



AUTORITÀ DI BACINO REGIONALE

AMBITO REGIONALE DI BACINO 17

Torrenti BISAGNO e SAN LORENZO – MONEGLIA

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

VERIFICHE IDRAULICHE TORRENTE SAN LORENZO



PRIMA APPROVAZIONE DEL PIANO	Delibera del Consiglio Provinciale di Genova n. 68 del 12/12/2002
ULTIMA MODIFICA DELL'ELABORATO	Decreto digitale del Direttore Generale n. 123 del 04/10/2017
ENTRATA IN VIGORE	BURL n. 43 del 25/10/2017 – parte II



Comune di Moneglia

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intervento di adeguamento idraulico dei tratti terminali del torrente San Lorenzo e del rio Sorba finalizzato alla messa in sicurezza della zona di ponente del centro storico della Città di Moneglia

PROGETTO DI FATTIBILITÀ TECNICA ED ECONOMICA (D. Lgs. 50/2016 – art. 23 – comma 5 + comma 6)

ALLEGATO 01 : modello idraulico stato attuale

TAV. **ALLO1**

SCALA

STABS 0737

REV.	data	motivazione	<u>il Responsabile del Procedimento</u>
A	marzo 2017	aggiornamento – nota Regione Liguria prot. n°PG/2017/35828 del 02/02/2017	
	marzo 2016	prima emissione progettazione preliminare	

HEC-RAS Plan: San_Lorenzo_ (Continued)

