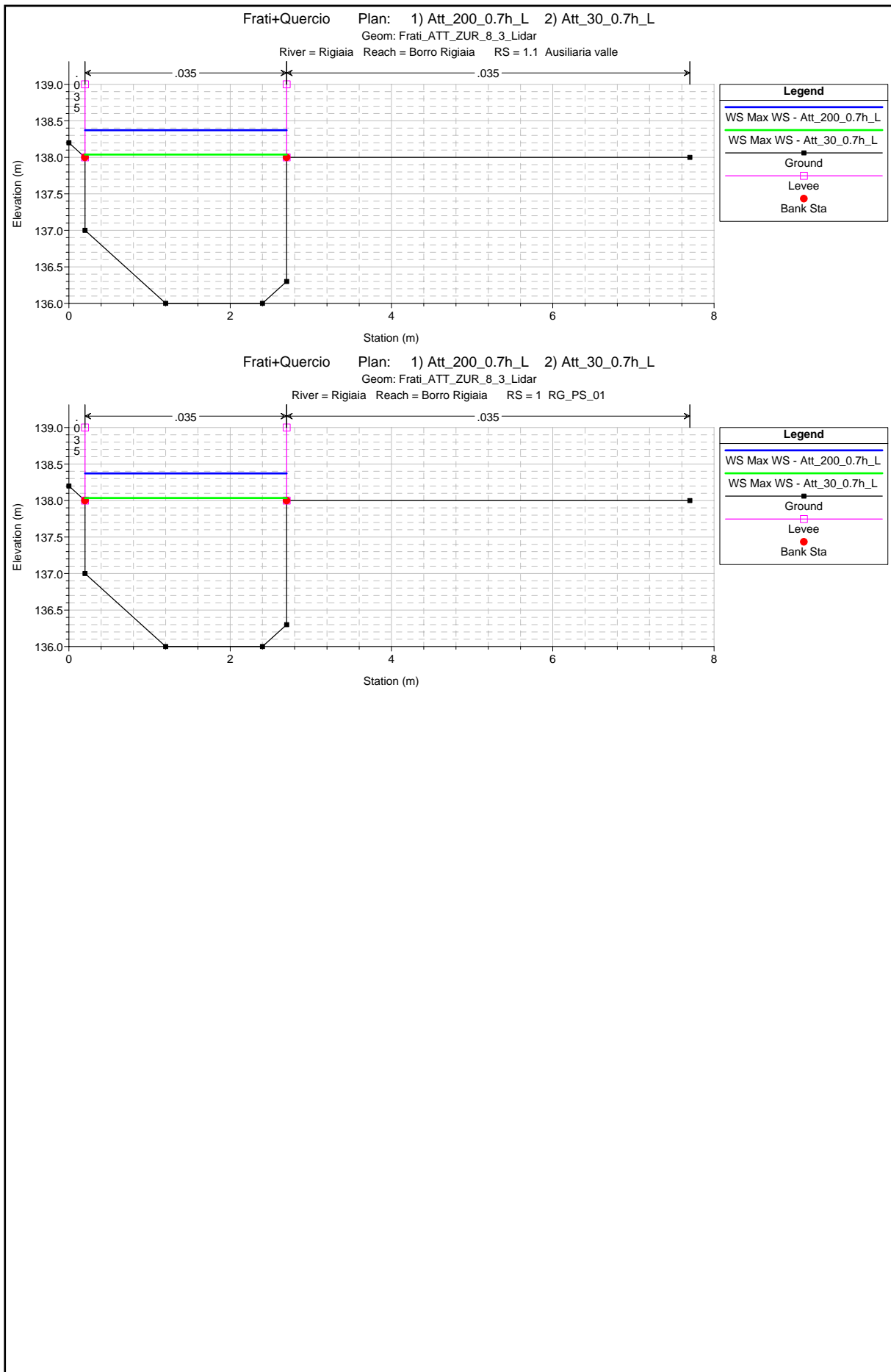












HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Rigiaia	9	Max WS	Att_200_0.7h_L	15.96	139.92	141.65		141.95	0.007515	2.44	6.70	6.86	0.72
Borro Rigiaia	9	Max WS	Att_30_0.7h_L	11.75	139.92	141.59		141.77	0.004895	1.90	6.27	6.54	0.58
Borro Rigiaia	8.99	Max WS	Att_200_0.7h_L	15.96	139.92	141.63		141.94	0.007876	2.47	6.59	6.71	0.74
Borro Rigiaia	8.99	Max WS	Att_30_0.7h_L	11.75	139.92	141.58		141.76	0.005001	1.92	6.22	6.53	0.58
Borro Rigiaia	8.9			Lat Struct									
Borro Rigiaia	8.8			Lat Struct									
Borro Rigiaia	8	Max WS	Att_200_0.7h_L	7.26	139.78	141.80		141.84	0.000688	0.86	9.12	9.61	0.23
Borro Rigiaia	8	Max WS	Att_30_0.7h_L	7.29	139.78	141.65		141.70	0.001039	0.98	7.77	8.19	0.27
Borro Rigiaia	7	Max WS	Att_200_0.7h_L	7.26	139.79	141.76	140.86	141.84	0.002775	1.33	6.09	6.82	0.32
Borro Rigiaia	7	Max WS	Att_30_0.7h_L	7.29	139.79	141.57	140.86	141.70	0.004666	1.63	4.82	6.80	0.42
Borro Rigiaia	6.8			Bridge									
Borro Rigiaia	6.5	Max WS	Att_200_0.7h_L	8.34	139.79	141.08		141.48	0.017710	2.79	2.99	2.68	0.84
Borro Rigiaia	6.5	Max WS	Att_30_0.7h_L	7.29	139.79	141.01		141.35	0.015924	2.59	2.81	2.65	0.80
Borro Rigiaia	6.49			Lat Struct									
Borro Rigiaia	6.48			Lat Struct									
Borro Rigiaia	6	Max WS	Att_200_0.7h_L	6.00	138.49	139.80		140.09	0.014122	2.38	2.52	3.12	0.85
Borro Rigiaia	6	Max WS	Att_30_0.7h_L	5.53	138.49	139.78		140.04	0.012666	2.24	2.47	3.10	0.80
Borro Rigiaia	5	Max WS	Att_200_0.7h_L	3.52	138.38	139.76	139.28	139.83	0.002838	1.15	3.06	3.31	0.38
Borro Rigiaia	5	Max WS	Att_30_0.7h_L	3.47	138.38	139.75	139.27	139.82	0.002814	1.14	3.04	3.31	0.38
Borro Rigiaia	4.9			Bridge									
Borro Rigiaia	4.8	Max WS	Att_200_0.7h_L	3.52	138.38	139.52		139.64	0.006702	1.56	2.26	3.27	0.60
Borro Rigiaia	4.8	Max WS	Att_30_0.7h_L	3.47	138.38	139.51		139.63	0.006704	1.55	2.24	3.27	0.60
Borro Rigiaia	4.79			Lat Struct									

HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Rigiaia	4.78			Lat Struct									
Borro Rigiaia	4	Max WS	Att_200_0.7h_L	3.49	138.07	139.11	138.83	139.22	0.005703	1.47	2.37	3.22	0.55
Borro Rigiaia	4	Max WS	Att_30_0.7h_L	3.43	138.07	139.11	138.83	139.22	0.005633	1.46	2.35	3.21	0.55
Borro Rigiaia	3.9			Bridge									
Borro Rigiaia	3.8	Max WS	Att_200_0.7h_L	3.49	138.07	139.04		139.18	0.007522	1.63	2.14	3.13	0.63
Borro Rigiaia	3.8	Max WS	Att_30_0.7h_L	3.47	138.07	139.04		139.17	0.007584	1.63	2.12	3.12	0.63
Borro Rigiaia	3.79			Lat Struct									
Borro Rigiaia	3.78			Lat Struct									
Borro Rigiaia	3	Max WS	Att_200_0.7h_L	2.90	137.39	138.71	138.02	138.75	0.001342	0.83	3.49	3.22	0.25
Borro Rigiaia	3	Max WS	Att_30_0.7h_L	3.15	137.39	138.68	138.04	138.73	0.001704	0.93	3.40	3.22	0.29
Borro Rigiaia	2.9			Bridge									
Borro Rigiaia	2.8	Max WS	Att_200_0.7h_L	2.90	137.39	138.58		138.63	0.001907	0.94	3.08	3.21	0.31
Borro Rigiaia	2.8	Max WS	Att_30_0.7h_L	3.15	137.39	138.51		138.58	0.002748	1.10	2.86	3.17	0.37
Borro Rigiaia	2.79			Lat Struct									
Borro Rigiaia	2.78			Lat Struct									
Borro Rigiaia	2	Max WS	Att_200_0.7h_L	-1.00	137.07	138.63		138.63	0.000127	-0.29	3.90	4.40	0.08
Borro Rigiaia	2	Max WS	Att_30_0.7h_L	1.54	137.07	138.54	137.62	138.55	0.000400	0.49	3.52	4.40	0.14
Borro Rigiaia	1.9			Bridge									
Borro Rigiaia	1.8	Max WS	Att_200_0.7h_L	-1.00	137.07	138.63		138.63	0.000127	-0.29	3.91	4.40	0.08
Borro Rigiaia	1.8	Max WS	Att_30_0.7h_L	1.54	137.07	138.53		138.55	0.000410	0.49	3.49	4.40	0.14
Borro Rigiaia	1.79			Lat Struct									
Borro Rigiaia	1.78			Lat Struct									

HEC-RAS River: Rigiaia Reach: Borro Rigiaia Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
Borro Rigiaia	1.1	Max WS	Att_200_0.7h_L	1.07	136.00	138.37		138.37	0.000062	0.20	5.39	2.50	0.04
Borro Rigiaia	1.1	Max WS	Att_30_0.7h_L	5.78	136.00	138.04		138.12	0.002744	1.27	4.55	2.50	0.30
Borro Rigiaia	1	Max WS	Att_200_0.7h_L	1.07	136.00	138.37		138.37	0.000062	0.20	5.39	2.50	0.04
Borro Rigiaia	1	Max WS	Att_30_0.7h_L	5.78	136.00	138.04		138.12	0.002755	1.27	4.54	2.50	0.30

# **VERIFICHE IDRAULICHE**

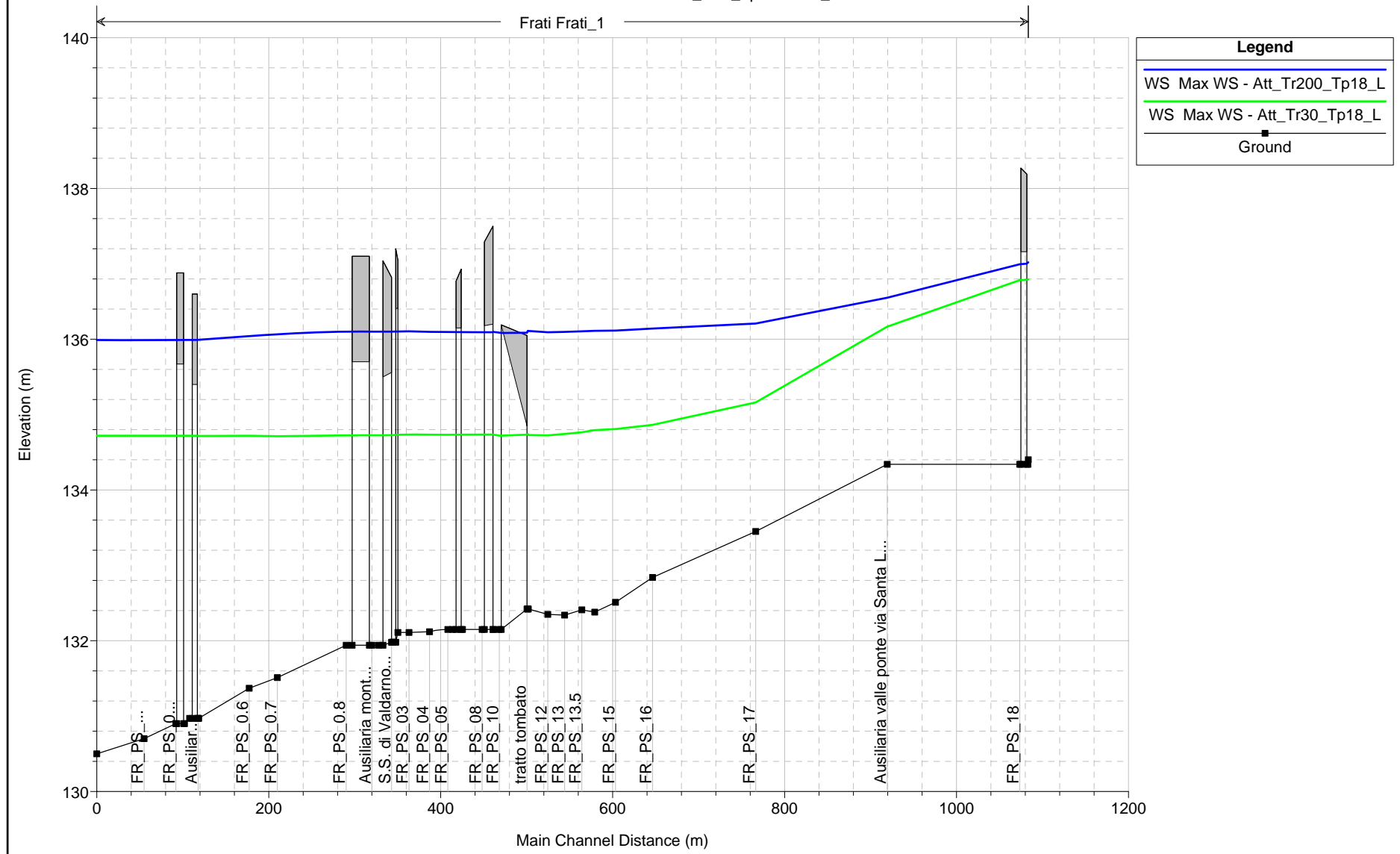
## **STATO ATTUALE**

### **BORRO dei FRATI**

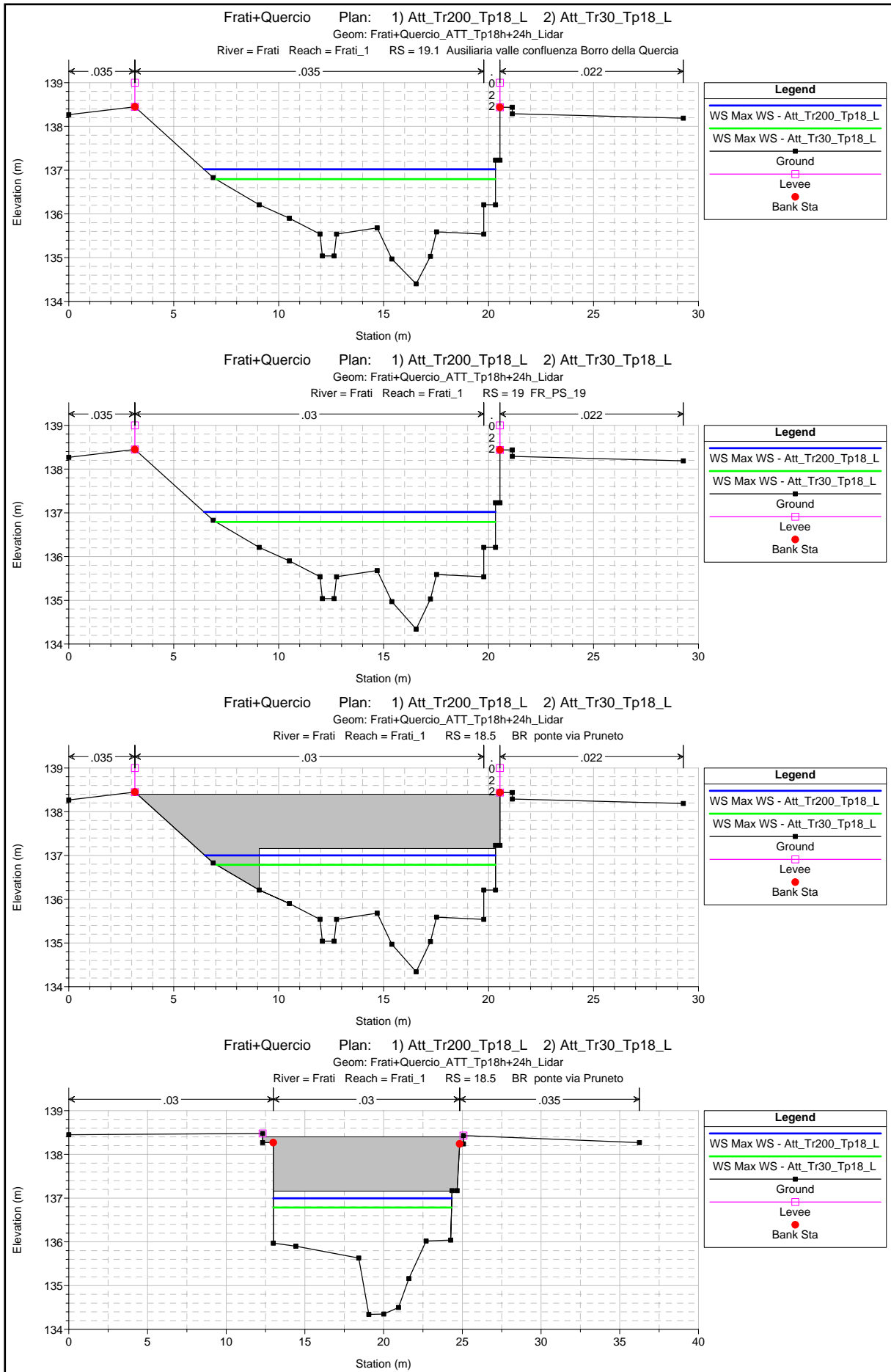
#### **Scenario B - Tr 200 e 30 anni**

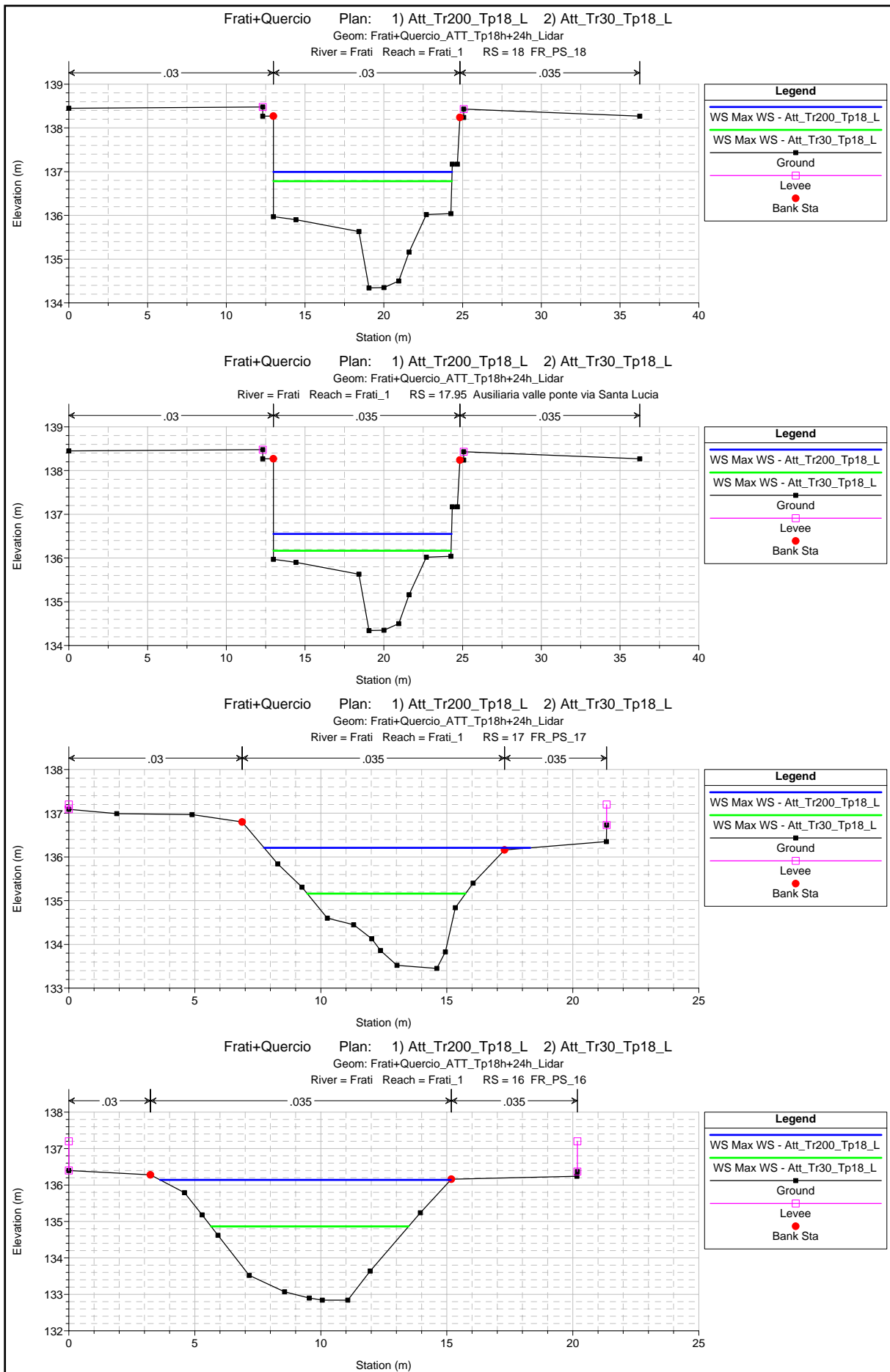
- Profili
- Sezioni di verifica
- Tabelle di output

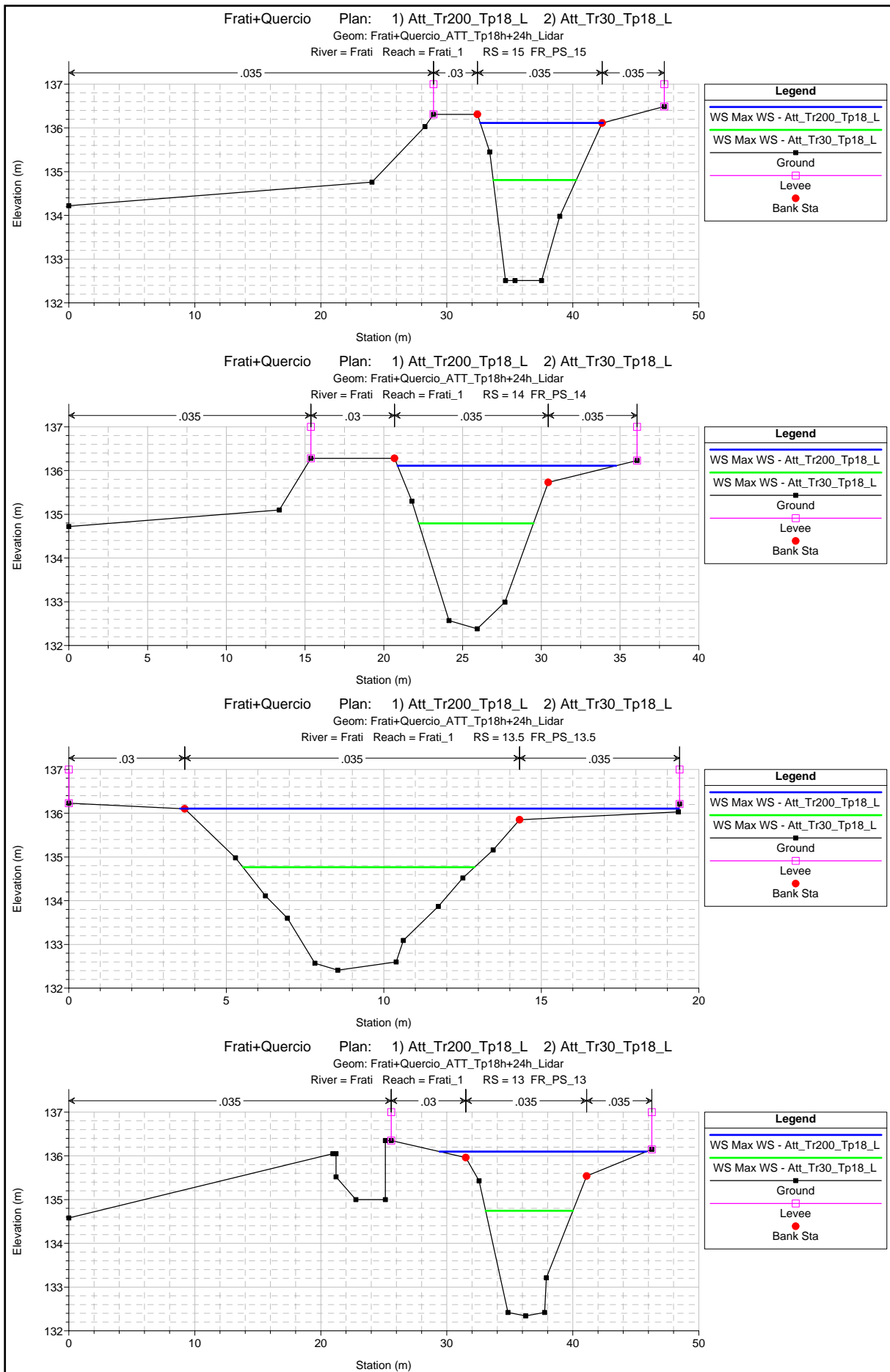
Frati+Quercio Plan: 1) Att\_Tr200\_Tp18\_L 2) Att\_Tr30\_Tp18\_L  
 Geom: Frati+Quercio\_ATT\_Tp18h+24h\_Lidar

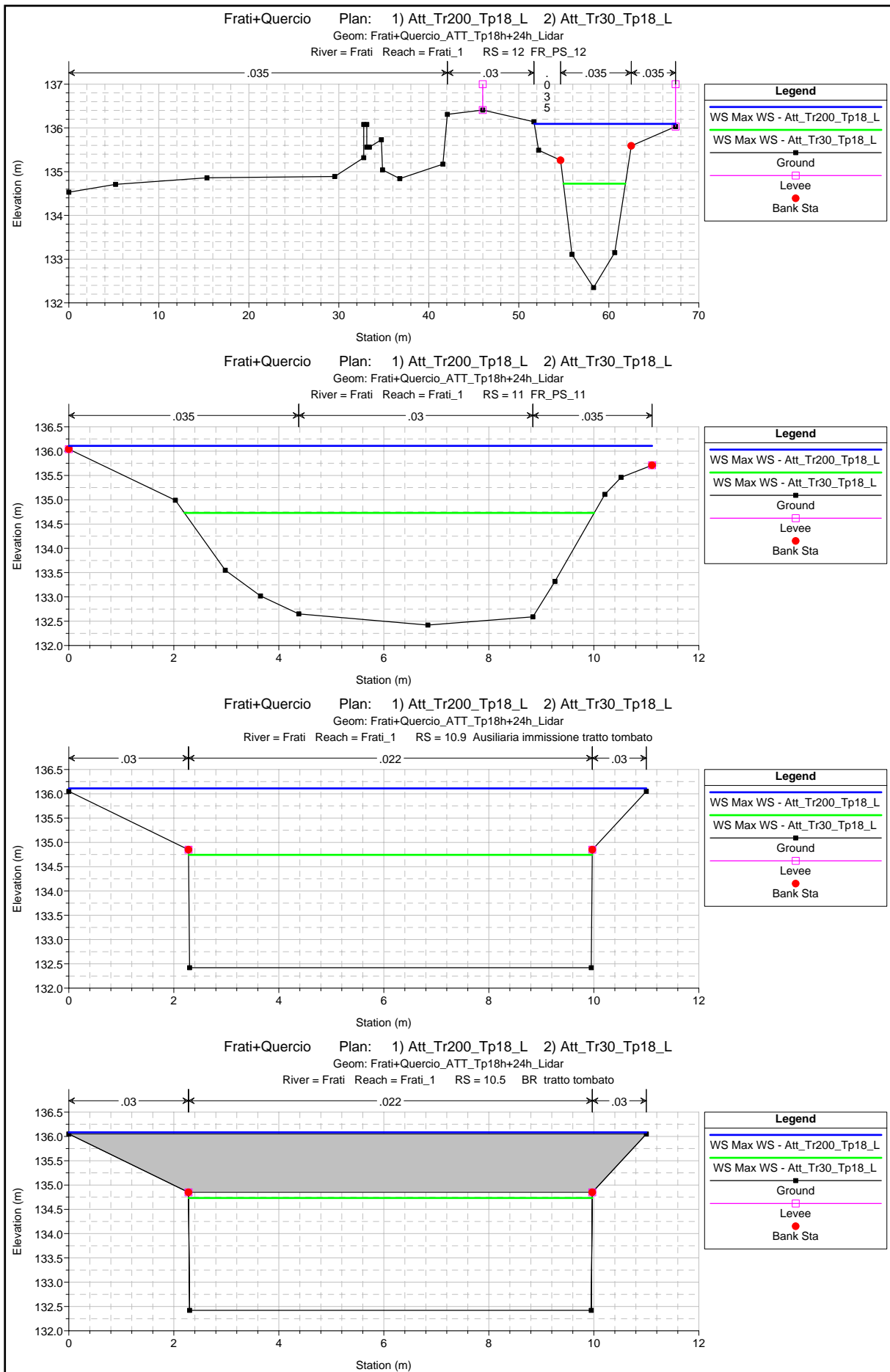


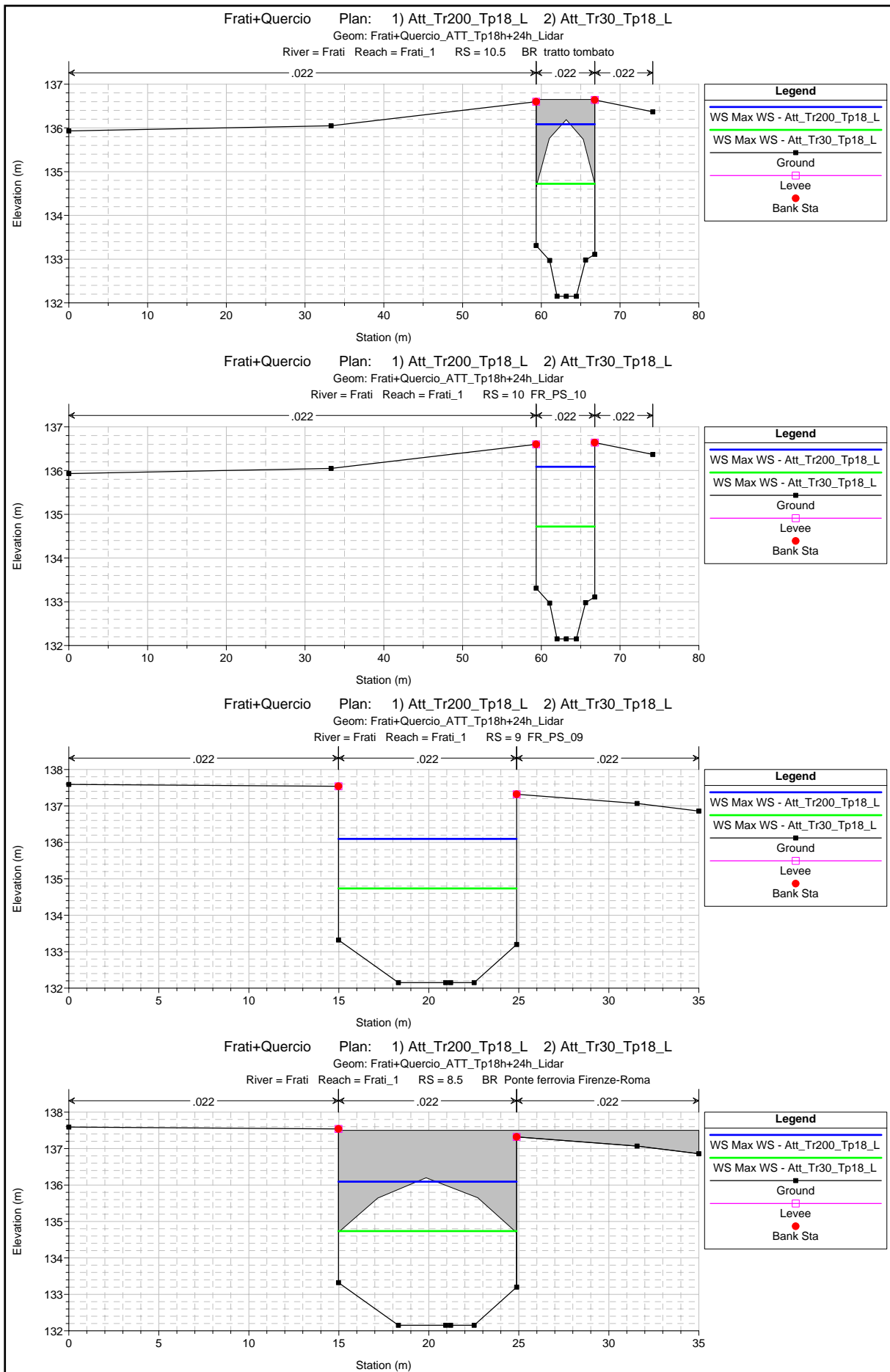


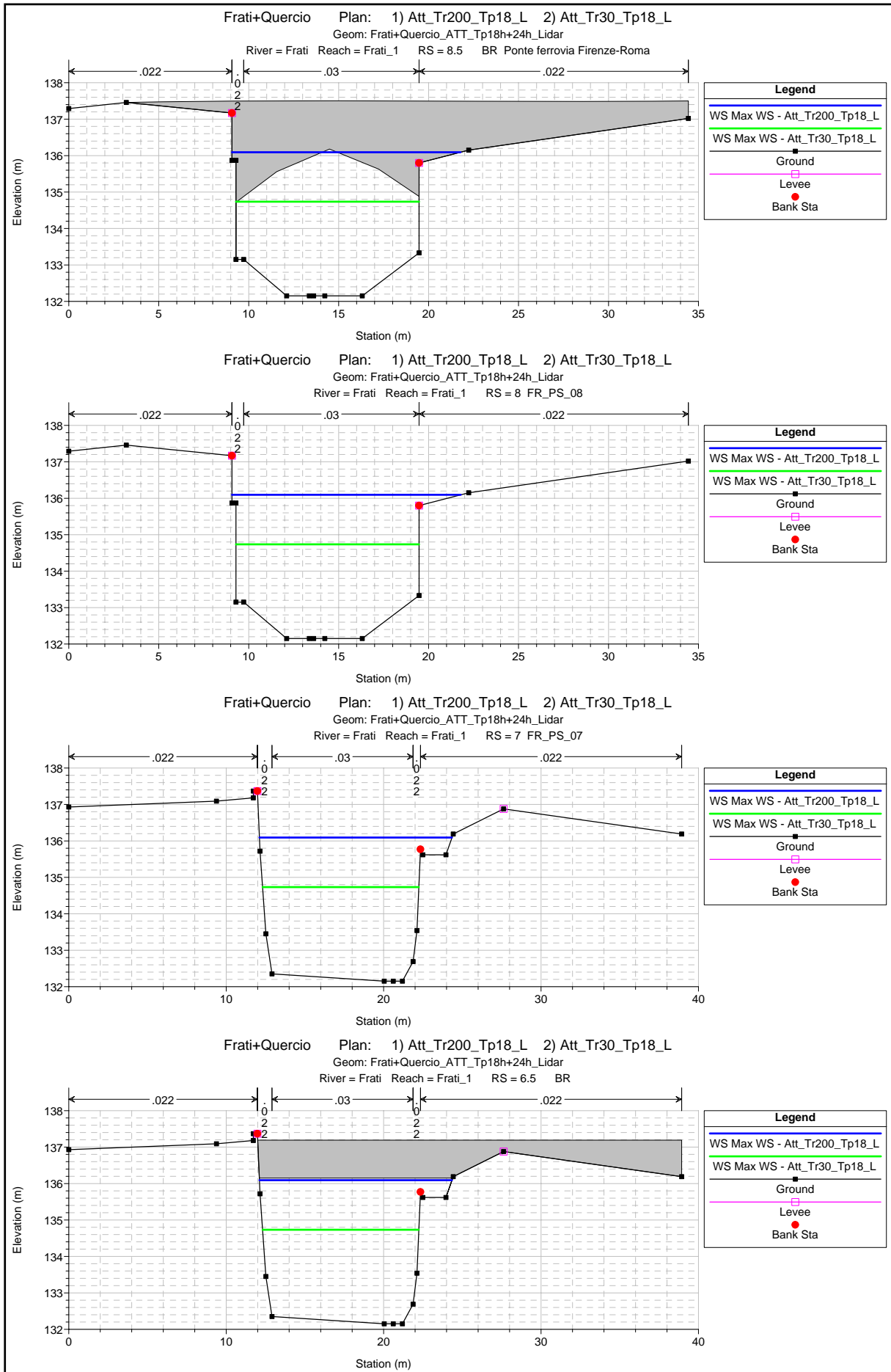


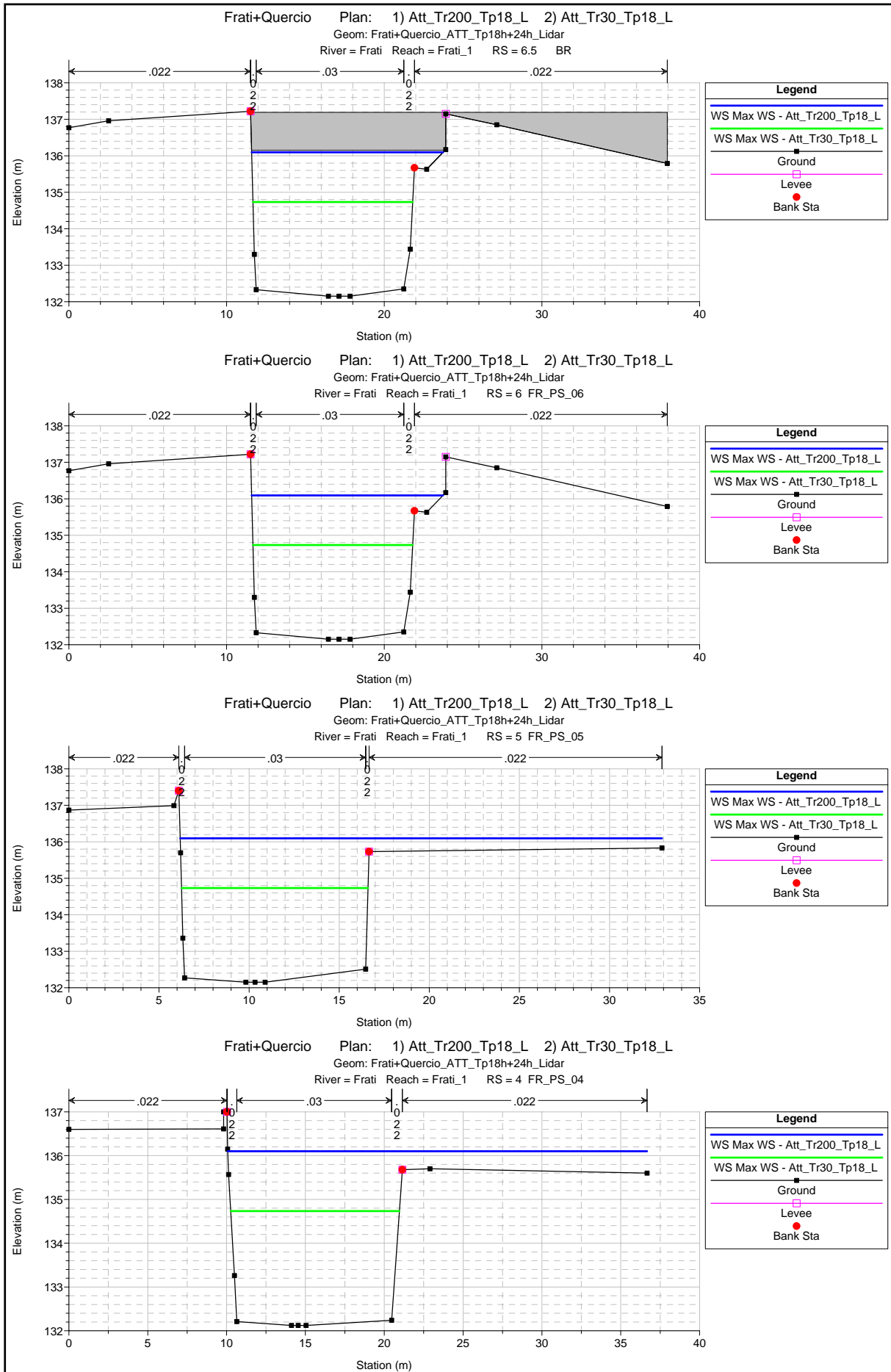


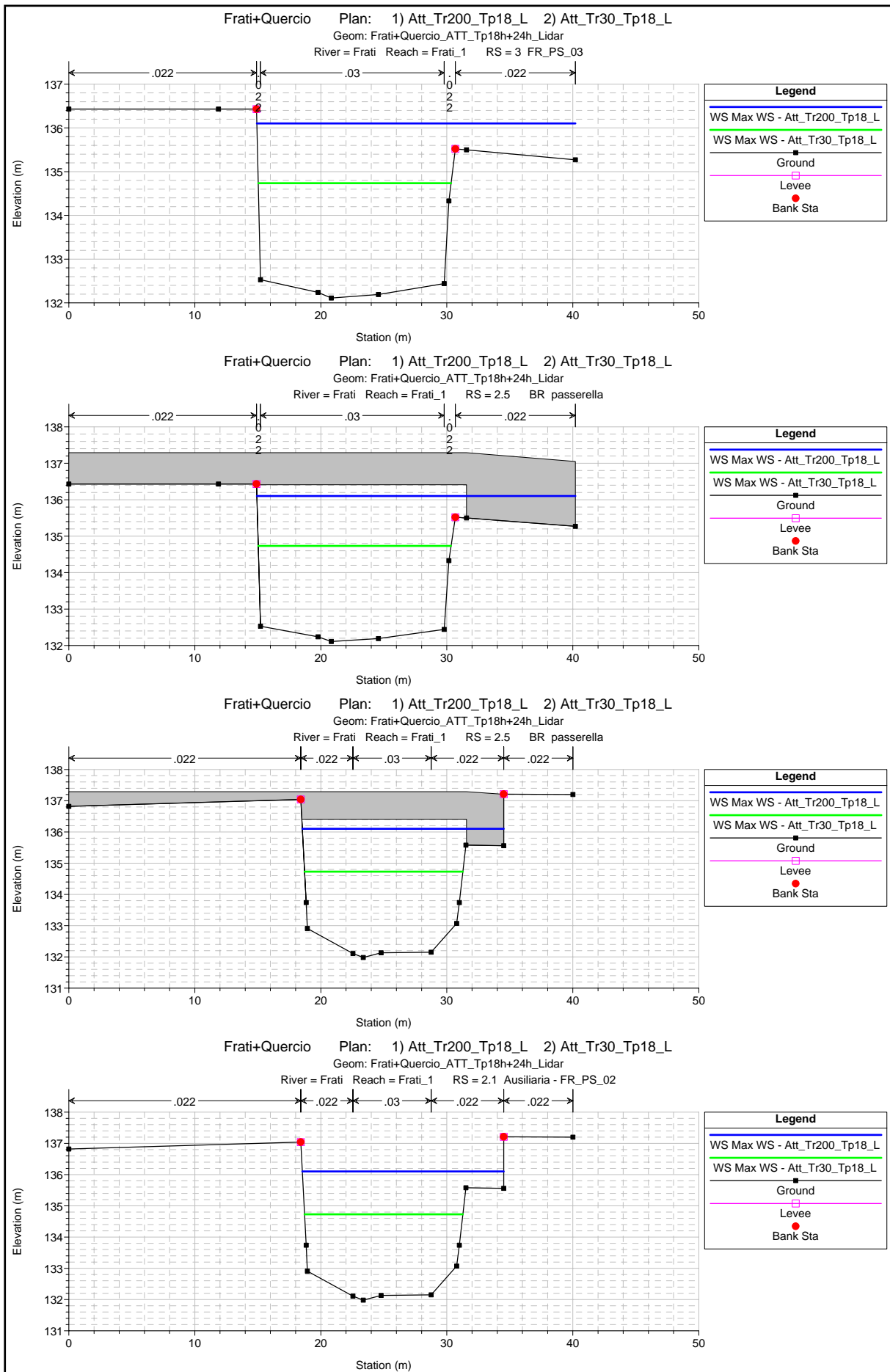




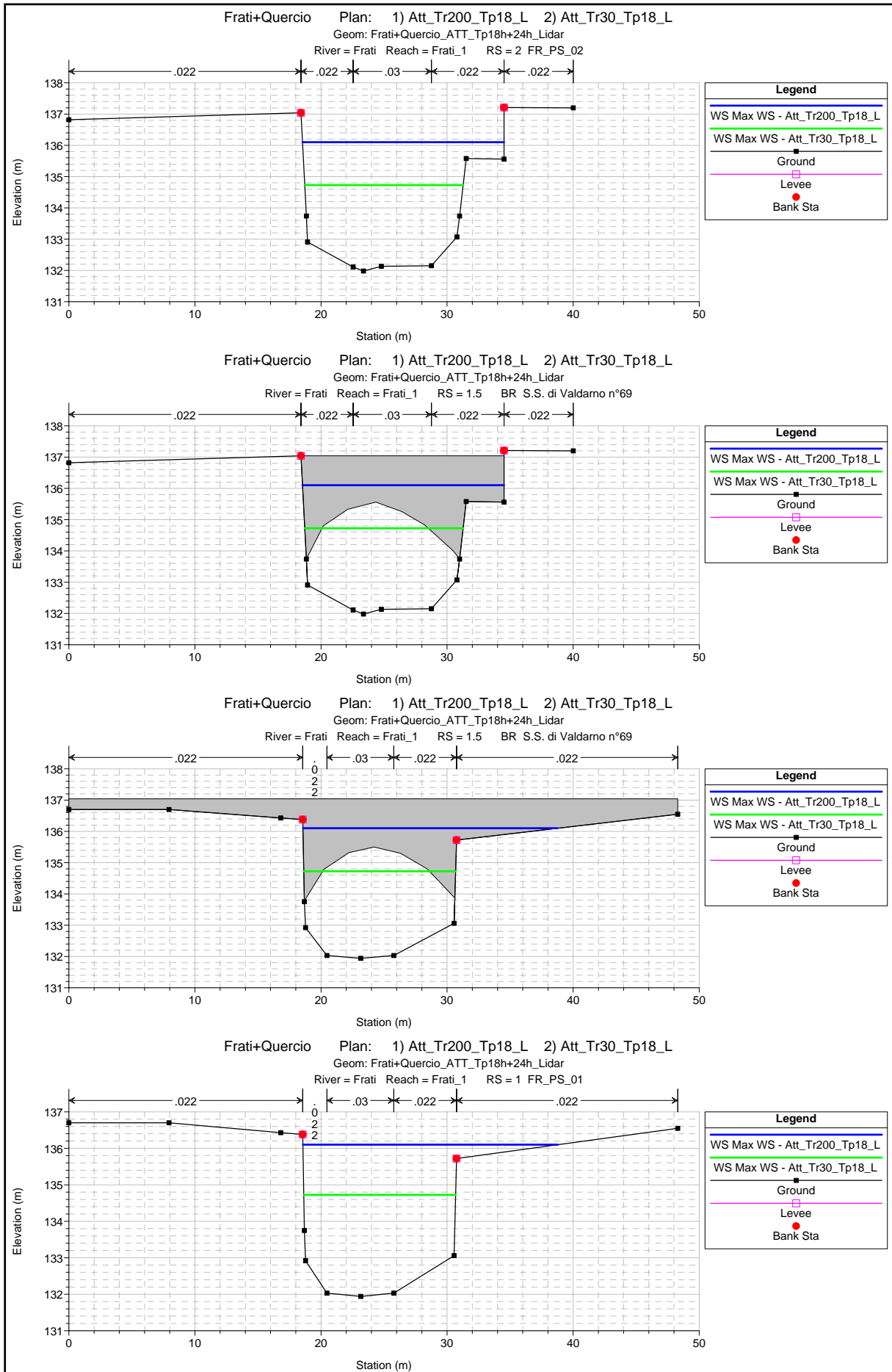


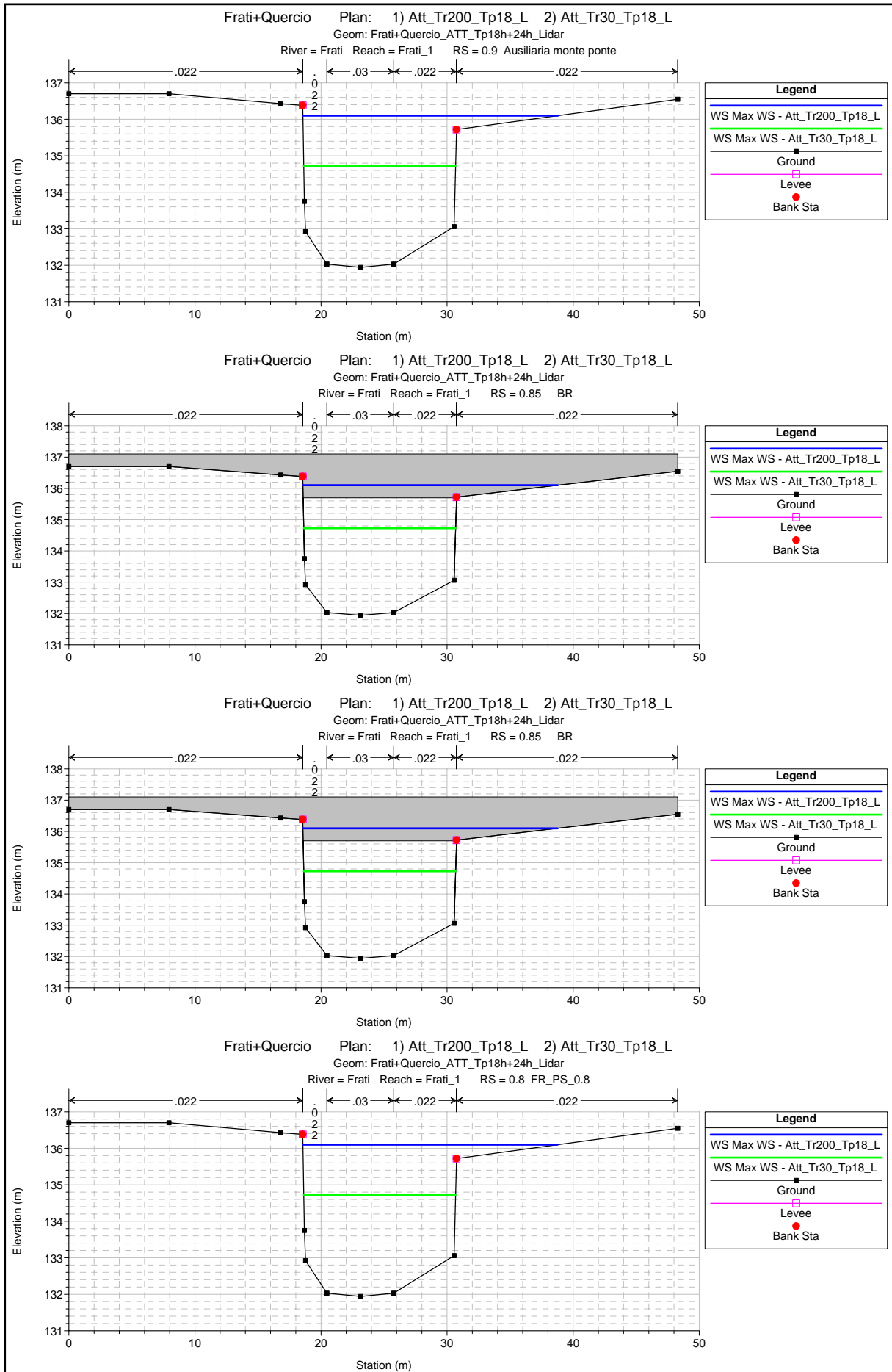


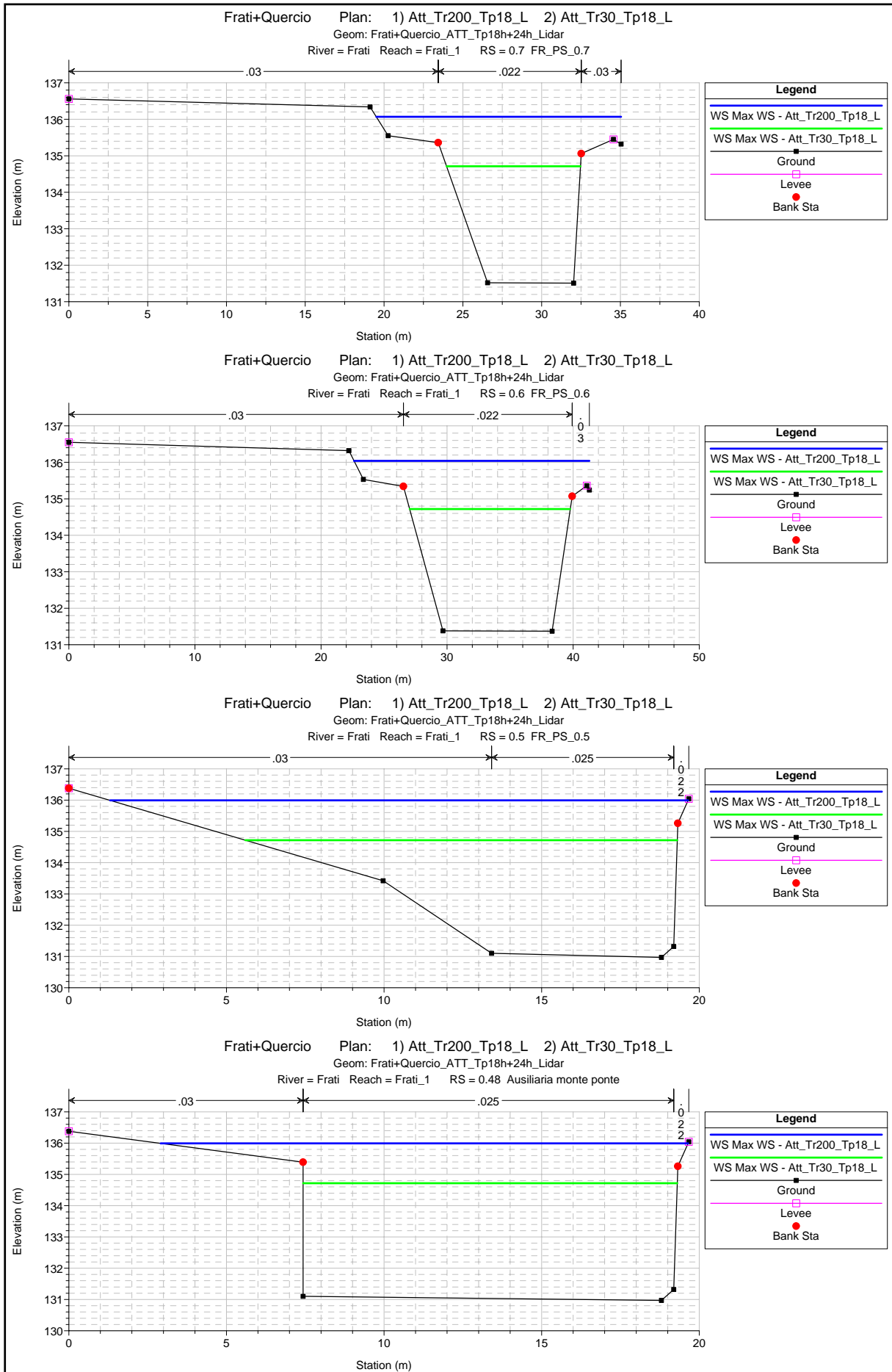


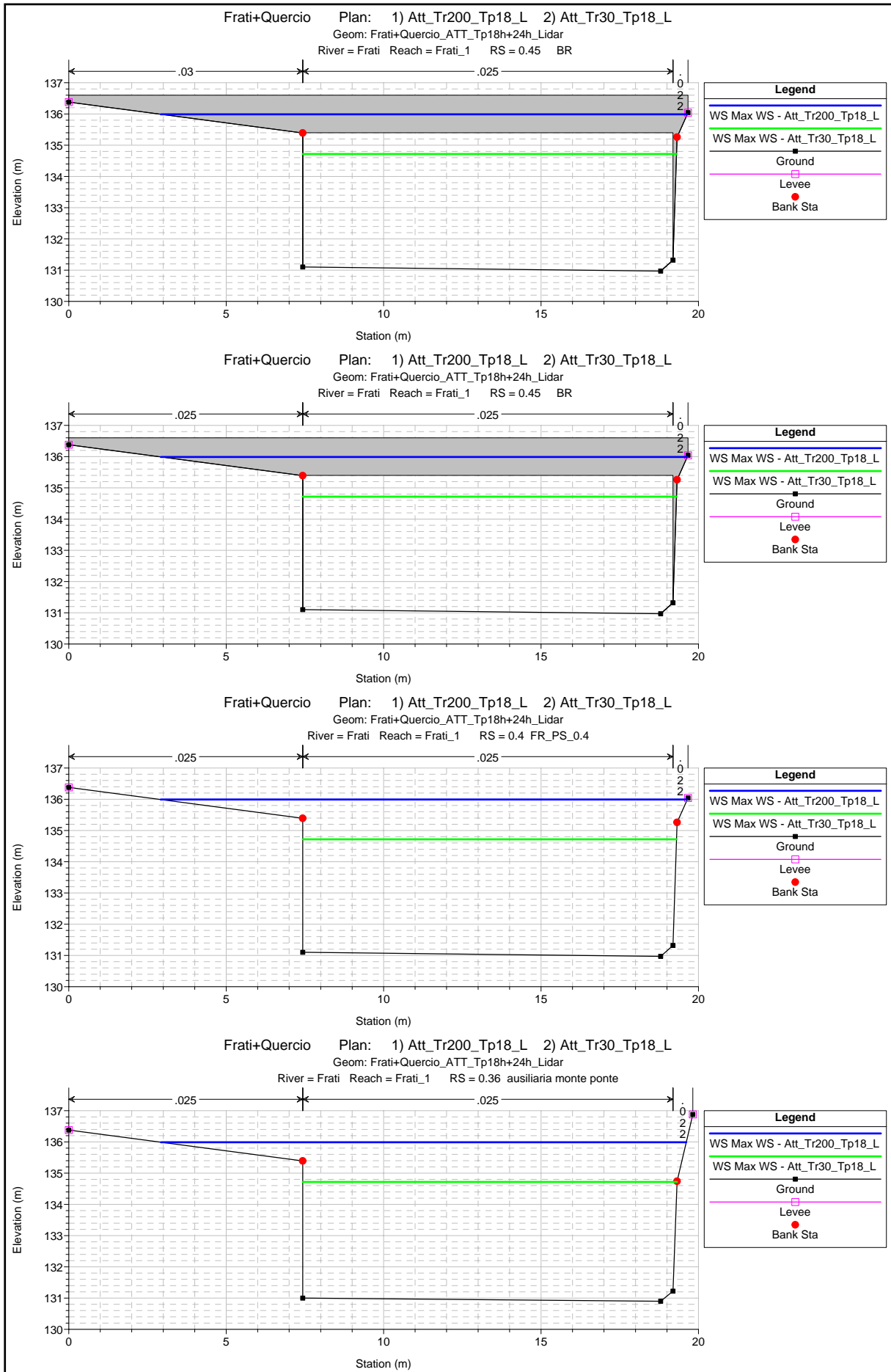


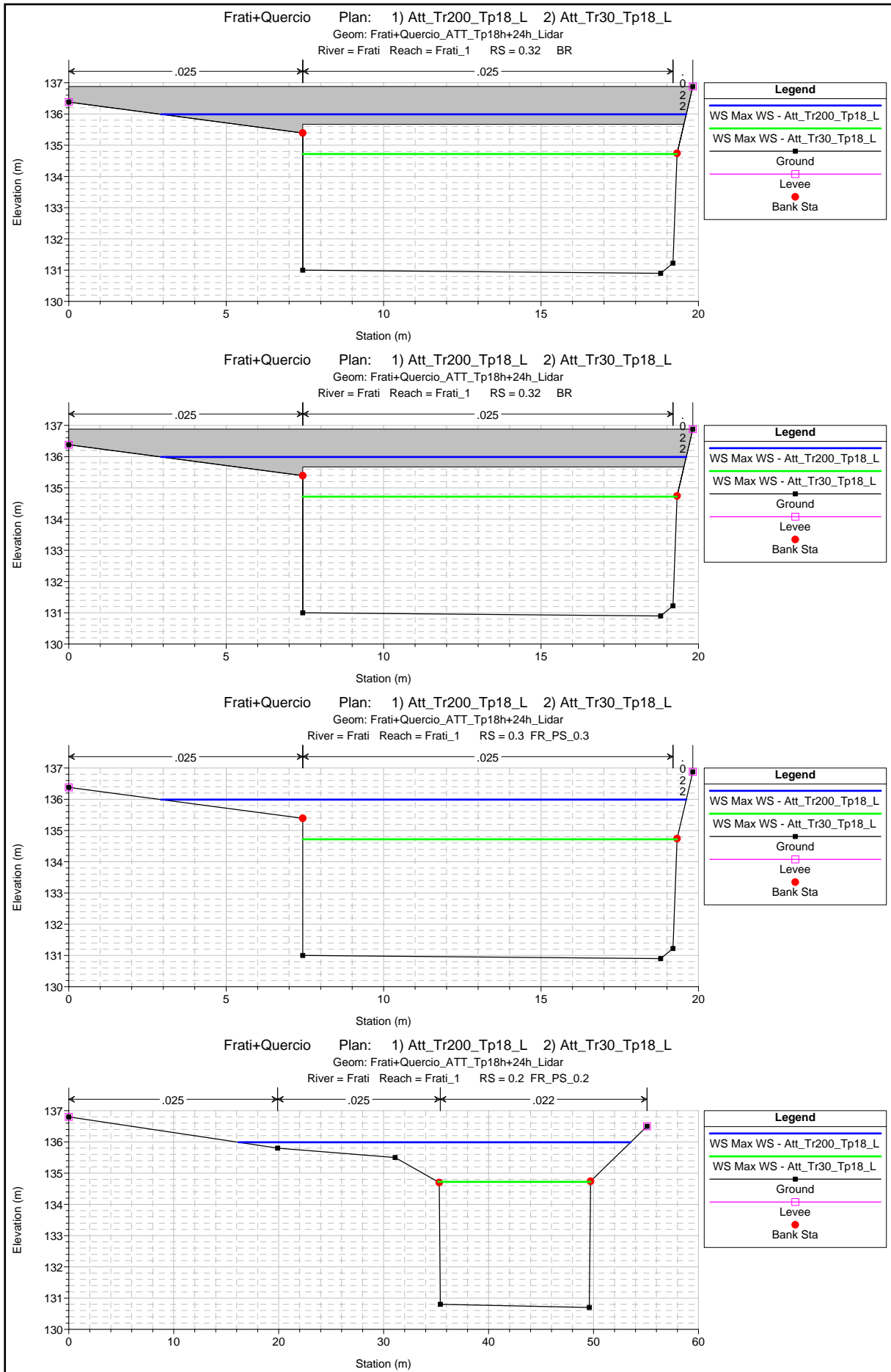


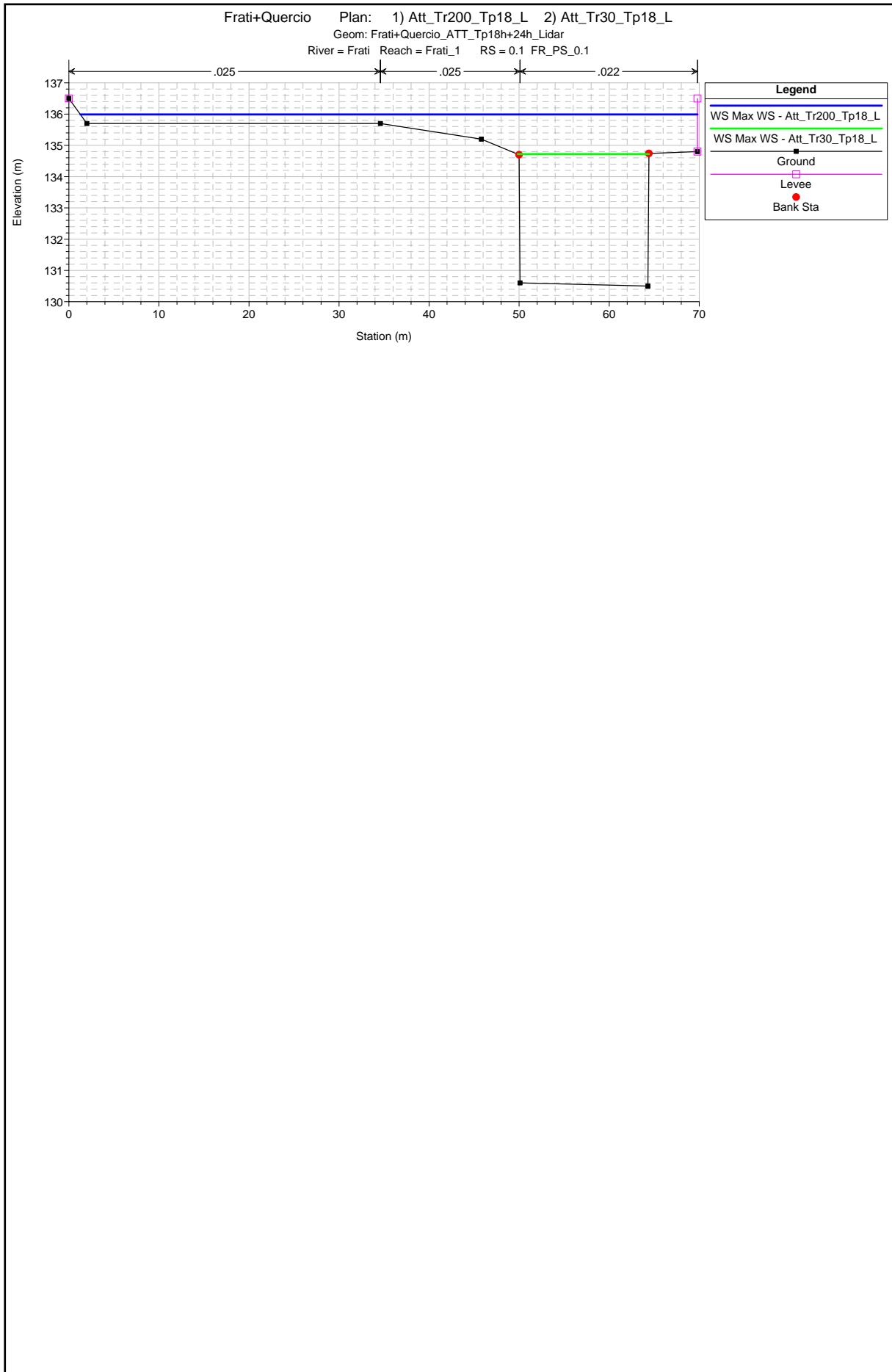












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_1	19.1	Max WS	Att_Tr200_Tp18_L	18.97	134.40	137.02		137.07	0.001157	1.03	18.34	13.89	0.29
Fрати_1	19.1	Max WS	Att_Tr30_Tp18_L	12.00	134.40	136.79		136.83	0.000805	0.79	15.26	13.32	0.23
Fрати_1	19	Max WS	Att_Tr200_Tp18_L	18.97	134.34	137.02	136.12	137.07	0.000858	1.03	18.39	13.89	0.29
Fрати_1	19	Max WS	Att_Tr30_Tp18_L	12.00	134.34	136.79	135.91	136.83	0.000596	0.78	15.31	13.32	0.23
Fрати_1	18.5			Bridge									
Fрати_1	18	Max WS	Att_Tr200_Tp18_L	18.97	134.34	136.99		137.06	0.000893	1.11	17.14	11.35	0.29
Fрати_1	18	Max WS	Att_Tr30_Tp18_L	12.00	134.34	136.78		136.82	0.000568	0.81	14.75	11.33	0.23
Fрати_1	17.95	Max WS	Att_Tr200_Tp18_L	18.97	134.34	136.55		136.67	0.003564	1.57	12.11	11.31	0.48
Fрати_1	17.95	Max WS	Att_Tr30_Tp18_L	12.00	134.34	136.17		136.29	0.005766	1.54	7.78	11.28	0.59
Fрати_1	17	Max WS	Att_Tr200_Tp18_L	18.85	133.45	136.21		136.29	0.001446	1.28	14.76	10.56	0.33
Fрати_1	17	Max WS	Att_Tr30_Tp18_L	12.00	133.45	135.16		135.34	0.005376	1.86	6.44	6.28	0.59
Fрати_1	16	Max WS	Att_Tr200_Tp18_L	18.84	132.84	136.14		136.18	0.000437	0.83	22.60	11.53	0.19
Fрати_1	16	Max WS	Att_Tr30_Tp18_L	11.96	132.84	134.86		134.93	0.001321	1.14	10.52	7.84	0.31
Fрати_1	15	Max WS	Att_Tr200_Tp18_L	18.84	132.51	136.11		136.16	0.000528	0.90	20.97	9.74	0.19
Fрати_1	15	Max WS	Att_Tr30_Tp18_L	11.95	132.51	134.81		134.87	0.001290	1.14	10.49	6.59	0.29
Fрати_1	14	Max WS	Att_Tr200_Tp18_L	18.83	132.38	136.11		136.15	0.000361	0.82	23.69	13.88	0.17
Fрати_1	14	Max WS	Att_Tr30_Tp18_L	11.95	132.38	134.79		134.85	0.000940	1.03	11.63	7.28	0.26
Fрати_1	13.8			Lat Struct									
Fрати_1	13.5	Max WS	Att_Tr200_Tp18_L	18.82	132.41	136.11		136.14	0.000399	0.82	23.60	15.84	0.18
Fрати_1	13.5	Max WS	Att_Tr30_Tp18_L	11.95	132.41	134.76		134.83	0.001307	1.13	10.53	7.35	0.30
Fрати_1	13	Max WS	Att_Tr200_Tp18_L	18.82	132.34	136.10		136.13	0.000401	0.83	23.64	16.39	0.17
Fрати_1	13	Max WS	Att_Tr30_Tp18_L	11.95	132.34	134.74		134.81	0.001212	1.10	10.81	6.92	0.28
Fрати_1	12	Max WS	Att_Tr200_Tp18_L	18.73	132.35	136.09		136.13	0.000322	0.82	24.80	15.69	0.16
Fрати_1	12	Max WS	Att_Tr30_Tp18_L	11.93	132.35	134.72		134.78	0.001036	1.07	11.13	6.89	0.27
Fрати_1	11	Max WS	Att_Tr200_Tp18_L	15.79	132.42	136.11		136.13	0.000171	0.59	26.92	11.11	0.12

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fрати_1	11	Max WS	Att_Tr30_Tp18_L	11.93	132.42	134.73		134.77	0.000508	0.86	13.92	7.80	0.20
Fрати_1	10.9	Max WS	Att_Tr200_Tp18_L	15.81	132.42	136.11	133.18	136.13	0.000049	0.55	30.53	11.00	0.09
Fрати_1	10.9	Max WS	Att_Tr30_Tp18_L	11.93	132.42	134.74	133.05	134.77	0.000132	0.67	17.81	7.69	0.14
Fрати_1	10.5			Bridge									
Fрати_1	10	Max WS	Att_Tr200_Tp18_L	15.57	132.15	136.09		136.11	0.000078	0.61	25.68	7.44	0.10
Fрати_1	10	Max WS	Att_Tr30_Tp18_L	11.95	132.15	134.72		134.75	0.000183	0.77	15.52	7.44	0.17
Fрати_1	9	Max WS	Att_Tr200_Tp18_L	15.64	132.15	136.10	133.07	136.11	0.000031	0.44	35.88	9.90	0.07
Fрати_1	9	Max WS	Att_Tr30_Tp18_L	11.95	132.15	134.74	132.94	134.75	0.000068	0.53	22.41	9.90	0.11
Fрати_1	8.5			Bridge									
Fрати_1	8	Max WS	Att_Tr200_Tp18_L	15.64	132.15	136.09		136.10	0.000060	0.43	37.05	12.72	0.07
Fрати_1	8	Max WS	Att_Tr30_Tp18_L	11.95	132.15	134.73		134.75	0.000114	0.52	22.82	10.18	0.11
Fрати_1	7	Max WS	Att_Tr200_Tp18_L	15.61	132.15	136.09	132.93	136.10	0.000040	0.41	38.16	12.23	0.07
Fрати_1	7	Max WS	Att_Tr30_Tp18_L	11.94	132.15	134.73	132.82	134.75	0.000094	0.51	23.57	9.93	0.10
Fрати_1	6.5			Bridge									
Fрати_1	6	Max WS	Att_Tr200_Tp18_L	15.61	132.15	136.09		136.10	0.000038	0.40	39.10	12.14	0.07
Fрати_1	6	Max WS	Att_Tr30_Tp18_L	11.94	132.15	134.73		134.75	0.000086	0.49	24.58	10.13	0.10
Fрати_1	5.8			Lat Struct									
Fрати_1	5	Max WS	Att_Tr200_Tp18_L	15.59	132.15	136.09		136.10	0.000034	0.38	44.45	26.73	0.06
Fрати_1	5	Max WS	Att_Tr30_Tp18_L	11.94	132.15	134.73		134.75	0.000084	0.48	25.14	10.35	0.10
Fрати_1	4	Max WS	Att_Tr200_Tp18_L	12.63	132.12	136.10		136.10	0.000019	0.29	48.09	26.59	0.05
Fрати_1	4	Max WS	Att_Tr30_Tp18_L	11.94	132.12	134.73		134.74	0.000073	0.45	26.26	10.70	0.09
Fрати_1	3	Max WS	Att_Tr200_Tp18_L	6.76	132.11	136.10	132.57	136.10	0.000002	0.11	64.55	25.27	0.02
Fрати_1	3	Max WS	Att_Tr30_Tp18_L	11.94	132.11	134.74	132.69	134.74	0.000036	0.33	36.48	15.30	0.07
Fрати_1	2.5			Bridge									



HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	2.1	Max WS	Att_Tr200_Tp18_L	6.73	131.98	136.10		136.10	0.000004	0.14	48.40	15.99	0.03
Frati_1	2.1	Max WS	Att_Tr30_Tp18_L	11.94	131.98	134.73		134.74	0.000047	0.41	29.19	12.56	0.09
Frati_1	2	Max WS	Att_Tr200_Tp18_L	6.71	131.98	136.10	132.56	136.10	0.000004	0.14	48.40	15.99	0.03
Frati_1	2	Max WS	Att_Tr30_Tp18_L	11.94	131.98	134.73	132.75	134.74	0.000047	0.41	29.19	12.56	0.09
Frati_1	1.5			Bridge									
Frati_1	1	Max WS	Att_Tr200_Tp18_L	6.71	131.94	136.10		136.10	0.000004	0.15	47.25	20.22	0.02
Frati_1	1	Max WS	Att_Tr30_Tp18_L	12.00	131.94	134.73		134.73	0.000046	0.41	29.05	12.05	0.08
Frati_1	0.9	Max WS	Att_Tr200_Tp18_L	6.71	131.94	136.10	132.49	136.10	0.000004	0.15	47.25	20.22	0.02
Frati_1	0.9	Max WS	Att_Tr30_Tp18_L	12.00	131.94	134.73	132.70	134.73	0.000046	0.41	29.05	12.05	0.08
Frati_1	0.85			Bridge									
Frati_1	0.8	Max WS	Att_Tr200_Tp18_L	6.68	131.94	136.10		136.10	0.000004	0.15	47.23	20.21	0.02
Frati_1	0.8	Max WS	Att_Tr30_Tp18_L	12.00	131.94	134.72		134.73	0.000046	0.41	29.02	12.05	0.09
Frati_1	0.78			Lat Struct									
Frati_1	0.7	Max WS	Att_Tr200_Tp18_L	21.43	131.51	136.07		136.09	0.000053	0.60	38.55	15.53	0.10
Frati_1	0.7	Max WS	Att_Tr30_Tp18_L	11.88	131.51	134.71		134.73	0.000065	0.53	22.31	8.50	0.10
Frati_1	0.6	Max WS	Att_Tr200_Tp18_L	36.21	131.37	136.04		136.06	0.000050	0.67	56.49	18.66	0.11
Frati_1	0.6	Max WS	Att_Tr30_Tp18_L	11.88	131.37	134.72		134.73	0.000019	0.33	35.78	12.74	0.06
Frati_1	0.5	Max WS	Att_Tr200_Tp18_L	12.94	130.97	135.99		135.99	0.000015	0.24	53.05	18.34	0.05
Frati_1	0.5	Max WS	Att_Tr30_Tp18_L	11.86	130.97	134.72		134.72	0.000043	0.36	32.71	13.70	0.07
Frati_1	0.48	Max WS	Att_Tr200_Tp18_L	16.00	130.97	135.99	131.61	136.00	0.000011	0.27	60.08	16.74	0.04
Frati_1	0.48	Max WS	Att_Tr30_Tp18_L	11.86	130.97	134.72	131.51	134.72	0.000015	0.27	43.48	11.87	0.05
Frati_1	0.45			Bridge									
Frati_1	0.4	Max WS	Att_Tr200_Tp18_L	16.00	130.97	135.99		135.99	0.000011	0.27	60.07	16.73	0.04
Frati_1	0.4	Max WS	Att_Tr30_Tp18_L	11.88	130.97	134.72		134.72	0.000015	0.27	43.48	11.87	0.05

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	0.36	Max WS	Att_Tr200_Tp18_L	16.00	130.90	135.99	131.53	135.99	0.000010	0.27	61.15	16.69	0.04
Frati_1	0.36	Max WS	Att_Tr30_Tp18_L	11.85	130.90	134.72	131.42	134.72	0.000014	0.27	44.51	11.89	0.04
Frati_1	0.32			Bridge									
Frati_1	0.3	Max WS	Att_Tr200_Tp18_L	16.00	130.90	135.99		135.99	0.000010	0.27	61.14	16.68	0.04
Frati_1	0.3	Max WS	Att_Tr30_Tp18_L	11.88	130.90	134.72		134.72	0.000014	0.27	44.51	11.89	0.04
Frati_1	0.2	Max WS	Att_Tr200_Tp18_L	53.02	130.70	135.99		136.01	0.000046	0.68	85.32	37.36	0.10
Frati_1	0.2	Max WS	Att_Tr30_Tp18_L	11.84	130.70	134.72		134.72	0.000006	0.21	56.81	14.52	0.03
Frati_1	0.1	Max WS	Att_Tr200_Tp18_L	53.01	130.50	135.99	131.67	136.01	0.000037	0.62	104.51	68.52	0.08
Frati_1	0.1	Max WS	Att_Tr30_Tp18_L	11.83	130.50	134.72	130.96	134.72	0.000005	0.20	59.67	14.59	0.03

# **VERIFICHE IDRAULICHE**

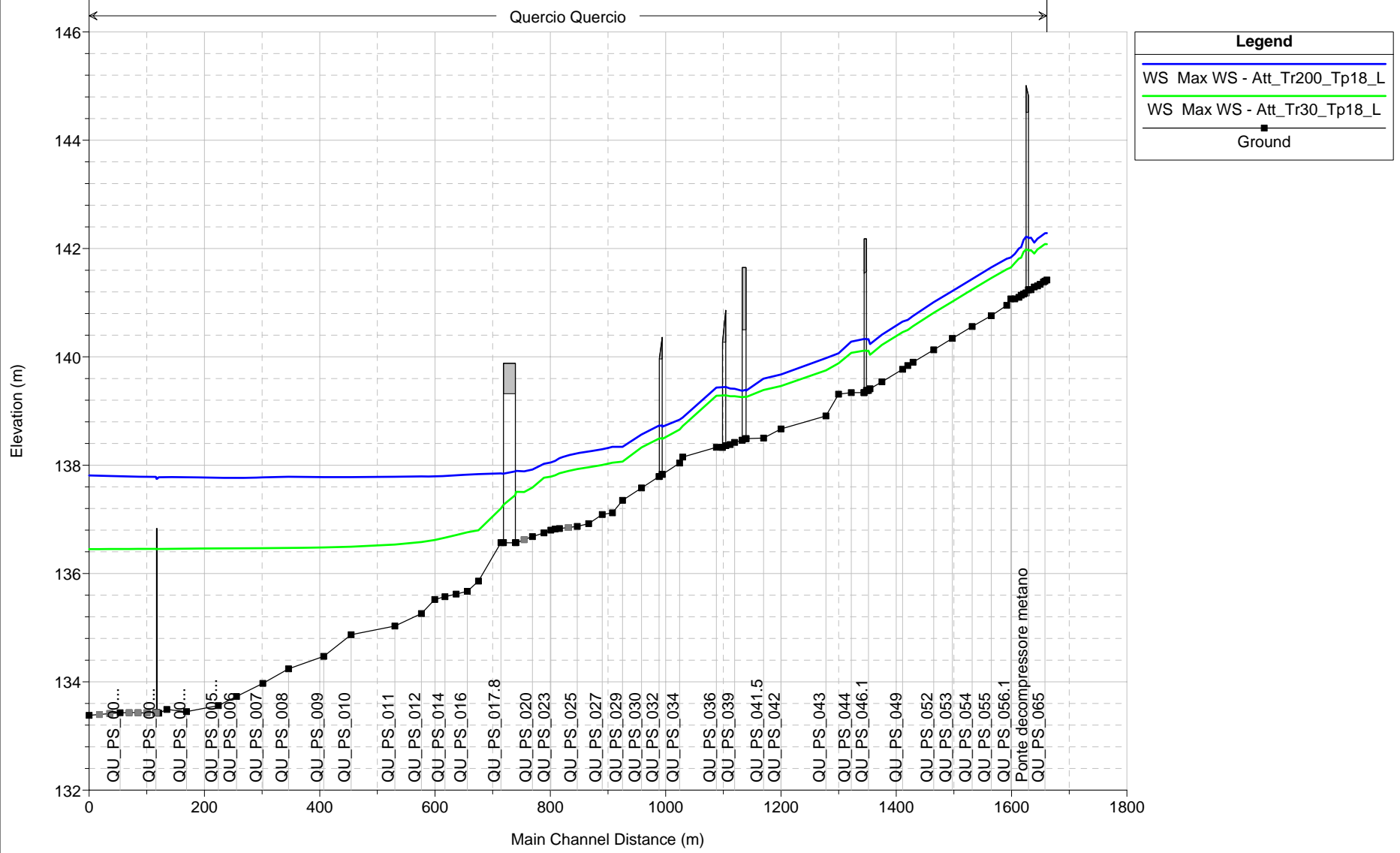
## **STATO ATTUALE**

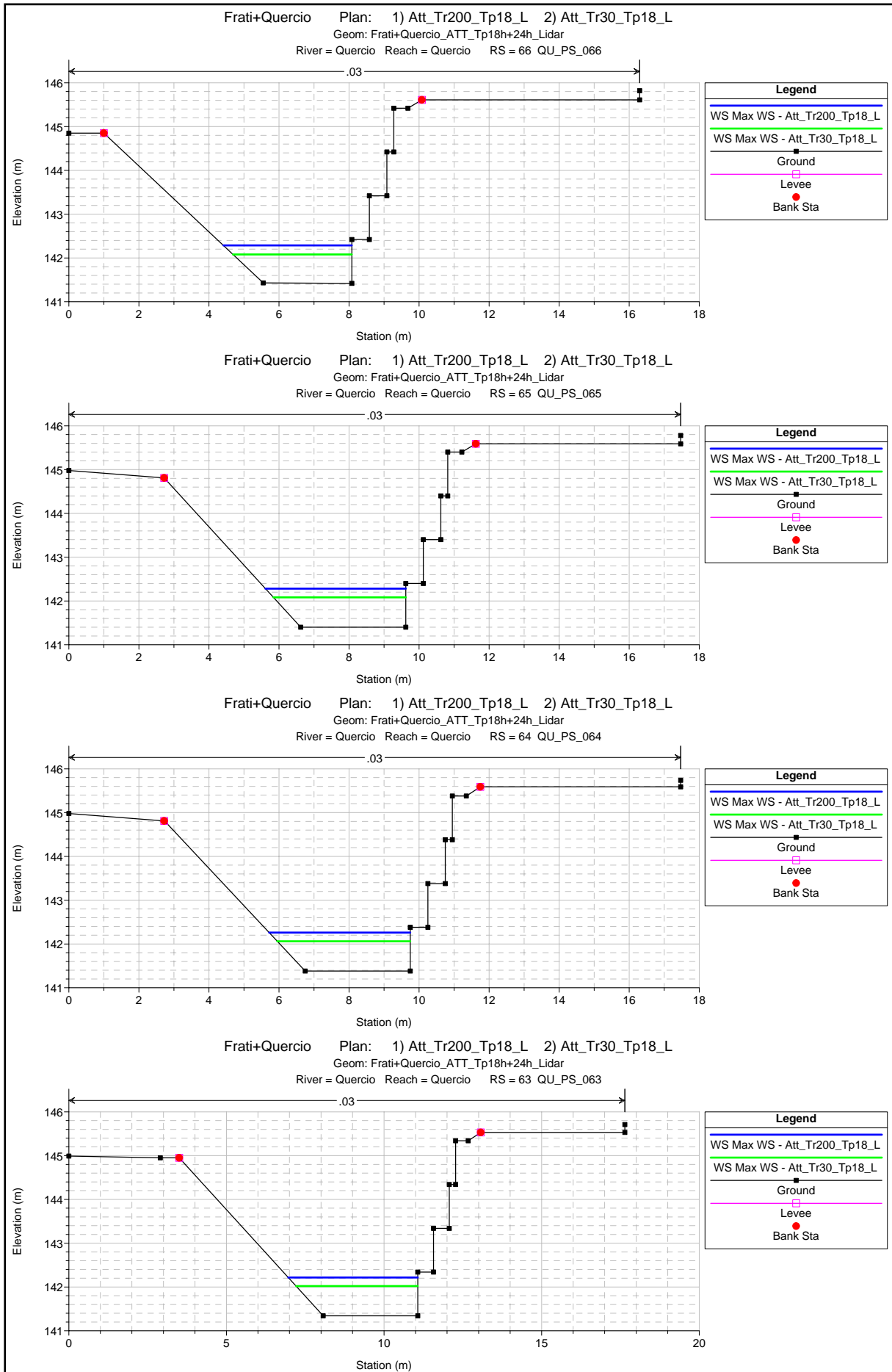
### **BORRO del QUERCIO**

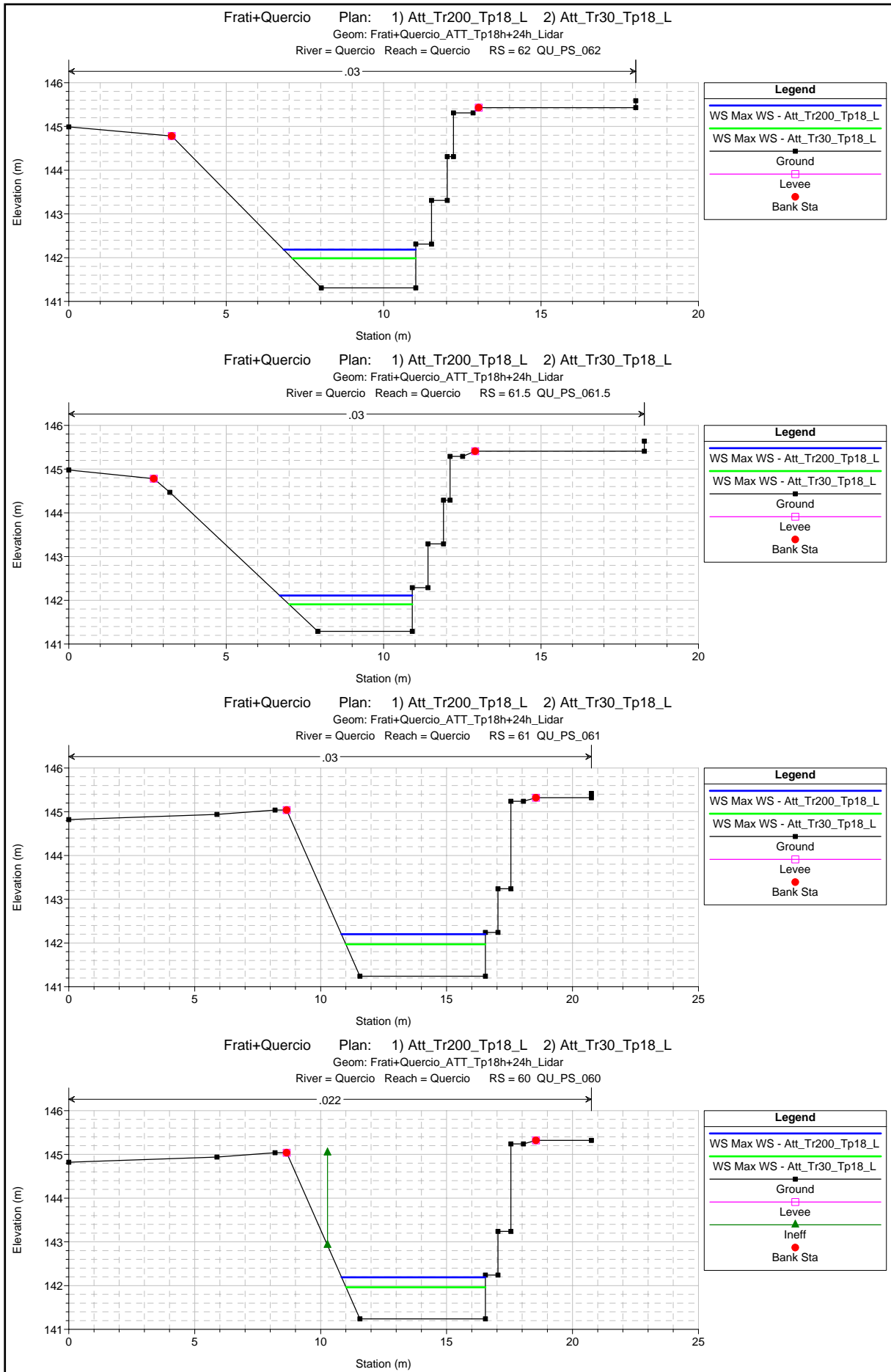
#### **Scenario B - Tr 200 e 30 anni**

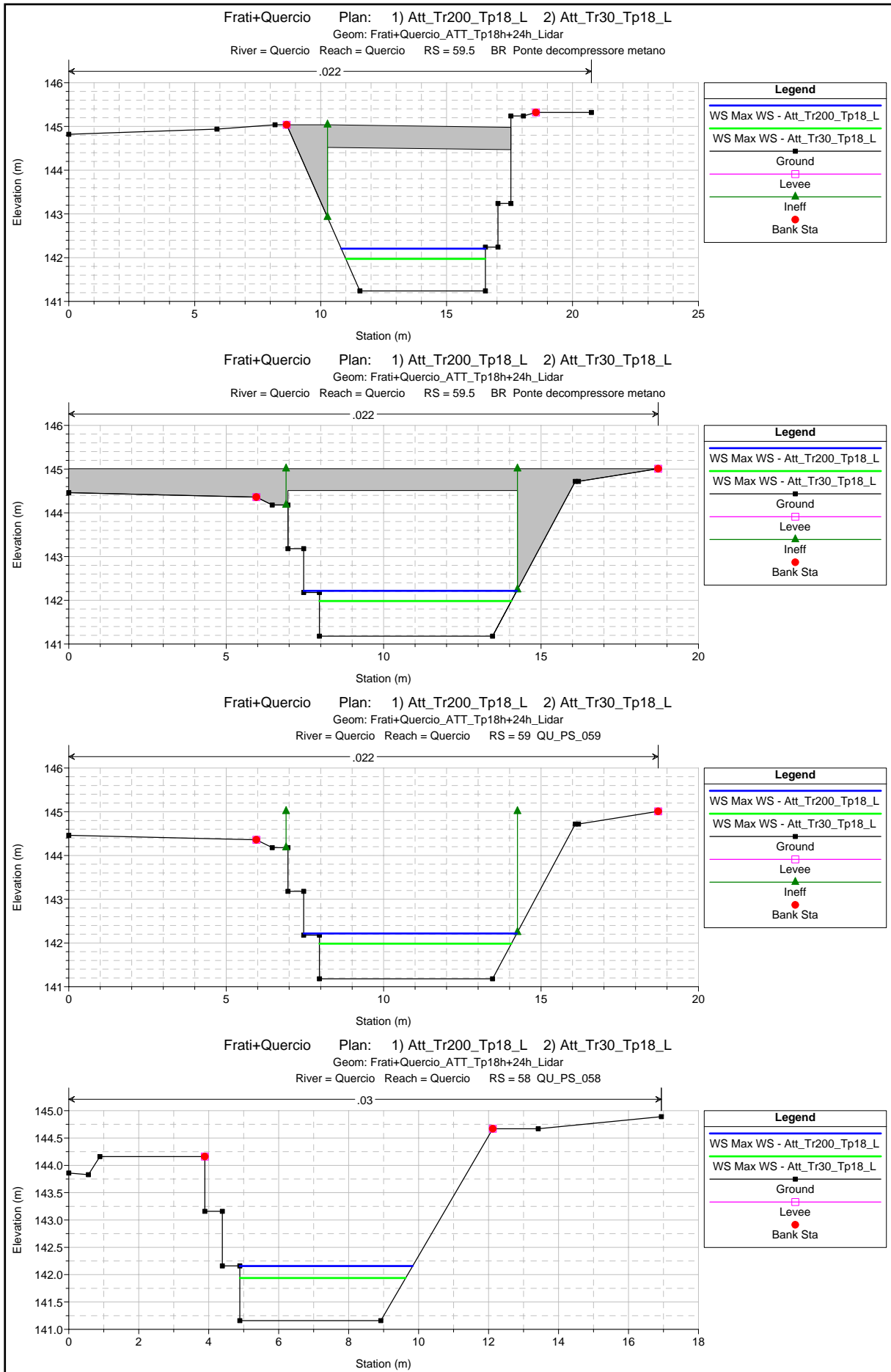
- Profili
- Sezioni di verifica
- Tabelle di output

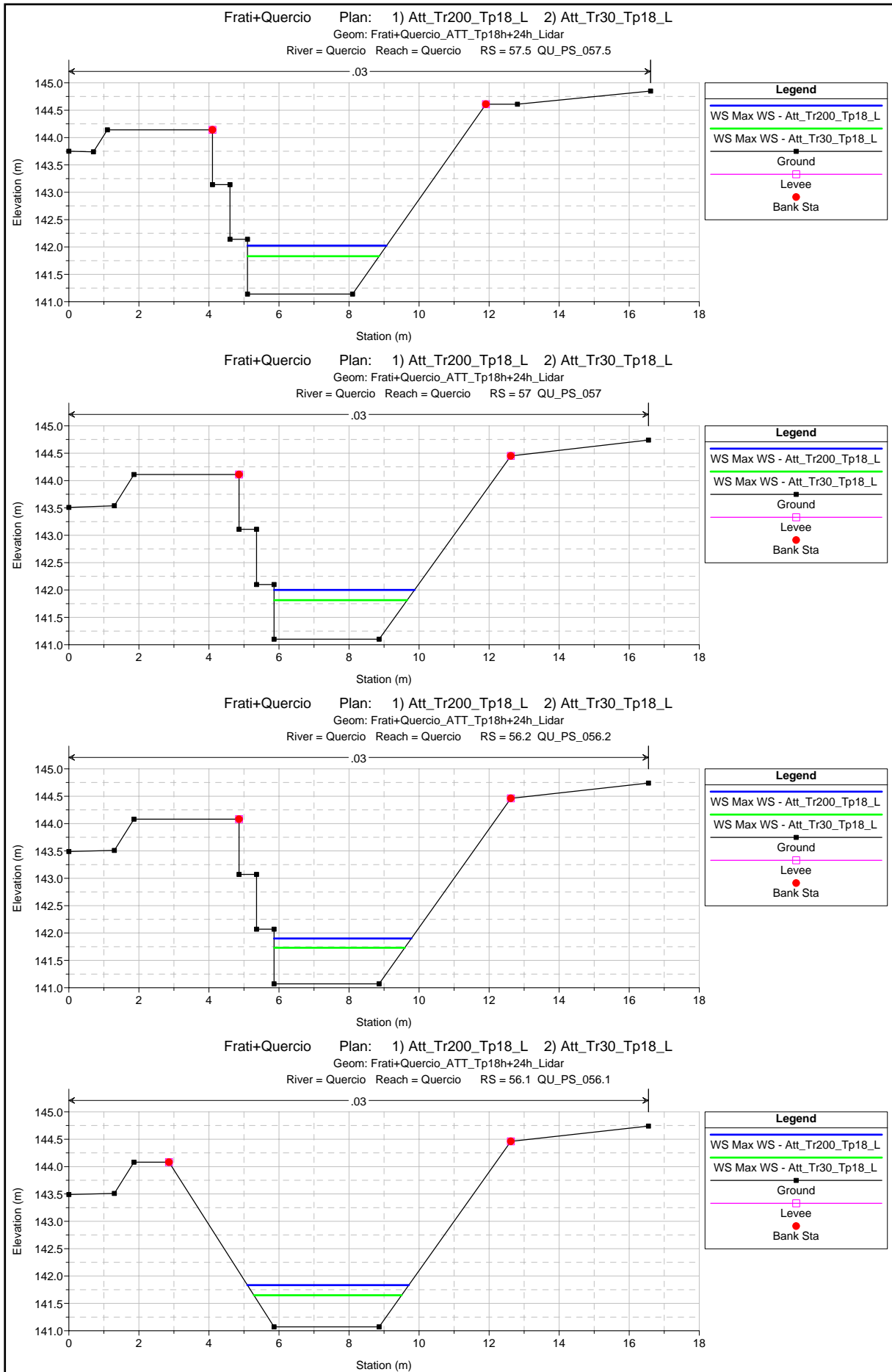
Frati+Quercio Plan: 1) Att\_Tr200\_Tp18\_L 2) Att\_Tr30\_Tp18\_L  
 Geom: Frati+Quercio\_ATT\_Tp18h+24h\_Lidar



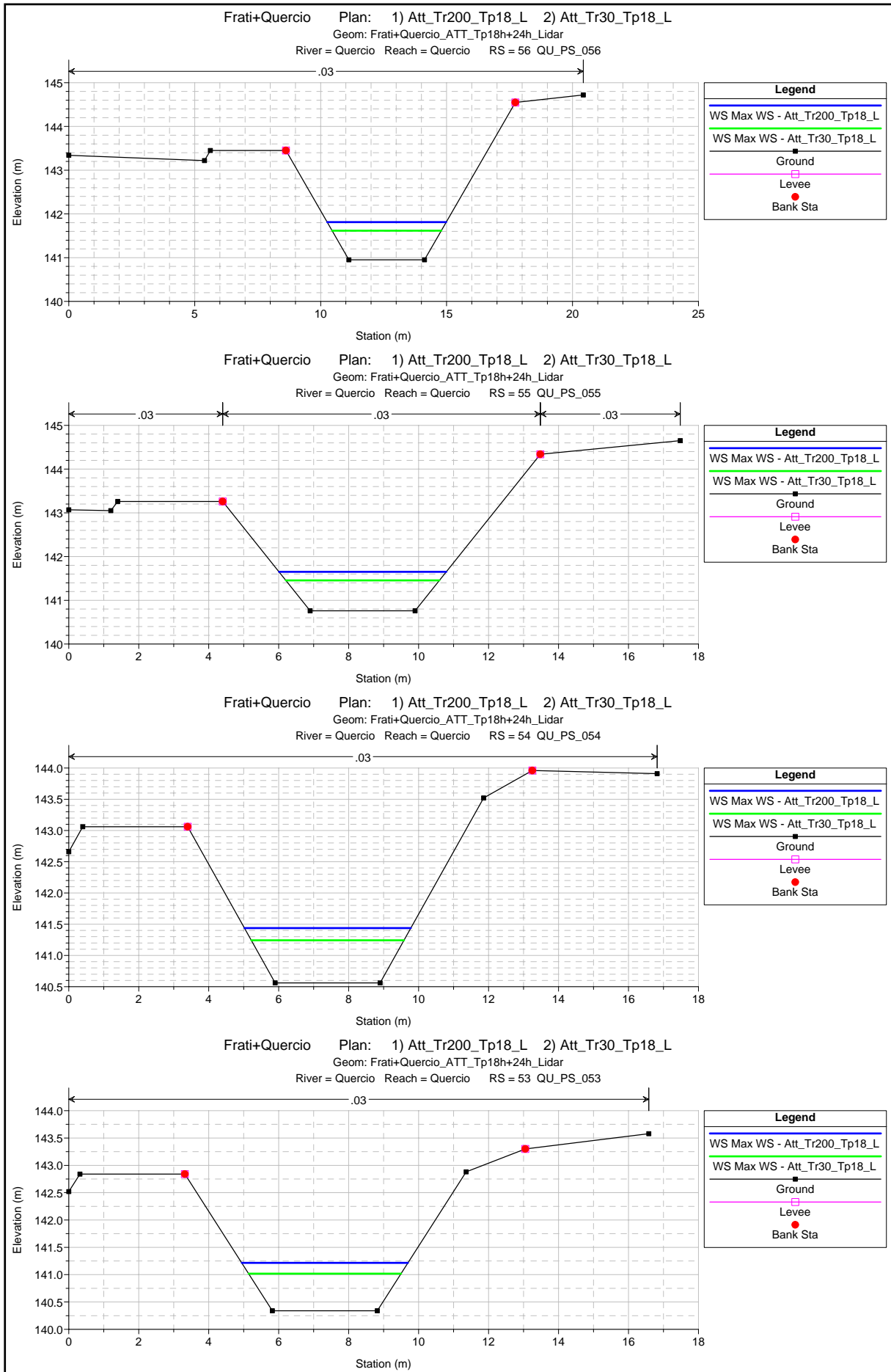


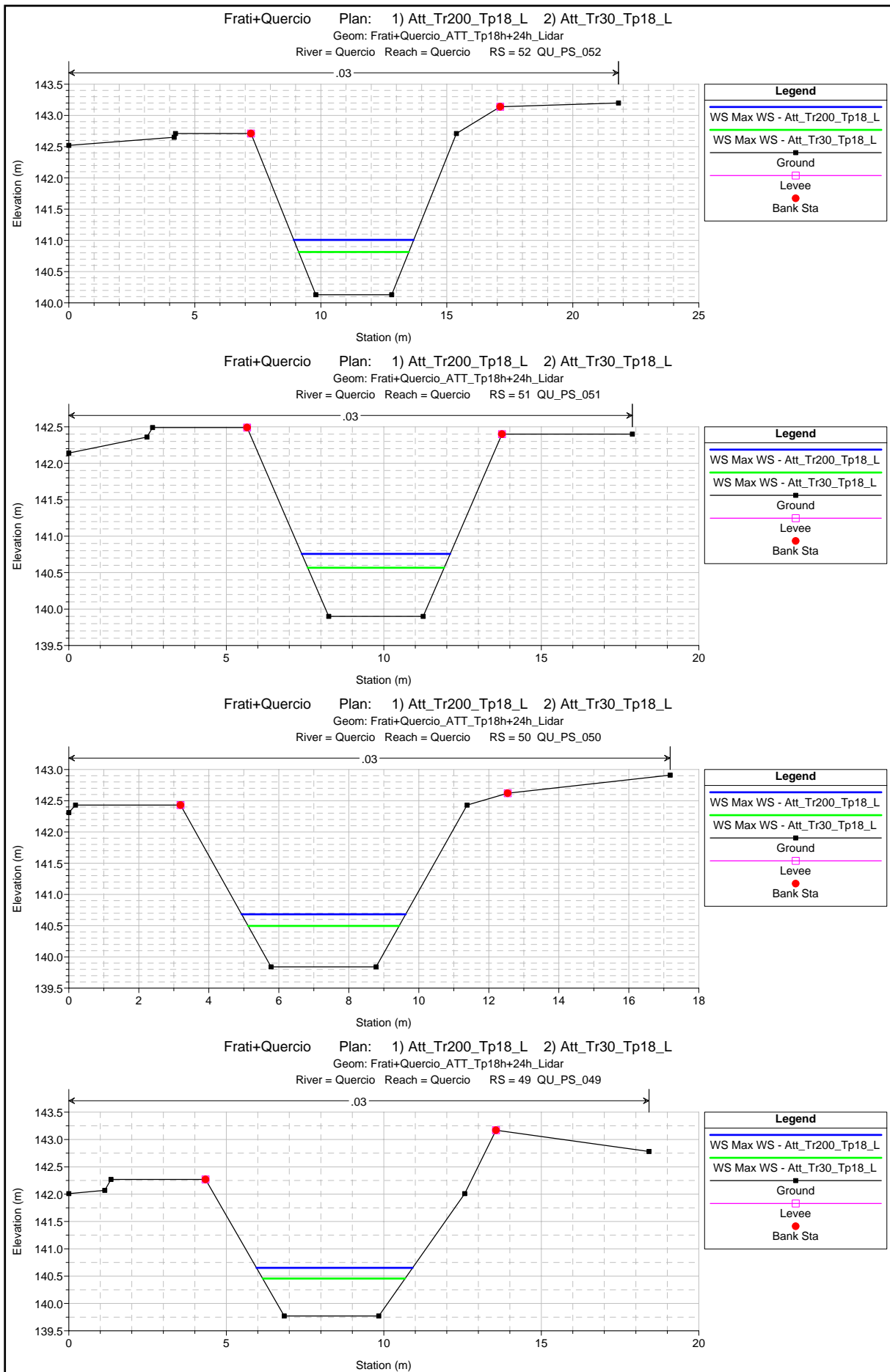


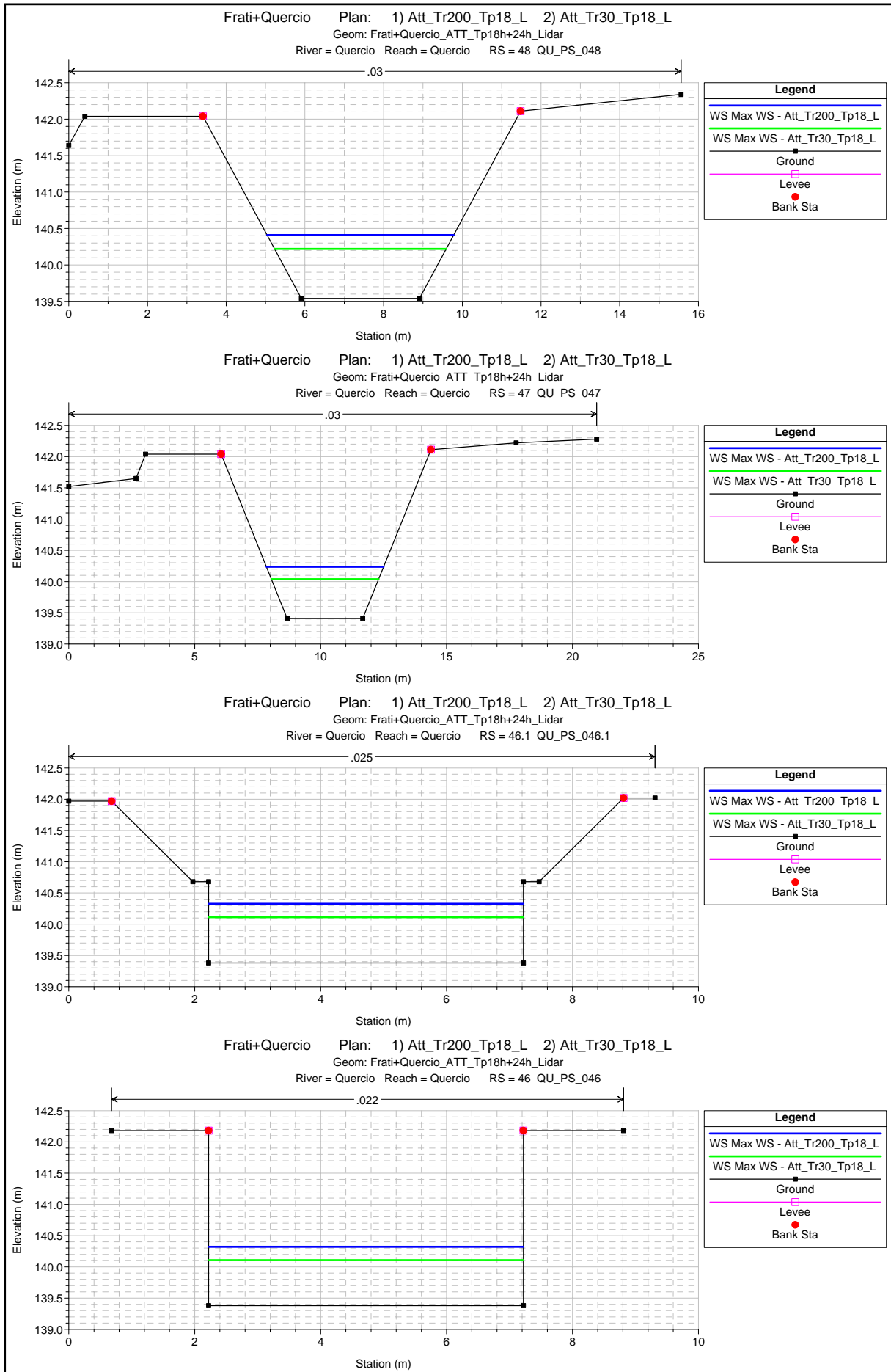


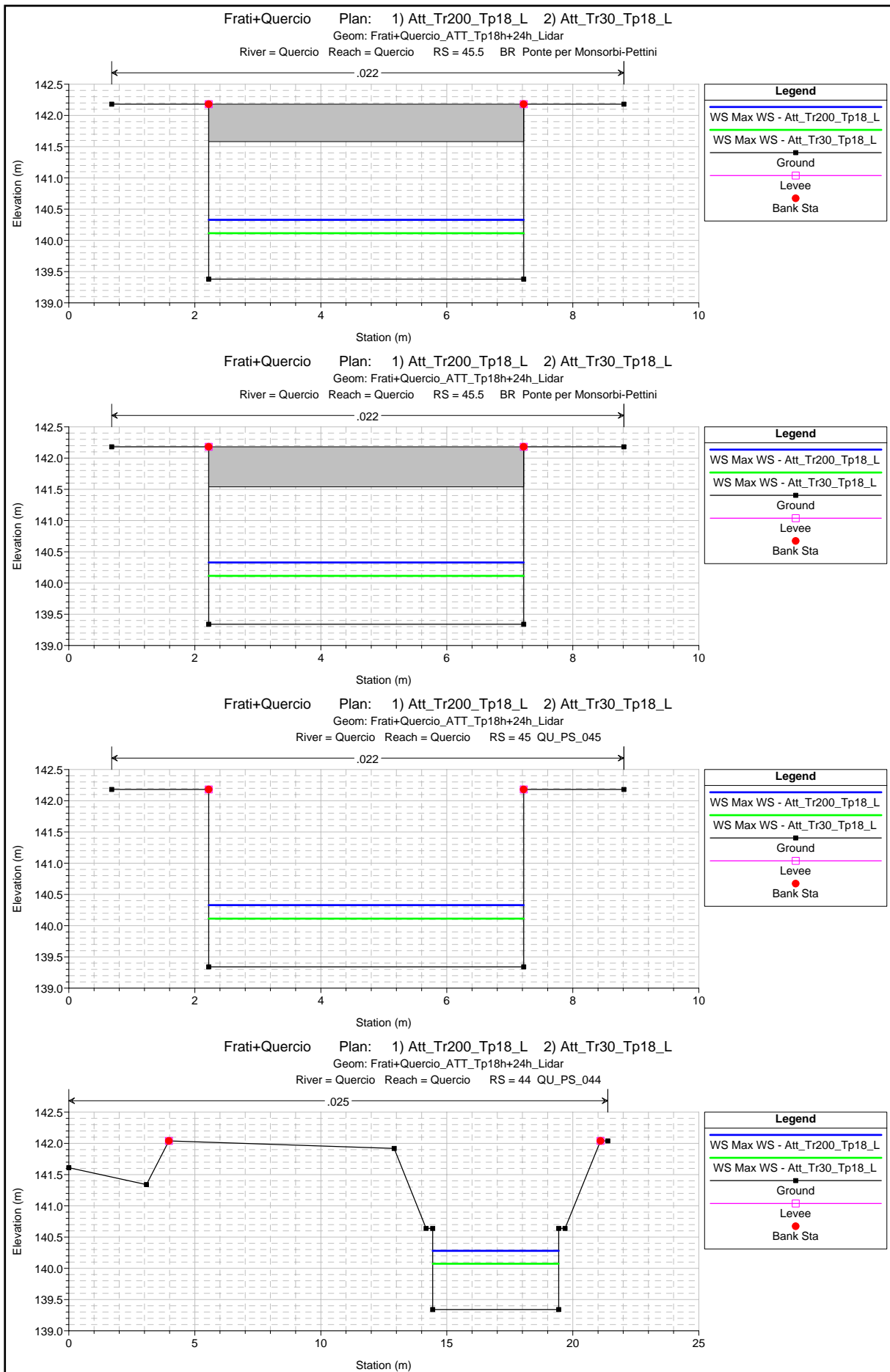


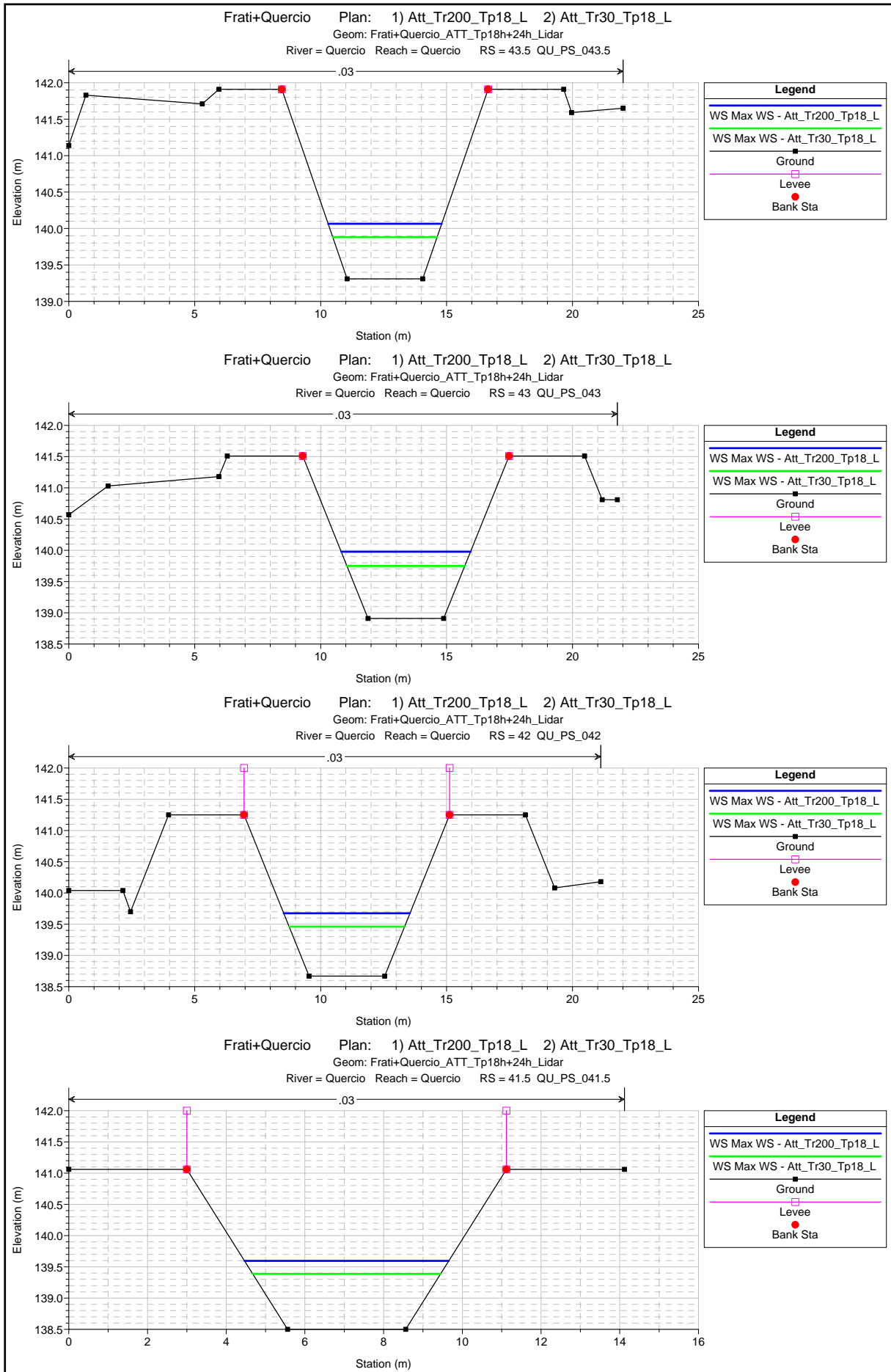


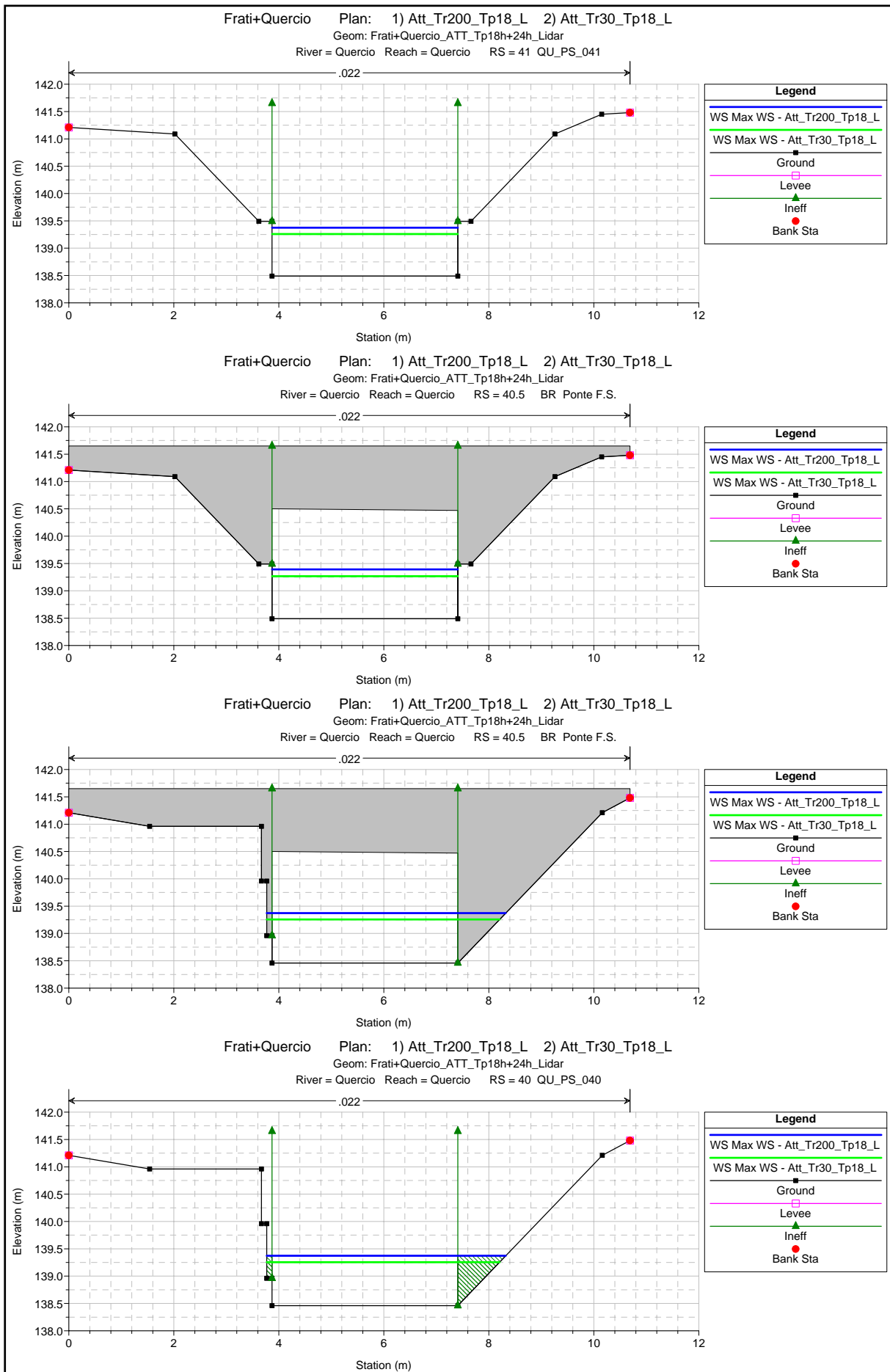


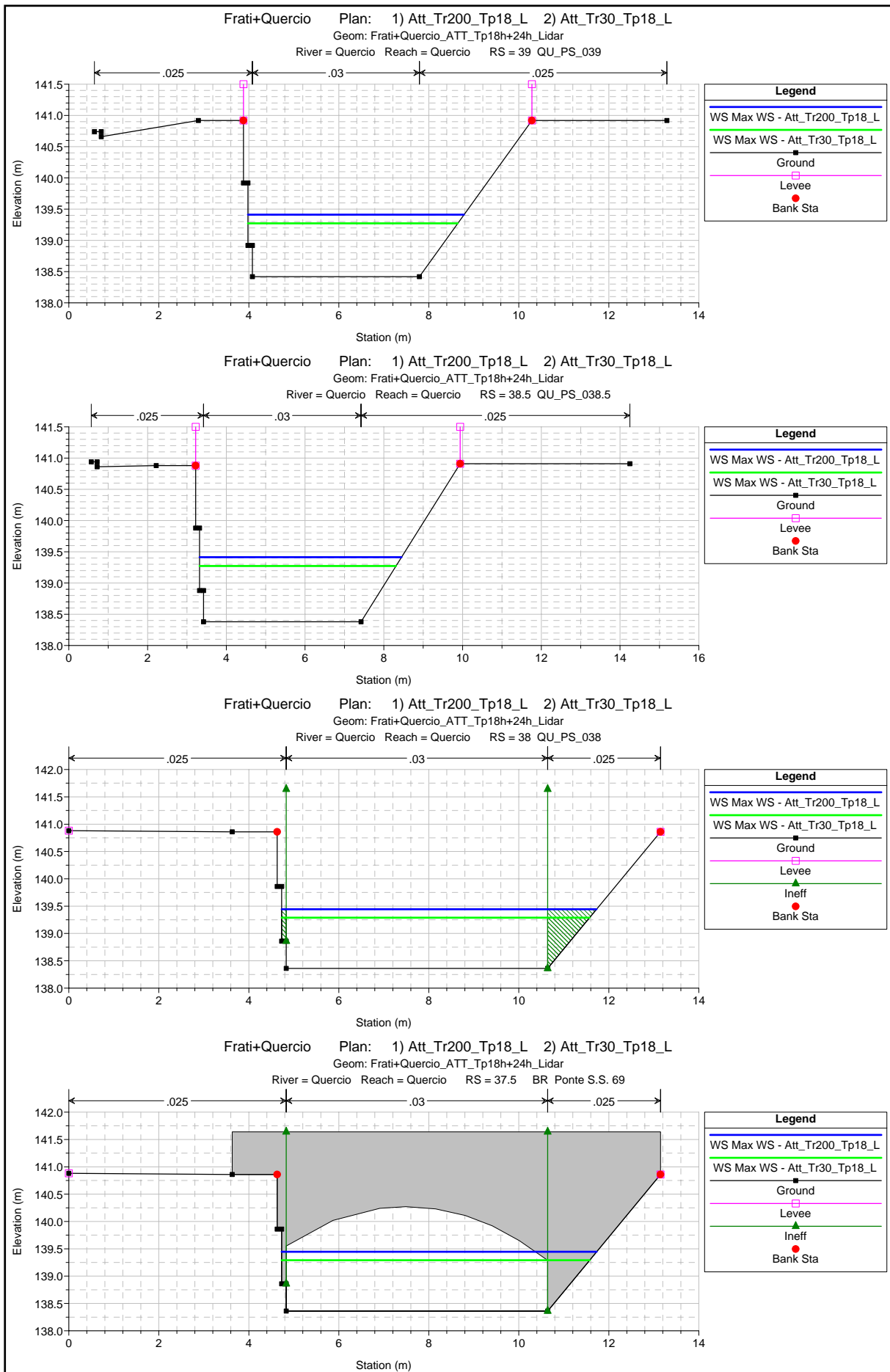


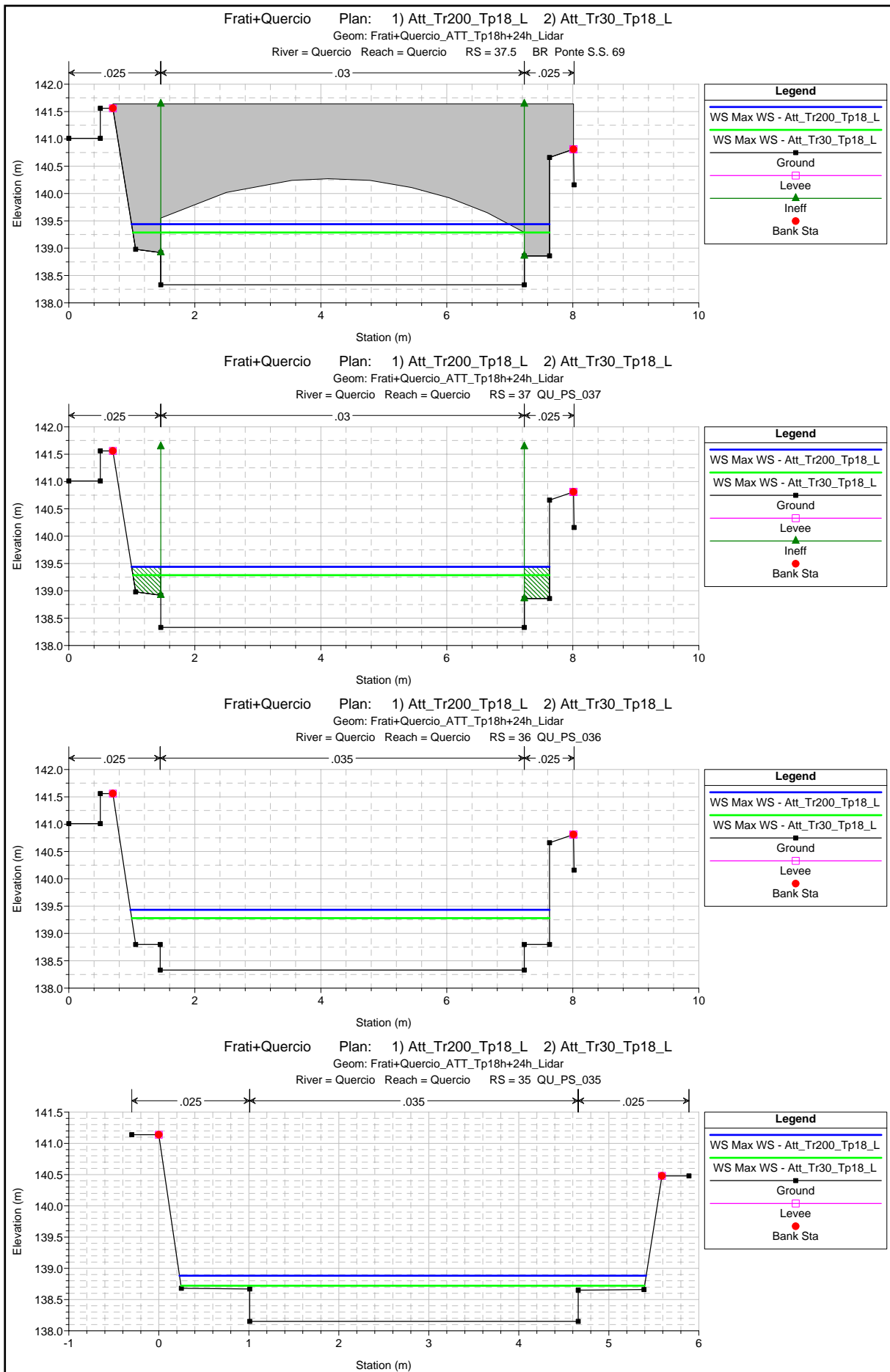




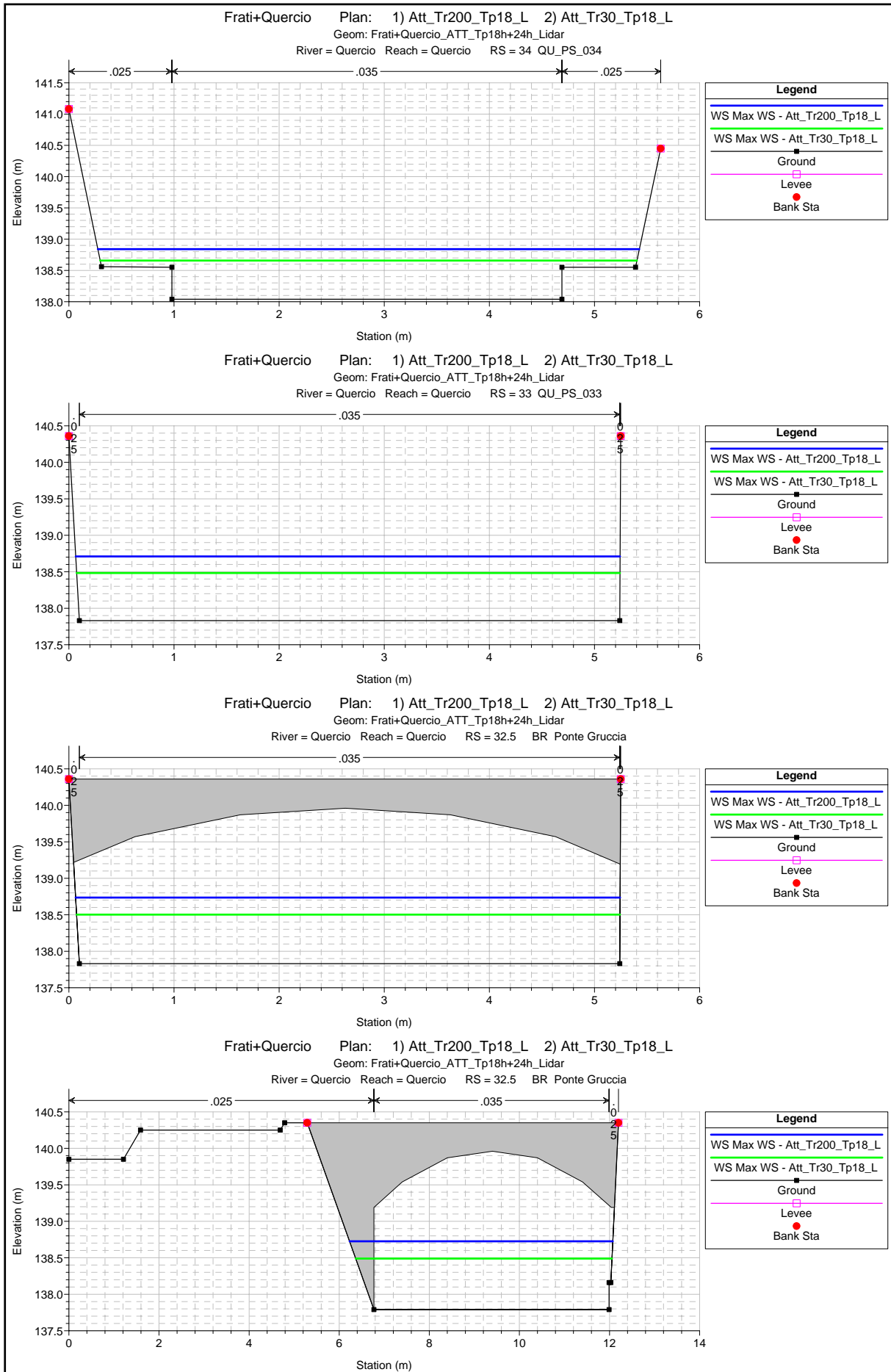


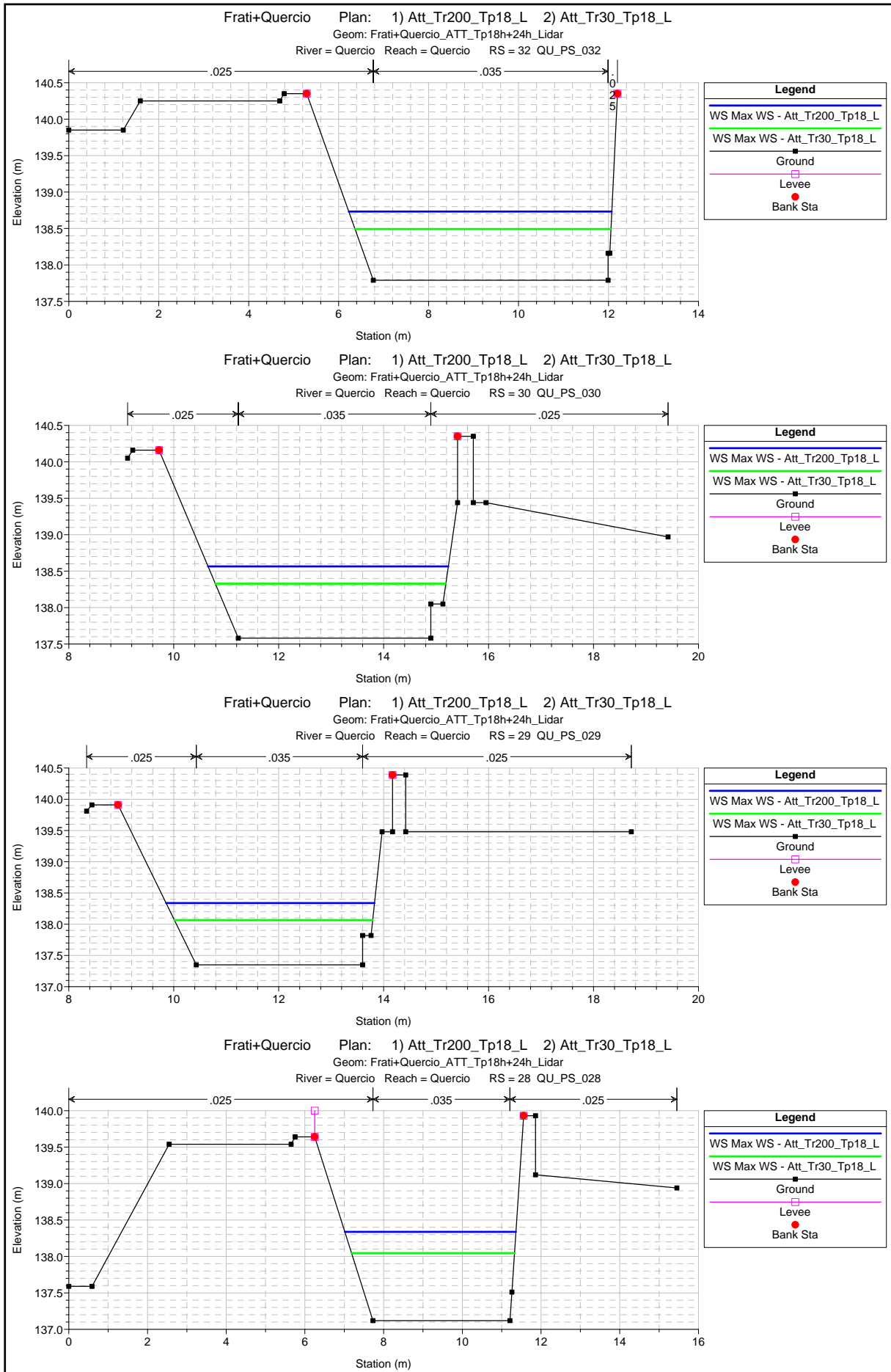


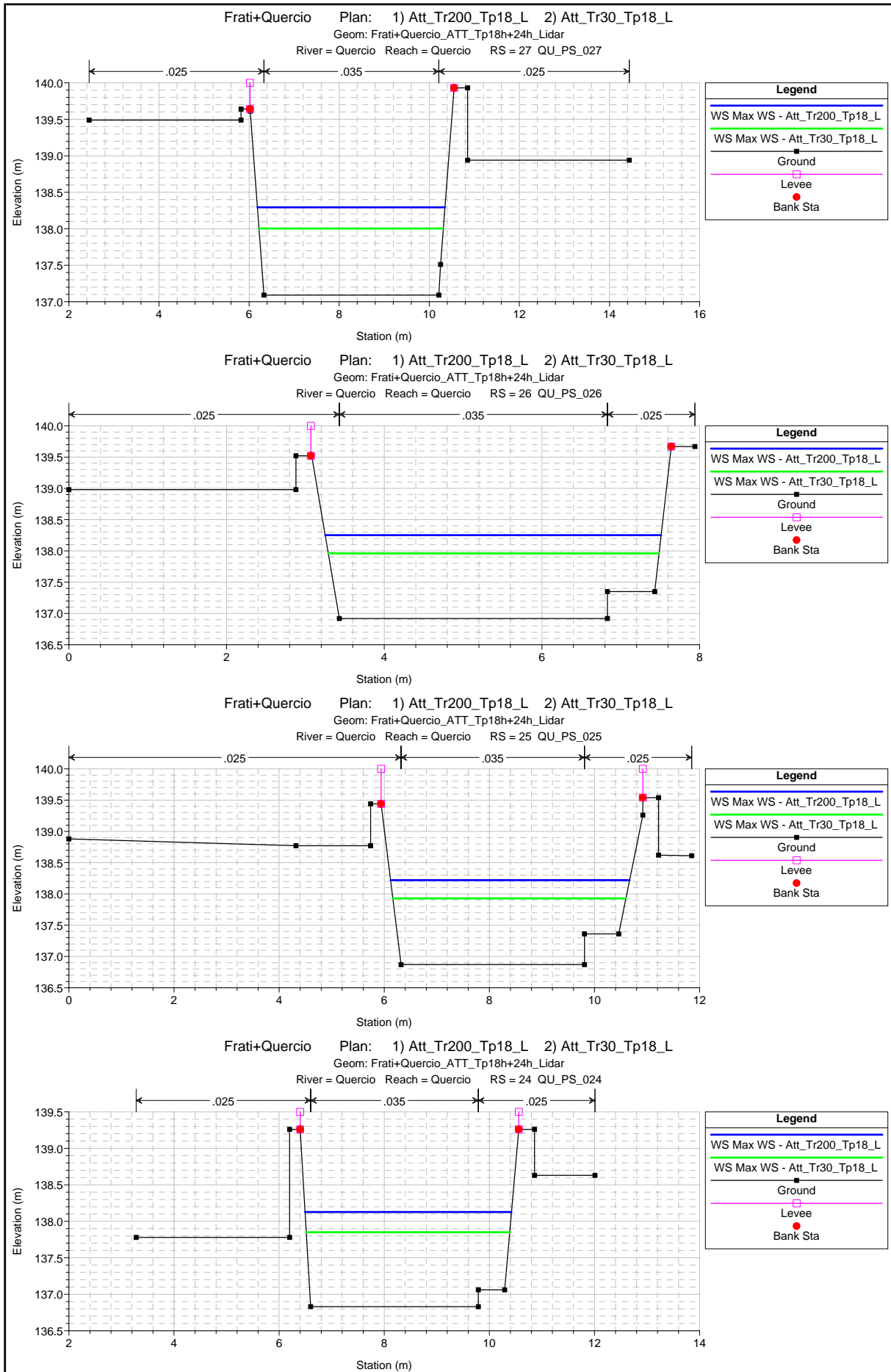


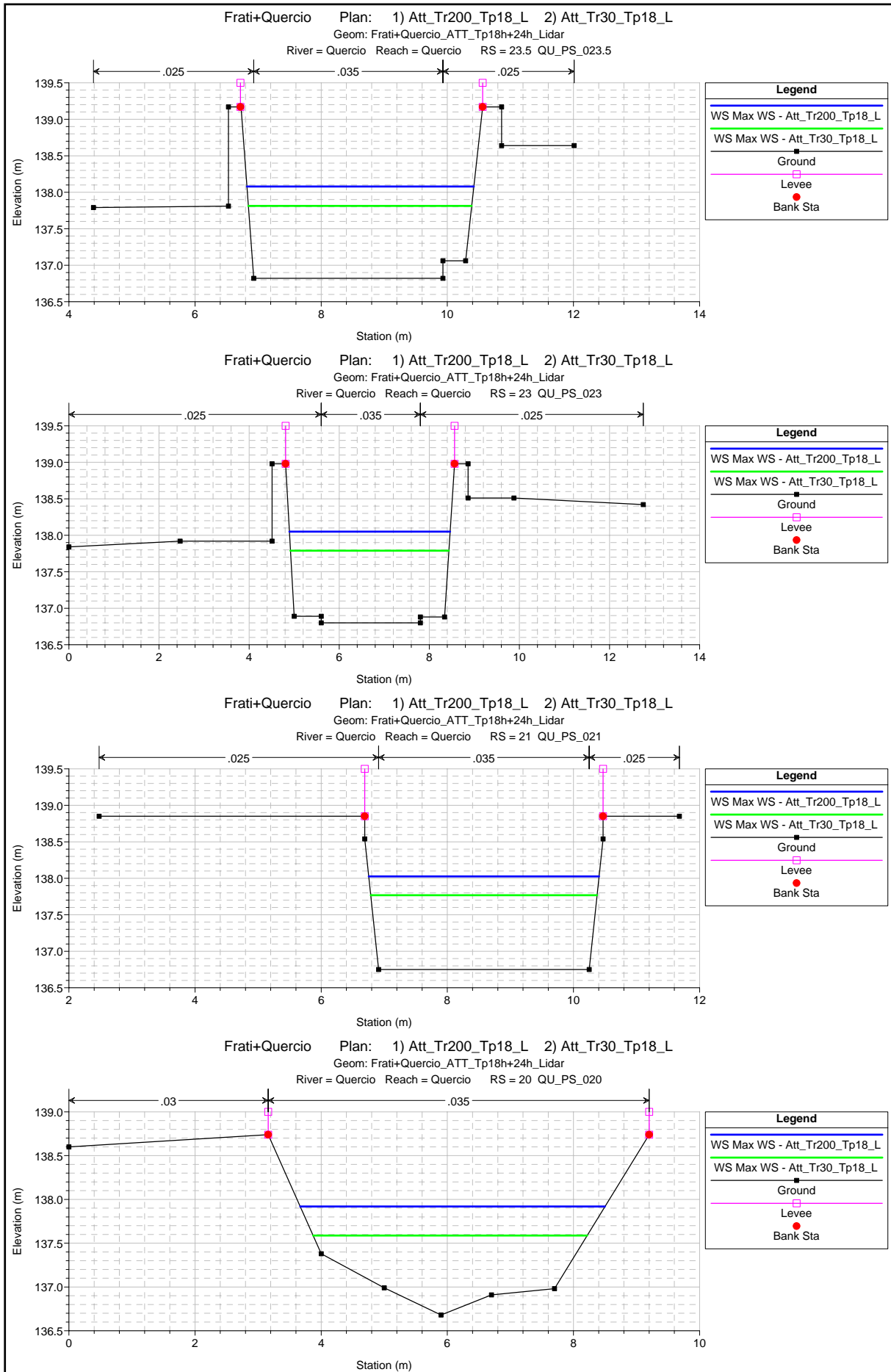


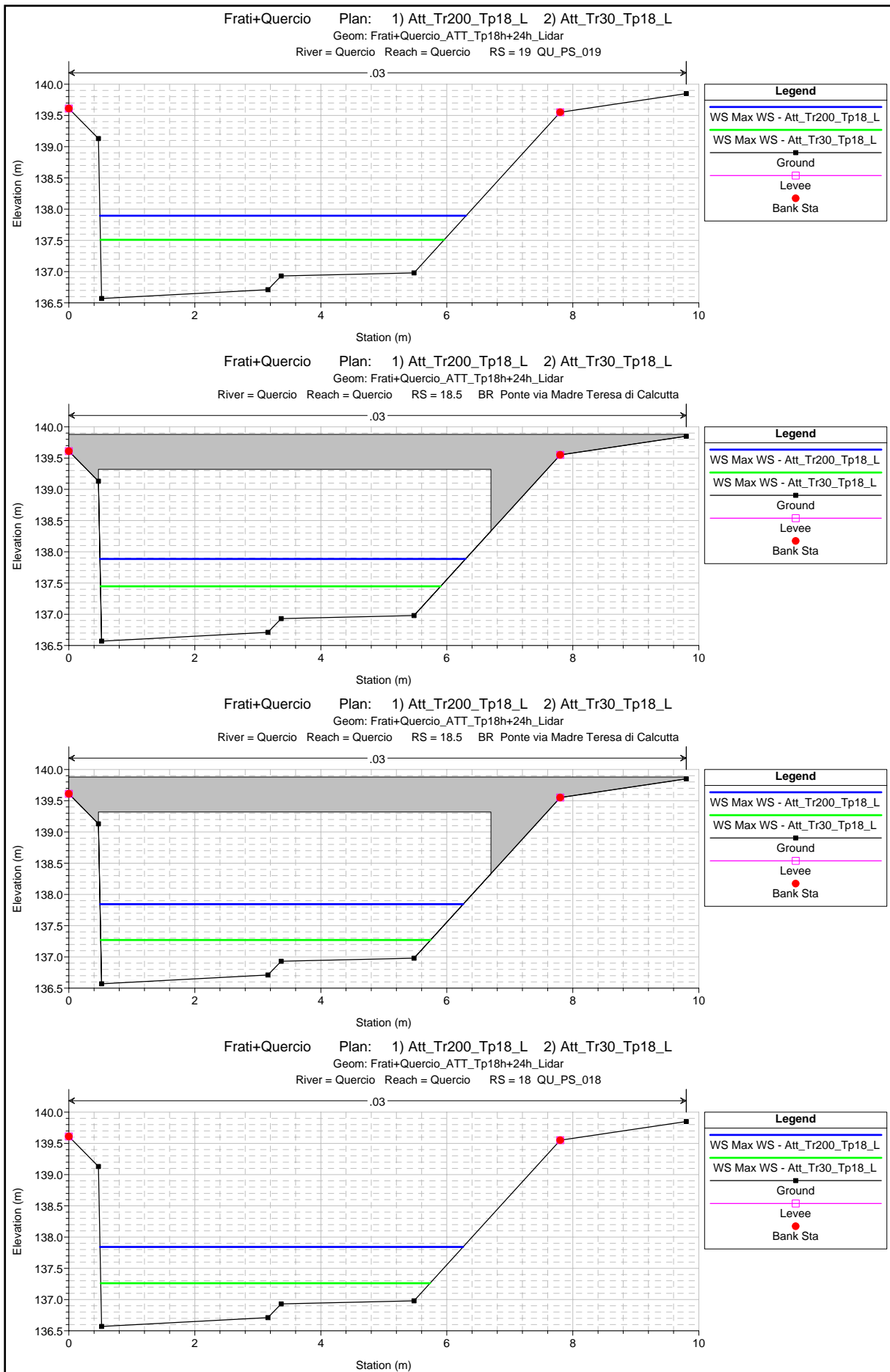


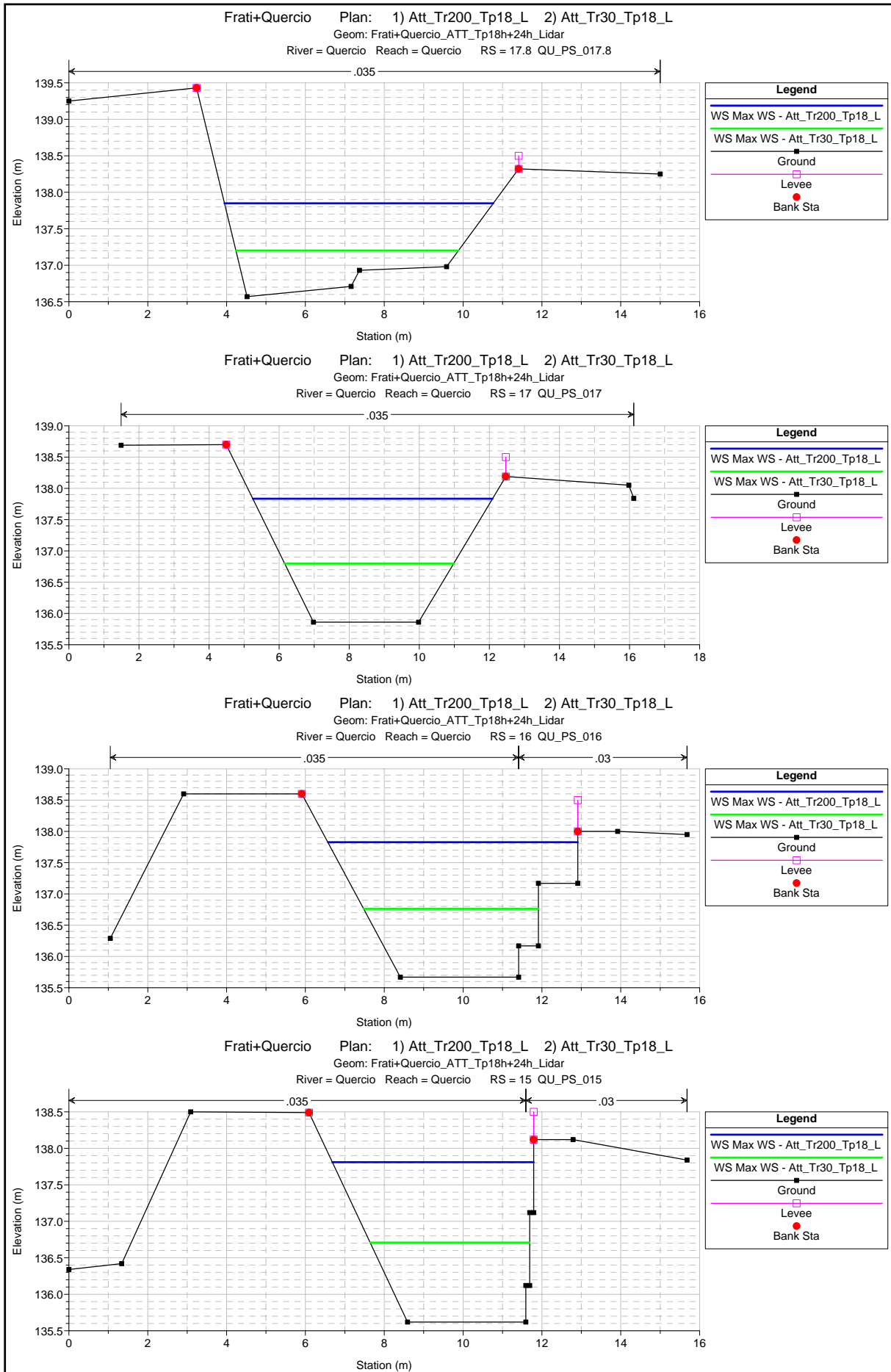


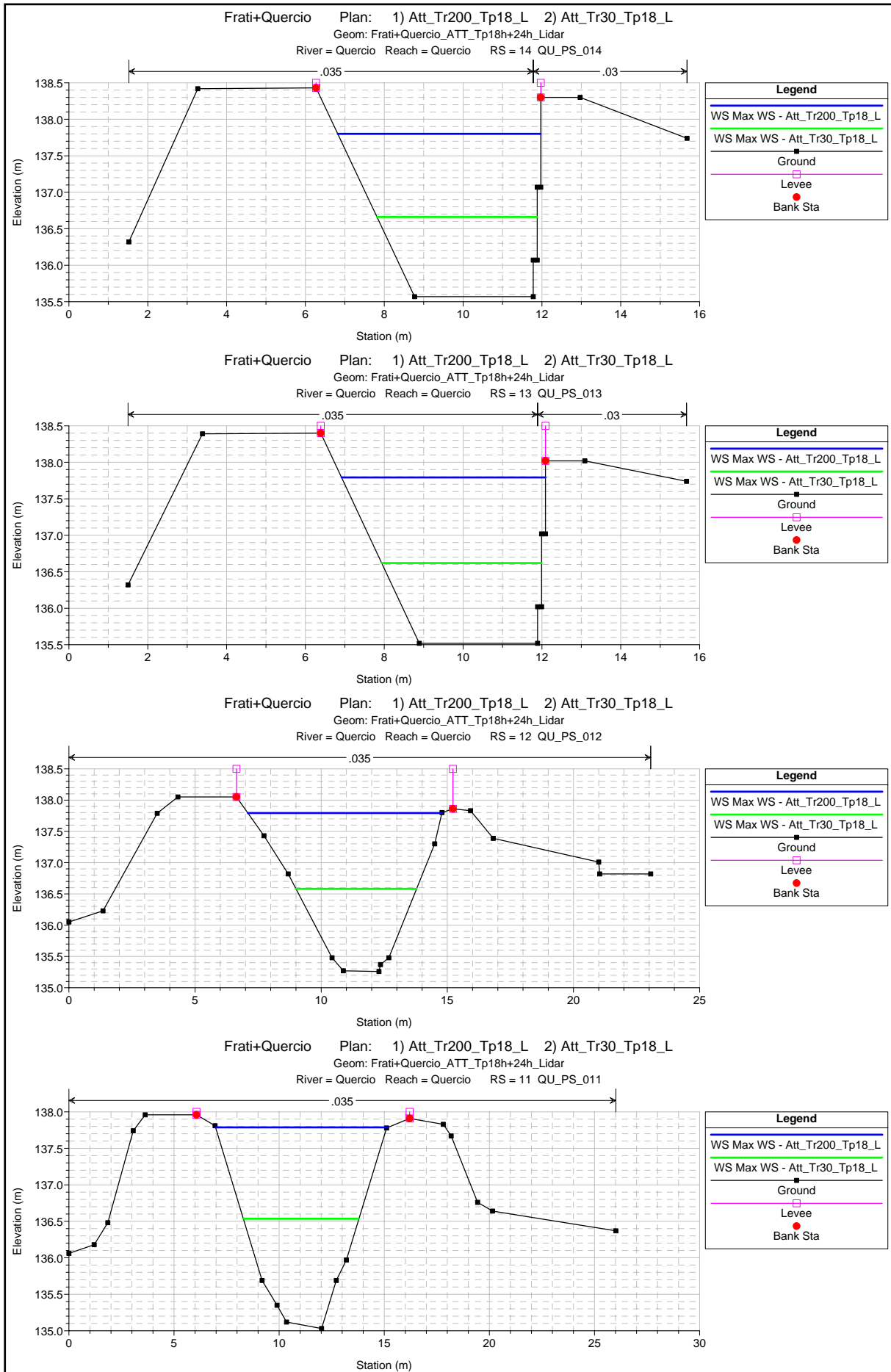


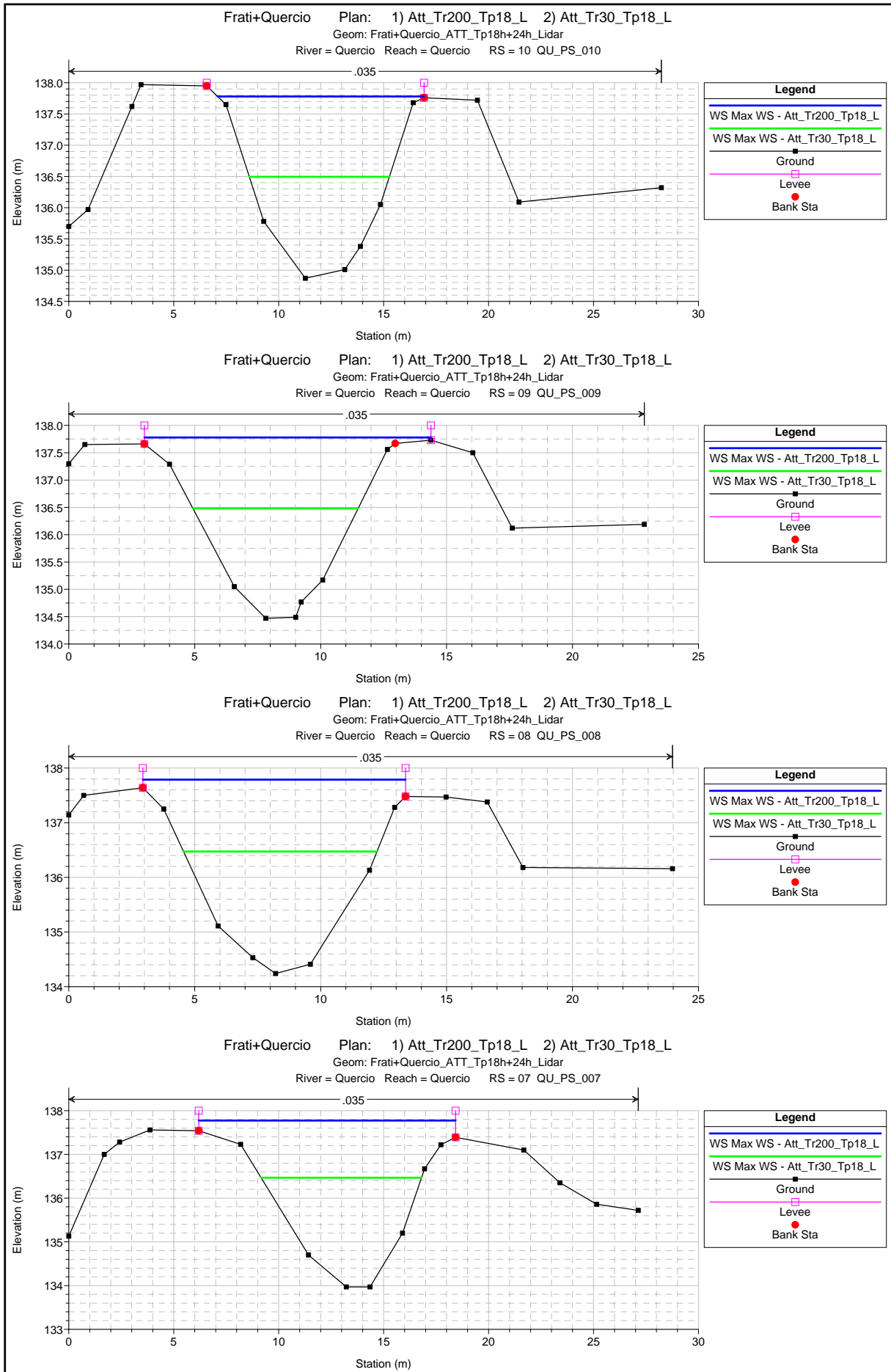




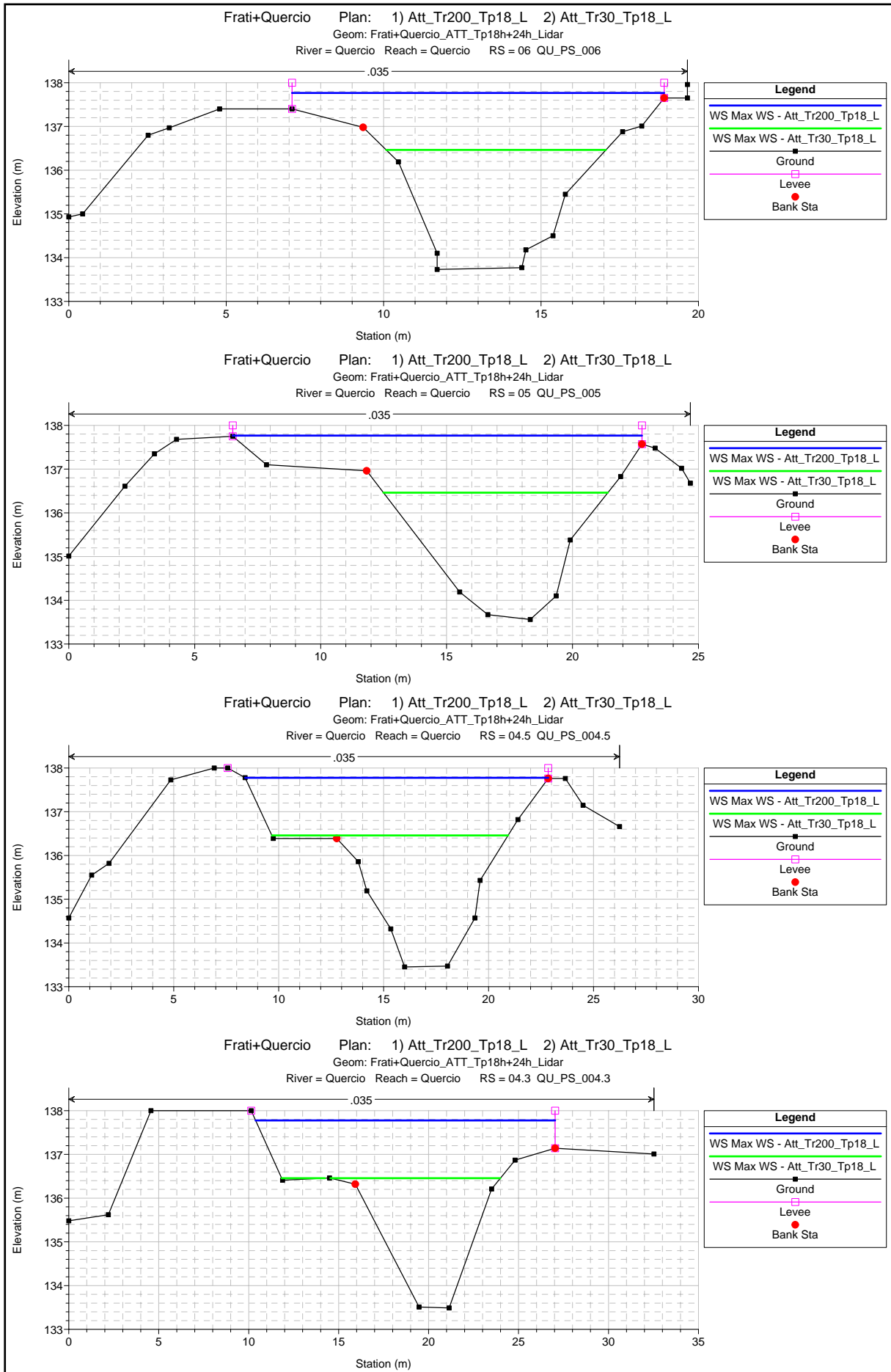


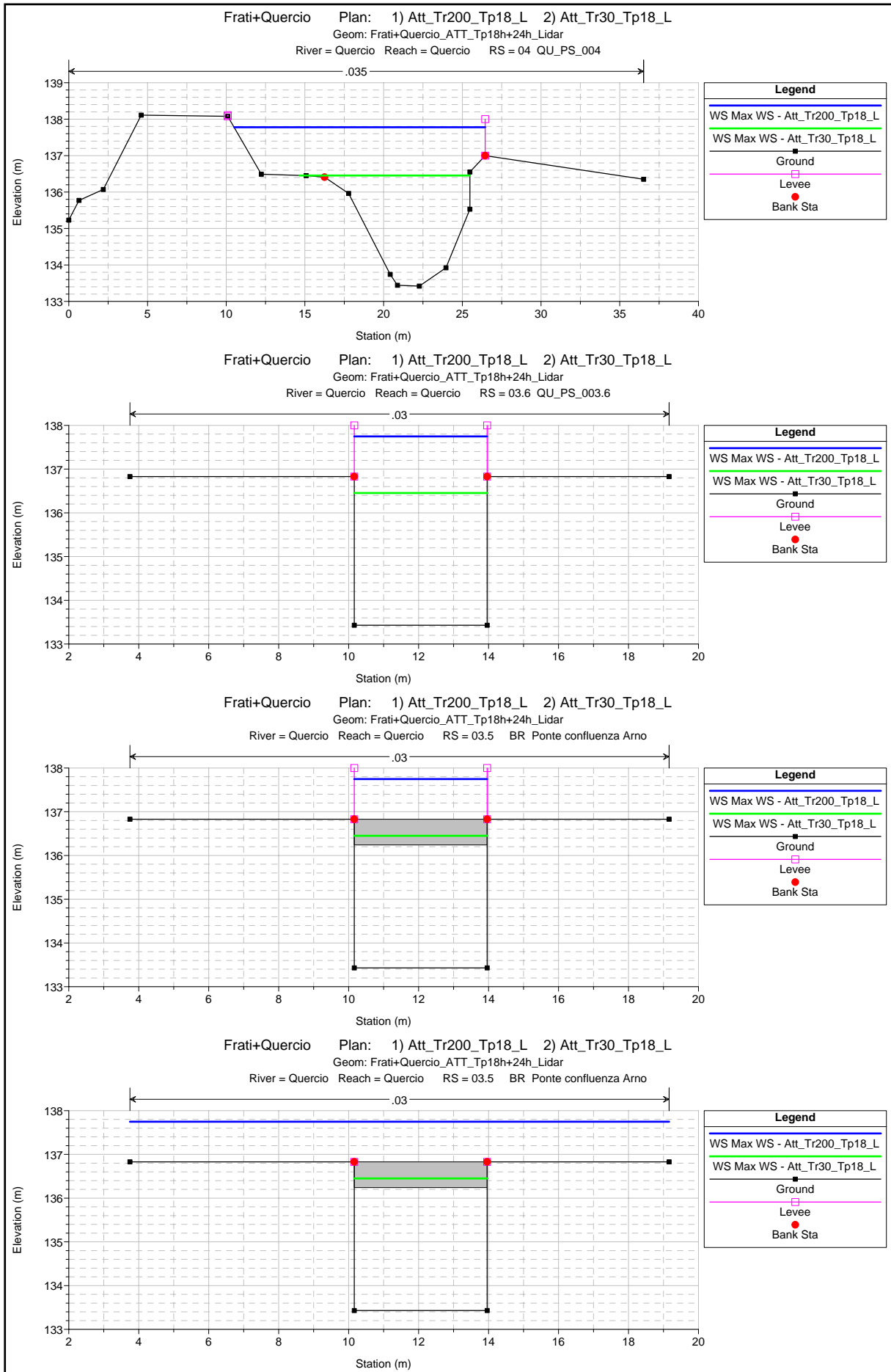


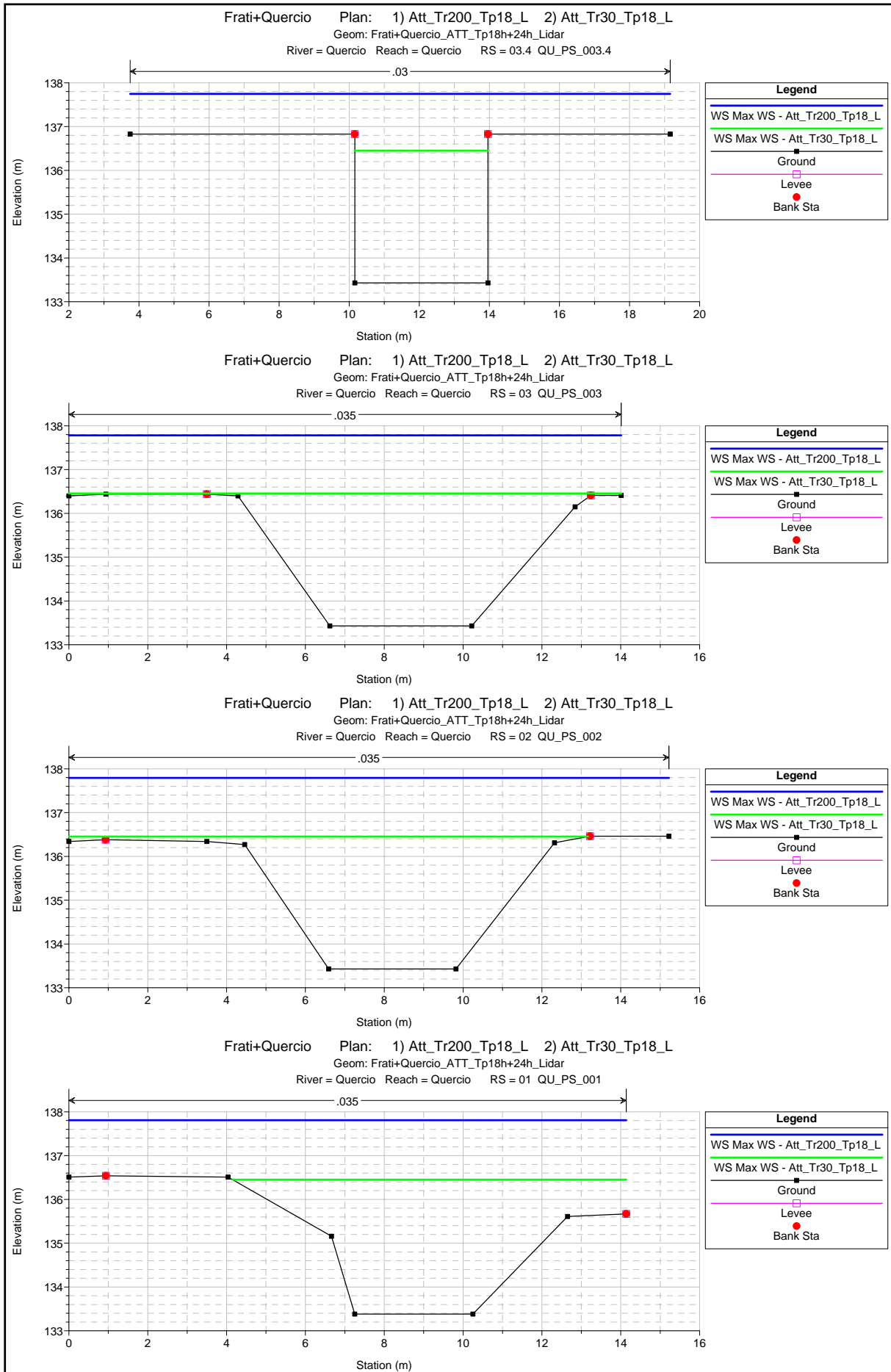












HEC-RAS River: Quercio Reach: Quercio Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	66	Max WS	Att_Tr200_Tp18_L	6.64	141.42	142.29		142.60	0.012338	2.49	2.66	3.67	0.93
Quercio	66	Max WS	Att_Tr30_Tp18_L	4.31	141.42	142.08		142.33	0.012757	2.22	1.94	3.39	0.94
Quercio	65	Max WS	Att_Tr200_Tp18_L	6.64	141.40	142.28		142.52	0.008364	2.15	3.09	4.01	0.78
Quercio	65	Max WS	Att_Tr30_Tp18_L	4.31	141.40	142.08		142.26	0.008043	1.86	2.32	3.78	0.76
Quercio	64	Max WS	Att_Tr200_Tp18_L	6.64	141.38	142.26		142.49	0.008382	2.15	3.09	4.03	0.78
Quercio	64	Max WS	Att_Tr30_Tp18_L	4.31	141.38	142.06		142.24	0.008060	1.86	2.32	3.80	0.76
Quercio	63	Max WS	Att_Tr200_Tp18_L	6.64	141.34	142.22		142.45	0.008285	2.13	3.12	4.11	0.78
Quercio	63	Max WS	Att_Tr30_Tp18_L	4.31	141.34	142.02		142.19	0.008012	1.85	2.33	3.86	0.76
Quercio	62	Max WS	Att_Tr200_Tp18_L	6.64	141.31	142.18		142.41	0.008163	2.11	3.14	4.20	0.78
Quercio	62	Max WS	Att_Tr30_Tp18_L	4.31	141.31	141.99		142.16	0.008031	1.84	2.34	3.92	0.76
Quercio	61.5	Max WS	Att_Tr200_Tp18_L	6.64	141.29	142.11		142.37	0.009891	2.25	2.95	4.21	0.86
Quercio	61.5	Max WS	Att_Tr30_Tp18_L	4.31	141.29	141.91		142.12	0.010588	2.02	2.13	3.91	0.87
Quercio	61	Max WS	Att_Tr200_Tp18_L	6.64	141.24	142.20		142.29	0.002343	1.29	5.13	5.71	0.44
Quercio	61	Max WS	Att_Tr30_Tp18_L	4.31	141.24	141.97		142.03	0.002353	1.12	3.84	5.54	0.43
Quercio	60	Max WS	Att_Tr200_Tp18_L	6.64	141.24	142.19	141.79	142.28	0.001300	1.31	5.08	5.71	0.44
Quercio	60	Max WS	Att_Tr30_Tp18_L	4.31	141.24	141.96	141.66	142.03	0.001320	1.14	3.78	5.53	0.44
Quercio	59.5			Bridge									
Quercio	59	Max WS	Att_Tr200_Tp18_L	6.64	141.18	142.22		142.28	0.000858	1.08	6.12	6.77	0.36
Quercio	59	Max WS	Att_Tr30_Tp18_L	4.31	141.18	141.98		142.03	0.000759	0.93	4.65	6.10	0.34
Quercio	58	Max WS	Att_Tr200_Tp18_L	6.64	141.16	142.16		142.27	0.003168	1.48	4.48	4.94	0.50
Quercio	58	Max WS	Att_Tr30_Tp18_L	4.31	141.16	141.94		142.02	0.002958	1.26	3.41	4.74	0.48
Quercio	57.5	Max WS	Att_Tr200_Tp18_L	6.64	141.14	142.02		142.26	0.008367	2.15	3.08	3.97	0.78
Quercio	57.5	Max WS	Att_Tr30_Tp18_L	4.31	141.14	141.83		142.01	0.007796	1.84	2.34	3.76	0.75
Quercio	57	Max WS	Att_Tr200_Tp18_L	6.64	141.10	142.00		142.23	0.007834	2.10	3.16	4.01	0.76
Quercio	57	Max WS	Att_Tr30_Tp18_L	4.31	141.10	141.81		141.97	0.007016	1.78	2.43	3.80	0.71

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	56.2	Max WS	Att_Tr200_Tp18_L	6.64	141.07	141.90		142.17	0.010228	2.31	2.88	3.92	0.86
Quercio	56.2	Max WS	Att_Tr30_Tp18_L	4.31	141.07	141.73		141.92	0.008997	1.94	2.23	3.73	0.80
Quercio	56.1	Max WS	Att_Tr200_Tp18_L	6.64	141.07	141.83		142.10	0.010247	2.28	2.91	4.61	0.92
Quercio	56.1	Max WS	Att_Tr30_Tp18_L	4.31	141.07	141.65		141.87	0.011193	2.06	2.09	4.22	0.93
Quercio	56	Max WS	Att_Tr200_Tp18_L	6.64	140.95	141.81		142.01	0.006902	2.00	3.33	4.72	0.76
Quercio	56	Max WS	Att_Tr30_Tp18_L	4.31	140.95	141.62		141.77	0.007044	1.76	2.44	4.33	0.75
Quercio	55	Max WS	Att_Tr200_Tp18_L	6.64	140.76	141.65		141.84	0.006133	1.91	3.47	4.78	0.72
Quercio	55	Max WS	Att_Tr30_Tp18_L	4.31	140.76	141.45		141.60	0.006109	1.68	2.57	4.39	0.70
Quercio	54	Max WS	Att_Tr200_Tp18_L	6.64	140.56	141.44		141.63	0.006474	1.95	3.40	4.75	0.74
Quercio	54	Max WS	Att_Tr30_Tp18_L	4.31	140.56	141.24		141.39	0.006492	1.71	2.51	4.37	0.72
Quercio	53	Max WS	Att_Tr200_Tp18_L	6.64	140.34	141.22		141.41	0.006536	1.96	3.39	4.75	0.74
Quercio	53	Max WS	Att_Tr30_Tp18_L	4.31	140.34	141.02		141.17	0.006622	1.73	2.50	4.36	0.73
Quercio	52	Max WS	Att_Tr200_Tp18_L	6.64	140.13	141.01		141.20	0.006444	1.95	3.41	4.76	0.73
Quercio	52	Max WS	Att_Tr30_Tp18_L	4.31	140.13	140.81		140.96	0.006429	1.71	2.52	4.37	0.72
Quercio	51	Max WS	Att_Tr200_Tp18_L	6.64	139.90	140.76		140.96	0.007045	2.01	3.30	4.71	0.77
Quercio	51	Max WS	Att_Tr30_Tp18_L	4.31	139.90	140.57		140.73	0.007014	1.76	2.45	4.33	0.75
Quercio	50	Max WS	Att_Tr200_Tp18_L	6.64	139.84	140.68		140.90	0.007434	2.05	3.24	4.69	0.79
Quercio	50	Max WS	Att_Tr30_Tp18_L	4.31	139.84	140.50		140.66	0.007464	1.80	2.40	4.31	0.77
Quercio	49	Max WS	Att_Tr200_Tp18_L	6.64	139.77	140.65		140.83	0.006092	1.90	3.50	4.95	0.72
Quercio	49	Max WS	Att_Tr30_Tp18_L	4.31	139.77	140.46		140.60	0.006167	1.67	2.58	4.52	0.71
Quercio	48	Max WS	Att_Tr200_Tp18_L	6.64	139.54	140.41		140.61	0.006674	1.97	3.37	4.74	0.75
Quercio	48	Max WS	Att_Tr30_Tp18_L	4.31	139.54	140.22		140.37	0.006585	1.72	2.50	4.36	0.73
Quercio	47	Max WS	Att_Tr200_Tp18_L	6.64	139.41	140.24		140.46	0.007969	2.10	3.16	4.65	0.81
Quercio	47	Max WS	Att_Tr30_Tp18_L	4.30	139.41	140.04		140.22	0.008624	1.89	2.28	4.26	0.82
Quercio	46.1	Max WS	Att_Tr200_Tp18_L	6.64	139.38	140.33		140.43	0.002022	1.40	4.74	5.00	0.46
Quercio	46.1	Max WS	Att_Tr30_Tp18_L	4.30	139.38	140.11		140.18	0.001831	1.17	3.67	5.00	0.44

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	46	Max WS	Att_Tr200_Tp18_L	6.64	139.38	140.32	139.94	140.42	0.001596	1.41	4.71	5.00	0.46
Quercio	46	Max WS	Att_Tr30_Tp18_L	4.30	139.38	140.11	139.80	140.18	0.001448	1.18	3.64	5.00	0.44
Quercio	45.5			Bridge									
Quercio	45	Max WS	Att_Tr200_Tp18_L	6.64	139.34	140.33		140.42	0.001383	1.34	4.94	5.00	0.43
Quercio	45	Max WS	Att_Tr30_Tp18_L	4.30	139.34	140.11		140.18	0.001207	1.11	3.87	5.00	0.40
Quercio	44	Max WS	Att_Tr200_Tp18_L	6.64	139.34	140.28		140.38	0.002067	1.41	4.70	5.00	0.46
Quercio	44	Max WS	Att_Tr30_Tp18_L	4.29	139.34	140.07		140.14	0.001823	1.17	3.67	5.00	0.44
Quercio	43.5	Max WS	Att_Tr200_Tp18_L	6.64	139.31	140.06	140.04	140.34	0.010925	2.34	2.83	4.51	0.94
Quercio	43.5	Max WS	Att_Tr30_Tp18_L	4.33	139.31	139.88	139.87	140.11	0.012037	2.12	2.04	4.14	0.97
Quercio	43	Max WS	Att_Tr200_Tp18_L	6.64	138.91	139.98		140.10	0.003261	1.53	4.34	5.13	0.53
Quercio	43	Max WS	Att_Tr30_Tp18_L	4.32	138.91	139.75		139.84	0.003187	1.34	3.22	4.68	0.51
Quercio	42	Max WS	Att_Tr200_Tp18_L	6.64	138.67	139.67		139.81	0.004026	1.65	4.02	5.01	0.59
Quercio	42	Max WS	Att_Tr30_Tp18_L	4.31	138.67	139.46		139.57	0.003916	1.44	3.00	4.58	0.57
Quercio	41.5	Max WS	Att_Tr200_Tp18_L	6.64	138.50	139.60		139.71	0.002963	1.48	4.49	5.19	0.51
Quercio	41.5	Max WS	Att_Tr30_Tp18_L	4.31	138.50	139.39		139.47	0.002620	1.25	3.45	4.78	0.47
Quercio	41	Max WS	Att_Tr200_Tp18_L	6.64	138.49	139.37	139.20	139.60	0.004401	2.12	3.13	3.54	0.72
Quercio	41	Max WS	Att_Tr30_Tp18_L	4.31	138.49	139.26	139.02	139.39	0.002800	1.59	2.72	3.54	0.58
Quercio	40.5			Bridge									
Quercio	40	Max WS	Att_Tr200_Tp18_L	4.44	138.46	139.37		139.47	0.001234	1.38	3.23	4.55	0.46
Quercio	40	Max WS	Att_Tr30_Tp18_L	4.31	138.46	139.26		139.37	0.001836	1.53	2.82	4.44	0.55
Quercio	39	Max WS	Att_Tr200_Tp18_L	6.64	138.42	139.41		139.54	0.003353	1.57	4.22	4.80	0.54
Quercio	39	Max WS	Att_Tr30_Tp18_L	4.31	138.42	139.27		139.35	0.002338	1.21	3.56	4.66	0.44
Quercio	38.5	Max WS	Att_Tr200_Tp18_L	6.64	138.38	139.41		139.51	0.002501	1.41	4.72	5.13	0.47
Quercio	38.5	Max WS	Att_Tr30_Tp18_L	4.31	138.38	139.27		139.33	0.001720	1.08	4.01	4.99	0.38

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	38	Max WS	Att_Tr200_Tp18_L	6.64	138.36	139.44	138.87	139.50	0.001004	1.05	6.30	7.00	0.32
Quercio	38	Max WS	Att_Tr30_Tp18_L	4.31	138.36	139.29	138.74	139.32	0.000707	0.80	5.40	6.84	0.26
Quercio	37.5			Bridge									
Quercio	37	Max WS	Att_Tr200_Tp18_L	6.64	138.33	139.44		139.49	0.001072	1.04	6.39	6.63	0.31
Quercio	37	Max WS	Att_Tr30_Tp18_L	4.31	138.33	139.29		139.32	0.000739	0.78	5.52	6.61	0.26
Quercio	36	Max WS	Att_Tr200_Tp18_L	6.64	138.33	139.43		139.48	0.001371	0.96	6.90	6.65	0.30
Quercio	36	Max WS	Att_Tr30_Tp18_L	4.31	138.33	139.28		139.31	0.000949	0.73	5.89	6.63	0.25
Quercio	35	Max WS	Att_Tr200_Tp18_L	6.64	138.15	138.88		139.13	0.014636	2.22	2.99	5.18	0.93
Quercio	35	Max WS	Att_Tr30_Tp18_L	4.31	138.15	138.72	138.72	138.92	0.017078	1.98	2.18	5.15	0.97
Quercio	34	Max WS	Att_Tr200_Tp18_L	6.64	138.04	138.84		139.04	0.010046	1.97	3.37	5.15	0.78
Quercio	34	Max WS	Att_Tr30_Tp18_L	4.31	138.04	138.66		138.82	0.011836	1.77	2.44	5.11	0.82
Quercio	33	Max WS	Att_Tr200_Tp18_L	6.64	137.83	138.71	138.38	138.82	0.003969	1.46	4.54	5.18	0.50
Quercio	33	Max WS	Att_Tr30_Tp18_L	4.31	137.83	138.48	138.24	138.57	0.004277	1.28	3.37	5.17	0.51
Quercio	32.5			Bridge									
Quercio	32	Max WS	Att_Tr200_Tp18_L	6.64	137.79	138.73		138.81	0.002740	1.27	5.21	5.85	0.43
Quercio	32	Max WS	Att_Tr30_Tp18_L	4.31	137.79	138.49		138.56	0.003031	1.13	3.82	5.69	0.44
Quercio	30	Max WS	Att_Tr200_Tp18_L	6.64	137.58	138.56		138.70	0.004727	1.64	4.04	4.58	0.56
Quercio	30	Max WS	Att_Tr30_Tp18_L	4.31	137.58	138.33		138.44	0.005057	1.44	2.98	4.39	0.56
Quercio	29	Max WS	Att_Tr200_Tp18_L	6.64	137.35	138.34		138.52	0.006507	1.89	3.52	3.97	0.64
Quercio	29	Max WS	Att_Tr30_Tp18_L	4.31	137.35	138.07		138.22	0.008145	1.75	2.46	3.78	0.69
Quercio	28.99			Lat Struct									
Quercio	28	Max WS	Att_Tr200_Tp18_L	6.64	137.12	138.34		138.44	0.002583	1.39	4.77	4.35	0.42
Quercio	28	Max WS	Att_Tr30_Tp18_L	4.31	137.12	138.05		138.12	0.002681	1.22	3.52	4.14	0.42
Quercio	27	Max WS	Att_Tr200_Tp18_L	6.64	137.09	138.29		138.39	0.002631	1.37	4.84	4.16	0.41
Quercio	27	Max WS	Att_Tr30_Tp18_L	4.31	137.09	138.00		138.07	0.002622	1.18	3.64	4.09	0.40

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	26	Max WS	Att_Tr200_Tp18_L	6.64	136.92	138.25		138.33	0.002142	1.27	5.23	4.26	0.37
Quercio	26	Max WS	Att_Tr30_Tp18_L	4.31	136.92	137.96		138.02	0.002022	1.08	4.00	4.20	0.35
Quercio	25	Max WS	Att_Tr200_Tp18_L	6.64	136.87	138.22		138.29	0.001891	1.21	5.49	4.55	0.35
Quercio	25	Max WS	Att_Tr30_Tp18_L	4.31	136.87	137.93		137.98	0.001810	1.03	4.18	4.43	0.34
Quercio	24.8			Lat Struct									
Quercio	24	Max WS	Att_Tr200_Tp18_L	6.64	136.83	138.13		138.22	0.002561	1.38	4.81	3.93	0.40
Quercio	24	Max WS	Att_Tr30_Tp18_L	4.31	136.83	137.85		137.92	0.002294	1.15	3.73	3.87	0.38
Quercio	23.5	Max WS	Att_Tr200_Tp18_L	6.64	136.82	138.08		138.20	0.003480	1.55	4.28	3.60	0.45
Quercio	23.5	Max WS	Att_Tr30_Tp18_L	4.30	136.82	137.81		137.90	0.003081	1.29	3.33	3.54	0.43
Quercio	23	Max WS	Att_Tr200_Tp18_L	6.64	136.80	138.05		138.18	0.003299	1.58	4.21	3.57	0.46
Quercio	23	Max WS	Att_Tr30_Tp18_L	4.30	136.80	137.79		137.88	0.002875	1.31	3.29	3.52	0.43
Quercio	21	Max WS	Att_Tr200_Tp18_L	6.64	136.75	138.03		138.14	0.003069	1.49	4.46	3.65	0.43
Quercio	21	Max WS	Att_Tr30_Tp18_L	4.30	136.75	137.77		137.84	0.002582	1.22	3.53	3.59	0.39
Quercio	20	Max WS	Att_Tr200_Tp18_L	6.64	136.68	137.92		138.06	0.005238	1.64	4.05	4.83	0.57
Quercio	20	Max WS	Att_Tr30_Tp18_L	4.29	136.68	137.59		137.73	0.008556	1.70	2.53	4.35	0.71
Quercio	19	Max WS	Att_Tr200_Tp18_L	6.64	136.57	137.89	137.35	137.96	0.001587	1.12	5.92	5.81	0.36
Quercio	19	Max WS	Att_Tr30_Tp18_L	4.16	136.57	137.51	137.20	137.57	0.002418	1.11	3.75	5.46	0.43
Quercio	18.5			Bridge									
Quercio	18	Max WS	Att_Tr200_Tp18_L	6.64	136.57	137.84		137.91	0.001848	1.18	5.61	5.76	0.38
Quercio	18	Max WS	Att_Tr30_Tp18_L	4.39	136.57	137.26		137.43	0.010217	1.81	2.42	5.23	0.85
Quercio	17.99			Lat Struct									
Quercio	17.98			Lat Struct									
Quercio	17.8	Max WS	Att_Tr200_Tp18_L	6.64	136.57	137.85		137.91	0.001912	1.06	6.27	6.82	0.35
Quercio	17.8	Max WS	Att_Tr30_Tp18_L	4.38	136.57	137.20	137.20	137.40	0.018546	1.96	2.23	5.65	1.00



HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	17	Max WS	Att_Tr200_Tp18_L	6.64	135.86	137.83		137.86	0.000479	0.68	9.72	6.84	0.18
Quercio	17	Max WS	Att_Tr30_Tp18_L	4.33	135.86	136.80		136.87	0.003013	1.18	3.67	4.82	0.43
Quercio	16	Max WS	Att_Tr200_Tp18_L	6.63	135.67	137.83		137.85	0.000467	0.67	9.94	6.34	0.17
Quercio	16	Max WS	Att_Tr30_Tp18_L	4.33	135.67	136.76		136.82	0.002211	1.06	4.08	4.43	0.35
Quercio	15	Max WS	Att_Tr200_Tp18_L	6.63	135.62	137.81		137.84	0.000581	0.75	8.90	5.11	0.18
Quercio	15	Max WS	Att_Tr30_Tp18_L	4.33	135.62	136.71		136.77	0.002503	1.13	3.84	4.05	0.37
Quercio	14	Max WS	Att_Tr200_Tp18_L	6.63	135.57	137.80		137.83	0.000542	0.73	9.13	5.15	0.17
Quercio	14	Max WS	Att_Tr30_Tp18_L	4.32	135.57	136.66		136.73	0.002453	1.12	3.87	4.06	0.37
Quercio	13	Max WS	Att_Tr200_Tp18_L	6.63	135.52	137.79		137.82	0.000512	0.71	9.32	5.17	0.17
Quercio	13	Max WS	Att_Tr30_Tp18_L	4.32	135.52	136.62		136.68	0.002416	1.11	3.88	4.05	0.36
Quercio	12	Max WS	Att_Tr200_Tp18_L	6.63	135.26	137.79		137.81	0.000291	0.56	11.83	7.69	0.14
Quercio	12	Max WS	Att_Tr30_Tp18_L	4.31	135.26	136.58		136.63	0.001887	1.02	4.25	4.78	0.34
Quercio	11	Max WS	Att_Tr200_Tp18_L	6.62	135.03	137.79		137.80	0.000181	0.47	13.99	8.19	0.12
Quercio	11	Max WS	Att_Tr30_Tp18_L	4.31	135.03	136.54		136.57	0.000975	0.79	5.45	5.50	0.25
Quercio	10	Max WS	Att_Tr200_Tp18_L	6.59	134.87	137.78		137.79	0.000104	0.38	17.50	9.84	0.09
Quercio	10	Max WS	Att_Tr30_Tp18_L	4.31	134.87	136.49		136.51	0.000457	0.59	7.29	6.67	0.18
Quercio	09	Max WS	Att_Tr200_Tp18_L	5.89	134.47	137.78		137.78	0.000067	0.31	19.02	11.38	0.07
Quercio	09	Max WS	Att_Tr30_Tp18_L	4.30	134.47	136.48		136.49	0.000309	0.52	8.32	6.56	0.15
Quercio	08	Max WS	Att_Tr200_Tp18_L	-1.24	134.24	137.79		137.79	0.000002	-0.05	22.85	10.43	0.01
Quercio	08	Max WS	Att_Tr30_Tp18_L	4.30	134.24	136.47		136.48	0.000149	0.39	10.93	7.68	0.11
Quercio	07	Max WS	Att_Tr200_Tp18_L	-9.46	133.97	137.77		137.78	0.000092	-0.38	24.96	12.24	0.08
Quercio	07	Max WS	Att_Tr30_Tp18_L	4.30	133.97	136.47		136.47	0.000110	0.35	12.15	7.64	0.09
Quercio	06	Max WS	Att_Tr200_Tp18_L	-13.24	133.73	137.77		137.78	0.000170	-0.55	24.90	11.82	0.11
Quercio	06	Max WS	Att_Tr30_Tp18_L	4.29	133.73	136.46		136.47	0.000111	0.35	12.35	6.98	0.08
Quercio	05	Max WS	Att_Tr200_Tp18_L	-15.88	133.56	137.77		137.78	0.000126	-0.52	32.31	16.25	0.10

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	05	Max WS	Att_Tr30_Tp18_L	4.29	133.56	136.46		136.47	0.000060	0.28	15.54	8.91	0.07
Quercio	04.5	Max WS	Att_Tr200_Tp18_L	-14.23	133.45	137.78		137.79	0.000107	-0.47	31.87	14.44	0.09
Quercio	04.5	Max WS	Att_Tr30_Tp18_L	4.27	133.45	136.46		136.46	0.000068	0.29	14.93	11.26	0.07
Quercio	04.3	Max WS	Att_Tr200_Tp18_L	-16.51	133.49	137.78		137.79	0.000135	-0.52	34.04	16.65	0.10
Quercio	04.3	Max WS	Att_Tr30_Tp18_L	4.24	133.49	136.46		136.46	0.000071	0.30	14.39	11.87	0.07
Quercio	04	Max WS	Att_Tr200_Tp18_L	-17.58	133.42	137.78		137.79	0.000110	-0.51	37.11	15.95	0.09
Quercio	04	Max WS	Att_Tr30_Tp18_L	4.24	133.42	136.46		136.46	0.000043	0.24	17.55	10.81	0.06
Quercio	03.6	Max WS	Att_Tr200_Tp18_L	-16.14	133.43	137.75		137.80	0.000602	-0.98	16.41	3.80	0.15
Quercio	03.6	Max WS	Att_Tr30_Tp18_L	4.24	133.43	136.45	133.93	136.46	0.000100	0.37	11.48	3.80	0.07
Quercio	03.5			Bridge									
Quercio	03.4	Max WS	Att_Tr200_Tp18_L	-16.14	133.43	137.75		137.77	0.000338	-0.68	27.07	15.41	0.10
Quercio	03.4	Max WS	Att_Tr30_Tp18_L	4.26	133.43	136.45		136.46	0.000101	0.37	11.48	3.80	0.07
Quercio	03	Max WS	Att_Tr200_Tp18_L	-16.65	133.43	137.78		137.79	0.000080	-0.48	37.66	14.01	0.08
Quercio	03	Max WS	Att_Tr30_Tp18_L	4.26	133.43	136.46		136.46	0.000035	0.23	19.05	14.01	0.05
Quercio	2.98			Lat Struct									
Quercio	02	Max WS	Att_Tr200_Tp18_L	-16.77	133.43	137.79		137.80	0.000090	-0.47	38.05	15.22	0.09
Quercio	02	Max WS	Att_Tr30_Tp18_L	4.24	133.43	136.45		136.46	0.000058	0.24	17.66	13.17	0.06
Quercio	01	Max WS	Att_Tr200_Tp18_L	-16.77	133.38	137.81	134.70	137.82	0.000104	-0.46	36.94	14.14	0.09
Quercio	01	Max WS	Att_Tr30_Tp18_L	4.21	133.38	136.45	133.94	136.45	0.000044	0.23	18.01	9.98	0.06

# **VERIFICHE IDRAULICHE**

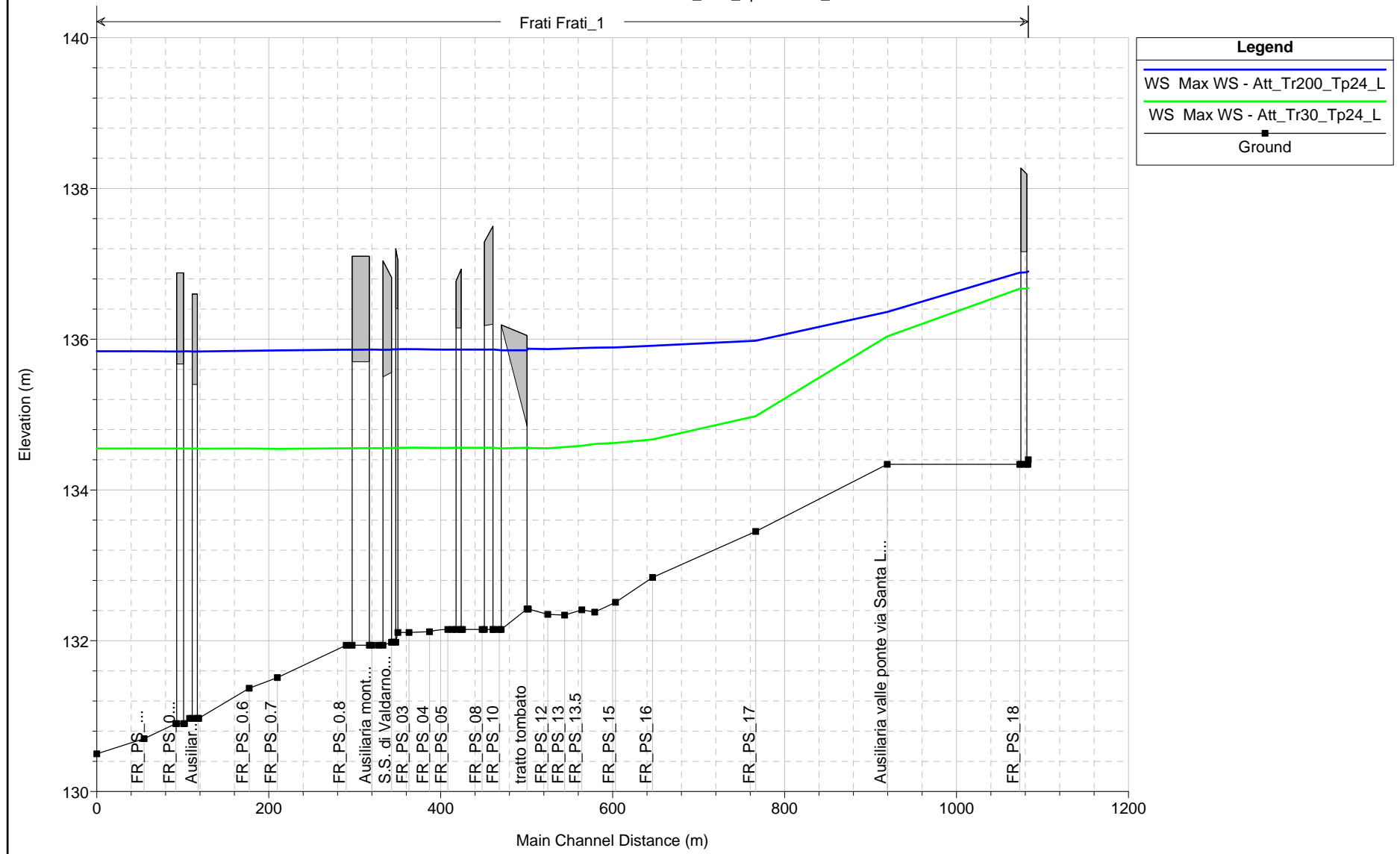
## **STATO ATTUALE**

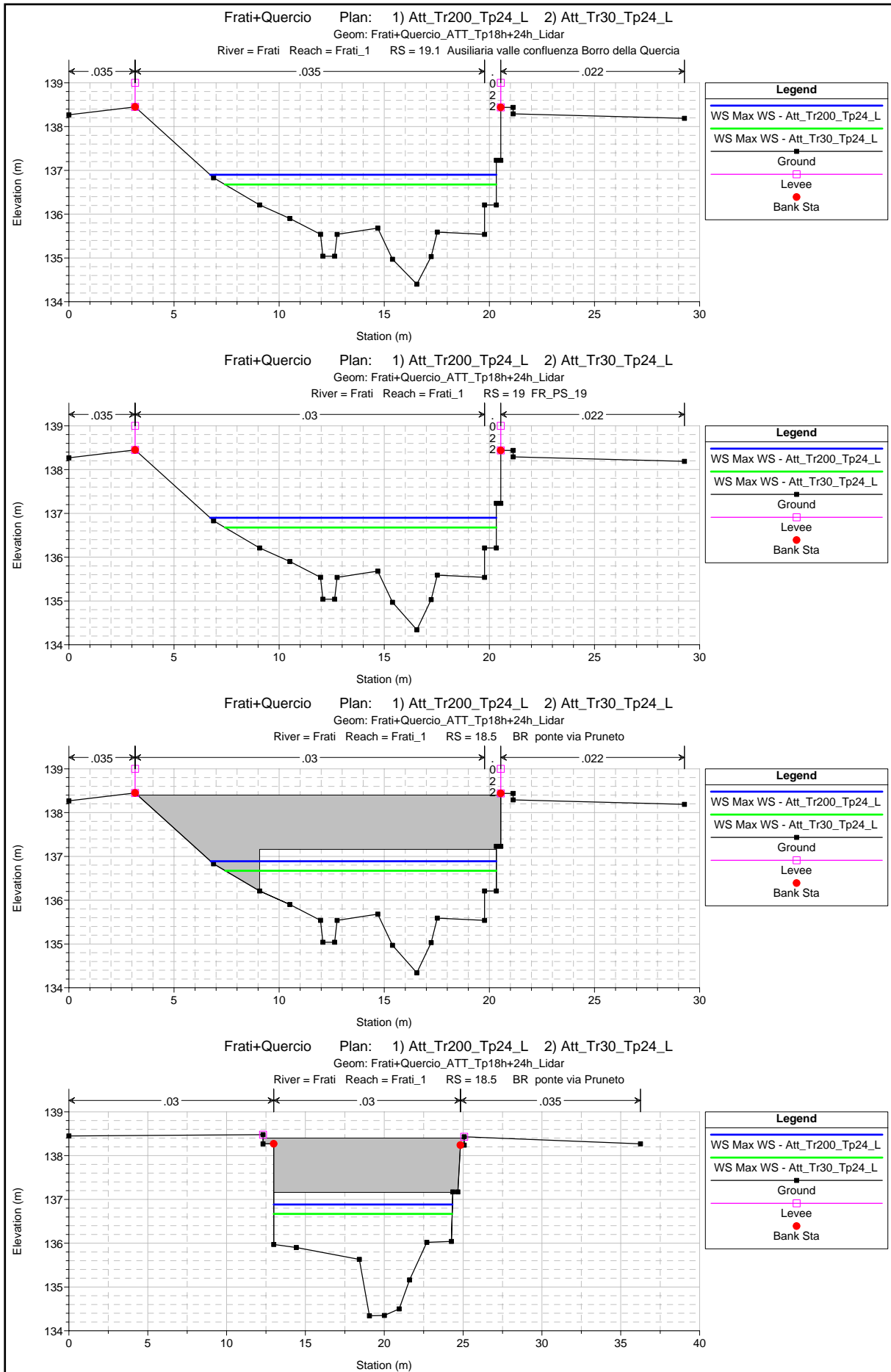
### **BORRO dei FRATI**

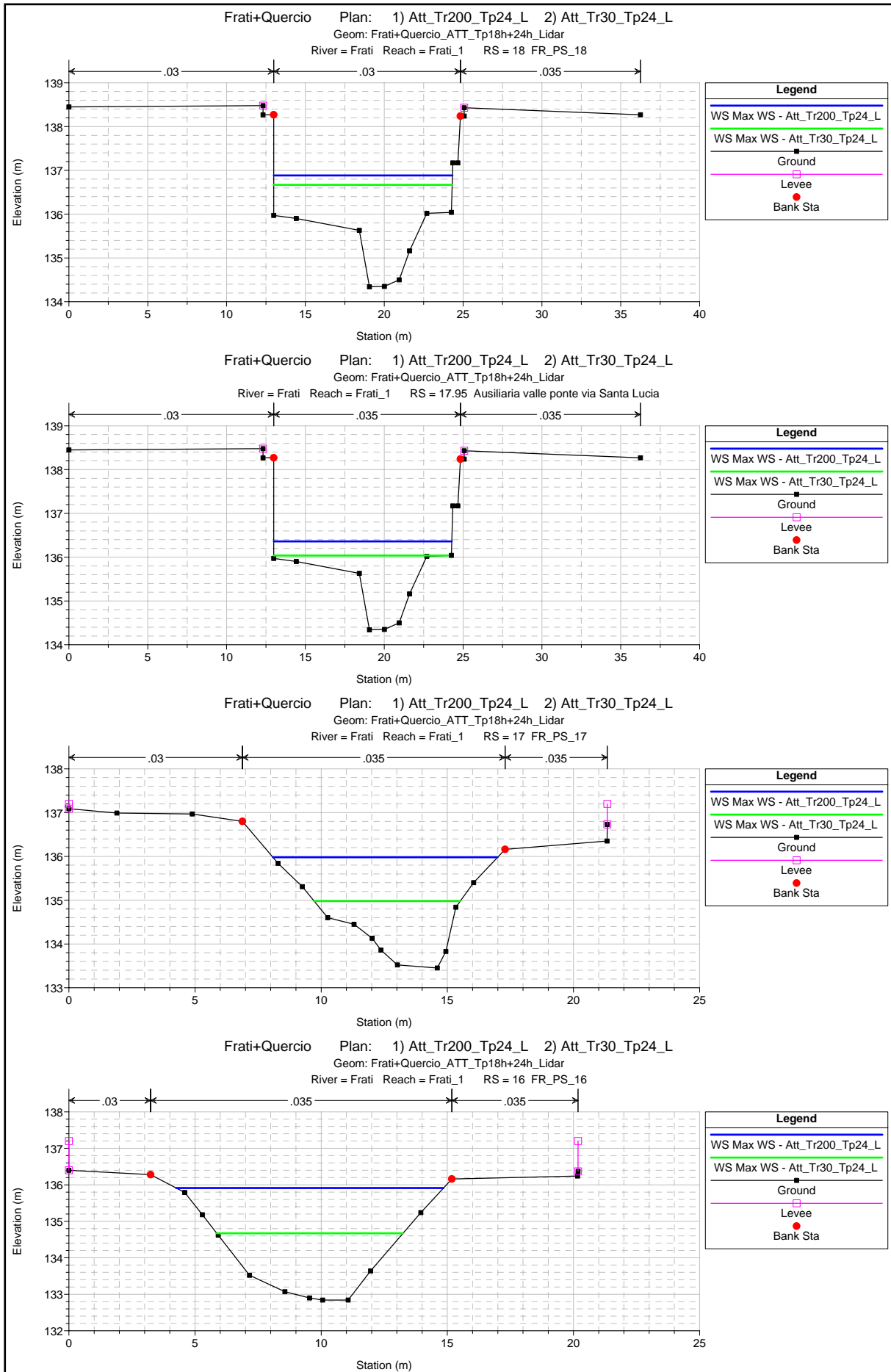
#### **Scenario C - Tr 200 e 30 anni**

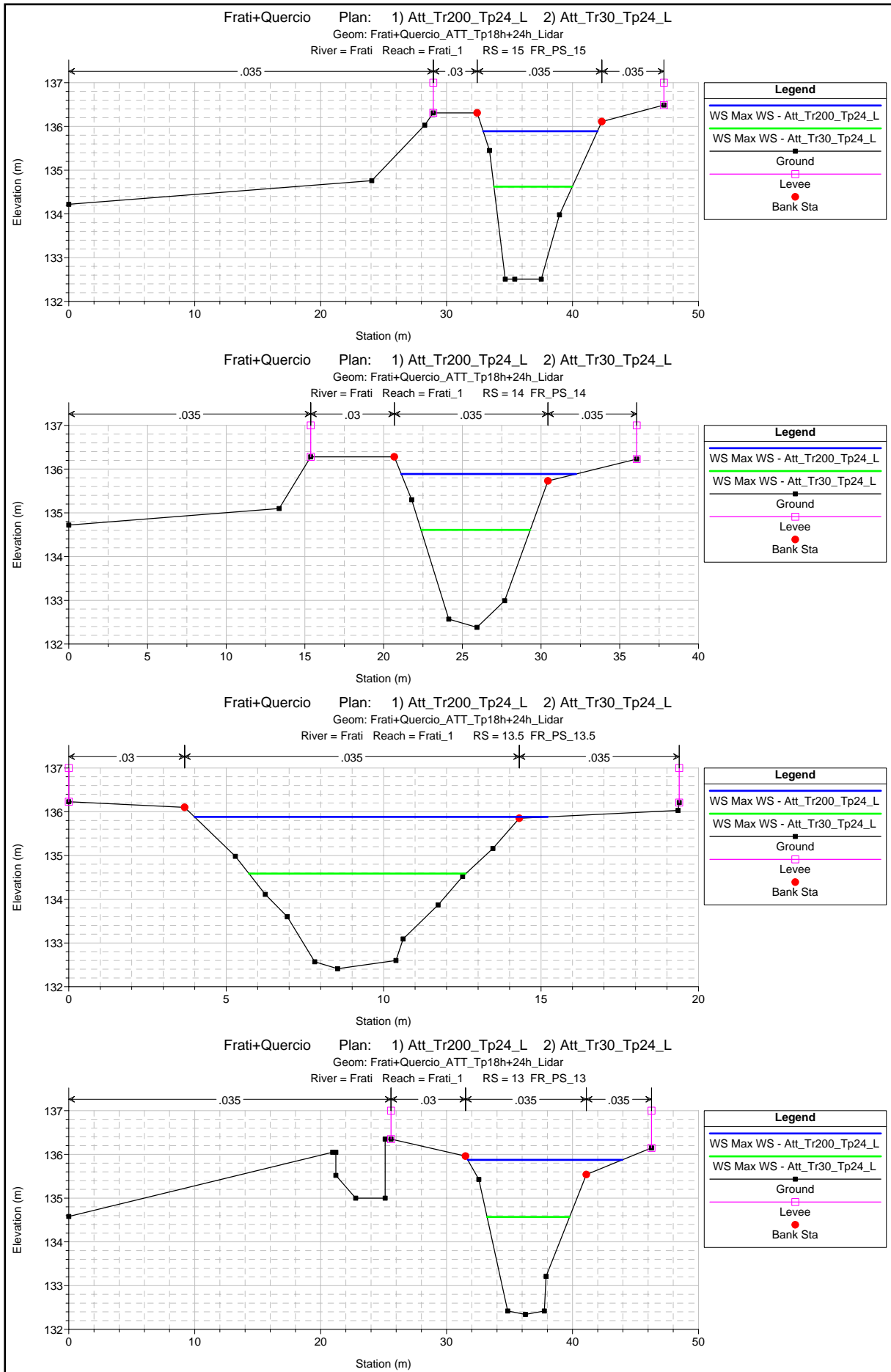
- Profili
- Sezioni di verifica
- Tabelle di output

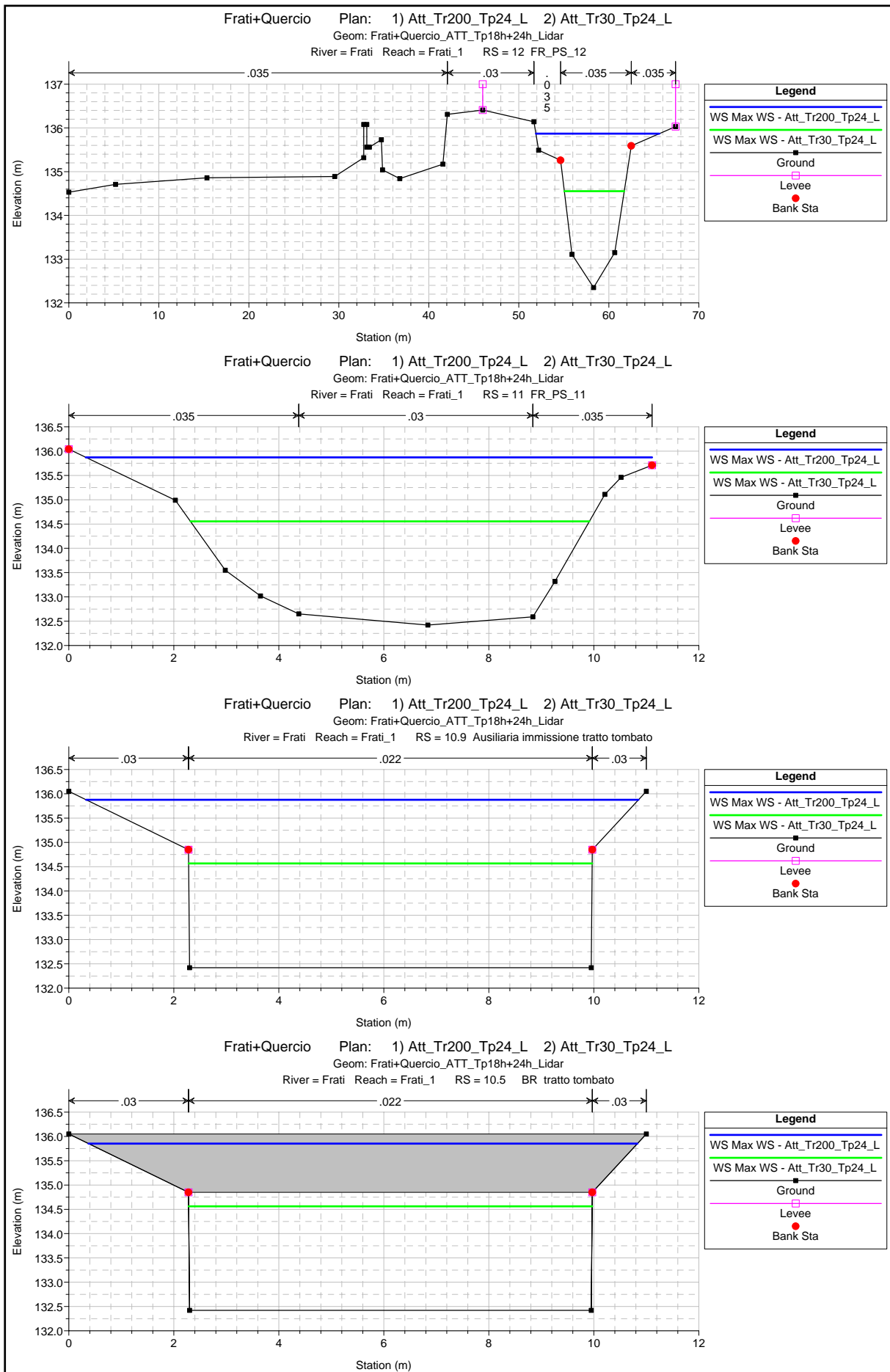
Frati+Quercio Plan: 1) Att\_Tr200\_Tp24\_L 2) Att\_Tr30\_Tp24\_L  
 Geom: Frati+Quercio\_ATT\_Tp18h+24h\_Lidar



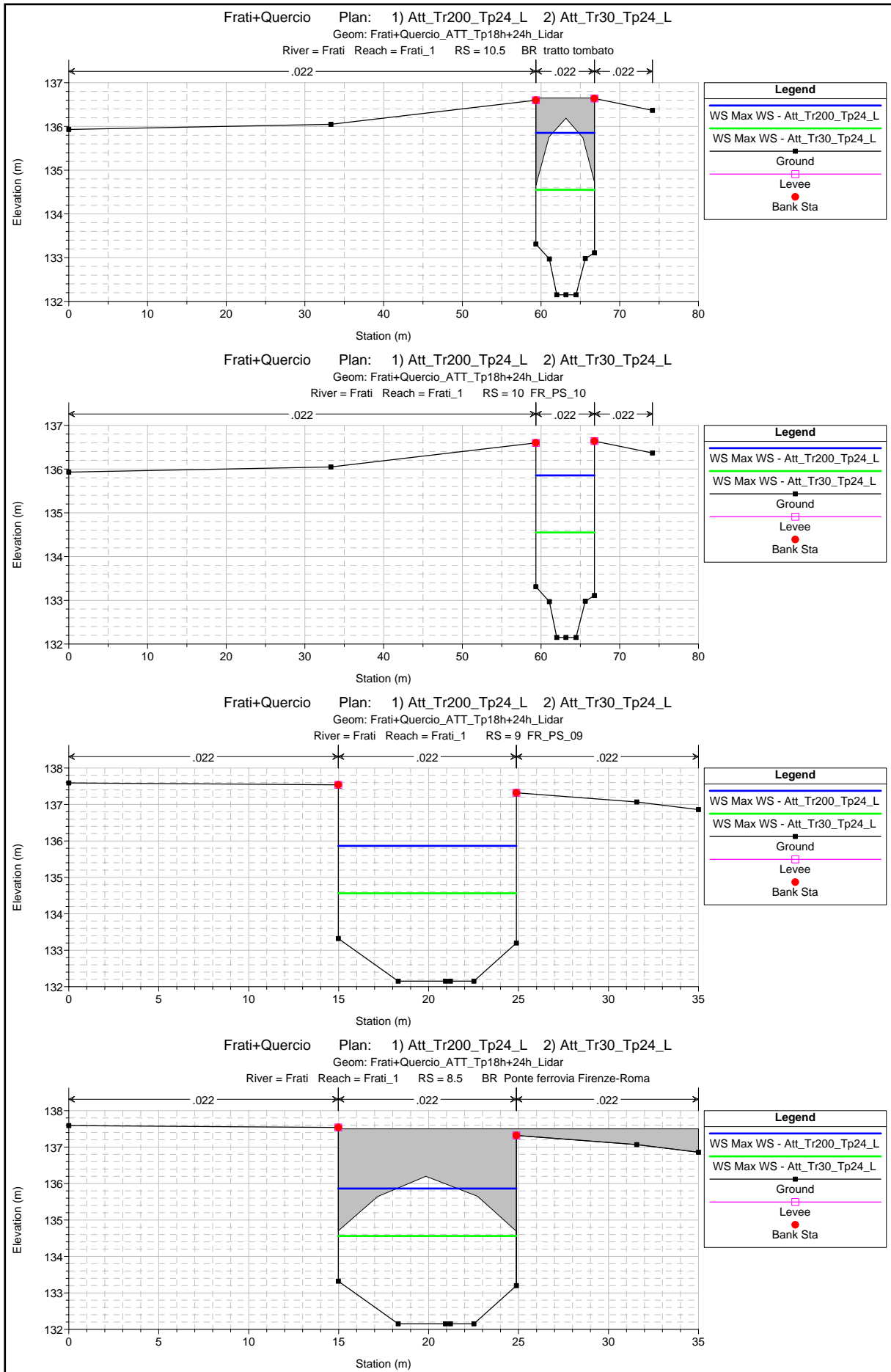


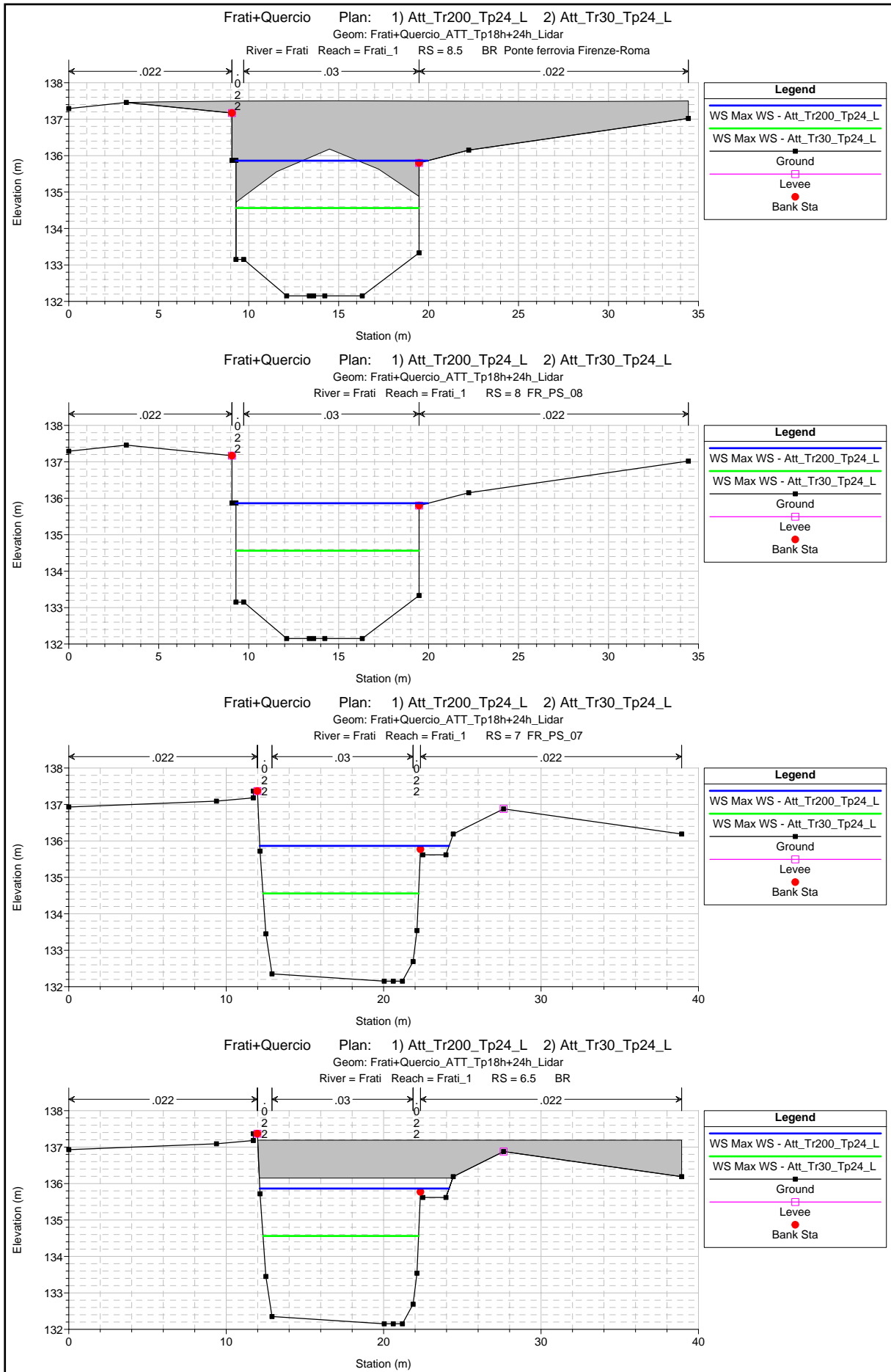


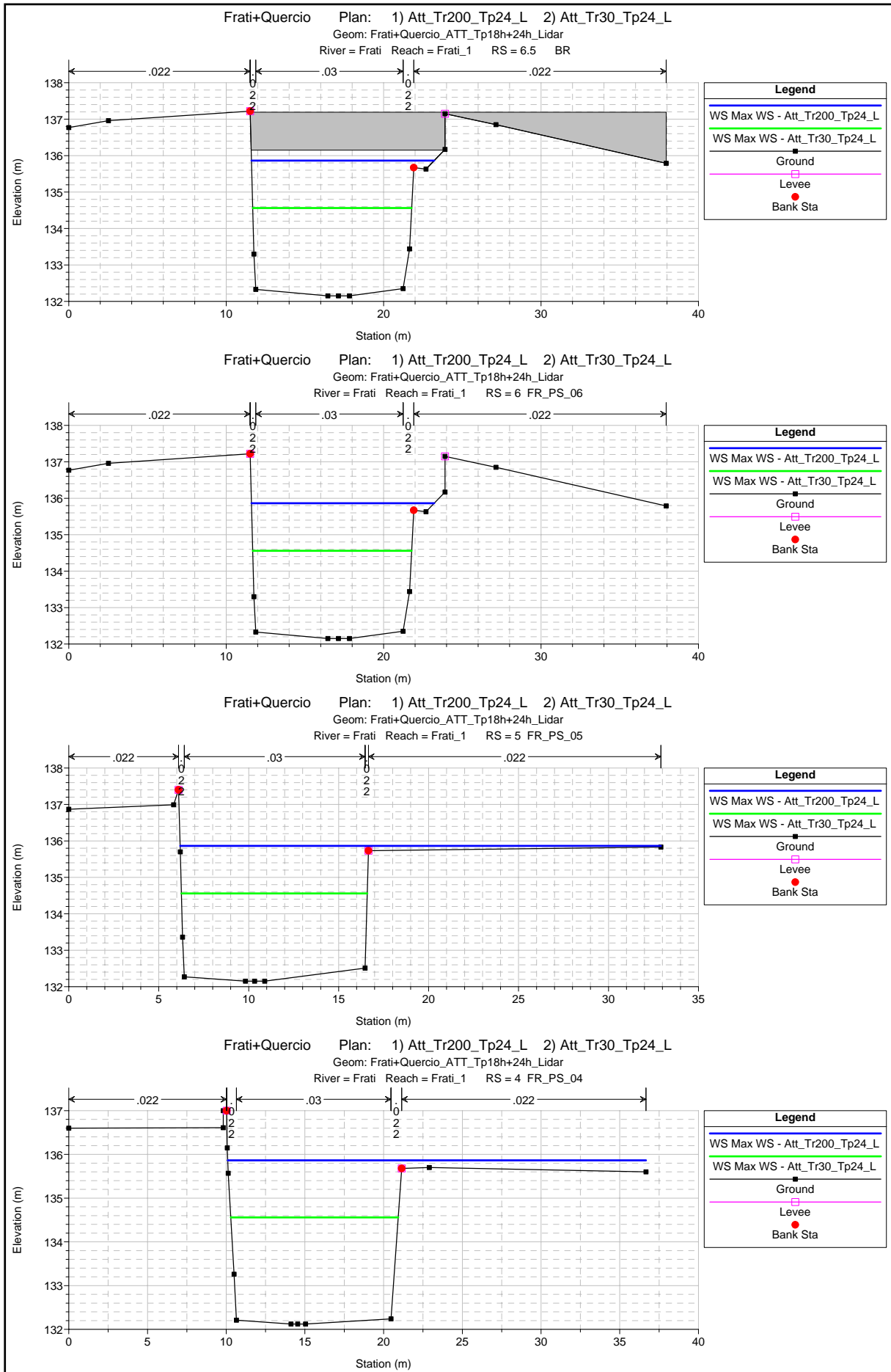


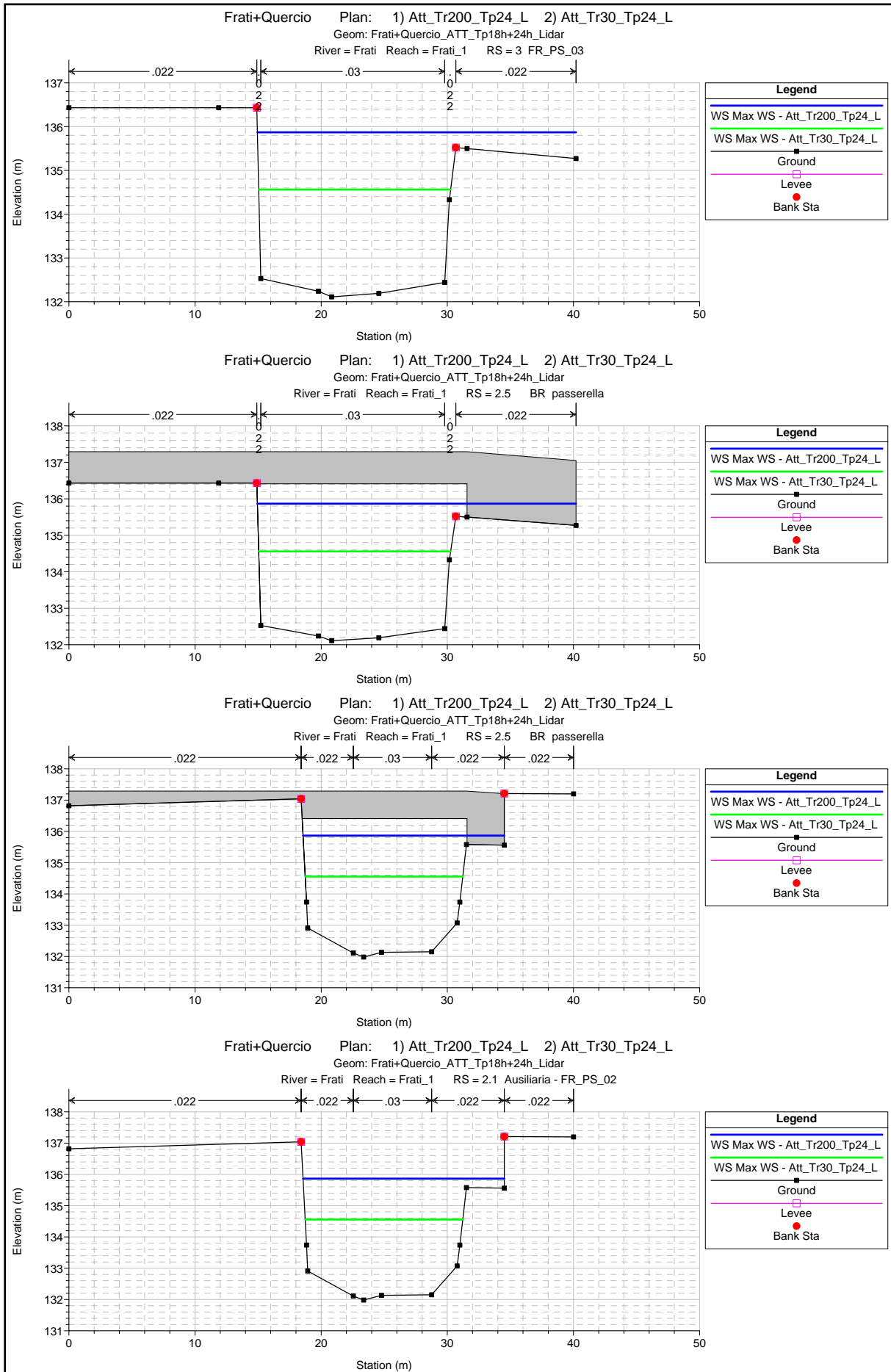


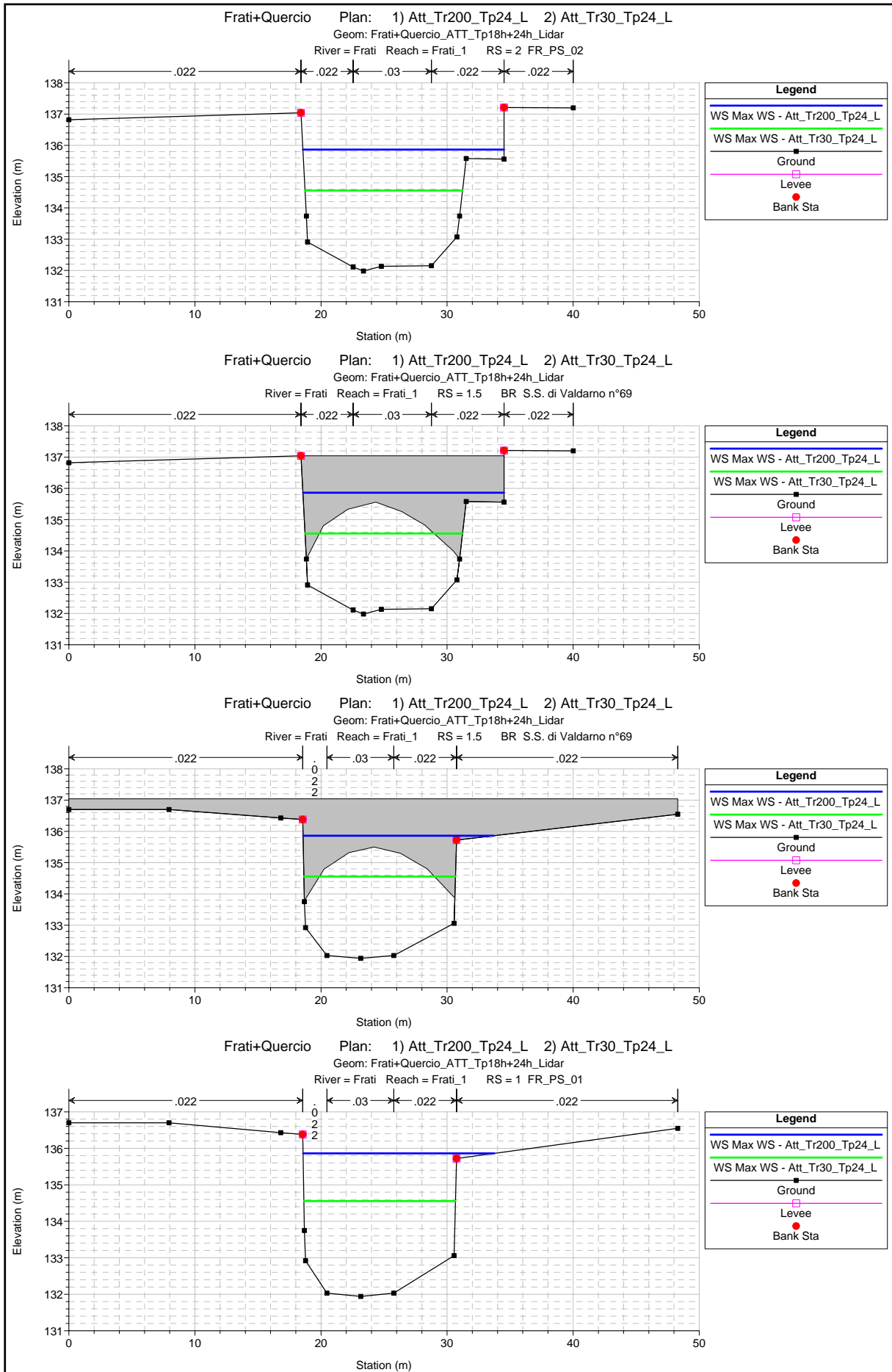


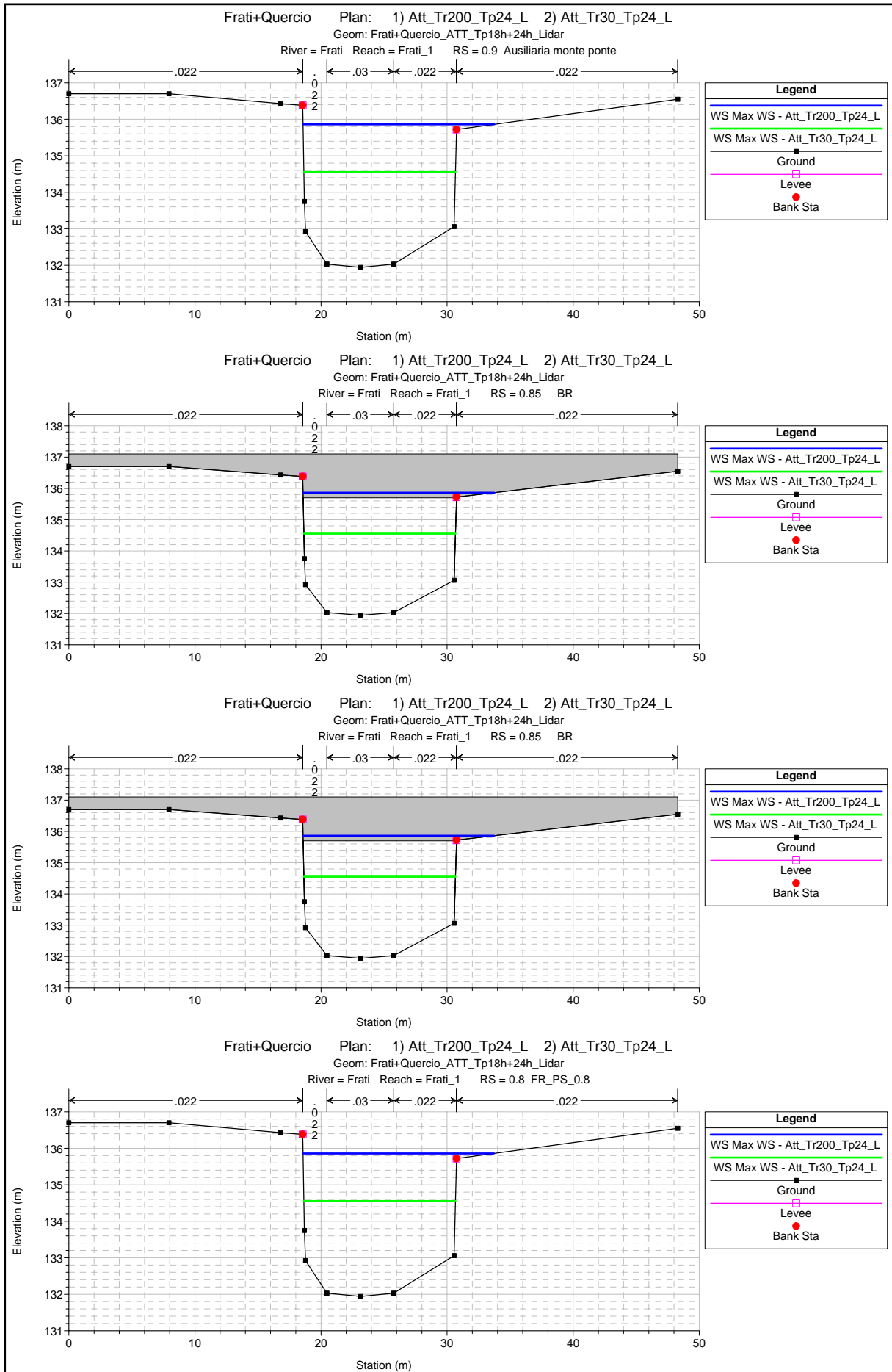


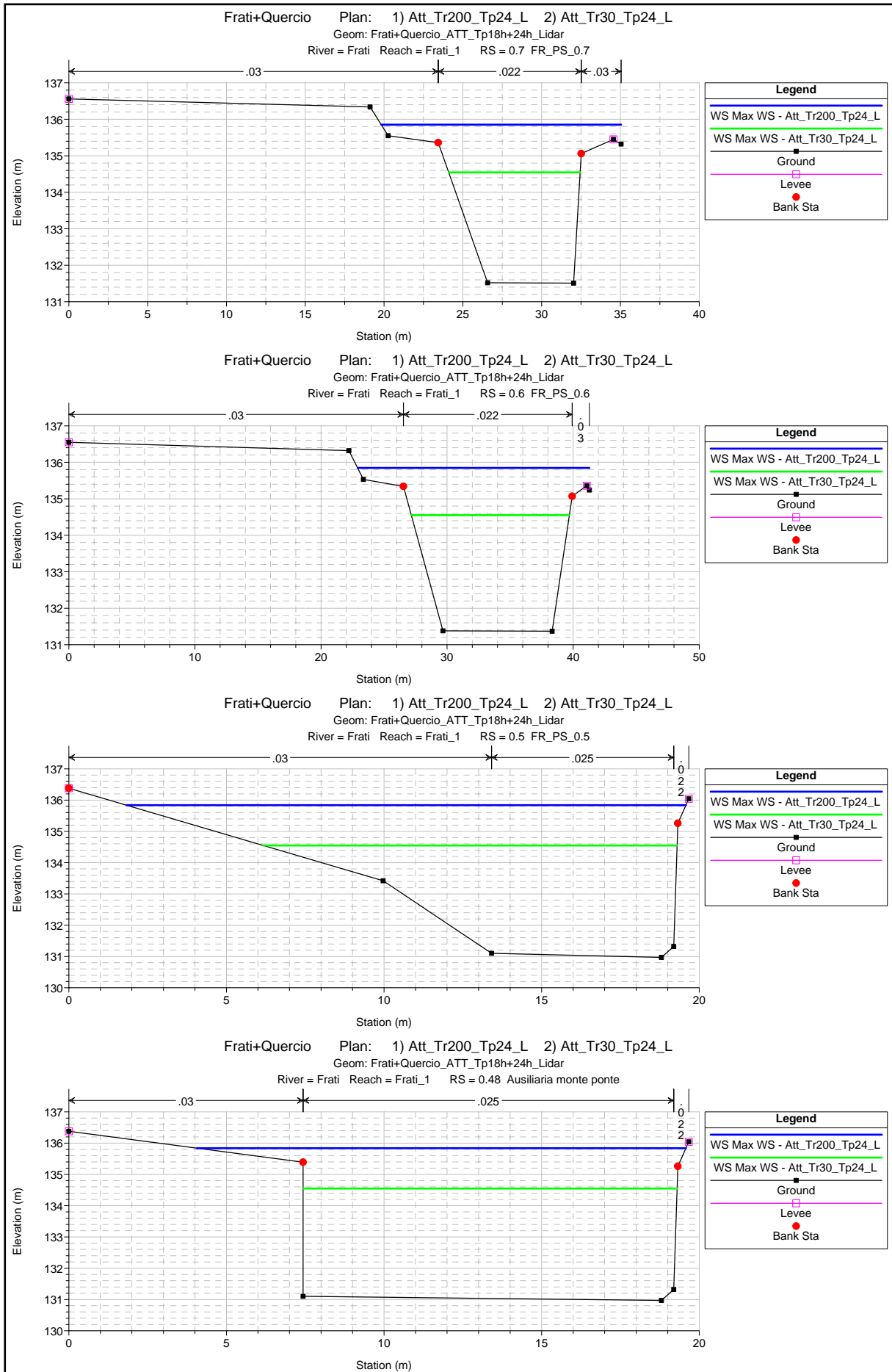


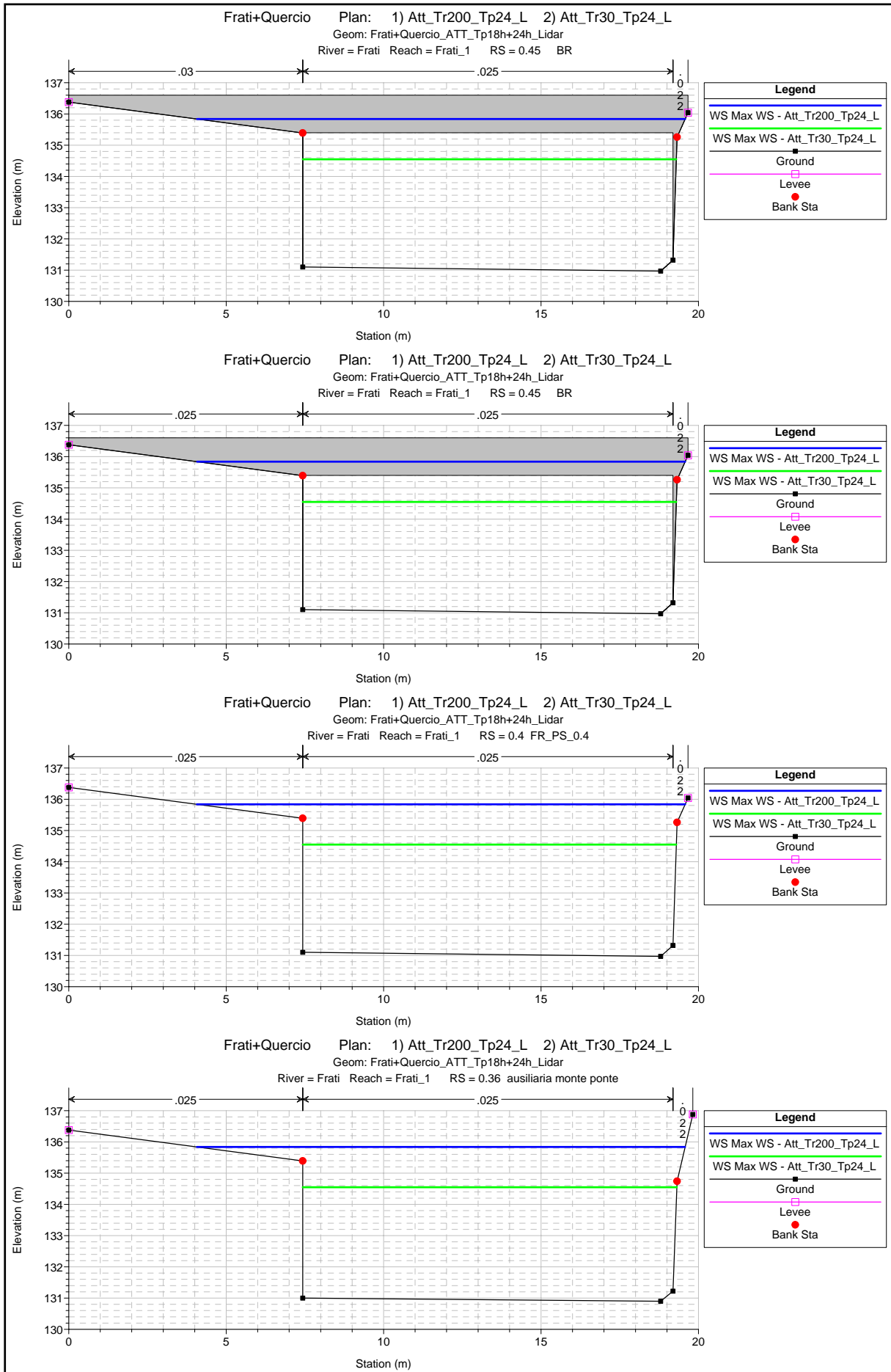




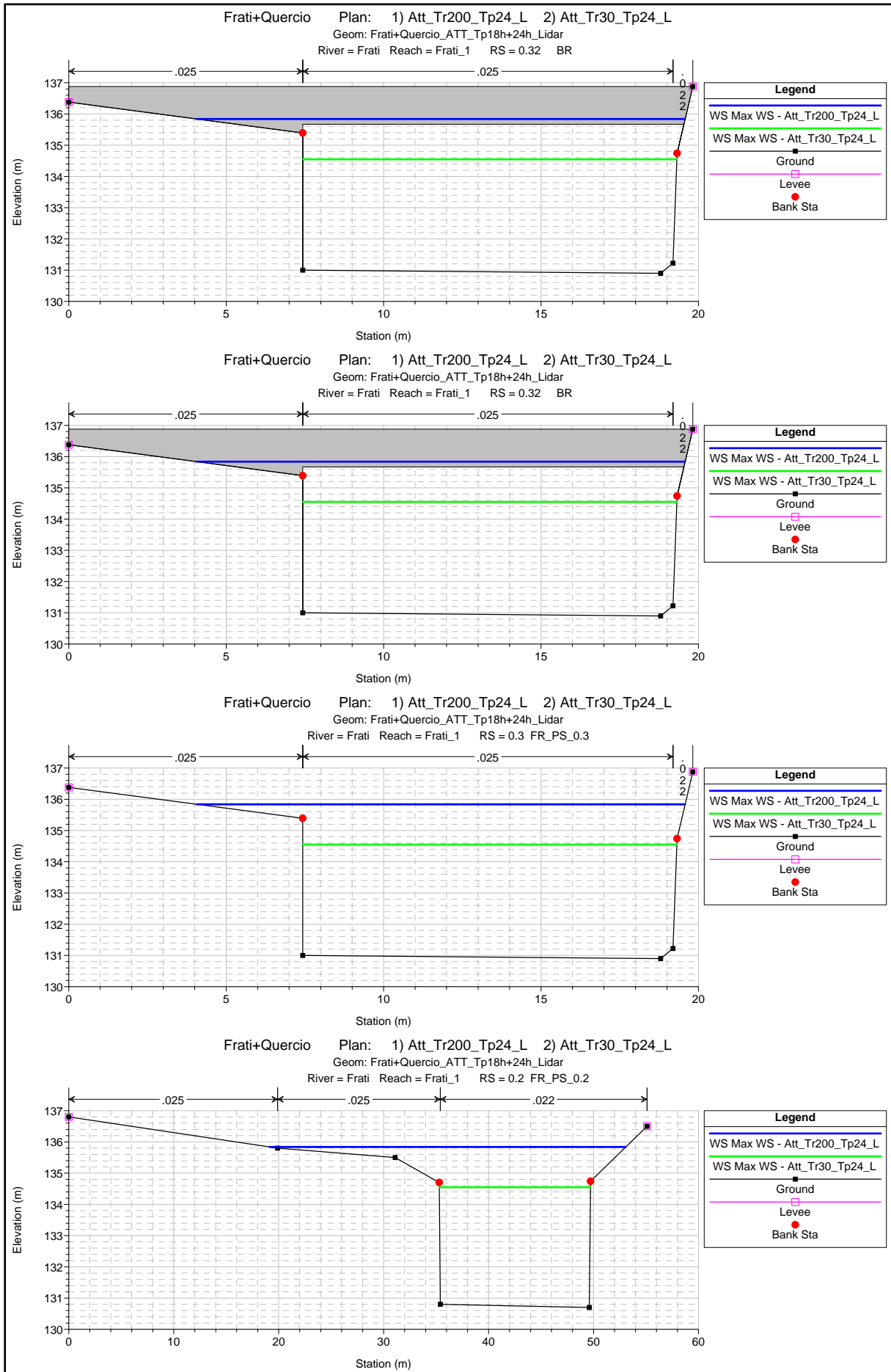


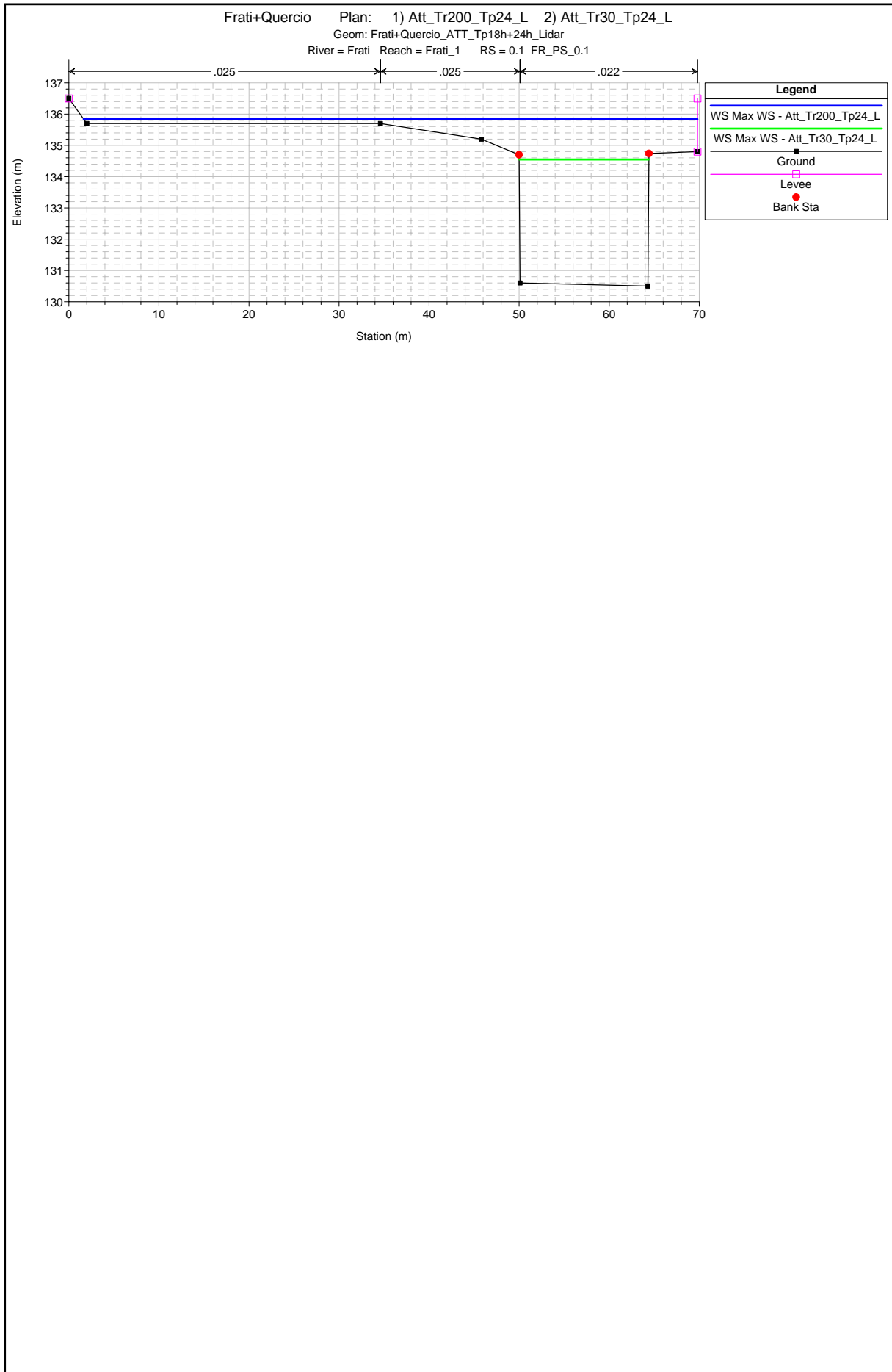












HEC-RAS River: Frati Reach: Frati\_1 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	19.1	Max WS	Att_Tr200_Tp24_L	15.15	134.40	136.90		136.94	0.000982	0.91	16.68	13.61	0.26
Frati_1	19.1	Max WS	Att_Tr30_Tp24_L	9.40	134.40	136.68		136.70	0.000677	0.69	13.72	12.91	0.21
Frati_1	19	Max WS	Att_Tr200_Tp24_L	15.15	134.34	136.90	136.01	136.94	0.000727	0.91	16.74	13.61	0.26
Frati_1	19	Max WS	Att_Tr30_Tp24_L	9.40	134.34	136.68	135.82	136.70	0.000499	0.68	13.77	12.91	0.21
Frati_1	18.5			Bridge									
Frati_1	18	Max WS	Att_Tr200_Tp24_L	15.15	134.34	136.88		136.93	0.000721	0.95	15.88	11.34	0.26
Frati_1	18	Max WS	Att_Tr30_Tp24_L	9.40	134.34	136.67		136.69	0.000463	0.70	13.46	11.32	0.20
Frati_1	17.95	Max WS	Att_Tr200_Tp24_L	15.15	134.34	136.36		136.48	0.004176	1.52	9.98	11.30	0.52
Frati_1	17.95	Max WS	Att_Tr30_Tp24_L	9.40	134.34	136.04		136.15	0.006748	1.49	6.32	11.08	0.63
Frati_1	17	Max WS	Att_Tr200_Tp24_L	15.15	133.45	135.98		136.05	0.001431	1.20	12.62	8.91	0.32
Frati_1	17	Max WS	Att_Tr30_Tp24_L	9.40	133.45	134.98		135.14	0.005520	1.76	5.34	5.79	0.59
Frati_1	16	Max WS	Att_Tr200_Tp24_L	15.15	132.84	135.91		135.94	0.000377	0.75	20.08	10.60	0.17
Frati_1	16	Max WS	Att_Tr30_Tp24_L	9.40	132.84	134.67		134.73	0.001233	1.04	9.04	7.38	0.30
Frati_1	15	Max WS	Att_Tr200_Tp24_L	15.15	132.51	135.89		135.92	0.000449	0.80	18.88	9.08	0.18
Frati_1	15	Max WS	Att_Tr30_Tp24_L	9.39	132.51	134.62		134.68	0.001091	1.01	9.31	6.22	0.26
Frati_1	14	Max WS	Att_Tr200_Tp24_L	15.15	132.38	135.89		135.92	0.000315	0.73	20.90	11.11	0.16
Frati_1	14	Max WS	Att_Tr30_Tp24_L	9.39	132.38	134.61		134.65	0.000800	0.91	10.33	6.94	0.24
Frati_1	13.8			Lat Struct									
Frati_1	13.5	Max WS	Att_Tr200_Tp24_L	15.15	132.41	135.88		135.91	0.000363	0.74	20.45	11.22	0.17
Frati_1	13.5	Max WS	Att_Tr30_Tp24_L	9.39	132.41	134.59		134.64	0.001135	1.01	9.26	6.89	0.28
Frati_1	13	Max WS	Att_Tr200_Tp24_L	15.15	132.34	135.87		135.90	0.000366	0.75	20.53	12.26	0.16
Frati_1	13	Max WS	Att_Tr30_Tp24_L	9.38	132.34	134.57		134.62	0.001016	0.97	9.64	6.55	0.26
Frati_1	12	Max WS	Att_Tr200_Tp24_L	15.15	132.35	135.87		135.90	0.000295	0.75	21.46	13.72	0.15
Frati_1	12	Max WS	Att_Tr30_Tp24_L	9.38	132.35	134.55		134.60	0.000867	0.94	9.97	6.66	0.25
Frati_1	11	Max WS	Att_Tr200_Tp24_L	14.82	132.42	135.87		135.89	0.000197	0.61	24.33	10.79	0.13

HEC-RAS River: Frati Reach: Frati\_1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	11	Max WS	Att_Tr30_Tp24_L	9.38	132.42	134.56		134.58	0.000413	0.74	12.59	7.60	0.18
Frati_1	10.9	Max WS	Att_Tr200_Tp24_L	14.82	132.42	135.88	133.15	135.89	0.000054	0.55	27.98	10.52	0.09
Frati_1	10.9	Max WS	Att_Tr30_Tp24_L	9.38	132.42	134.57	132.96	134.58	0.000102	0.57	16.46	7.69	0.12
Frati_1	10.5			Bridge									
Frati_1	10	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86		135.88	0.000085	0.62	23.96	7.44	0.11
Frati_1	10	Max WS	Att_Tr30_Tp24_L	9.38	132.15	134.55		134.57	0.000144	0.66	14.25	7.44	0.15
Frati_1	9	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86	133.05	135.87	0.000034	0.44	33.59	9.90	0.08
Frati_1	9	Max WS	Att_Tr30_Tp24_L	9.38	132.15	134.56	132.84	134.57	0.000053	0.45	20.69	9.90	0.10
Frati_1	8.5			Bridge									
Frati_1	8	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86		135.87	0.000066	0.43	34.33	10.68	0.08
Frati_1	8	Max WS	Att_Tr30_Tp24_L	9.39	132.15	134.56		134.57	0.000090	0.45	21.05	10.18	0.10
Frati_1	7	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86	132.90	135.87	0.000045	0.42	35.35	12.02	0.07
Frati_1	7	Max WS	Att_Tr30_Tp24_L	9.39	132.15	134.56	132.73	134.57	0.000073	0.43	21.86	9.88	0.09
Frati_1	6.5			Bridge									
Frati_1	6	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86		135.87	0.000042	0.41	36.36	11.61	0.07
Frati_1	6	Max WS	Att_Tr30_Tp24_L	9.39	132.15	134.56		134.57	0.000066	0.41	22.82	10.10	0.09
Frati_1	5.8			Lat Struct									
Frati_1	5	Max WS	Att_Tr200_Tp24_L	14.82	132.15	135.86		135.87	0.000041	0.40	38.25	26.72	0.07
Frati_1	5	Max WS	Att_Tr30_Tp24_L	9.39	132.15	134.56		134.57	0.000065	0.40	23.35	10.33	0.09
Frati_1	4	Max WS	Att_Tr200_Tp24_L	14.16	132.12	135.86		135.87	0.000031	0.36	41.85	26.57	0.06
Frati_1	4	Max WS	Att_Tr30_Tp24_L	9.39	132.12	134.56		134.57	0.000056	0.38	24.41	10.64	0.08
Frati_1	3	Max WS	Att_Tr200_Tp24_L	11.64	132.11	135.87	132.68	135.87	0.000009	0.21	58.62	25.26	0.04
Frati_1	3	Max WS	Att_Tr30_Tp24_L	9.39	132.11	134.56	132.63	134.57	0.000028	0.28	33.82	15.21	0.06
Frati_1	2.5			Bridge									

HEC-RAS River: Frati Reach: Frati\_1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	2.1	Max WS	Att_Tr200_Tp24_L	11.64	131.98	135.87		135.87	0.000015	0.26	44.62	15.96	0.05
Frati_1	2.1	Max WS	Att_Tr30_Tp24_L	9.39	131.98	134.56		134.56	0.000037	0.35	27.04	12.49	0.08
Frati_1	2	Max WS	Att_Tr200_Tp24_L	11.64	131.98	135.87	132.74	135.87	0.000015	0.26	44.62	15.96	0.05
Frati_1	2	Max WS	Att_Tr30_Tp24_L	9.39	131.98	134.56	132.66	134.56	0.000037	0.35	27.04	12.49	0.08
Frati_1	1.5			Bridge									
Frati_1	1	Max WS	Att_Tr200_Tp24_L	11.64	131.94	135.86		135.87	0.000014	0.27	43.02	15.17	0.05
Frati_1	1	Max WS	Att_Tr30_Tp24_L	9.39	131.94	134.56		134.56	0.000035	0.35	26.99	12.03	0.07
Frati_1	0.9	Max WS	Att_Tr200_Tp24_L	11.64	131.94	135.86	132.68	135.87	0.000014	0.27	43.02	15.17	0.05
Frati_1	0.9	Max WS	Att_Tr30_Tp24_L	9.39	131.94	134.55	132.60	134.56	0.000035	0.35	26.99	12.03	0.07
Frati_1	0.85			Bridge									
Frati_1	0.8	Max WS	Att_Tr200_Tp24_L	11.64	131.94	135.86		135.86	0.000014	0.27	43.00	15.14	0.05
Frati_1	0.8	Max WS	Att_Tr30_Tp24_L	9.39	131.94	134.55		134.56	0.000035	0.35	26.97	12.03	0.07
Frati_1	0.78			Lat Struct									
Frati_1	0.7	Max WS	Att_Tr200_Tp24_L	13.44	131.51	135.85		135.86	0.000026	0.41	35.23	15.22	0.07
Frati_1	0.7	Max WS	Att_Tr30_Tp24_L	9.38	131.51	134.55		134.56	0.000049	0.45	20.90	8.34	0.09
Frati_1	0.6	Max WS	Att_Tr200_Tp24_L	17.56	131.37	135.85		135.85	0.000014	0.34	52.92	18.38	0.06
Frati_1	0.6	Max WS	Att_Tr30_Tp24_L	9.37	131.37	134.55		134.55	0.000014	0.28	33.64	12.53	0.05
Frati_1	0.5	Max WS	Att_Tr200_Tp24_L	21.97	130.97	135.84		135.85	0.000049	0.44	50.27	17.75	0.08
Frati_1	0.5	Max WS	Att_Tr30_Tp24_L	9.34	130.97	134.55		134.55	0.000032	0.31	30.45	13.13	0.06
Frati_1	0.48	Max WS	Att_Tr200_Tp24_L	21.97	130.97	135.84	131.74	135.85	0.000022	0.39	57.62	15.52	0.06
Frati_1	0.48	Max WS	Att_Tr30_Tp24_L	9.34	130.97	134.55	131.44	134.55	0.000010	0.23	41.46	11.87	0.04
Frati_1	0.45			Bridge									
Frati_1	0.4	Max WS	Att_Tr200_Tp24_L	21.97	130.97	135.84		135.85	0.000022	0.39	57.60	15.51	0.06
Frati_1	0.4	Max WS	Att_Tr30_Tp24_L	9.37	130.97	134.55		134.55	0.000011	0.23	41.46	11.87	0.04

HEC-RAS River: Frati Reach: Frati\_1 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Frati_1	0.36	Max WS	Att_Tr200_Tp24_L	21.97	130.90	135.84	131.66	135.85	0.000021	0.38	58.71	15.51	0.05
Frati_1	0.36	Max WS	Att_Tr30_Tp24_L	9.34	130.90	134.55	131.35	134.55	0.000010	0.22	42.49	11.88	0.04
Frati_1	0.32			Bridge									
Frati_1	0.3	Max WS	Att_Tr200_Tp24_L	21.97	130.90	135.84		135.84	0.000021	0.38	58.70	15.50	0.05
Frati_1	0.3	Max WS	Att_Tr30_Tp24_L	9.37	130.90	134.55		134.55	0.000010	0.22	42.49	11.88	0.04
Frati_1	0.2	Max WS	Att_Tr200_Tp24_L	21.97	130.70	135.84		135.84	0.000009	0.29	80.05	33.97	0.04
Frati_1	0.2	Max WS	Att_Tr30_Tp24_L	9.37	130.70	134.55		134.55	0.000004	0.17	54.36	14.41	0.03
Frati_1	0.1	Max WS	Att_Tr200_Tp24_L	21.86	130.50	135.84	131.17	135.84	0.000007	0.27	94.27	68.15	0.04
Frati_1	0.1	Max WS	Att_Tr30_Tp24_L	9.32	130.50	134.55	130.90	134.55	0.000004	0.16	57.22	14.41	0.03

# **VERIFICHE IDRAULICHE**

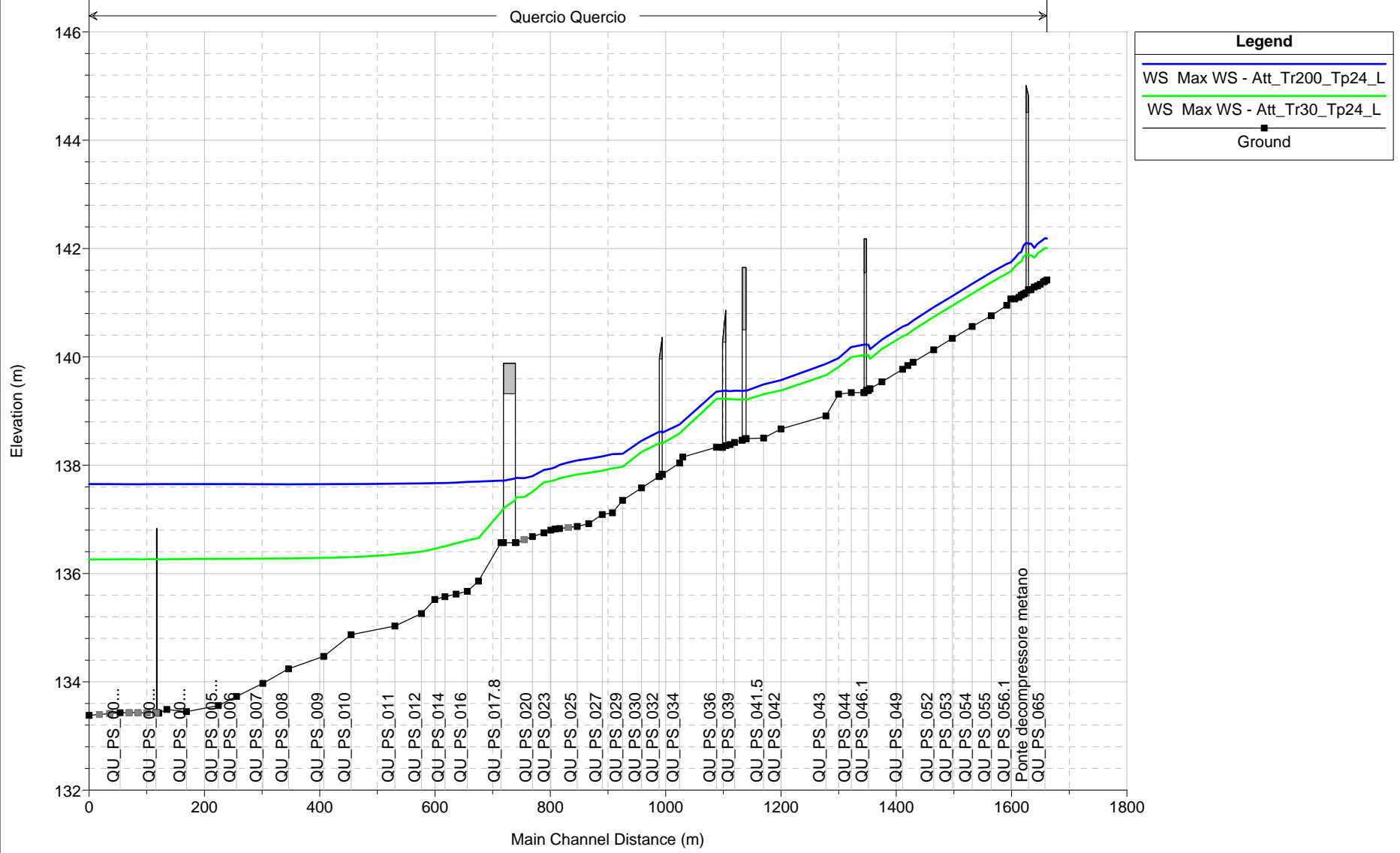
## **STATO ATTUALE**

### **BORRO del QUERCIO**

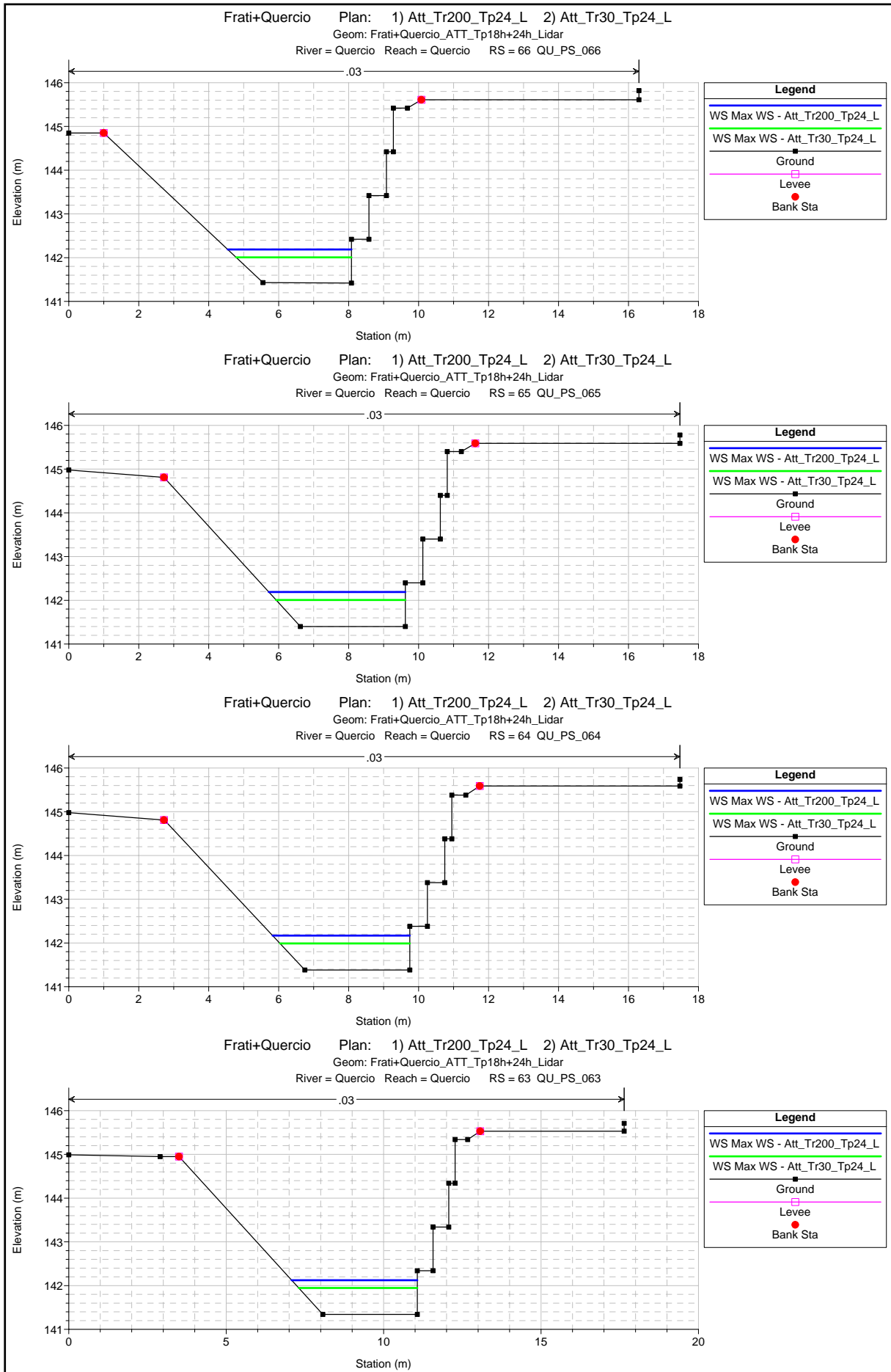
#### **Scenario C - Tr 200 e 30 anni**

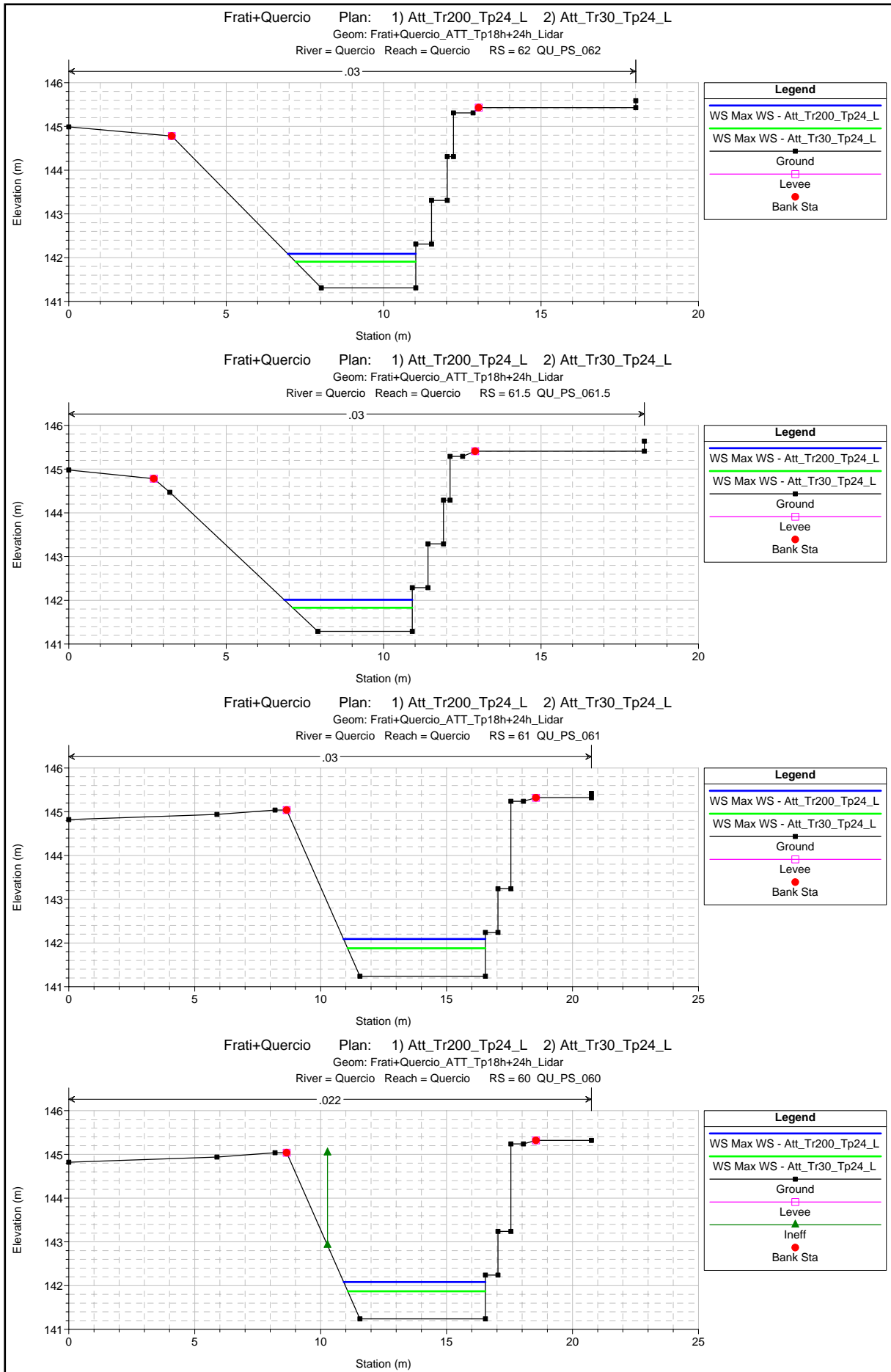
- Profili
- Sezioni di verifica
- Tabelle di output

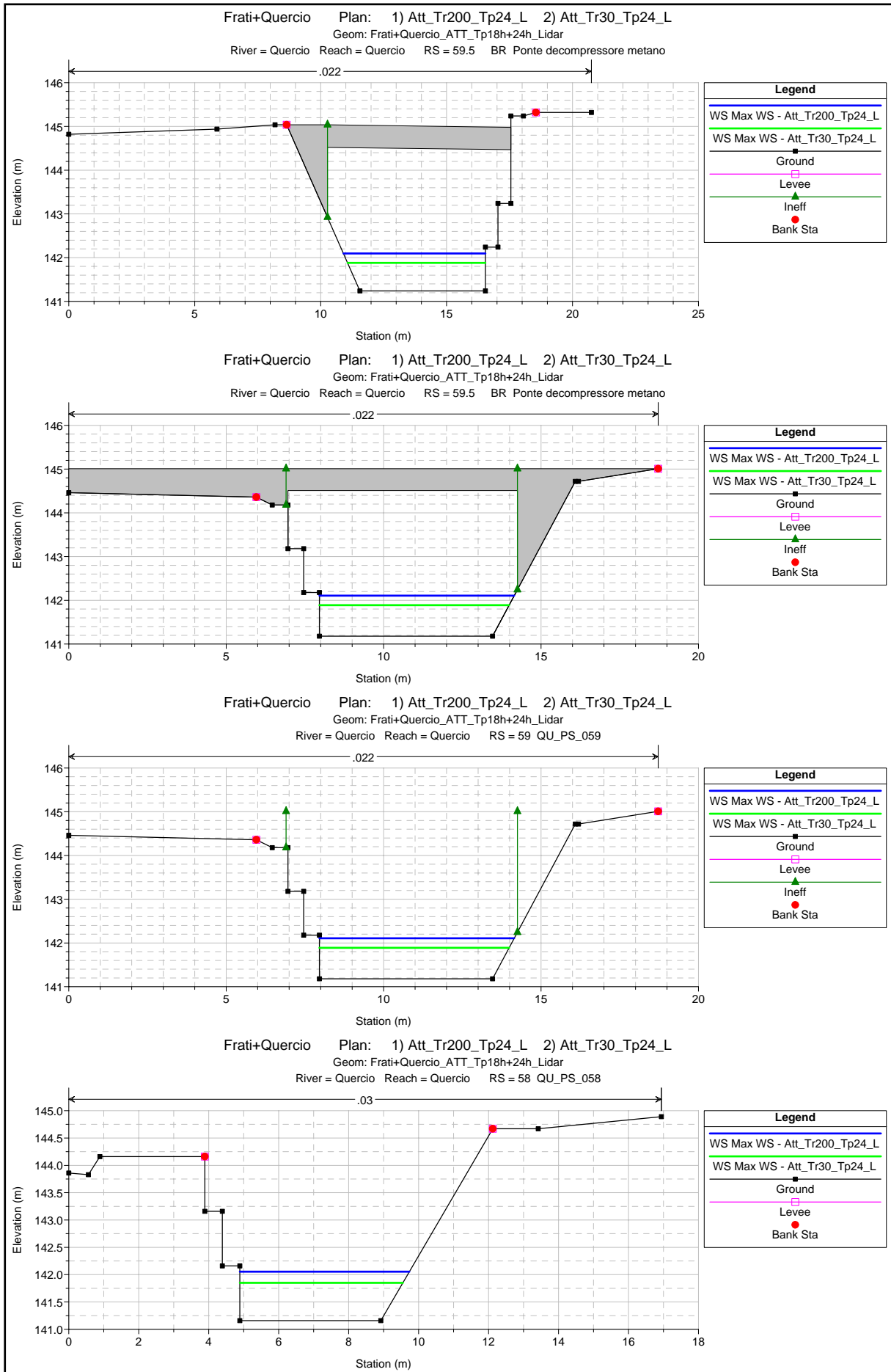
Frati+Quercio Plan: 1) Att\_Tr200\_Tp24\_L 2) Att\_Tr30\_Tp24\_L  
 Geom: Frati+Quercio\_ATT\_Tp18h+24h\_Lidar

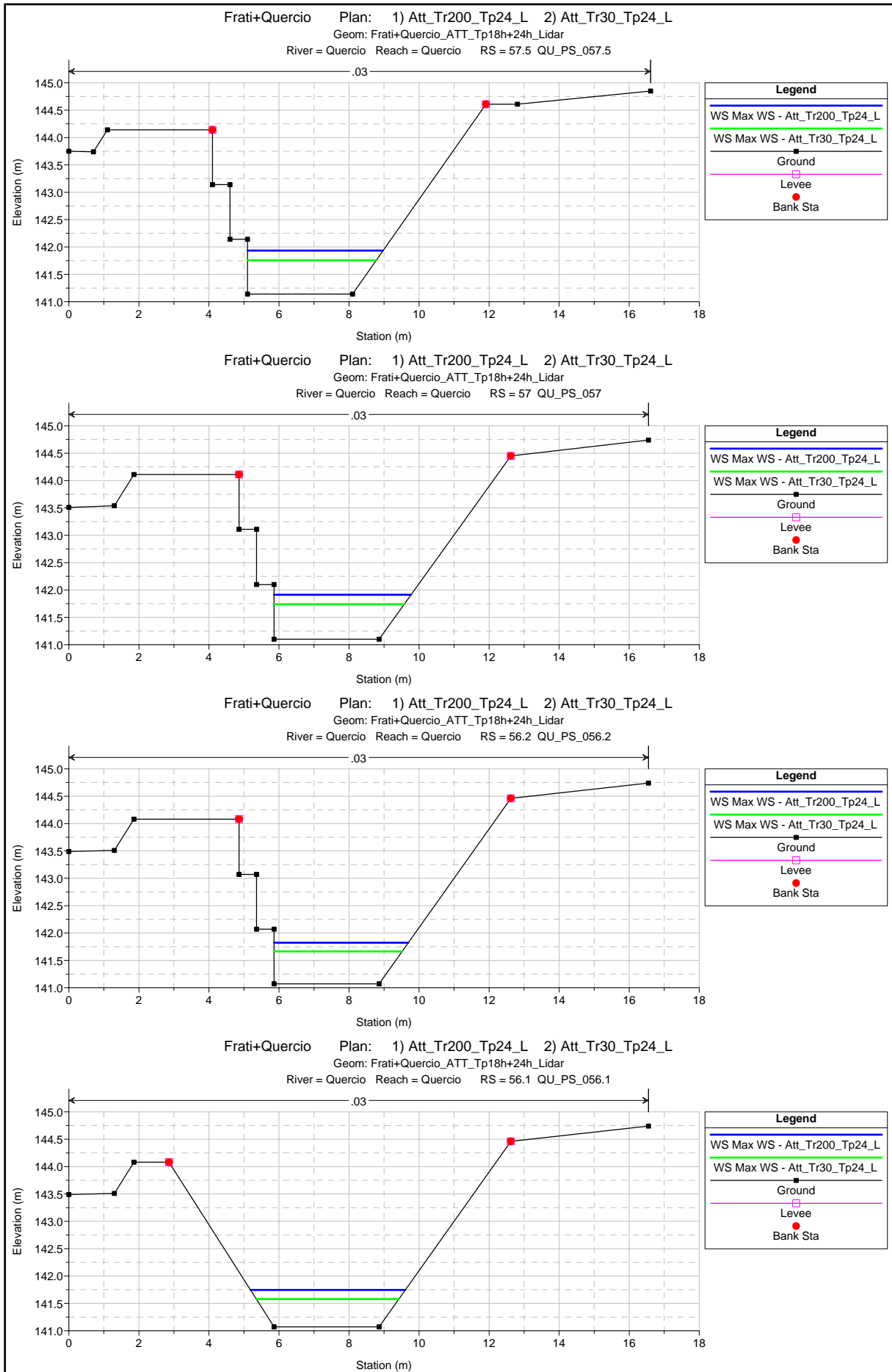


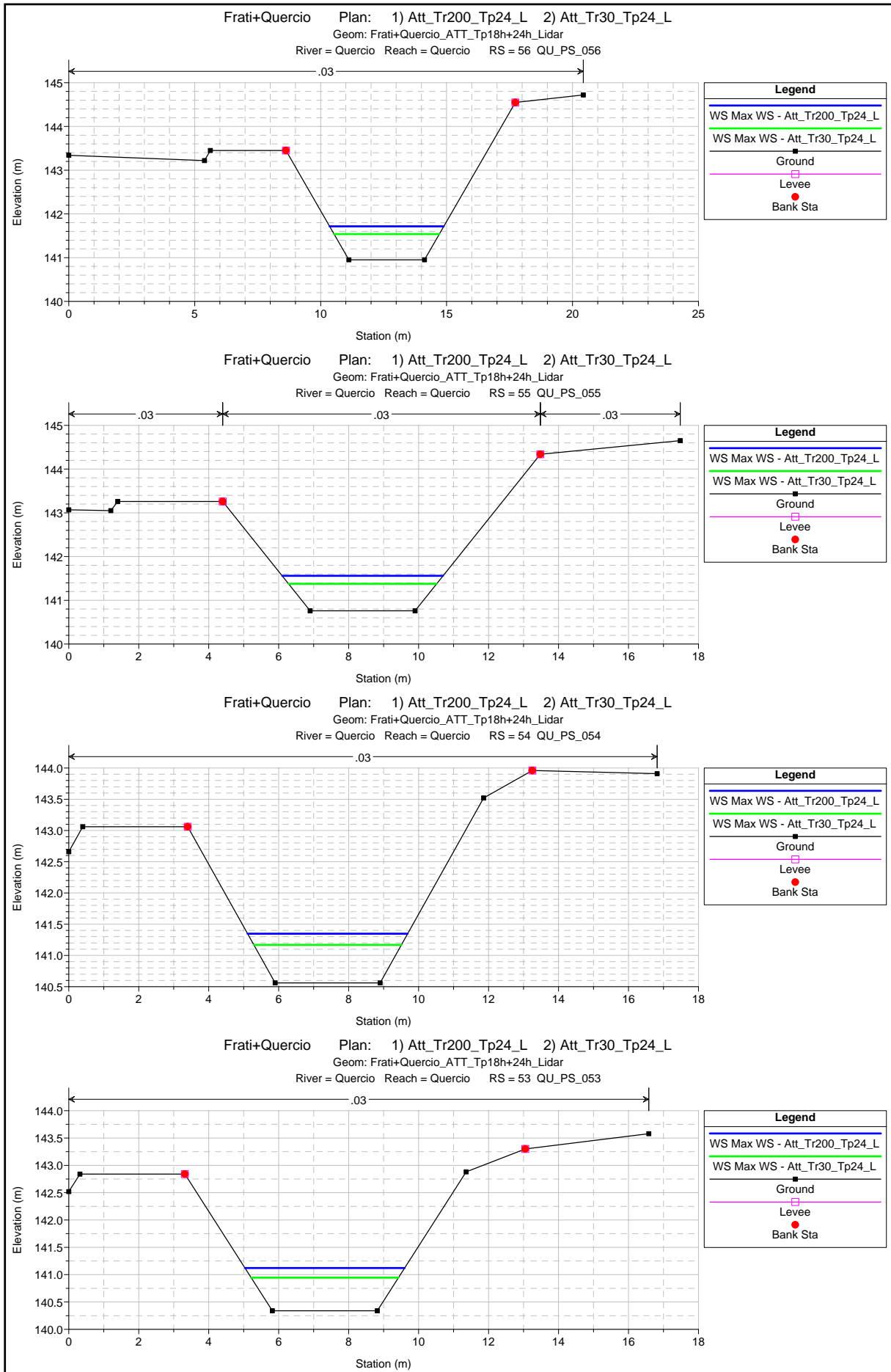


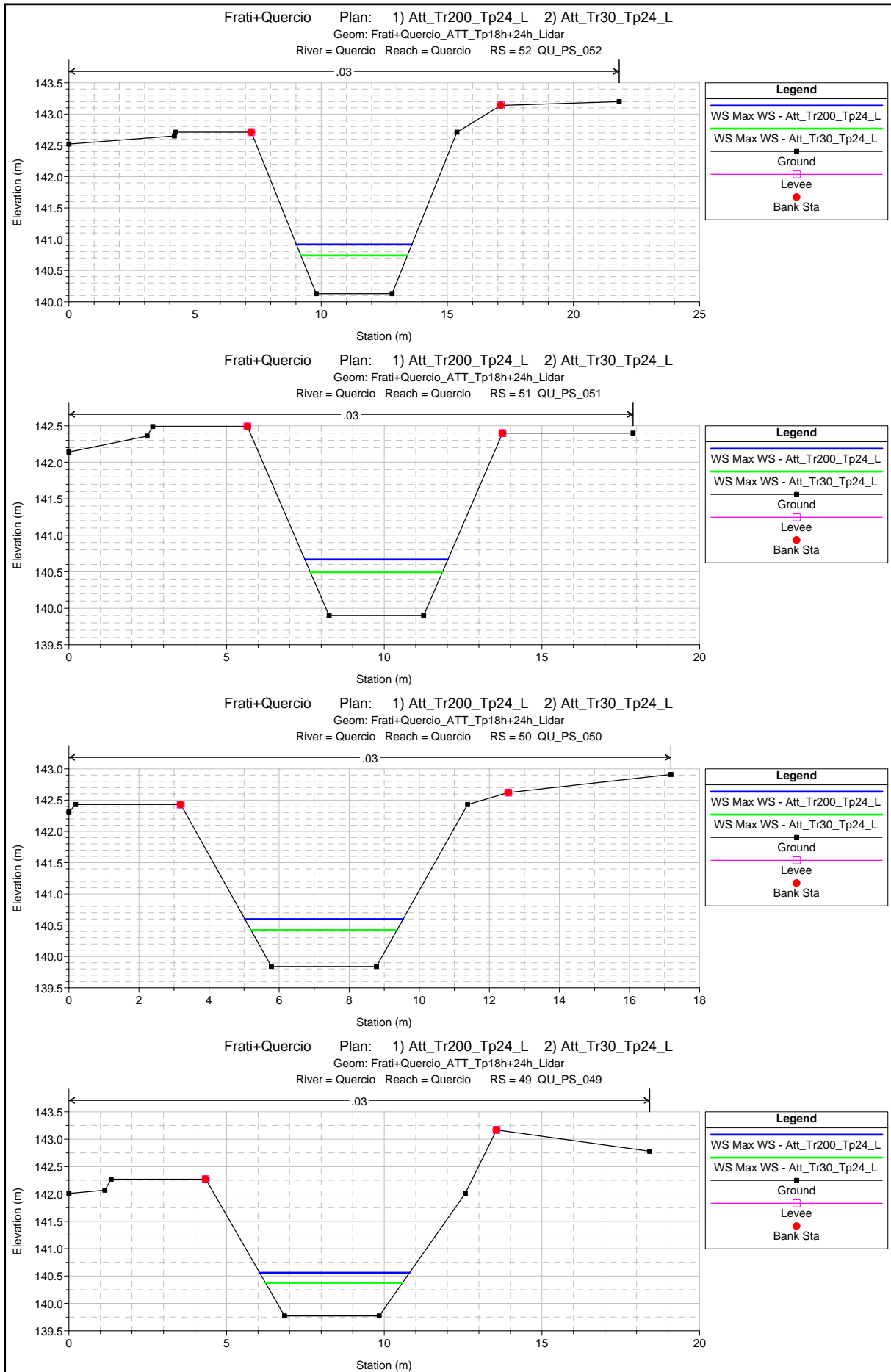


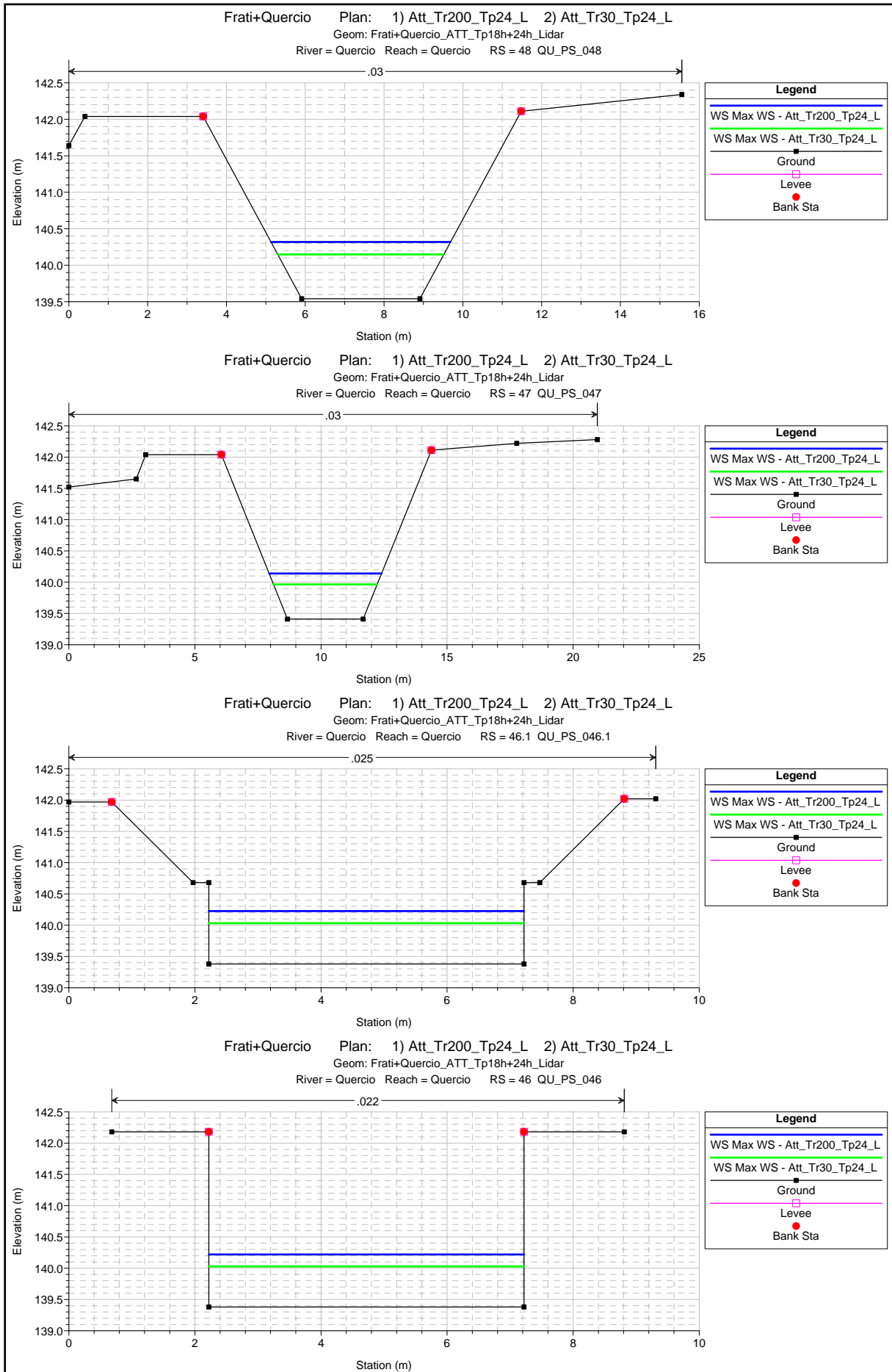


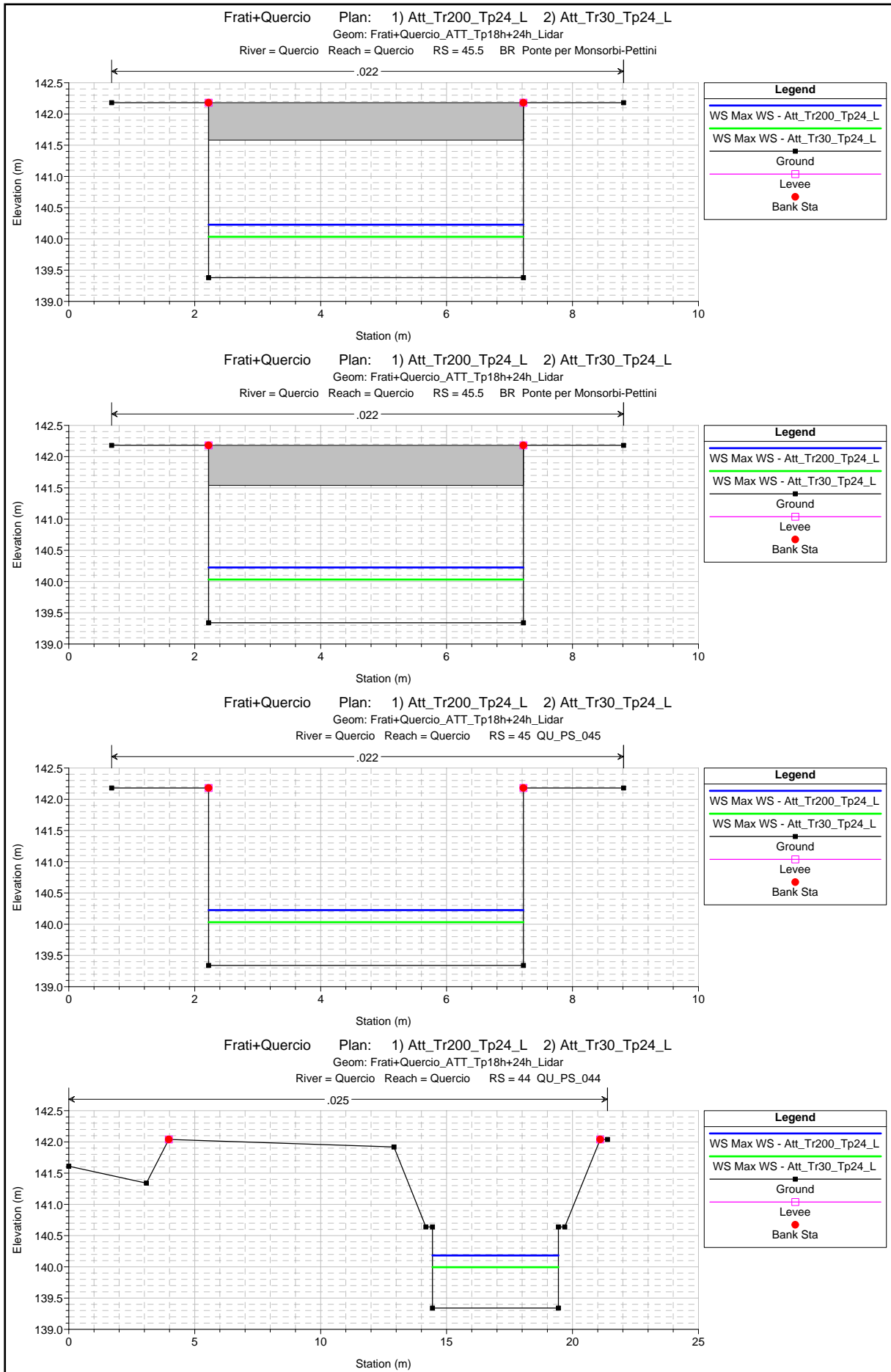




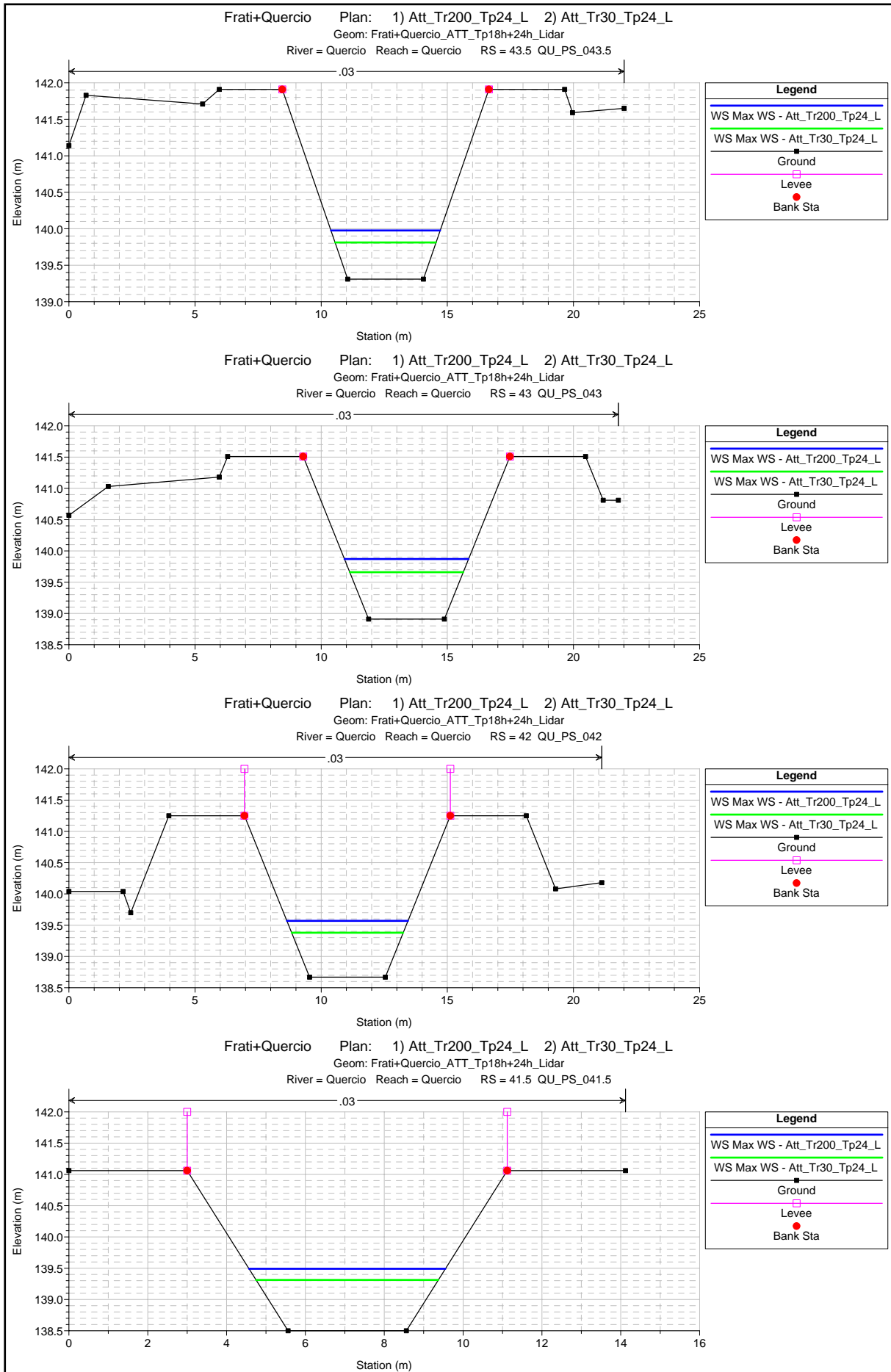


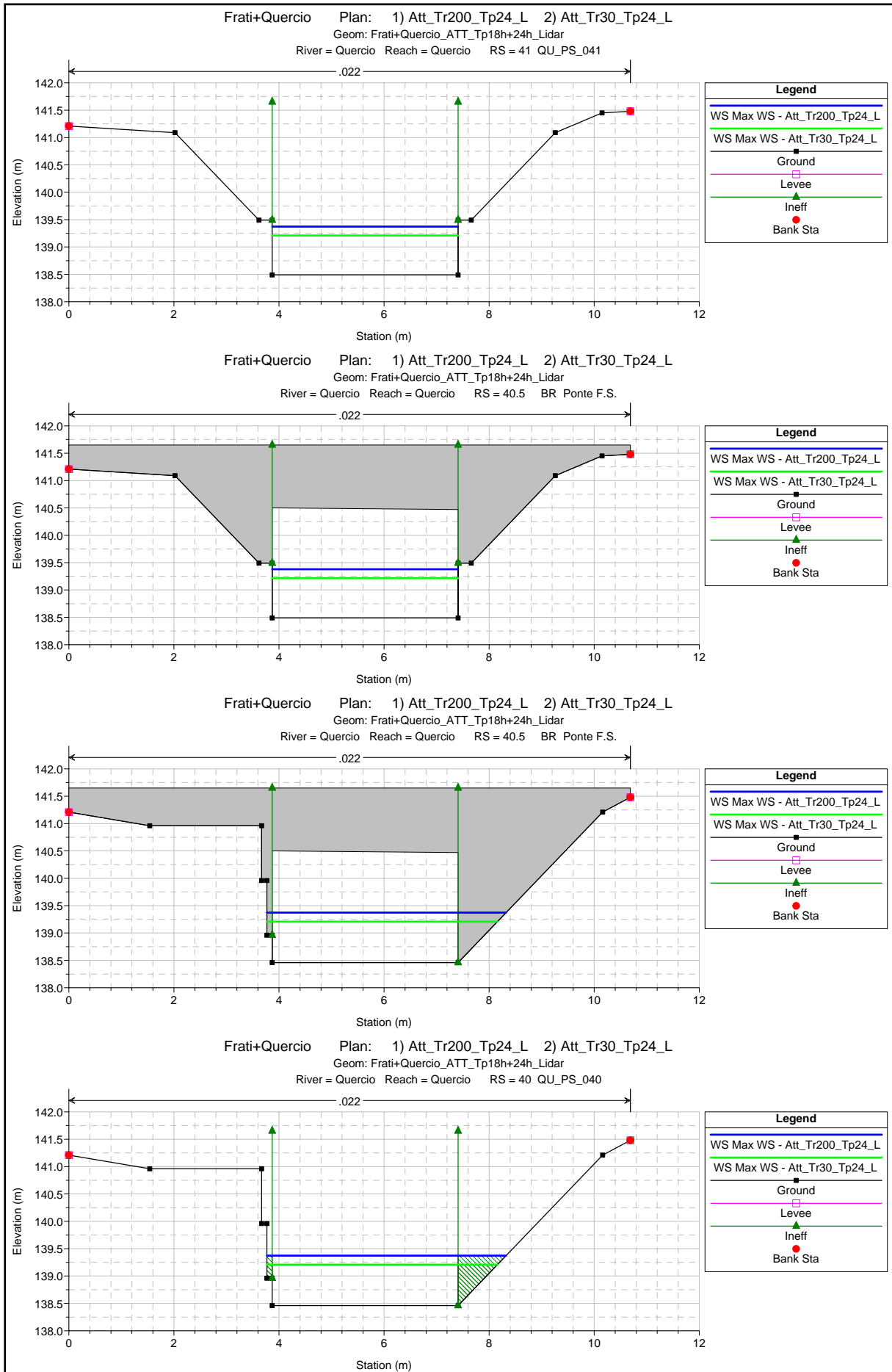


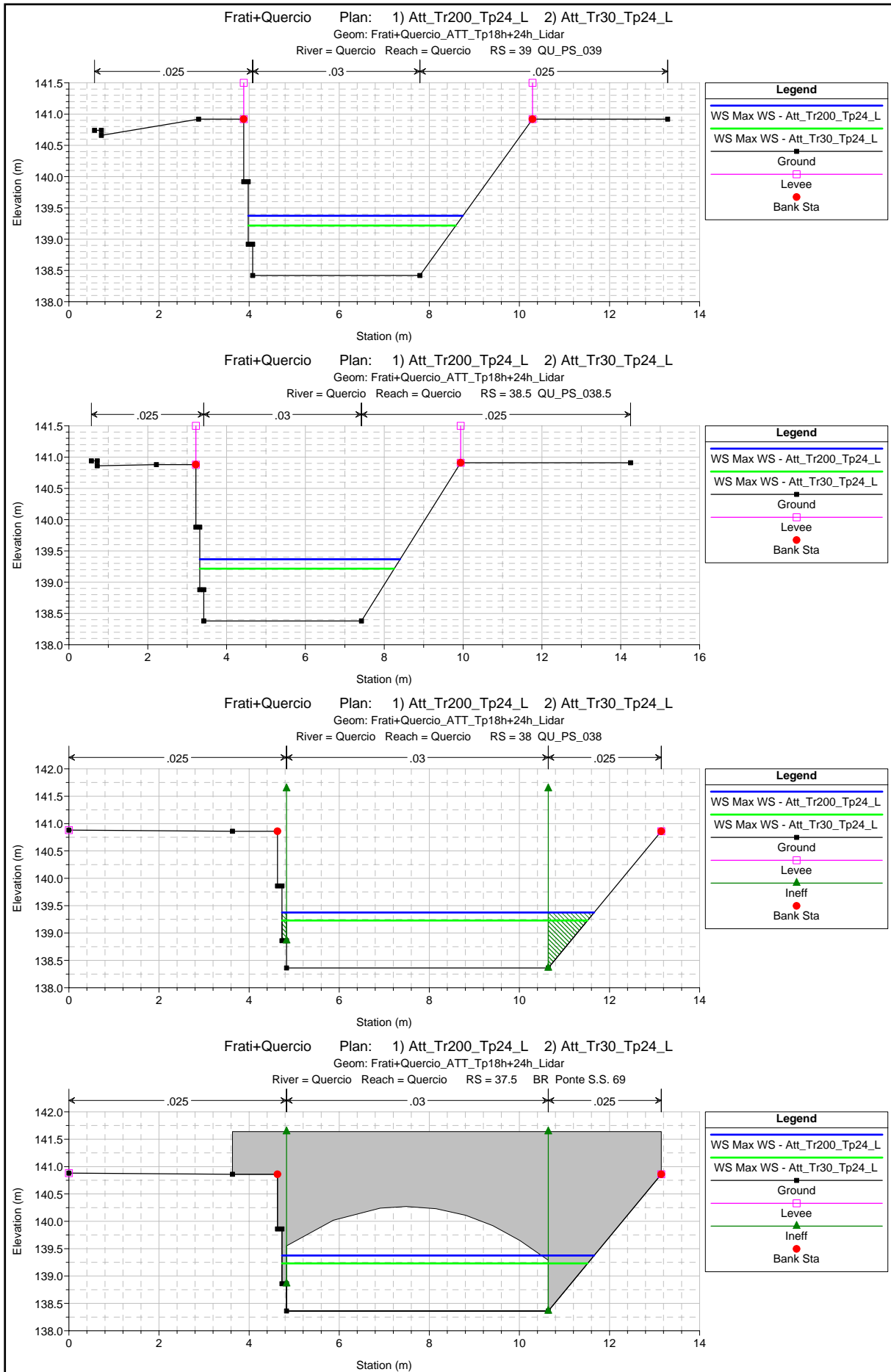


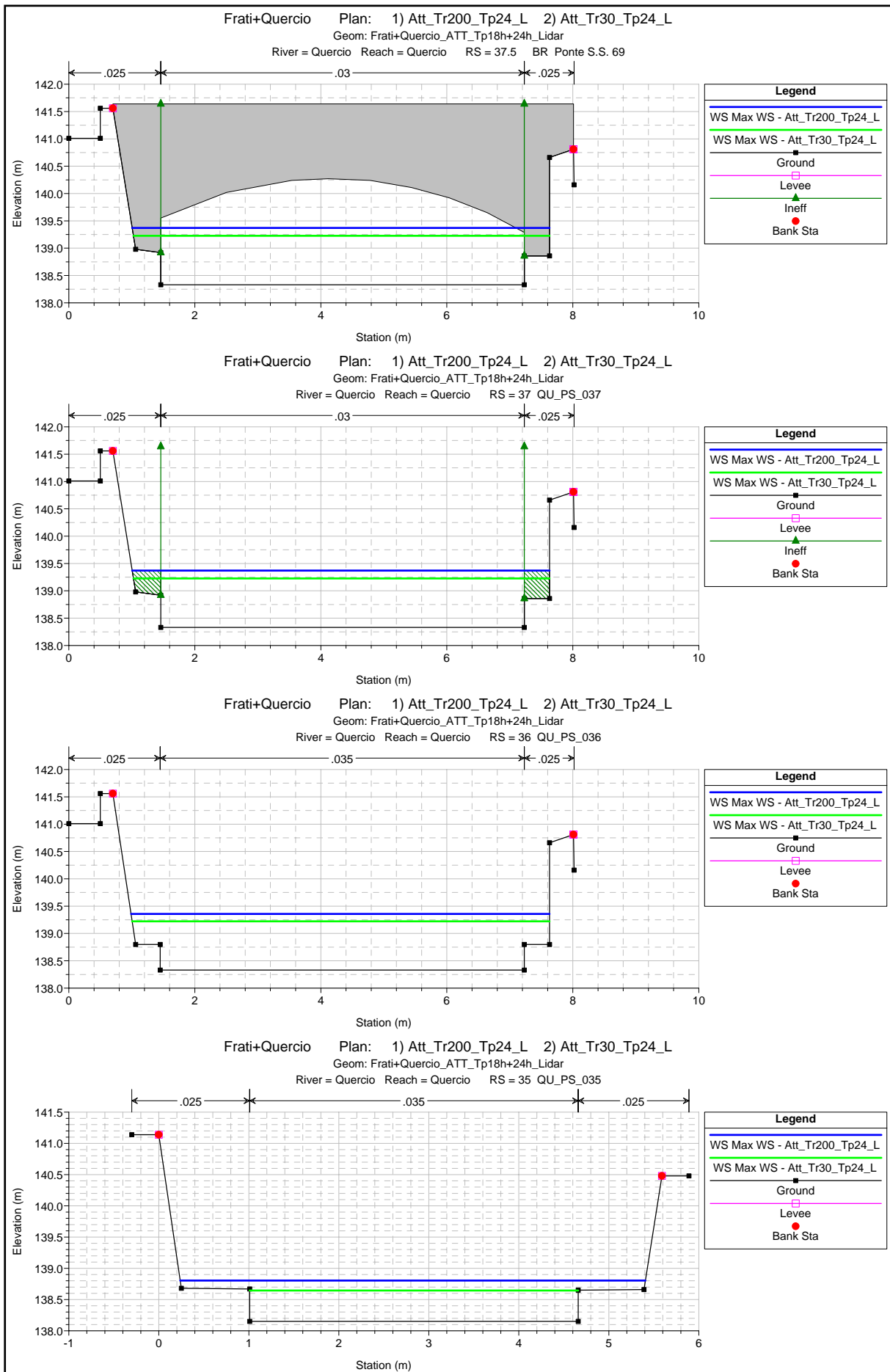


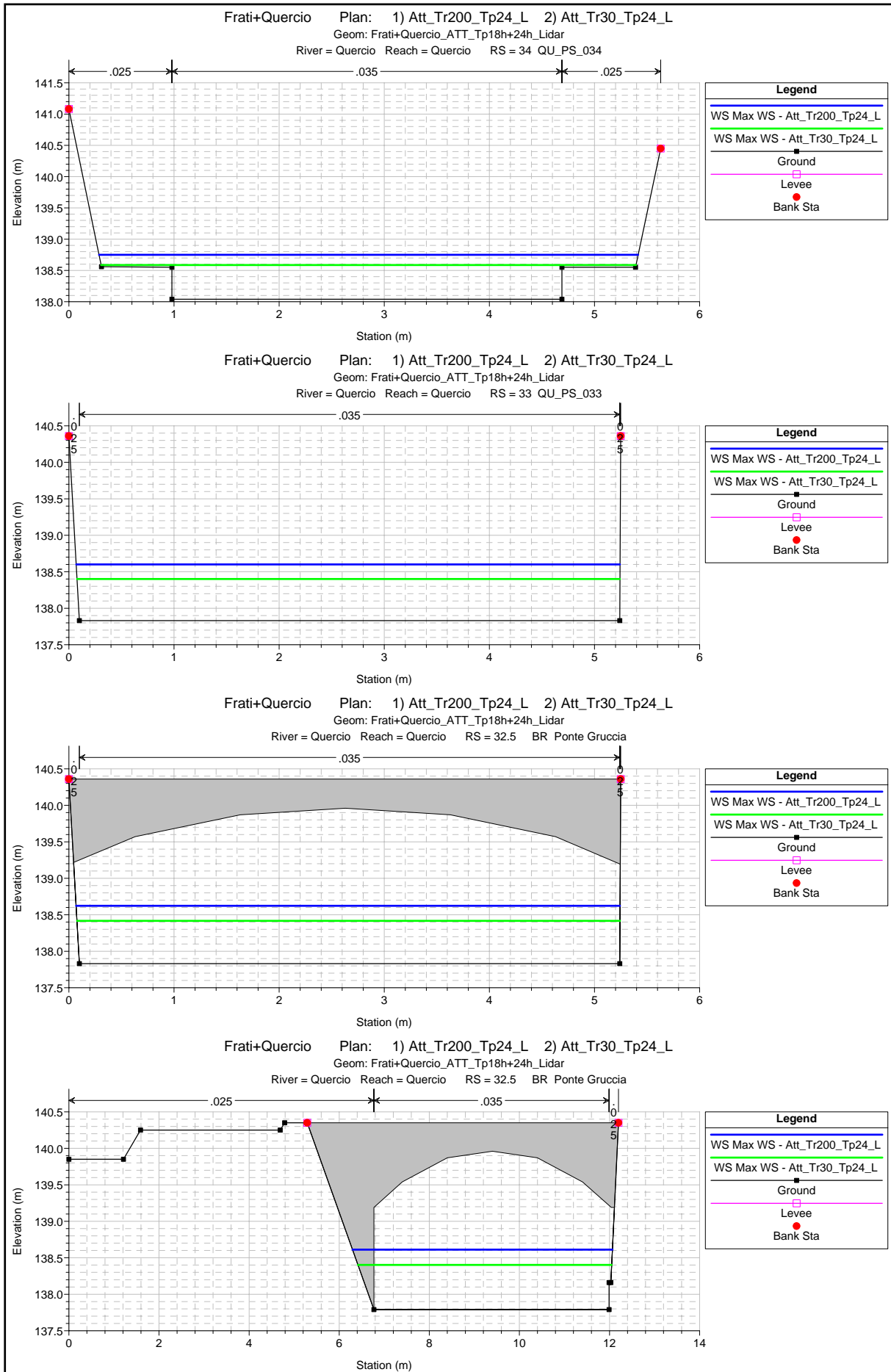


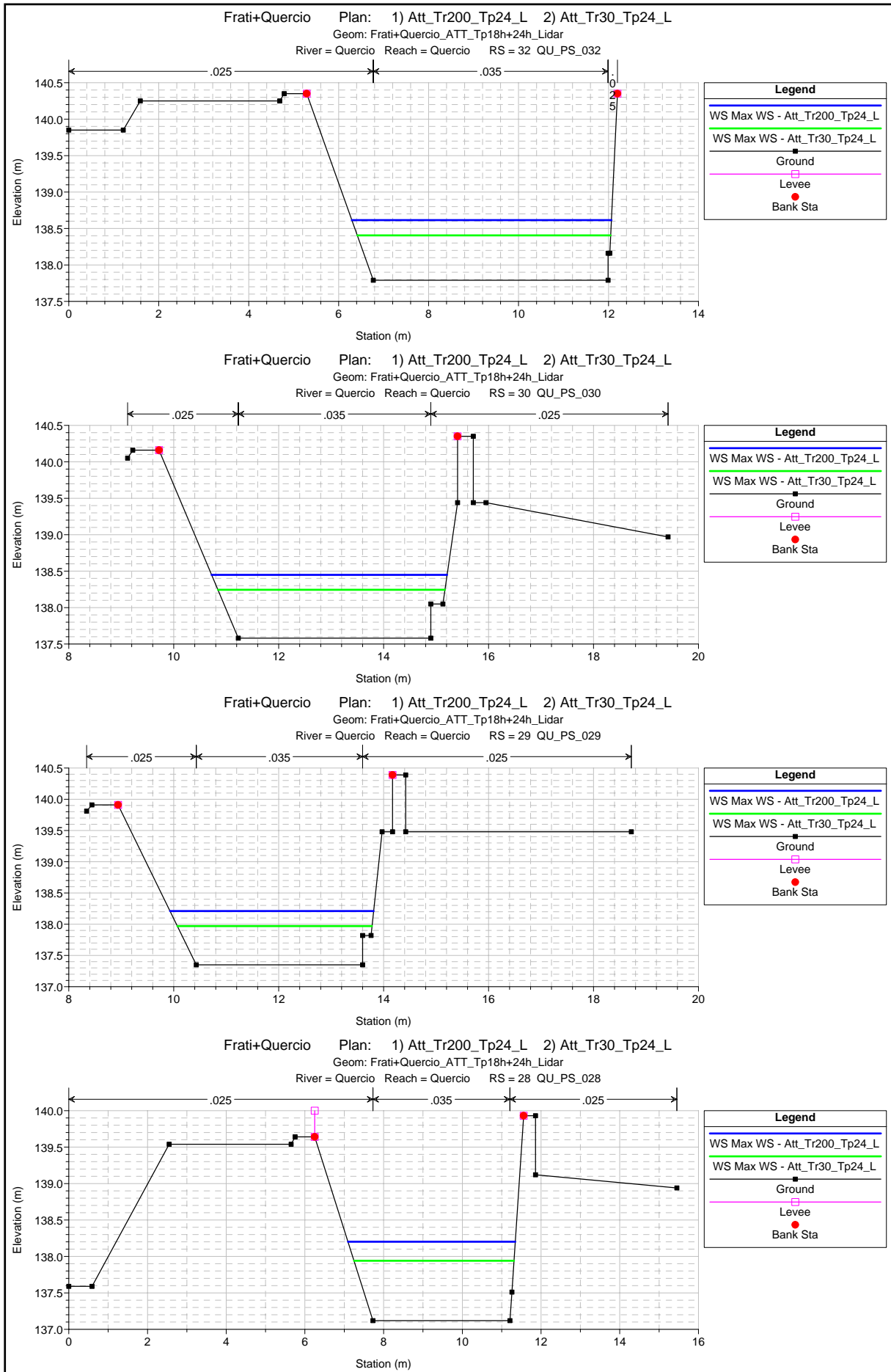


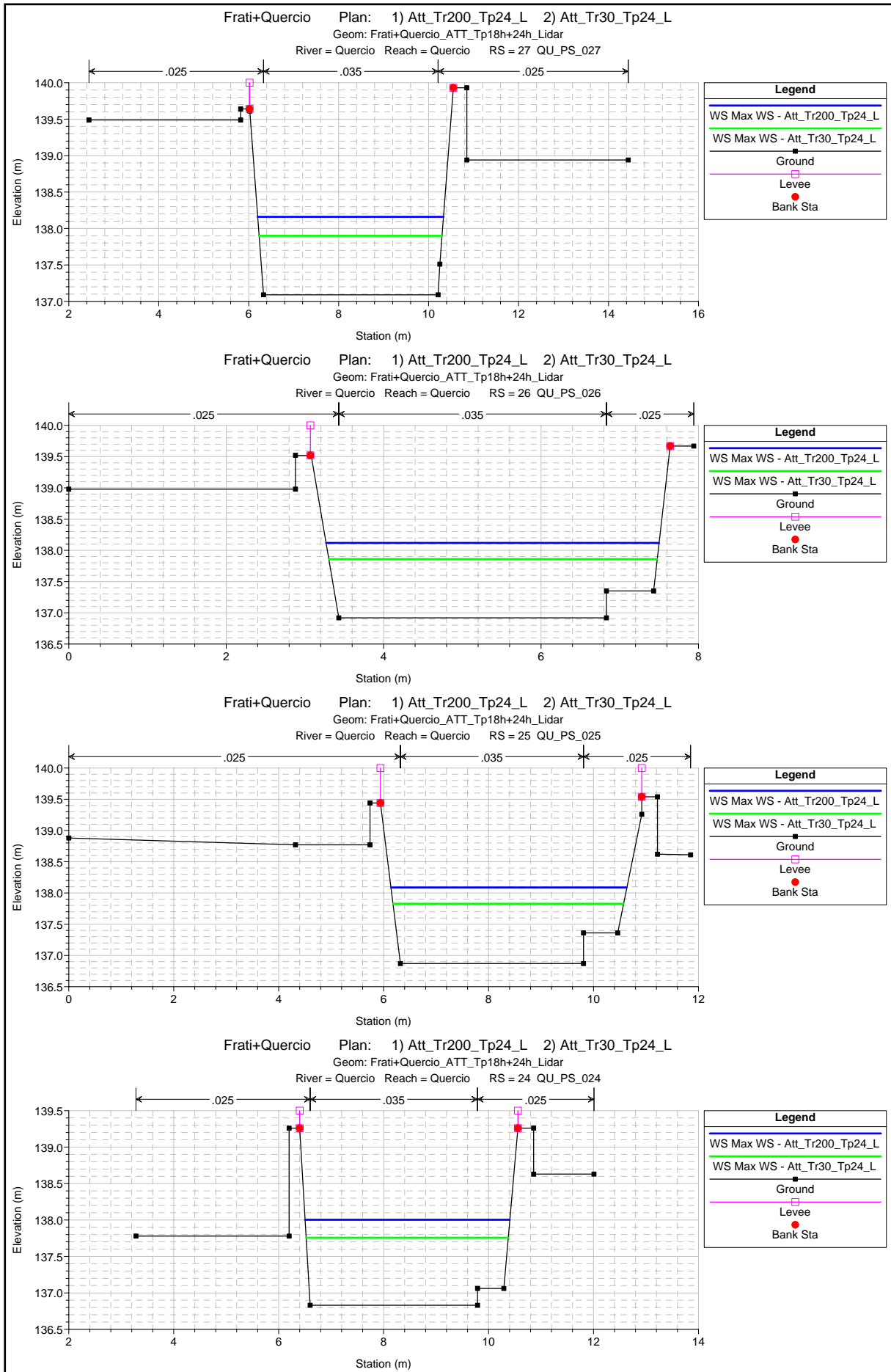


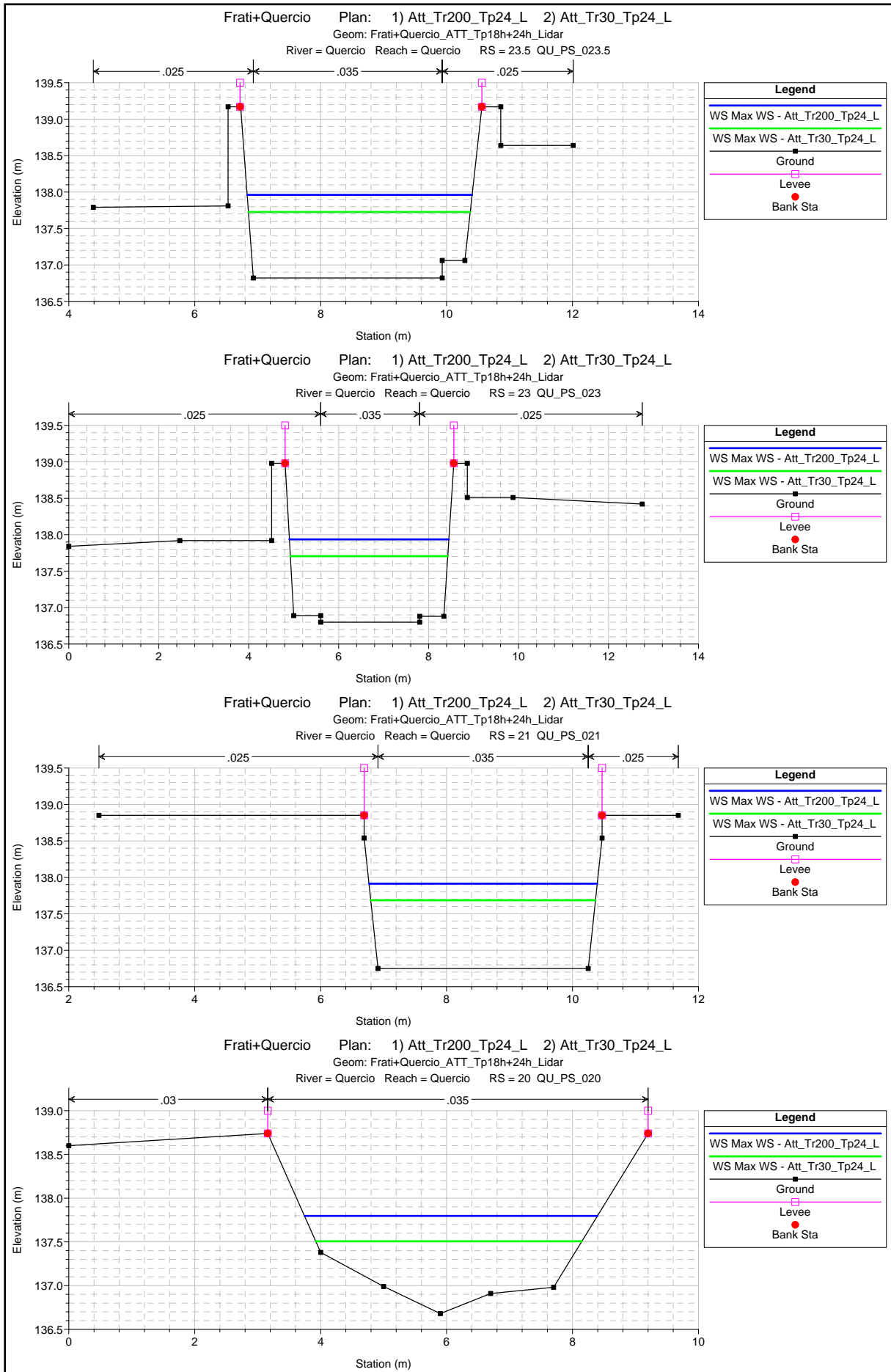




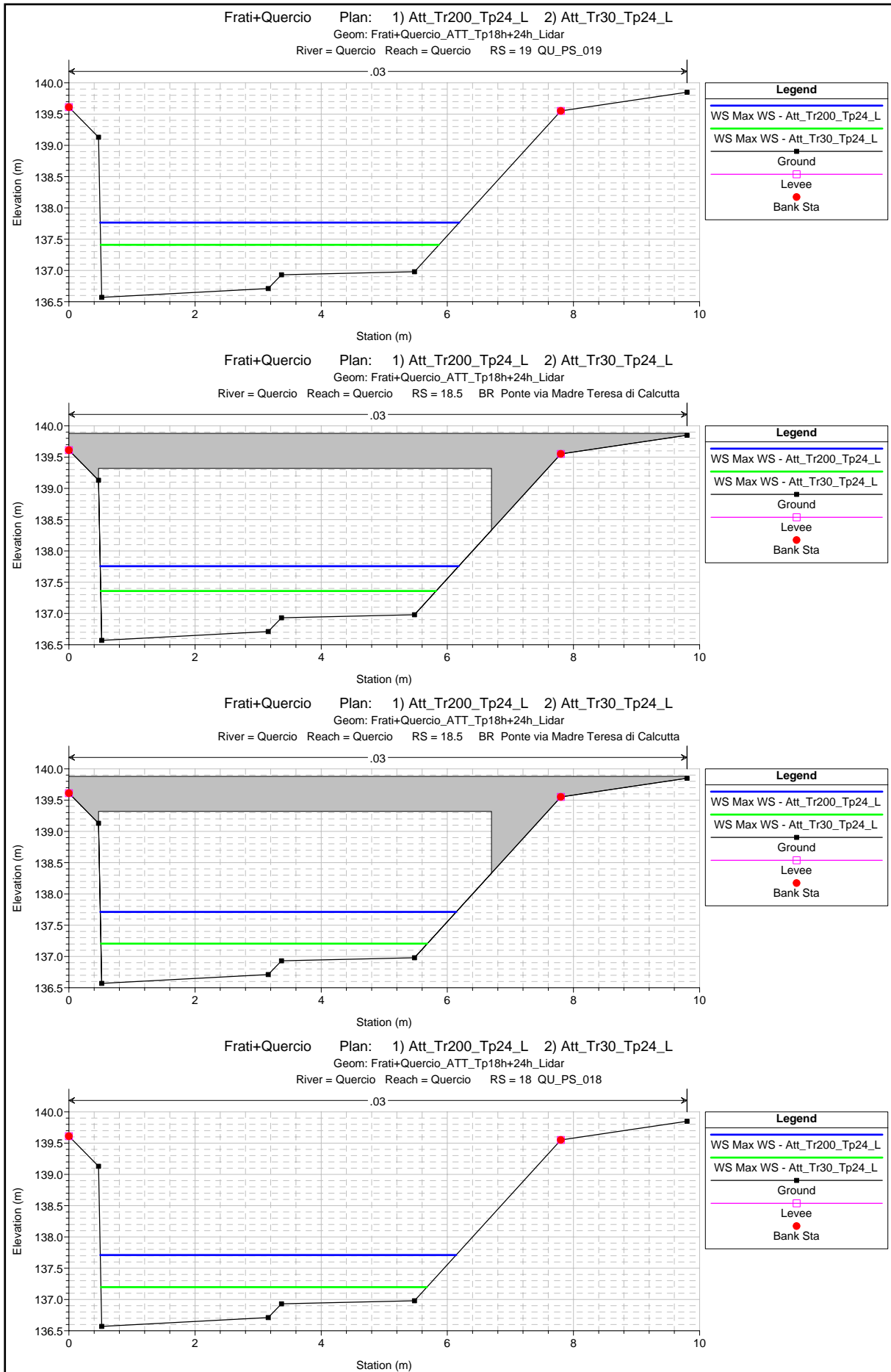


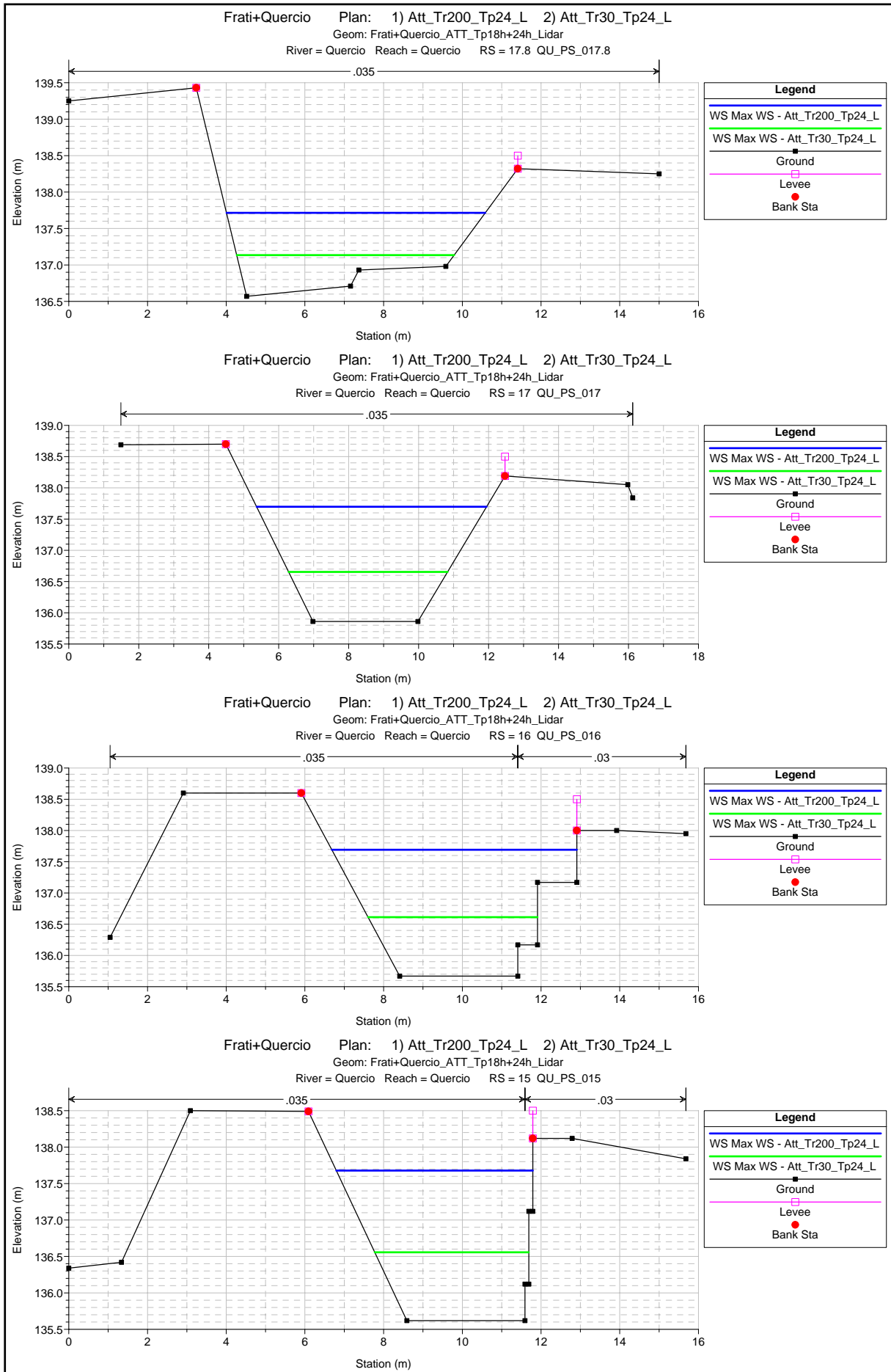


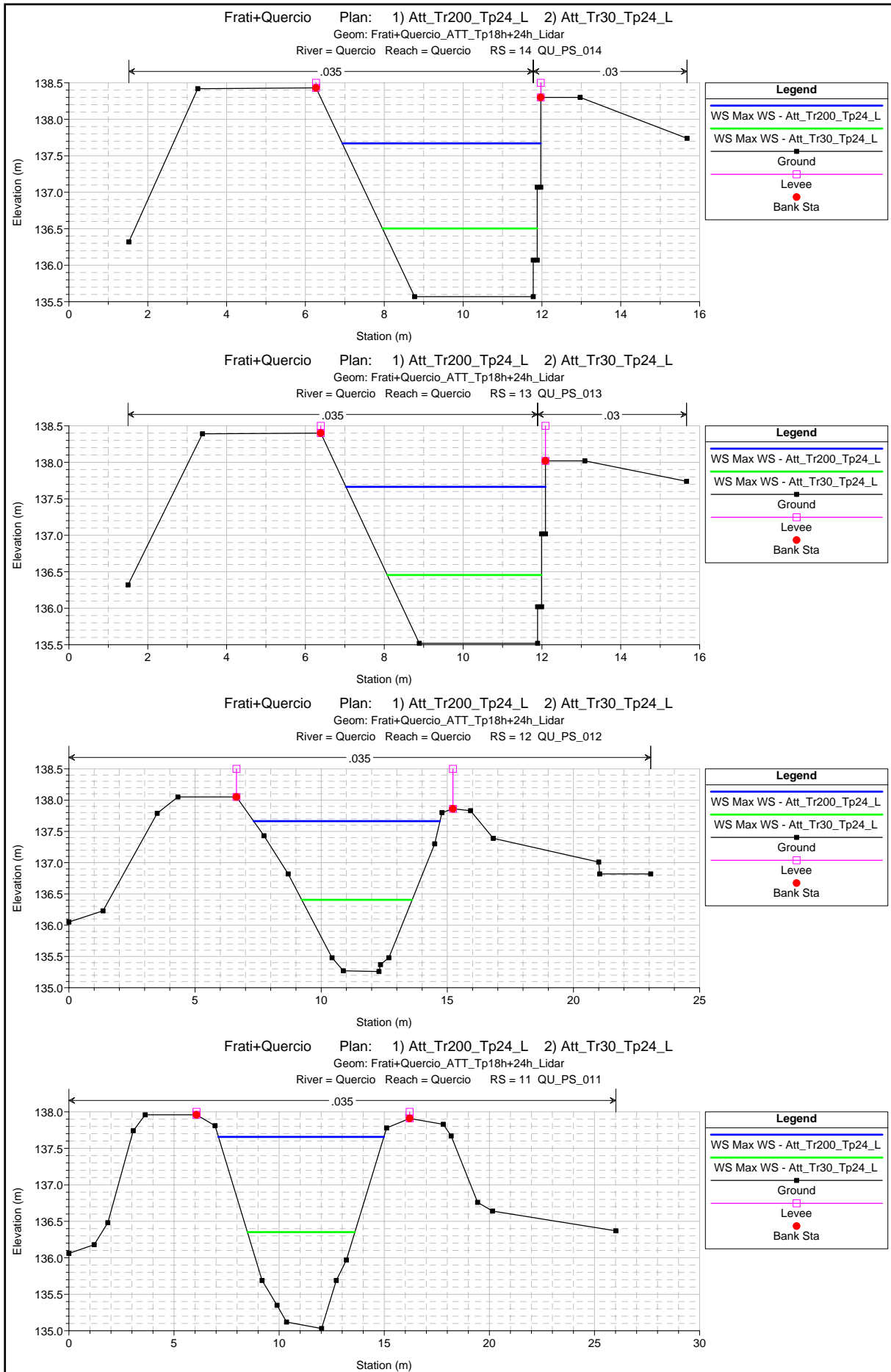


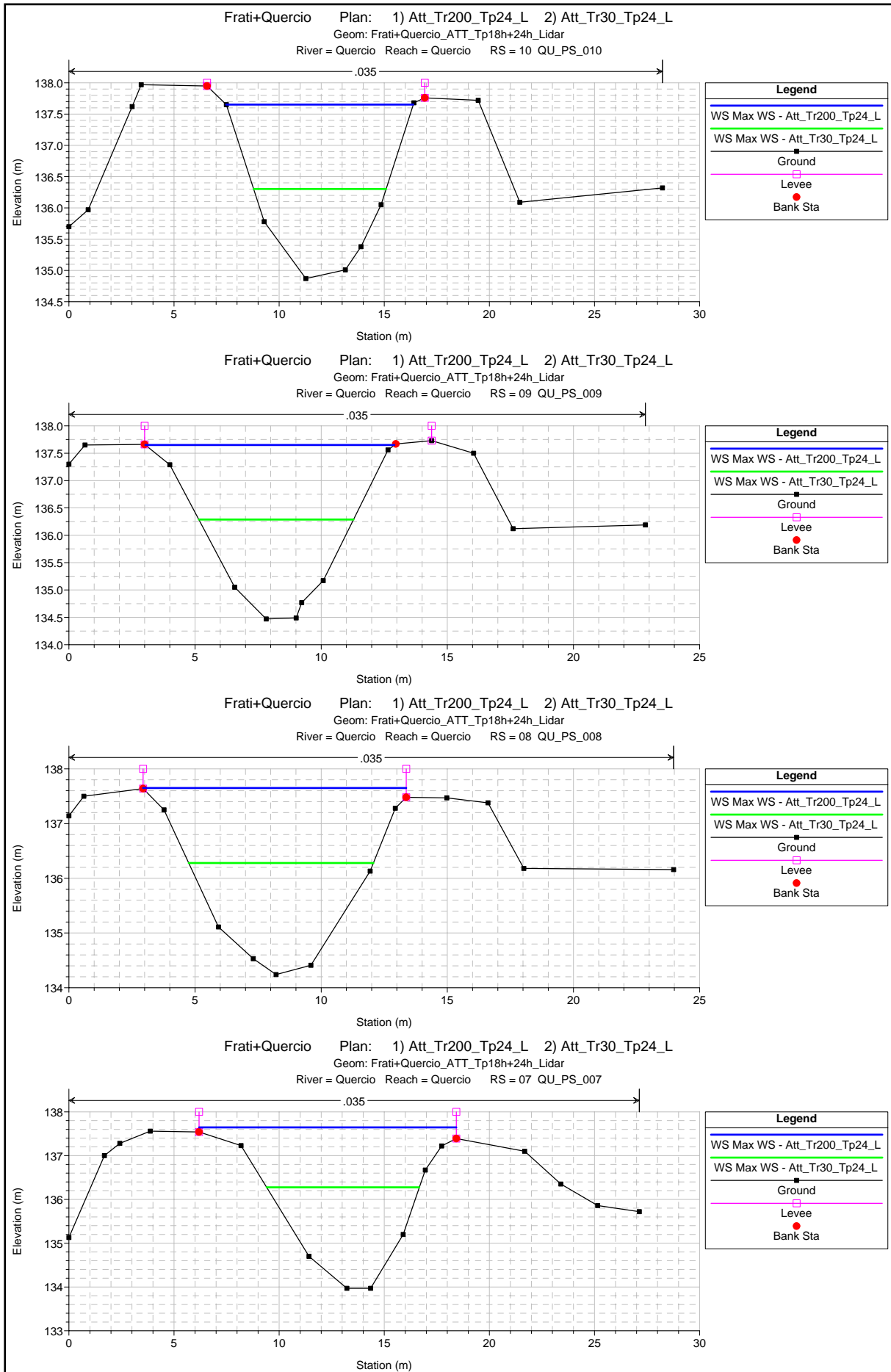


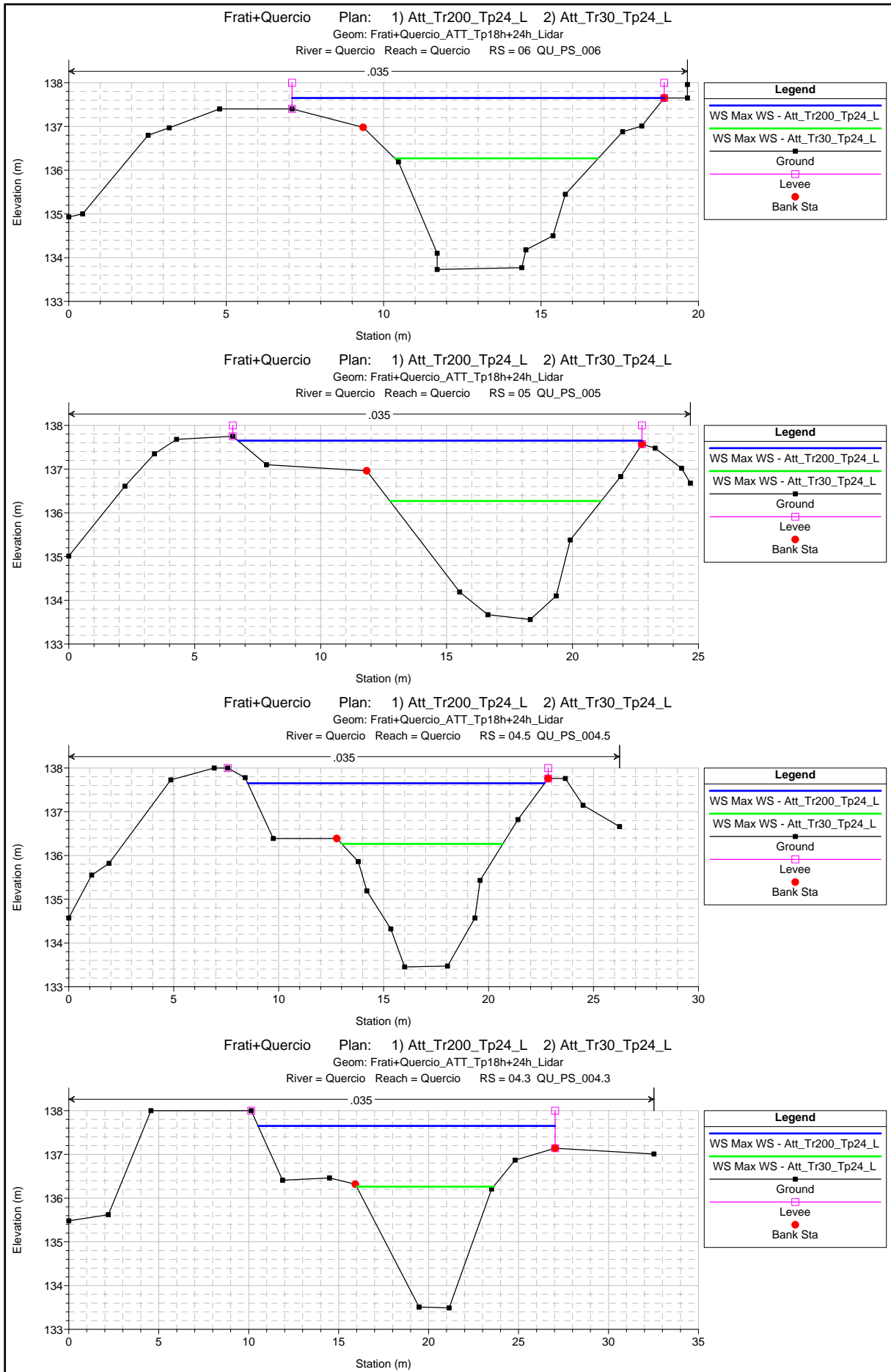


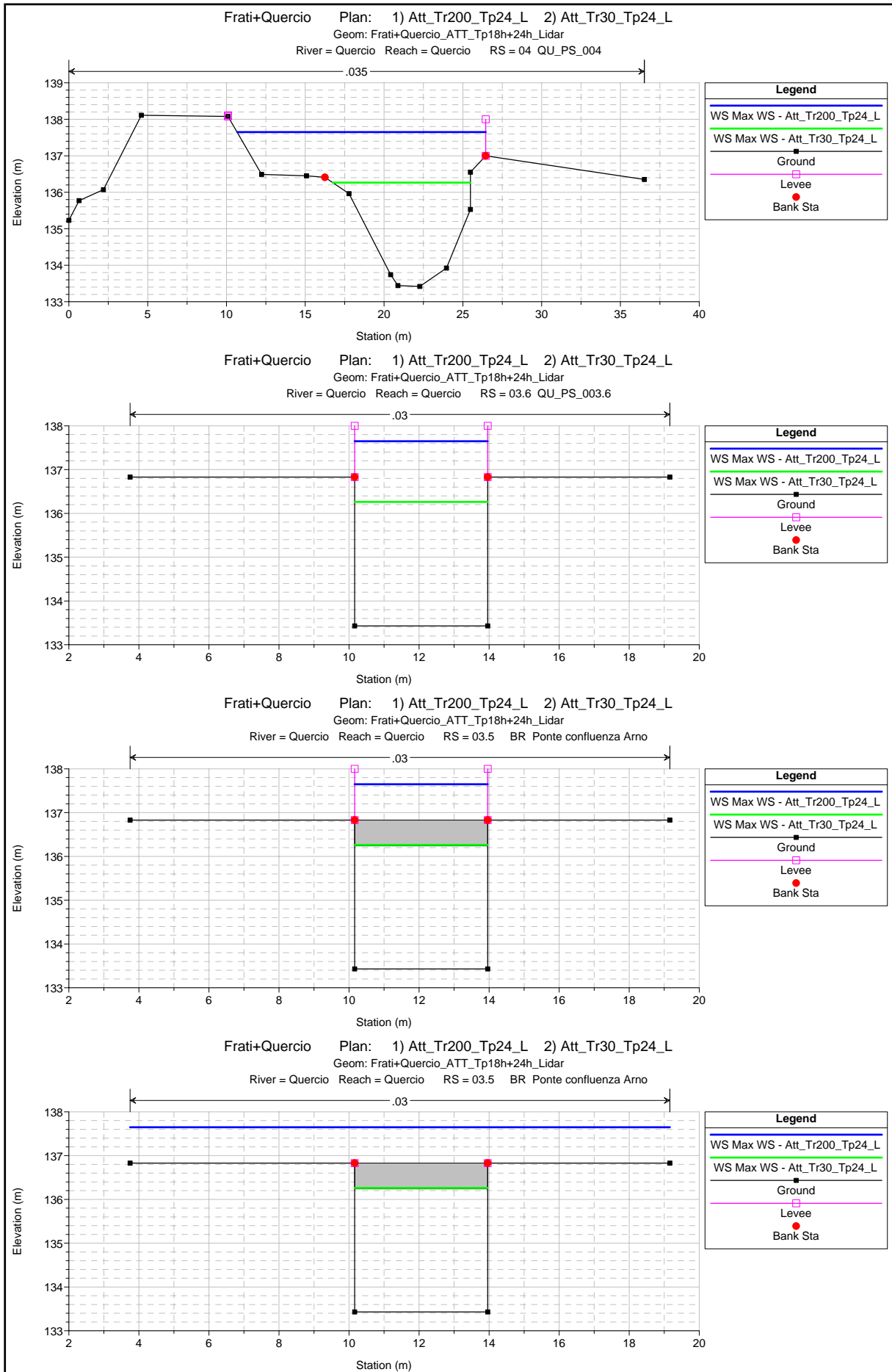


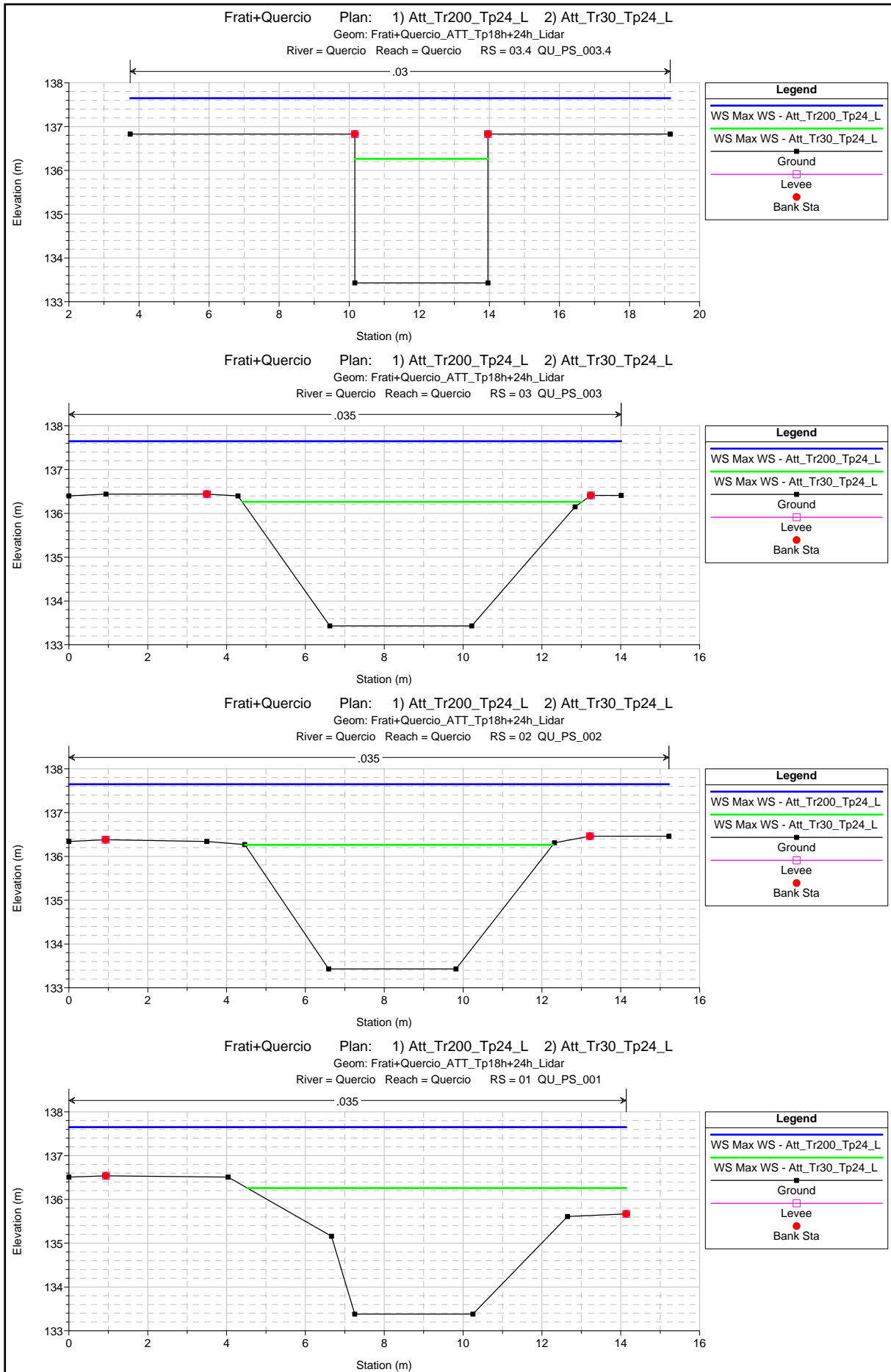












HEC-RAS River: Quercio Reach: Quercio Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	66	Max WS	Att_Tr200_Tp24_L	5.48	141.42	142.19		142.47	0.012608	2.38	2.31	3.54	0.94
Quercio	66	Max WS	Att_Tr30_Tp24_L	3.53	141.42	142.01		142.23	0.012653	2.09	1.69	3.30	0.93
Quercio	65	Max WS	Att_Tr200_Tp24_L	5.48	141.40	142.19		142.40	0.008123	2.01	2.73	3.90	0.77
Quercio	65	Max WS	Att_Tr30_Tp24_L	3.53	141.40	142.01		142.16	0.007866	1.73	2.04	3.70	0.75
Quercio	64	Max WS	Att_Tr200_Tp24_L	5.48	141.38	142.17		142.37	0.008156	2.01	2.73	3.92	0.77
Quercio	64	Max WS	Att_Tr30_Tp24_L	3.53	141.38	141.99		142.14	0.007869	1.73	2.04	3.71	0.75
Quercio	63	Max WS	Att_Tr200_Tp24_L	5.48	141.34	142.12		142.33	0.008144	2.00	2.74	3.99	0.77
Quercio	63	Max WS	Att_Tr30_Tp24_L	3.53	141.34	141.94		142.10	0.007862	1.73	2.04	3.77	0.75
Quercio	62	Max WS	Att_Tr200_Tp24_L	5.48	141.31	142.09		142.29	0.008147	1.99	2.75	4.07	0.77
Quercio	62	Max WS	Att_Tr30_Tp24_L	3.53	141.31	141.91		142.06	0.007970	1.73	2.04	3.82	0.75
Quercio	61.5	Max WS	Att_Tr200_Tp24_L	5.48	141.29	142.01		142.25	0.010194	2.15	2.55	4.07	0.86
Quercio	61.5	Max WS	Att_Tr30_Tp24_L	3.53	141.29	141.83		142.02	0.011008	1.92	1.84	3.80	0.88
Quercio	61	Max WS	Att_Tr200_Tp24_L	5.48	141.24	142.09		142.17	0.002335	1.21	4.52	5.63	0.43
Quercio	61	Max WS	Att_Tr30_Tp24_L	3.53	141.24	141.88		141.94	0.002406	1.06	3.34	5.47	0.43
Quercio	60	Max WS	Att_Tr200_Tp24_L	5.48	141.24	142.08	141.73	142.16	0.001302	1.23	4.46	5.62	0.44
Quercio	60	Max WS	Att_Tr30_Tp24_L	3.53	141.24	141.87	141.61	141.93	0.001359	1.07	3.29	5.46	0.44
Quercio	59.5			Bridge									
Quercio	59	Max WS	Att_Tr200_Tp24_L	5.48	141.18	142.11		142.16	0.000779	1.01	5.41	6.19	0.35
Quercio	59	Max WS	Att_Tr30_Tp24_L	3.53	141.18	141.89		141.93	0.000750	0.86	4.09	6.03	0.33
Quercio	58	Max WS	Att_Tr200_Tp24_L	5.48	141.16	142.05		142.15	0.003070	1.38	3.97	4.85	0.49
Quercio	58	Max WS	Att_Tr30_Tp24_L	3.53	141.16	141.85		141.92	0.002899	1.18	3.00	4.66	0.47
Quercio	57.5	Max WS	Att_Tr200_Tp24_L	5.48	141.14	141.93		142.14	0.008106	2.01	2.73	3.87	0.76
Quercio	57.5	Max WS	Att_Tr30_Tp24_L	3.53	141.14	141.76		141.91	0.007592	1.72	2.06	3.68	0.73
Quercio	57	Max WS	Att_Tr200_Tp24_L	5.48	141.10	141.91		142.11	0.007454	1.95	2.81	3.91	0.73
Quercio	57	Max WS	Att_Tr30_Tp24_L	3.53	141.10	141.74		141.88	0.006744	1.65	2.14	3.72	0.69



HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	56.2	Max WS	Att_Tr200_Tp24_L	5.48	141.07	141.82		142.05	0.009579	2.13	2.57	3.83	0.83
Quercio	56.2	Max WS	Att_Tr30_Tp24_L	3.53	141.07	141.66		141.83	0.008504	1.78	1.98	3.66	0.77
Quercio	56.1	Max WS	Att_Tr200_Tp24_L	5.48	141.07	141.75		141.99	0.010693	2.19	2.51	4.42	0.93
Quercio	56.1	Max WS	Att_Tr30_Tp24_L	3.53	141.07	141.58	141.56	141.78	0.011675	1.96	1.80	4.07	0.94
Quercio	56	Max WS	Att_Tr200_Tp24_L	5.48	140.95	141.72		141.90	0.007042	1.90	2.89	4.54	0.76
Quercio	56	Max WS	Att_Tr30_Tp24_L	3.53	140.95	141.54		141.68	0.007241	1.67	2.11	4.18	0.75
Quercio	55	Max WS	Att_Tr200_Tp24_L	5.48	140.76	141.56		141.73	0.006101	1.80	3.04	4.60	0.71
Quercio	55	Max WS	Att_Tr30_Tp24_L	3.53	140.76	141.38		141.50	0.006139	1.58	2.23	4.23	0.69
Quercio	54	Max WS	Att_Tr200_Tp24_L	5.48	140.56	141.35		141.52	0.006417	1.84	2.98	4.58	0.73
Quercio	54	Max WS	Att_Tr30_Tp24_L	3.53	140.56	141.17		141.30	0.006449	1.61	2.20	4.22	0.71
Quercio	53	Max WS	Att_Tr200_Tp24_L	5.48	140.34	141.12		141.30	0.006573	1.85	2.96	4.56	0.73
Quercio	53	Max WS	Att_Tr30_Tp24_L	3.53	140.34	140.95		141.08	0.006570	1.62	2.18	4.21	0.72
Quercio	52	Max WS	Att_Tr200_Tp24_L	5.48	140.13	140.92		141.09	0.006420	1.84	2.98	4.58	0.73
Quercio	52	Max WS	Att_Tr30_Tp24_L	3.53	140.13	140.74		140.87	0.006425	1.60	2.20	4.22	0.71
Quercio	51	Max WS	Att_Tr200_Tp24_L	5.48	139.90	140.67		140.85	0.006989	1.89	2.90	4.54	0.76
Quercio	51	Max WS	Att_Tr30_Tp24_L	3.53	139.90	140.50		140.63	0.006957	1.65	2.14	4.19	0.74
Quercio	50	Max WS	Att_Tr200_Tp24_L	5.48	139.84	140.60		140.79	0.007399	1.93	2.84	4.51	0.78
Quercio	50	Max WS	Att_Tr30_Tp24_L	3.53	139.84	140.42		140.57	0.007539	1.70	2.08	4.16	0.77
Quercio	49	Max WS	Att_Tr200_Tp24_L	5.48	139.77	140.56		140.72	0.006115	1.79	3.06	4.75	0.71
Quercio	49	Max WS	Att_Tr30_Tp24_L	3.53	139.77	140.38		140.50	0.006279	1.58	2.23	4.35	0.70
Quercio	48	Max WS	Att_Tr200_Tp24_L	5.48	139.54	140.32		140.50	0.006663	1.86	2.94	4.56	0.74
Quercio	48	Max WS	Att_Tr30_Tp24_L	3.53	139.54	140.15		140.28	0.006453	1.61	2.20	4.22	0.71
Quercio	47	Max WS	Att_Tr200_Tp24_L	5.48	139.41	140.14		140.35	0.008339	2.01	2.72	4.46	0.82
Quercio	47	Max WS	Att_Tr30_Tp24_L	3.52	139.41	139.96		140.13	0.008837	1.79	1.97	4.11	0.82
Quercio	46.1	Max WS	Att_Tr200_Tp24_L	5.48	139.38	140.23		140.31	0.001937	1.30	4.23	5.00	0.45
Quercio	46.1	Max WS	Att_Tr30_Tp24_L	3.52	139.38	140.03		140.09	0.001749	1.08	3.26	5.00	0.43

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	46	Max WS	Att_Tr200_Tp24_L	5.48	139.38	140.22	139.88	140.31	0.001531	1.31	4.20	5.00	0.45
Quercio	46	Max WS	Att_Tr30_Tp24_L	3.52	139.38	140.03	139.75	140.09	0.001387	1.09	3.24	5.00	0.43
Quercio	45.5			Bridge									
Quercio	45	Max WS	Att_Tr200_Tp24_L	5.48	139.34	140.23		140.30	0.001305	1.24	4.43	5.00	0.42
Quercio	45	Max WS	Att_Tr30_Tp24_L	3.52	139.34	140.03		140.08	0.001132	1.02	3.46	5.00	0.39
Quercio	44	Max WS	Att_Tr200_Tp24_L	5.48	139.34	140.18		140.27	0.001964	1.30	4.21	5.00	0.45
Quercio	44	Max WS	Att_Tr30_Tp24_L	3.51	139.34	140.00		140.05	0.001719	1.07	3.28	5.00	0.42
Quercio	43.5	Max WS	Att_Tr200_Tp24_L	5.48	139.31	139.98	139.96	140.23	0.011453	2.25	2.44	4.33	0.96
Quercio	43.5	Max WS	Att_Tr30_Tp24_L	3.55	139.31	139.81	139.80	140.02	0.012586	2.02	1.76	4.00	0.97
Quercio	43	Max WS	Att_Tr200_Tp24_L	5.48	138.91	139.87		139.98	0.003230	1.44	3.80	4.92	0.52
Quercio	43	Max WS	Att_Tr30_Tp24_L	3.54	138.91	139.66		139.74	0.003157	1.26	2.81	4.50	0.51
Quercio	42	Max WS	Att_Tr200_Tp24_L	5.48	138.67	139.57		139.69	0.004040	1.56	3.51	4.80	0.58
Quercio	42	Max WS	Att_Tr30_Tp24_L	3.53	138.67	139.38		139.47	0.003815	1.34	2.63	4.42	0.55
Quercio	41.5	Max WS	Att_Tr200_Tp24_L	5.48	138.50	139.49		139.59	0.002878	1.39	3.96	4.98	0.50
Quercio	41.5	Max WS	Att_Tr30_Tp24_L	3.53	138.50	139.31		139.38	0.002405	1.14	3.09	4.62	0.45
Quercio	41	Max WS	Att_Tr200_Tp24_L	4.44	138.49	139.37	139.03	139.48	0.001980	1.42	3.13	3.54	0.48
Quercio	41	Max WS	Att_Tr30_Tp24_L	3.53	138.49	139.21	138.96	139.31	0.002280	1.39	2.54	3.54	0.52
Quercio	40.5			Bridge									
Quercio	40	Max WS	Att_Tr200_Tp24_L	4.44	138.46	139.37		139.47	0.001234	1.38	3.23	4.55	0.46
Quercio	40	Max WS	Att_Tr30_Tp24_L	3.53	138.46	139.21		139.30	0.001512	1.33	2.65	4.39	0.49
Quercio	39	Max WS	Att_Tr200_Tp24_L	4.55	138.42	139.37		139.44	0.001792	1.13	4.04	4.76	0.39
Quercio	39	Max WS	Att_Tr30_Tp24_L	3.53	138.42	139.22		139.28	0.001961	1.07	3.31	4.61	0.40
Quercio	38.5	Max WS	Att_Tr200_Tp24_L	4.64	138.38	139.37		139.42	0.001431	1.04	4.48	5.08	0.35
Quercio	38.5	Max WS	Att_Tr30_Tp24_L	3.53	138.38	139.22		139.26	0.001431	0.95	3.73	4.93	0.35

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	38	Max WS	Att_Tr200_Tp24_L	4.74	138.36	139.37	138.77	139.41	0.000637	0.80	5.89	6.93	0.25
Quercio	38	Max WS	Att_Tr30_Tp24_L	3.53	138.36	139.23	138.69	139.25	0.000592	0.70	5.05	6.78	0.24
Quercio	37.5			Bridge									
Quercio	37	Max WS	Att_Tr200_Tp24_L	4.74	138.33	139.37		139.40	0.000672	0.79	6.01	6.62	0.25
Quercio	37	Max WS	Att_Tr30_Tp24_L	3.53	138.33	139.23		139.25	0.000613	0.68	5.18	6.60	0.23
Quercio	36	Max WS	Att_Tr200_Tp24_L	4.90	138.33	139.36		139.39	0.000944	0.76	6.40	6.64	0.25
Quercio	36	Max WS	Att_Tr30_Tp24_L	3.53	138.33	139.22		139.24	0.000789	0.64	5.51	6.63	0.22
Quercio	35	Max WS	Att_Tr200_Tp24_L	5.48	138.15	138.80	138.79	139.03	0.015658	2.11	2.60	5.17	0.95
Quercio	35	Max WS	Att_Tr30_Tp24_L	3.53	138.15	138.64		138.84	0.016549	1.96	1.80	3.65	0.89
Quercio	34	Max WS	Att_Tr200_Tp24_L	5.48	138.04	138.75		138.93	0.010839	1.88	2.91	5.13	0.80
Quercio	34	Max WS	Att_Tr30_Tp24_L	3.53	138.04	138.59		138.73	0.013262	1.70	2.08	5.09	0.85
Quercio	33	Max WS	Att_Tr200_Tp24_L	5.48	137.83	138.60	138.32	138.70	0.004100	1.38	3.97	5.17	0.50
Quercio	33	Max WS	Att_Tr30_Tp24_L	3.53	137.83	138.40	138.19	138.47	0.004409	1.20	2.94	5.16	0.51
Quercio	32.5			Bridge									
Quercio	32	Max WS	Att_Tr200_Tp24_L	5.48	137.79	138.62		138.69	0.002873	1.21	4.53	5.77	0.44
Quercio	32	Max WS	Att_Tr30_Tp24_L	3.53	137.79	138.40		138.46	0.003147	1.06	3.33	5.63	0.44
Quercio	30	Max WS	Att_Tr200_Tp24_L	5.48	137.58	138.45		138.57	0.004912	1.56	3.52	4.49	0.56
Quercio	30	Max WS	Att_Tr30_Tp24_L	3.53	137.58	138.24		138.34	0.005091	1.35	2.62	4.33	0.55
Quercio	29	Max WS	Att_Tr200_Tp24_L	5.48	137.35	138.21		138.38	0.007064	1.82	3.01	3.88	0.66
Quercio	29	Max WS	Att_Tr30_Tp24_L	3.53	137.35	137.97		138.11	0.008845	1.68	2.10	3.71	0.71
Quercio	28.99			Lat Struct									
Quercio	28	Max WS	Att_Tr200_Tp24_L	5.48	137.12	138.20		138.29	0.002590	1.31	4.18	4.25	0.42
Quercio	28	Max WS	Att_Tr30_Tp24_L	3.53	137.12	137.94		138.01	0.002659	1.14	3.10	4.07	0.42
Quercio	27	Max WS	Att_Tr200_Tp24_L	5.48	137.09	138.16		138.24	0.002581	1.28	4.28	4.13	0.40
Quercio	27	Max WS	Att_Tr30_Tp24_L	3.53	137.09	137.90		137.96	0.002565	1.10	3.22	4.07	0.39

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	26	Max WS	Att_Tr200_Tp24_L	5.48	136.92	138.12		138.19	0.002053	1.18	4.66	4.23	0.36
Quercio	26	Max WS	Att_Tr30_Tp24_L	3.53	136.92	137.86		137.91	0.001919	0.99	3.57	4.17	0.34
Quercio	25	Max WS	Att_Tr200_Tp24_L	5.48	136.87	138.09		138.15	0.001822	1.12	4.90	4.50	0.34
Quercio	25	Max WS	Att_Tr30_Tp24_L	3.53	136.87	137.83		137.87	0.001717	0.94	3.74	4.39	0.33
Quercio	24.8			Lat Struct									
Quercio	24	Max WS	Att_Tr200_Tp24_L	5.48	136.83	138.00		138.08	0.002390	1.27	4.33	3.90	0.38
Quercio	24	Max WS	Att_Tr30_Tp24_L	3.53	136.83	137.76		137.81	0.002094	1.05	3.37	3.85	0.36
Quercio	23.5	Max WS	Att_Tr200_Tp24_L	5.48	136.82	137.96		138.06	0.003220	1.42	3.86	3.57	0.44
Quercio	23.5	Max WS	Att_Tr30_Tp24_L	3.53	136.82	137.73		137.80	0.002778	1.17	3.02	3.52	0.40
Quercio	23	Max WS	Att_Tr200_Tp24_L	5.48	136.80	137.94		138.04	0.003026	1.44	3.80	3.55	0.44
Quercio	23	Max WS	Att_Tr30_Tp24_L	3.53	136.80	137.70		137.78	0.002564	1.18	2.99	3.50	0.41
Quercio	21	Max WS	Att_Tr200_Tp24_L	5.48	136.75	137.91		138.01	0.002775	1.35	4.05	3.63	0.41
Quercio	21	Max WS	Att_Tr30_Tp24_L	3.53	136.75	137.69		137.75	0.002256	1.09	3.23	3.57	0.37
Quercio	20	Max WS	Att_Tr200_Tp24_L	5.48	136.68	137.80		137.92	0.005555	1.58	3.47	4.65	0.58
Quercio	20	Max WS	Att_Tr30_Tp24_L	3.53	136.68	137.51		137.64	0.008903	1.62	2.18	4.23	0.72
Quercio	19	Max WS	Att_Tr200_Tp24_L	5.48	136.57	137.77	137.28	137.82	0.001605	1.06	5.17	5.69	0.35
Quercio	19	Max WS	Att_Tr30_Tp24_L	3.18	136.57	137.41	137.13	137.46	0.002267	0.99	3.20	5.36	0.41
Quercio	18.5			Bridge									
Quercio	18	Max WS	Att_Tr200_Tp24_L	5.48	136.57	137.71		137.78	0.001921	1.13	4.86	5.64	0.39
Quercio	18	Max WS	Att_Tr30_Tp24_L	3.53	136.57	137.20		137.34	0.010460	1.69	2.09	5.17	0.85
Quercio	17.99			Lat Struct									
Quercio	17.98			Lat Struct									
Quercio	17.8	Max WS	Att_Tr200_Tp24_L	5.48	136.57	137.71		137.77	0.002053	1.02	5.36	6.58	0.36
Quercio	17.8	Max WS	Att_Tr30_Tp24_L	3.53	136.57	137.13	137.15	137.32	0.021321	1.90	1.86	5.52	1.05

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	17	Max WS	Att_Tr200_Tp24_L	5.48	135.86	137.70		137.72	0.000428	0.62	8.80	6.58	0.17
Quercio	17	Max WS	Att_Tr30_Tp24_L	3.53	135.86	136.65		136.72	0.003566	1.18	3.00	4.54	0.46
Quercio	16	Max WS	Att_Tr200_Tp24_L	5.48	135.67	137.69		137.71	0.000411	0.60	9.09	6.22	0.16
Quercio	16	Max WS	Att_Tr30_Tp24_L	3.53	135.67	136.61		136.67	0.002430	1.03	3.43	4.30	0.37
Quercio	15	Max WS	Att_Tr200_Tp24_L	5.48	135.62	137.68		137.70	0.000490	0.67	8.23	4.99	0.17
Quercio	15	Max WS	Att_Tr30_Tp24_L	3.53	135.62	136.56		136.62	0.002721	1.09	3.24	3.92	0.38
Quercio	14	Max WS	Att_Tr200_Tp24_L	5.48	135.57	137.67		137.69	0.000454	0.65	8.46	5.04	0.16
Quercio	14	Max WS	Att_Tr30_Tp24_L	3.53	135.57	136.50		136.56	0.002723	1.09	3.24	3.93	0.38
Quercio	13	Max WS	Att_Tr200_Tp24_L	5.48	135.52	137.66		137.68	0.000428	0.63	8.65	5.06	0.15
Quercio	13	Max WS	Att_Tr30_Tp24_L	3.53	135.52	136.46		136.52	0.002732	1.09	3.23	3.91	0.38
Quercio	12	Max WS	Att_Tr200_Tp24_L	5.48	135.26	137.66		137.68	0.000250	0.51	10.84	7.39	0.13
Quercio	12	Max WS	Att_Tr30_Tp24_L	3.53	135.26	136.41		136.46	0.002220	1.02	3.45	4.38	0.37
Quercio	11	Max WS	Att_Tr200_Tp24_L	5.48	135.03	137.66		137.67	0.000151	0.42	12.95	7.87	0.11
Quercio	11	Max WS	Att_Tr30_Tp24_L	3.53	135.03	136.35		136.38	0.001125	0.79	4.48	5.11	0.27
Quercio	10	Max WS	Att_Tr200_Tp24_L	5.47	134.87	137.65		137.66	0.000081	0.34	16.30	8.90	0.08
Quercio	10	Max WS	Att_Tr30_Tp24_L	3.53	134.87	136.30		136.32	0.000520	0.58	6.05	6.31	0.19
Quercio	09	Max WS	Att_Tr200_Tp24_L	5.48	134.47	137.65		137.65	0.000072	0.31	17.61	9.87	0.07
Quercio	09	Max WS	Att_Tr30_Tp24_L	3.52	134.47	136.29		136.30	0.000319	0.50	7.10	6.13	0.15
Quercio	08	Max WS	Att_Tr200_Tp24_L	4.96	134.24	137.65		137.65	0.000033	0.23	21.42	10.43	0.05
Quercio	08	Max WS	Att_Tr30_Tp24_L	3.52	134.24	136.28		136.29	0.000148	0.37	9.49	7.32	0.10
Quercio	07	Max WS	Att_Tr200_Tp24_L	5.64	133.97	137.65		137.65	0.000040	0.24	23.39	12.24	0.06
Quercio	07	Max WS	Att_Tr30_Tp24_L	3.52	133.97	136.27		136.28	0.000104	0.33	10.71	7.26	0.09
Quercio	06	Max WS	Att_Tr200_Tp24_L	2.43	133.73	137.65		137.65	0.000007	0.11	23.53	11.82	0.02
Quercio	06	Max WS	Att_Tr30_Tp24_L	3.52	133.73	136.27		136.28	0.000099	0.32	11.06	6.46	0.08
Quercio	05	Max WS	Att_Tr200_Tp24_L	0.02	133.56	137.65		137.65	0.000000	0.00	30.43	16.05	0.00

HEC-RAS River: Quercio Reach: Quercio Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Quercio	05	Max WS	Att_Tr30_Tp24_L	3.52	133.56	136.27		136.27	0.000054	0.25	13.88	8.39	0.06
Quercio	04.5	Max WS	Att_Tr200_Tp24_L	-0.19	133.45	137.65		137.65	0.000000	-0.01	30.04	14.15	0.00
Quercio	04.5	Max WS	Att_Tr30_Tp24_L	3.52	133.45	136.27		136.27	0.000062	0.27	13.19	7.67	0.06
Quercio	04.3	Max WS	Att_Tr200_Tp24_L	-1.96	133.49	137.65		137.65	0.000002	-0.07	31.94	16.51	0.01
Quercio	04.3	Max WS	Att_Tr30_Tp24_L	3.51	133.49	136.26		136.27	0.000066	0.28	12.73	7.61	0.07
Quercio	04	Max WS	Att_Tr200_Tp24_L	-3.32	133.42	137.65		137.65	0.000005	-0.10	35.07	15.77	0.02
Quercio	04	Max WS	Att_Tr30_Tp24_L	3.51	133.42	136.26		136.27	0.000038	0.22	15.79	8.74	0.05
Quercio	03.6	Max WS	Att_Tr200_Tp24_L	-2.91	133.43	137.65		137.65	0.000021	-0.18	16.03	3.80	0.03
Quercio	03.6	Max WS	Att_Tr30_Tp24_L	3.51	133.43	136.26	133.87	136.27	0.000081	0.33	10.76	3.80	0.06
Quercio	03.5			Bridge									
Quercio	03.4	Max WS	Att_Tr200_Tp24_L	-3.03	133.43	137.65		137.65	0.000014	-0.14	25.53	15.41	0.02
Quercio	03.4	Max WS	Att_Tr30_Tp24_L	3.51	133.43	136.26		136.27	0.000081	0.33	10.76	3.80	0.06
Quercio	03	Max WS	Att_Tr200_Tp24_L	-3.41	133.43	137.65		137.65	0.000004	-0.10	35.78	14.01	0.02
Quercio	03	Max WS	Att_Tr30_Tp24_L	3.51	133.43	136.26		136.27	0.000029	0.20	17.23	8.62	0.05
Quercio	2.98			Lat Struct									
Quercio	02	Max WS	Att_Tr200_Tp24_L	-3.90	133.43	137.65		137.65	0.000006	-0.12	35.85	15.22	0.02
Quercio	02	Max WS	Att_Tr30_Tp24_L	3.51	133.43	136.26		136.26	0.000036	0.22	15.64	7.81	0.05
Quercio	01	Max WS	Att_Tr200_Tp24_L	-3.92	133.38	137.65	133.91	137.65	0.000007	-0.11	34.67	14.14	0.02
Quercio	01	Max WS	Att_Tr30_Tp24_L	3.49	133.38	136.26	133.88	136.26	0.000041	0.22	16.15	9.61	0.05

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

### **BORRO RIOFI e BORRO delle VILLE**

- Tempo di pioggia critico – Scenario A1
- Tempo di pioggia 18 h – Scenario B
- Tempo di pioggia 24 h – Scenario C

# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

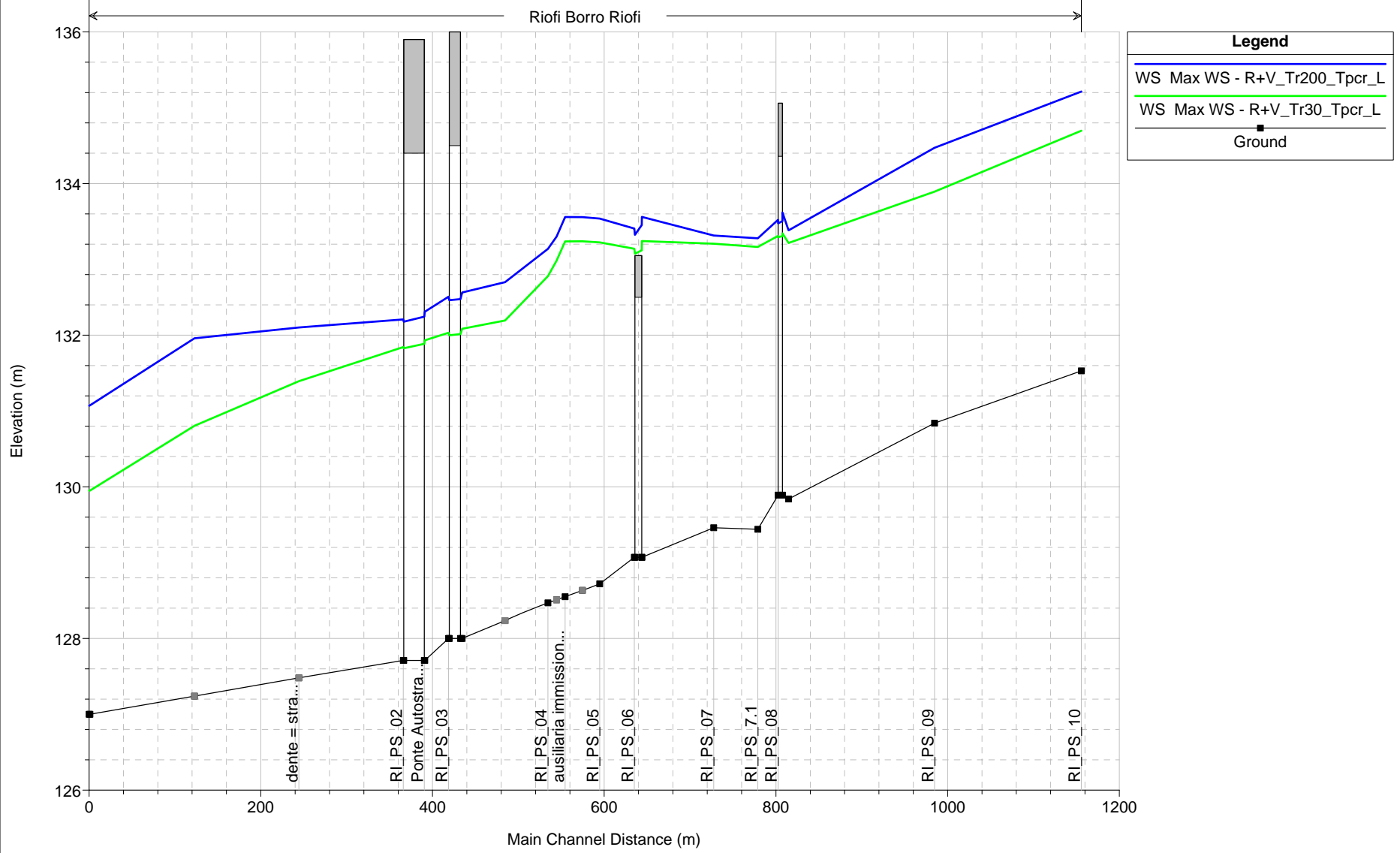
### **BORRO RIOFI**

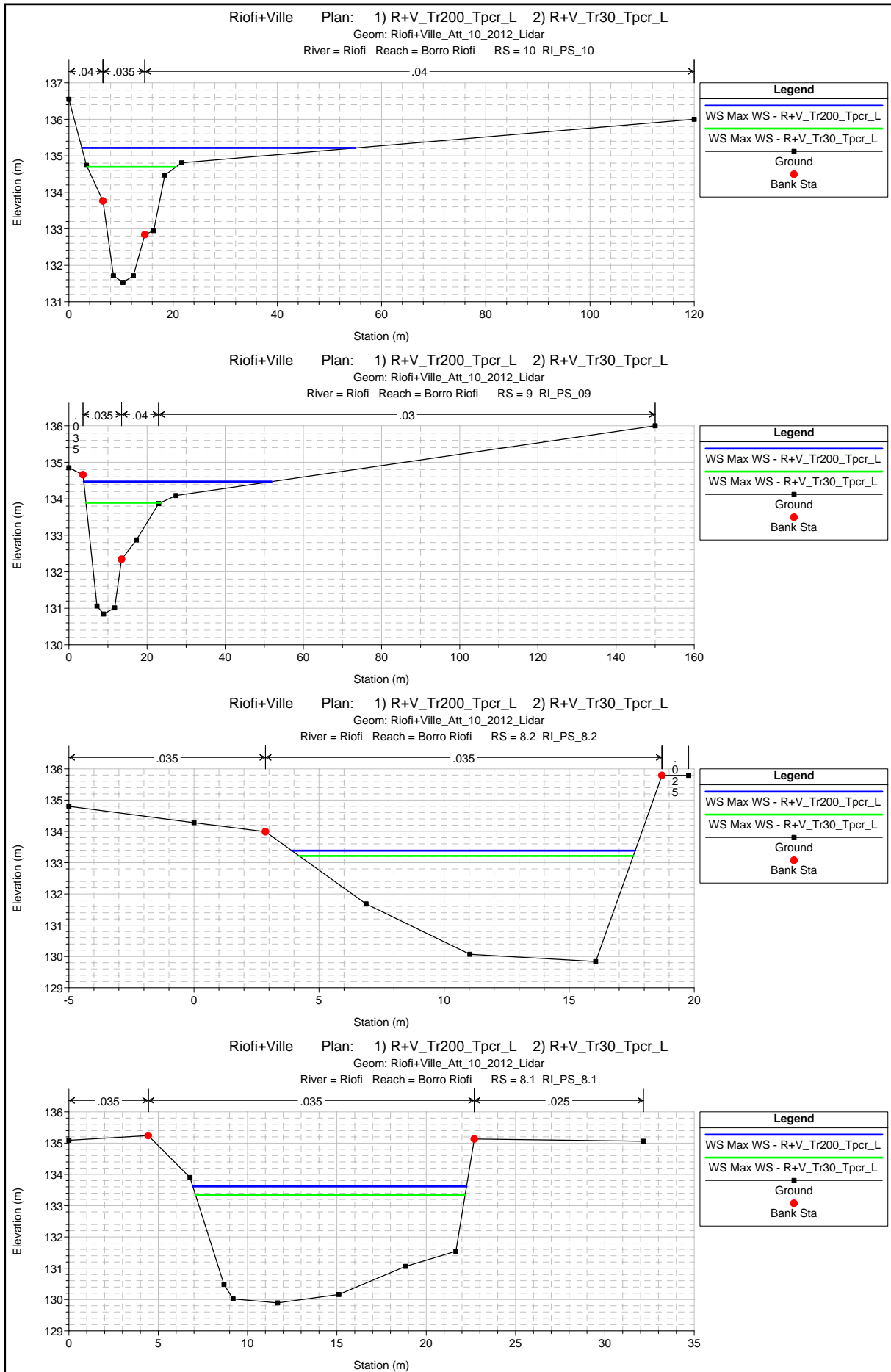
#### **Scenario A1 - Tr 200 e 30 anni**

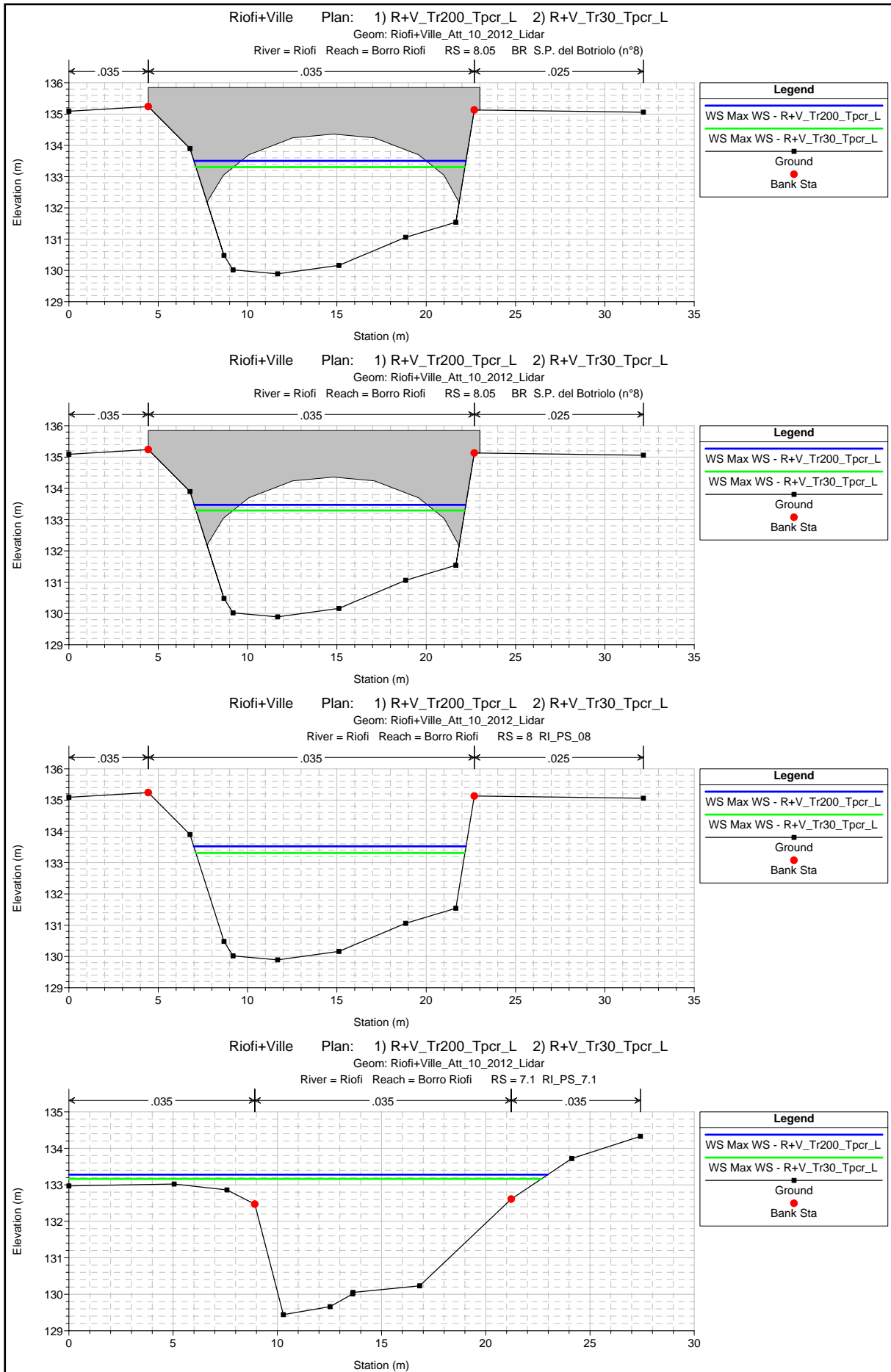
- Profili
- Sezioni di verifica
- Tabelle di output

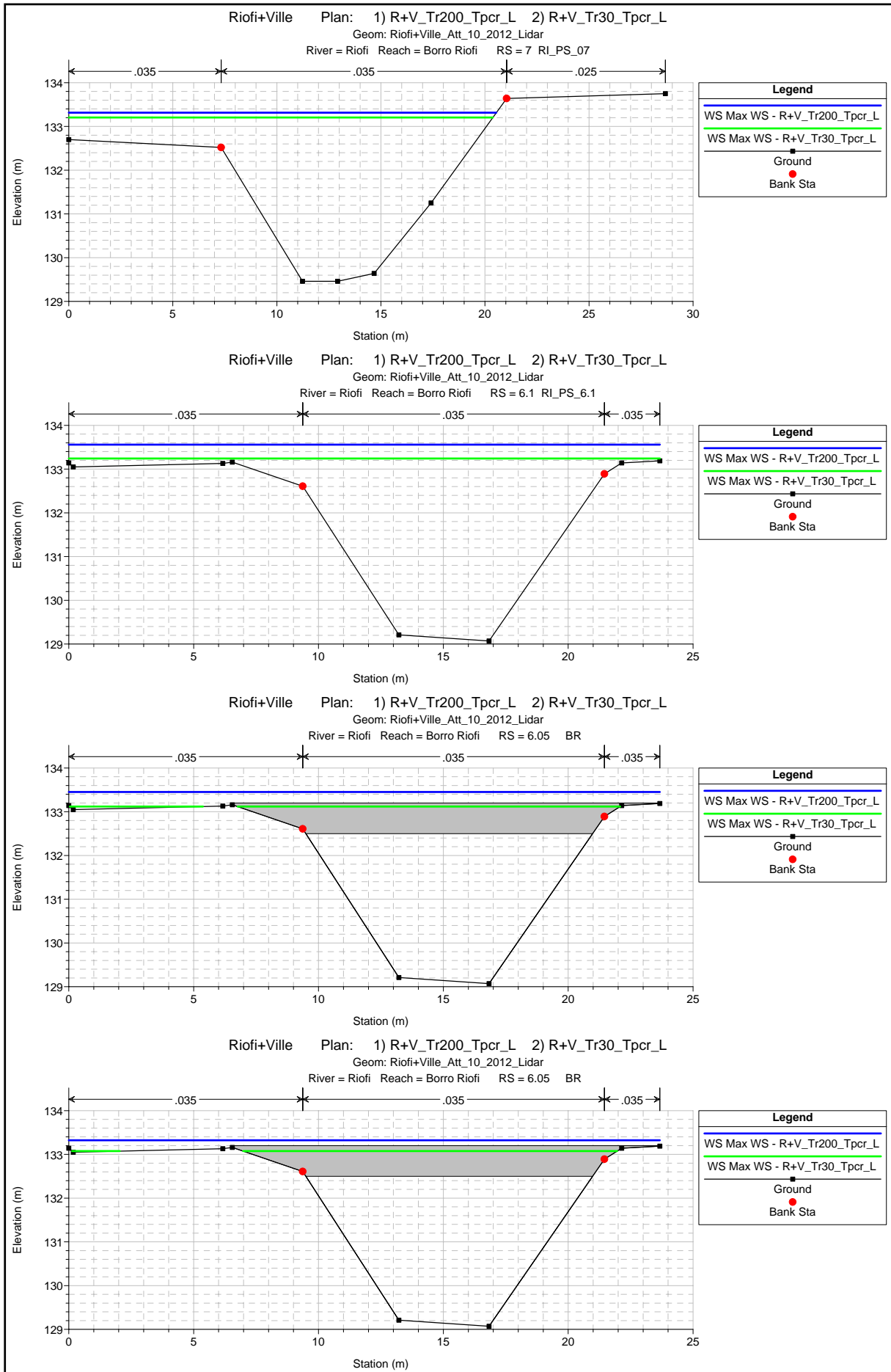


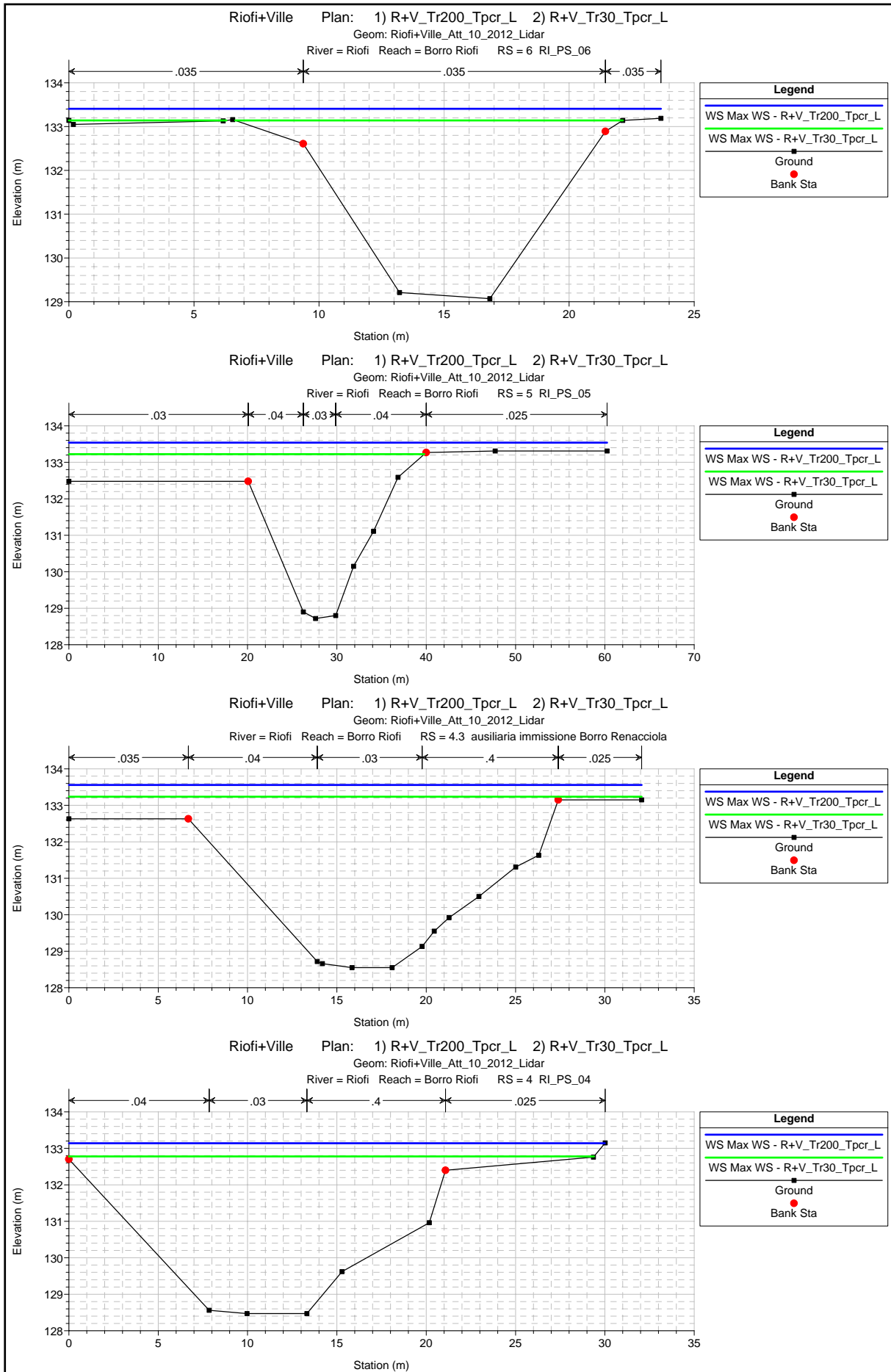
Riofi+Ville Plan: 1) R+V\_Tr200\_Tpcr\_L 2) R+V\_Tr30\_Tpcr\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar

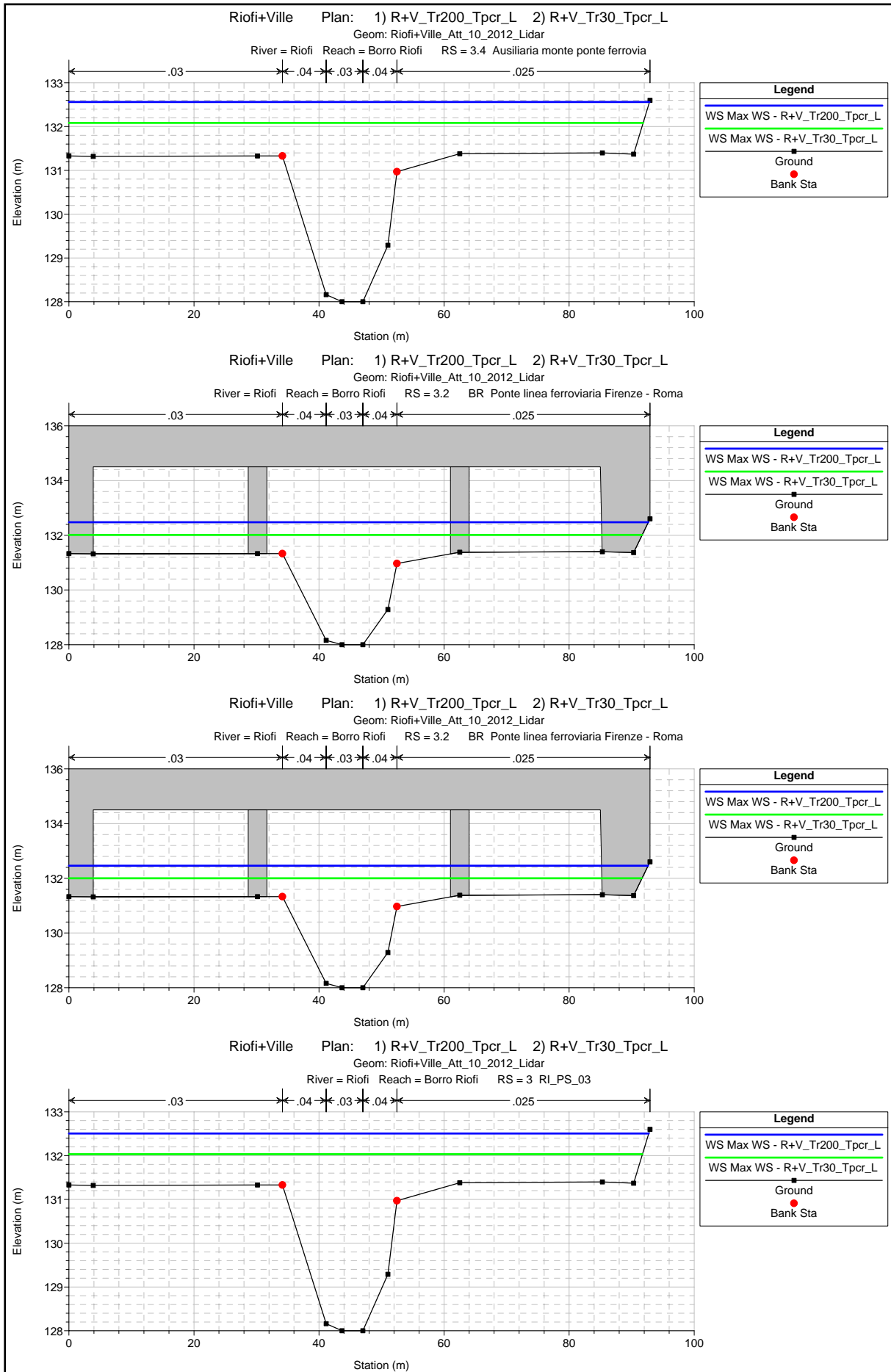


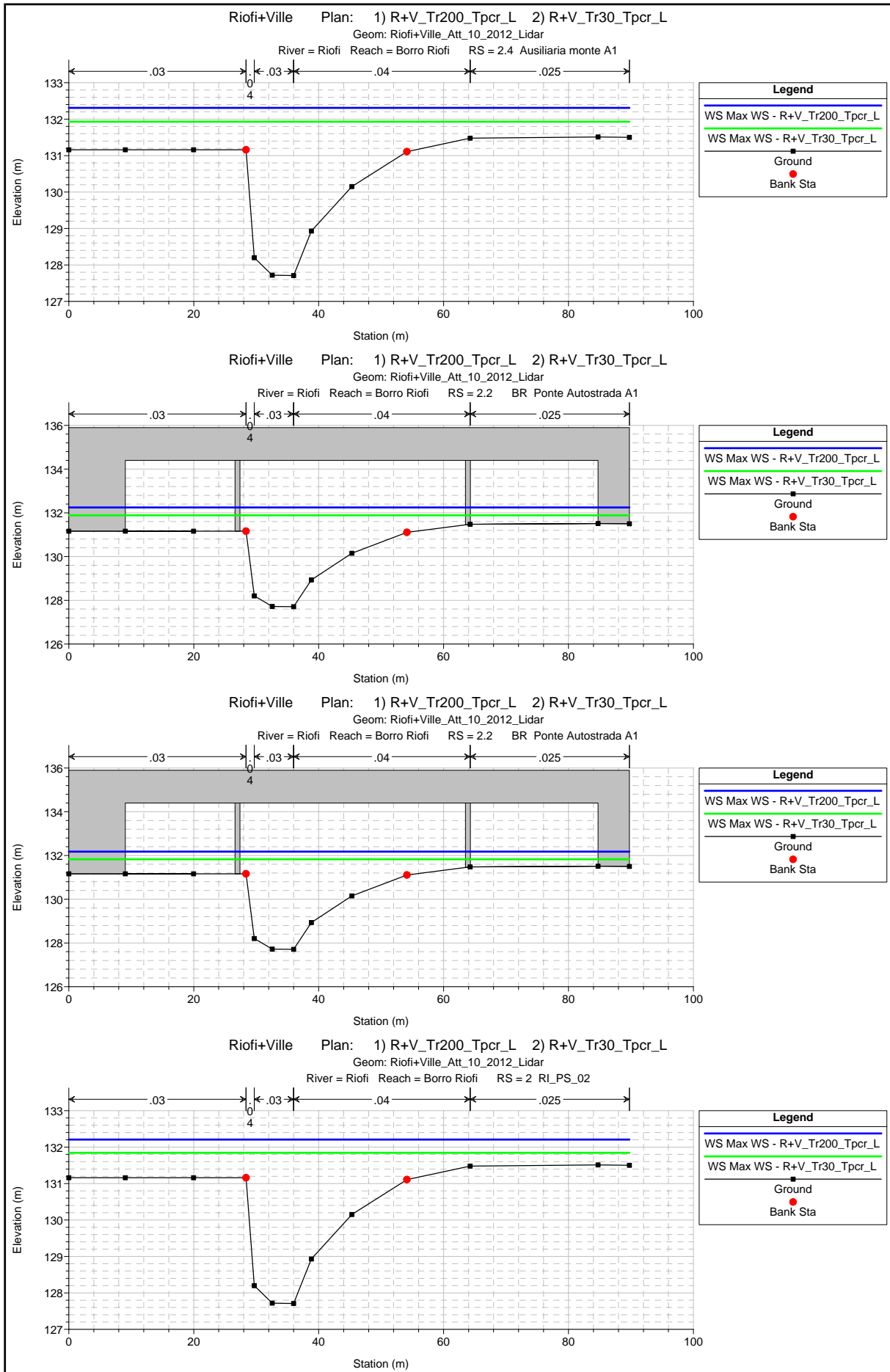


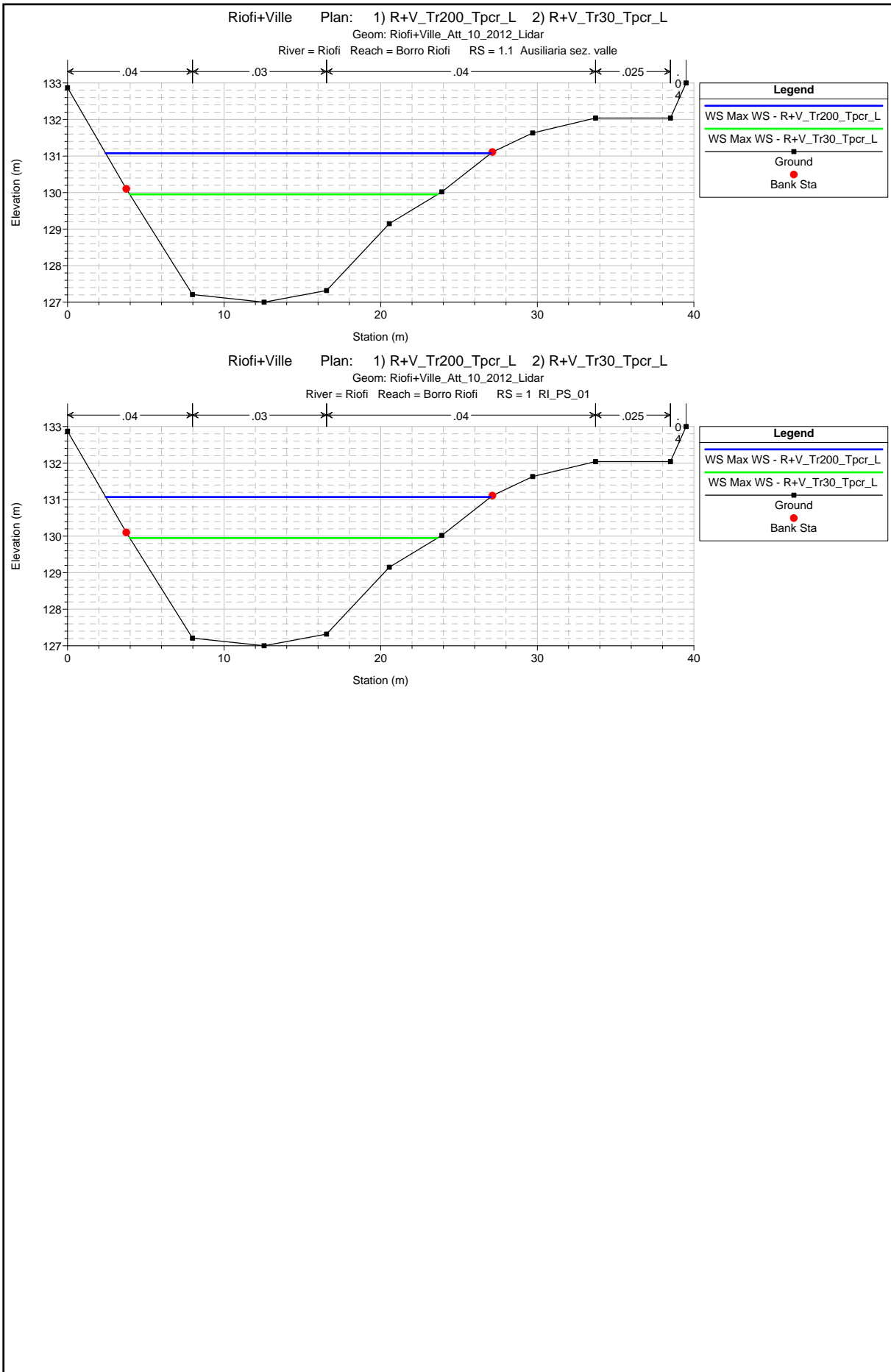














HEC-RAS River: Riofi Reach: Borro Riofi Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Riofi	10	Max WS	R+V_Tr200_Tpcr_L	117.61	131.53	135.21		135.87	0.004869	3.91	44.22	52.57	0.70
Borro Riofi	10	Max WS	R+V_Tr30_Tpcr_L	82.16	131.53	134.70		135.24	0.004809	3.44	27.88	17.07	0.68
Borro Riofi	9	Max WS	R+V_Tr200_Tpcr_L	117.21	130.84	134.47		134.88	0.004067	3.19	46.93	48.07	0.61
Borro Riofi	9	Max WS	R+V_Tr30_Tpcr_L	82.15	130.84	133.89		134.37	0.005269	3.27	29.17	19.07	0.68
Borro Riofi	8.2	Max WS	R+V_Tr200_Tpcr_L	117.20	129.84	133.38		134.03	0.006292	3.55	32.97	13.72	0.73
Borro Riofi	8.2	Max WS	R+V_Tr30_Tpcr_L	82.14	129.84	133.22		133.58	0.003757	2.68	30.71	13.36	0.56
Borro Riofi	8.1	Max WS	R+V_Tr200_Tpcr_L	117.20	129.89	133.62	132.46	133.98	0.002790	2.65	44.28	15.32	0.50
Borro Riofi	8.1	Max WS	R+V_Tr30_Tpcr_L	82.14	129.89	133.34	132.05	133.56	0.001828	2.05	40.10	15.09	0.40
Borro Riofi	8.05			Bridge									
Borro Riofi	8	Max WS	R+V_Tr200_Tpcr_L	117.19	129.89	133.52		133.90	0.003077	2.74	42.81	15.24	0.52
Borro Riofi	8	Max WS	R+V_Tr30_Tpcr_L	82.14	129.89	133.31		133.53	0.001897	2.07	39.59	15.06	0.41
Borro Riofi	7.9			Lat Struct									
Borro Riofi	7.8			Lat Struct									
Borro Riofi	7.1	Max WS	R+V_Tr200_Tpcr_L	116.97	129.44	133.28		133.85	0.004790	3.39	37.20	22.97	0.65
Borro Riofi	7.1	Max WS	R+V_Tr30_Tpcr_L	81.86	129.44	133.16		133.48	0.002772	2.50	34.62	22.67	0.49
Borro Riofi	7	Max WS	R+V_Tr200_Tpcr_L	97.70	129.46	133.32		133.68	0.003284	2.74	38.46	20.55	0.55
Borro Riofi	7	Max WS	R+V_Tr30_Tpcr_L	70.23	129.46	133.21		133.42	0.001977	2.09	36.24	20.38	0.43
Borro Riofi	6.1	Max WS	R+V_Tr200_Tpcr_L	64.80	129.07	133.56	131.59	133.69	0.000906	1.62	44.03	23.67	0.29
Borro Riofi	6.1	Max WS	R+V_Tr30_Tpcr_L	53.59	129.07	133.24	131.35	133.36	0.000952	1.55	36.49	23.67	0.29
Borro Riofi	6.05			Bridge									
Borro Riofi	6	Max WS	R+V_Tr200_Tpcr_L	57.59	129.07	133.41		133.52	0.000878	1.54	40.40	23.67	0.28
Borro Riofi	6	Max WS	R+V_Tr30_Tpcr_L	50.48	129.07	133.14		133.26	0.000966	1.52	34.13	21.80	0.29
Borro Riofi	5.9			Lat Struct									
Borro Riofi	5.8			Lat Struct									
Borro Riofi	5	Max WS	R+V_Tr200_Tpcr_L	33.88	128.72	133.54		133.55	0.000094	0.47	81.98	60.25	0.09

HEC-RAS River: Riofi Reach: Borro Riofi Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Riofi	5	Max WS	R+V_Tr30_Tpcr_L	41.69	128.72	133.22		133.25	0.000248	0.71	64.68	39.79	0.14
Borro Riofi	4.3	Max WS	R+V_Tr200_Tpcr_L	-16.67	128.55	133.56		133.56	0.000361	-0.18	78.74	32.06	0.03
Borro Riofi	4.3	Max WS	R+V_Tr30_Tpcr_L	15.82	128.55	133.24		133.24	0.000573	0.22	68.43	32.06	0.04
Borro Riofi	4	Max WS	R+V_Tr200_Tpcr_L	91.84	128.47	133.14		133.27	0.014451	1.12	73.18	30.00	0.20
Borro Riofi	4	Max WS	R+V_Tr30_Tpcr_L	79.14	128.47	132.78		132.86	0.020748	1.25	62.51	29.39	0.23
Borro Riofi	3.4	Max WS	R+V_Tr200_Tpcr_L	211.46	128.00	132.56	131.81	132.67	0.000771	1.65	155.78	92.85	0.28
Borro Riofi	3.4	Max WS	R+V_Tr30_Tpcr_L	139.59	128.00	132.08	130.72	132.18	0.000878	1.60	111.68	91.84	0.29
Borro Riofi	3.2			Bridge									
Borro Riofi	3	Max WS	R+V_Tr200_Tpcr_L	211.44	128.00	132.51		132.62	0.000852	1.71	150.66	92.73	0.29
Borro Riofi	3	Max WS	R+V_Tr30_Tpcr_L	139.59	128.00	132.03		132.14	0.000988	1.68	106.89	91.73	0.31
Borro Riofi	2.4	Max WS	R+V_Tr200_Tpcr_L	209.52	127.71	132.31	131.62	132.44	0.001218	1.78	139.40	89.76	0.33
Borro Riofi	2.4	Max WS	R+V_Tr30_Tpcr_L	139.58	127.71	131.93	130.69	132.04	0.001184	1.61	105.50	89.76	0.32
Borro Riofi	2.2			Bridge									
Borro Riofi	2	Max WS	R+V_Tr200_Tpcr_L	197.97	127.71	132.21		132.34	0.001325	1.82	130.32	89.76	0.34
Borro Riofi	2	Max WS	R+V_Tr30_Tpcr_L	139.52	127.71	131.84		131.97	0.001448	1.73	97.57	89.76	0.35
Borro Riofi	1.9			Lat Struct									
Borro Riofi	1.8			Lat Struct									
Borro Riofi	1.1	Max WS	R+V_Tr200_Tpcr_L	182.43	127.00	131.08		131.51	0.003427	2.93	62.68	24.61	0.57
Borro Riofi	1.1	Max WS	R+V_Tr30_Tpcr_L	20.03	127.00	129.95		129.96	0.000168	0.53	37.74	19.66	0.12
Borro Riofi	1	Max WS	R+V_Tr200_Tpcr_L	182.43	127.00	131.07	130.11	131.51	0.003446	2.94	62.56	24.58	0.57
Borro Riofi	1	Max WS	R+V_Tr30_Tpcr_L	20.01	127.00	129.95	127.93	129.96	0.000168	0.53	37.74	19.66	0.12

# **VERIFICHE IDRAULICHE**

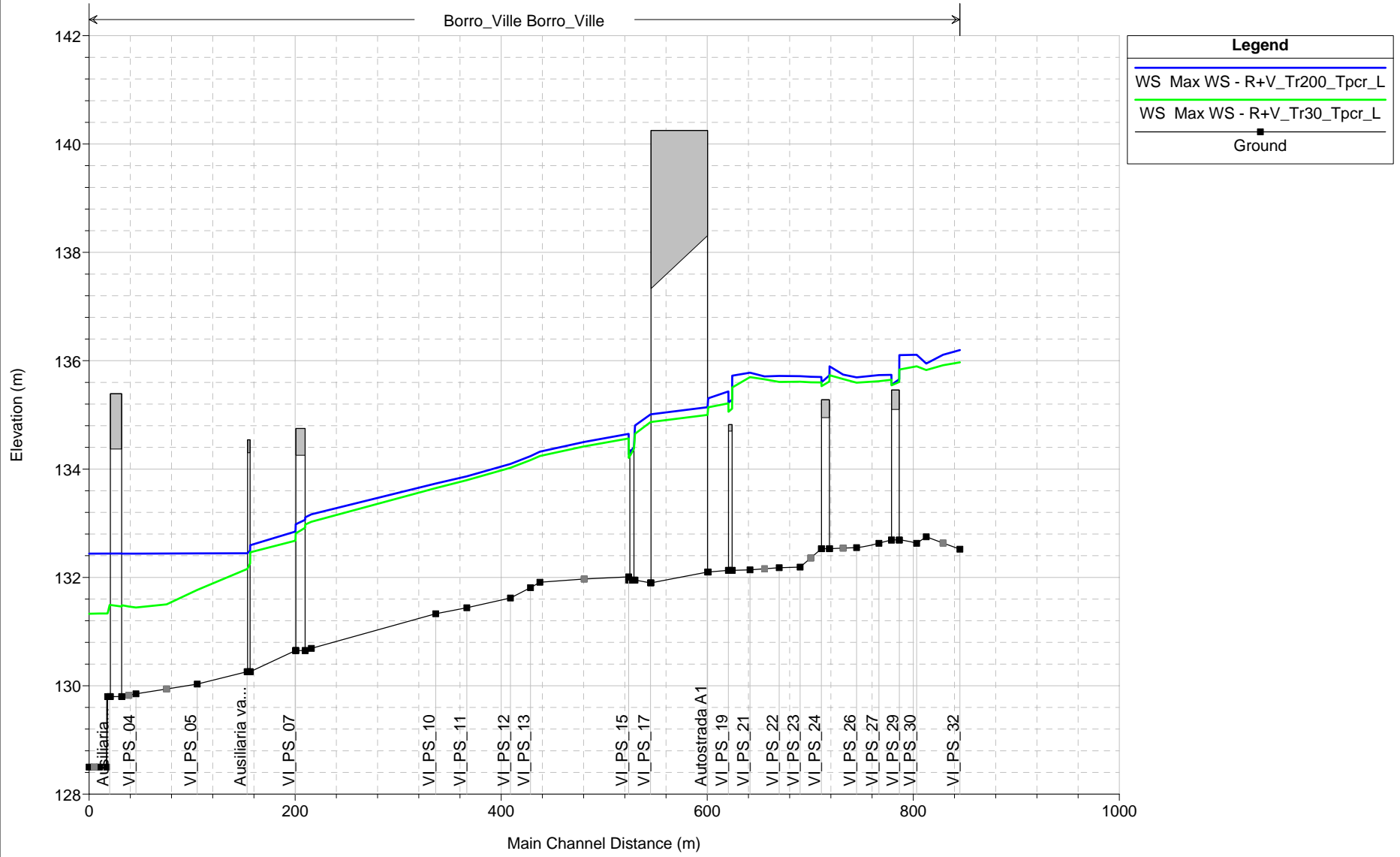
## **STATO ATTUALE**

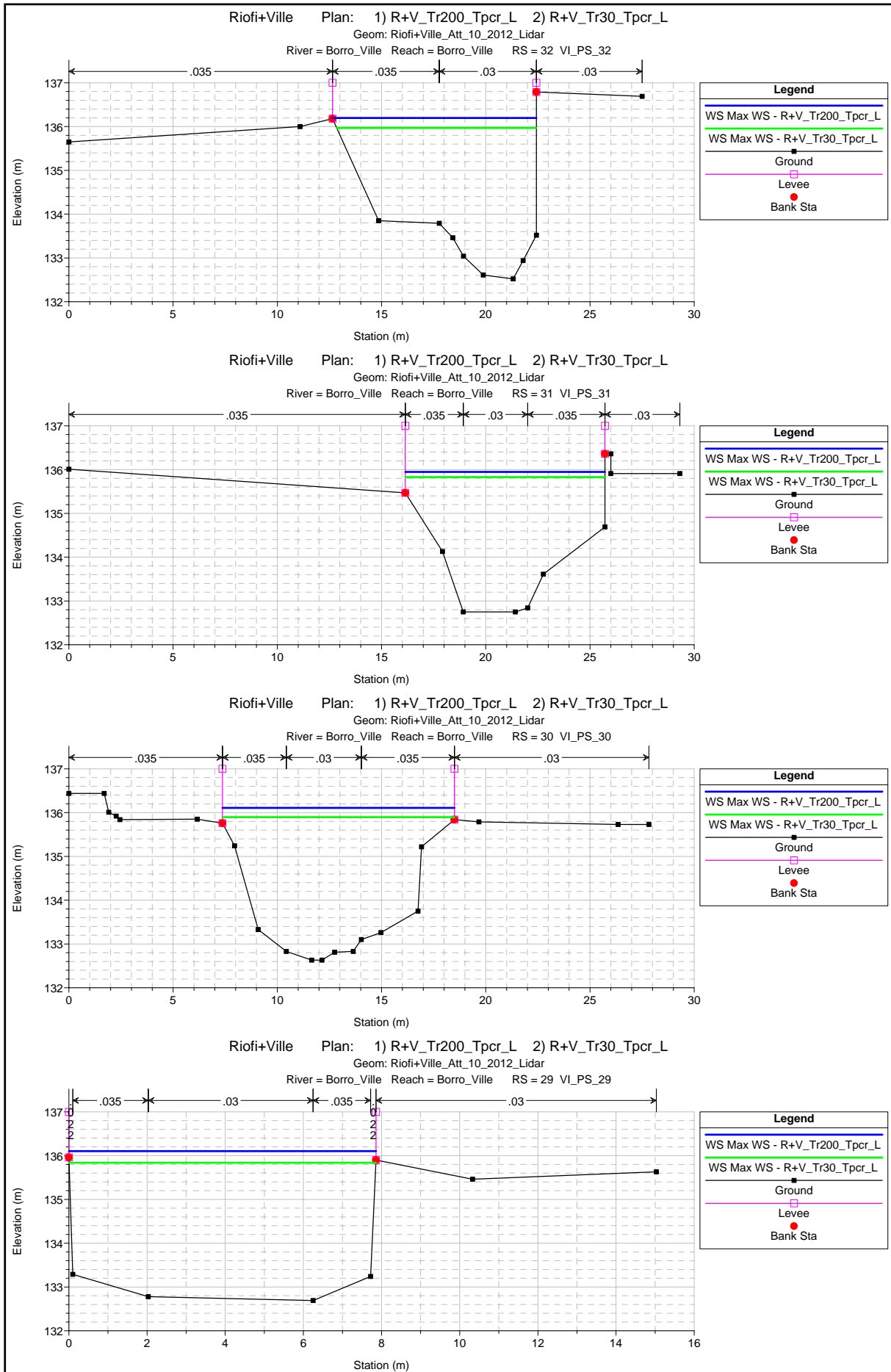
### **BORRO delle VILLE**

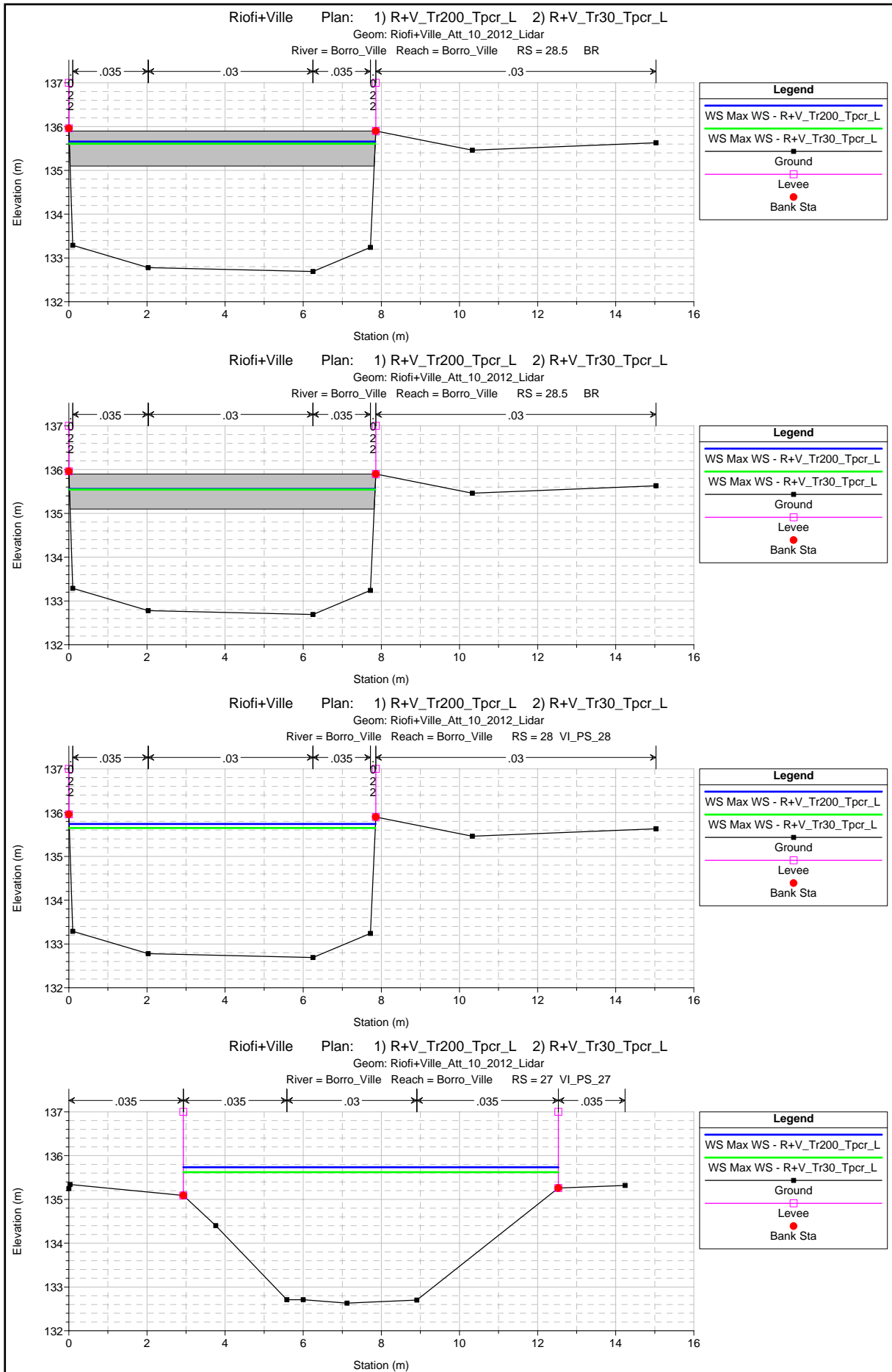
#### **Scenario A1 - Tr 200 e 30 anni**

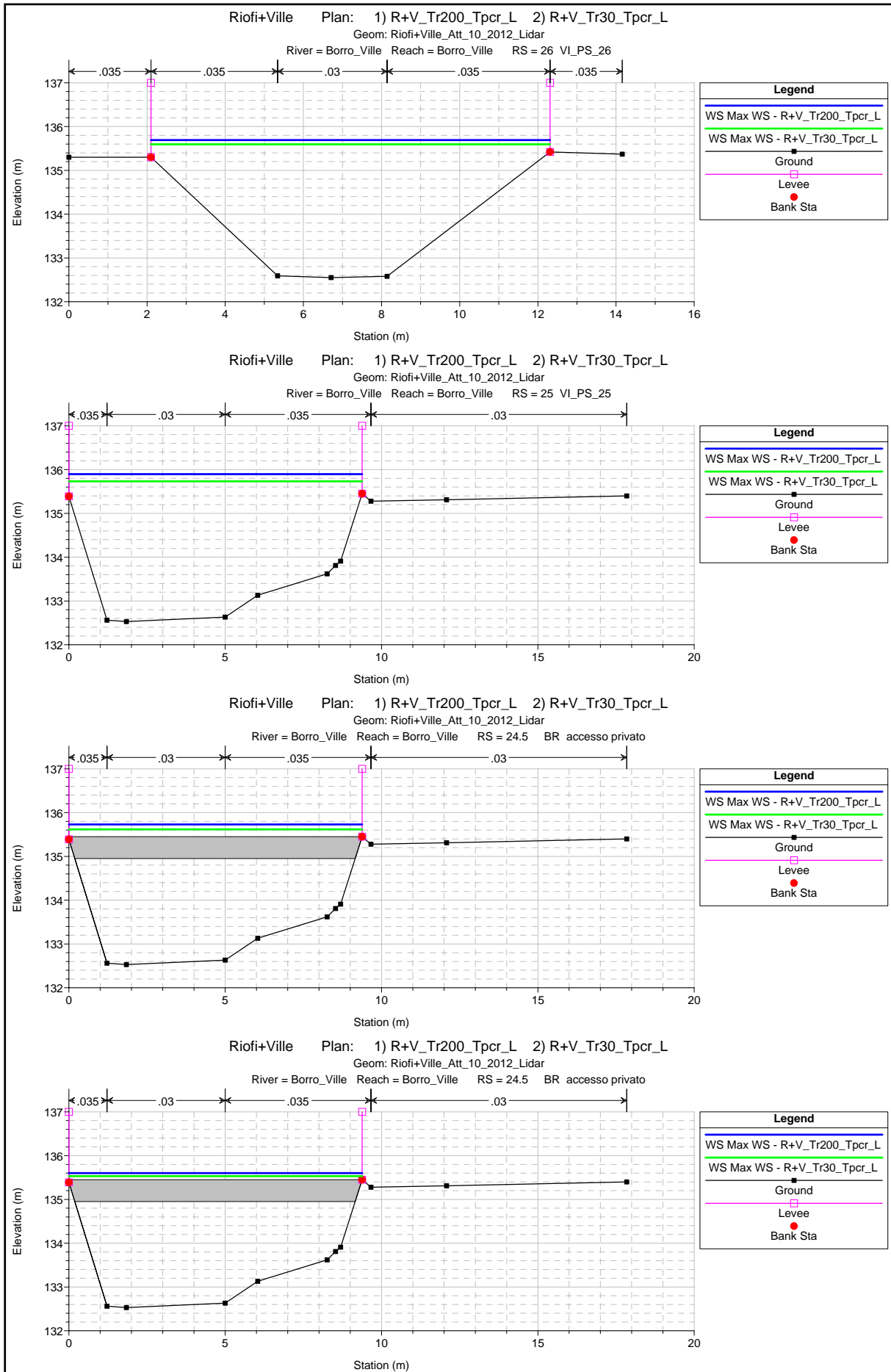
- Profili
- Sezioni di verifica
- Tabelle di output

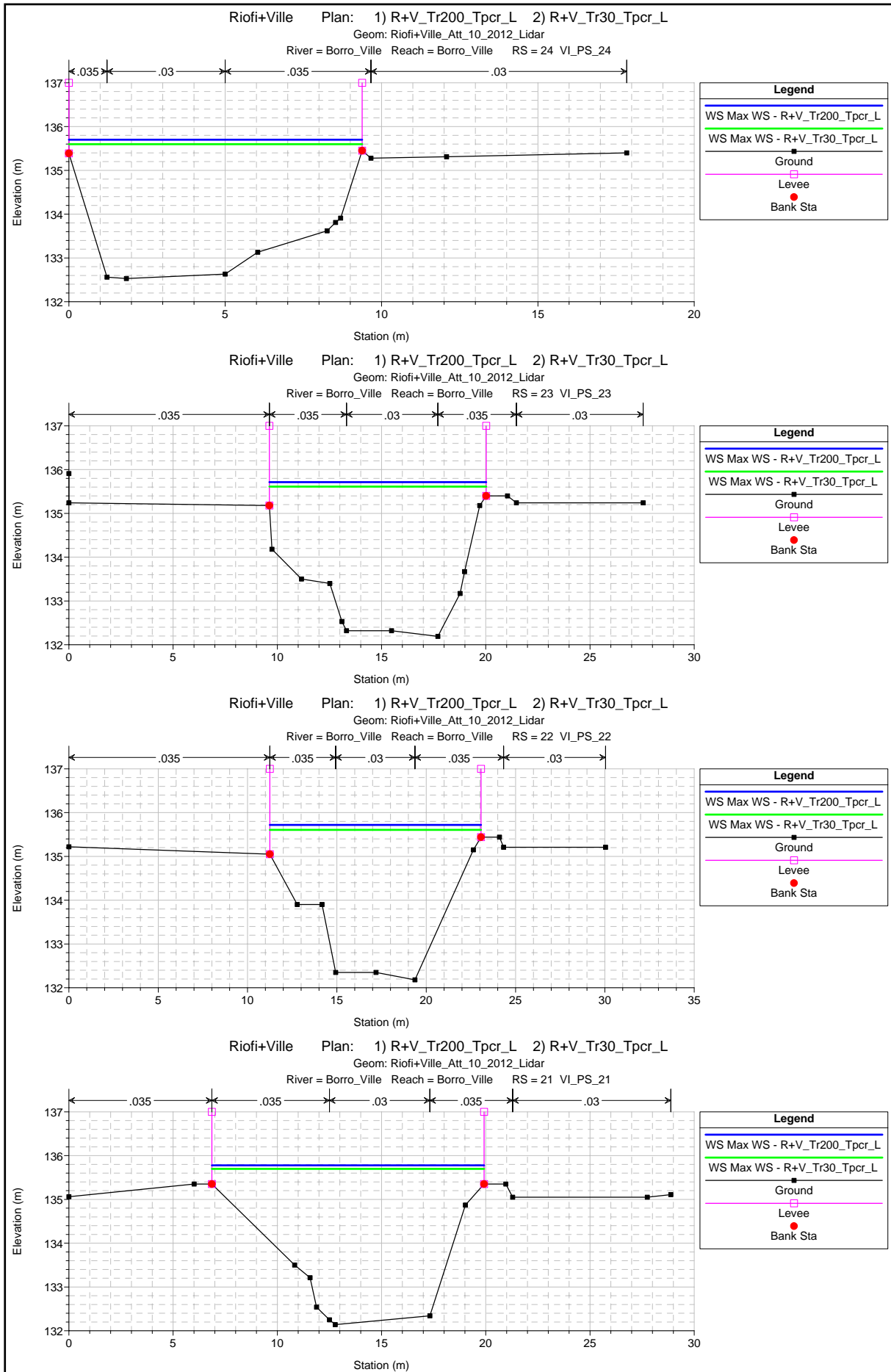
Riofi+Ville Plan: 1) R+V\_Tr200\_Tpcr\_L 2) R+V\_Tr30\_Tpcr\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar



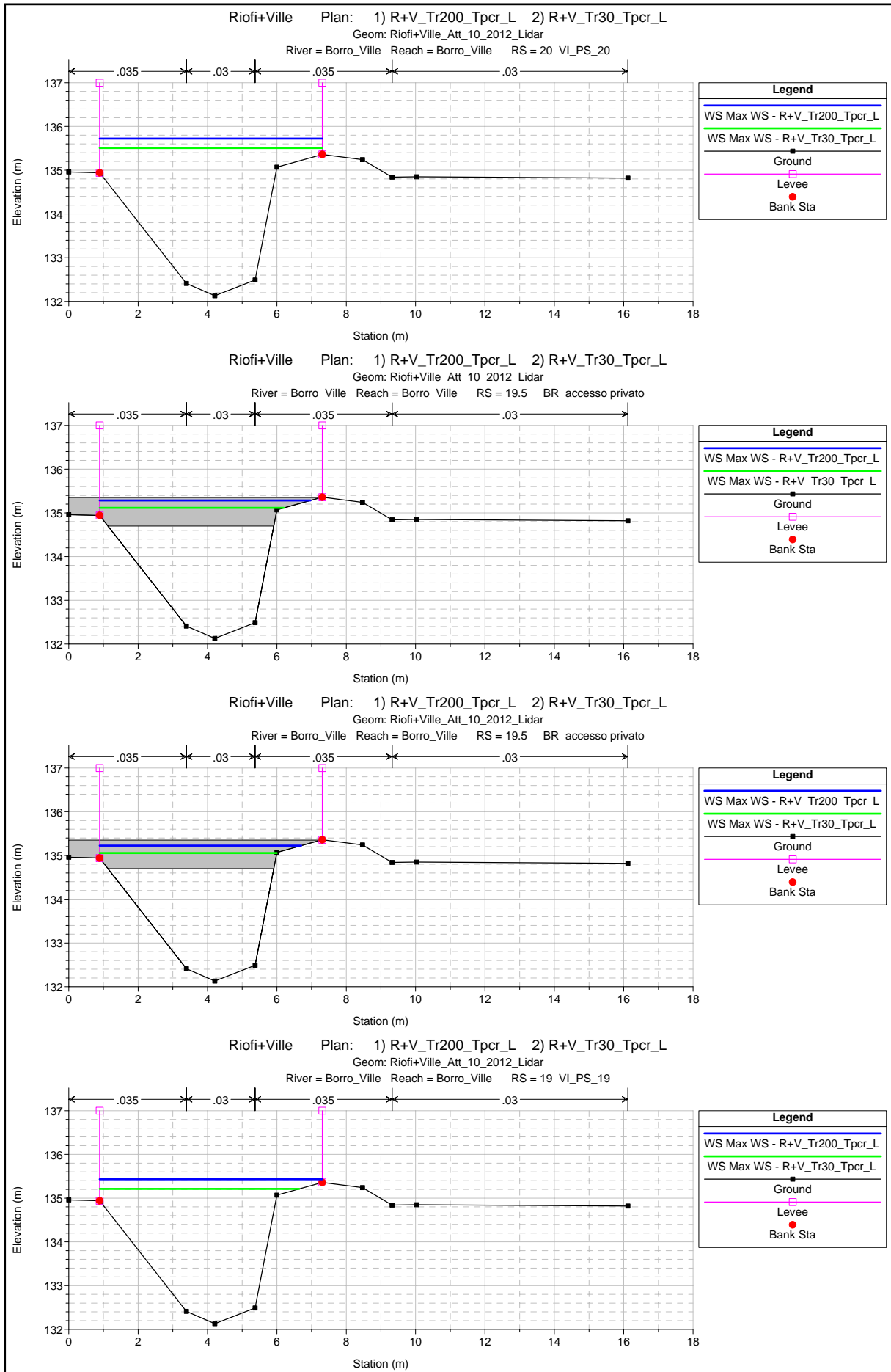


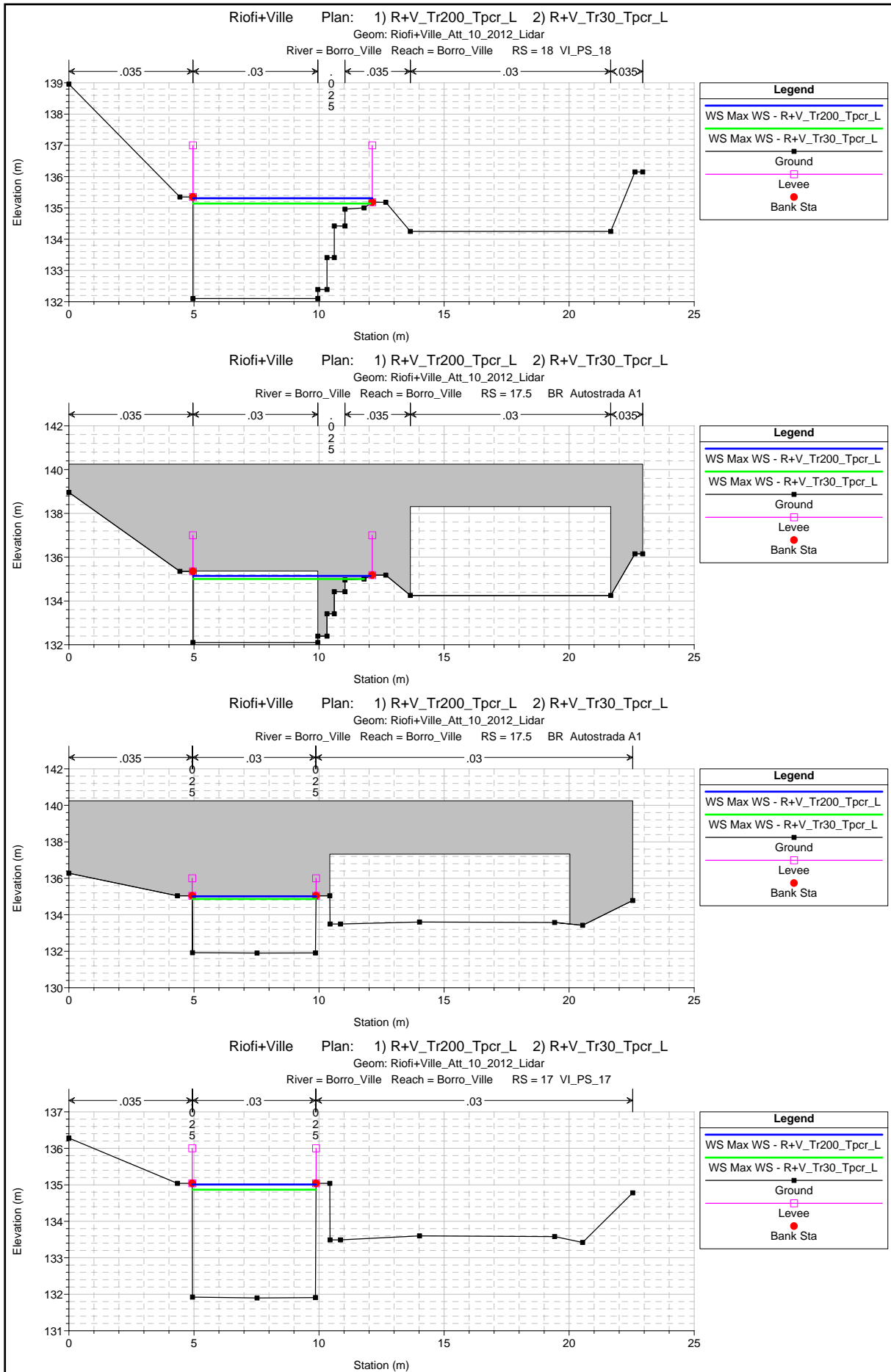


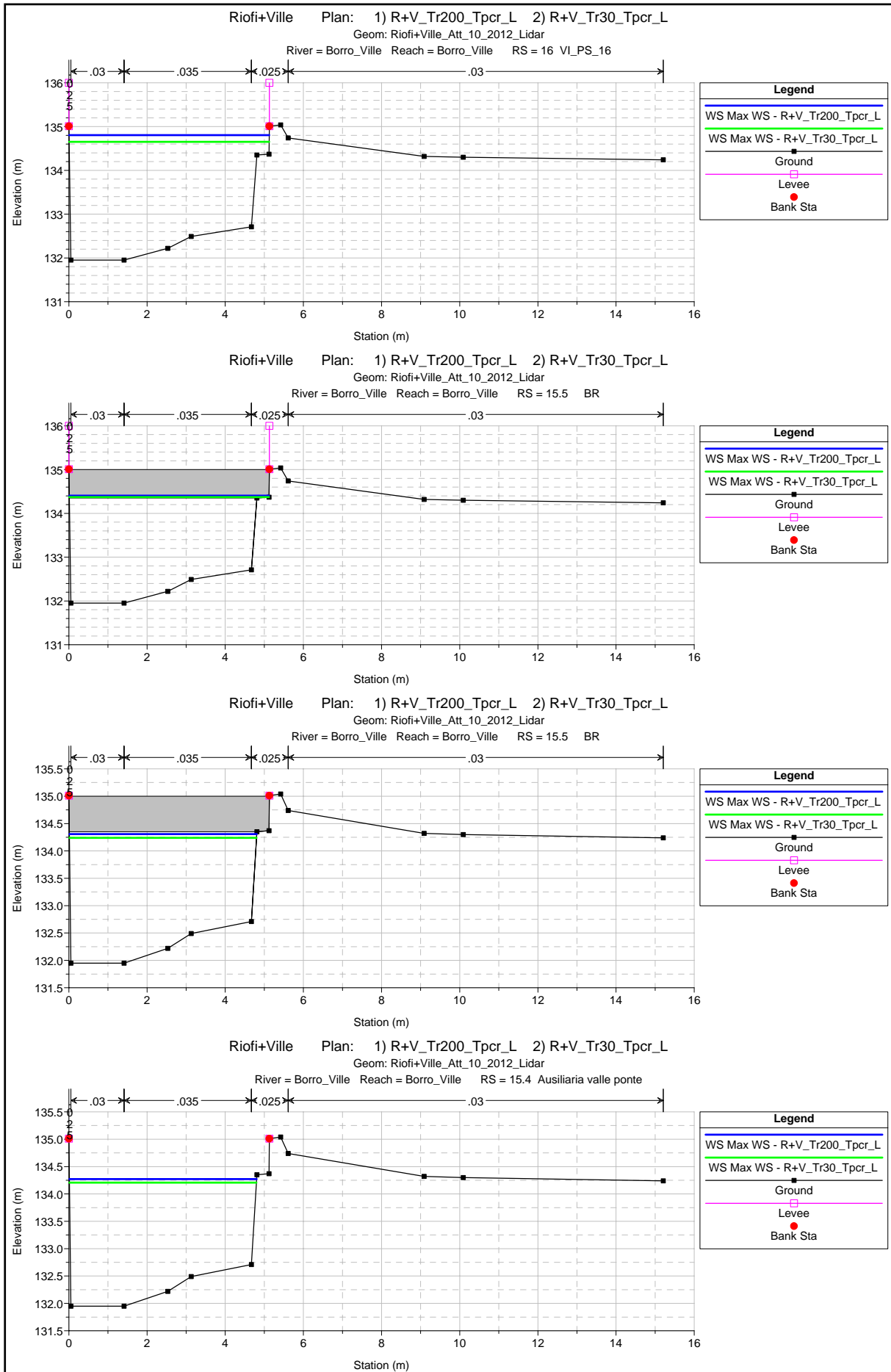


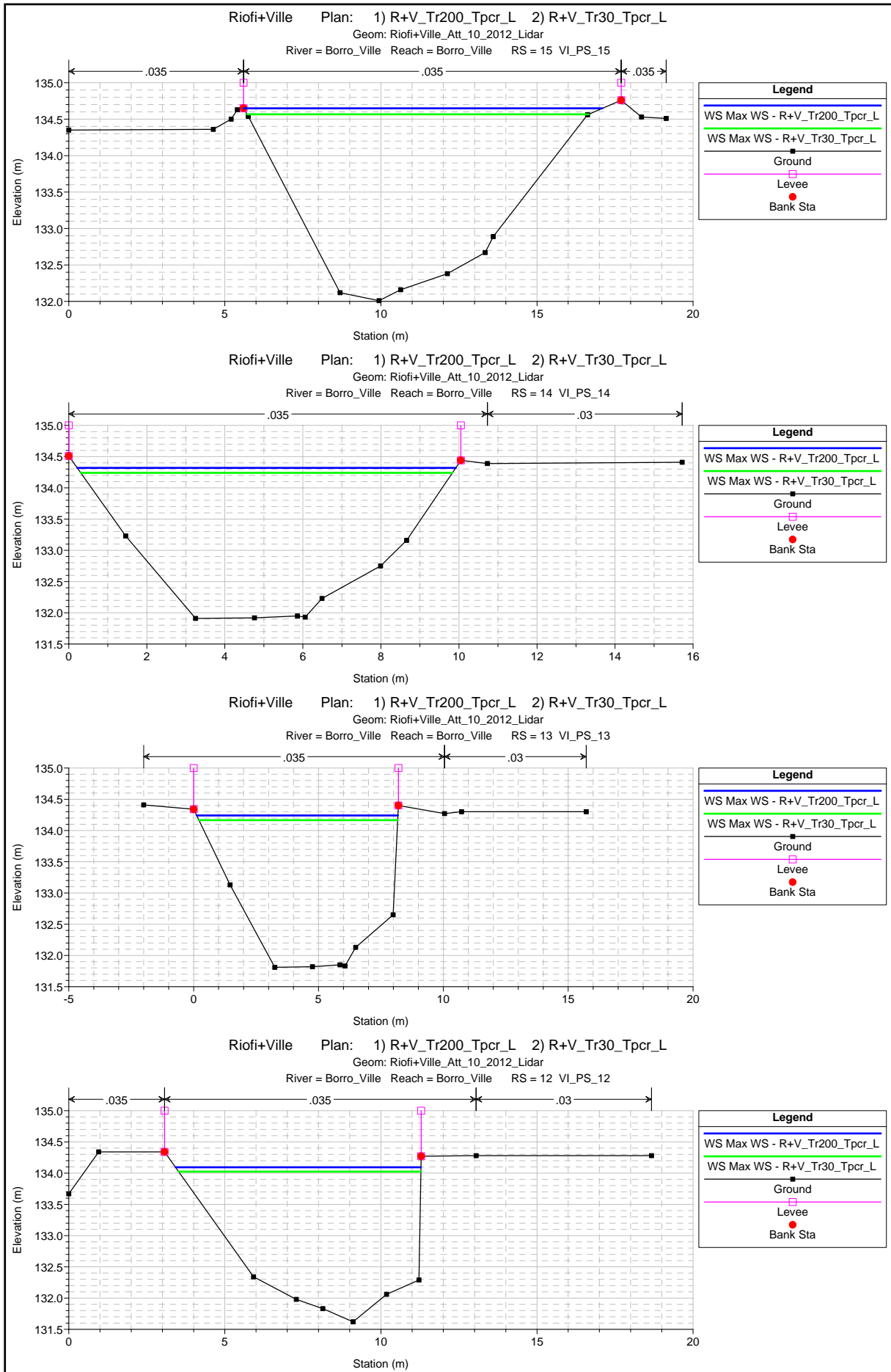


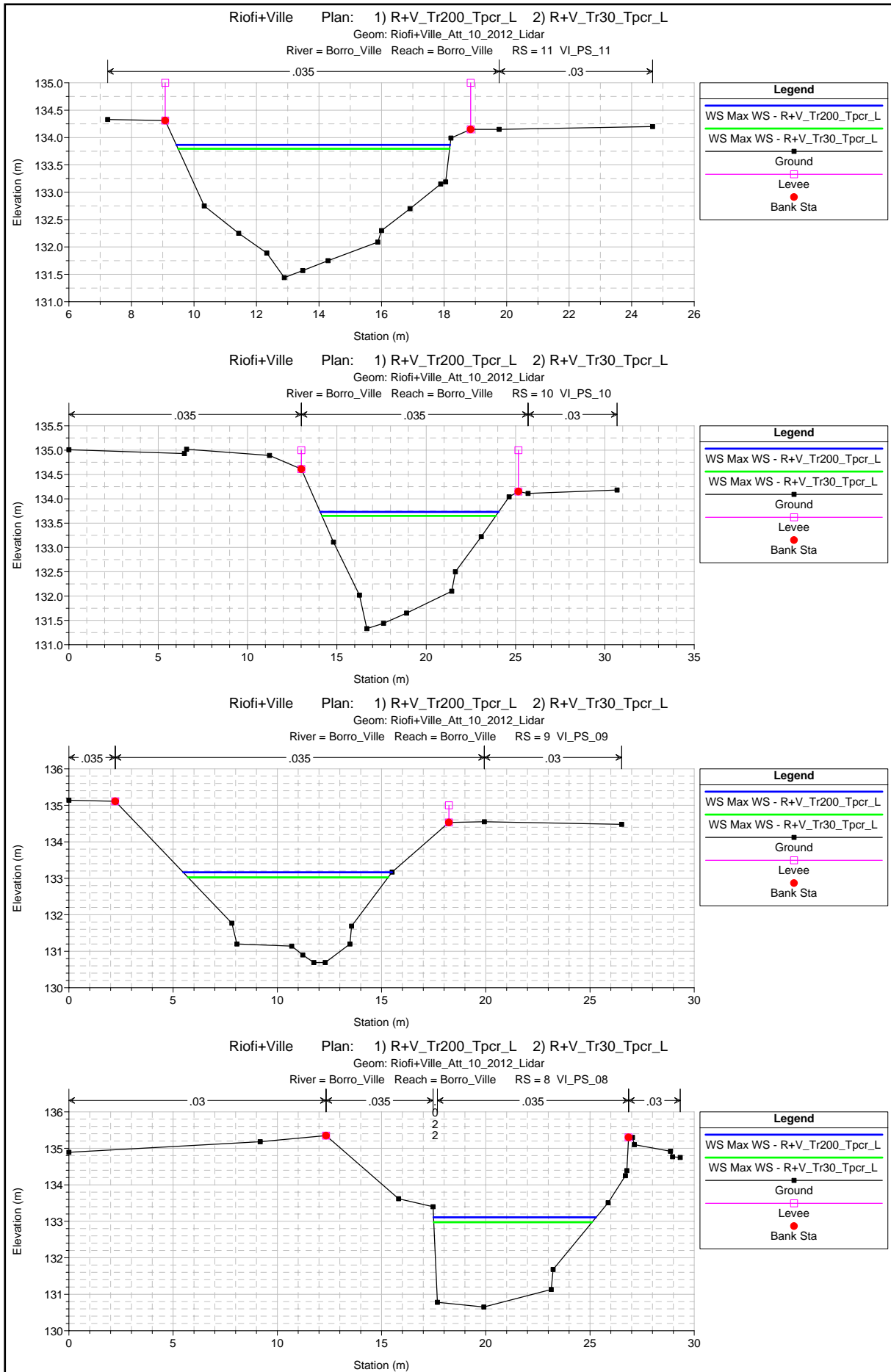


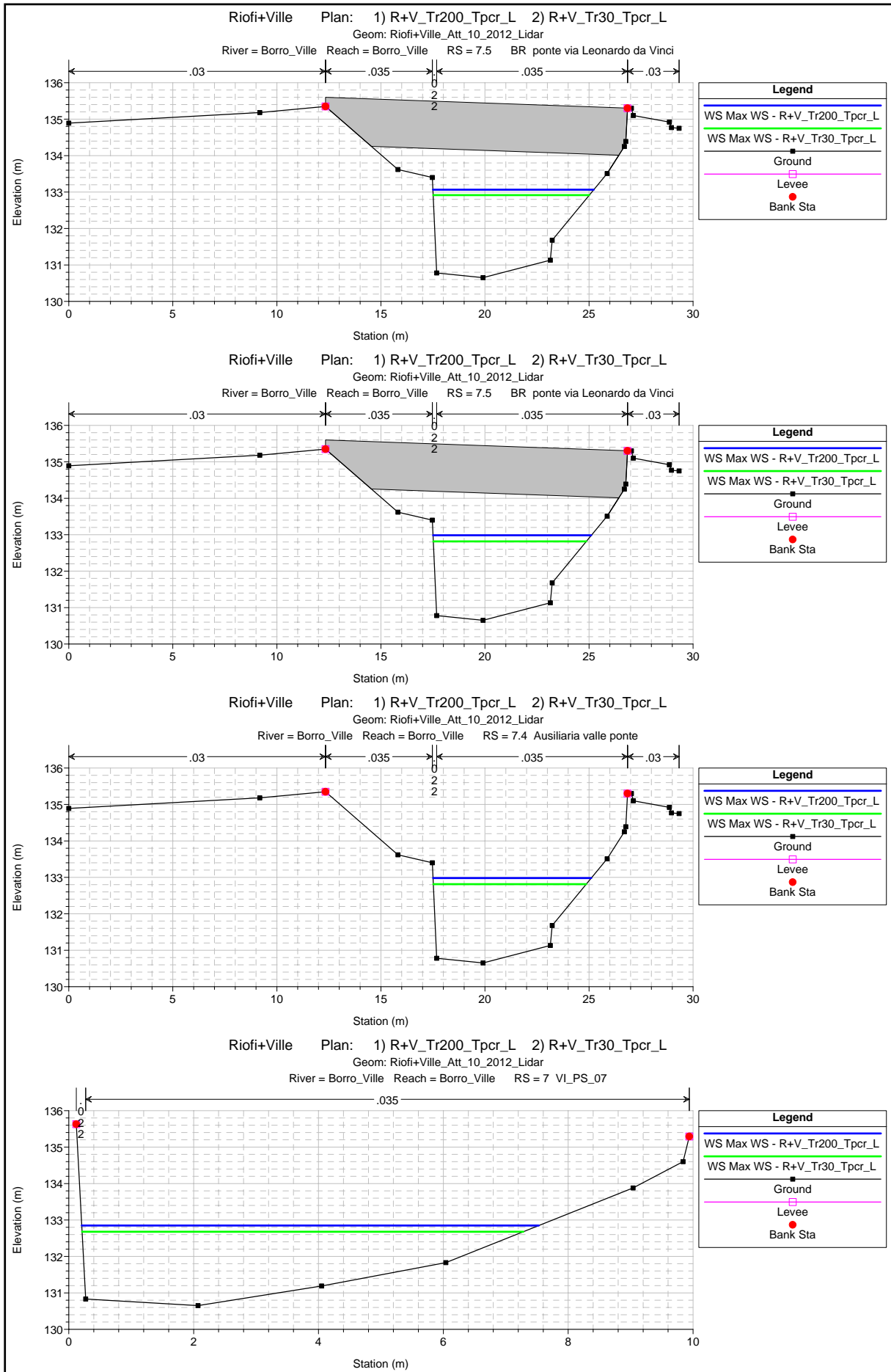


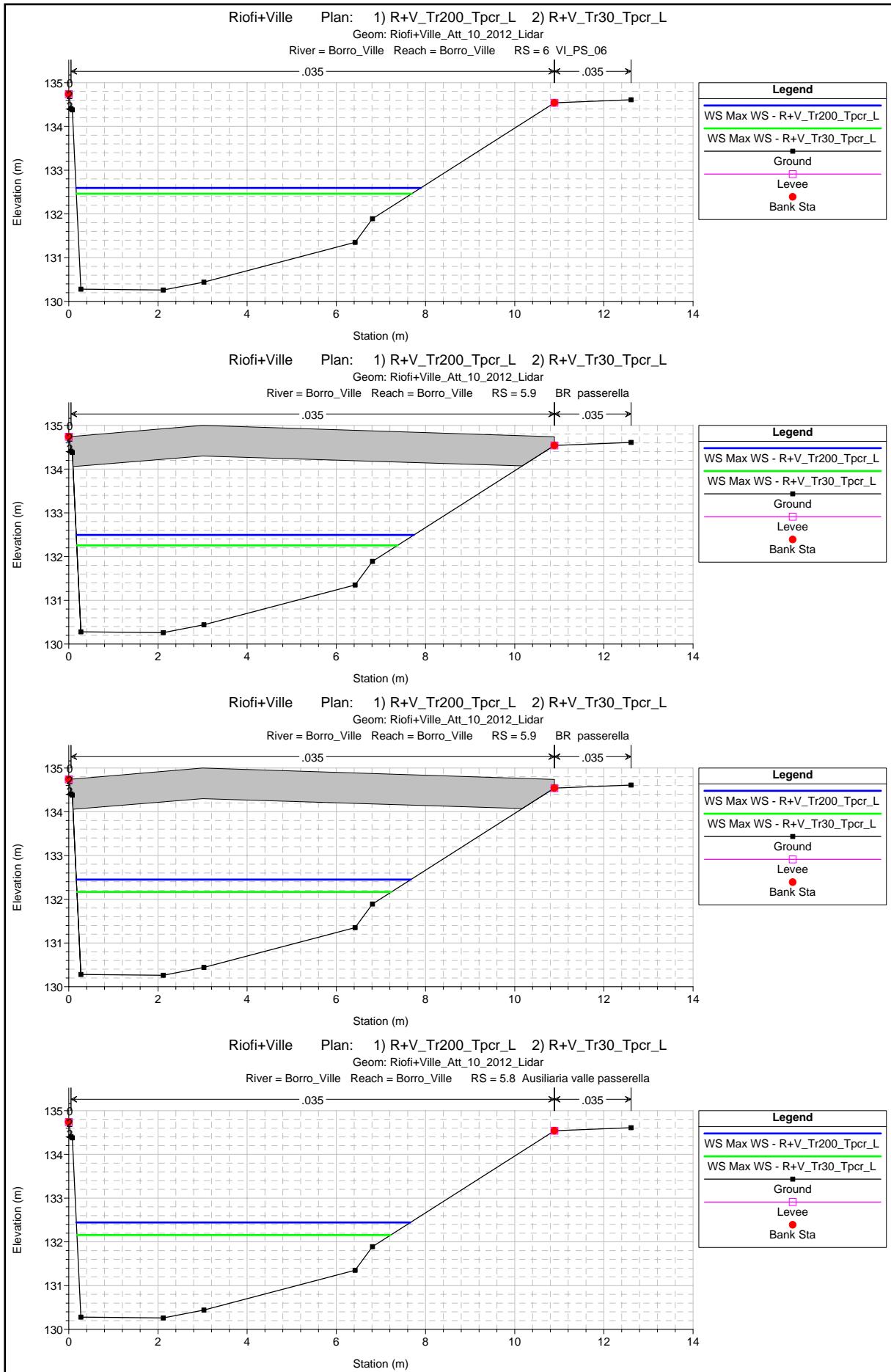


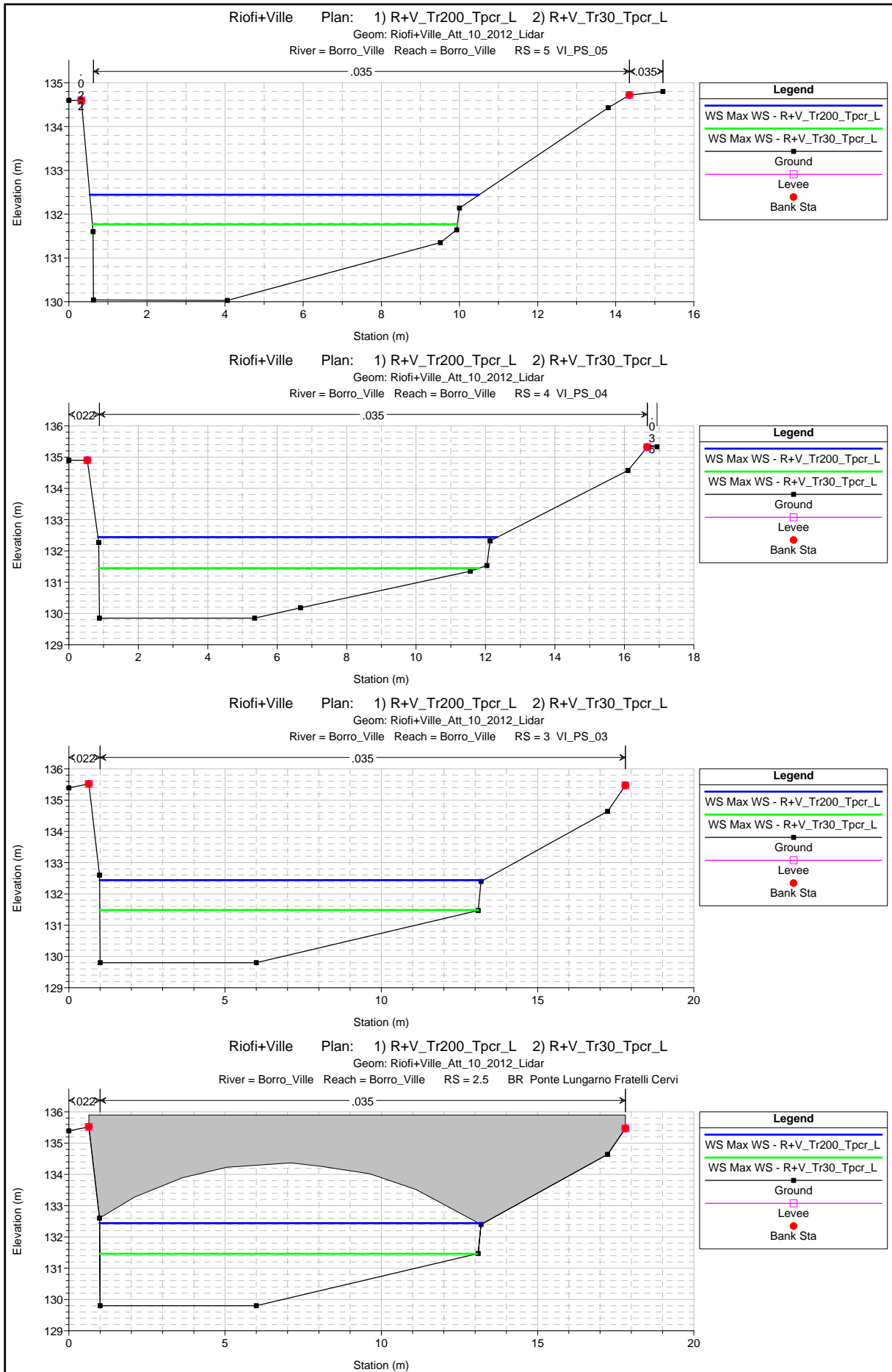




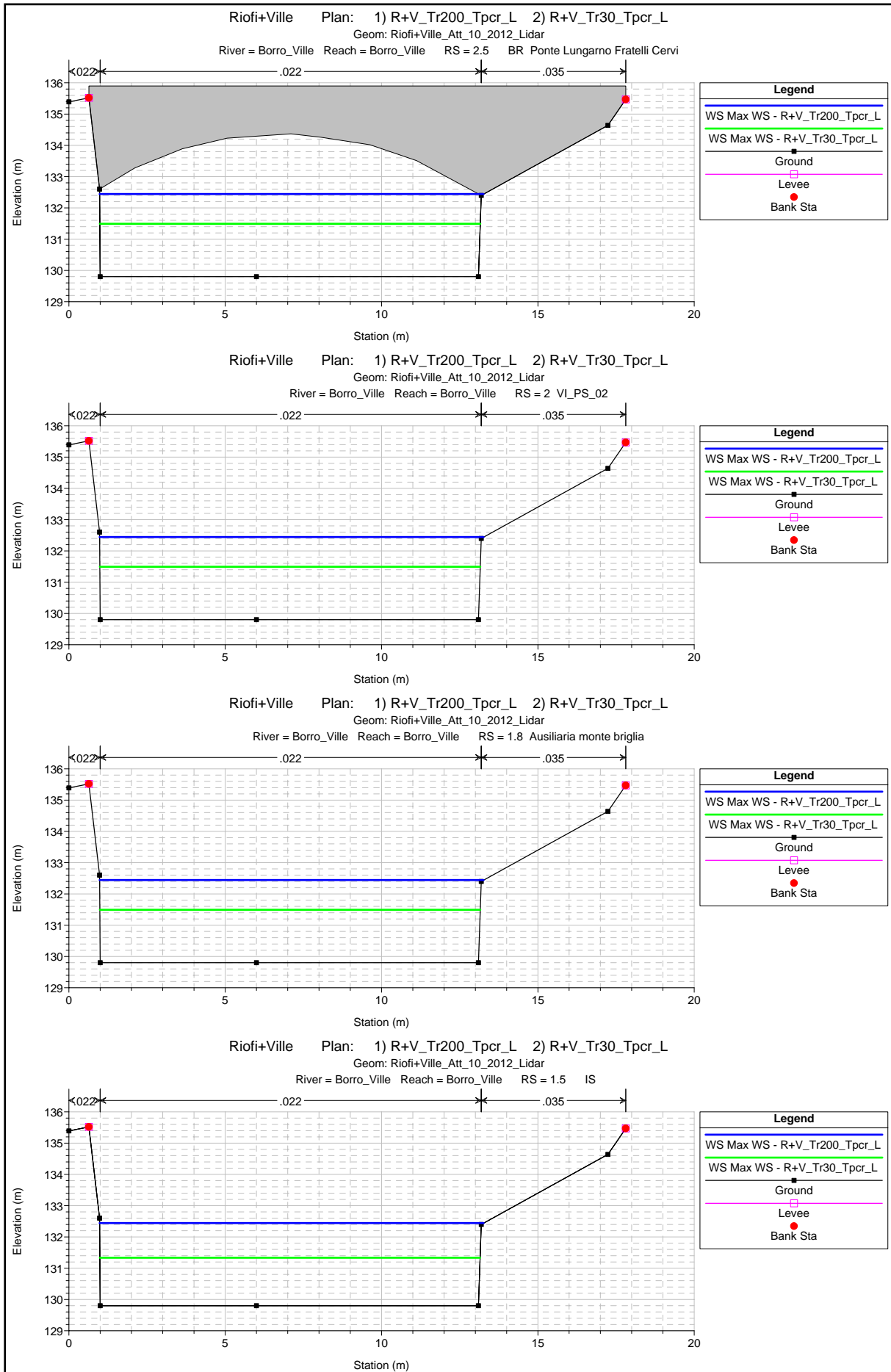


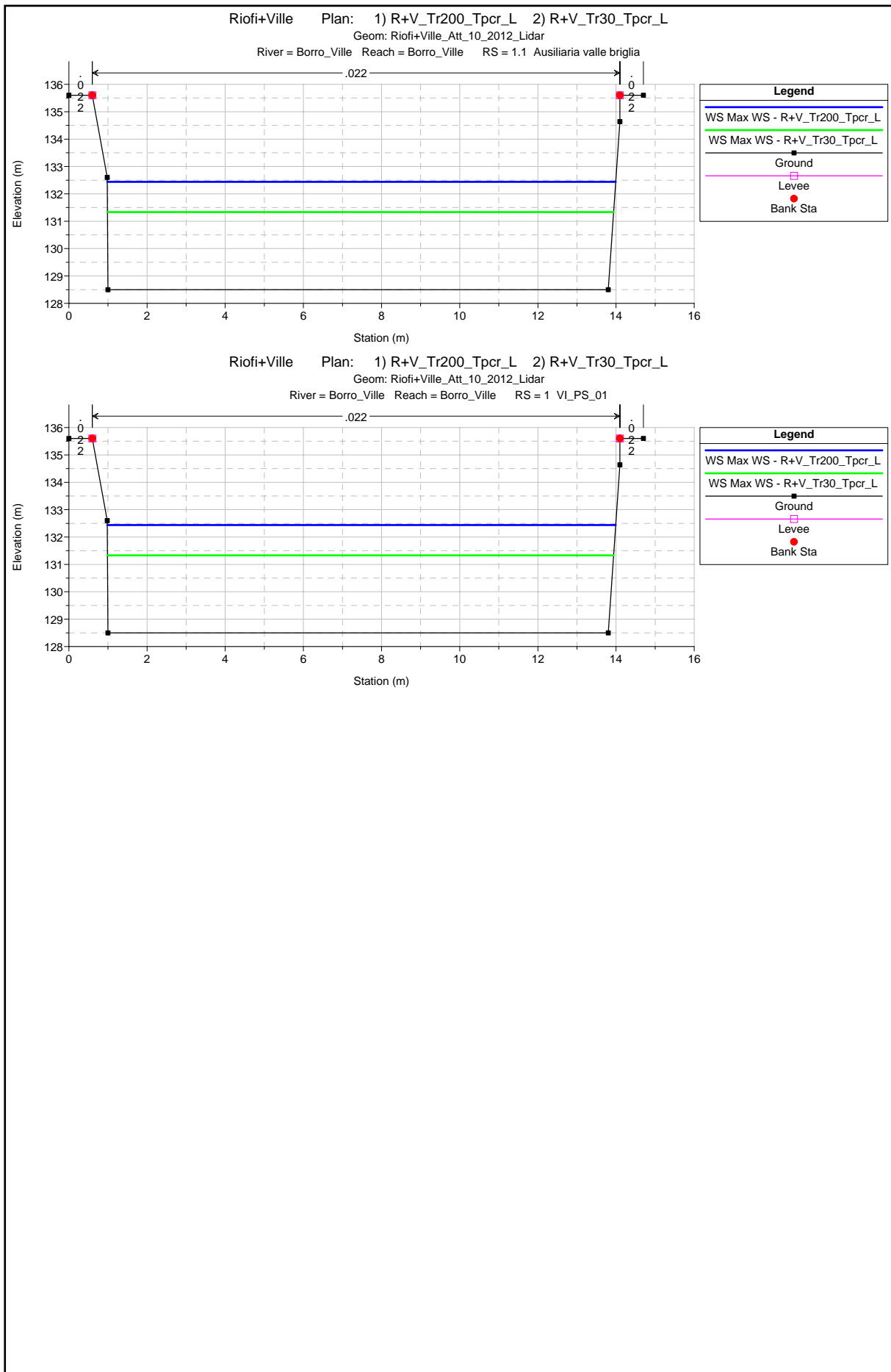












HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	32	Max WS	R+V_Tr200_Tpcr_L	67.76	132.52	136.20		136.58	0.003747	2.75	24.66	9.78	0.55
Borro_Ville	32	Max WS	R+V_Tr30_Tpcr_L	49.82	132.52	135.97		136.22	0.002623	2.22	22.46	9.58	0.46
Borro_Ville	31	Max WS	R+V_Tr200_Tpcr_L	67.75	132.75	135.95		136.44	0.005572	3.11	21.77	9.58	0.66
Borro_Ville	31	Max WS	R+V_Tr30_Tpcr_L	49.75	132.75	135.83		136.13	0.003504	2.41	20.63	9.58	0.52
Borro_Ville	30.9			Lat Struct									
Borro_Ville	30.8			Lat Struct									
Borro_Ville	30	Max WS	R+V_Tr200_Tpcr_L	66.23	132.63	136.11		136.41	0.003016	2.44	27.14	11.13	0.50
Borro_Ville	30	Max WS	R+V_Tr30_Tpcr_L	49.49	132.63	135.90		136.10	0.002191	2.00	24.77	11.13	0.43
Borro_Ville	29	Max WS	R+V_Tr200_Tpcr_L	61.82	132.69	136.10	134.74	136.41	0.002102	2.46	25.11	7.86	0.44
Borro_Ville	29	Max WS	R+V_Tr30_Tpcr_L	49.25	132.69	135.84	134.47	136.07	0.001720	2.14	23.01	7.85	0.40
Borro_Ville	28.5			Bridge									
Borro_Ville	28	Max WS	R+V_Tr200_Tpcr_L	61.66	132.69	135.74		136.13	0.002975	2.77	22.25	7.84	0.53
Borro_Ville	28	Max WS	R+V_Tr30_Tpcr_L	49.13	132.69	135.65		135.91	0.002076	2.28	21.54	7.84	0.44
Borro_Ville	27.9			Lat Struct									
Borro_Ville	27.8			Lat Struct									
Borro_Ville	27	Max WS	R+V_Tr200_Tpcr_L	58.74	132.63	135.74		136.12	0.004191	2.75	21.34	9.60	0.59
Borro_Ville	27	Max WS	R+V_Tr30_Tpcr_L	47.25	132.63	135.62		135.90	0.003147	2.33	20.26	9.60	0.51
Borro_Ville	26	Max WS	R+V_Tr200_Tpcr_L	56.73	132.55	135.69		136.05	0.004012	2.64	21.46	10.21	0.58
Borro_Ville	26	Max WS	R+V_Tr30_Tpcr_L	45.62	132.55	135.59		135.85	0.002971	2.23	20.47	10.21	0.50
Borro_Ville	25	Max WS	R+V_Tr200_Tpcr_L	46.71	132.53	135.90	134.47	136.07	0.001642	1.84	25.38	9.38	0.36
Borro_Ville	25	Max WS	R+V_Tr30_Tpcr_L	37.90	132.53	135.73	134.27	135.86	0.001284	1.59	23.86	9.38	0.32
Borro_Ville	24.5			Bridge									
Borro_Ville	24	Max WS	R+V_Tr200_Tpcr_L	46.61	132.53	135.70		135.90	0.002016	1.98	23.54	9.38	0.40
Borro_Ville	24	Max WS	R+V_Tr30_Tpcr_L	37.82	132.53	135.60		135.74	0.001486	1.67	22.60	9.38	0.34

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	23.9			Lat Struct									
Borro_Ville	23.8			Lat Struct									
Borro_Ville	23	Max WS	R+V_Tr200_Tpcr_L	47.32	132.19	135.72		135.86	0.001345	1.69	28.00	10.40	0.33
Borro_Ville	23	Max WS	R+V_Tr30_Tpcr_L	38.26	132.19	135.61		135.71	0.000982	1.42	26.93	10.40	0.28
Borro_Ville	22	Max WS	R+V_Tr200_Tpcr_L	45.00	132.18	135.72		135.85	0.001243	1.58	28.44	11.82	0.33
Borro_Ville	22	Max WS	R+V_Tr30_Tpcr_L	36.75	132.18	135.61		135.70	0.000950	1.35	27.13	11.82	0.29
Borro_Ville	21	Max WS	R+V_Tr200_Tpcr_L	37.43	132.14	135.78		135.85	0.000662	1.19	31.52	13.06	0.24
Borro_Ville	21	Max WS	R+V_Tr30_Tpcr_L	24.53	132.14	135.70		135.73	0.000314	0.80	30.47	13.06	0.17
Borro_Ville	20	Max WS	R+V_Tr200_Tpcr_L	25.73	132.13	135.72	134.43	135.90	0.002902	1.86	13.80	6.42	0.41
Borro_Ville	20	Max WS	R+V_Tr30_Tpcr_L	25.28	132.13	135.51	134.41	135.72	0.003774	2.04	12.41	6.42	0.47
Borro_Ville	19.5			Bridge									
Borro_Ville	19	Max WS	R+V_Tr200_Tpcr_L	25.72	132.13	135.43		135.67	0.004363	2.16	11.93	6.42	0.50
Borro_Ville	19	Max WS	R+V_Tr30_Tpcr_L	25.28	132.13	135.21		135.50	0.005479	2.39	10.57	5.76	0.56
Borro_Ville	18.9			Lat Struct									
Borro_Ville	18.8			Lat Struct									
Borro_Ville	18	Max WS	R+V_Tr200_Tpcr_L	34.43	132.10	135.31	133.75	135.49	0.001979	1.88	18.33	7.17	0.37
Borro_Ville	18	Max WS	R+V_Tr30_Tpcr_L	32.20	132.10	135.14	133.68	135.32	0.002074	1.88	17.13	7.09	0.39
Borro_Ville	17.5			Bridge									
Borro_Ville	17	Max WS	R+V_Tr200_Tpcr_L	34.43	131.90	135.01		135.27	0.002456	2.25	15.30	4.95	0.41
Borro_Ville	17	Max WS	R+V_Tr30_Tpcr_L	32.20	131.90	134.87		135.11	0.002438	2.21	14.60	4.95	0.41
Borro_Ville	16	Max WS	R+V_Tr200_Tpcr_L	34.43	131.95	134.80	134.03	135.21	0.005236	2.83	12.18	5.12	0.59
Borro_Ville	16	Max WS	R+V_Tr30_Tpcr_L	32.20	131.95	134.65	133.95	135.06	0.005534	2.83	11.39	5.12	0.60
Borro_Ville	15.5			Bridge									
Borro_Ville	15.4	Max WS	R+V_Tr200_Tpcr_L	34.42	131.95	134.27		134.94	0.010352	3.63	9.48	4.79	0.82

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	15.4	Max WS	R+V_Tr30_Tpcr_L	32.20	131.95	134.21		134.84	0.009979	3.51	9.17	4.78	0.81
Borro_Ville	15	Max WS	R+V_Tr200_Tpcr_L	34.42	132.01	134.65		134.83	0.002735	1.88	18.32	11.50	0.48
Borro_Ville	15	Max WS	R+V_Tr30_Tpcr_L	32.20	132.01	134.57		134.74	0.002676	1.85	17.39	10.94	0.47
Borro_Ville	14.9			Lat Struct									
Borro_Ville	14.8			Lat Struct									
Borro_Ville	14	Max WS	R+V_Tr200_Tpcr_L	34.42	131.91	134.32		134.56	0.003641	2.16	15.90	9.70	0.54
Borro_Ville	14	Max WS	R+V_Tr30_Tpcr_L	32.20	131.91	134.24		134.47	0.003654	2.13	15.13	9.53	0.54
Borro_Ville	13	Max WS	R+V_Tr200_Tpcr_L	34.41	131.81	134.24		134.52	0.004383	2.36	14.60	8.06	0.56
Borro_Ville	13	Max WS	R+V_Tr30_Tpcr_L	32.20	131.81	134.17		134.44	0.004300	2.30	14.00	7.96	0.55
Borro_Ville	12	Max WS	R+V_Tr200_Tpcr_L	34.41	131.62	134.09		134.43	0.005640	2.56	13.46	7.86	0.62
Borro_Ville	12	Max WS	R+V_Tr30_Tpcr_L	32.20	131.62	134.02		134.34	0.005525	2.49	12.92	7.76	0.62
Borro_Ville	11	Max WS	R+V_Tr200_Tpcr_L	34.39	131.44	133.87		134.19	0.005511	2.52	13.66	8.76	0.64
Borro_Ville	11	Max WS	R+V_Tr30_Tpcr_L	32.19	131.44	133.80		134.11	0.005529	2.47	13.03	8.69	0.64
Borro_Ville	10	Max WS	R+V_Tr200_Tpcr_L	34.34	131.33	133.73		134.03	0.005340	2.40	14.29	9.99	0.64
Borro_Ville	10	Max WS	R+V_Tr30_Tpcr_L	32.19	131.33	133.65		133.94	0.005508	2.39	13.47	9.73	0.65
Borro_Ville	9	Max WS	R+V_Tr200_Tpcr_L	34.13	130.69	133.17		133.42	0.004427	2.24	15.23	10.02	0.58
Borro_Ville	9	Max WS	R+V_Tr30_Tpcr_L	32.16	130.69	133.03		133.30	0.005073	2.32	13.87	9.61	0.62
Borro_Ville	8	Max WS	R+V_Tr200_Tpcr_L	34.10	130.65	133.11	132.41	133.40	0.004123	2.38	14.35	7.80	0.56
Borro_Ville	8	Max WS	R+V_Tr30_Tpcr_L	32.15	130.65	132.98	132.35	133.27	0.004503	2.41	13.32	7.59	0.58
Borro_Ville	7.5			Bridge									
Borro_Ville	7.4	Max WS	R+V_Tr200_Tpcr_L	34.10	130.65	132.98		133.31	0.005014	2.55	13.37	7.60	0.61
Borro_Ville	7.4	Max WS	R+V_Tr30_Tpcr_L	30.44	130.65	132.81		133.14	0.005254	2.51	12.11	7.35	0.62
Borro_Ville	7	Max WS	R+V_Tr200_Tpcr_L	34.10	130.65	132.85		133.33	0.008456	3.07	11.09	7.32	0.80
Borro_Ville	7	Max WS	R+V_Tr30_Tpcr_L	30.54	130.65	132.68		133.17	0.009414	3.09	9.87	7.07	0.84
Borro_Ville	6	Max WS	R+V_Tr200_Tpcr_L	34.09	130.26	132.59	132.10	132.95	0.006407	2.62	12.99	7.73	0.65

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	6	Max WS	R+V_Tr30_Tpcr_L	30.41	130.26	132.46	131.99	132.79	0.006360	2.54	11.98	7.52	0.64
Borro_Ville	5.9		Bridge										
Borro_Ville	5.8	Max WS	R+V_Tr200_Tpcr_L	10.07	130.26	132.44		132.48	0.000719	0.85	11.85	7.49	0.22
Borro_Ville	5.8	Max WS	R+V_Tr30_Tpcr_L	32.20	130.26	132.16		132.71	0.012589	3.30	9.75	7.04	0.90
Borro_Ville	5	Max WS	R+V_Tr200_Tpcr_L	10.04	130.03	132.44		132.46	0.000204	0.55	18.37	9.97	0.13
Borro_Ville	5	Max WS	R+V_Tr30_Tpcr_L	31.77	130.03	131.77		132.13	0.007329	2.66	11.95	9.34	0.75
Borro_Ville	4	Max WS	R+V_Tr200_Tpcr_L	9.99	129.85	132.44		132.45	0.000107	0.42	23.53	11.50	0.09
Borro_Ville	4	Max WS	R+V_Tr30_Tpcr_L	20.59	129.85	131.45		131.59	0.003230	1.66	12.37	10.95	0.50
Borro_Ville	3	Max WS	R+V_Tr200_Tpcr_L	9.98	129.80	132.44	130.47	132.45	0.000083	0.38	26.09	12.28	0.08
Borro_Ville	3	Max WS	R+V_Tr30_Tpcr_L	19.93	129.80	131.49	130.81	131.58	0.002040	1.38	14.48	12.11	0.40
Borro_Ville	2.5		Bridge										
Borro_Ville	2	Max WS	R+V_Tr200_Tpcr_L	9.98	129.80	132.44		132.45	0.000021	0.31	32.12	12.28	0.06
Borro_Ville	2	Max WS	R+V_Tr30_Tpcr_L	19.93	129.80	131.49		131.54	0.000314	0.97	20.52	12.17	0.24
Borro_Ville	1.8	Max WS	R+V_Tr200_Tpcr_L	9.98	129.80	132.44	130.21	132.45	0.000021	0.31	32.12	12.28	0.06
Borro_Ville	1.8	Max WS	R+V_Tr30_Tpcr_L	19.91	129.80	131.49	130.45	131.54	0.000313	0.97	20.52	12.17	0.24
Borro_Ville	1.5		Inl Struct										
Borro_Ville	1.1	Max WS	R+V_Tr200_Tpcr_L	9.98	128.50	132.44		132.44	0.000006	0.20	50.85	13.01	0.03
Borro_Ville	1.1	Max WS	R+V_Tr30_Tpcr_L	25.72	128.50	131.33		131.36	0.000097	0.70	36.49	12.95	0.13
Borro_Ville	1	Max WS	R+V_Tr200_Tpcr_L	9.98	128.50	132.44	128.89	132.44	0.000006	0.20	50.85	13.01	0.03
Borro_Ville	1	Max WS	R+V_Tr30_Tpcr_L	10.60	128.50	131.33	128.91	131.33	0.000017	0.29	36.44	12.95	0.06

# **VERIFICHE IDRAULICHE**

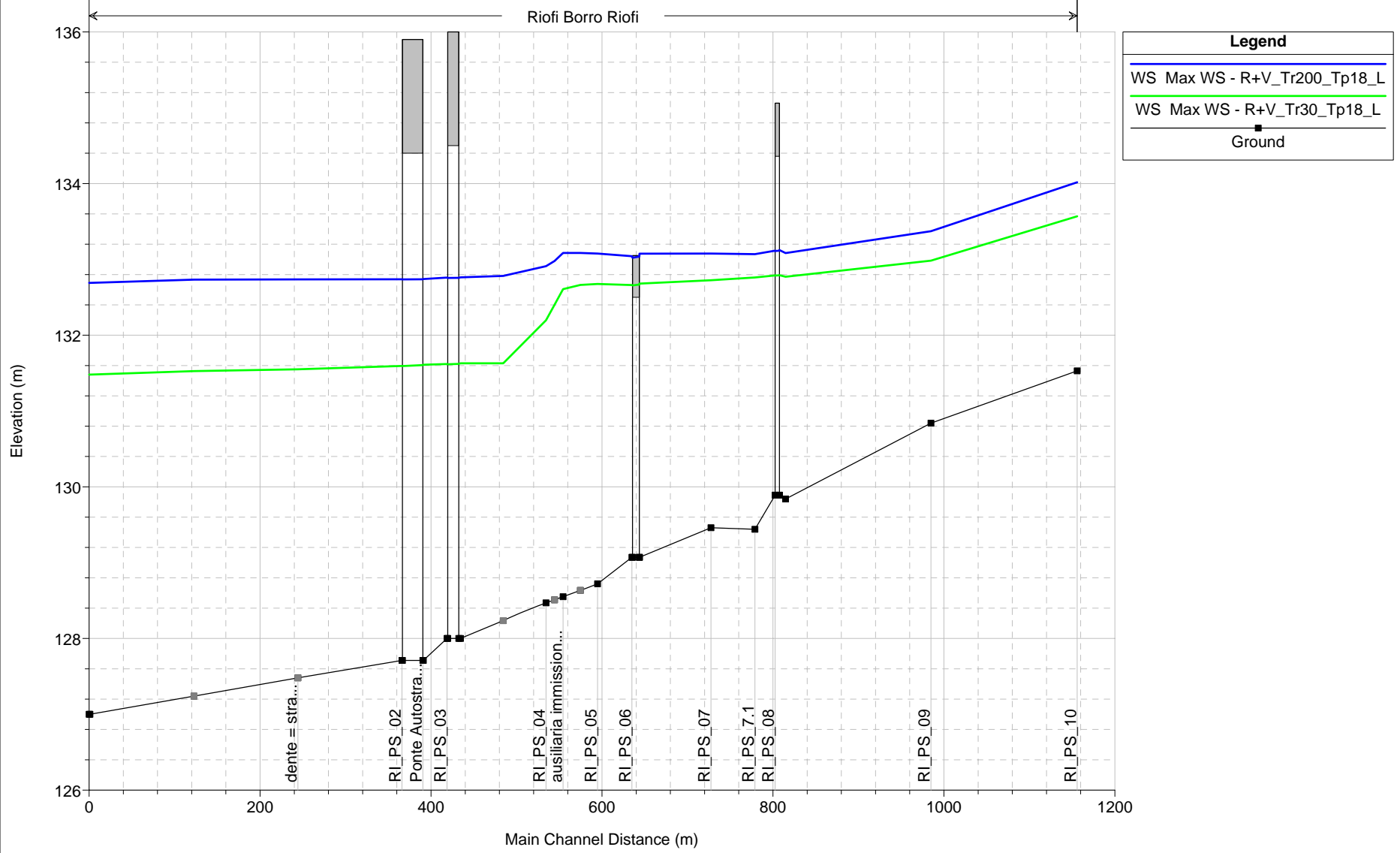
## **STATO ATTUALE**

### **BORRO RIOFI**

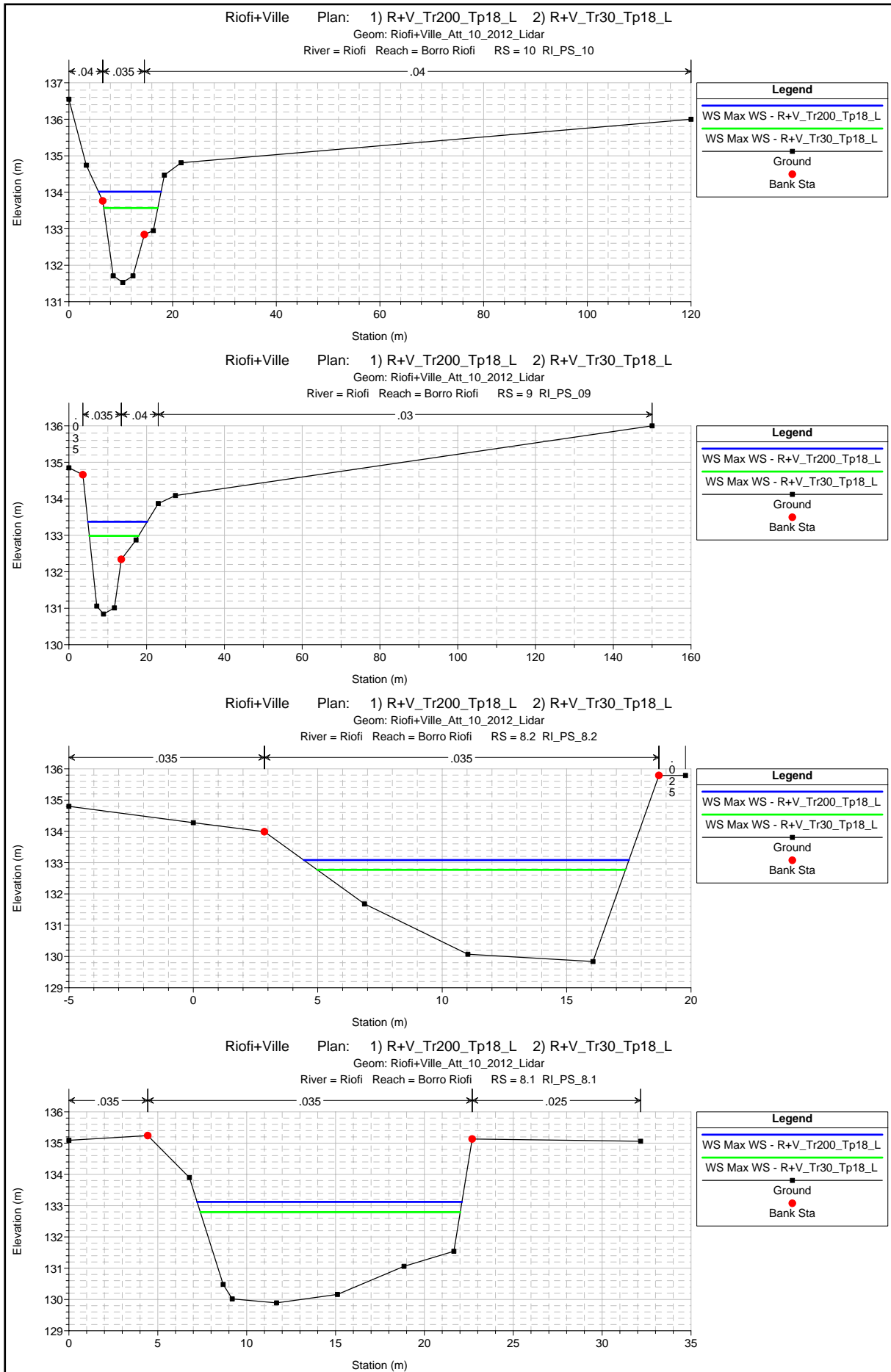
#### **Scenario B - Tr 200 e 30 anni**

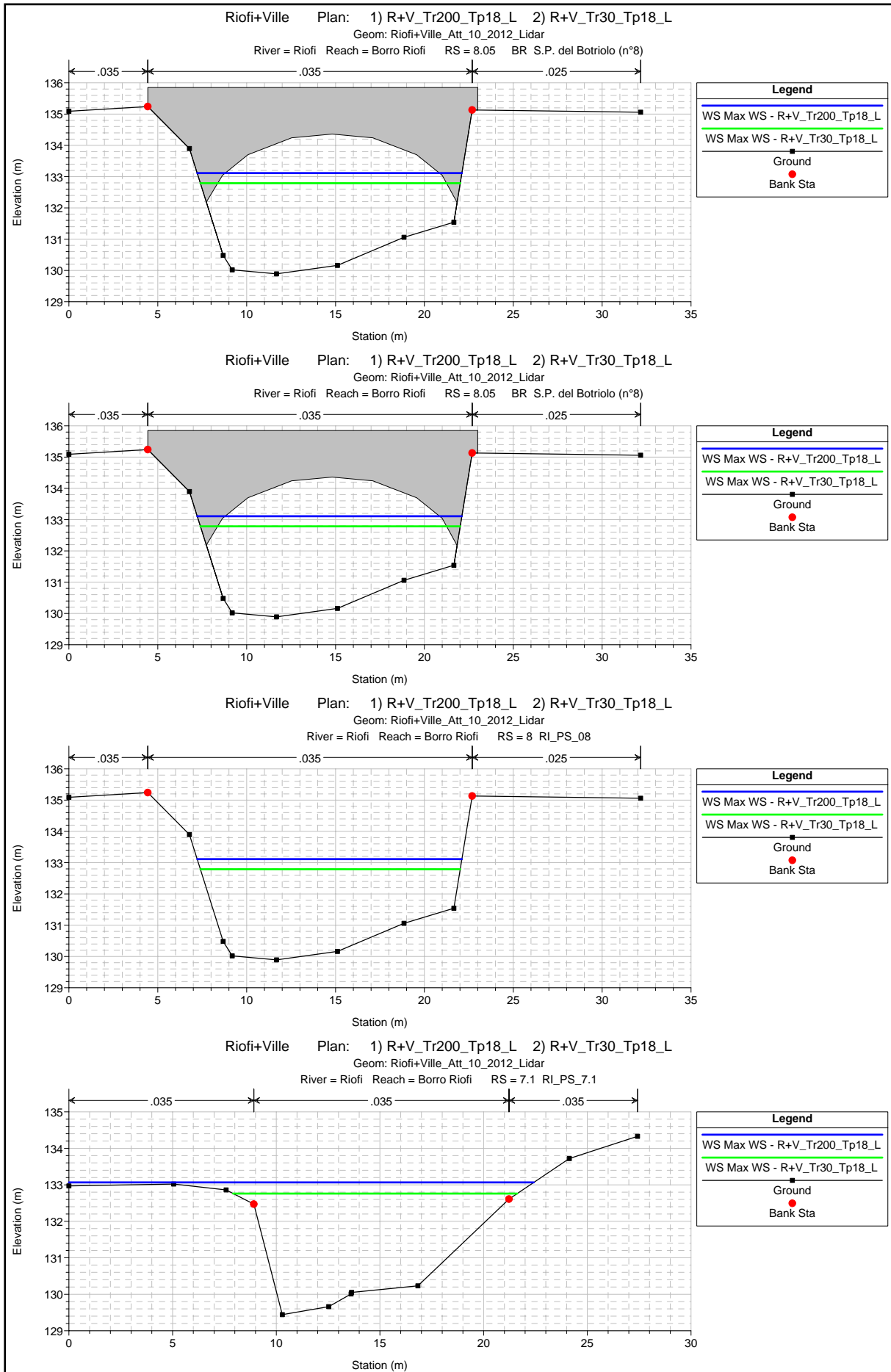
- Profili
- Sezioni di verifica
- Tabelle di output

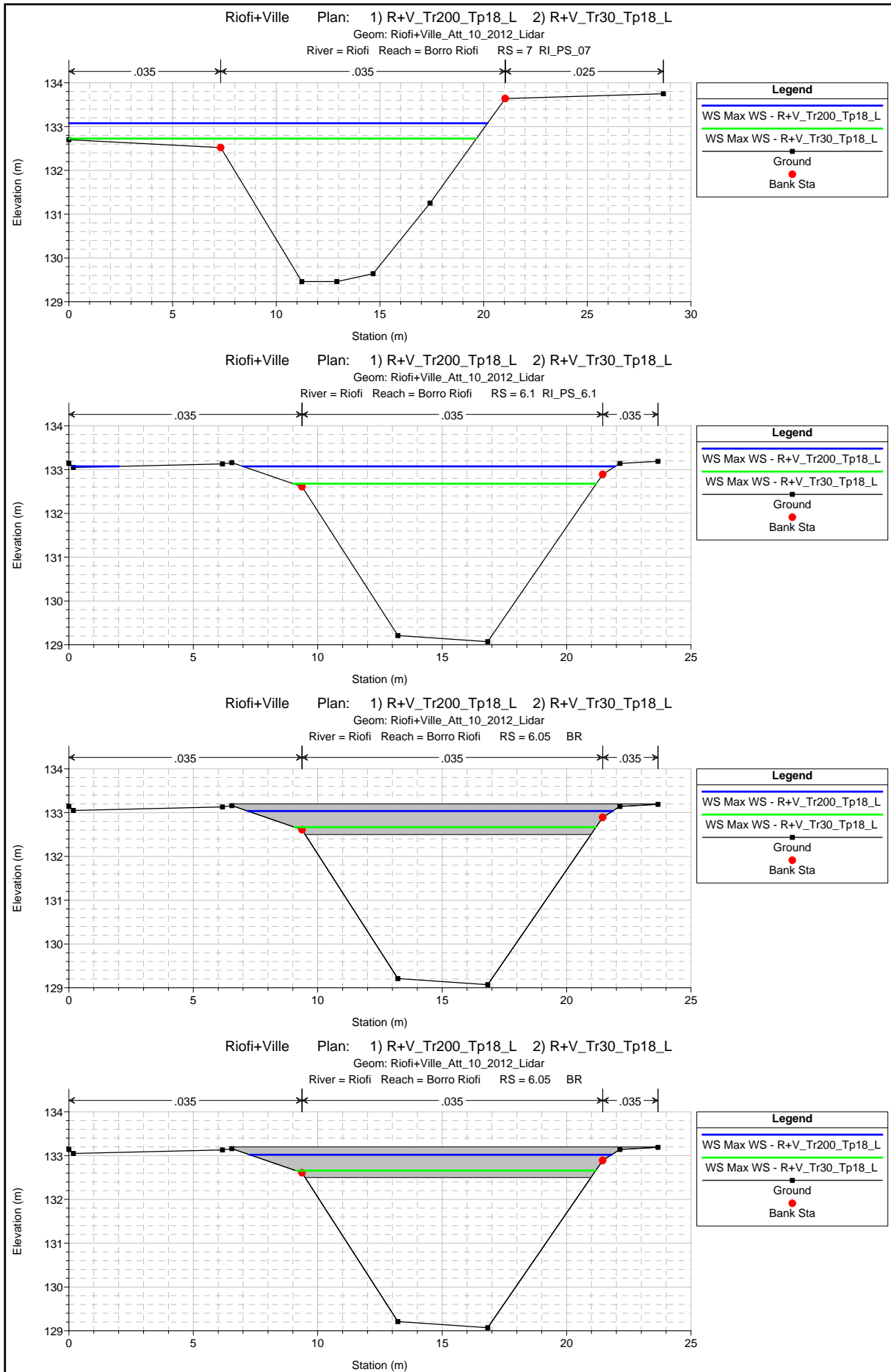
Riofi+Ville Plan: 1) R+V\_Tr200\_Tp18\_L 2) R+V\_Tr30\_Tp18\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar

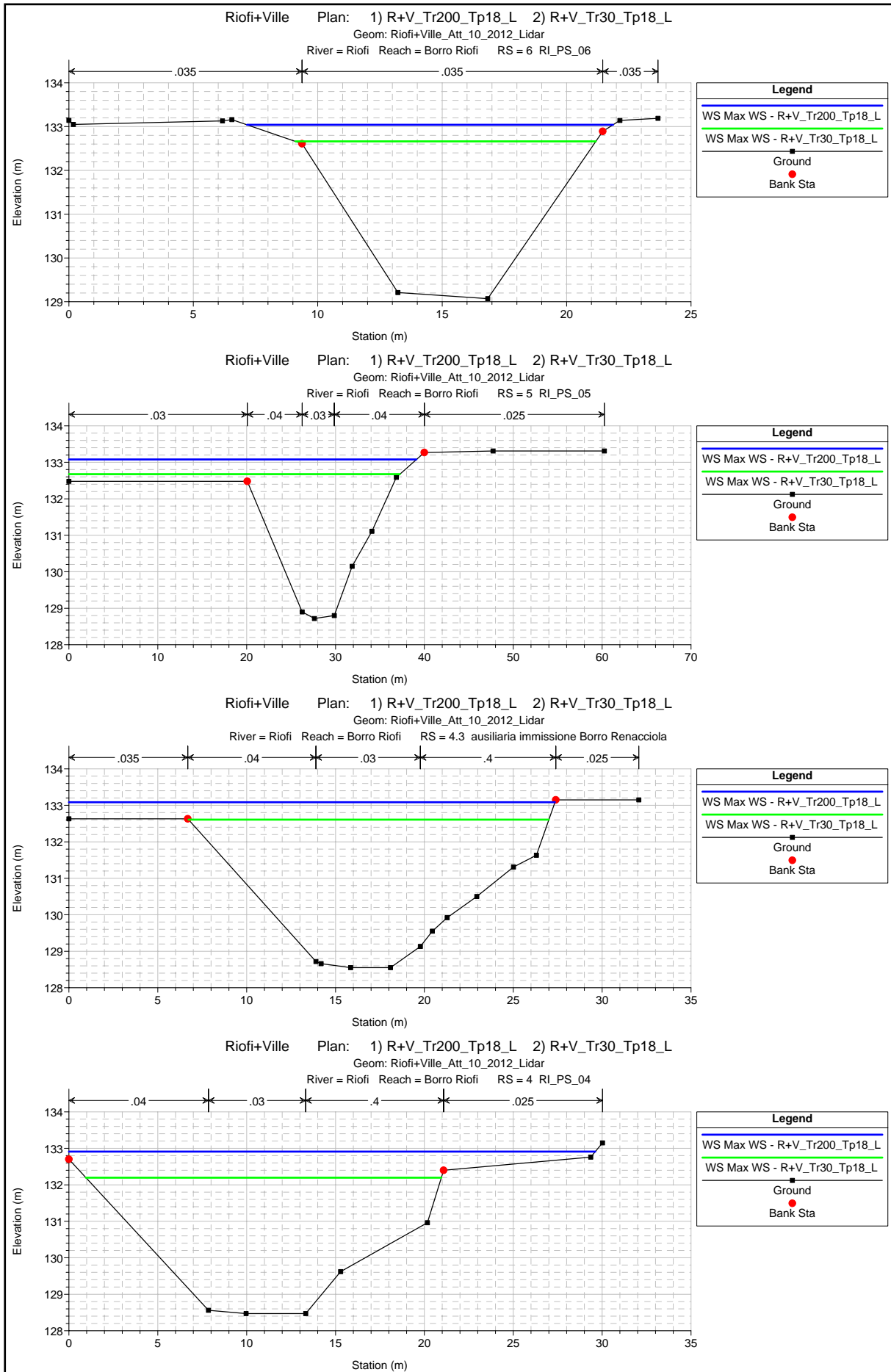


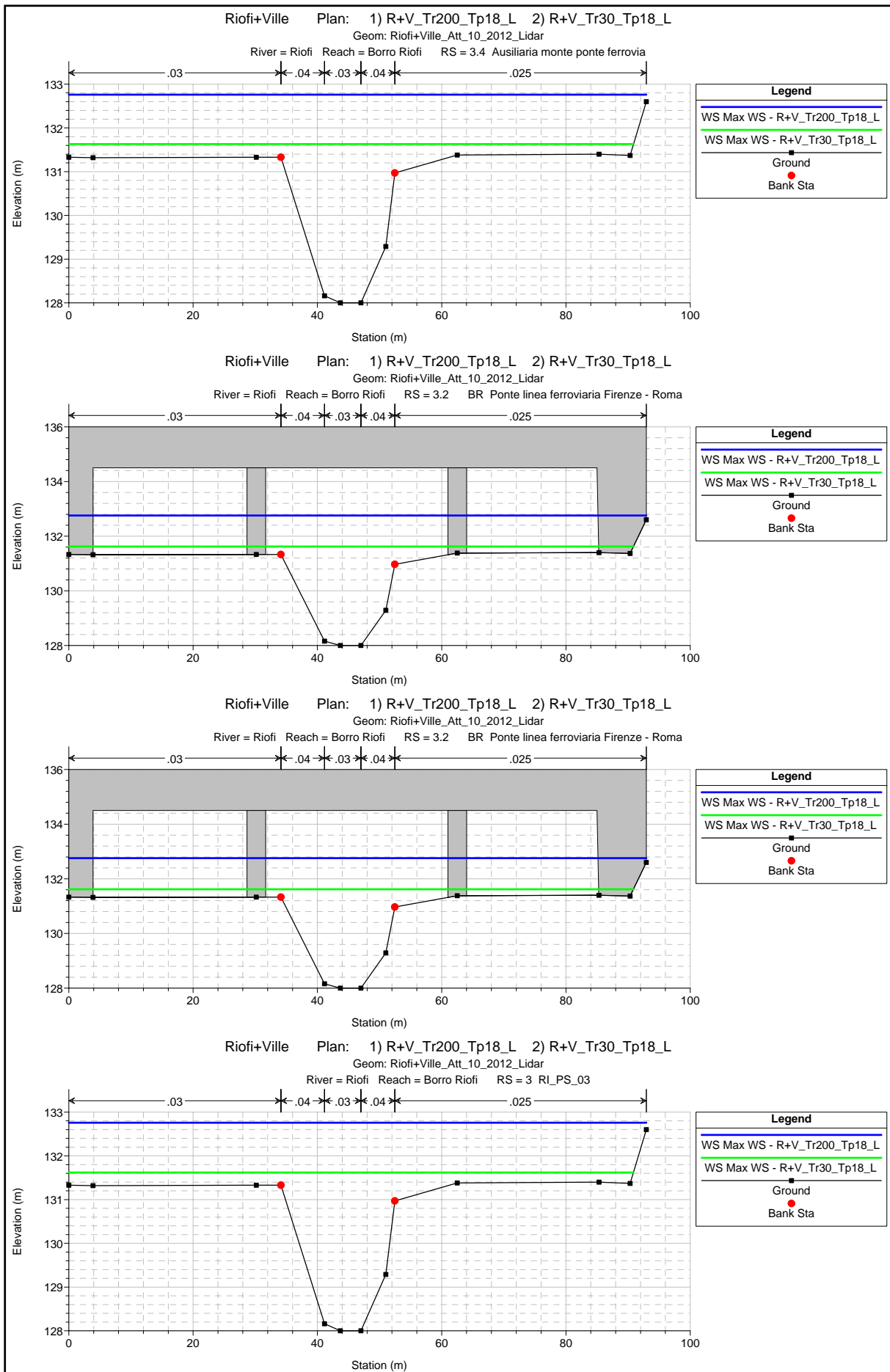


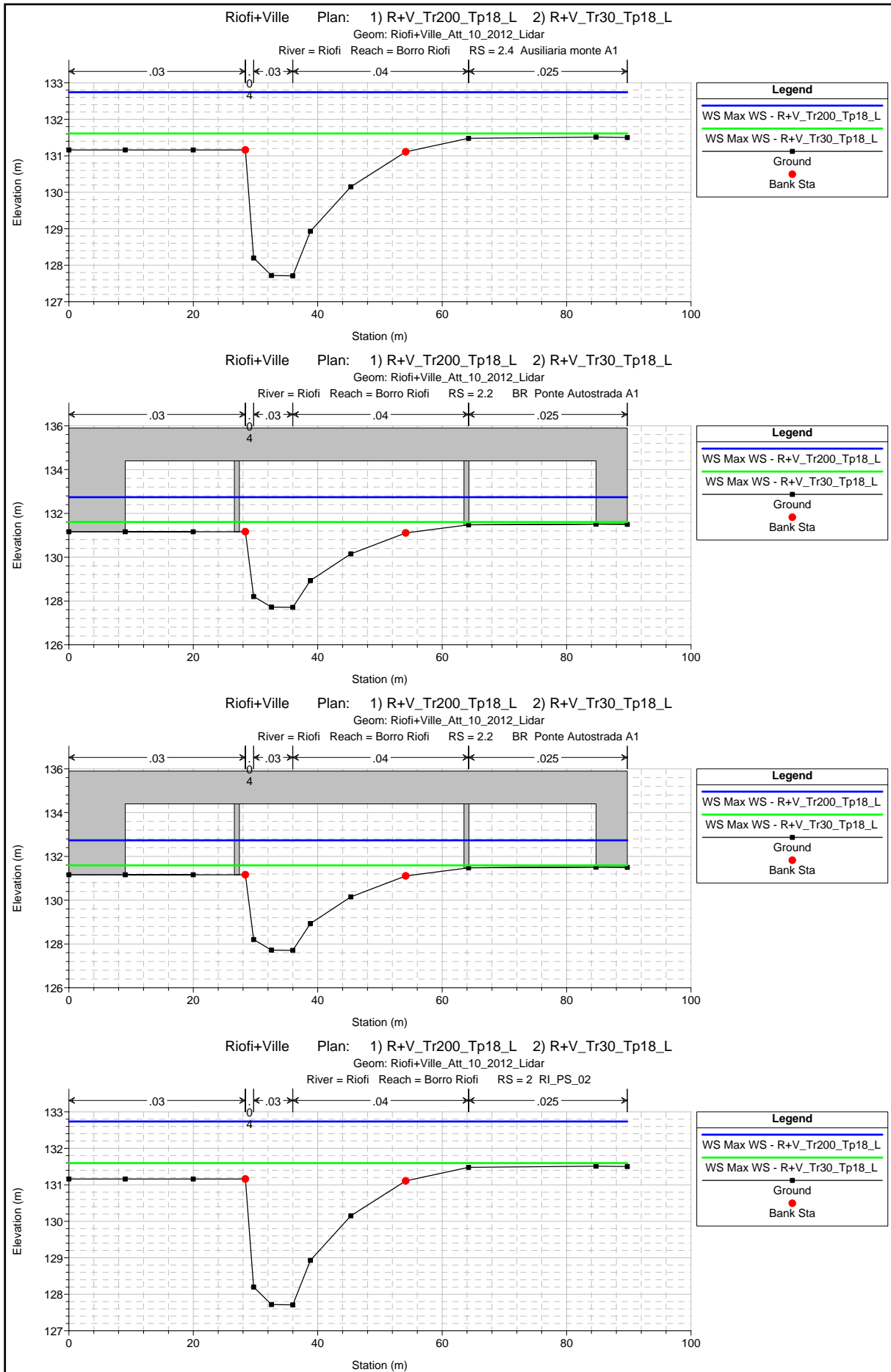


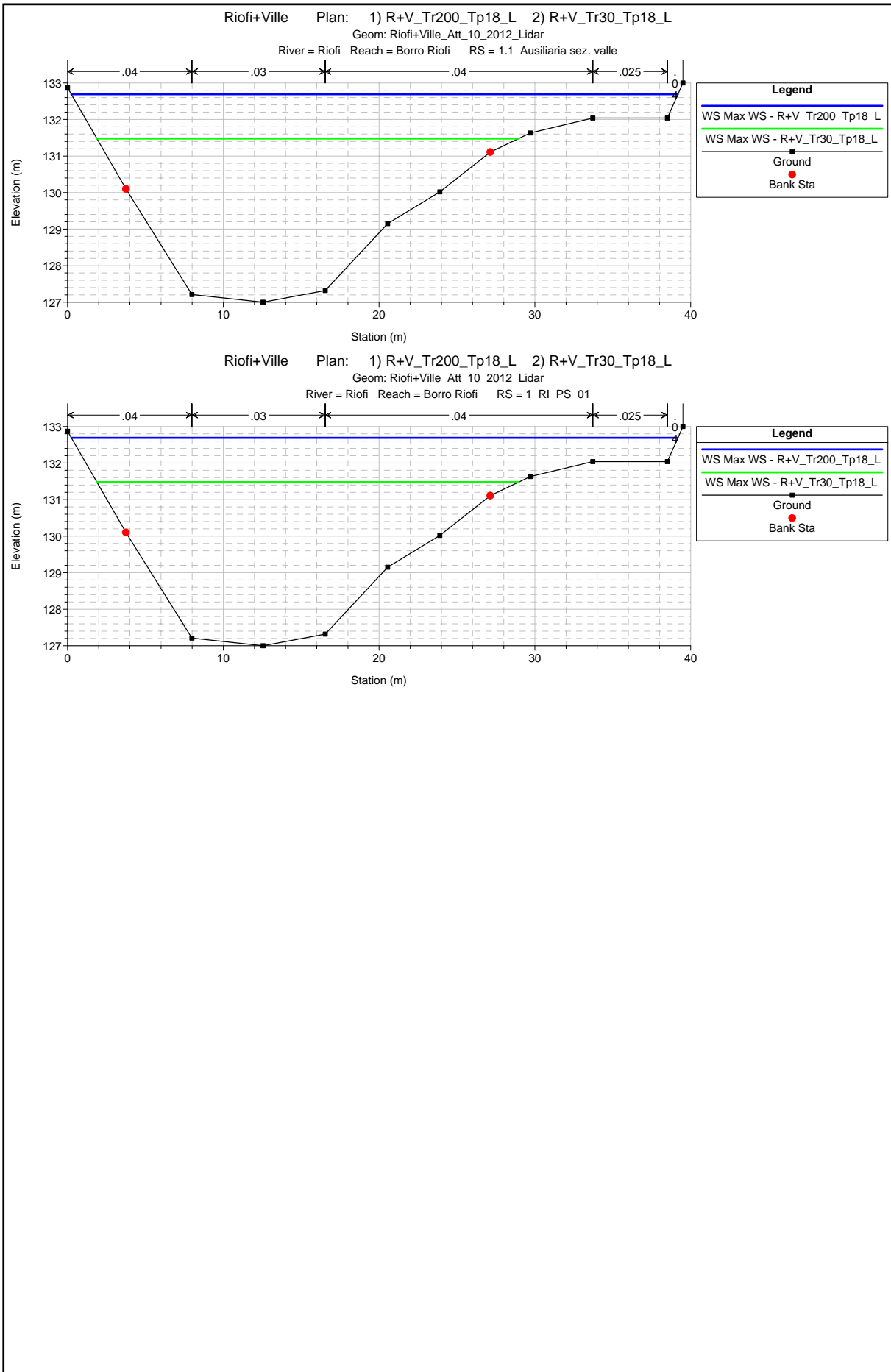












HEC-RAS Profile: Max WS

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Riofi	Borro Riofi	10	Max WS	R+V_Tr200_Tp18_L	45.18	131.53	134.02		134.36	0.004296	2.66	18.38	12.07	0.61
Riofi	Borro Riofi	10	Max WS	R+V_Tr30_Tp18_L	28.23	131.53	133.57		133.81	0.004140	2.24	13.38	10.42	0.58
Riofi	Borro Riofi	9	Max WS	R+V_Tr200_Tp18_L	45.18	130.84	133.37		133.66	0.003834	2.49	20.31	15.25	0.57
Riofi	Borro Riofi	9	Max WS	R+V_Tr30_Tp18_L	28.23	130.84	132.98		133.19	0.003169	2.03	14.90	12.66	0.51
Riofi	Borro Riofi	8.2	Max WS	R+V_Tr200_Tp18_L	45.18	129.84	133.08		133.21	0.001336	1.56	28.95	13.07	0.33
Riofi	Borro Riofi	8.2	Max WS	R+V_Tr30_Tp18_L	28.23	129.84	132.77		132.84	0.000784	1.13	24.98	12.38	0.25
Riofi	Borro Riofi	8.1	Max WS	R+V_Tr200_Tp18_L	45.18	129.89	133.12	131.53	133.20	0.000712	1.23	36.79	14.90	0.25
Riofi	Borro Riofi	8.1	Max WS	R+V_Tr30_Tp18_L	28.23	129.89	132.79	131.17	132.83	0.000423	0.88	31.91	14.62	0.19
Riofi	Borro Riofi	8.05			Bridge									
Riofi	Borro Riofi	8	Max WS	R+V_Tr200_Tp18_L	45.18	129.89	133.11		133.19	0.000719	1.23	36.67	14.90	0.25
Riofi	Borro Riofi	8	Max WS	R+V_Tr30_Tp18_L	28.23	129.89	132.79		132.83	0.000425	0.89	31.86	14.62	0.19
Riofi	Borro Riofi	7.9			Lat Struct									
Riofi	Borro Riofi	7.8			Lat Struct									
Riofi	Borro Riofi	7.1	Max WS	R+V_Tr200_Tp18_L	45.18	129.44	133.07		133.17	0.000975	1.45	32.44	22.42	0.29
Riofi	Borro Riofi	7.1	Max WS	R+V_Tr30_Tp18_L	28.23	129.44	132.76		132.82	0.000595	1.04	27.34	13.70	0.22
Riofi	Borro Riofi	7	Max WS	R+V_Tr200_Tp18_L	39.23	129.46	133.08		133.15	0.000746	1.25	33.59	20.18	0.26
Riofi	Borro Riofi	7	Max WS	R+V_Tr30_Tp18_L	28.22	129.46	132.72		132.78	0.000663	1.09	26.58	19.65	0.24
Riofi	Borro Riofi	6.1	Max WS	R+V_Tr200_Tp18_L	32.34	129.07	133.07	130.80	133.13	0.000432	1.00	32.84	16.85	0.20
Riofi	Borro Riofi	6.1	Max WS	R+V_Tr30_Tp18_L	28.21	129.07	132.68	130.68	132.73	0.000546	1.03	27.49	12.19	0.21
Riofi	Borro Riofi	6.05			Bridge									
Riofi	Borro Riofi	6	Max WS	R+V_Tr200_Tp18_L	32.34	129.07	133.04		133.09	0.000451	1.01	32.33	14.71	0.20
Riofi	Borro Riofi	6	Max WS	R+V_Tr30_Tp18_L	28.21	129.07	132.66		132.72	0.000560	1.03	27.26	12.07	0.22
Riofi	Borro Riofi	5.9			Lat Struct									
Riofi	Borro Riofi	5.8			Lat Struct									
Riofi	Borro Riofi	5	Max WS	R+V_Tr200_Tp18_L	25.54	128.72	133.08		133.09	0.000117	0.48	58.85	39.10	0.10
Riofi	Borro Riofi	5	Max WS	R+V_Tr30_Tp18_L	27.78	128.72	132.68		132.70	0.000259	0.68	43.53	37.24	0.14



HEC-RAS Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Riofi	Borro Riofi	4.3	Max WS	R+V_Tr200_Tp18_L	8.46	128.55	133.08		133.09	0.000209	0.13	63.87	27.34	0.02
Riofi	Borro Riofi	4.3	Max WS	R+V_Tr30_Tp18_L	26.18	128.55	132.61		132.62	0.003914	0.51	51.06	20.27	0.10
Riofi	Borro Riofi	4	Max WS	R+V_Tr200_Tp18_L	49.49	128.47	132.91		132.94	0.006398	0.71	66.37	29.61	0.13
Riofi	Borro Riofi	4	Max WS	R+V_Tr30_Tp18_L	54.32	128.47	132.20		132.26	0.021286	1.11	48.82	20.00	0.23
Riofi	Borro Riofi	3.4	Max WS	R+V_Tr200_Tp18_L	74.91	128.00	132.76	129.94	132.77	0.000068	0.51	174.36	92.93	0.08
Riofi	Borro Riofi	3.4	Max WS	R+V_Tr30_Tp18_L	55.90	128.00	131.63	129.66	131.67	0.000428	1.00	70.08	90.87	0.20
Riofi	Borro Riofi	3.2			Bridge									
Riofi	Borro Riofi	3	Max WS	R+V_Tr200_Tp18_L	74.91	128.00	132.76		132.77	0.000069	0.51	174.05	92.93	0.08
Riofi	Borro Riofi	3	Max WS	R+V_Tr30_Tp18_L	55.92	128.00	131.62		131.67	0.000439	1.01	69.22	90.85	0.20
Riofi	Borro Riofi	2.4	Max WS	R+V_Tr200_Tp18_L	74.90	127.71	132.74	129.88	132.75	0.000074	0.48	178.17	89.76	0.08
Riofi	Borro Riofi	2.4	Max WS	R+V_Tr30_Tp18_L	55.90	127.71	131.61	129.58	131.64	0.000405	0.86	76.69	89.76	0.18
Riofi	Borro Riofi	2.2			Bridge									
Riofi	Borro Riofi	2	Max WS	R+V_Tr200_Tp18_L	74.91	127.71	132.74		132.75	0.000074	0.48	177.81	89.76	0.08
Riofi	Borro Riofi	2	Max WS	R+V_Tr30_Tp18_L	55.89	127.71	131.60		131.63	0.000420	0.87	75.30	89.76	0.19
Riofi	Borro Riofi	1.9			Lat Struct									
Riofi	Borro Riofi	1.8			Lat Struct									
Riofi	Borro Riofi	1.1	Max WS	R+V_Tr200_Tp18_L	59.41	127.00	132.69		132.71	0.000068	0.56	114.50	38.93	0.09
Riofi	Borro Riofi	1.1	Max WS	R+V_Tr30_Tp18_L	52.87	127.00	131.48		131.51	0.000179	0.73	73.14	27.08	0.13
Riofi	Borro Riofi	1	Max WS	R+V_Tr200_Tp18_L	59.41	127.00	132.69	128.69	132.71	0.000068	0.56	114.50	38.93	0.09
Riofi	Borro Riofi	1	Max WS	R+V_Tr30_Tp18_L	52.87	127.00	131.48	128.59	131.51	0.000179	0.73	73.13	27.08	0.13
Borro_Ville	Borro_Ville	32	Max WS	R+V_Tr200_Tp18_L	20.25	132.52	135.14		135.23	0.001394	1.37	14.82	8.79	0.34
Borro_Ville	Borro_Ville	32	Max WS	R+V_Tr30_Tp18_L	13.89	132.52	134.69		134.77	0.001579	1.27	10.94	8.36	0.35
Borro_Ville	Borro_Ville	31	Max WS	R+V_Tr200_Tp18_L	20.25	132.75	135.07		135.18	0.001957	1.51	13.44	9.04	0.39
Borro_Ville	Borro_Ville	31	Max WS	R+V_Tr30_Tp18_L	13.89	132.75	134.59		134.71	0.002556	1.49	9.31	8.15	0.45
Borro_Ville	Borro_Ville	30.9			Lat Struct									
Borro_Ville	Borro_Ville	30.8			Lat Struct									

HEC-RAS Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	Borro_Ville	30	Max WS	R+V_Tr200_Tp18_L	20.25	132.63	135.09		135.17	0.000970	1.21	16.77	8.87	0.28
Borro_Ville	Borro_Ville	30	Max WS	R+V_Tr30_Tp18_L	13.89	132.63	134.63		134.69	0.001007	1.09	12.70	8.54	0.29
Borro_Ville	Borro_Ville	29	Max WS	R+V_Tr200_Tp18_L	20.25	132.69	135.08	133.75	135.15	0.000698	1.18	17.12	7.78	0.25
Borro_Ville	Borro_Ville	29	Max WS	R+V_Tr30_Tp18_L	13.89	132.69	134.62	133.55	134.67	0.000669	1.03	13.53	7.74	0.25
Borro_Ville	Borro_Ville	28.5		Bridge										
Borro_Ville	Borro_Ville	28	Max WS	R+V_Tr200_Tp18_L	20.25	132.69	135.08		135.15	0.000705	1.19	17.07	7.78	0.26
Borro_Ville	Borro_Ville	28	Max WS	R+V_Tr30_Tp18_L	13.89	132.69	134.61		134.67	0.000676	1.03	13.49	7.74	0.25
Borro_Ville	Borro_Ville	27.9		Lat Struct										
Borro_Ville	Borro_Ville	27.8		Lat Struct										
Borro_Ville	Borro_Ville	27	Max WS	R+V_Tr200_Tp18_L	20.25	132.63	135.04		135.13	0.001429	1.38	14.68	9.22	0.35
Borro_Ville	Borro_Ville	27	Max WS	R+V_Tr30_Tp18_L	13.89	132.63	134.57		134.66	0.001577	1.31	10.64	7.99	0.36
Borro_Ville	Borro_Ville	26	Max WS	R+V_Tr200_Tp18_L	20.25	132.55	135.01		135.10	0.001468	1.38	14.63	9.25	0.35
Borro_Ville	Borro_Ville	26	Max WS	R+V_Tr30_Tp18_L	13.89	132.55	134.53		134.62	0.001645	1.32	10.55	7.99	0.37
Borro_Ville	Borro_Ville	25	Max WS	R+V_Tr200_Tp18_L	20.25	132.53	135.00	133.80	135.07	0.000937	1.19	17.06	9.01	0.28
Borro_Ville	Borro_Ville	25	Max WS	R+V_Tr30_Tp18_L	13.89	132.53	134.53	133.58	134.59	0.000981	1.08	12.89	8.59	0.28
Borro_Ville	Borro_Ville	24.5		Bridge										
Borro_Ville	Borro_Ville	24	Max WS	R+V_Tr200_Tp18_L	20.25	132.53	134.98		135.06	0.000963	1.20	16.90	8.99	0.28
Borro_Ville	Borro_Ville	24	Max WS	R+V_Tr30_Tp18_L	13.89	132.53	134.52		134.58	0.000996	1.08	12.83	8.59	0.28
Borro_Ville	Borro_Ville	23.9		Lat Struct										
Borro_Ville	Borro_Ville	23.8		Lat Struct										
Borro_Ville	Borro_Ville	23	Max WS	R+V_Tr200_Tp18_L	20.25	132.19	134.99		135.04	0.000581	0.98	20.57	9.98	0.22
Borro_Ville	Borro_Ville	23	Max WS	R+V_Tr30_Tp18_L	13.89	132.19	134.52		134.56	0.000565	0.87	15.99	9.69	0.22
Borro_Ville	Borro_Ville	22	Max WS	R+V_Tr200_Tp18_L	20.25	132.18	134.97		135.03	0.000701	1.02	19.80	11.09	0.24
Borro_Ville	Borro_Ville	22	Max WS	R+V_Tr30_Tp18_L	13.89	132.18	134.51		134.55	0.000725	0.93	14.87	9.96	0.24
Borro_Ville	Borro_Ville	21	Max WS	R+V_Tr200_Tp18_L	20.25	132.14	134.96		135.01	0.000571	0.96	21.18	11.50	0.22
Borro_Ville	Borro_Ville	21	Max WS	R+V_Tr30_Tp18_L	13.89	132.14	134.49		134.53	0.000544	0.86	16.15	10.07	0.22

HEC-RAS Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	Borro_Ville	20	Max WS	R+V_Tr200_Tp18_L	20.25	132.13	134.66	134.16	135.01	0.007293	2.60	7.78	4.74	0.65
Borro_Ville	Borro_Ville	20	Max WS	R+V_Tr30_Tp18_L	13.89	132.13	134.24	133.81	134.52	0.007075	2.36	5.88	4.21	0.64
Borro_Ville	Borro_Ville	19.5			Bridge									
Borro_Ville	Borro_Ville	19	Max WS	R+V_Tr200_Tp18_L	20.25	132.13	134.46		134.91	0.010151	2.96	6.84	4.49	0.77
Borro_Ville	Borro_Ville	19	Max WS	R+V_Tr30_Tp18_L	14.33	132.13	133.92		134.41	0.014258	3.12	4.59	3.82	0.91
Borro_Ville	Borro_Ville	18.9			Lat Struct									
Borro_Ville	Borro_Ville	18.8			Lat Struct									
Borro_Ville	Borro_Ville	18	Max WS	R+V_Tr200_Tp18_L	20.25	132.10	134.63	133.25	134.74	0.001294	1.46	13.88	6.08	0.31
Borro_Ville	Borro_Ville	18	Max WS	R+V_Tr30_Tp18_L	14.25	132.10	133.98	133.02	134.08	0.001481	1.40	10.16	5.65	0.33
Borro_Ville	Borro_Ville	17.5			Bridge									
Borro_Ville	Borro_Ville	17	Max WS	R+V_Tr200_Tp18_L	20.25	131.90	134.50		134.63	0.001379	1.58	12.80	4.94	0.31
Borro_Ville	Borro_Ville	17	Max WS	R+V_Tr30_Tp18_L	14.25	131.90	133.87		133.98	0.001492	1.47	9.67	4.94	0.34
Borro_Ville	Borro_Ville	16	Max WS	R+V_Tr200_Tp18_L	20.25	131.95	134.39	133.50	134.60	0.003123	2.01	10.06	5.11	0.46
Borro_Ville	Borro_Ville	16	Max WS	R+V_Tr30_Tp18_L	13.89	131.95	133.72	133.22	133.93	0.004301	2.02	6.87	4.74	0.54
Borro_Ville	Borro_Ville	15.5			Bridge									
Borro_Ville	Borro_Ville	15.4	Max WS	R+V_Tr200_Tp18_L	20.25	131.95	134.34		134.55	0.003269	2.07	9.79	4.80	0.46
Borro_Ville	Borro_Ville	15.4	Max WS	R+V_Tr30_Tp18_L	13.89	131.95	133.65		133.88	0.005068	2.14	6.50	4.73	0.58
Borro_Ville	Borro_Ville	15	Max WS	R+V_Tr200_Tp18_L	20.25	132.01	134.47		134.54	0.001254	1.24	16.32	10.61	0.32
Borro_Ville	Borro_Ville	15	Max WS	R+V_Tr30_Tp18_L	13.89	132.01	133.77		133.87	0.002490	1.44	9.63	8.49	0.43
Borro_Ville	Borro_Ville	14.9			Lat Struct									
Borro_Ville	Borro_Ville	14.8			Lat Struct									
Borro_Ville	Borro_Ville	14	Max WS	R+V_Tr200_Tp18_L	20.25	131.91	134.36		134.44	0.001178	1.24	16.29	9.79	0.31
Borro_Ville	Borro_Ville	14	Max WS	R+V_Tr30_Tp18_L	13.89	131.91	133.50		133.63	0.003245	1.61	8.65	7.87	0.49
Borro_Ville	Borro_Ville	13	Max WS	R+V_Tr200_Tp18_L	20.25	131.81	134.34		134.43	0.001307	1.31	15.41	8.19	0.31
Borro_Ville	Borro_Ville	13	Max WS	R+V_Tr30_Tp18_L	13.89	131.81	133.47		133.60	0.002920	1.58	8.80	7.04	0.45
Borro_Ville	Borro_Ville	12	Max WS	R+V_Tr200_Tp18_L	20.23	131.62	134.31		134.40	0.001398	1.33	15.21	8.18	0.31

HEC-RAS Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	Borro_Ville	12	Max WS	R+V_Tr30_Tp18_L	13.88	131.62	133.40		133.54	0.003464	1.67	8.33	6.84	0.48
Borro_Ville	Borro_Ville	11	Max WS	R+V_Tr200_Tp18_L	18.80	131.44	134.31		134.36	0.000820	1.06	17.75	9.77	0.25
Borro_Ville	Borro_Ville	11	Max WS	R+V_Tr30_Tp18_L	13.87	131.44	133.25		133.39	0.003698	1.65	8.42	8.13	0.52
Borro_Ville	Borro_Ville	10	Max WS	R+V_Tr200_Tp18_L	16.57	131.33	134.32		134.36	0.000454	0.80	20.78	11.81	0.19
Borro_Ville	Borro_Ville	10	Max WS	R+V_Tr30_Tp18_L	13.87	131.33	133.17		133.29	0.002941	1.51	9.16	8.24	0.46
Borro_Ville	Borro_Ville	9	Max WS	R+V_Tr200_Tp18_L	14.87	130.69	134.31		134.32	0.000152	0.51	29.10	14.23	0.11
Borro_Ville	Borro_Ville	9	Max WS	R+V_Tr30_Tp18_L	13.86	130.69	132.99		133.05	0.001004	1.02	13.55	9.51	0.27
Borro_Ville	Borro_Ville	8	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.31	131.73	134.32	0.000182	0.56	26.42	12.29	0.12
Borro_Ville	Borro_Ville	8	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.99	131.69	133.04	0.000822	1.03	13.40	7.61	0.25
Borro_Ville	Borro_Ville	7.5			Bridge									
Borro_Ville	Borro_Ville	7.4	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.30		134.32	0.000183	0.56	26.34	12.27	0.12
Borro_Ville	Borro_Ville	7.4	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.98		133.03	0.000836	1.04	13.33	7.60	0.25
Borro_Ville	Borro_Ville	7	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.29		134.32	0.000207	0.64	23.22	9.34	0.13
Borro_Ville	Borro_Ville	7	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.96		133.03	0.001135	1.16	11.95	7.49	0.29
Borro_Ville	Borro_Ville	6	Max WS	R+V_Tr200_Tp18_L	14.87	130.26	134.29	131.47	134.31	0.000148	0.52	28.41	10.43	0.10
Borro_Ville	Borro_Ville	6	Max WS	R+V_Tr30_Tp18_L	13.86	130.26	132.95	131.43	132.99	0.000615	0.87	15.87	8.30	0.20
Borro_Ville	Borro_Ville	5.9			Bridge									
Borro_Ville	Borro_Ville	5.8	Max WS	R+V_Tr200_Tp18_L	14.87	130.26	134.29		134.31	0.000148	0.52	28.40	10.42	0.10
Borro_Ville	Borro_Ville	5.8	Max WS	R+V_Tr30_Tp18_L	13.86	130.26	132.95		132.99	0.000616	0.87	15.85	8.30	0.20
Borro_Ville	Borro_Ville	5	Max WS	R+V_Tr200_Tp18_L	14.87	130.03	134.29		134.30	0.000052	0.37	39.85	13.23	0.07
Borro_Ville	Borro_Ville	5	Max WS	R+V_Tr30_Tp18_L	13.85	130.03	132.95		132.97	0.000190	0.58	23.68	10.87	0.13
Borro_Ville	Borro_Ville	4	Max WS	R+V_Tr200_Tp18_L	14.87	129.85	134.29		134.30	0.000032	0.31	48.11	15.01	0.06
Borro_Ville	Borro_Ville	4	Max WS	R+V_Tr30_Tp18_L	13.84	129.85	132.95		132.96	0.000107	0.47	29.65	12.47	0.10
Borro_Ville	Borro_Ville	3	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29	130.65	134.30	0.000027	0.29	52.13	15.83	0.05
Borro_Ville	Borro_Ville	3	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95	130.62	132.96	0.000085	0.42	32.60	13.25	0.09
Borro_Ville	Borro_Ville	2.5			Bridge									
Borro_Ville	Borro_Ville	2	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29		134.30	0.000011	0.26	58.14	15.83	0.04

HEC-RAS Profile: Max WS (Continued)

River	Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	Borro_Ville	2	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95		132.96	0.000026	0.36	38.64	13.25	0.07
Borro_Ville	Borro_Ville	1.8	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29	130.34	134.30	0.000011	0.26	58.14	15.83	0.04
Borro_Ville	Borro_Ville	1.8	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95	130.31	132.96	0.000026	0.36	38.64	13.25	0.07
Borro_Ville	Borro_Ville	1.5			Inl Struct									
Borro_Ville	Borro_Ville	1.1	Max WS	R+V_Tr200_Tp18_L	14.87	128.50	134.29		134.29	0.000004	0.20	75.19	13.32	0.03
Borro_Ville	Borro_Ville	1.1	Max WS	R+V_Tr30_Tp18_L	13.83	128.50	132.95		132.95	0.000008	0.24	57.50	13.08	0.04
Borro_Ville	Borro_Ville	1	Max WS	R+V_Tr200_Tp18_L	14.87	128.50	134.29	129.02	134.29	0.000004	0.20	75.19	13.32	0.03
Borro_Ville	Borro_Ville	1	Max WS	R+V_Tr30_Tp18_L	13.83	128.50	132.95	128.99	132.95	0.000008	0.24	57.50	13.08	0.04

# **VERIFICHE IDRAULICHE**

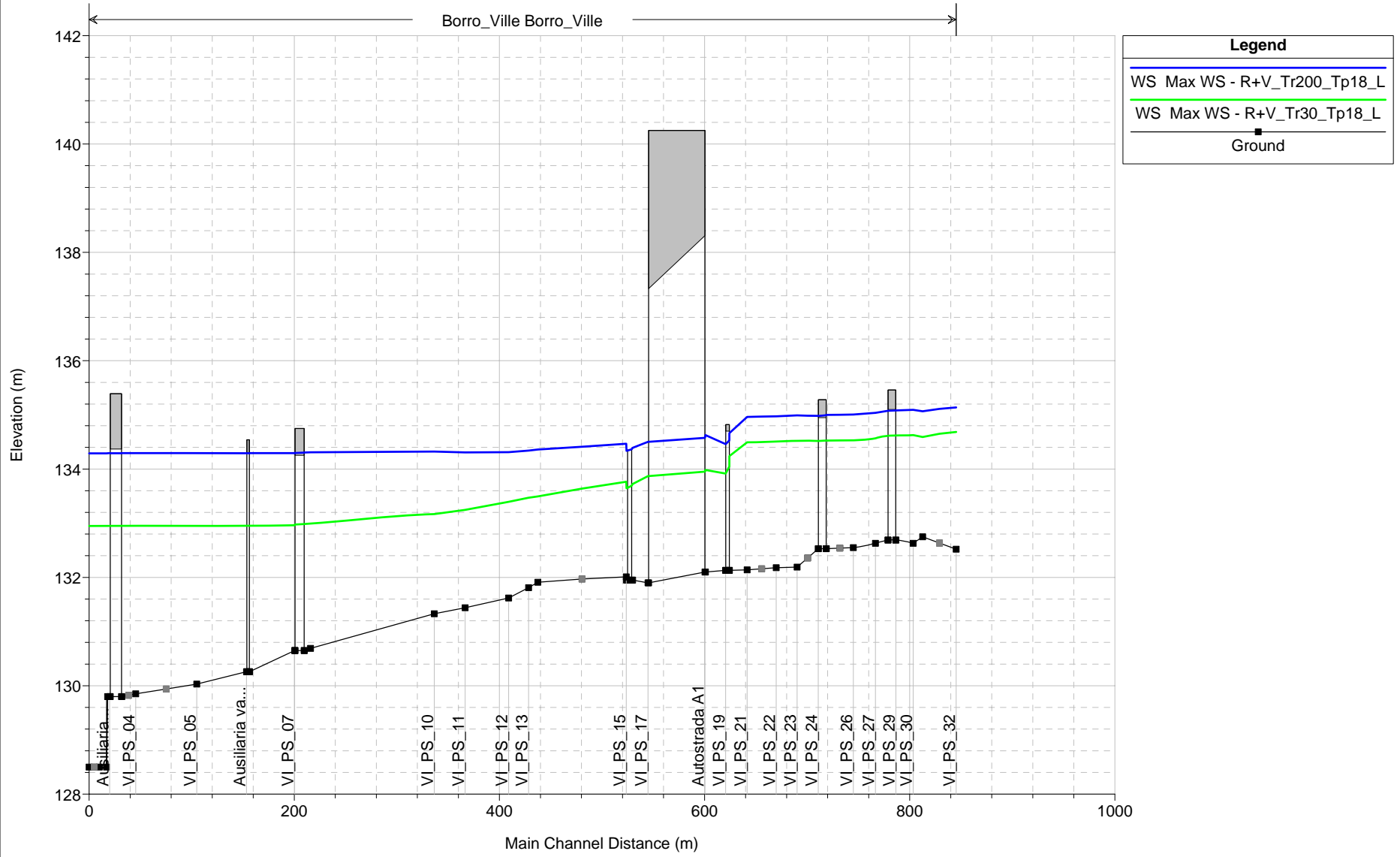
## **STATO ATTUALE**

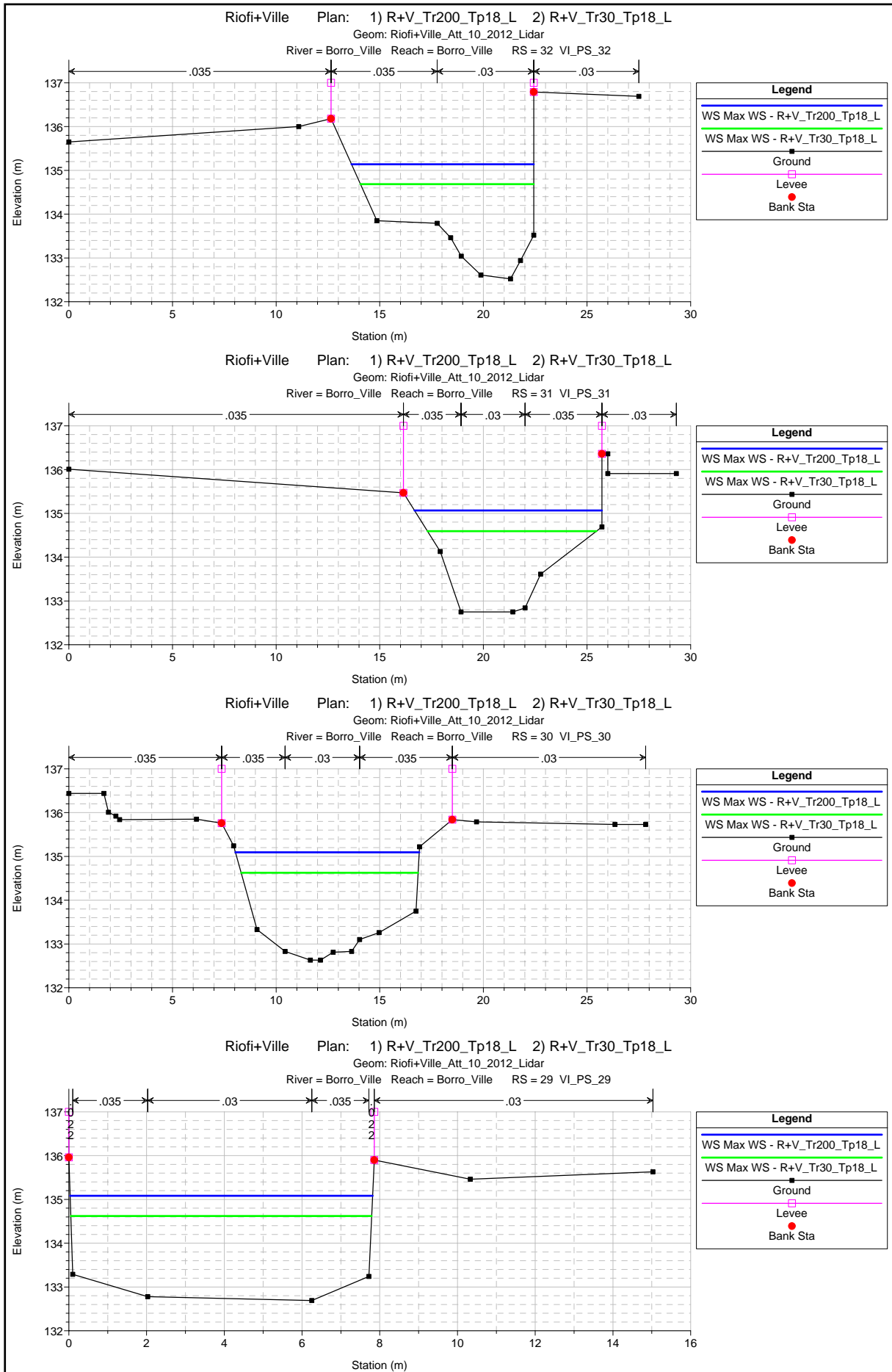
### **BORRO delle VILLE**

#### **Scenario B - Tr 200 e 30 anni**

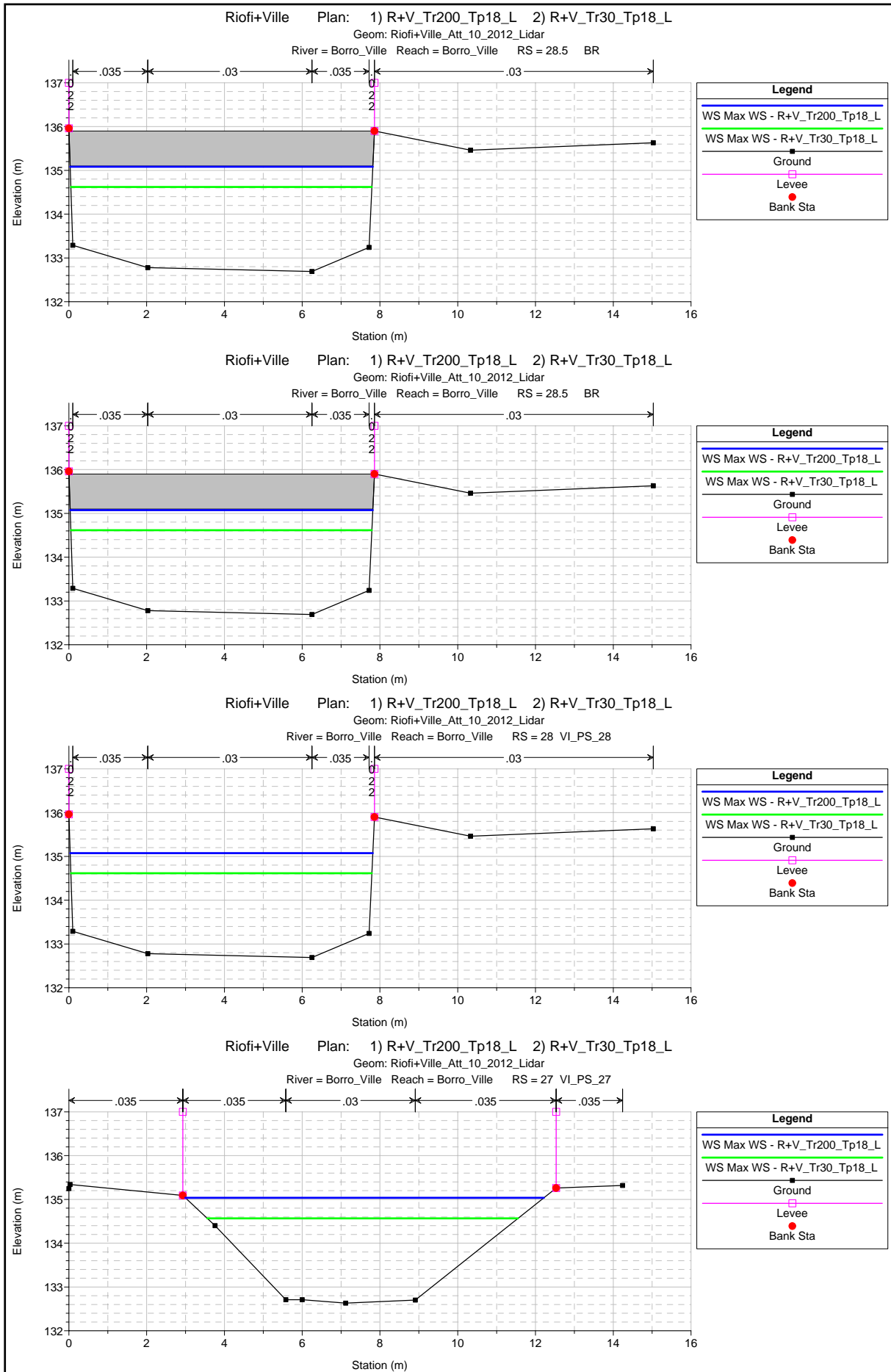
- Profili
- Sezioni di verifica
- Tabelle di output

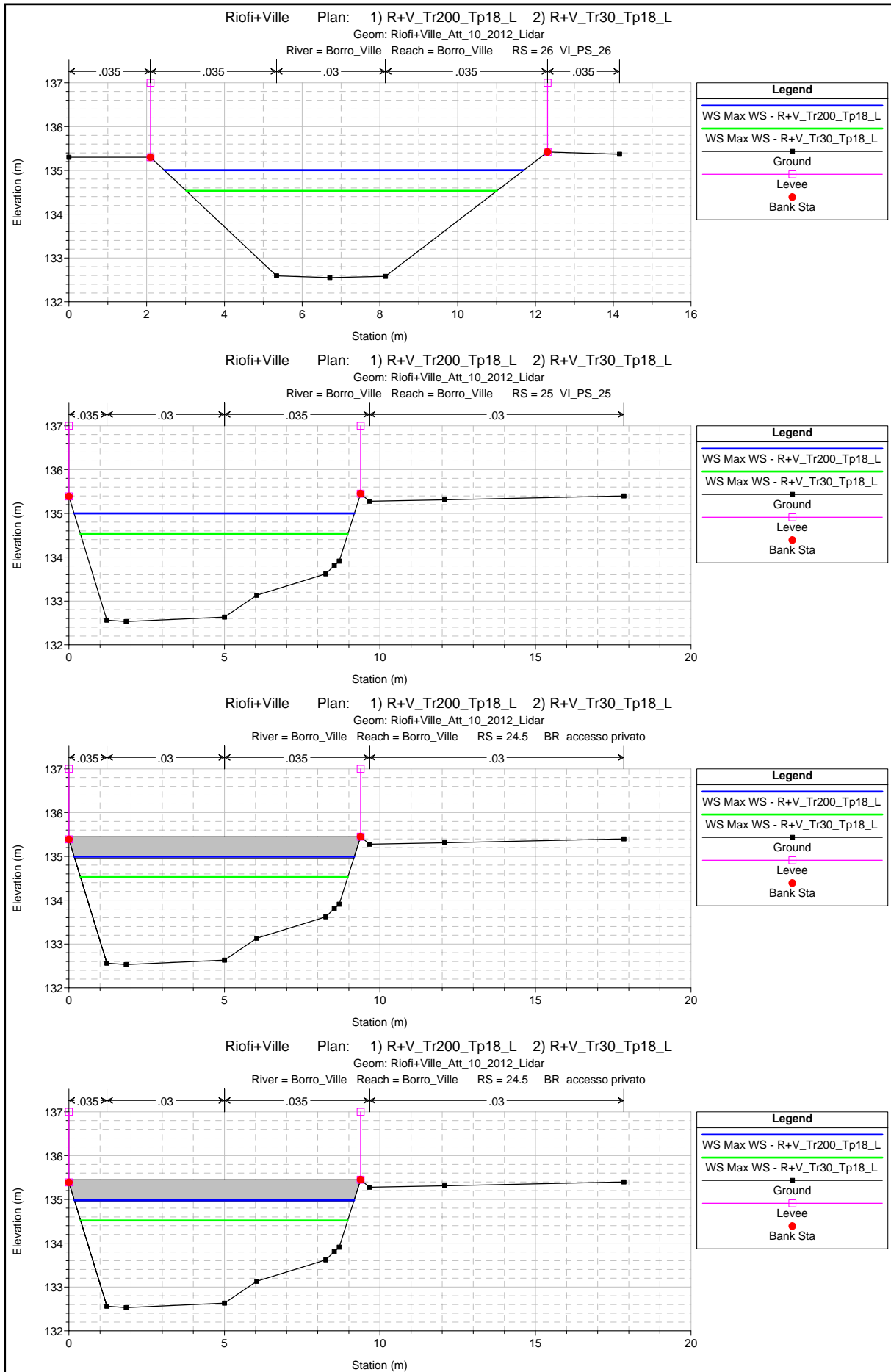
Riofi+Ville Plan: 1) R+V\_Tr200\_Tp18\_L 2) R+V\_Tr30\_Tp18\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar

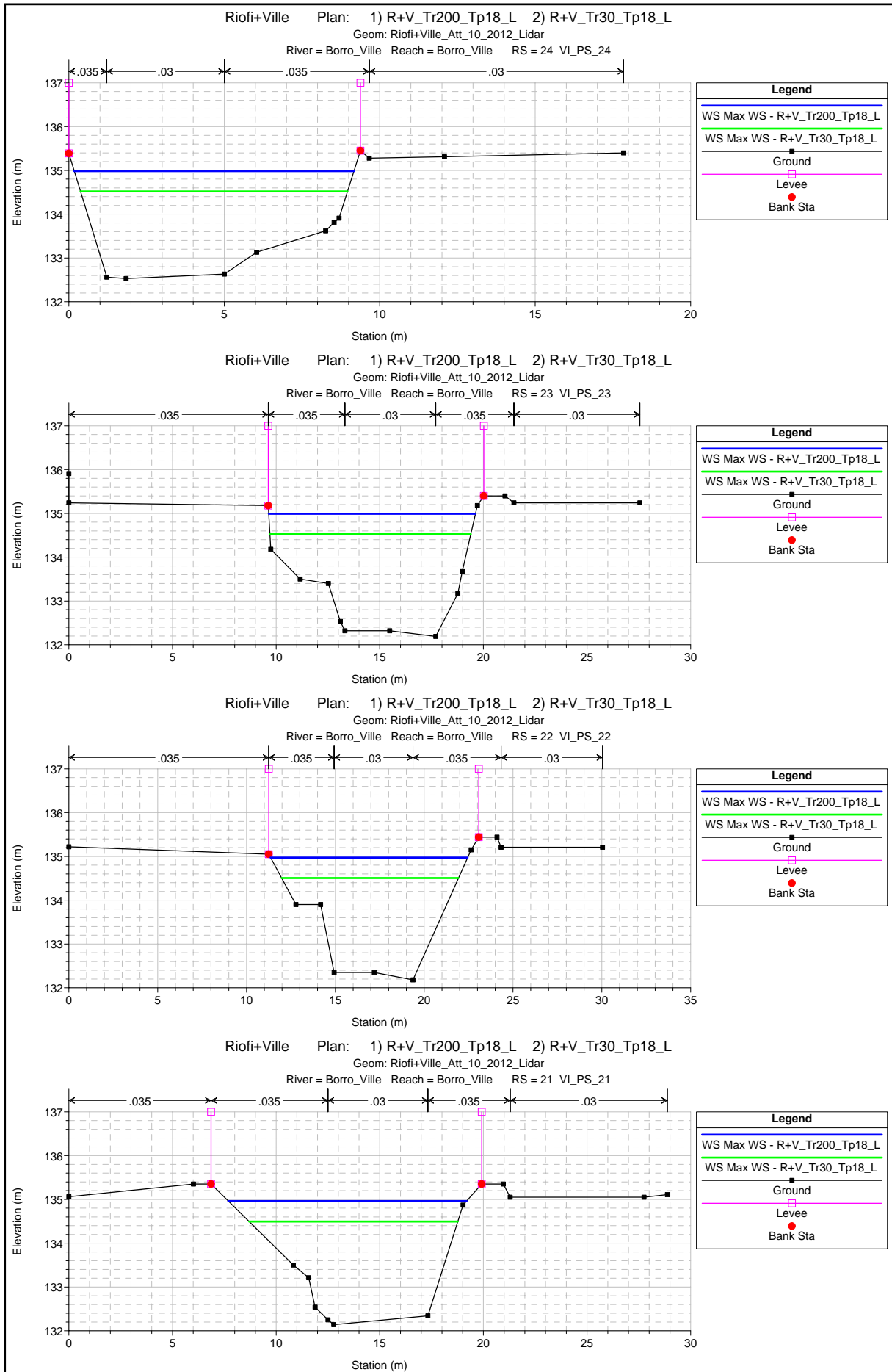


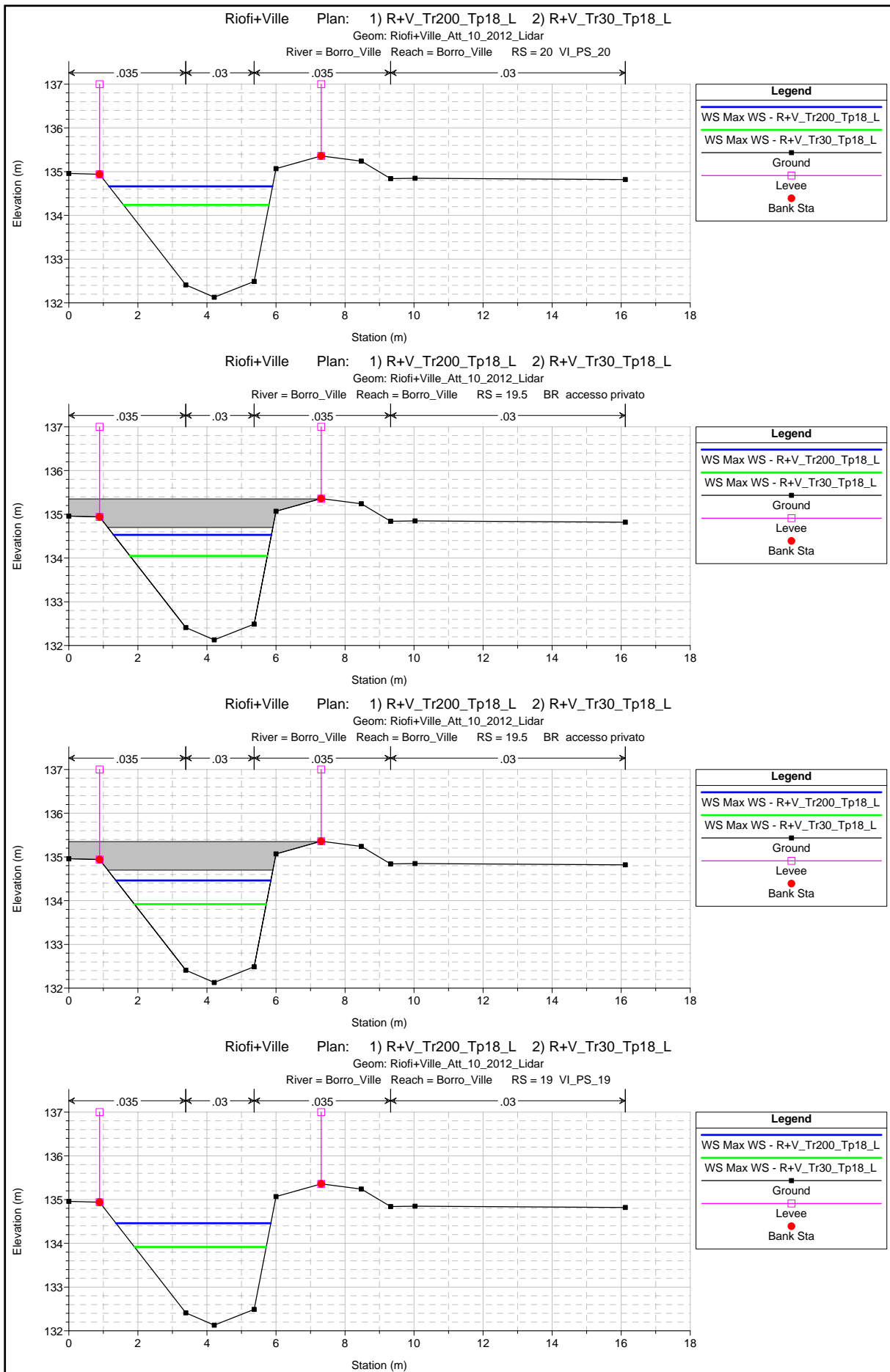


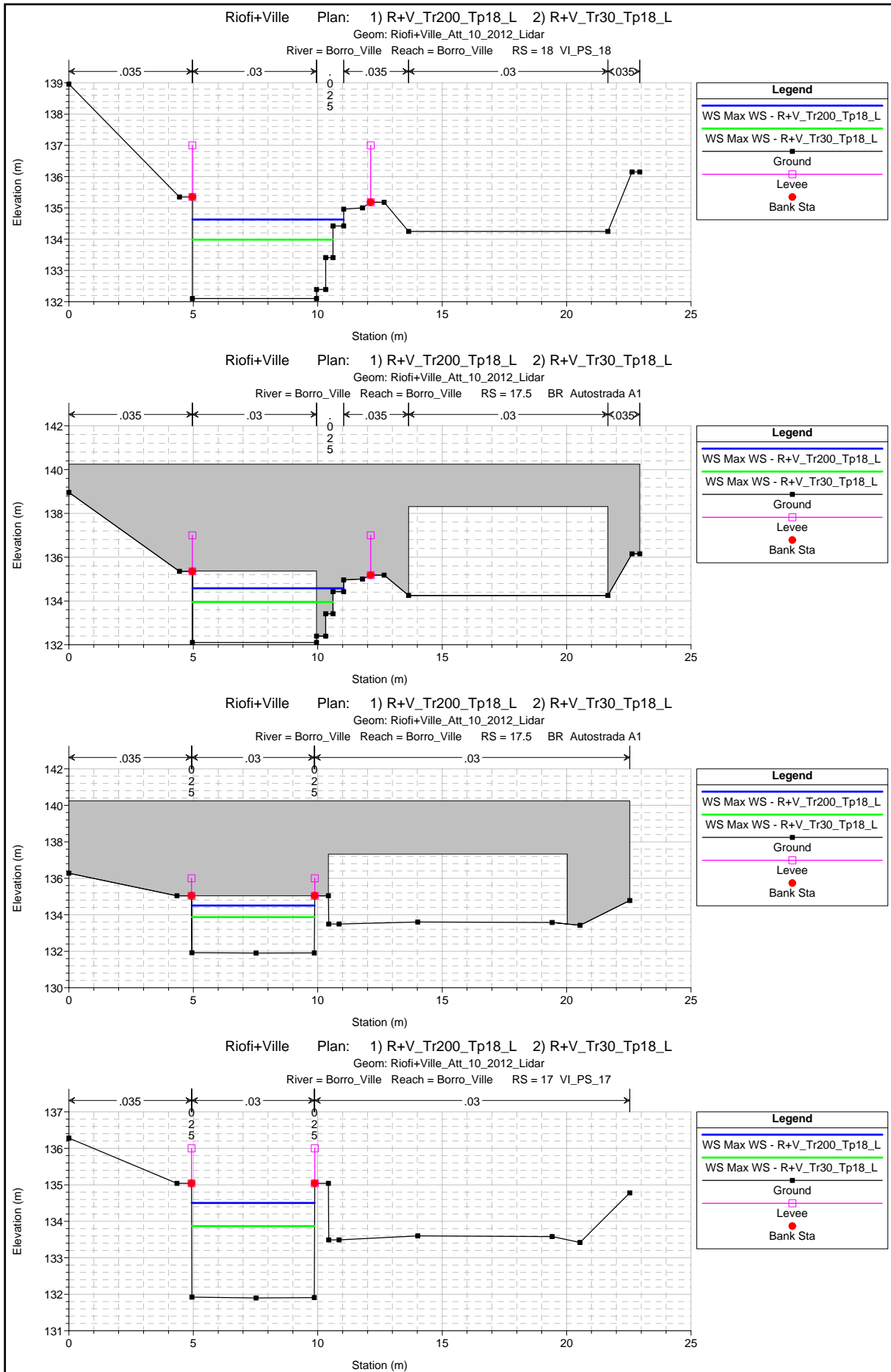


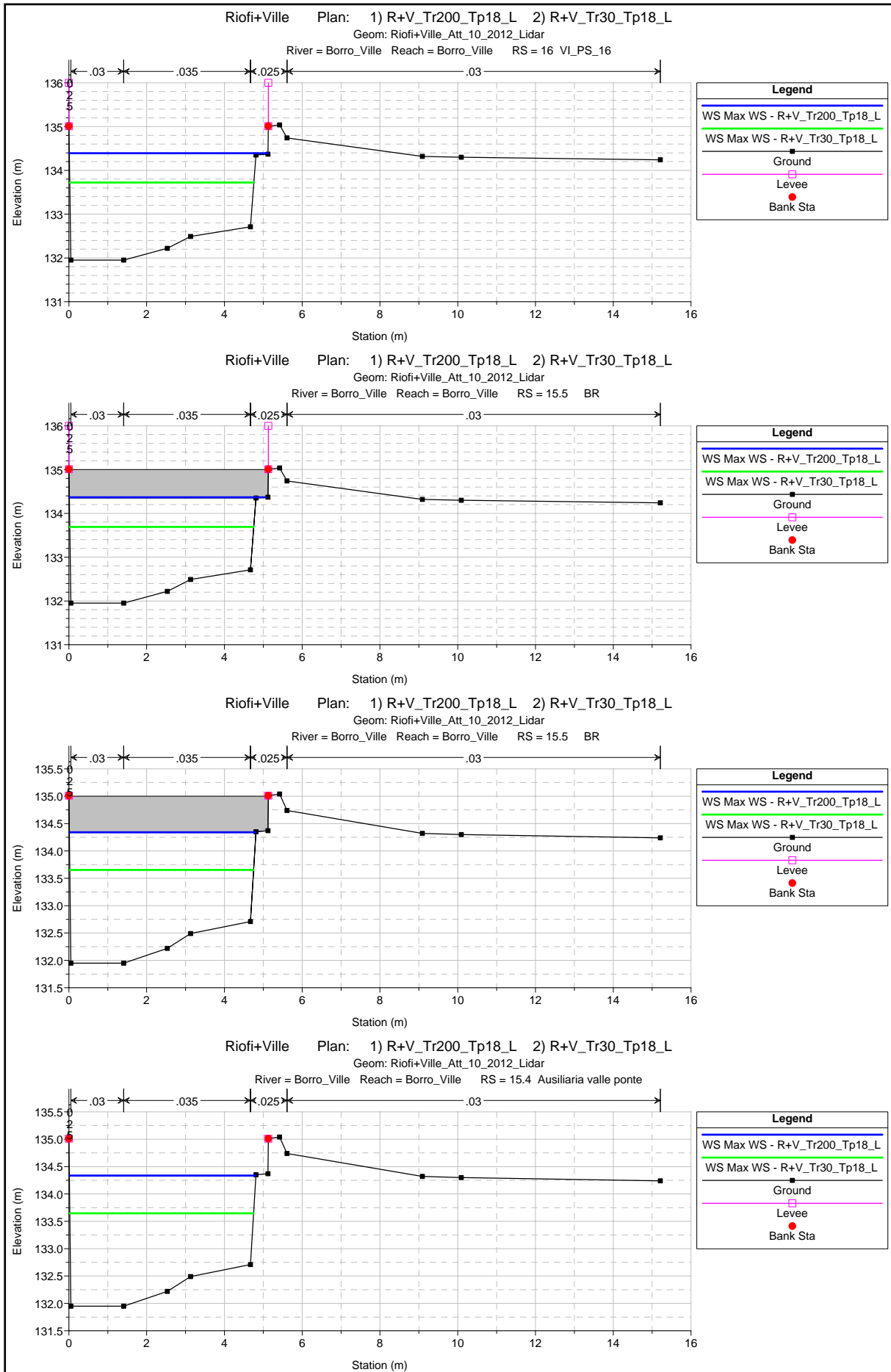


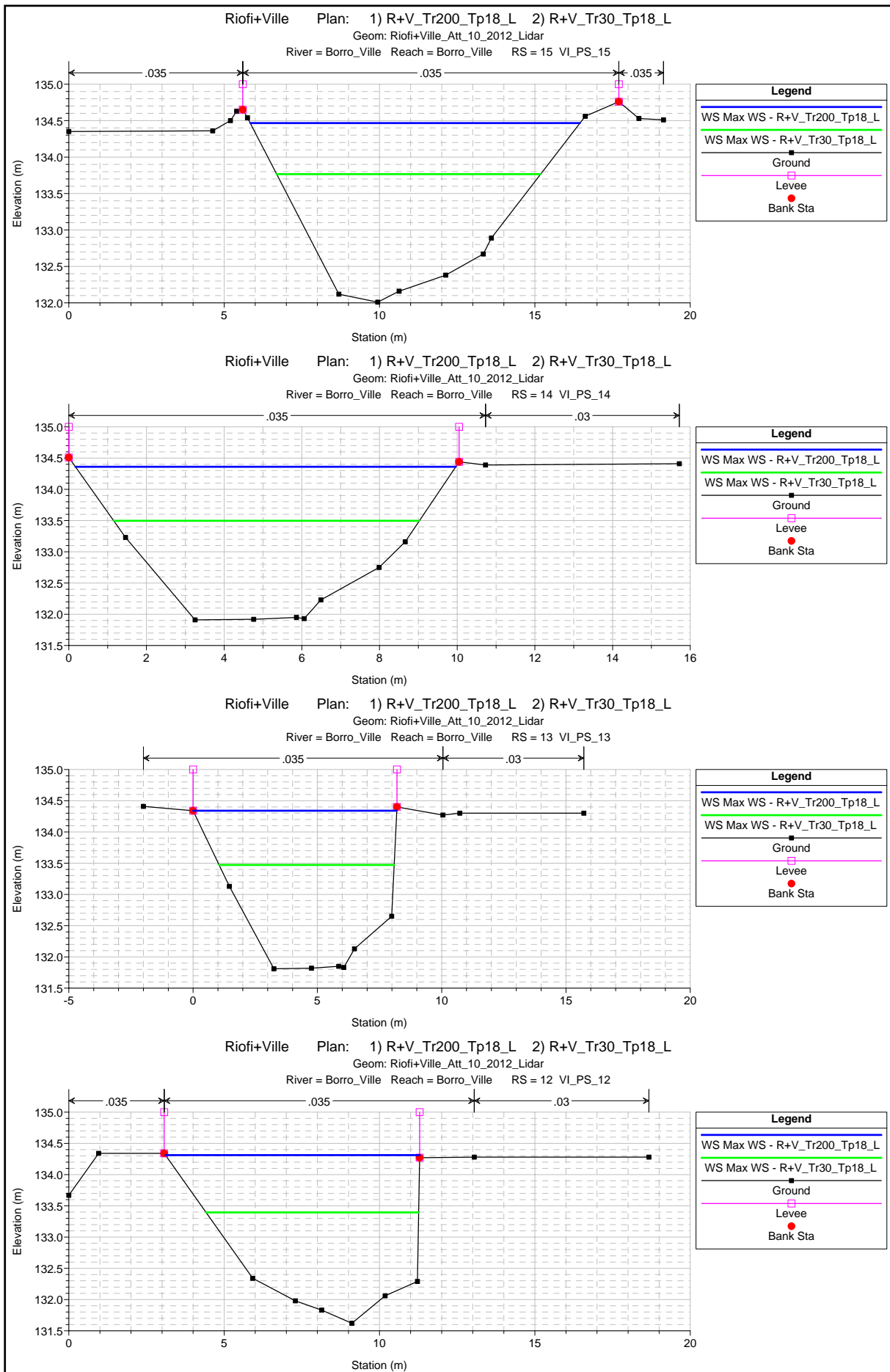


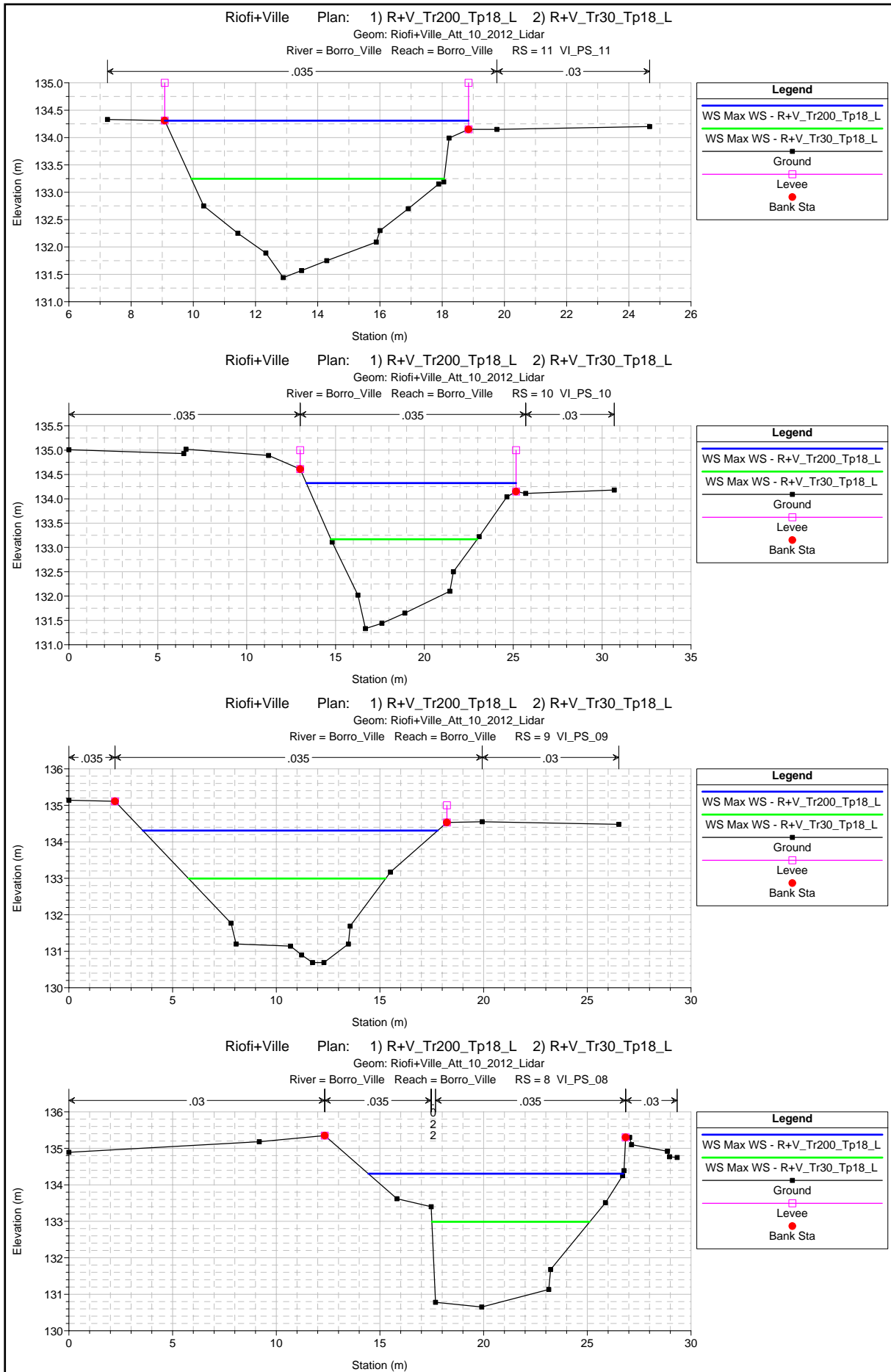




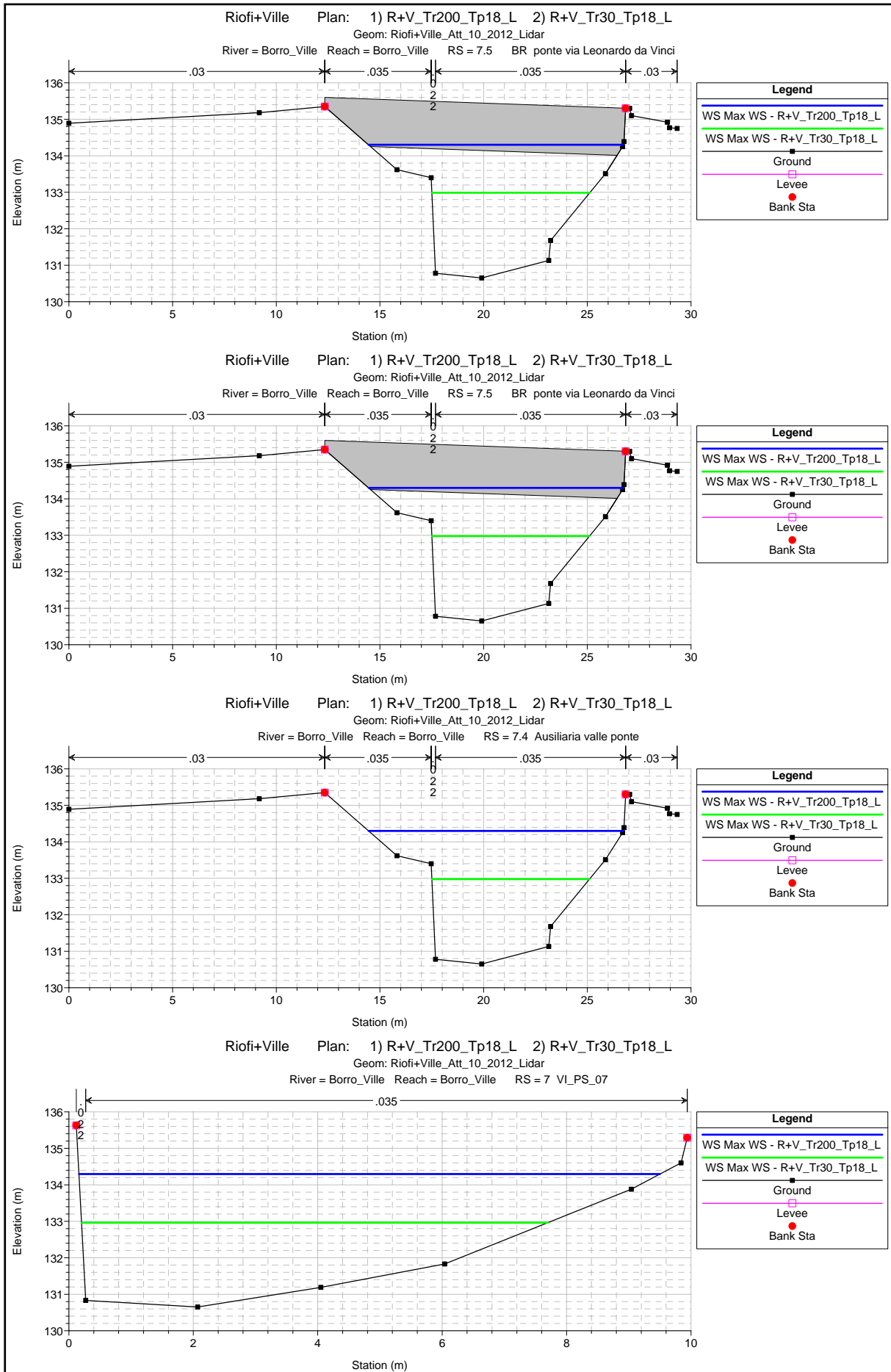


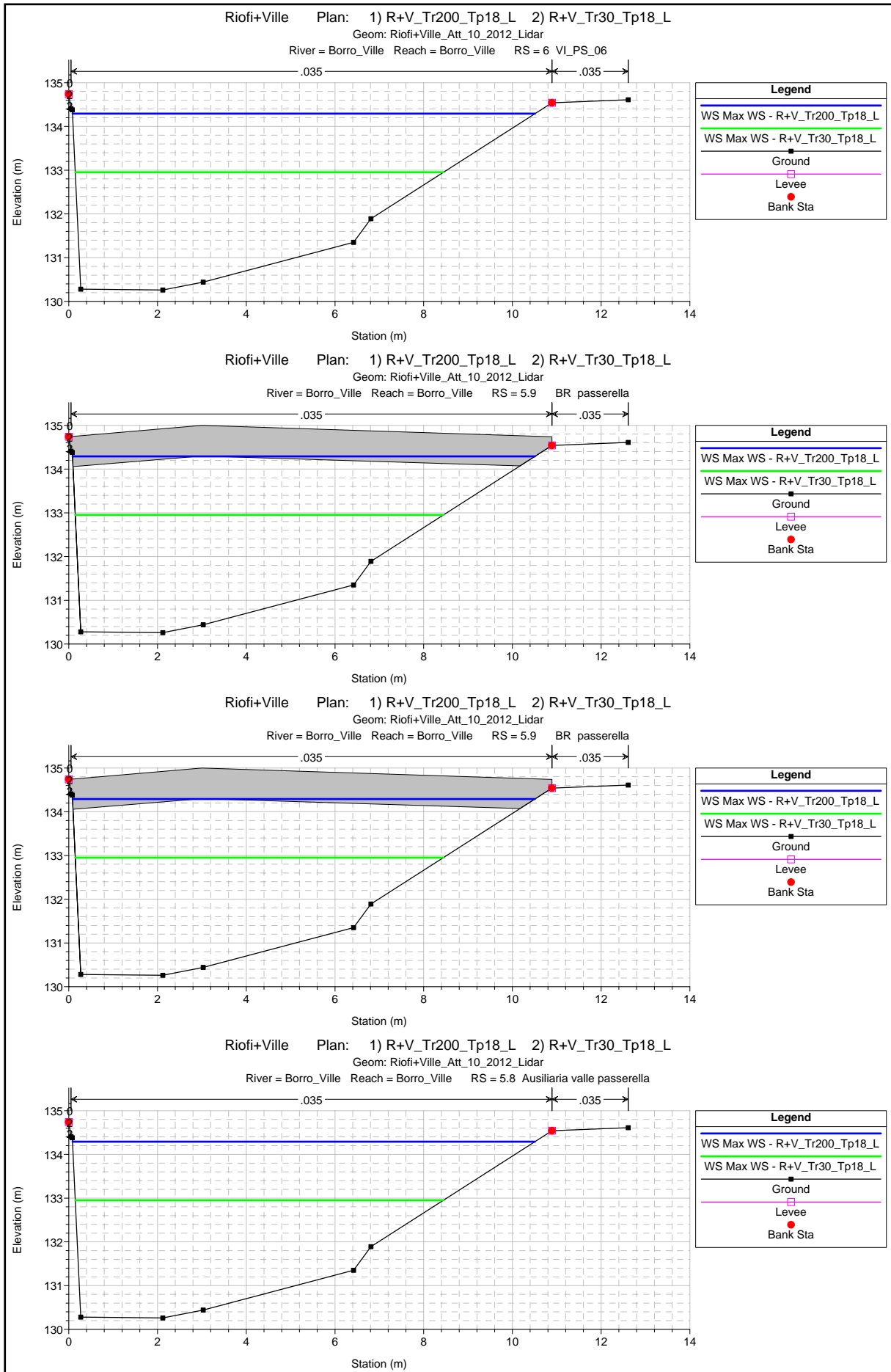


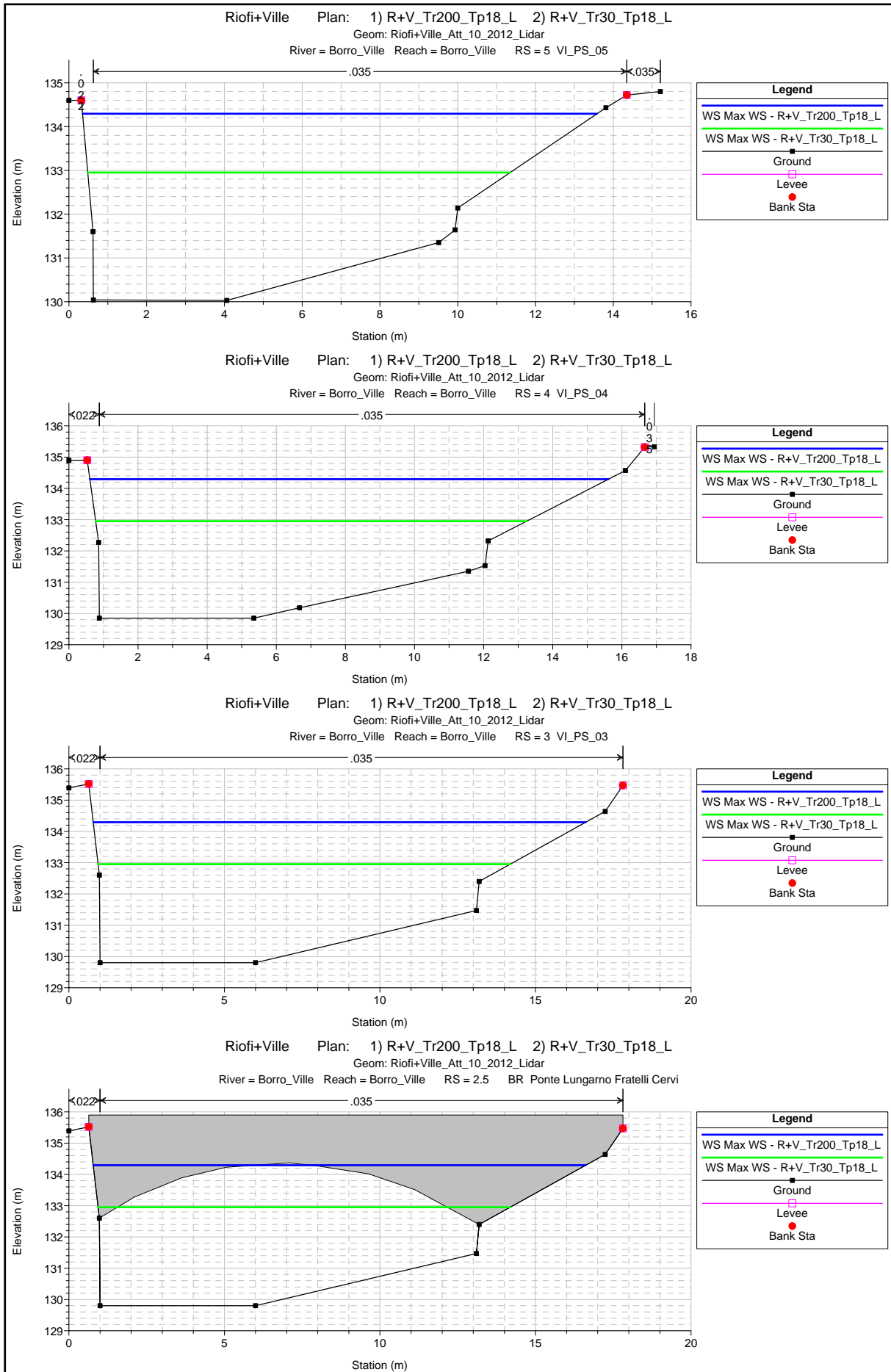


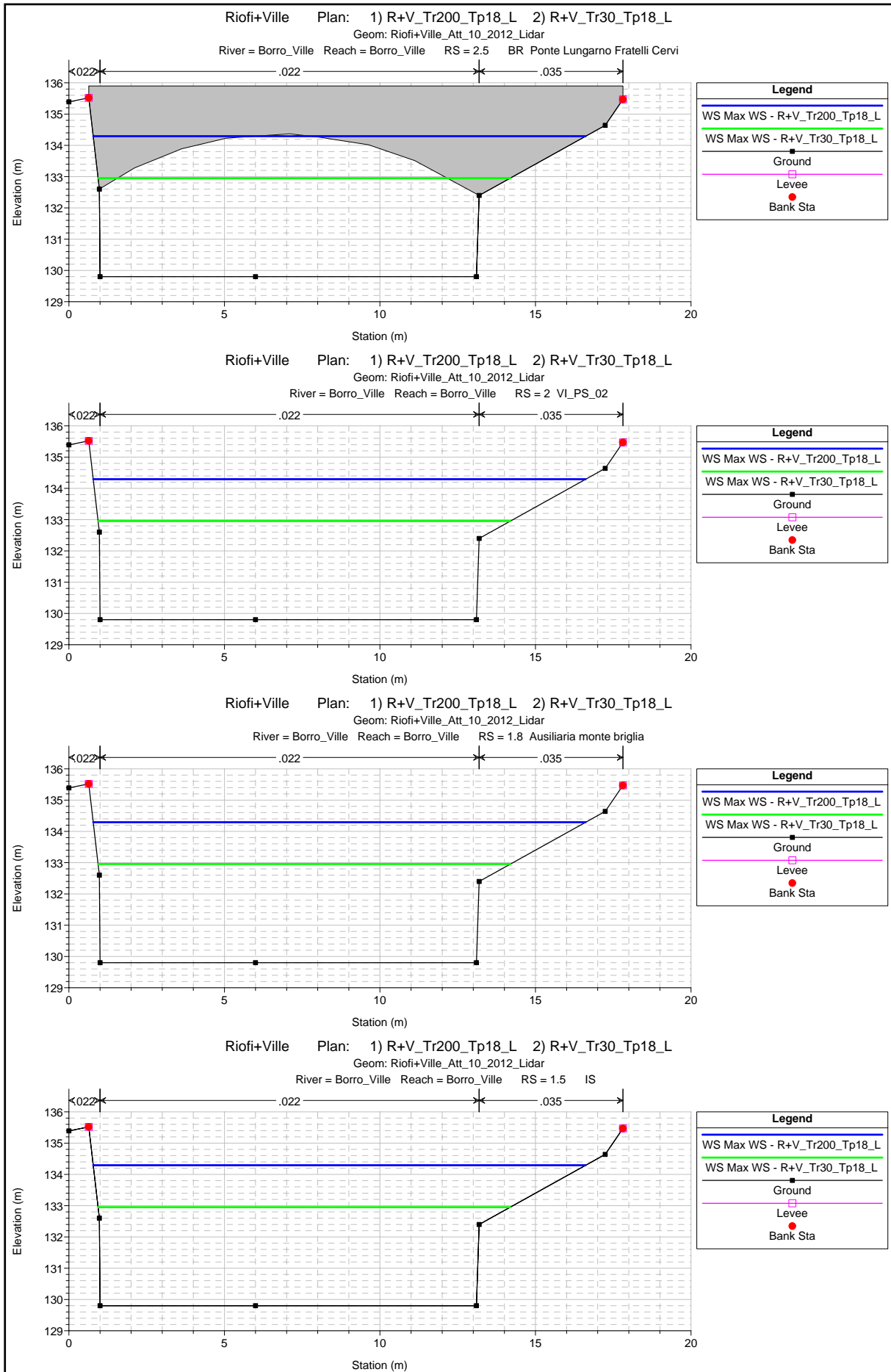


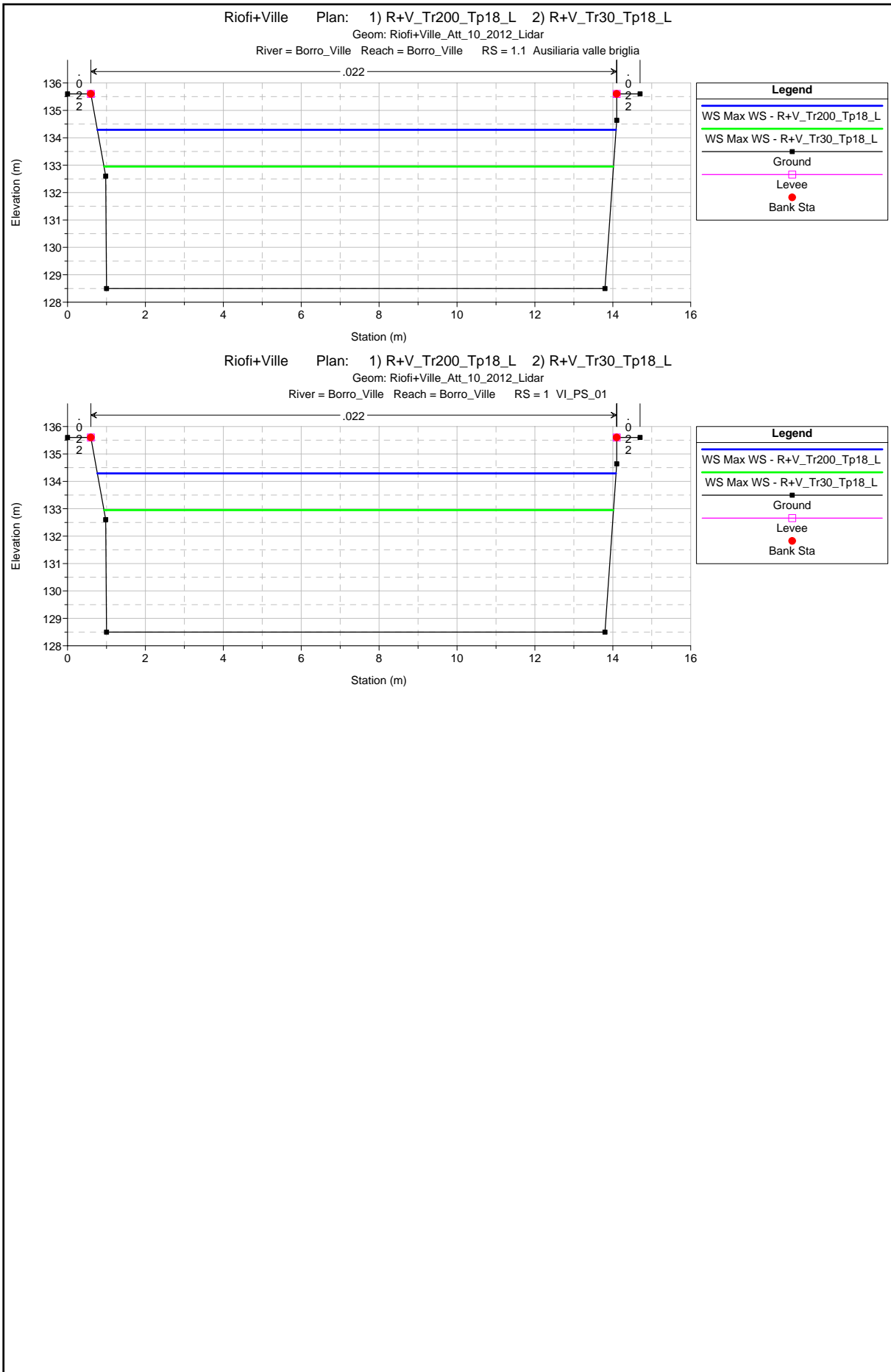












HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	32	Max WS	R+V_Tr200_Tp18_L	20.25	132.52	135.14		135.23	0.001394	1.37	14.82	8.79	0.34
Borro_Ville	32	Max WS	R+V_Tr30_Tp18_L	13.89	132.52	134.69		134.77	0.001579	1.27	10.94	8.36	0.35
Borro_Ville	31	Max WS	R+V_Tr200_Tp18_L	20.25	132.75	135.07		135.18	0.001957	1.51	13.44	9.04	0.39
Borro_Ville	31	Max WS	R+V_Tr30_Tp18_L	13.89	132.75	134.59		134.71	0.002556	1.49	9.31	8.15	0.45
Borro_Ville	30.9			Lat Struct									
Borro_Ville	30.8			Lat Struct									
Borro_Ville	30	Max WS	R+V_Tr200_Tp18_L	20.25	132.63	135.09		135.17	0.000970	1.21	16.77	8.87	0.28
Borro_Ville	30	Max WS	R+V_Tr30_Tp18_L	13.89	132.63	134.63		134.69	0.001007	1.09	12.70	8.54	0.29
Borro_Ville	29	Max WS	R+V_Tr200_Tp18_L	20.25	132.69	135.08	133.75	135.15	0.000698	1.18	17.12	7.78	0.25
Borro_Ville	29	Max WS	R+V_Tr30_Tp18_L	13.89	132.69	134.62	133.55	134.67	0.000669	1.03	13.53	7.74	0.25
Borro_Ville	28.5			Bridge									
Borro_Ville	28	Max WS	R+V_Tr200_Tp18_L	20.25	132.69	135.08		135.15	0.000705	1.19	17.07	7.78	0.26
Borro_Ville	28	Max WS	R+V_Tr30_Tp18_L	13.89	132.69	134.61		134.67	0.000676	1.03	13.49	7.74	0.25
Borro_Ville	27.9			Lat Struct									
Borro_Ville	27.8			Lat Struct									
Borro_Ville	27	Max WS	R+V_Tr200_Tp18_L	20.25	132.63	135.04		135.13	0.001429	1.38	14.68	9.22	0.35
Borro_Ville	27	Max WS	R+V_Tr30_Tp18_L	13.89	132.63	134.57		134.66	0.001577	1.31	10.64	7.99	0.36
Borro_Ville	26	Max WS	R+V_Tr200_Tp18_L	20.25	132.55	135.01		135.10	0.001468	1.38	14.63	9.25	0.35
Borro_Ville	26	Max WS	R+V_Tr30_Tp18_L	13.89	132.55	134.53		134.62	0.001645	1.32	10.55	7.99	0.37
Borro_Ville	25	Max WS	R+V_Tr200_Tp18_L	20.25	132.53	135.00	133.80	135.07	0.000937	1.19	17.06	9.01	0.28
Borro_Ville	25	Max WS	R+V_Tr30_Tp18_L	13.89	132.53	134.53	133.58	134.59	0.000981	1.08	12.89	8.59	0.28
Borro_Ville	24.5			Bridge									
Borro_Ville	24	Max WS	R+V_Tr200_Tp18_L	20.25	132.53	134.98		135.06	0.000963	1.20	16.90	8.99	0.28
Borro_Ville	24	Max WS	R+V_Tr30_Tp18_L	13.89	132.53	134.52		134.58	0.000996	1.08	12.83	8.59	0.28

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	23.9			Lat Struct									
Borro_Ville	23.8			Lat Struct									
Borro_Ville	23	Max WS	R+V_Tr200_Tp18_L	20.25	132.19	134.99		135.04	0.000581	0.98	20.57	9.98	0.22
Borro_Ville	23	Max WS	R+V_Tr30_Tp18_L	13.89	132.19	134.52		134.56	0.000565	0.87	15.99	9.69	0.22
Borro_Ville	22	Max WS	R+V_Tr200_Tp18_L	20.25	132.18	134.97		135.03	0.000701	1.02	19.80	11.09	0.24
Borro_Ville	22	Max WS	R+V_Tr30_Tp18_L	13.89	132.18	134.51		134.55	0.000725	0.93	14.87	9.96	0.24
Borro_Ville	21	Max WS	R+V_Tr200_Tp18_L	20.25	132.14	134.96		135.01	0.000571	0.96	21.18	11.50	0.22
Borro_Ville	21	Max WS	R+V_Tr30_Tp18_L	13.89	132.14	134.49		134.53	0.000544	0.86	16.15	10.07	0.22
Borro_Ville	20	Max WS	R+V_Tr200_Tp18_L	20.25	132.13	134.66	134.16	135.01	0.007293	2.60	7.78	4.74	0.65
Borro_Ville	20	Max WS	R+V_Tr30_Tp18_L	13.89	132.13	134.24	133.81	134.52	0.007075	2.36	5.88	4.21	0.64
Borro_Ville	19.5			Bridge									
Borro_Ville	19	Max WS	R+V_Tr200_Tp18_L	20.25	132.13	134.46		134.91	0.010151	2.96	6.84	4.49	0.77
Borro_Ville	19	Max WS	R+V_Tr30_Tp18_L	14.33	132.13	133.92		134.41	0.014258	3.12	4.59	3.82	0.91
Borro_Ville	18.9			Lat Struct									
Borro_Ville	18.8			Lat Struct									
Borro_Ville	18	Max WS	R+V_Tr200_Tp18_L	20.25	132.10	134.63	133.25	134.74	0.001294	1.46	13.88	6.08	0.31
Borro_Ville	18	Max WS	R+V_Tr30_Tp18_L	14.25	132.10	133.98	133.02	134.08	0.001481	1.40	10.16	5.65	0.33
Borro_Ville	17.5			Bridge									
Borro_Ville	17	Max WS	R+V_Tr200_Tp18_L	20.25	131.90	134.50		134.63	0.001379	1.58	12.80	4.94	0.31
Borro_Ville	17	Max WS	R+V_Tr30_Tp18_L	14.25	131.90	133.87		133.98	0.001492	1.47	9.67	4.94	0.34
Borro_Ville	16	Max WS	R+V_Tr200_Tp18_L	20.25	131.95	134.39	133.50	134.60	0.003123	2.01	10.06	5.11	0.46
Borro_Ville	16	Max WS	R+V_Tr30_Tp18_L	13.89	131.95	133.72	133.22	133.93	0.004301	2.02	6.87	4.74	0.54
Borro_Ville	15.5			Bridge									
Borro_Ville	15.4	Max WS	R+V_Tr200_Tp18_L	20.25	131.95	134.34		134.55	0.003269	2.07	9.79	4.80	0.46

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	15.4	Max WS	R+V_Tr30_Tp18_L	13.89	131.95	133.65		133.88	0.005068	2.14	6.50	4.73	0.58
Borro_Ville	15	Max WS	R+V_Tr200_Tp18_L	20.25	132.01	134.47		134.54	0.001254	1.24	16.32	10.61	0.32
Borro_Ville	15	Max WS	R+V_Tr30_Tp18_L	13.89	132.01	133.77		133.87	0.002490	1.44	9.63	8.49	0.43
Borro_Ville	14.9			Lat Struct									
Borro_Ville	14.8			Lat Struct									
Borro_Ville	14	Max WS	R+V_Tr200_Tp18_L	20.25	131.91	134.36		134.44	0.001178	1.24	16.29	9.79	0.31
Borro_Ville	14	Max WS	R+V_Tr30_Tp18_L	13.89	131.91	133.50		133.63	0.003245	1.61	8.65	7.87	0.49
Borro_Ville	13	Max WS	R+V_Tr200_Tp18_L	20.25	131.81	134.34		134.43	0.001307	1.31	15.41	8.19	0.31
Borro_Ville	13	Max WS	R+V_Tr30_Tp18_L	13.89	131.81	133.47		133.60	0.002920	1.58	8.80	7.04	0.45
Borro_Ville	12	Max WS	R+V_Tr200_Tp18_L	20.23	131.62	134.31		134.40	0.001398	1.33	15.21	8.18	0.31
Borro_Ville	12	Max WS	R+V_Tr30_Tp18_L	13.88	131.62	133.40		133.54	0.003464	1.67	8.33	6.84	0.48
Borro_Ville	11	Max WS	R+V_Tr200_Tp18_L	18.80	131.44	134.31		134.36	0.000820	1.06	17.75	9.77	0.25
Borro_Ville	11	Max WS	R+V_Tr30_Tp18_L	13.87	131.44	133.25		133.39	0.003698	1.65	8.42	8.13	0.52
Borro_Ville	10	Max WS	R+V_Tr200_Tp18_L	16.57	131.33	134.32		134.36	0.000454	0.80	20.78	11.81	0.19
Borro_Ville	10	Max WS	R+V_Tr30_Tp18_L	13.87	131.33	133.17		133.29	0.002941	1.51	9.16	8.24	0.46
Borro_Ville	9	Max WS	R+V_Tr200_Tp18_L	14.87	130.69	134.31		134.32	0.000152	0.51	29.10	14.23	0.11
Borro_Ville	9	Max WS	R+V_Tr30_Tp18_L	13.86	130.69	132.99		133.05	0.001004	1.02	13.55	9.51	0.27
Borro_Ville	8	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.31	131.73	134.32	0.000182	0.56	26.42	12.29	0.12
Borro_Ville	8	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.99	131.69	133.04	0.000822	1.03	13.40	7.61	0.25
Borro_Ville	7.5			Bridge									
Borro_Ville	7.4	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.30		134.32	0.000183	0.56	26.34	12.27	0.12
Borro_Ville	7.4	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.98		133.03	0.000836	1.04	13.33	7.60	0.25
Borro_Ville	7	Max WS	R+V_Tr200_Tp18_L	14.87	130.65	134.29		134.32	0.000207	0.64	23.22	9.34	0.13
Borro_Ville	7	Max WS	R+V_Tr30_Tp18_L	13.86	130.65	132.96		133.03	0.001135	1.16	11.95	7.49	0.29
Borro_Ville	6	Max WS	R+V_Tr200_Tp18_L	14.87	130.26	134.29	131.47	134.31	0.000148	0.52	28.41	10.43	0.10



HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	6	Max WS	R+V_Tr30_Tp18_L	13.86	130.26	132.95	131.43	132.99	0.000615	0.87	15.87	8.30	0.20
Borro_Ville	5.9		Bridge										
Borro_Ville	5.8	Max WS	R+V_Tr200_Tp18_L	14.87	130.26	134.29		134.31	0.000148	0.52	28.40	10.42	0.10
Borro_Ville	5.8	Max WS	R+V_Tr30_Tp18_L	13.86	130.26	132.95		132.99	0.000616	0.87	15.85	8.30	0.20
Borro_Ville	5	Max WS	R+V_Tr200_Tp18_L	14.87	130.03	134.29		134.30	0.000052	0.37	39.85	13.23	0.07
Borro_Ville	5	Max WS	R+V_Tr30_Tp18_L	13.85	130.03	132.95		132.97	0.000190	0.58	23.68	10.87	0.13
Borro_Ville	4	Max WS	R+V_Tr200_Tp18_L	14.87	129.85	134.29		134.30	0.000032	0.31	48.11	15.01	0.06
Borro_Ville	4	Max WS	R+V_Tr30_Tp18_L	13.84	129.85	132.95		132.96	0.000107	0.47	29.65	12.47	0.10
Borro_Ville	3	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29	130.65	134.30	0.000027	0.29	52.13	15.83	0.05
Borro_Ville	3	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95	130.62	132.96	0.000085	0.42	32.60	13.25	0.09
Borro_Ville	2.5		Bridge										
Borro_Ville	2	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29		134.30	0.000011	0.26	58.14	15.83	0.04
Borro_Ville	2	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95		132.96	0.000026	0.36	38.64	13.25	0.07
Borro_Ville	1.8	Max WS	R+V_Tr200_Tp18_L	14.87	129.80	134.29	130.34	134.30	0.000011	0.26	58.14	15.83	0.04
Borro_Ville	1.8	Max WS	R+V_Tr30_Tp18_L	13.83	129.80	132.95	130.31	132.96	0.000026	0.36	38.64	13.25	0.07
Borro_Ville	1.5		Inl Struct										
Borro_Ville	1.1	Max WS	R+V_Tr200_Tp18_L	14.87	128.50	134.29		134.29	0.000004	0.20	75.19	13.32	0.03
Borro_Ville	1.1	Max WS	R+V_Tr30_Tp18_L	13.83	128.50	132.95		132.95	0.000008	0.24	57.50	13.08	0.04
Borro_Ville	1	Max WS	R+V_Tr200_Tp18_L	14.87	128.50	134.29	129.02	134.29	0.000004	0.20	75.19	13.32	0.03
Borro_Ville	1	Max WS	R+V_Tr30_Tp18_L	13.83	128.50	132.95	128.99	132.95	0.000008	0.24	57.50	13.08	0.04

# **VERIFICHE IDRAULICHE**

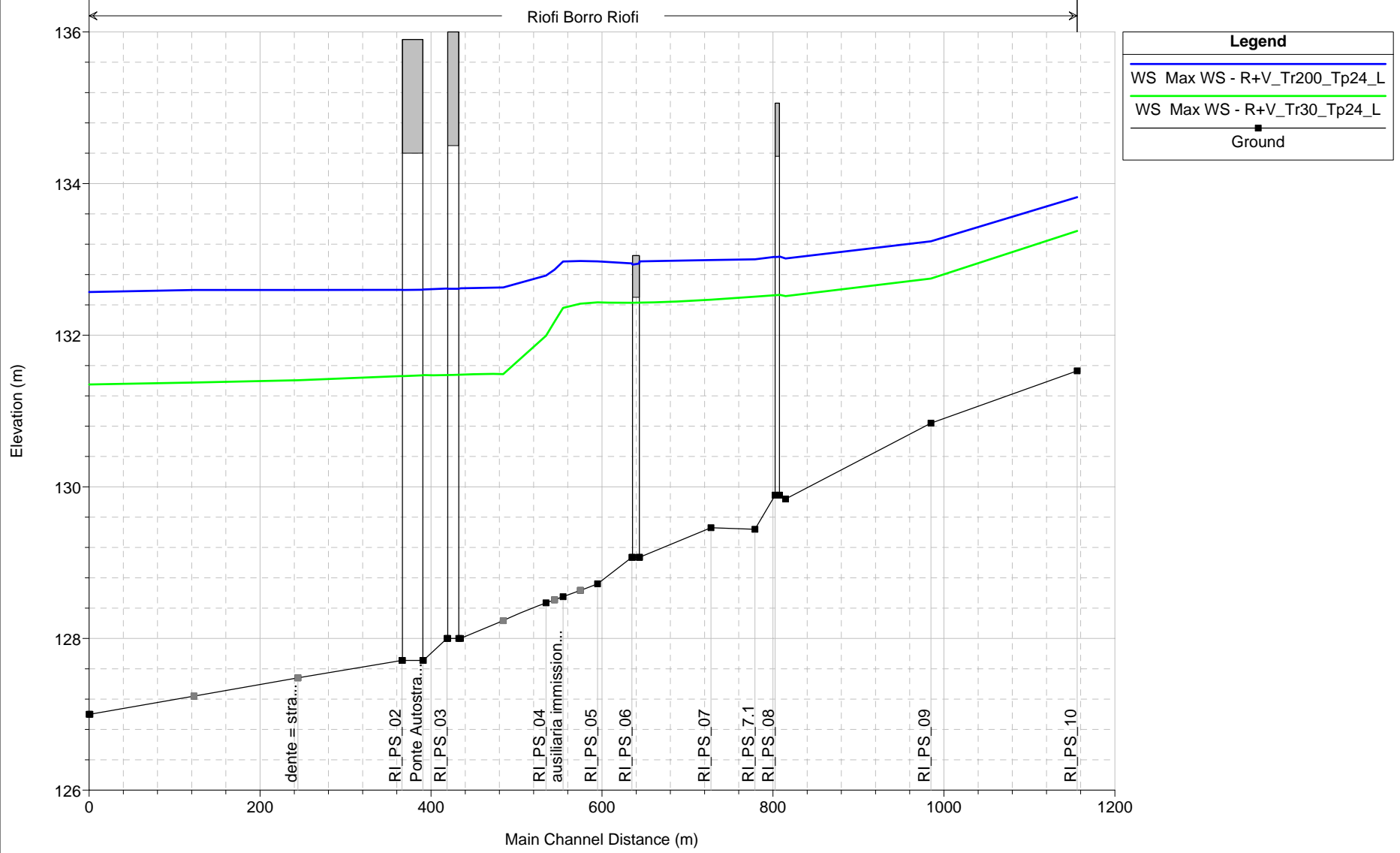
## **STATO ATTUALE**

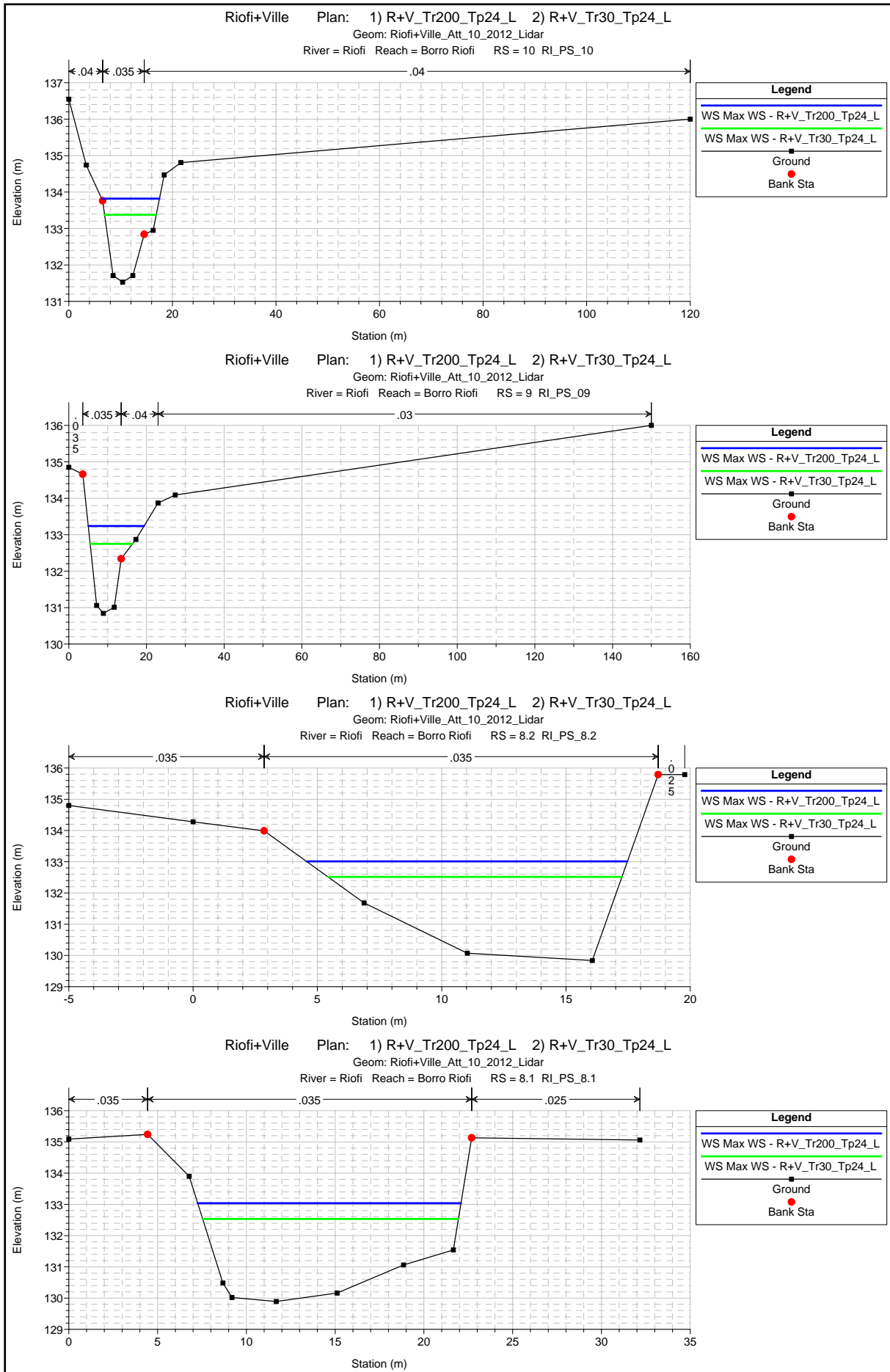
### **BORRO RIOFI**

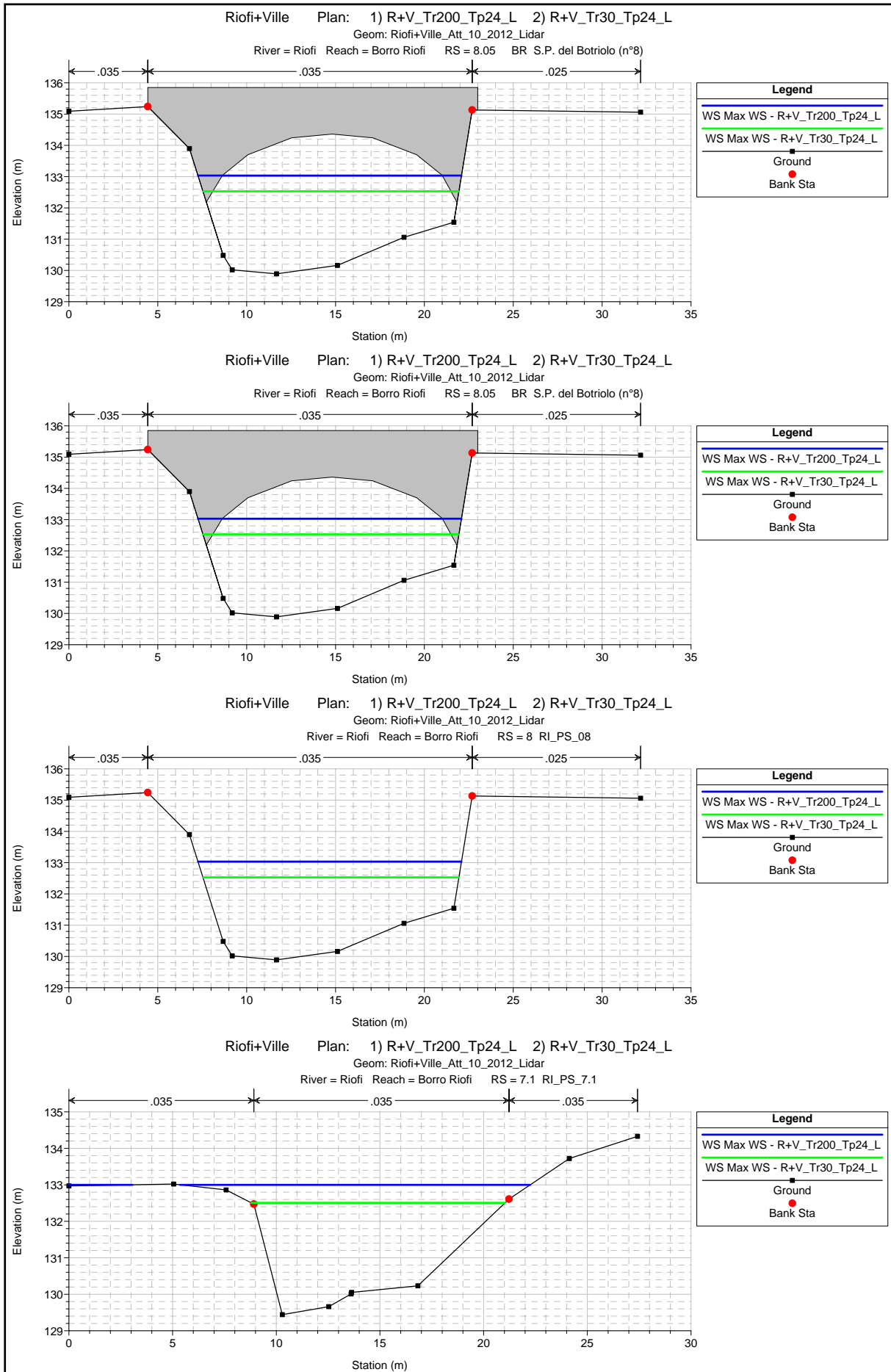
#### **Scenario C - Tr 200 e 30 anni**

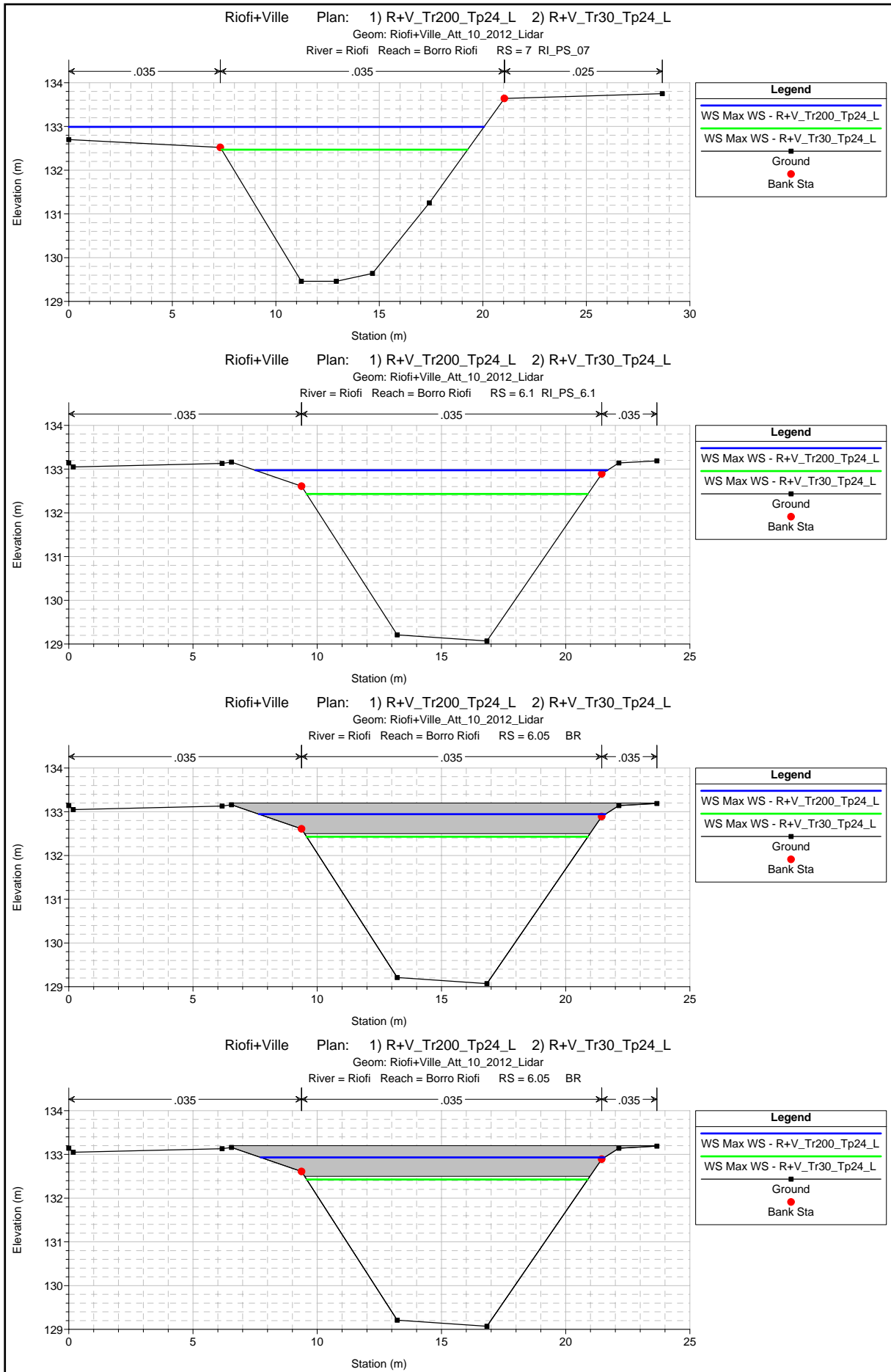
- Profili
- Sezioni di verifica
- Tabelle di output

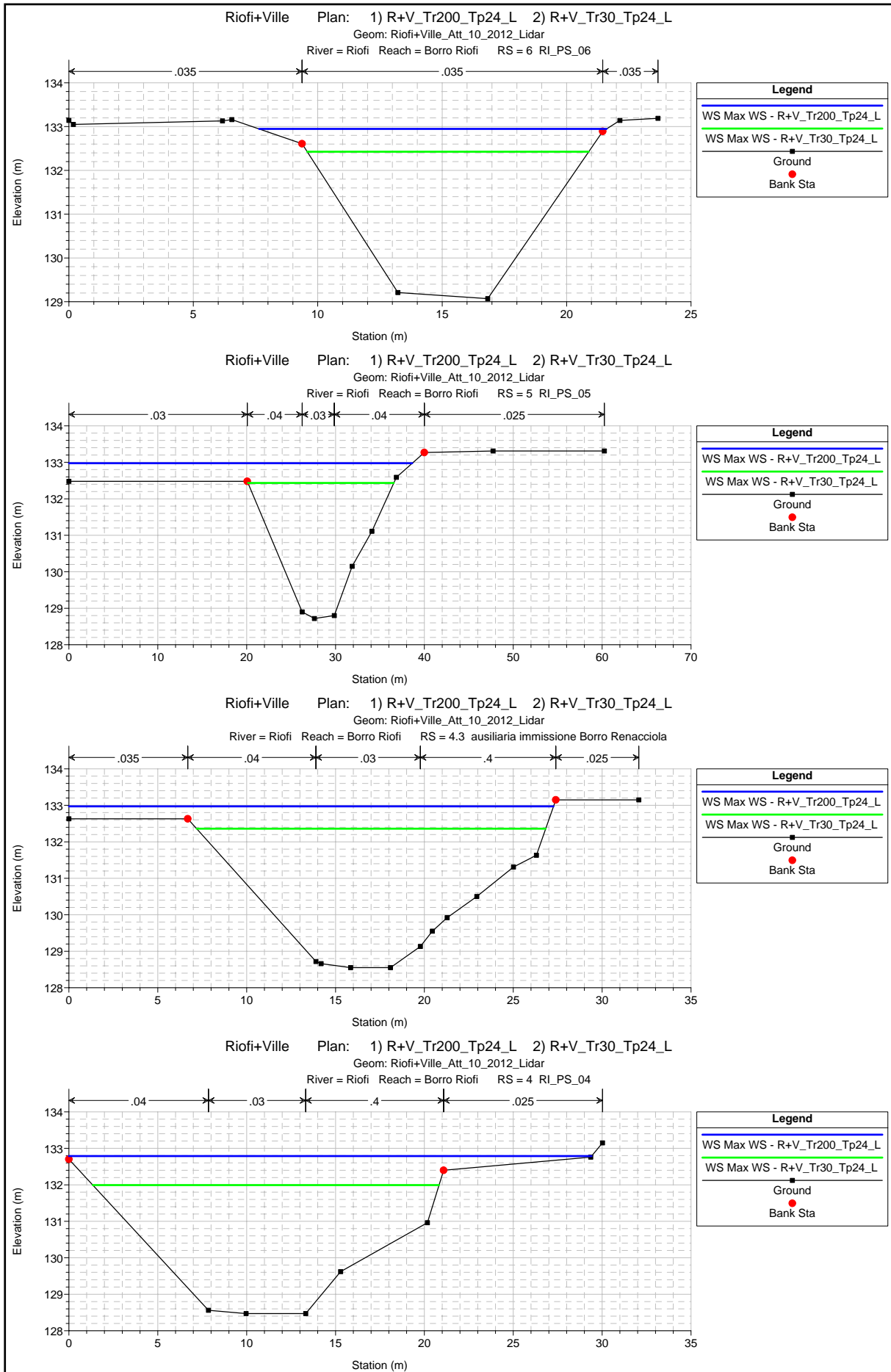
Riofi+Ville Plan: 1) R+V\_Tr200\_Tp24\_L 2) R+V\_Tr30\_Tp24\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar

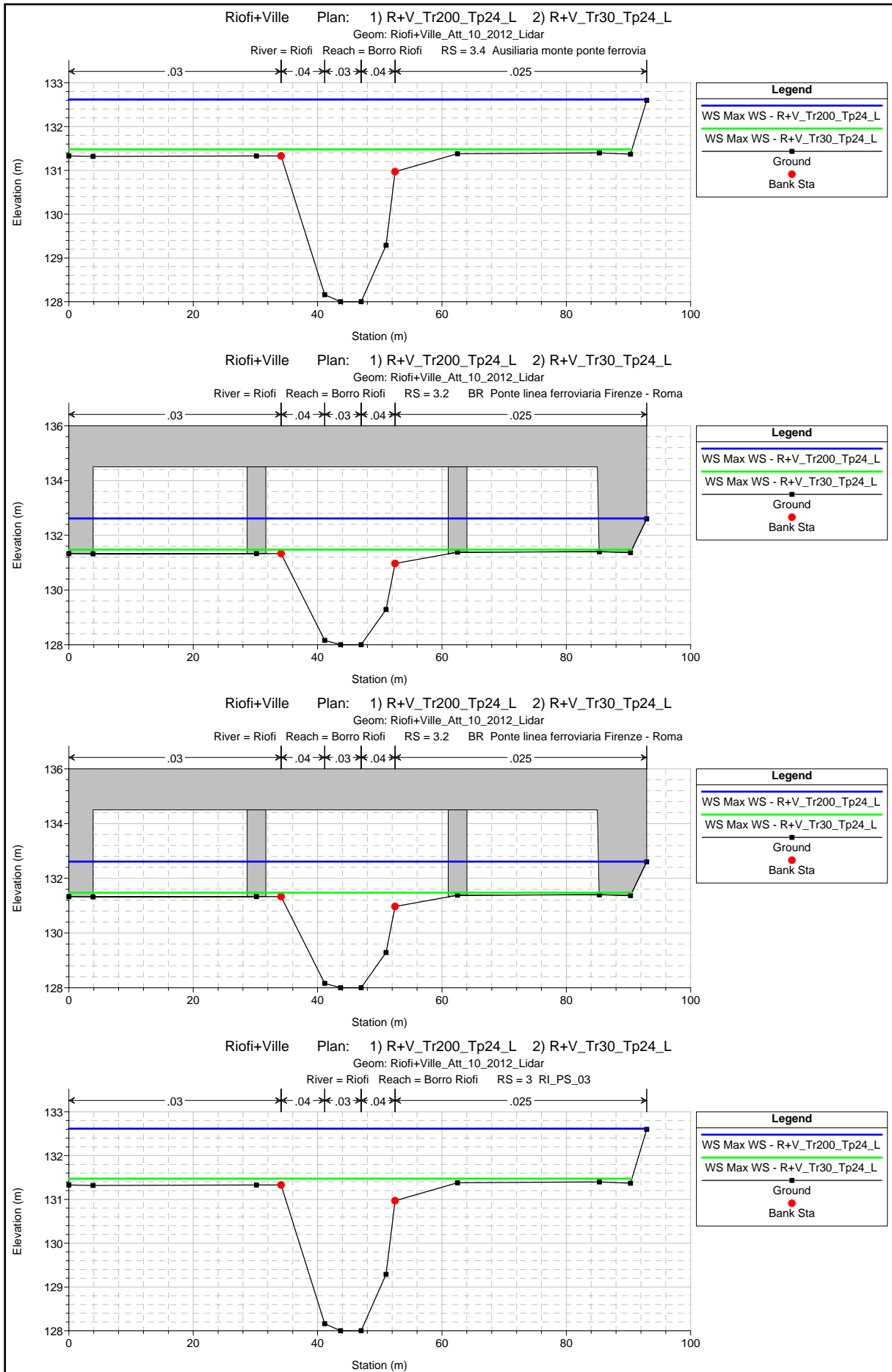




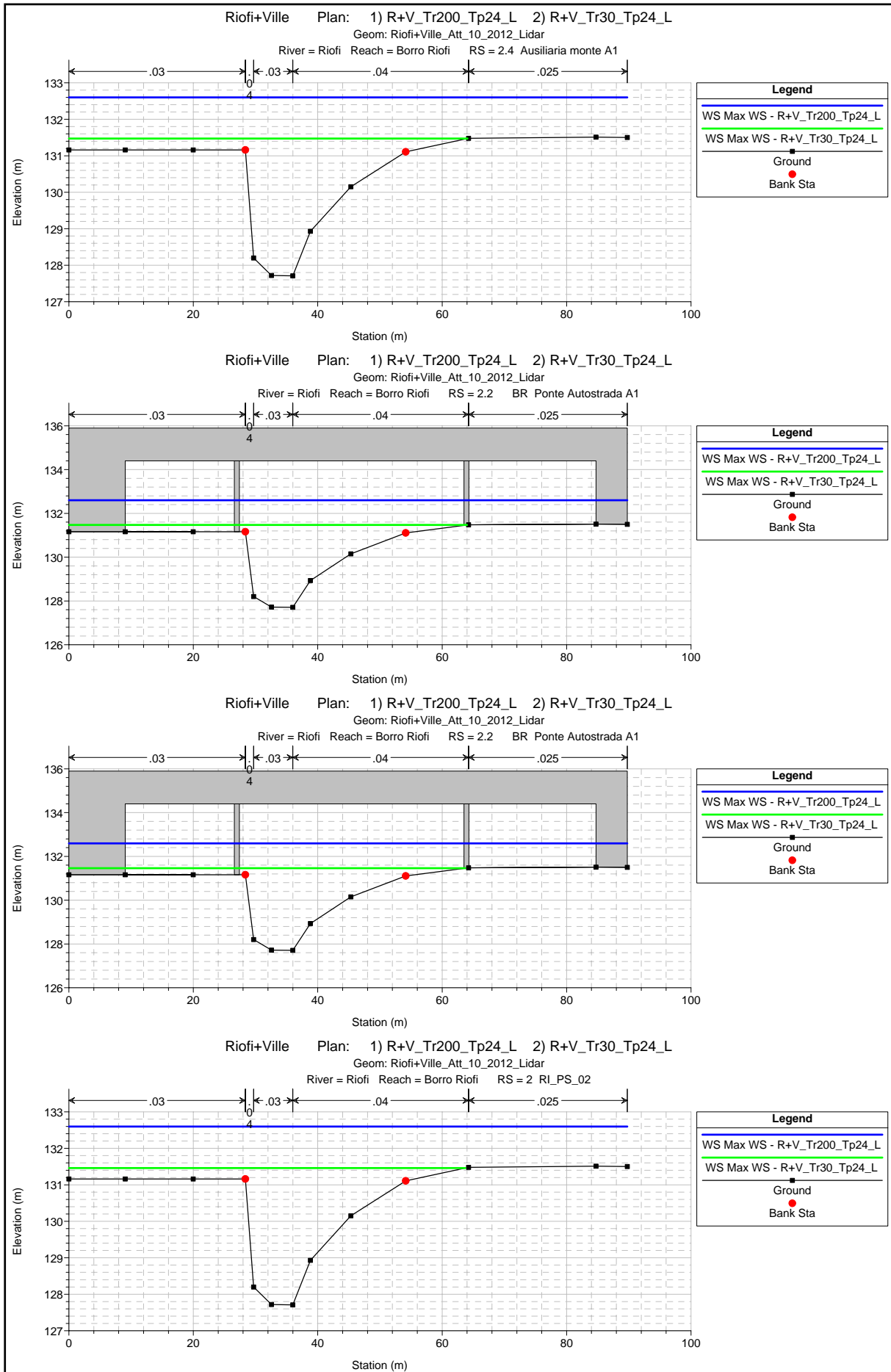


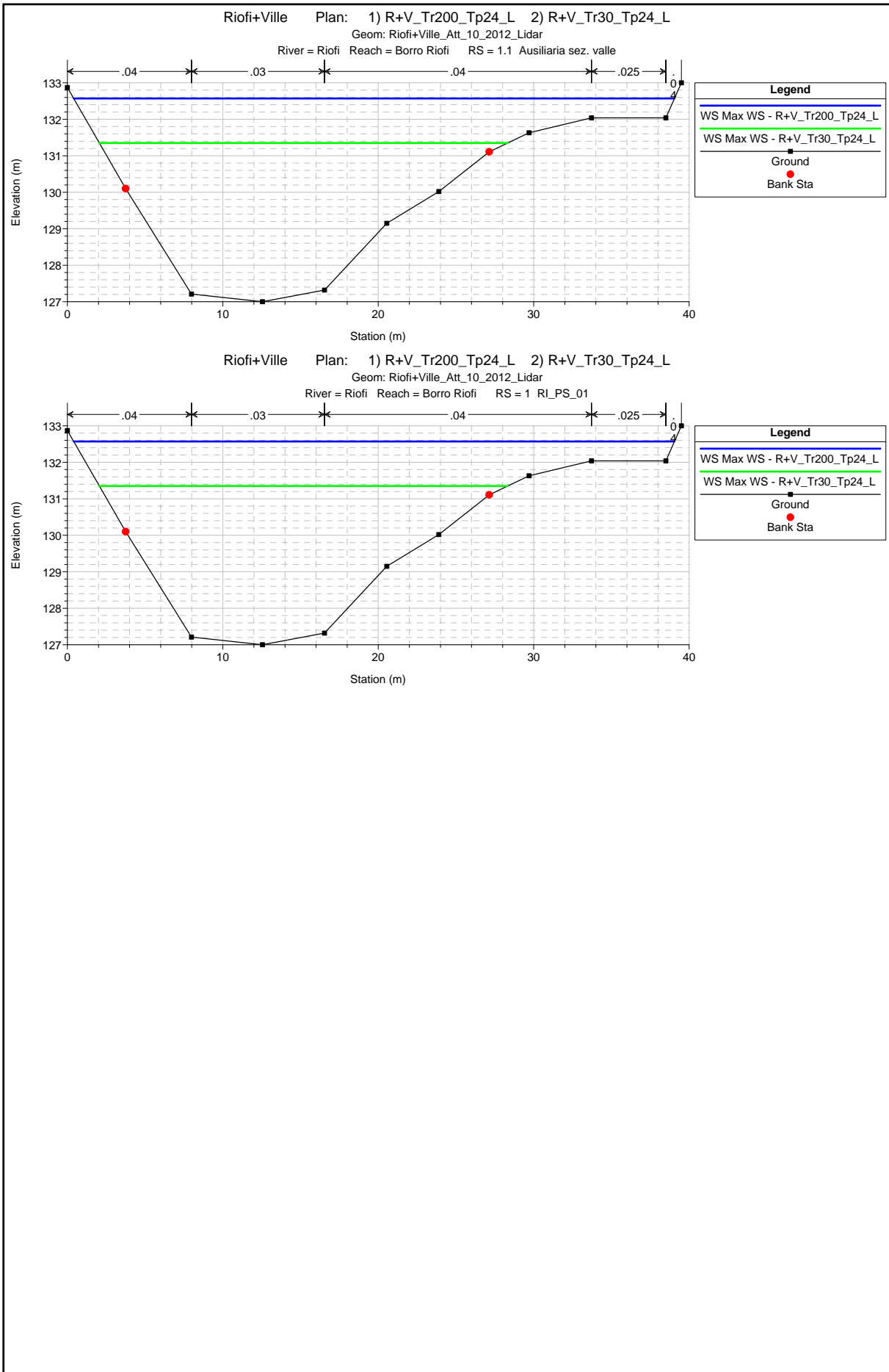












HEC-RAS River: Riofi Reach: Borro Riofi Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Riofi	10	Max WS	R+V_Tr200_Tp24_L	36.81	131.53	133.82		134.11	0.004189	2.45	16.10	11.16	0.59
Borro Riofi	10	Max WS	R+V_Tr30_Tp24_L	22.74	131.53	133.37		133.59	0.004159	2.09	11.41	9.95	0.57
Borro Riofi	9	Max WS	R+V_Tr200_Tp24_L	36.81	130.84	133.24		133.47	0.003253	2.21	18.35	14.36	0.52
Borro Riofi	9	Max WS	R+V_Tr30_Tp24_L	22.74	130.84	132.75		132.94	0.003425	1.95	12.10	10.90	0.52
Borro Riofi	8.2	Max WS	R+V_Tr200_Tp24_L	36.80	129.84	133.01		133.10	0.000970	1.31	28.02	12.91	0.28
Borro Riofi	8.2	Max WS	R+V_Tr30_Tp24_L	22.74	129.84	132.51		132.57	0.000736	1.04	21.88	11.82	0.24
Borro Riofi	8.1	Max WS	R+V_Tr200_Tp24_L	36.80	129.89	133.04	131.36	133.09	0.000522	1.04	35.55	14.83	0.21
Borro Riofi	8.1	Max WS	R+V_Tr30_Tp24_L	22.74	129.89	132.53	131.03	132.57	0.000399	0.81	28.14	14.40	0.18
Borro Riofi	8.05			Bridge									
Borro Riofi	8	Max WS	R+V_Tr200_Tp24_L	36.80	129.89	133.03		133.09	0.000526	1.04	35.47	14.83	0.21
Borro Riofi	8	Max WS	R+V_Tr30_Tp24_L	22.74	129.89	132.53		132.56	0.000400	0.81	28.11	14.40	0.18
Borro Riofi	7.9			Lat Struct									
Borro Riofi	7.8			Lat Struct									
Borro Riofi	7.1	Max WS	R+V_Tr200_Tp24_L	36.80	129.44	133.00		133.08	0.000713	1.22	30.95	19.96	0.25
Borro Riofi	7.1	Max WS	R+V_Tr30_Tp24_L	22.74	129.44	132.51		132.55	0.000572	0.95	24.03	12.23	0.21
Borro Riofi	7	Max WS	R+V_Tr200_Tp24_L	33.47	129.46	132.99		133.05	0.000616	1.12	31.89	20.06	0.24
Borro Riofi	7	Max WS	R+V_Tr30_Tp24_L	22.74	129.46	132.47		132.52	0.000633	1.00	22.66	11.88	0.23
Borro Riofi	6.1	Max WS	R+V_Tr200_Tp24_L	29.94	129.07	132.97	130.74	133.02	0.000423	0.96	31.33	14.17	0.19
Borro Riofi	6.1	Max WS	R+V_Tr30_Tp24_L	22.74	129.07	132.43	130.50	132.47	0.000483	0.93	24.58	11.32	0.20
Borro Riofi	6.05			Bridge									
Borro Riofi	6	Max WS	R+V_Tr200_Tp24_L	29.94	129.07	132.95		132.99	0.000438	0.97	30.96	13.96	0.20
Borro Riofi	6	Max WS	R+V_Tr30_Tp24_L	22.74	129.07	132.43		132.47	0.000486	0.93	24.53	11.31	0.20
Borro Riofi	5.9			Lat Struct									
Borro Riofi	5.8			Lat Struct									

HEC-RAS River: Riofi Reach: Borro Riofi Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro Riofi	5	Max WS	R+V_Tr200_Tp24_L	25.66	128.72	132.97		132.99	0.000139	0.52	54.86	38.62	0.11
Borro Riofi	5	Max WS	R+V_Tr30_Tp24_L	22.74	128.72	132.43		132.45	0.000245	0.64	35.56	16.40	0.14
Borro Riofi	4.3	Max WS	R+V_Tr200_Tp24_L	13.45	128.55	132.97		132.98	0.000623	0.22	60.81	27.26	0.04
Borro Riofi	4.3	Max WS	R+V_Tr30_Tp24_L	22.74	128.55	132.36		132.37	0.003941	0.49	46.11	19.63	0.10
Borro Riofi	4	Max WS	R+V_Tr200_Tp24_L	48.05	128.47	132.79		132.82	0.007546	0.75	62.73	29.41	0.14
Borro Riofi	4	Max WS	R+V_Tr30_Tp24_L	45.48	128.47	131.99		132.05	0.019139	1.02	44.80	19.48	0.21
Borro Riofi	3.4	Max WS	R+V_Tr200_Tp24_L	62.69	128.00	132.62	129.77	132.63	0.000061	0.47	160.96	92.93	0.08
Borro Riofi	3.4	Max WS	R+V_Tr30_Tp24_L	45.19	128.00	131.48	129.49	131.52	0.000406	0.94	56.58	90.55	0.19
Borro Riofi	3.2			Bridge									
Borro Riofi	3	Max WS	R+V_Tr200_Tp24_L	62.71	128.00	132.62		132.62	0.000062	0.47	160.68	92.93	0.08
Borro Riofi	3	Max WS	R+V_Tr30_Tp24_L	45.19	128.00	131.47		131.52	0.000412	0.94	56.03	90.54	0.19
Borro Riofi	2.4	Max WS	R+V_Tr200_Tp24_L	62.69	127.71	132.60	129.69	132.61	0.000065	0.44	165.67	89.76	0.08
Borro Riofi	2.4	Max WS	R+V_Tr30_Tp24_L	45.18	127.71	131.47	129.37	131.50	0.000363	0.78	64.98	64.08	0.17
Borro Riofi	2.2			Bridge									
Borro Riofi	2	Max WS	R+V_Tr200_Tp24_L	62.67	127.71	132.60		132.61	0.000065	0.44	165.36	89.76	0.08
Borro Riofi	2	Max WS	R+V_Tr30_Tp24_L	45.19	127.71	131.46		131.49	0.000374	0.79	64.16	63.73	0.17
Borro Riofi	1.9			Lat Struct									
Borro Riofi	1.8			Lat Struct									
Borro Riofi	1.1	Max WS	R+V_Tr200_Tp24_L	51.80	127.00	132.57		132.58	0.000057	0.51	109.84	38.65	0.08
Borro Riofi	1.1	Max WS	R+V_Tr30_Tp24_L	44.48	127.00	131.35		131.37	0.000147	0.65	69.66	26.26	0.12
Borro Riofi	1	Max WS	R+V_Tr200_Tp24_L	51.80	127.00	132.57	128.57	132.58	0.000057	0.51	109.84	38.65	0.08
Borro Riofi	1	Max WS	R+V_Tr30_Tp24_L	44.48	127.00	131.35	128.44	131.37	0.000147	0.65	69.66	26.26	0.12

# **VERIFICHE IDRAULICHE**

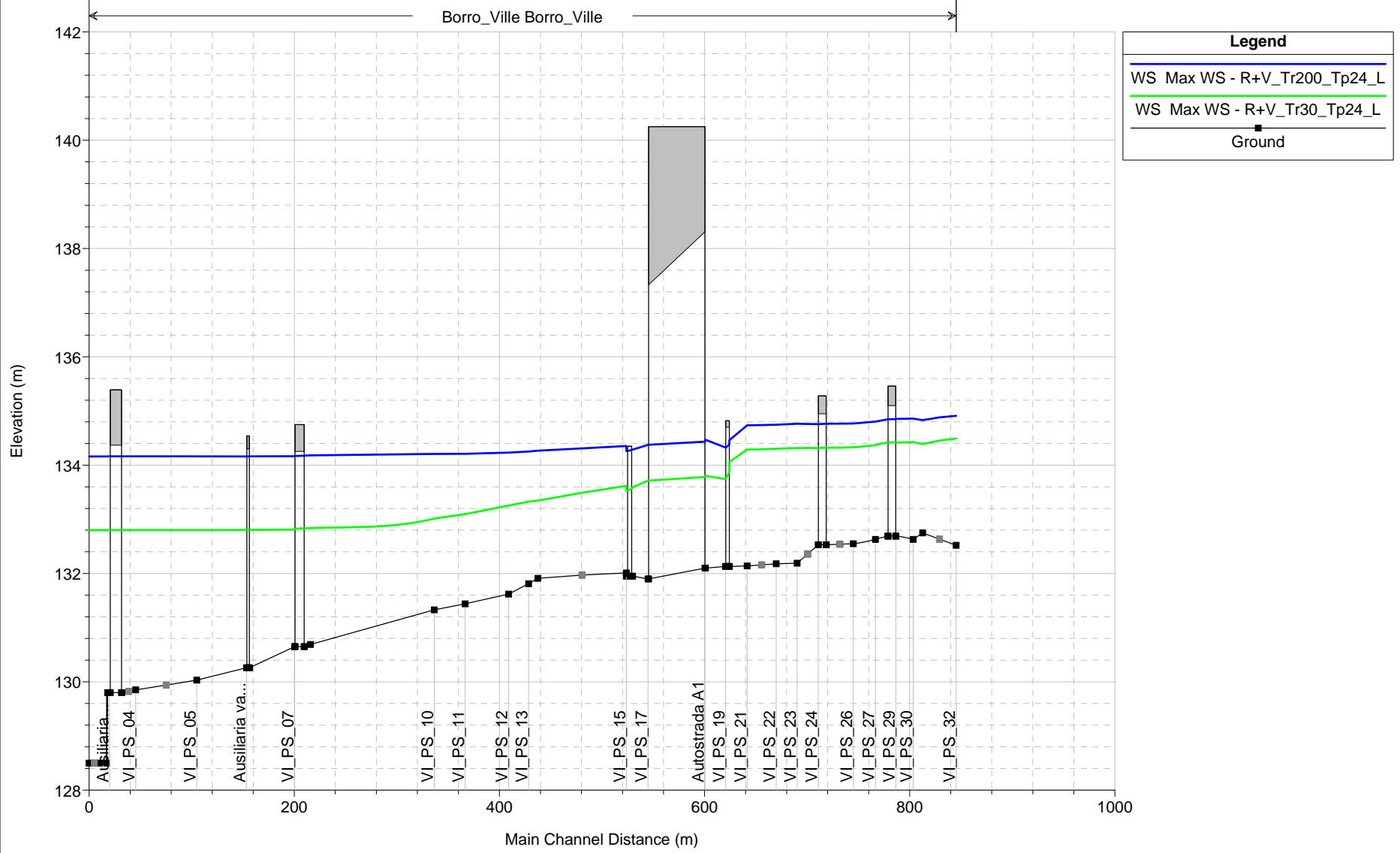
## **STATO ATTUALE**

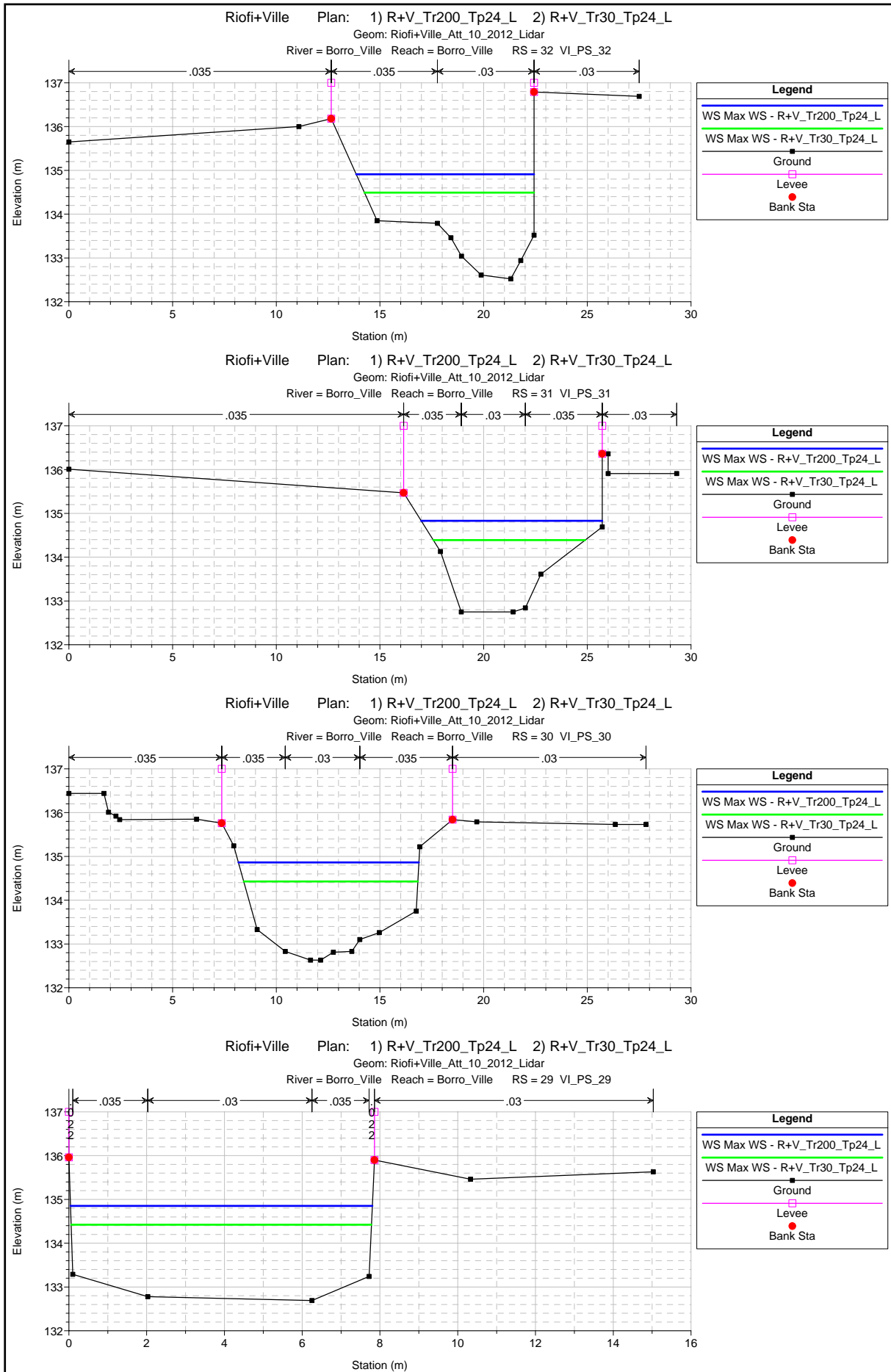
### **BORRO delle VILLE**

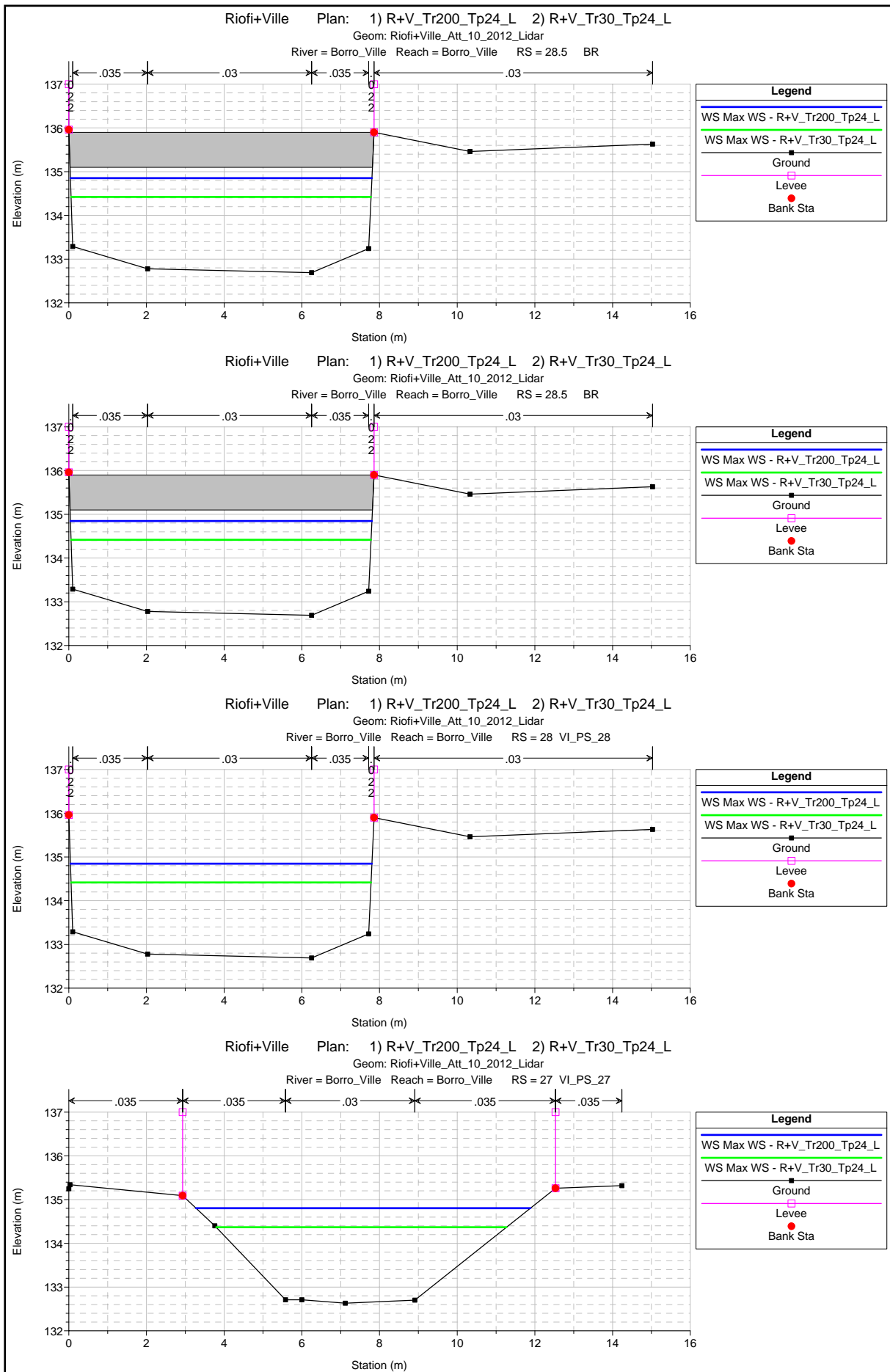
#### **Scenario C - Tr 200 e 30 anni**

- Profili
- Sezioni di verifica
- Tabelle di output

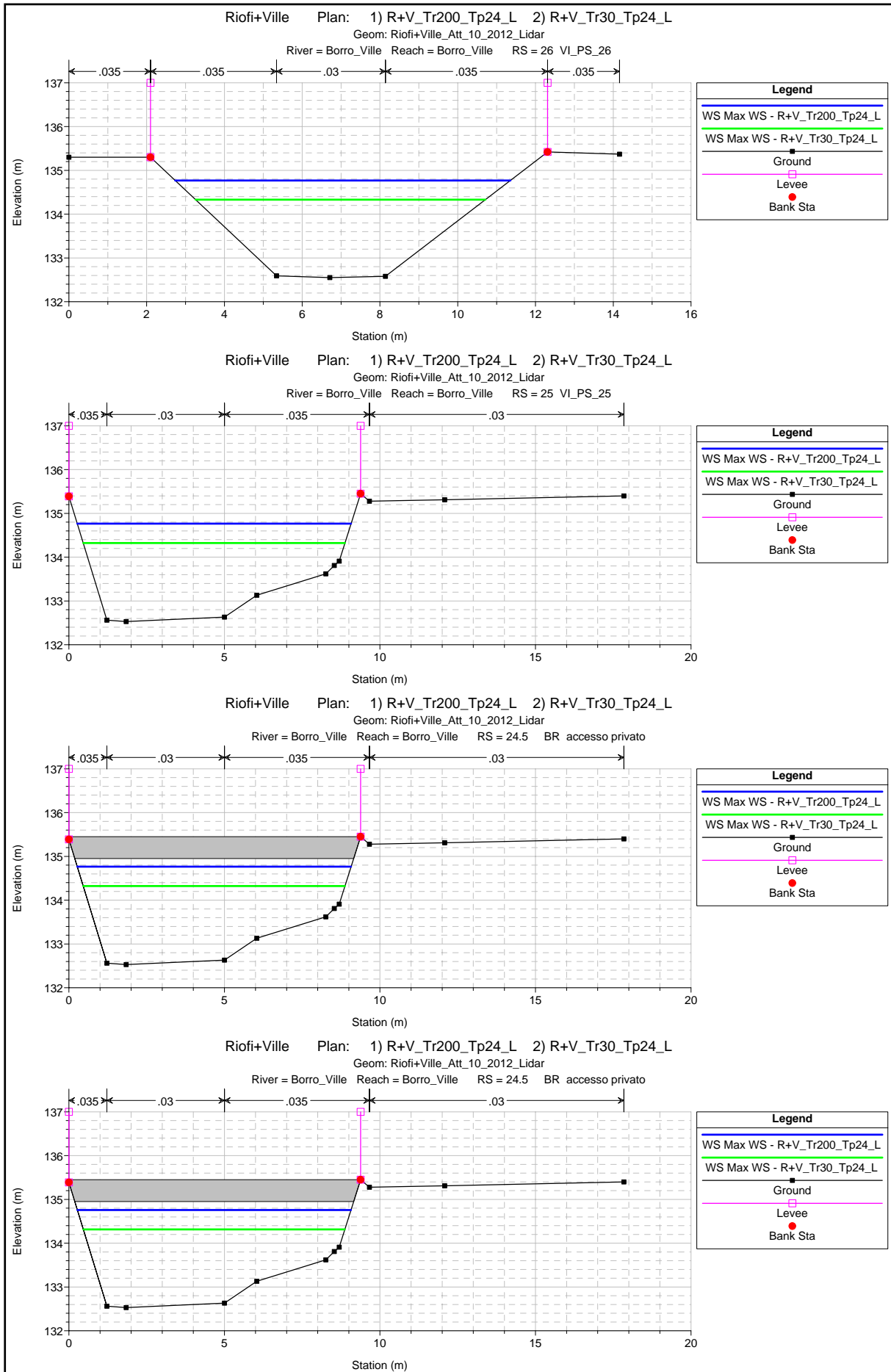
Riofi+Ville Plan: 1) R+V\_Tr200\_Tp24\_L 2) R+V\_Tr30\_Tp24\_L  
 Geom: Riofi+Ville\_Att\_10\_2012\_Lidar

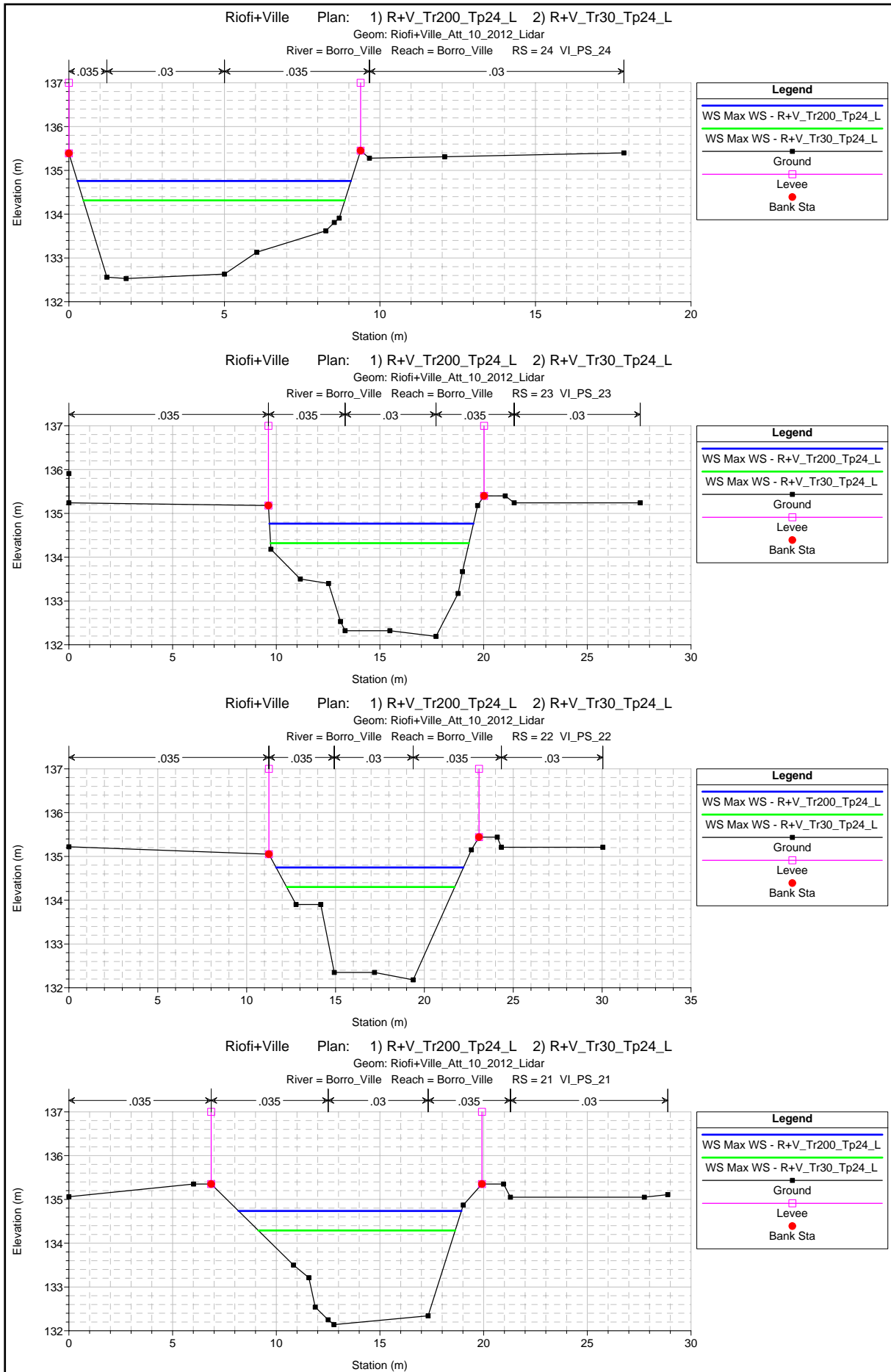


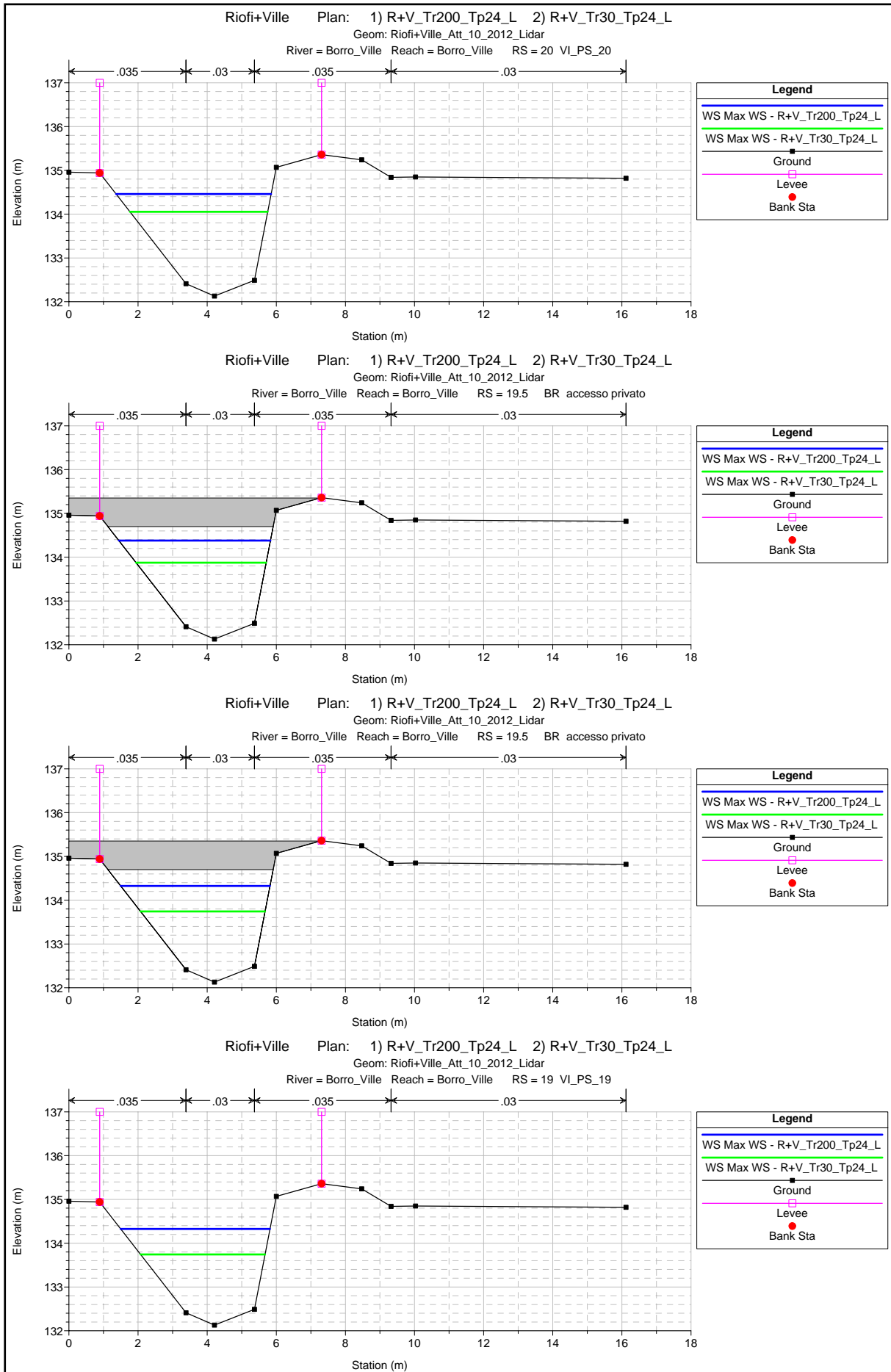


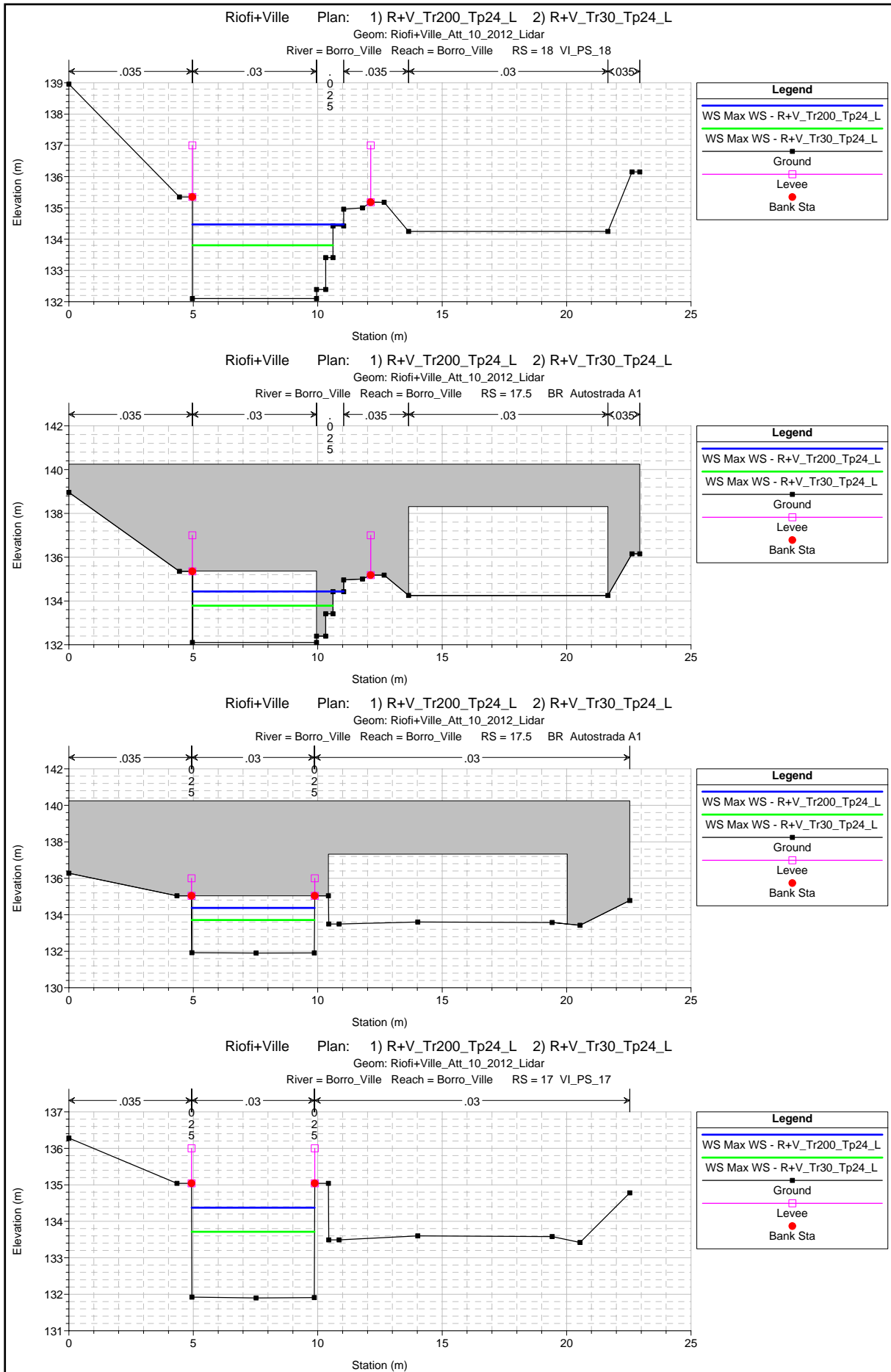


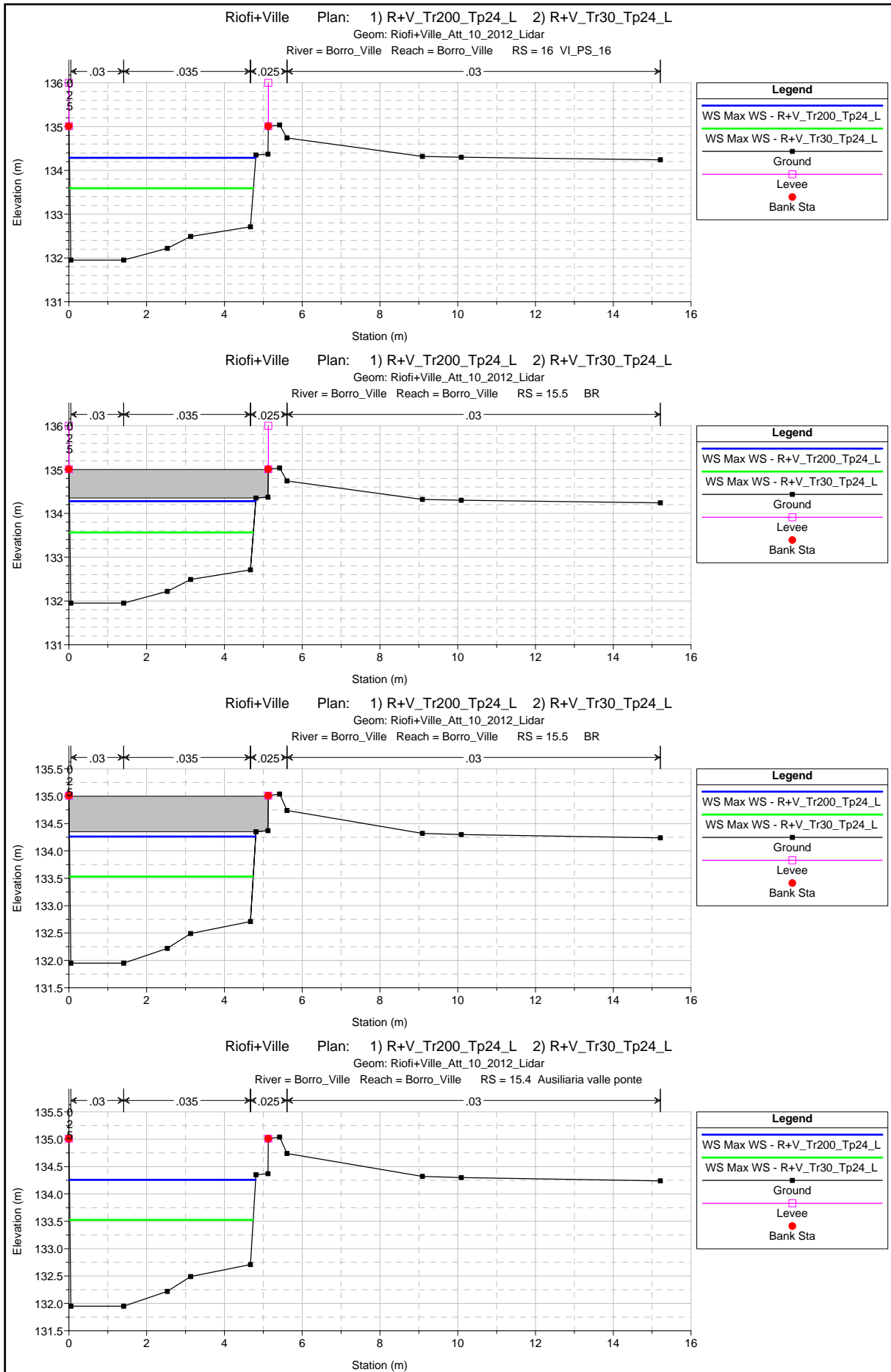


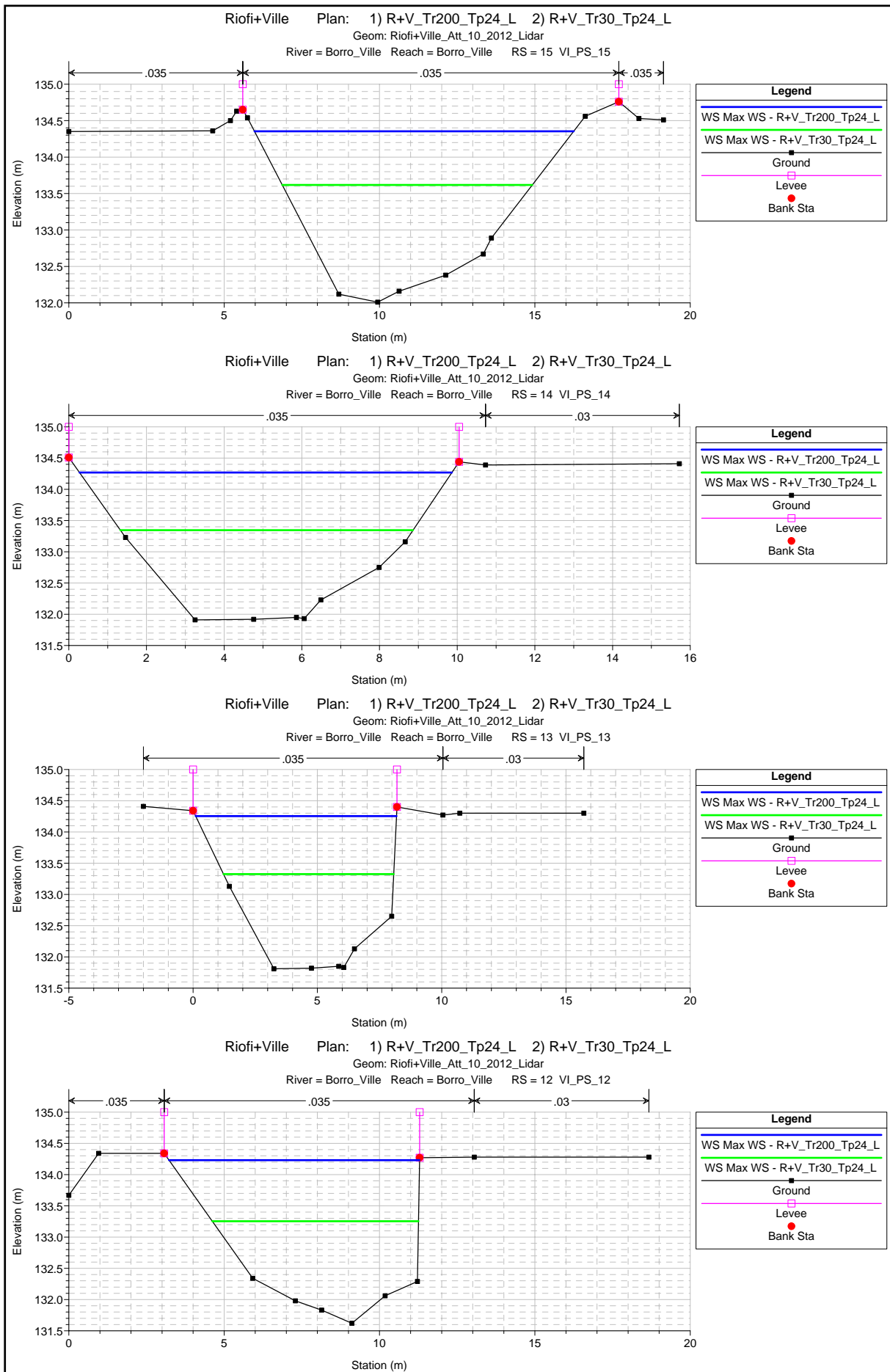


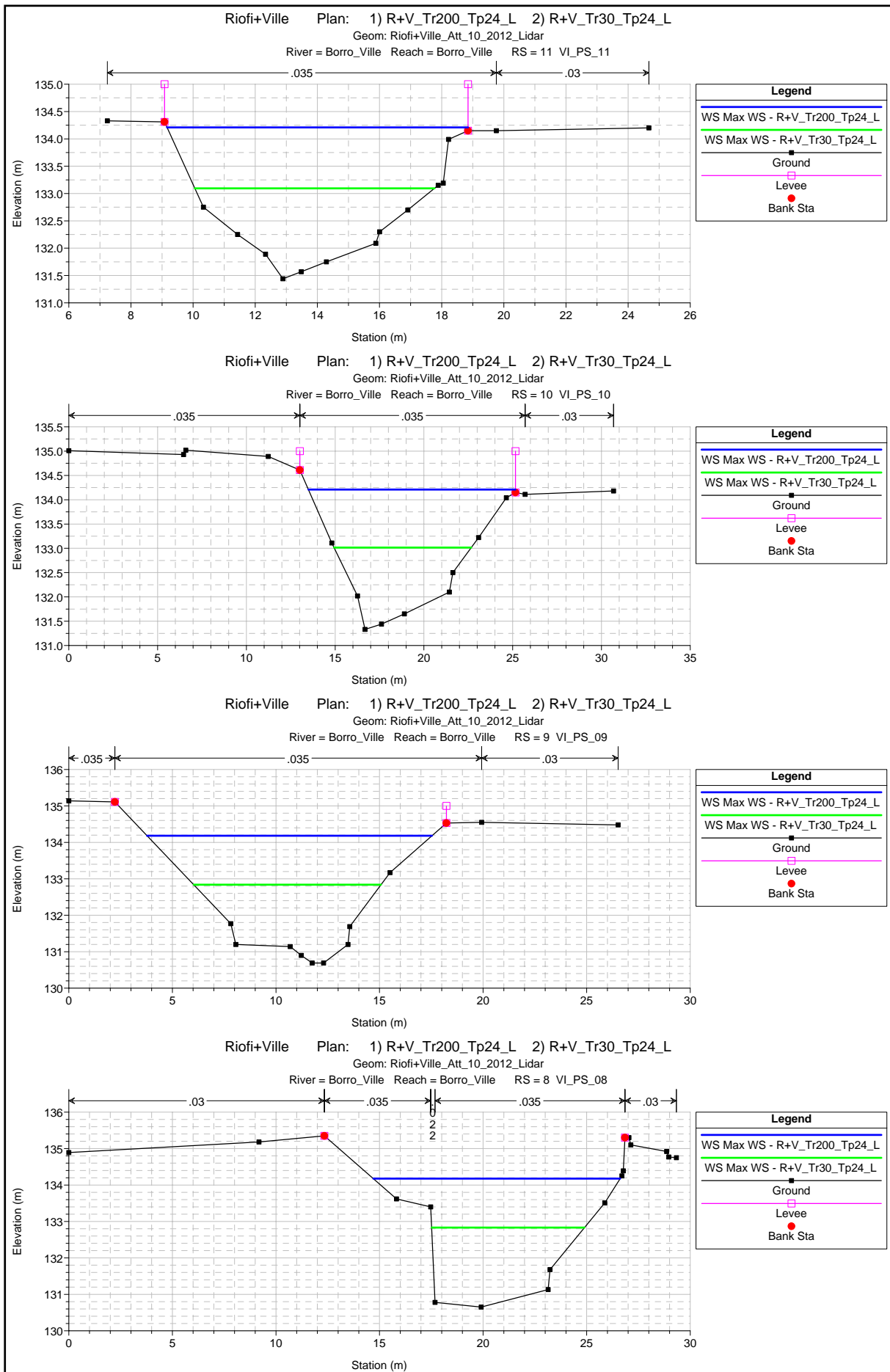


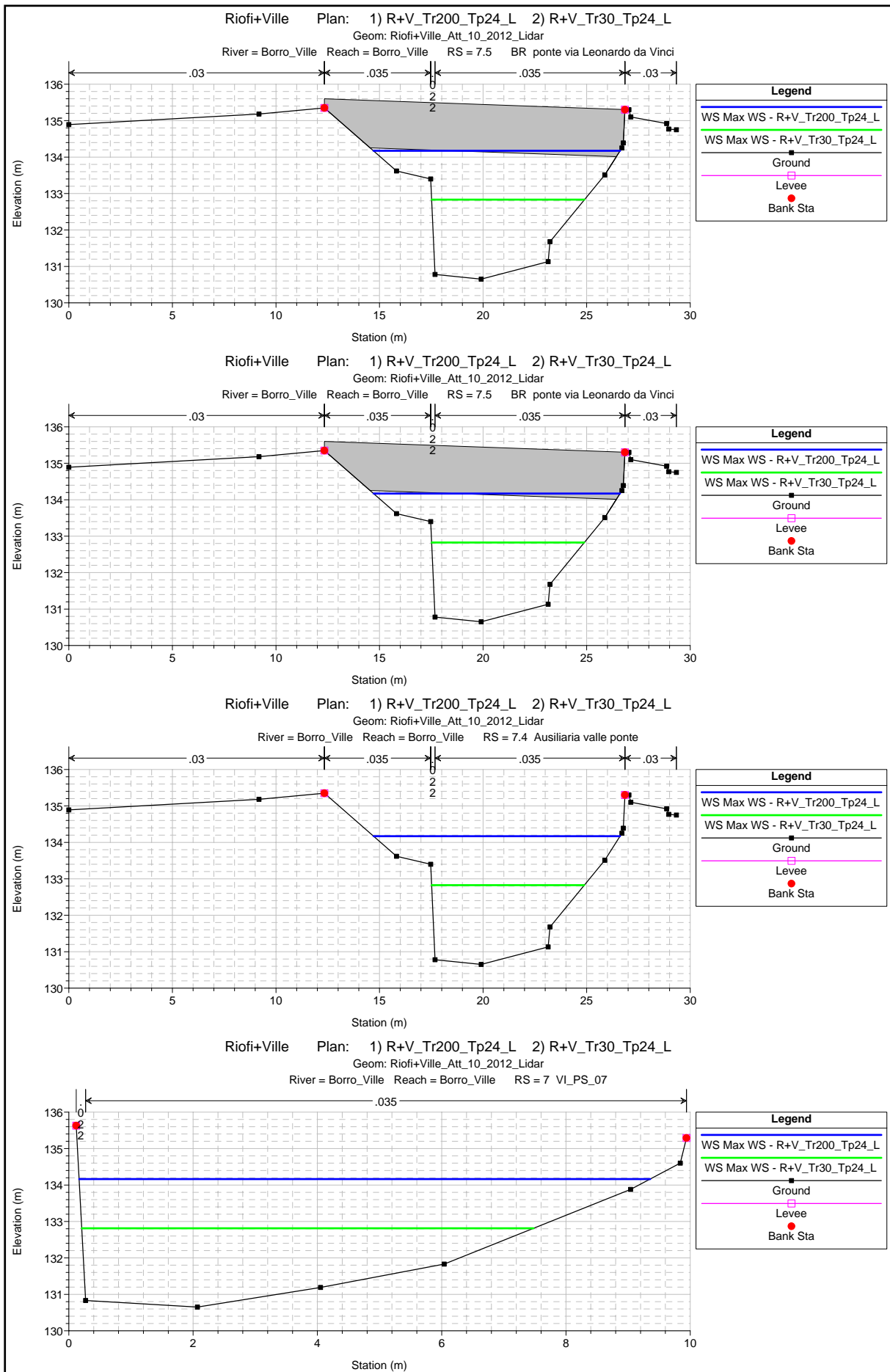




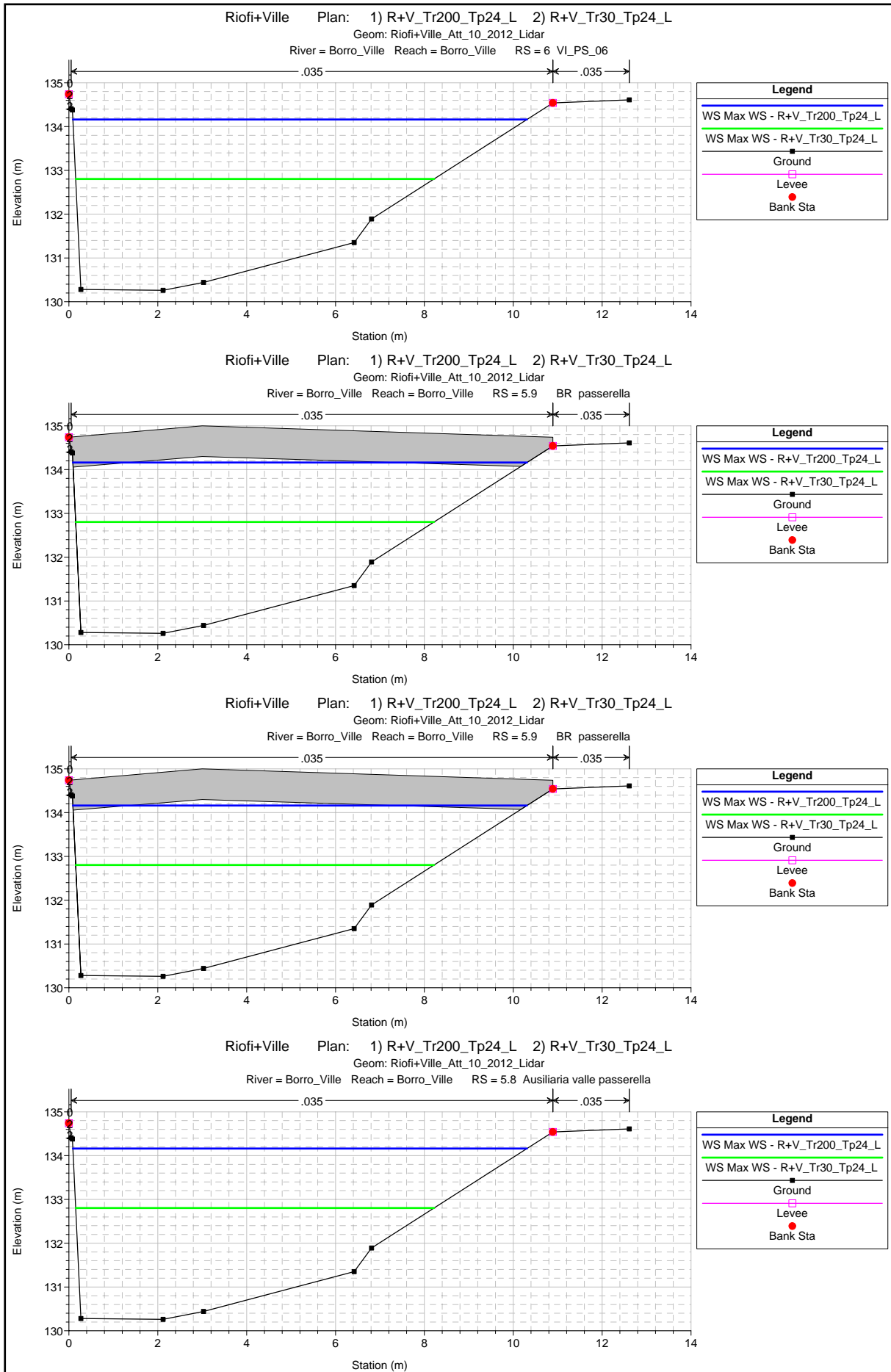


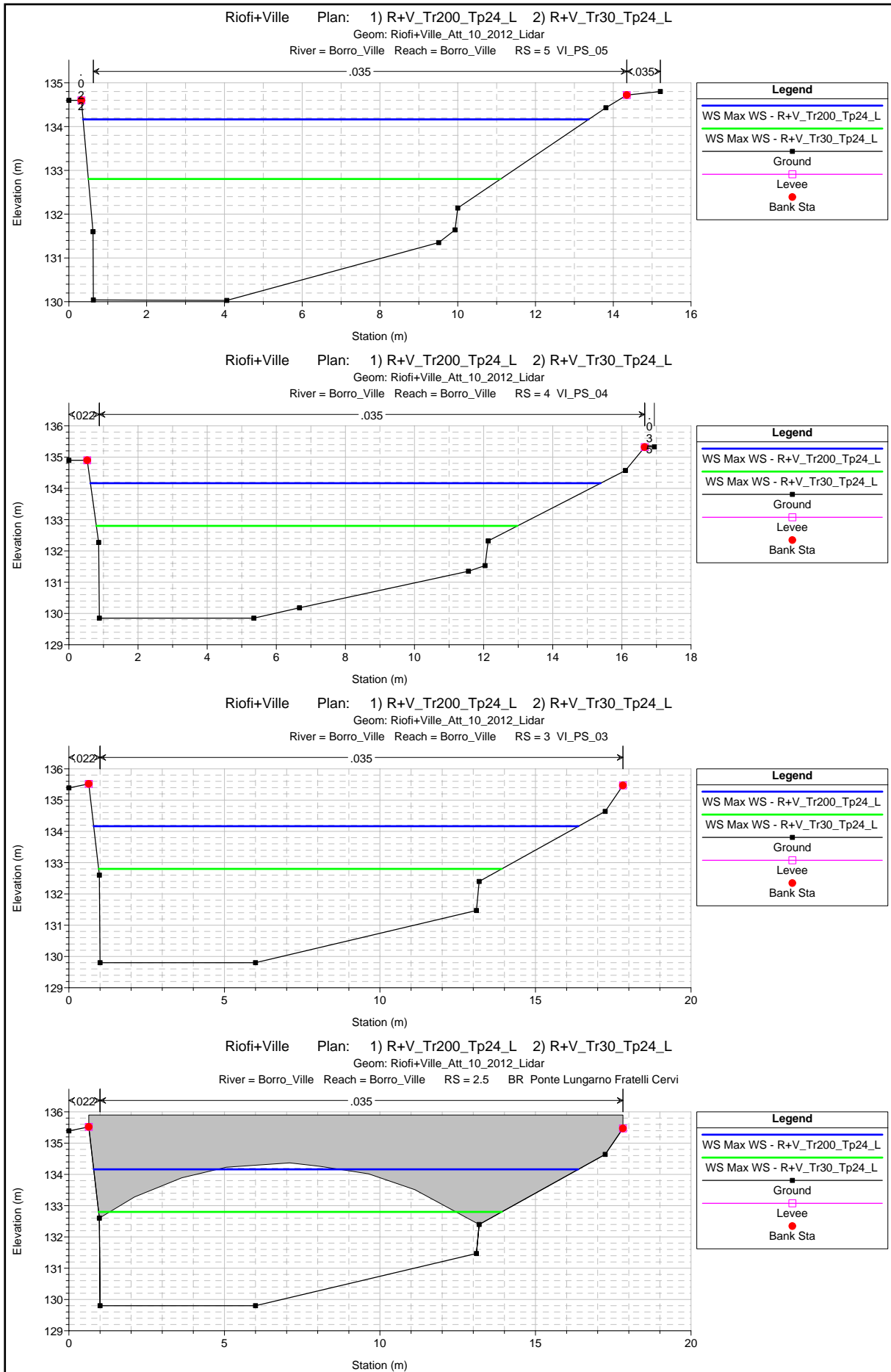


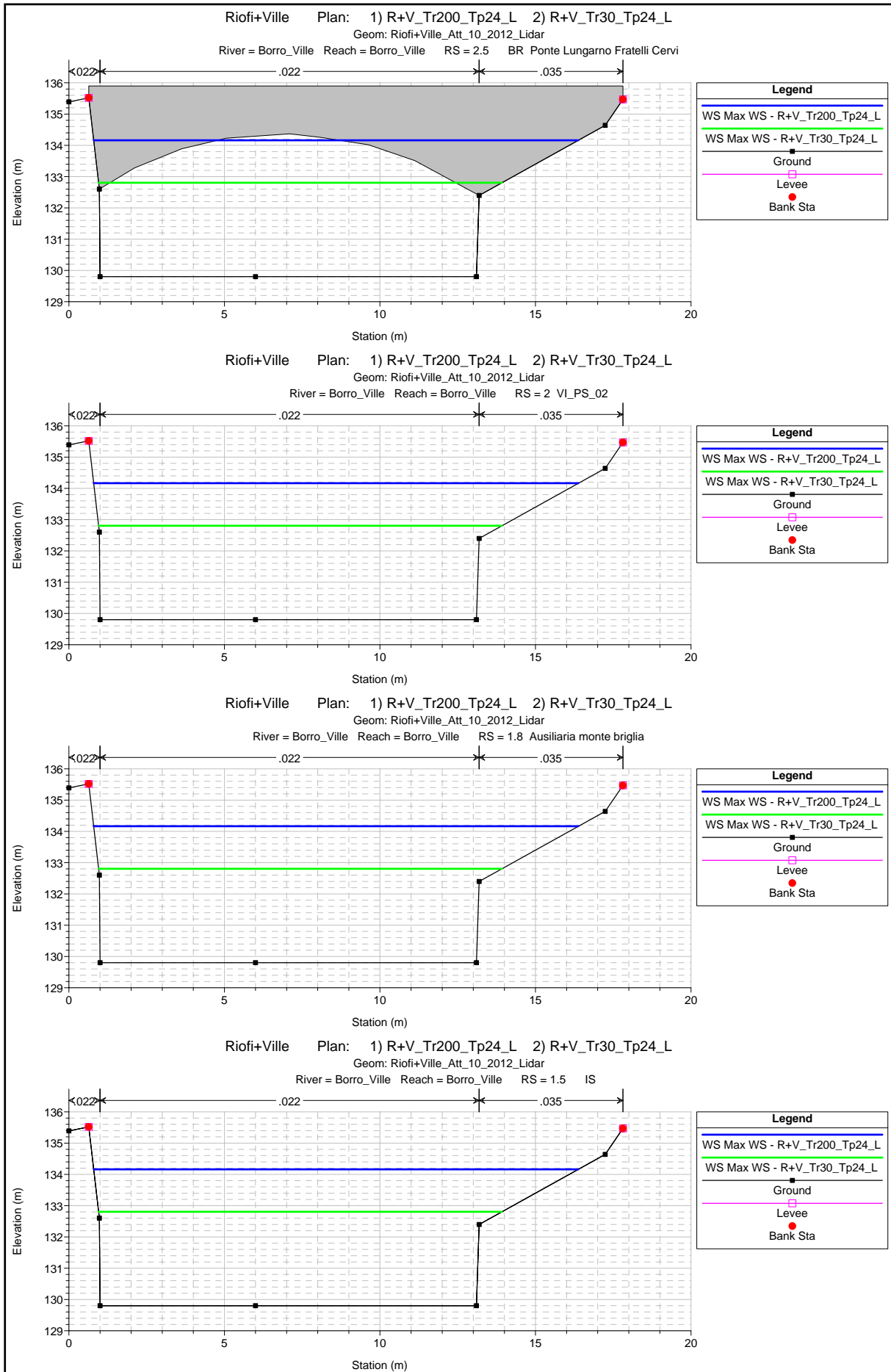


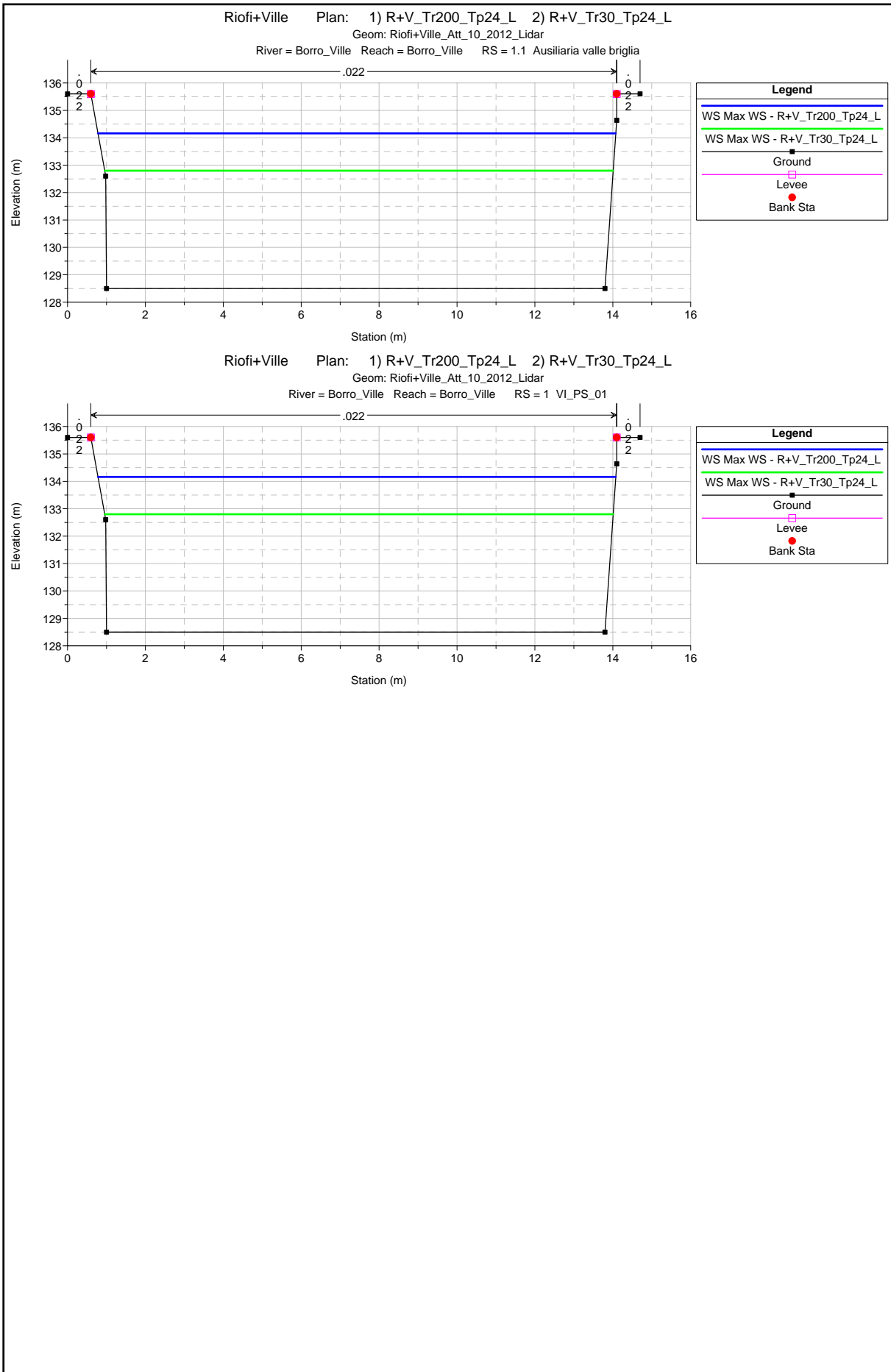












HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	32	Max WS	R+V_Tr200_Tp24_L	16.95	132.52	134.91		135.00	0.001471	1.32	12.85	8.58	0.34
Borro_Ville	32	Max WS	R+V_Tr30_Tp24_L	11.47	132.52	134.49		134.57	0.001711	1.23	9.34	8.18	0.37
Borro_Ville	31	Max WS	R+V_Tr200_Tp24_L	16.95	132.75	134.83		134.94	0.002221	1.49	11.34	8.73	0.42
Borro_Ville	31	Max WS	R+V_Tr30_Tp24_L	11.47	132.75	134.39		134.50	0.002779	1.48	7.75	7.32	0.46
Borro_Ville	30.9			Lat Struct									
Borro_Ville	30.8			Lat Struct									
Borro_Ville	30	Max WS	R+V_Tr200_Tp24_L	16.95	132.63	134.86		134.93	0.000982	1.15	14.72	8.70	0.28
Borro_Ville	30	Max WS	R+V_Tr30_Tp24_L	11.47	132.63	134.43		134.48	0.001041	1.04	11.01	8.40	0.29
Borro_Ville	29	Max WS	R+V_Tr200_Tp24_L	16.95	132.69	134.85	133.65	134.91	0.000682	1.11	15.33	7.76	0.25
Borro_Ville	29	Max WS	R+V_Tr30_Tp24_L	11.47	132.69	134.42	133.47	134.47	0.000661	0.96	11.99	7.72	0.24
Borro_Ville	28.5			Bridge									
Borro_Ville	28	Max WS	R+V_Tr200_Tp24_L	16.95	132.69	134.85		134.91	0.000688	1.11	15.29	7.76	0.25
Borro_Ville	28	Max WS	R+V_Tr30_Tp24_L	11.47	132.69	134.42		134.46	0.000668	0.96	11.95	7.72	0.25
Borro_Ville	27.9			Lat Struct									
Borro_Ville	27.8			Lat Struct									
Borro_Ville	27	Max WS	R+V_Tr200_Tp24_L	16.95	132.63	134.80		134.90	0.001501	1.35	12.60	8.61	0.36
Borro_Ville	27	Max WS	R+V_Tr30_Tp24_L	11.47	132.63	134.37		134.45	0.001633	1.26	9.10	7.48	0.36
Borro_Ville	26	Max WS	R+V_Tr200_Tp24_L	16.95	132.55	134.77		134.86	0.001553	1.35	12.53	8.62	0.36
Borro_Ville	26	Max WS	R+V_Tr30_Tp24_L	11.47	132.55	134.33		134.41	0.001716	1.28	8.99	7.45	0.37
Borro_Ville	25	Max WS	R+V_Tr200_Tp24_L	16.95	132.53	134.77	133.69	134.83	0.000952	1.13	14.97	8.80	0.28
Borro_Ville	25	Max WS	R+V_Tr30_Tp24_L	11.47	132.53	134.32	133.48	134.38	0.001017	1.03	11.16	8.42	0.28
Borro_Ville	24.5			Bridge									
Borro_Ville	24	Max WS	R+V_Tr200_Tp24_L	16.95	132.53	134.76		134.82	0.000964	1.14	14.91	8.80	0.28
Borro_Ville	24	Max WS	R+V_Tr30_Tp24_L	11.47	132.53	134.32		134.37	0.001035	1.03	11.10	8.41	0.29

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	23.9			Lat Struct									
Borro_Ville	23.8			Lat Struct									
Borro_Ville	23	Max WS	R+V_Tr200_Tp24_L	16.95	132.19	134.76		134.81	0.000566	0.92	18.34	9.84	0.22
Borro_Ville	23	Max WS	R+V_Tr30_Tp24_L	11.47	132.19	134.32		134.35	0.000567	0.82	14.01	9.57	0.22
Borro_Ville	22	Max WS	R+V_Tr200_Tp24_L	16.95	132.18	134.75		134.80	0.000706	0.98	17.34	10.54	0.24
Borro_Ville	22	Max WS	R+V_Tr30_Tp24_L	11.47	132.18	134.30		134.34	0.000738	0.89	12.87	9.46	0.24
Borro_Ville	21	Max WS	R+V_Tr200_Tp24_L	16.95	132.14	134.74		134.78	0.000553	0.91	18.66	10.75	0.22
Borro_Ville	21	Max WS	R+V_Tr30_Tp24_L	11.47	132.14	134.29		134.32	0.000527	0.81	14.14	9.49	0.21
Borro_Ville	20	Max WS	R+V_Tr200_Tp24_L	16.95	132.13	134.46	133.99	134.77	0.007119	2.48	6.84	4.49	0.64
Borro_Ville	20	Max WS	R+V_Tr30_Tp24_L	11.47	132.13	134.05	133.65	134.31	0.006882	2.24	5.12	3.99	0.63
Borro_Ville	19.5			Bridge									
Borro_Ville	19	Max WS	R+V_Tr200_Tp24_L	16.95	132.13	134.32		134.70	0.009000	2.71	6.24	4.32	0.72
Borro_Ville	19	Max WS	R+V_Tr30_Tp24_L	11.47	132.13	133.74		134.17	0.013581	2.91	3.94	3.60	0.89
Borro_Ville	18.9			Lat Struct									
Borro_Ville	18.8			Lat Struct									
Borro_Ville	18	Max WS	R+V_Tr200_Tp24_L	16.95	132.10	134.47	133.13	134.56	0.001109	1.31	12.92	6.08	0.29
Borro_Ville	18	Max WS	R+V_Tr30_Tp24_L	11.47	132.10	133.80	132.90	133.88	0.001301	1.26	9.14	5.65	0.32
Borro_Ville	17.5			Bridge									
Borro_Ville	17	Max WS	R+V_Tr200_Tp24_L	16.95	131.90	134.37		134.47	0.001110	1.39	12.17	4.94	0.28
Borro_Ville	17	Max WS	R+V_Tr30_Tp24_L	11.47	131.90	133.71		133.80	0.001223	1.29	8.90	4.94	0.31
Borro_Ville	16	Max WS	R+V_Tr200_Tp24_L	16.95	131.95	134.29	133.37	134.45	0.002454	1.77	9.56	4.79	0.40
Borro_Ville	16	Max WS	R+V_Tr30_Tp24_L	11.47	131.95	133.59	133.11	133.76	0.003906	1.84	6.24	4.72	0.51
Borro_Ville	15.5			Bridge									
Borro_Ville	15.4	Max WS	R+V_Tr200_Tp24_L	16.95	131.95	134.26		134.42	0.002557	1.80	9.42	4.79	0.41

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	15.4	Max WS	R+V_Tr30_Tp24_L	11.47	131.95	133.53		133.72	0.004525	1.93	5.94	4.72	0.55
Borro_Ville	15	Max WS	R+V_Tr200_Tp24_L	16.95	132.01	134.35		134.42	0.001074	1.12	15.15	10.27	0.29
Borro_Ville	15	Max WS	R+V_Tr30_Tp24_L	11.47	132.01	133.62		133.71	0.002471	1.36	8.40	8.05	0.43
Borro_Ville	14.9			Lat Struct									
Borro_Ville	14.8			Lat Struct									
Borro_Ville	14	Max WS	R+V_Tr200_Tp24_L	16.94	131.91	134.27		134.33	0.000964	1.10	15.40	9.59	0.28
Borro_Ville	14	Max WS	R+V_Tr30_Tp24_L	11.47	131.91	133.35		133.46	0.003331	1.53	7.49	7.53	0.49
Borro_Ville	13	Max WS	R+V_Tr200_Tp24_L	16.94	131.81	134.25		134.32	0.001041	1.15	14.70	8.08	0.27
Borro_Ville	13	Max WS	R+V_Tr30_Tp24_L	11.47	131.81	133.33		133.44	0.002821	1.47	7.78	6.85	0.44
Borro_Ville	12	Max WS	R+V_Tr200_Tp24_L	16.94	131.62	134.23		134.30	0.001104	1.16	14.56	8.06	0.28
Borro_Ville	12	Max WS	R+V_Tr30_Tp24_L	11.47	131.62	133.25		133.38	0.003329	1.56	7.38	6.64	0.47
Borro_Ville	11	Max WS	R+V_Tr200_Tp24_L	16.79	131.44	134.21		134.26	0.000765	1.00	16.81	9.69	0.24
Borro_Ville	11	Max WS	R+V_Tr30_Tp24_L	11.47	131.44	133.10		133.22	0.003897	1.59	7.22	7.72	0.52
Borro_Ville	10	Max WS	R+V_Tr200_Tp24_L	16.29	131.33	134.21		134.24	0.000533	0.84	19.43	11.67	0.21
Borro_Ville	10	Max WS	R+V_Tr30_Tp24_L	11.47	131.33	133.01		133.12	0.002987	1.45	7.92	7.73	0.46
Borro_Ville	9	Max WS	R+V_Tr200_Tp24_L	16.17	130.69	134.18		134.20	0.000213	0.59	27.31	13.76	0.13
Borro_Ville	9	Max WS	R+V_Tr30_Tp24_L	11.46	130.69	132.84		132.88	0.000933	0.95	12.10	9.04	0.26
Borro_Ville	8	Max WS	R+V_Tr200_Tp24_L	16.17	130.65	134.18	131.79	134.20	0.000253	0.65	24.85	11.92	0.14
Borro_Ville	8	Max WS	R+V_Tr30_Tp24_L	11.46	130.65	132.83	131.58	132.88	0.000720	0.93	12.26	7.38	0.23
Borro_Ville	7.5			Bridge									
Borro_Ville	7.4	Max WS	R+V_Tr200_Tp24_L	16.17	130.65	134.17		134.19	0.000255	0.65	24.78	11.90	0.14
Borro_Ville	7.4	Max WS	R+V_Tr30_Tp24_L	11.46	130.65	132.82		132.87	0.000731	0.94	12.20	7.37	0.23
Borro_Ville	7	Max WS	R+V_Tr200_Tp24_L	16.17	130.65	134.16		134.19	0.000284	0.73	22.02	9.19	0.15
Borro_Ville	7	Max WS	R+V_Tr30_Tp24_L	11.46	130.65	132.81		132.87	0.001019	1.06	10.84	7.27	0.28
Borro_Ville	6	Max WS	R+V_Tr200_Tp24_L	16.16	130.26	134.16	131.52	134.18	0.000199	0.60	27.07	10.22	0.12

HEC-RAS River: Borro\_Ville Reach: Borro\_Ville Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Borro_Ville	6	Max WS	R+V_Tr30_Tp24_L	11.46	130.26	132.80	131.33	132.84	0.000522	0.78	14.65	8.06	0.19
Borro_Ville	5.9		Bridge										
Borro_Ville	5.8	Max WS	R+V_Tr200_Tp24_L	16.17	130.26	134.16		134.18	0.000200	0.60	27.06	10.22	0.12
Borro_Ville	5.8	Max WS	R+V_Tr30_Tp24_L	11.46	130.26	132.80		132.83	0.000523	0.78	14.63	8.06	0.19
Borro_Ville	5	Max WS	R+V_Tr200_Tp24_L	16.16	130.03	134.16		134.17	0.000069	0.42	38.15	13.00	0.08
Borro_Ville	5	Max WS	R+V_Tr30_Tp24_L	11.45	130.03	132.80		132.82	0.000158	0.52	22.08	10.60	0.11
Borro_Ville	4	Max WS	R+V_Tr200_Tp24_L	16.15	129.85	134.16		134.17	0.000043	0.35	46.17	14.76	0.06
Borro_Ville	4	Max WS	R+V_Tr30_Tp24_L	11.44	129.85	132.80		132.81	0.000088	0.41	27.81	12.18	0.09
Borro_Ville	3	Max WS	R+V_Tr200_Tp24_L	16.15	129.80	134.16	130.69	134.17	0.000035	0.32	50.09	15.58	0.06
Borro_Ville	3	Max WS	R+V_Tr30_Tp24_L	11.44	129.80	132.80	130.53	132.81	0.000069	0.37	30.64	12.96	0.08
Borro_Ville	2.5		Bridge										
Borro_Ville	2	Max WS	R+V_Tr200_Tp24_L	16.15	129.80	134.16		134.17	0.000015	0.29	56.10	15.58	0.05
Borro_Ville	2	Max WS	R+V_Tr30_Tp24_L	11.44	129.80	132.80		132.81	0.000020	0.31	36.67	12.96	0.06
Borro_Ville	1.8	Max WS	R+V_Tr200_Tp24_L	16.15	129.80	134.16	130.37	134.17	0.000015	0.29	56.10	15.58	0.05
Borro_Ville	1.8	Max WS	R+V_Tr30_Tp24_L	11.44	129.80	132.80	130.25	132.81	0.000020	0.31	36.67	12.96	0.06
Borro_Ville	1.5		Inl Struct										
Borro_Ville	1.1	Max WS	R+V_Tr200_Tp24_L	16.15	128.50	134.16		134.16	0.000005	0.22	73.46	13.29	0.03
Borro_Ville	1.1	Max WS	R+V_Tr30_Tp24_L	11.44	128.50	132.80		132.80	0.000006	0.21	55.54	13.06	0.03
Borro_Ville	1	Max WS	R+V_Tr200_Tp24_L	16.14	128.50	134.16	129.05	134.16	0.000005	0.22	73.46	13.29	0.03
Borro_Ville	1	Max WS	R+V_Tr30_Tp24_L	11.44	128.50	132.80	128.93	132.80	0.000006	0.21	55.54	13.06	0.03



# **VERIFICHE IDRAULICHE**

## **STATO ATTUALE**

- **Borro Pruneto**
- **Fosso 1**
- **Fosso 2**

# **VERIFICHE IDRAULICHE**

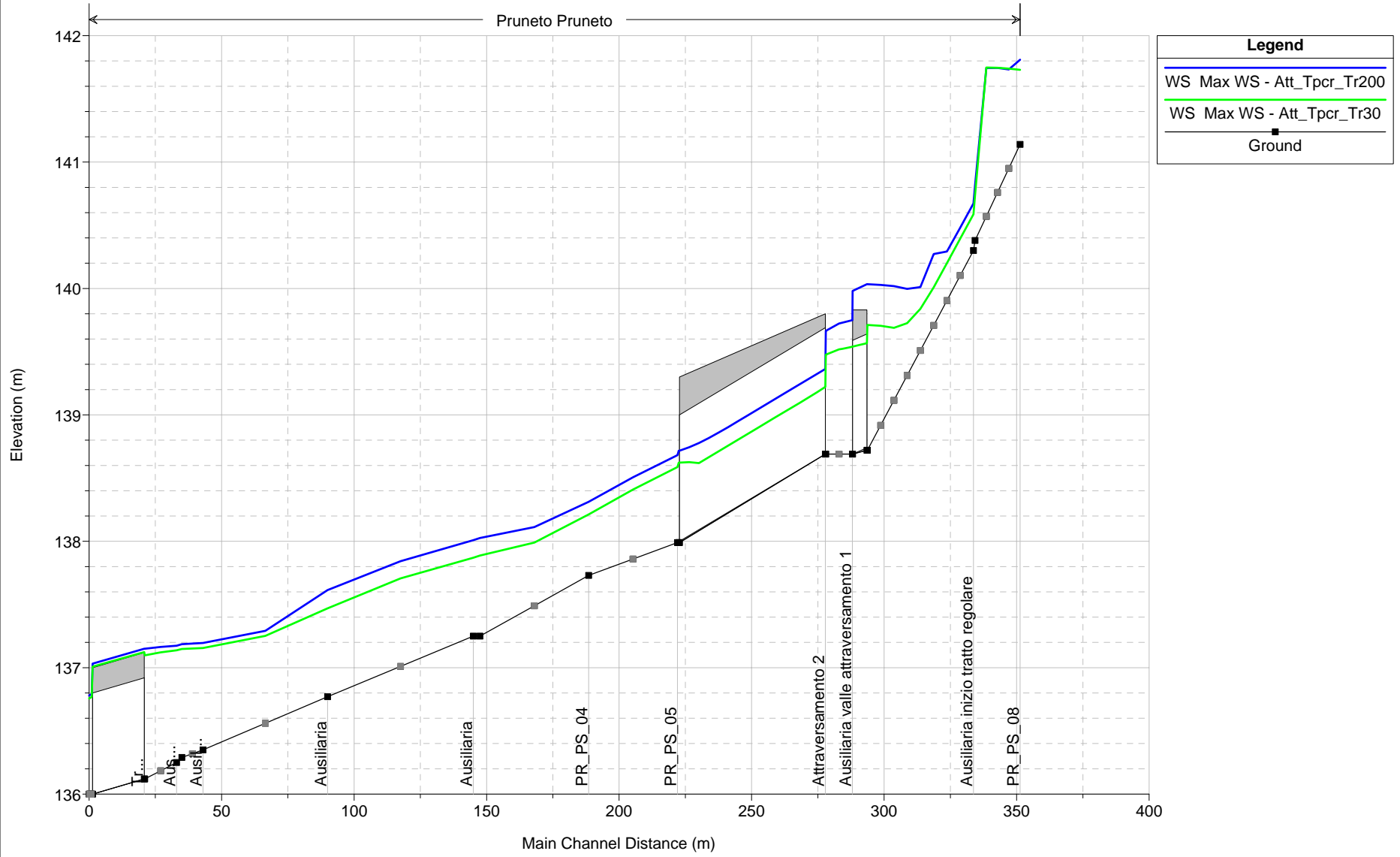
## **STATO ATTUALE**

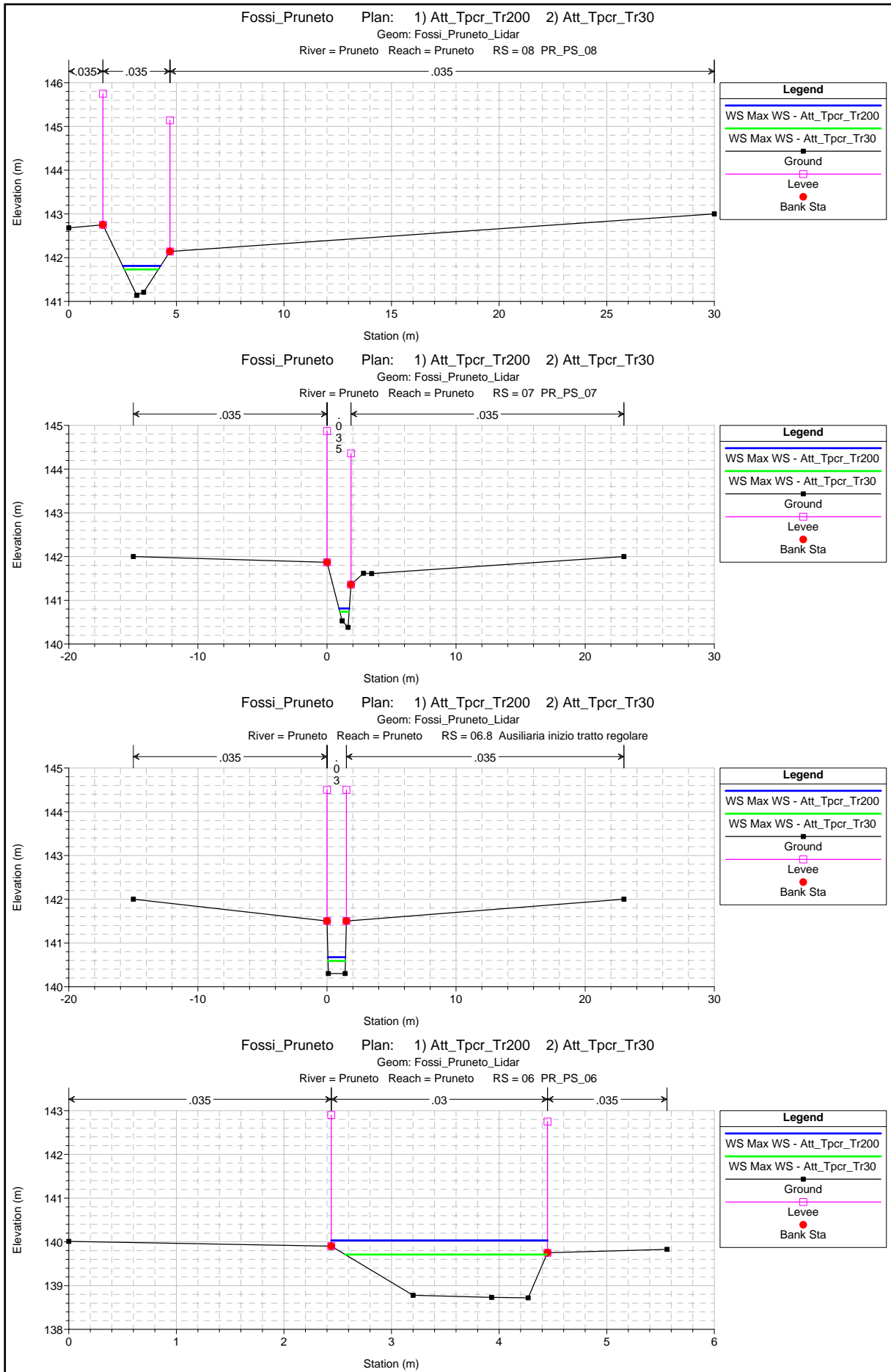
### **BORRO PRUNETO**

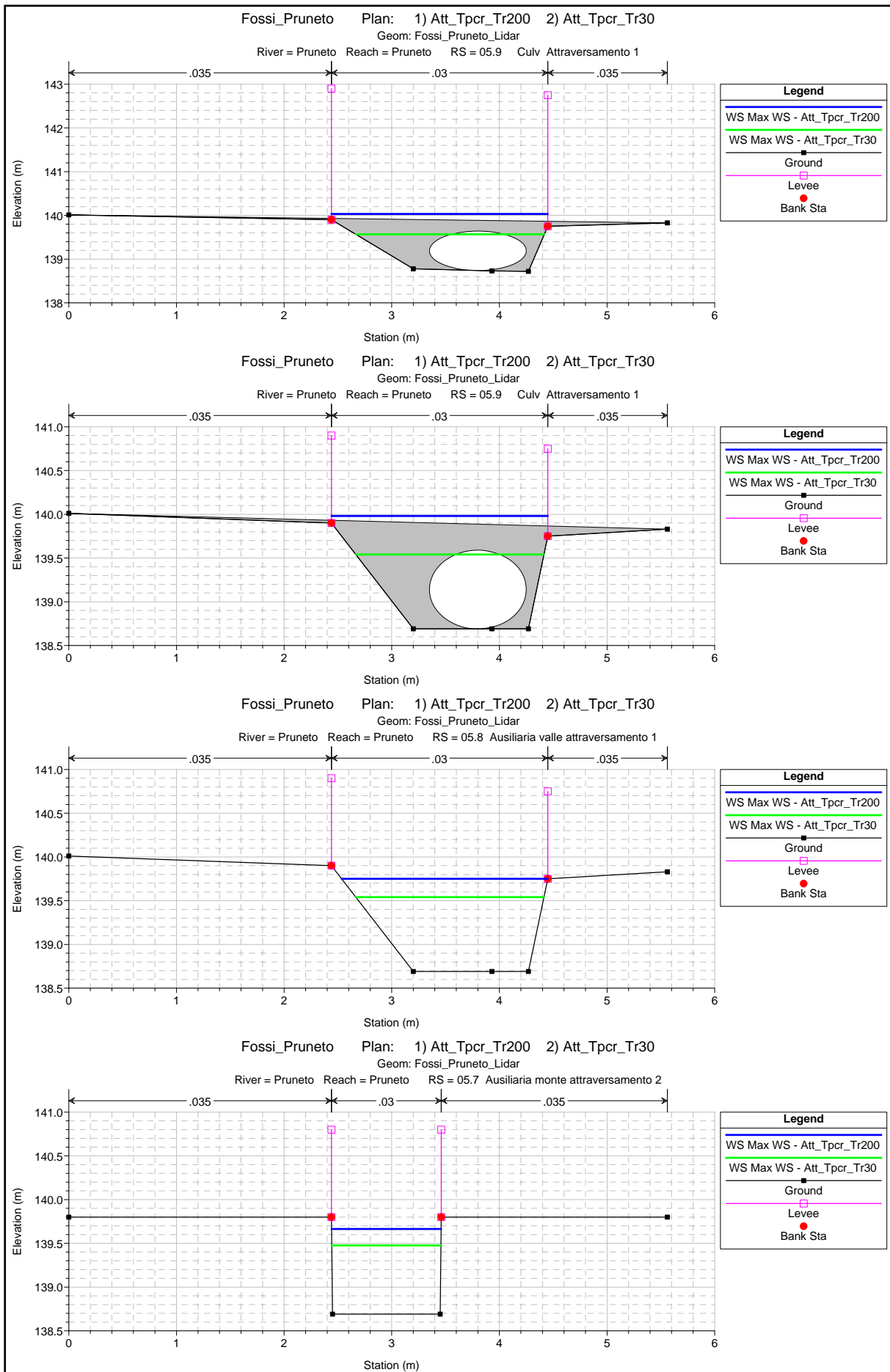
#### **Scenario A1 - Tr 200 e 30 anni**

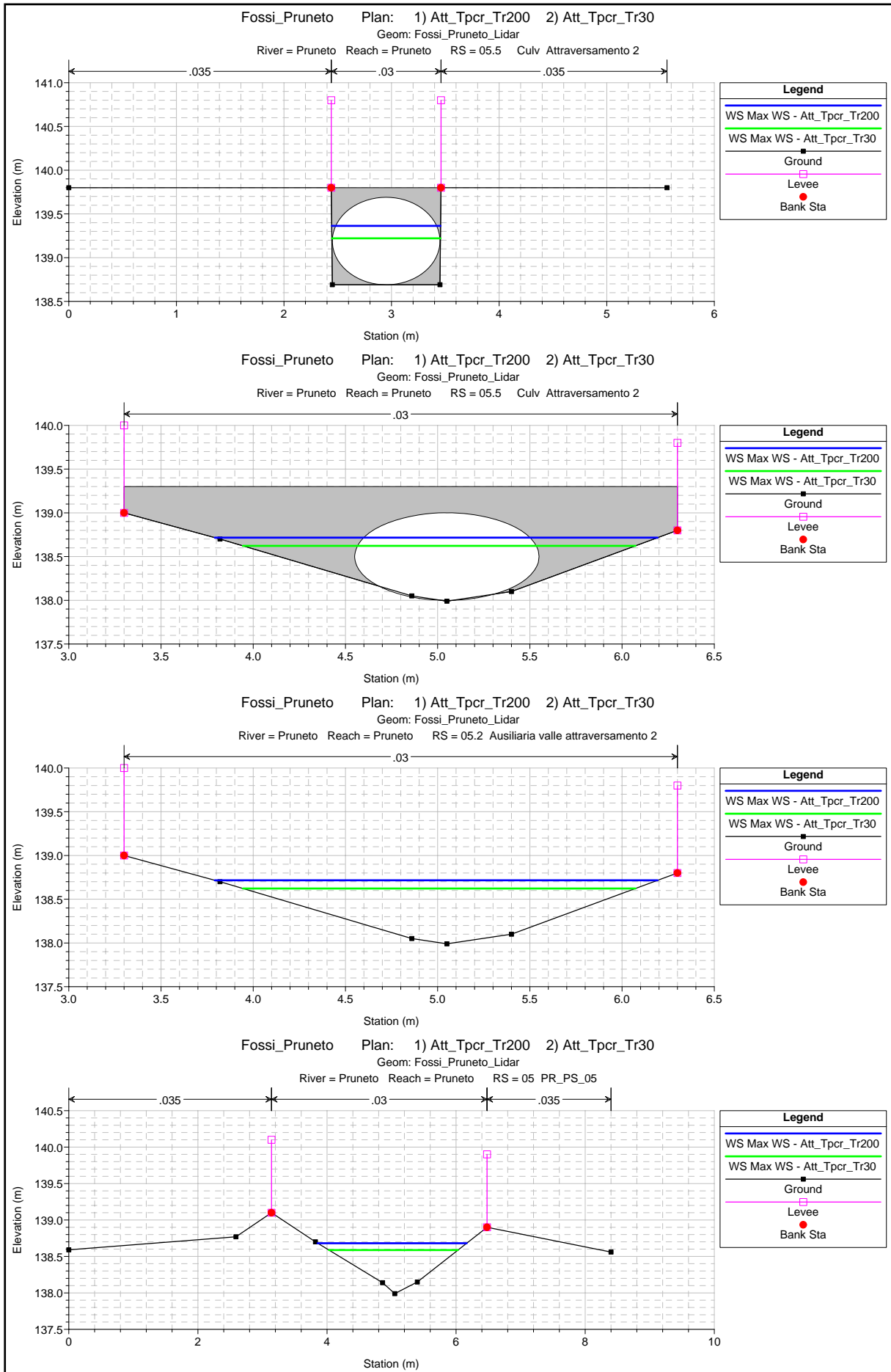
- Profili
- Sezioni di verifica
- Tabelle di output

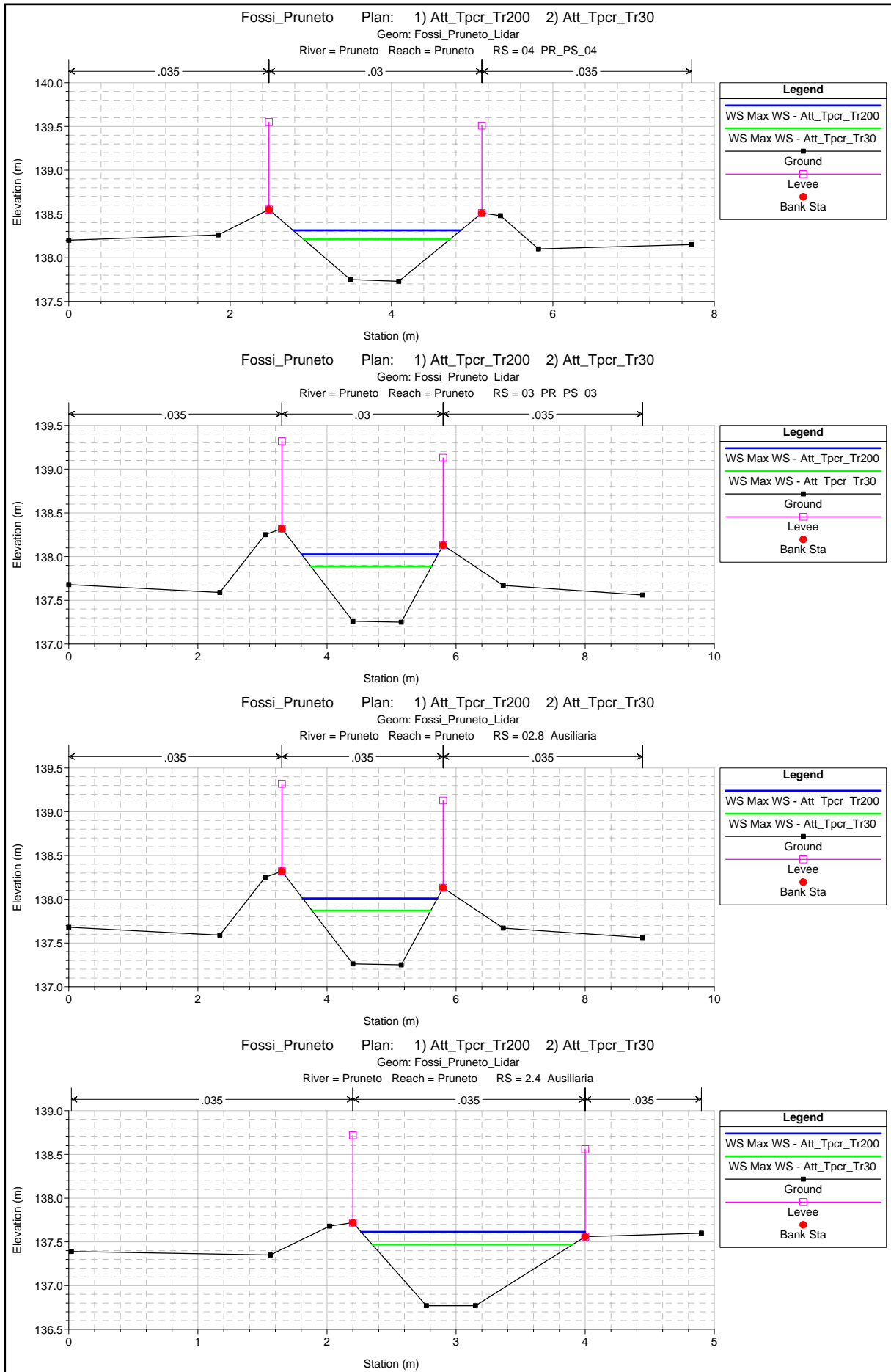
Fossi\_Pruneto Plan: 1) Att\_Tpcr\_Tr200 2) Att\_Tpcr\_Tr30  
 Geom: Fossi\_Pruneto\_Lidar

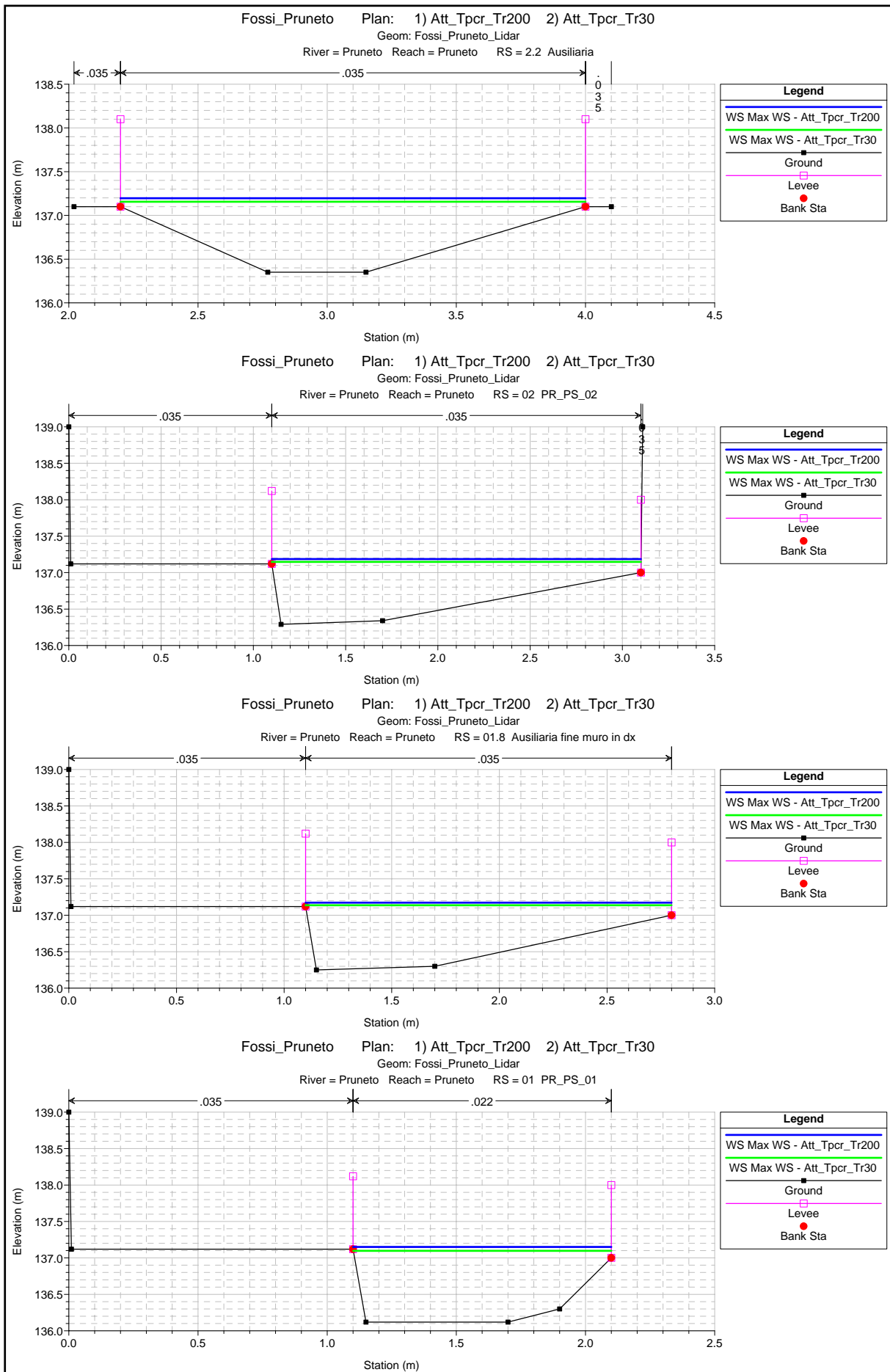




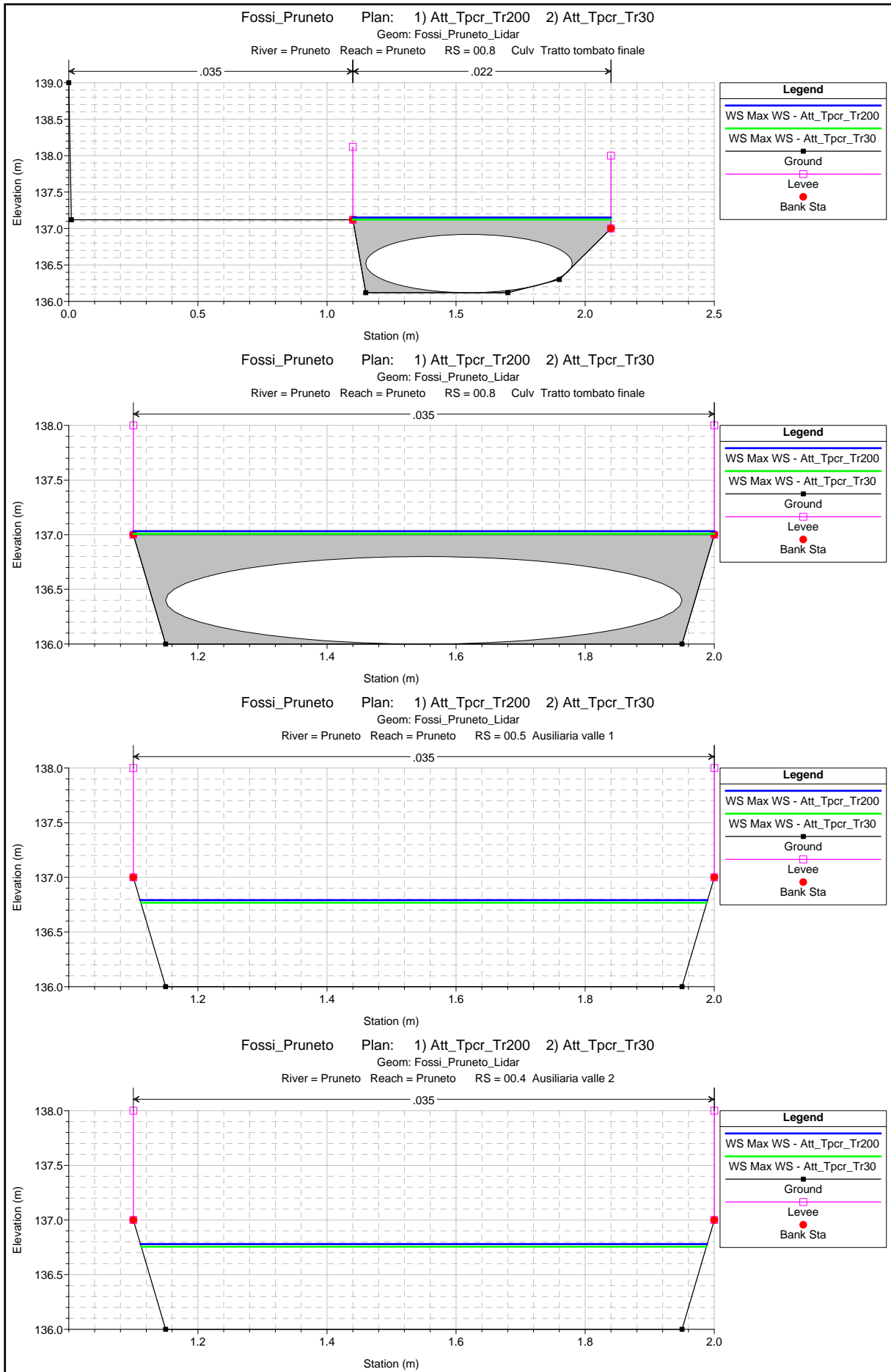












HEC-RAS River: Pruneto Reach: Pruneto Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Pruneto	08	Max WS	Att_Tpocr_Tr200	1.27	141.14	141.81	141.81	142.00	0.023521	1.93	0.66	1.76	1.01
Pruneto	08	Max WS	Att_Tpocr_Tr30	0.87	141.14	141.73		141.87	0.020199	1.66	0.52	1.58	0.92
Pruneto	07	Max WS	Att_Tpocr_Tr200	1.27	140.38	140.81	141.18	142.51	0.437431	5.78	0.22	0.80	3.52
Pruneto	07	Max WS	Att_Tpocr_Tr30	0.87	140.38	140.74	141.04	142.21	0.468184	5.38	0.16	0.72	3.62
Pruneto	06.8	Max WS	Att_Tpocr_Tr200	1.27	140.30	140.67	140.76	141.01	0.038997	2.56	0.50	1.36	1.35
Pruneto	06.8	Max WS	Att_Tpocr_Tr30	0.87	140.30	140.59	140.66	140.85	0.039292	2.28	0.38	1.35	1.37
Pruneto	06	Max WS	Att_Tpocr_Tr200	1.26	138.72	140.03		140.05	0.000805	0.62	2.05	2.01	0.20
Pruneto	06	Max WS	Att_Tpocr_Tr30	0.87	138.72	139.71		139.73	0.001011	0.61	1.41	1.88	0.23
Pruneto	05.9			Culvert									
Pruneto	05.8	Max WS	Att_Tpocr_Tr200	1.26	138.69	139.75		139.78	0.001592	0.80	1.58	1.92	0.28
Pruneto	05.8	Max WS	Att_Tpocr_Tr30	0.87	138.69	139.54		139.57	0.001566	0.73	1.20	1.75	0.28
Pruneto	5.79			Lat Struct									
Pruneto	5.78			Lat Struct									
Pruneto	05.7	Max WS	Att_Tpocr_Tr200	1.26	138.69	139.66		139.75	0.006431	1.29	0.98	1.02	0.42
Pruneto	05.7	Max WS	Att_Tpocr_Tr30	0.87	138.69	139.48		139.54	0.005180	1.09	0.79	1.01	0.40
Pruneto	05.5			Culvert									
Pruneto	05.2	Max WS	Att_Tpocr_Tr200	1.26	137.99	138.72		138.80	0.006421	1.31	0.97	2.40	0.66
Pruneto	05.2	Max WS	Att_Tpocr_Tr30	0.87	137.99	138.62		138.69	0.005840	1.15	0.75	2.13	0.61
Pruneto	05	Max WS	Att_Tpocr_Tr200	1.26	137.99	138.68		138.81	0.011036	1.57	0.81	2.31	0.85
Pruneto	05	Max WS	Att_Tpocr_Tr30	0.87	137.99	138.59		138.69	0.011263	1.43	0.60	2.00	0.83
Pruneto	4.9			Lat Struct									
Pruneto	4.8			Lat Struct									
Pruneto	04	Max WS	Att_Tpocr_Tr200	1.26	137.73	138.31		138.45	0.011572	1.64	0.77	2.08	0.86
Pruneto	04	Max WS	Att_Tpocr_Tr30	0.86	137.73	138.21		138.33	0.011923	1.51	0.57	1.82	0.86

HEC-RAS River: Pruneto Reach: Pruneto Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Pruneto	03	Max WS	Att_Tpcr_Tr200	1.26	137.25	138.03		138.09	0.004063	1.14	1.10	2.12	0.50
Pruneto	03	Max WS	Att_Tpcr_Tr30	0.86	137.25	137.89		137.94	0.004100	1.04	0.83	1.87	0.50
Pruneto	02.8	Max WS	Att_Tpcr_Tr200	1.26	137.25	138.01		138.08	0.006039	1.18	1.07	2.09	0.52
Pruneto	02.8	Max WS	Att_Tpcr_Tr30	0.86	137.25	137.87		137.93	0.006209	1.08	0.80	1.84	0.52
Pruneto	2.4	Max WS	Att_Tpcr_Tr200	1.24	136.77	137.61		137.71	0.008977	1.36	0.92	1.74	0.60
Pruneto	2.4	Max WS	Att_Tpcr_Tr30	0.86	136.77	137.47		137.55	0.009619	1.27	0.68	1.55	0.61
Pruneto	2.2	Max WS	Att_Tpcr_Tr200	0.91	136.35	137.20		137.24	0.003862	0.92	0.99	1.80	0.40
Pruneto	2.2	Max WS	Att_Tpcr_Tr30	0.77	136.35	137.16		137.19	0.003396	0.84	0.92	1.80	0.37
Pruneto	02	Max WS	Att_Tpcr_Tr200	0.91	136.29	137.19		137.21	0.002424	0.74	1.23	2.00	0.30
Pruneto	02	Max WS	Att_Tpcr_Tr30	0.77	136.29	137.15		137.17	0.002073	0.67	1.15	2.00	0.28
Pruneto	01.8	Max WS	Att_Tpcr_Tr200	0.91	136.25	137.17		137.21	0.003202	0.83	1.09	1.70	0.33
Pruneto	01.8	Max WS	Att_Tpcr_Tr30	0.77	136.25	137.14		137.17	0.002669	0.74	1.03	1.70	0.30
Pruneto	1.78			Lat Struct									
Pruneto	01	Max WS	Att_Tpcr_Tr200	0.79	136.12	137.15		137.19	0.001778	0.90	0.88	1.00	0.31
Pruneto	01	Max WS	Att_Tpcr_Tr30	0.76	136.12	137.10		137.14	0.001909	0.92	0.83	1.00	0.32
Pruneto	00.8			Culvert									
Pruneto	00.5	Max WS	Att_Tpcr_Tr200	0.79	136.00	136.79		136.86	0.009606	1.19	0.66	0.88	0.44
Pruneto	00.5	Max WS	Att_Tpcr_Tr30	0.76	136.00	136.77		136.84	0.009591	1.18	0.64	0.88	0.44
Pruneto	00.4	Max WS	Att_Tpcr_Tr200	0.79	136.00	136.78	136.46	136.85	0.010002	1.21	0.65	0.88	0.45
Pruneto	00.4	Max WS	Att_Tpcr_Tr30	0.76	136.00	136.76	136.45	136.83	0.010000	1.20	0.63	0.88	0.45

# **VERIFICHE IDRAULICHE**

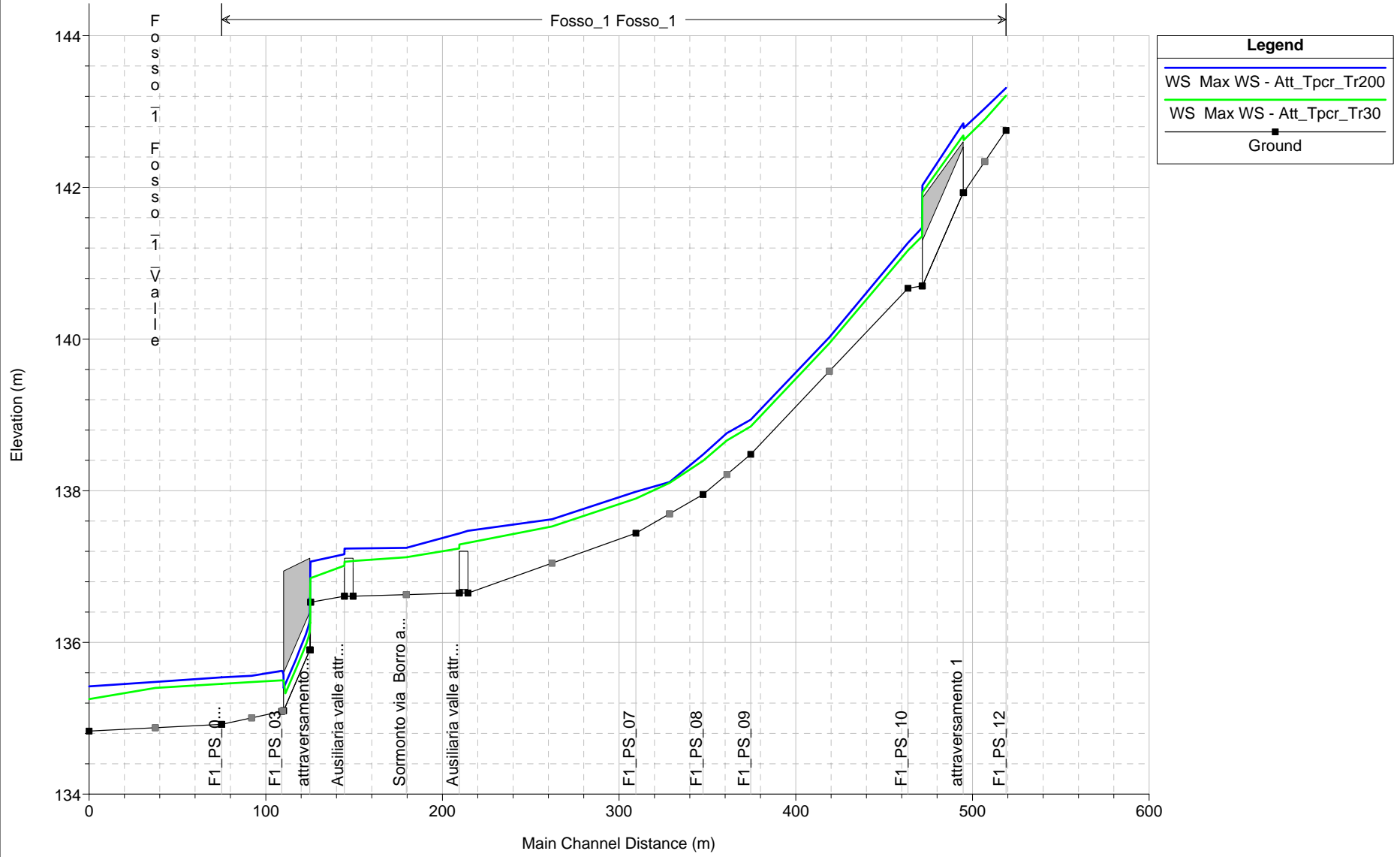
## **STATO ATTUALE**

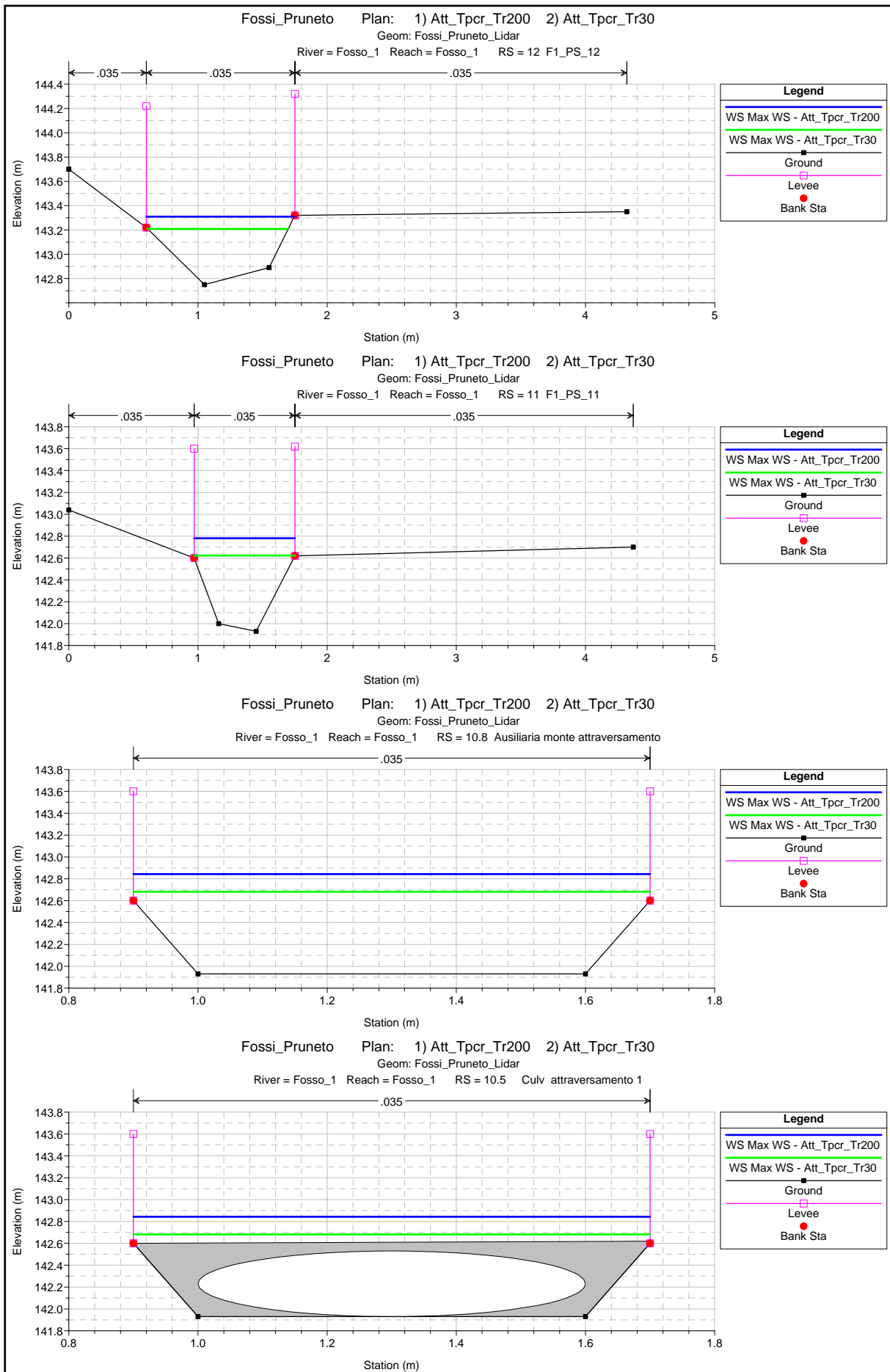
### **FOSSO 1**

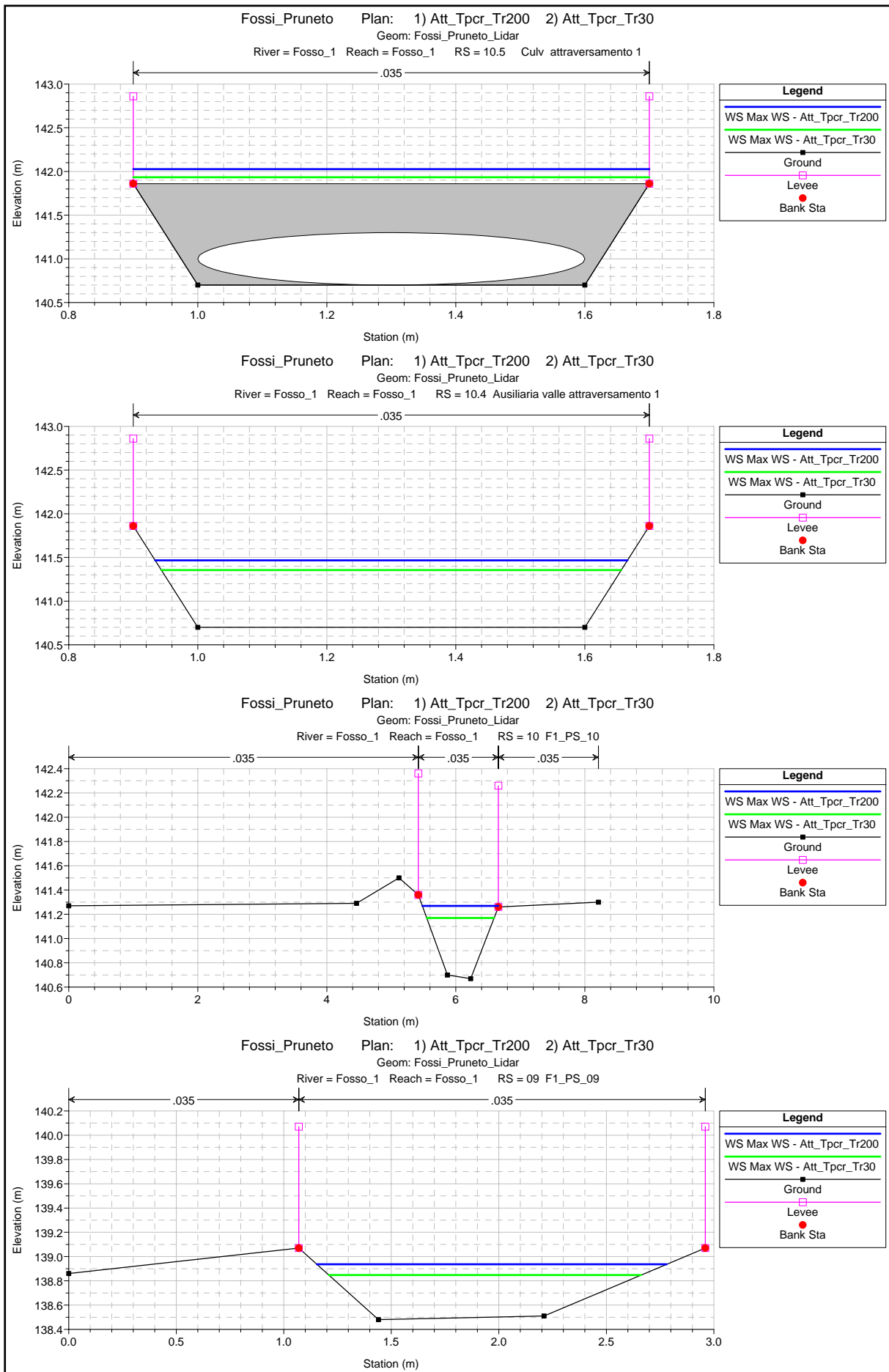
#### **Scenario A1 - Tr 200 e 30 anni**

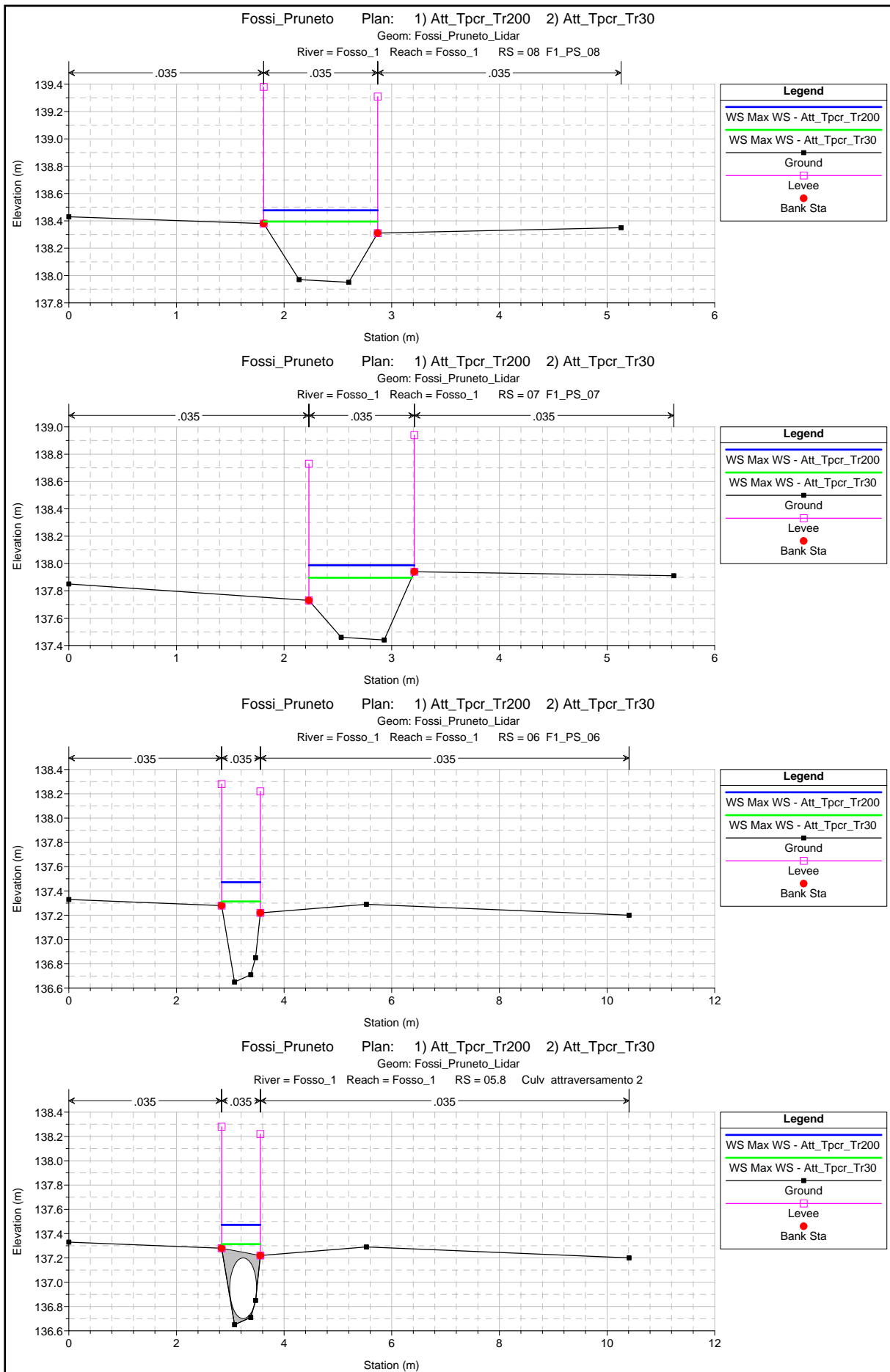
- Profili
- Sezioni di verifica
- Tabelle di output

Fossi\_Pruneto Plan: 1) Att\_Tpcr\_Tr200 2) Att\_Tpcr\_Tr30  
 Geom: Fossi\_Pruneto\_Lidar

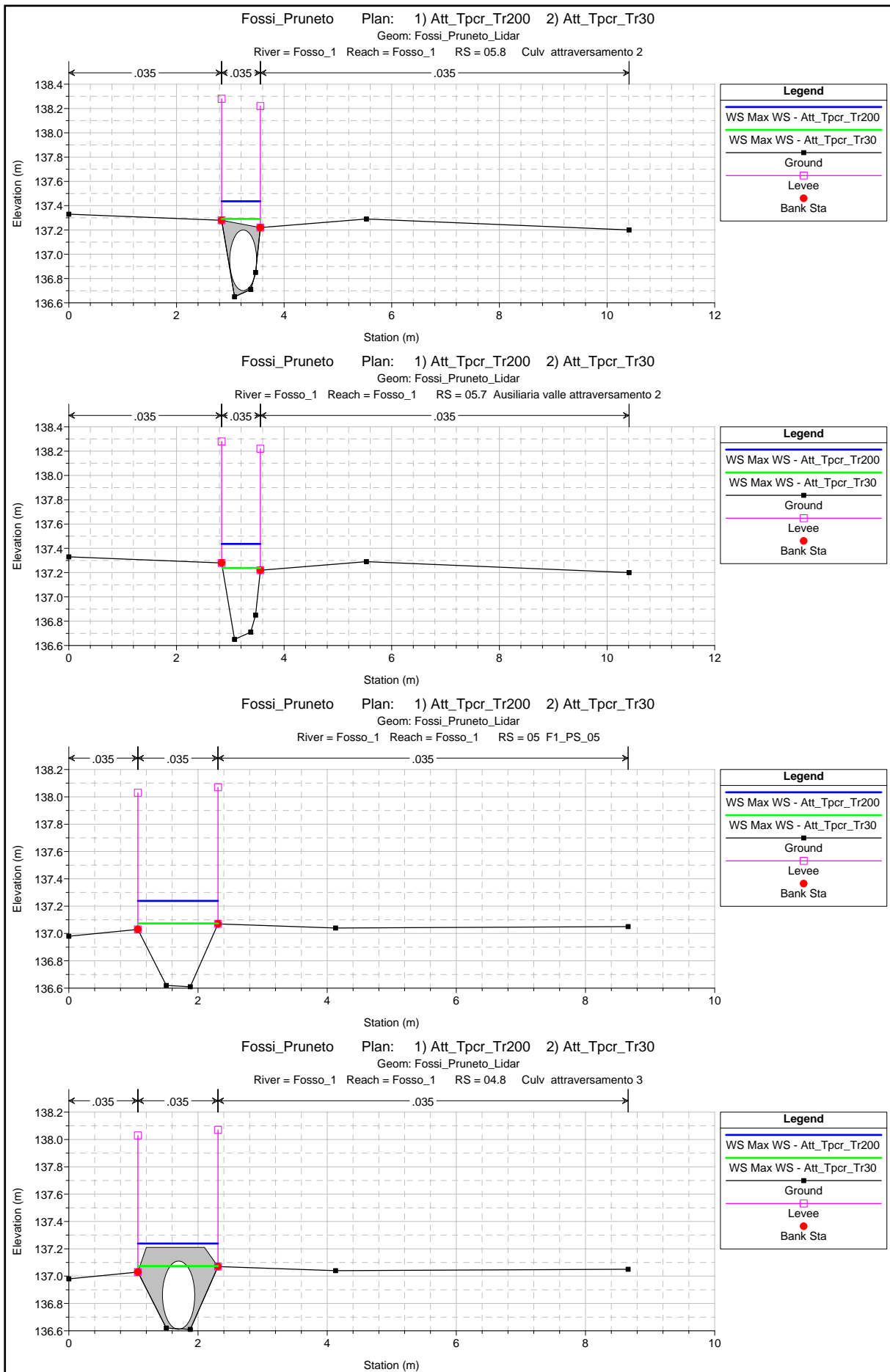


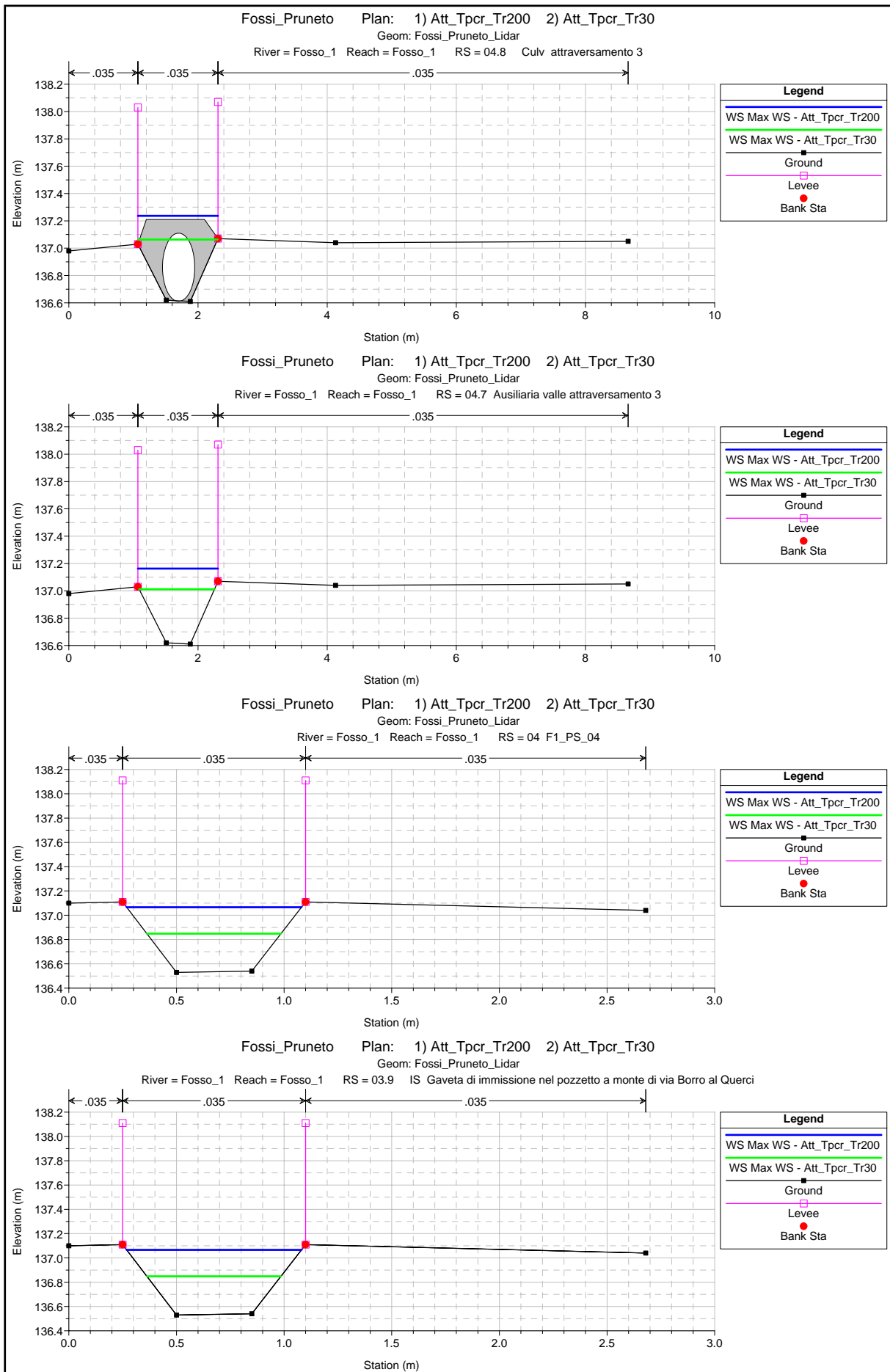


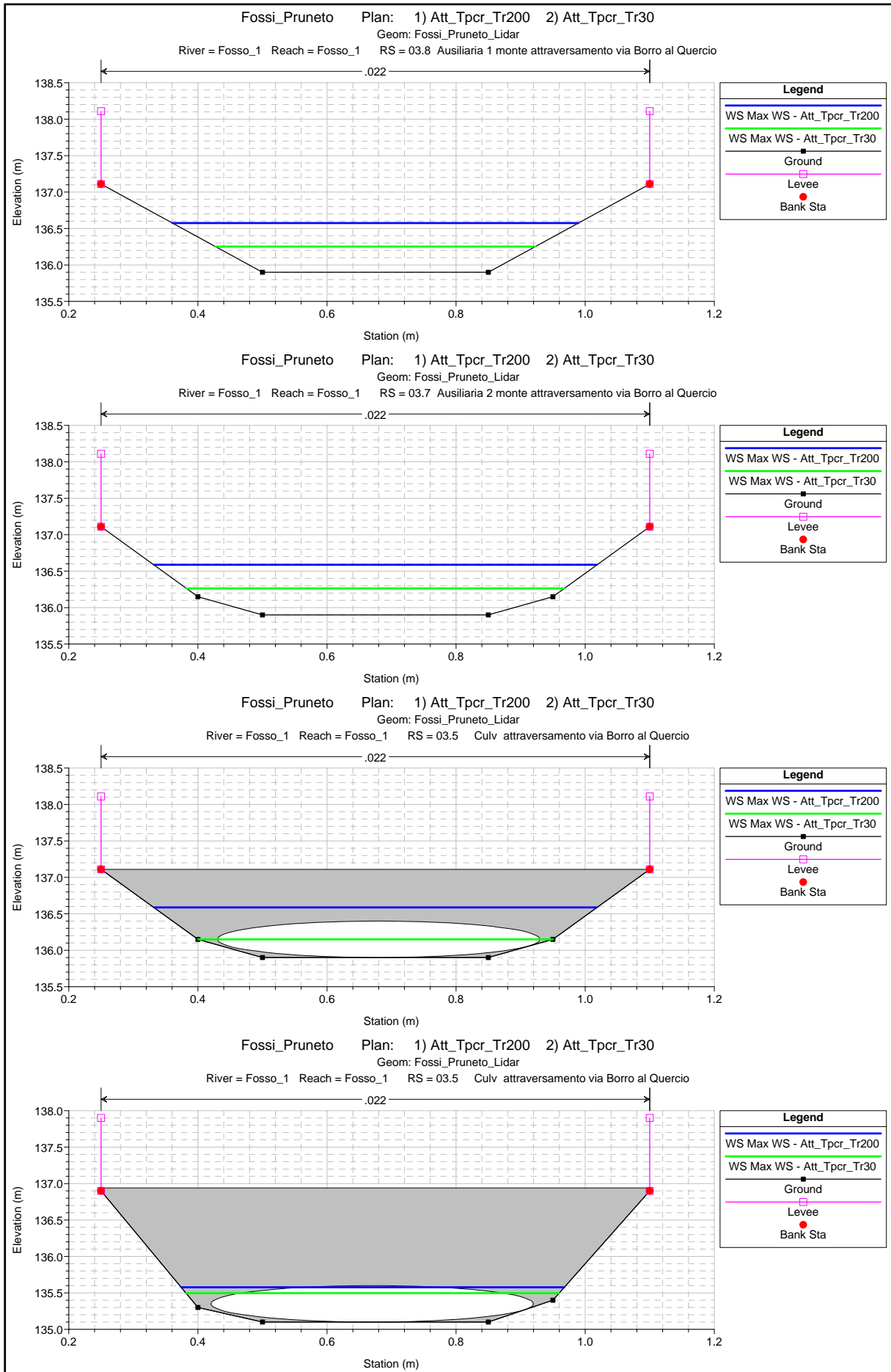


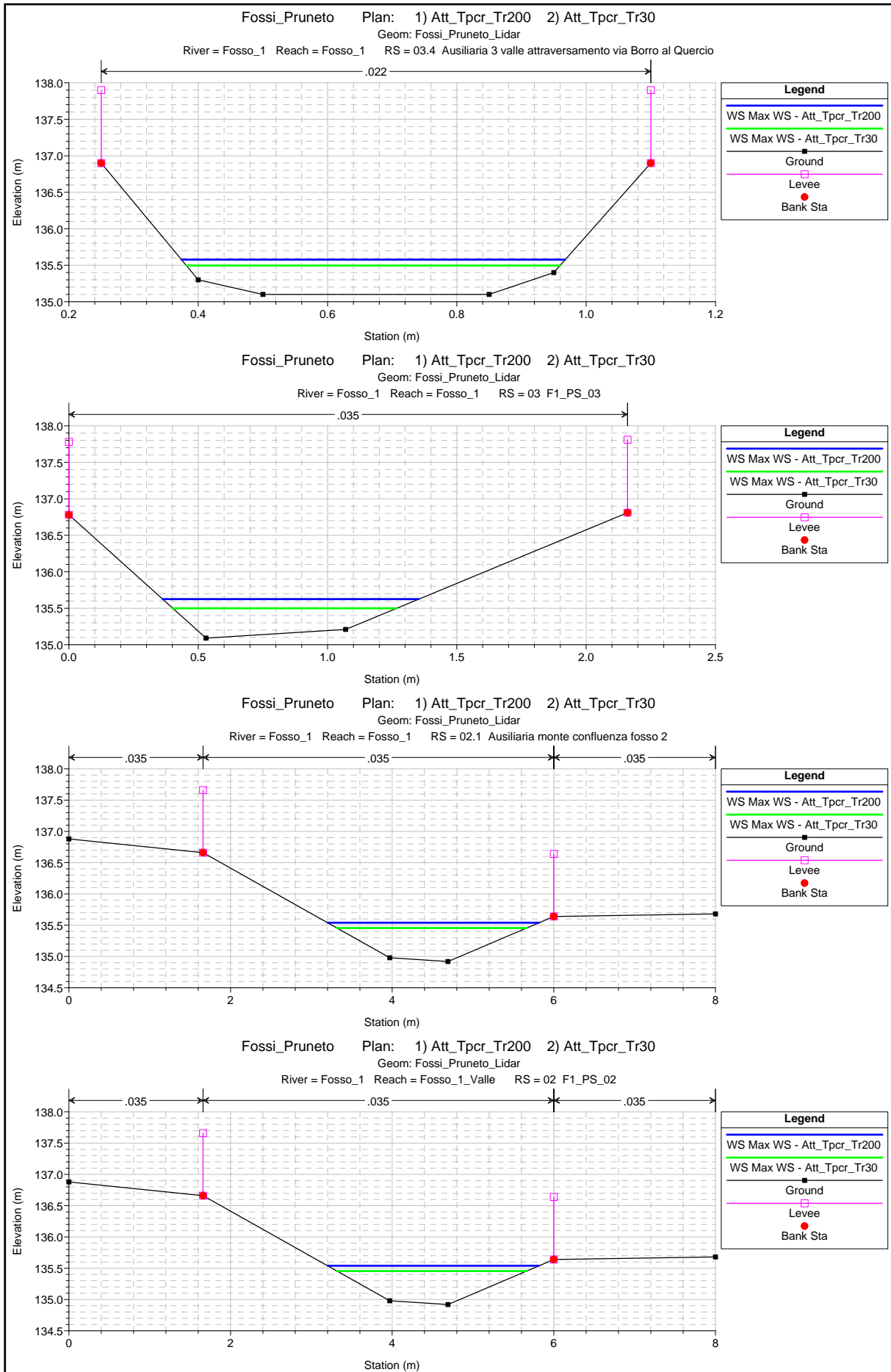


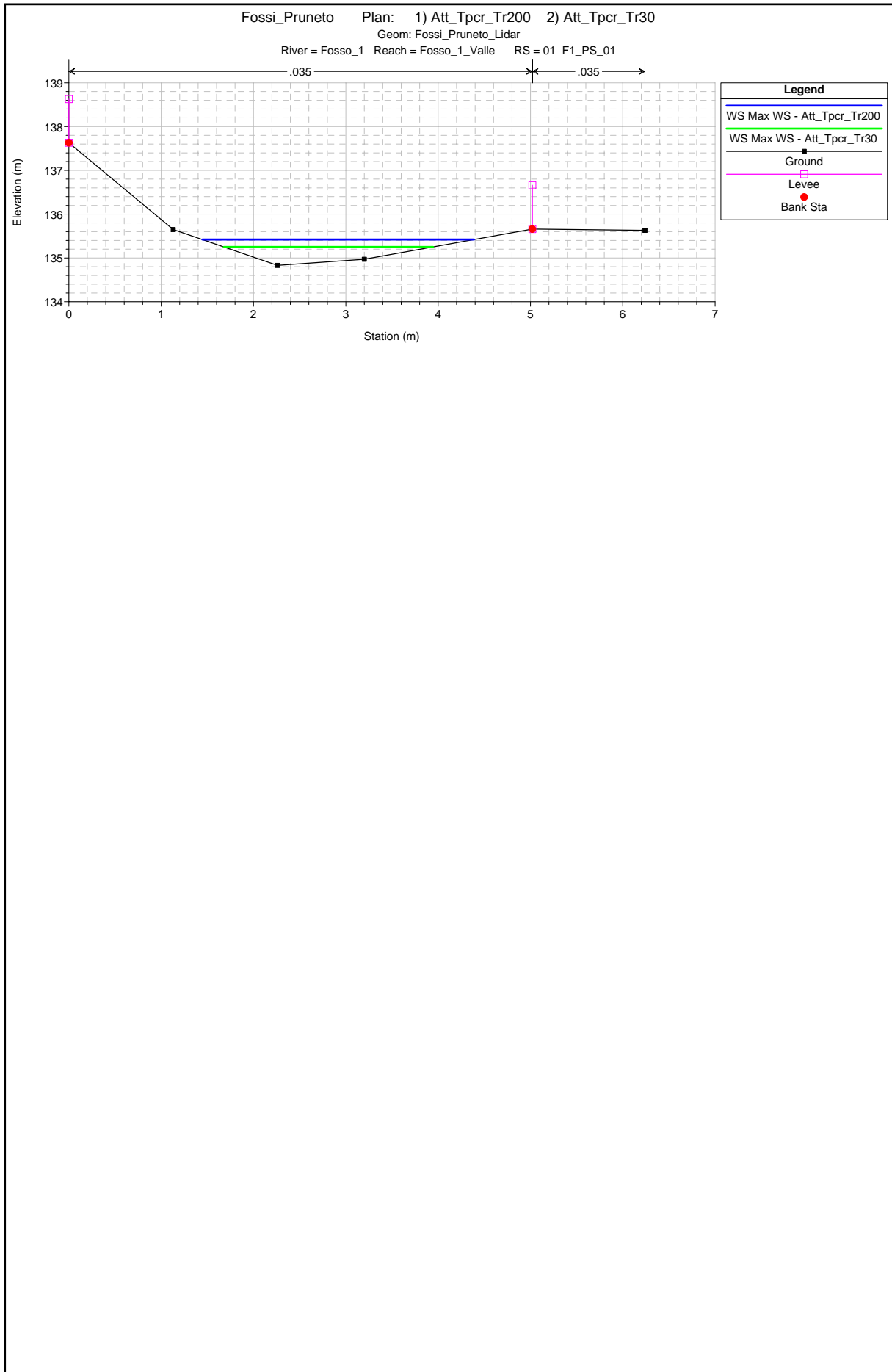












HEC-RAS Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fosso_1	12	Max WS	Att_Tpcr_Tr200	0.80	142.75	143.31	143.30	143.48	0.026546	1.85	0.43	1.15	0.96
Fosso_1	12	Max WS	Att_Tpcr_Tr30	0.55	142.75	143.21	143.21	143.36	0.028848	1.72	0.32	1.09	1.02
Fosso_1	11	Max WS	Att_Tpcr_Tr200	0.80	141.93	142.78		142.92	0.023034	1.66	0.48	0.78	0.68
Fosso_1	11	Max WS	Att_Tpcr_Tr30	0.55	141.93	142.62		142.74	0.023400	1.54	0.36	0.78	0.73
Fosso_1	10.8	Max WS	Att_Tpcr_Tr200	0.80	141.93	142.84		142.92	0.010059	1.20	0.66	0.80	0.42
Fosso_1	10.8	Max WS	Att_Tpcr_Tr30	0.55	141.93	142.68		142.74	0.008063	1.02	0.53	0.80	0.40
Fosso_1	10.5			Culvert									
Fosso_1	10.4	Max WS	Att_Tpcr_Tr200	0.80	140.70	141.47		141.59	0.020176	1.56	0.51	0.73	0.60
Fosso_1	10.4	Max WS	Att_Tpcr_Tr30	0.55	140.70	141.35		141.44	0.014592	1.27	0.43	0.71	0.52
Fosso_1	10	Max WS	Att_Tpcr_Tr200	0.80	140.67	141.27		141.43	0.023853	1.76	0.45	1.18	0.91
Fosso_1	10	Max WS	Att_Tpcr_Tr30	0.55	140.67	141.17		141.30	0.023849	1.61	0.34	1.04	0.90
Fosso_1	09	Max WS	Att_Tpcr_Tr200	0.79	138.48	138.94		139.05	0.016537	1.50	0.53	1.63	0.84
Fosso_1	09	Max WS	Att_Tpcr_Tr30	0.54	138.48	138.85		138.95	0.017945	1.40	0.39	1.45	0.86
Fosso_1	08	Max WS	Att_Tpcr_Tr200	0.80	137.95	138.48		138.65	0.026190	1.85	0.43	1.06	0.93
Fosso_1	08	Max WS	Att_Tpcr_Tr30	0.54	137.95	138.39		138.52	0.022511	1.58	0.34	1.06	0.89
Fosso_1	7.9			Lat Struct									
Fosso_1	7.8			Lat Struct									
Fosso_1	07	Max WS	Att_Tpcr_Tr200	0.33	137.44	137.99		138.02	0.005096	0.80	0.42	0.98	0.39
Fosso_1	07	Max WS	Att_Tpcr_Tr30	0.33	137.44	137.90		137.95	0.009687	1.02	0.33	0.96	0.56
Fosso_1	06	Max WS	Att_Tpcr_Tr200	0.28	136.65	137.47		137.49	0.003035	0.60	0.46	0.72	0.24
Fosso_1	06	Max WS	Att_Tpcr_Tr30	0.19	136.65	137.31		137.33	0.002927	0.55	0.35	0.72	0.25
Fosso_1	05.8			Culvert									
Fosso_1	05.7	Max WS	Att_Tpcr_Tr200	0.28	136.65	137.44		137.46	0.003494	0.63	0.44	0.72	0.26
Fosso_1	05.7	Max WS	Att_Tpcr_Tr30	0.19	136.65	137.24		137.26	0.004506	0.65	0.29	0.70	0.32
Fosso_1	5.69			Lat Struct									

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fosso_1	5.68			Lat Struct									
Fosso_1	05	Max WS	Att_Tpcr_Tr200	0.23	136.61	137.24		137.25	0.000936	0.39	0.58	1.24	0.18
Fosso_1	05	Max WS	Att_Tpcr_Tr30	0.14	136.61	137.07		137.08	0.001104	0.36	0.38	1.24	0.21
Fosso_1	04.8			Culvert									
Fosso_1	04.7	Max WS	Att_Tpcr_Tr200	0.23	136.61	137.16		137.17	0.001515	0.46	0.49	1.24	0.23
Fosso_1	04.7	Max WS	Att_Tpcr_Tr30	0.14	136.61	137.01		137.02	0.002024	0.45	0.30	1.17	0.28
Fosso_1	4.69			Lat Struct									
Fosso_1	4.68			Lat Struct									
Fosso_1	04	Max WS	Att_Tpcr_Tr200	0.35	136.53	137.07	136.93	137.13	0.012751	1.12	0.31	0.81	0.58
Fosso_1	04	Max WS	Att_Tpcr_Tr30	0.14	136.53	136.85	136.76	136.89	0.012365	0.89	0.15	0.62	0.57
Fosso_1	03.9			Inl Struct									
Fosso_1	03.8	Max WS	Att_Tpcr_Tr200	0.35	135.90	136.58		136.63	0.004807	1.05	0.33	0.63	0.46
Fosso_1	03.8	Max WS	Att_Tpcr_Tr30	0.14	135.90	136.25		136.29	0.005537	0.91	0.15	0.50	0.53
Fosso_1	03.7	Max WS	Att_Tpcr_Tr200	0.35	135.90	136.59		136.63	0.003075	0.91	0.38	0.69	0.39
Fosso_1	03.7	Max WS	Att_Tpcr_Tr30	0.14	135.90	136.26		136.29	0.003291	0.76	0.18	0.59	0.44
Fosso_1	03.5			Culvert									
Fosso_1	03.4	Max WS	Att_Tpcr_Tr200	0.35	135.10	135.58		135.68	0.009766	1.43	0.24	0.59	0.72
Fosso_1	03.4	Max WS	Att_Tpcr_Tr30	0.10	135.10	135.50		135.51	0.001437	0.52	0.20	0.58	0.28
Fosso_1	03	Max WS	Att_Tpcr_Tr200	0.35	135.09	135.62		135.67	0.008728	0.98	0.36	0.99	0.52
Fosso_1	03	Max WS	Att_Tpcr_Tr30	0.10	135.09	135.50		135.51	0.002060	0.42	0.24	0.87	0.25
Fosso_1	02.1	Max WS	Att_Tpcr_Tr200	0.41	134.92	135.54		135.55	0.000888	0.41	0.99	2.62	0.21
Fosso_1	02.1	Max WS	Att_Tpcr_Tr30	0.19	134.92	135.45		135.46	0.000369	0.24	0.78	2.34	0.13
Fosso_1_Valle	02	Max WS	Att_Tpcr_Tr200	0.53	134.92	135.54		135.55	0.001537	0.54	0.99	2.62	0.28
Fosso_1_Valle	02	Max WS	Att_Tpcr_Tr30	0.34	134.92	135.45		135.46	0.001170	0.43	0.78	2.34	0.24

HEC-RAS Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fosso_1_Valle	01	Max WS	Att_Tpcr_Tr200	0.51	134.83	135.42	135.16	135.43	0.001554	0.52	1.00	2.94	0.28
Fosso_1_Valle	01	Max WS	Att_Tpcr_Tr30	0.42	134.83	135.25	135.14	135.28	0.005090	0.76	0.56	2.27	0.49



# **VERIFICHE IDRAULICHE**

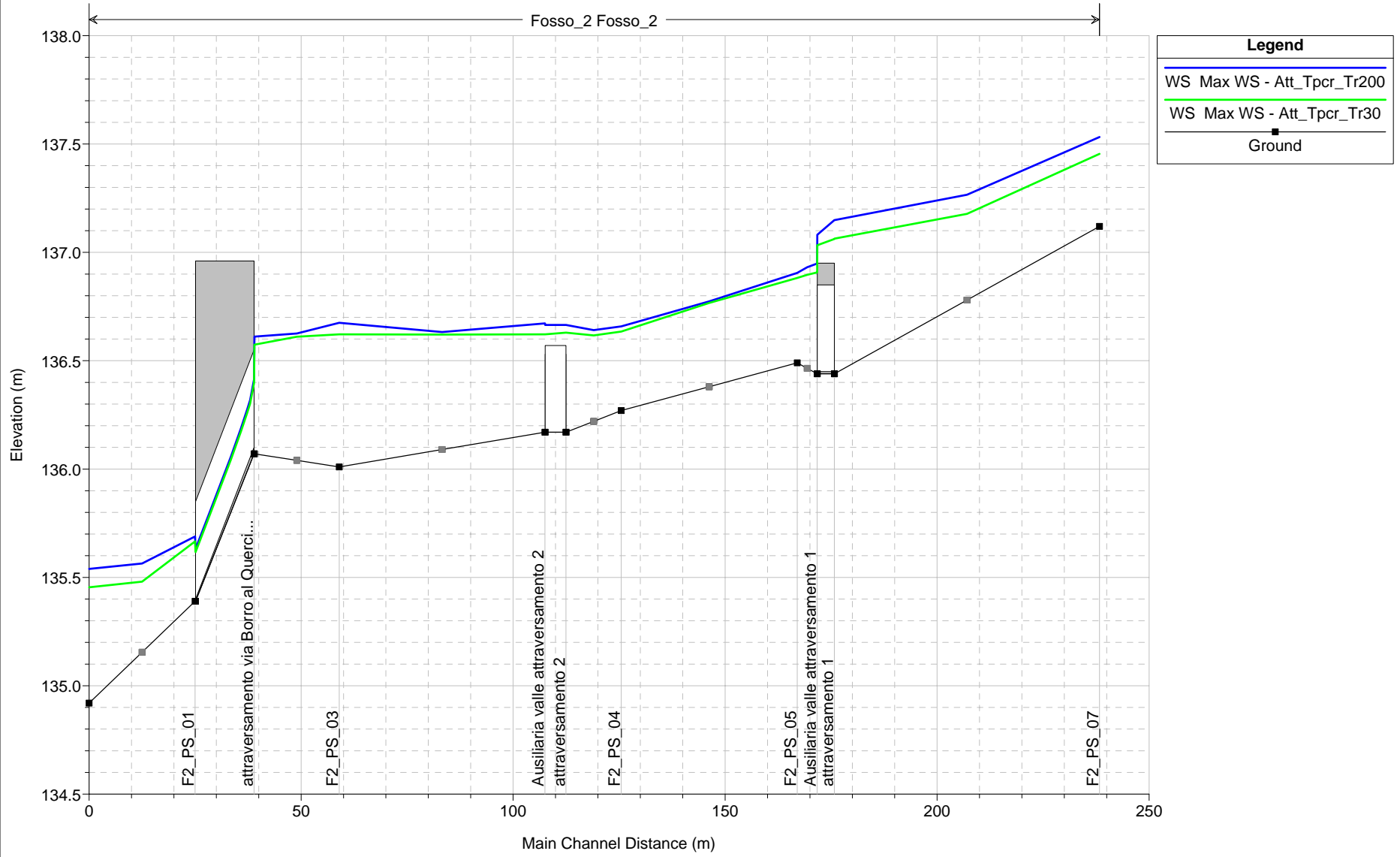
## **STATO ATTUALE**

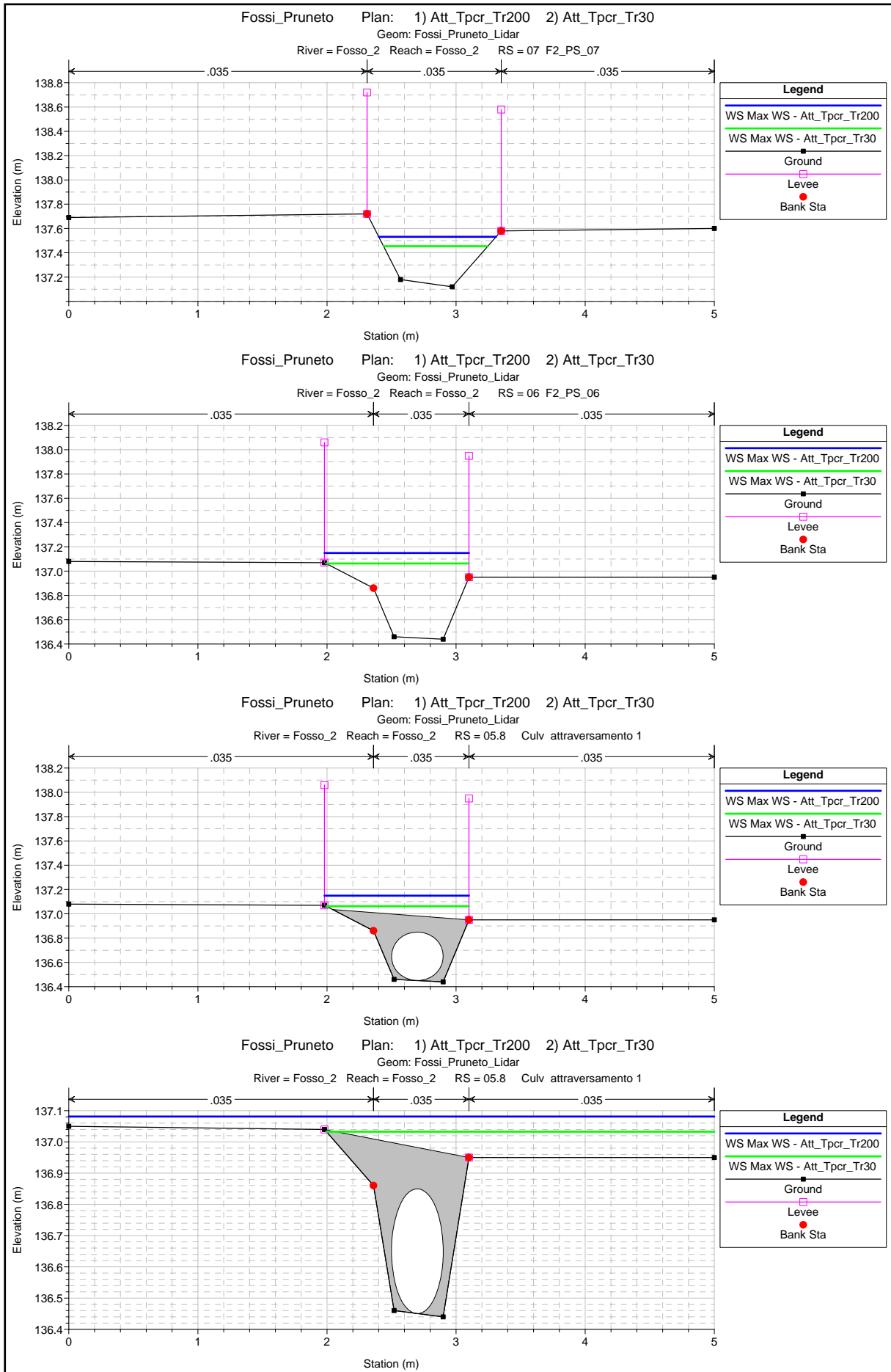
### **FOSSO 2**

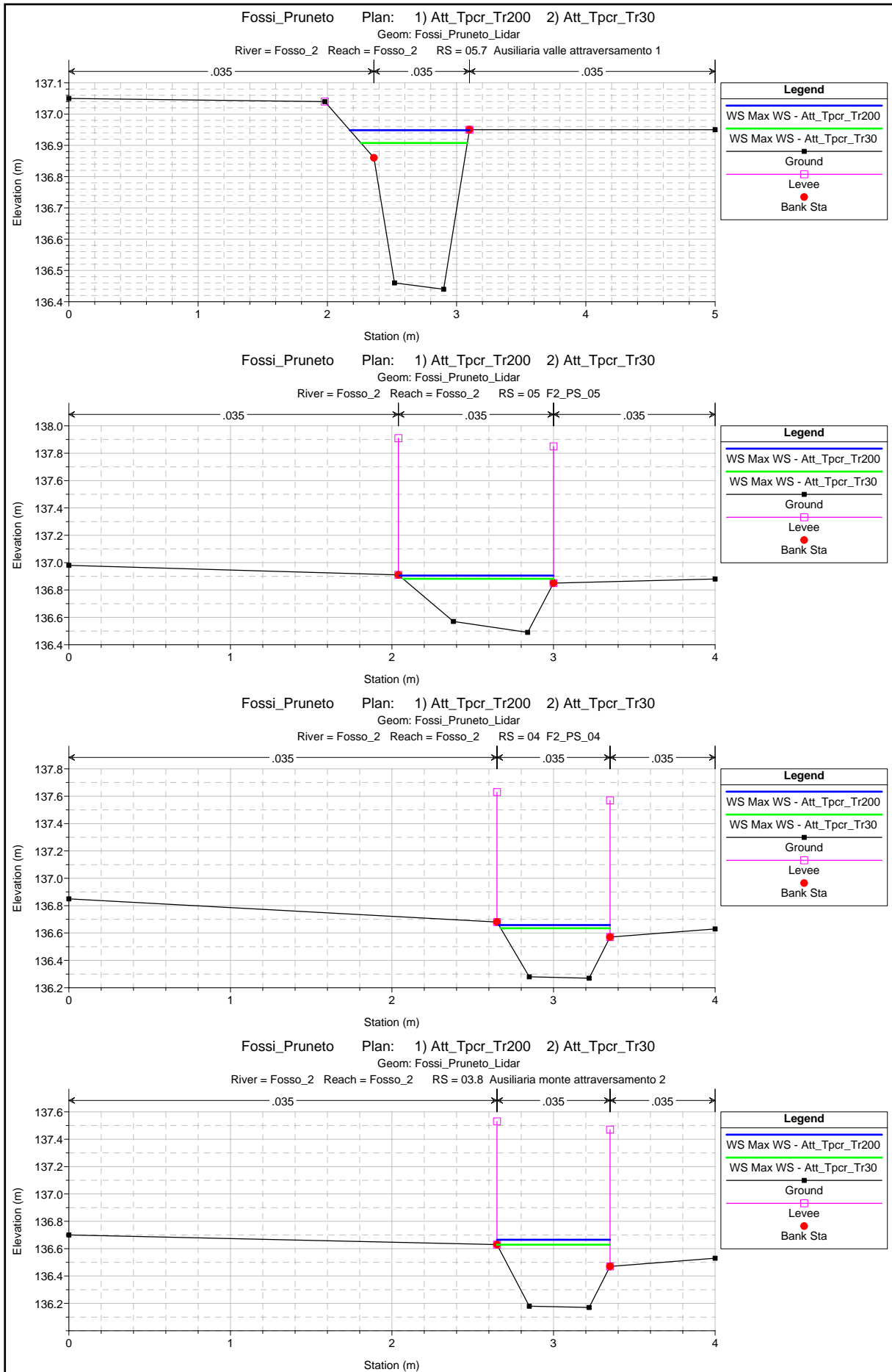
#### **Scenario A1 - Tr 200 e 30 anni**

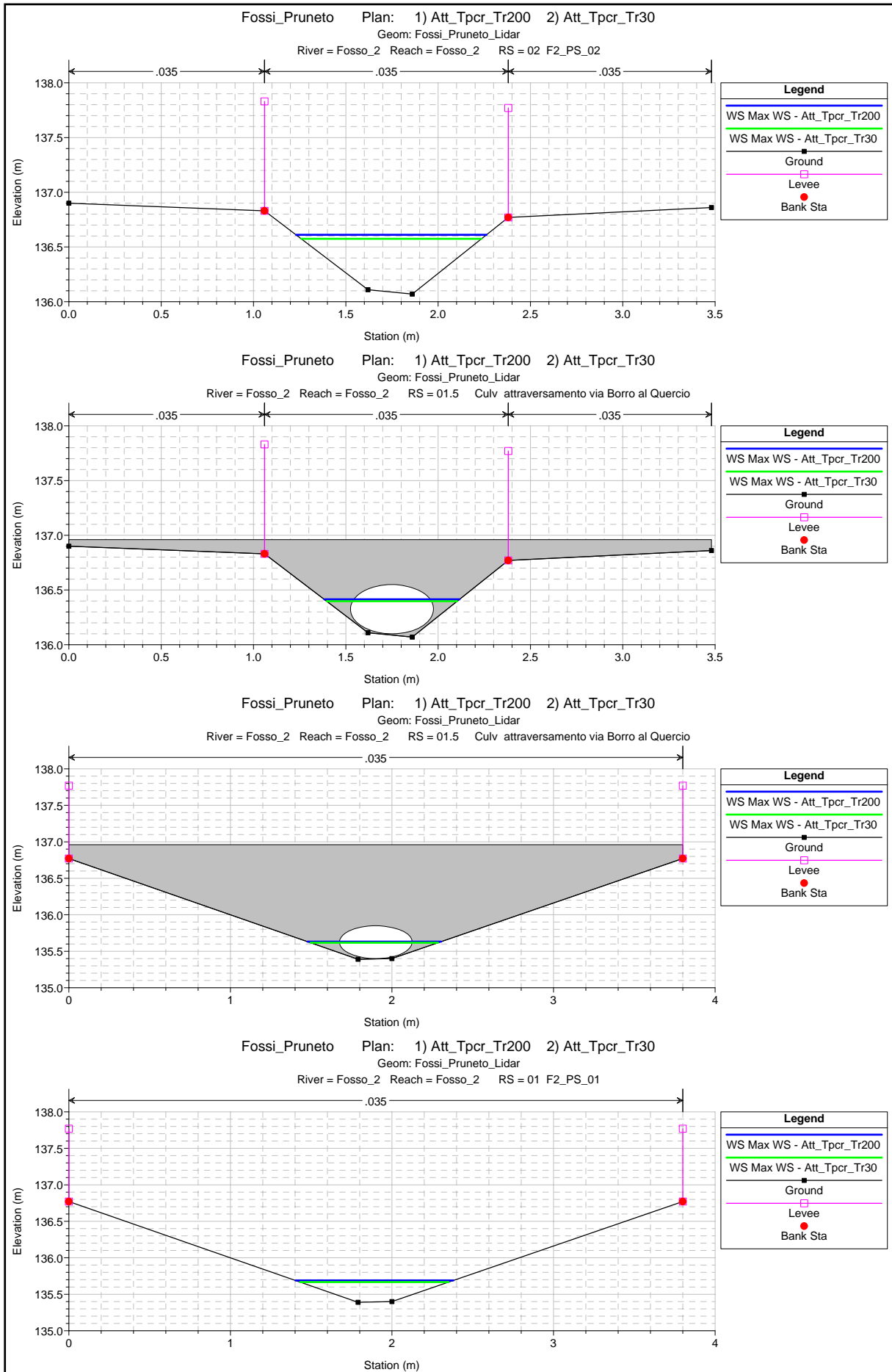
- Profili
- Sezioni di verifica
- Tabelle di output

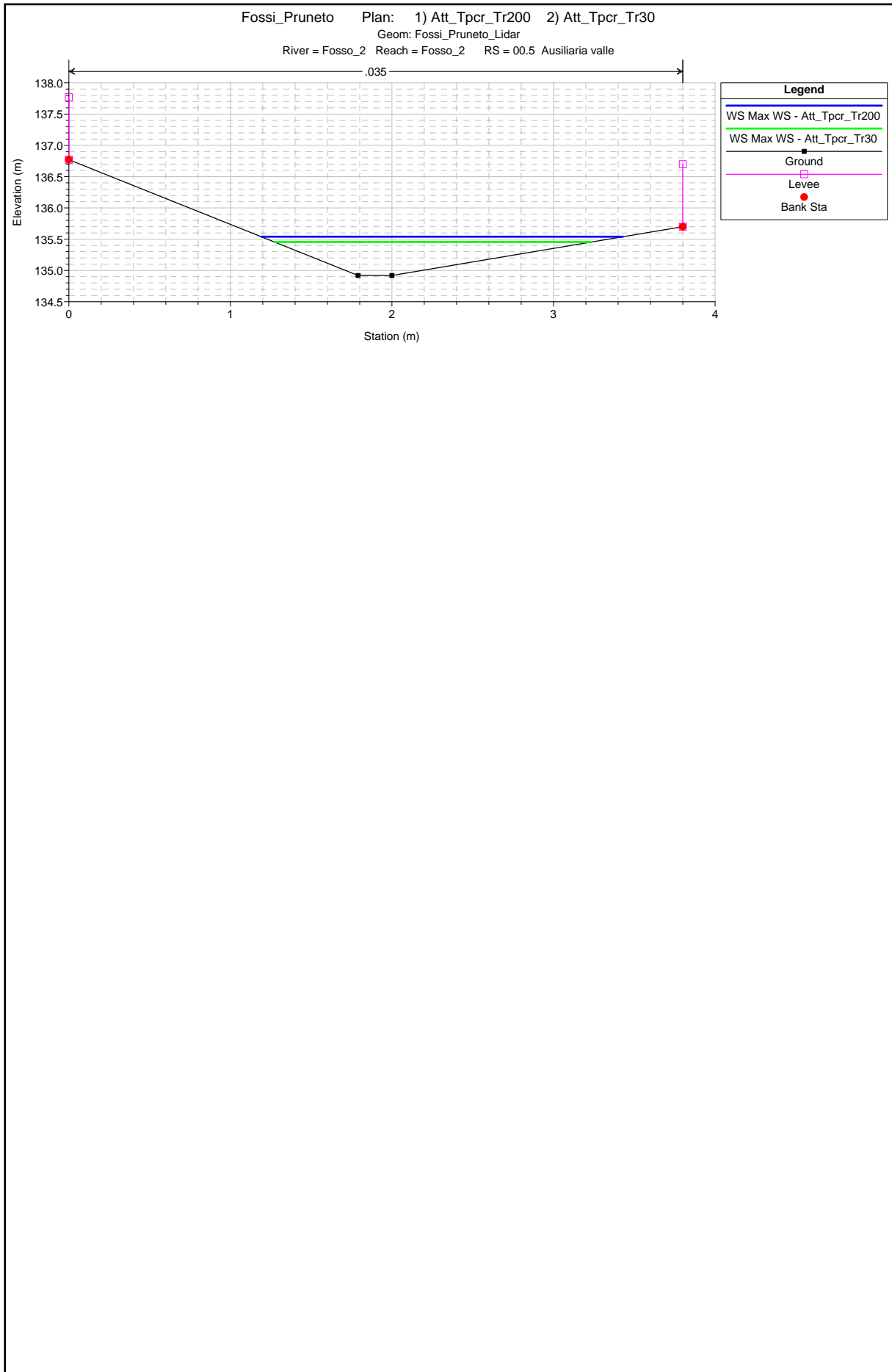
Fossi\_Pruneto Plan: 1) Att\_Tpccr\_Tr200 2) Att\_Tpccr\_Tr30  
 Geom: Fossi\_Pruneto\_Lidar

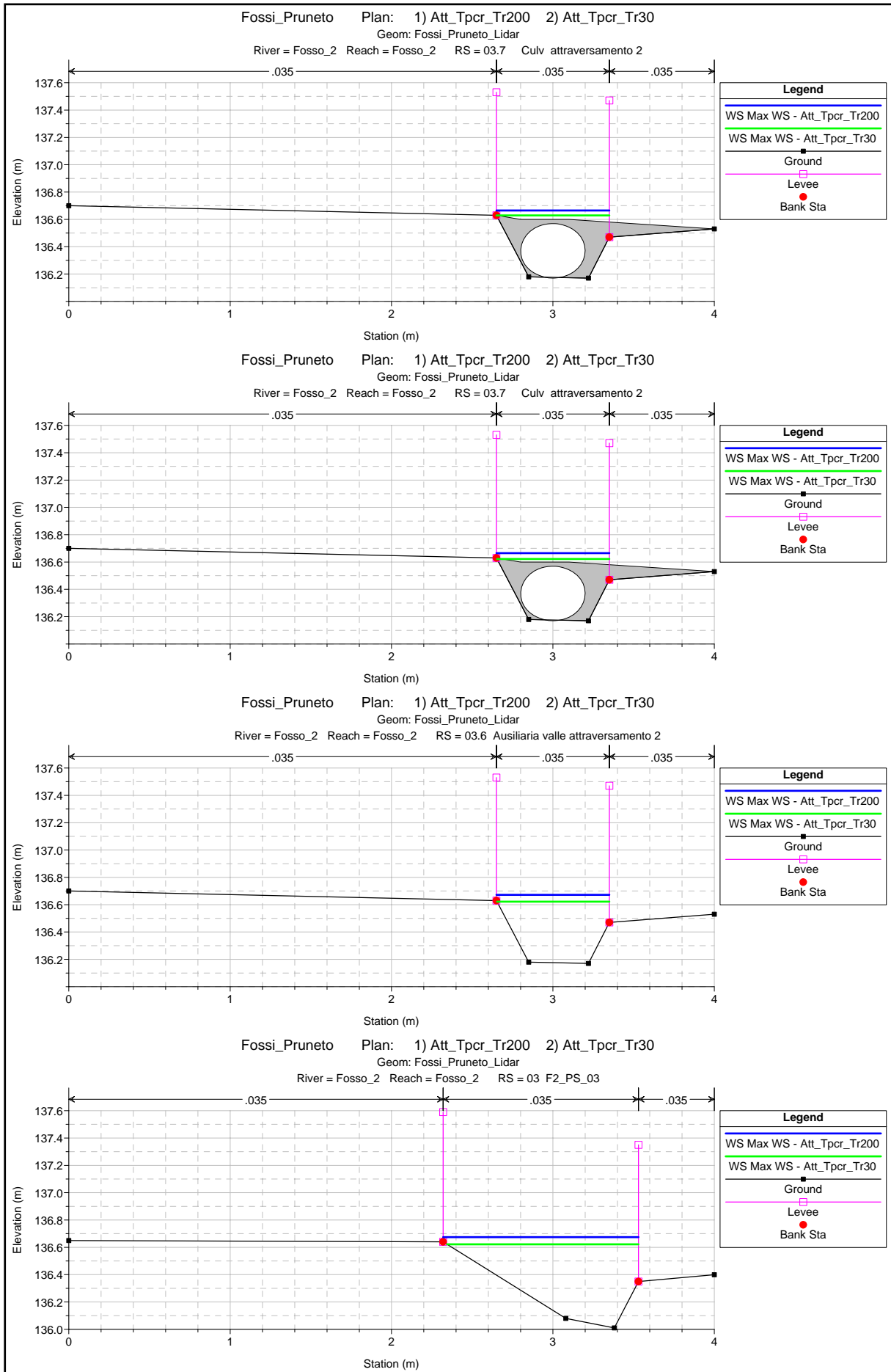












HEC-RAS River: Fosso\_2 Reach: Fosso\_2 Profile: Max WS

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fosso_2	07	Max WS	Att_Tpcr_Tr200	0.25	137.12	137.53		137.58	0.010910	0.99	0.25	0.91	0.60
Fosso_2	07	Max WS	Att_Tpcr_Tr30	0.17	137.12	137.45		137.50	0.011508	0.91	0.19	0.81	0.61
Fosso_2	06	Max WS	Att_Tpcr_Tr200	0.25	136.44	137.15		137.16	0.001799	0.52	0.50	1.12	0.22
Fosso_2	06	Max WS	Att_Tpcr_Tr30	0.17	136.44	137.06		137.07	0.001459	0.44	0.41	1.11	0.20
Fosso_2	05.8			Culvert									
Fosso_2	05.7	Max WS	Att_Tpcr_Tr200	0.25	136.44	136.95		136.99	0.007137	0.86	0.29	0.93	0.44
Fosso_2	05.7	Max WS	Att_Tpcr_Tr30	0.17	136.44	136.91		136.93	0.004731	0.66	0.26	0.82	0.35
Fosso_2	05	Max WS	Att_Tpcr_Tr200	0.25	136.49	136.91		136.95	0.009490	0.93	0.27	0.96	0.56
Fosso_2	05	Max WS	Att_Tpcr_Tr30	0.17	136.49	136.88		136.91	0.005690	0.70	0.24	0.93	0.43
Fosso_2	4.98			Lat Struct									
Fosso_2	4.9			Lat Struct									
Fosso_2	04	Max WS	Att_Tpcr_Tr200	0.09	136.27	136.66		136.67	0.002542	0.45	0.21	0.69	0.26
Fosso_2	04	Max WS	Att_Tpcr_Tr30	0.11	136.27	136.63		136.65	0.004624	0.59	0.19	0.68	0.35
Fosso_2	03.8	Max WS	Att_Tpcr_Tr200	-0.05	136.17	136.67		136.67	0.000298	-0.17	0.28	0.70	0.08
Fosso_2	03.8	Max WS	Att_Tpcr_Tr30	0.04	136.17	136.63		136.63	0.000249	0.15	0.25	0.70	0.08
Fosso_2	03.7			Culvert									
Fosso_2	03.6	Max WS	Att_Tpcr_Tr200	-0.05	136.17	136.67		136.67	0.000285	-0.16	0.28	0.70	0.08
Fosso_2	03.6	Max WS	Att_Tpcr_Tr30	0.04	136.17	136.62		136.62	0.000261	0.15	0.25	0.70	0.08
Fosso_2	3.59			Lat Struct									
Fosso_2	3.58			Lat Struct									
Fosso_2	03	Max WS	Att_Tpcr_Tr200	-0.10	136.01	136.67		136.68	0.000301	-0.20	0.50	1.21	0.10
Fosso_2	03	Max WS	Att_Tpcr_Tr30	-0.15	136.01	136.62		136.63	0.000999	-0.34	0.44	1.19	0.18
Fosso_2	02	Max WS	Att_Tpcr_Tr200	0.20	136.07	136.61		136.63	0.003479	0.60	0.33	1.03	0.34
Fosso_2	02	Max WS	Att_Tpcr_Tr30	0.18	136.07	136.57		136.59	0.003823	0.61	0.29	0.98	0.35



HEC-RAS River: Fosso\_2 Reach: Fosso\_2 Profile: Max WS (Continued)

Reach	River Sta	Profile	Plan	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (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
Fosso_2	01.5			Culvert									
Fosso_2	01	Max WS	Att_Tpcr_Tr200	0.20	135.39	135.69		135.76	0.020372	1.14	0.17	0.98	0.86
Fosso_2	01	Max WS	Att_Tpcr_Tr30	0.18	135.39	135.67		135.74	0.022983	1.16	0.15	0.92	0.91
Fosso_2	00.5	Max WS	Att_Tpcr_Tr200	0.13	134.92	135.54		135.54	0.000183	0.17	0.76	2.24	0.09
Fosso_2	00.5	Max WS	Att_Tpcr_Tr30	0.15	134.92	135.45		135.46	0.000498	0.25	0.58	1.96	0.15