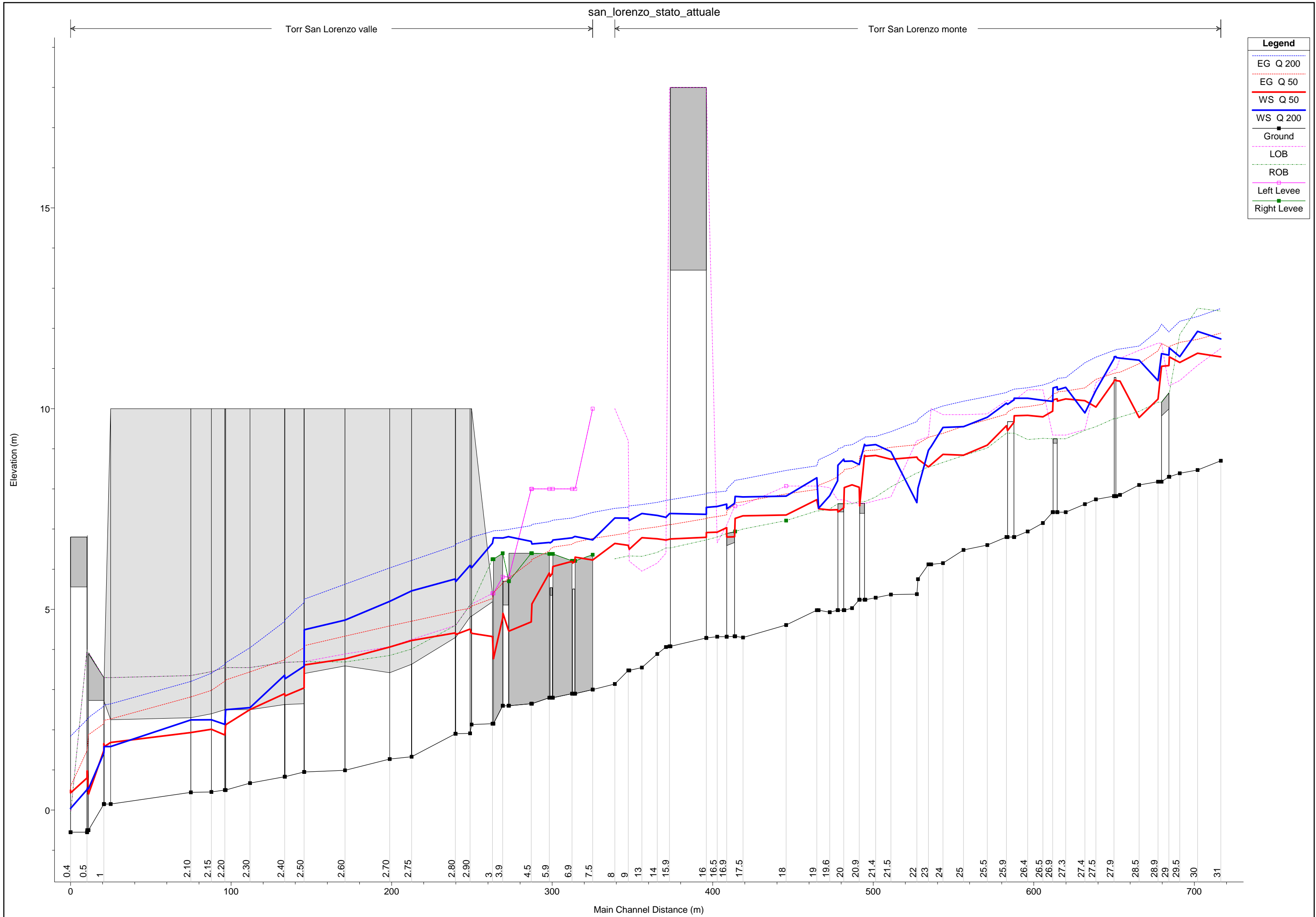
Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(m3/s)	(m)	(m)	(m)	(m)	(m/m)	(m/s)	(m2)	(m)	
valle	2.70	Q 50	78.75	1.27	4.06	2.96	4.59	0.008979	3.21	24.51		0.61
valle	2.70	Q 200	99.11	1.27	5.20	3.24	6.03	0.014223	4.04	24.51		0.65
valle	2.60	Q 50	78.75	0.99	3.77	2.88	4.33	0.009157	3.33	23.64		0.64
valle	2.60	Q 200	99.11	0.99	4.73	3.20	5.63	0.014504	4.19	23.64		0.69
valle	2.55	Q 50	78.75	0.95	3.61	2.74	4.10	0.007532	3.08	25.60		0.60
valle	2.55	Q 200	99.11	0.95	4.49	3.04	5.25	0.011931	3.87	25.60		0.66
valle	2.50	Q 50	78.75	0.95	3.04	2.65	4.04	0.022209	4.43	17.76		0.98
valle	2.50	Q 200	99.11	0.95	3.58	2.65	5.17	0.035178	5.58	17.76		1.10
valle	2.45	Q 50	78.75	0.83	2.84	2.63	3.77	0.019568	4.27	18.45		0.96
valle	2.45	Q 200	99.11	0.83	3.27	2.63	4.74	0.030995	5.37	18.45		1.10
valle	2.40	Q 50	78.75	0.83	2.90	2.59	3.74	0.017505	4.07	19.35		0.90
valle	2.40	Q 200	99.11	0.83	3.36	2.63	4.70	0.027728	5.12	19.35		1.03
valle	2.30	Q 50	78.75	0.67	2.50	2.50	3.44	0.010710	4.30	18.32	10.00	1.01
valle	2.30	Q 200	99.11	0.67	2.55	2.50	4.05	0.031277	5.42	18.30		1.26
valle	2.25	Q 50	78.75	0.50	2.13	2.31	3.24	0.013732	4.68	16.82	10.35	1.17
valle	2.25	Q 200	99.11	0.50	2.50	2.50	3.67	0.012169	4.78	20.72	10.35	1.08
valle	2.20	Q 50	78.75	0.50	1.87	2.21	3.21	0.018363	5.13	15.35	11.20	1.40
valle	2.20	Q 200	99.11	0.50	2.14	2.50	3.63	0.017527	5.41	18.32	11.20	1.35
valle	2.15	Q 50	78.75	0.45	2.01	2.13	2.98	0.011691	4.36	18.04	11.55	1.11
valle	2.15	Q 200	99.11	0.45	2.25	2.40	3.41	0.012410	4.77	20.77	11.55	1.14
valle	2.10	Q 50	78.75	0.44	1.93	2.02	2.82	0.010719	4.18	18.85	12.65	1.09
valle	2.10	Q 200	99.11	0.44	2.25	2.28	3.20	0.009774	4.34	22.84	12.65	1.03
valle	2	Q 50	78.75	0.15	1.69	1.55	2.27	0.006368	3.39	23.26	15.15	0.87
valle	2	Q 200	99.11	0.15	1.58	1.79	2.65	0.012408	4.57	21.69	15.15	1.22
valle	1.9	Q 50	78.75	0.15	1.58	1.54	2.24	0.007614	3.59	21.95	15.35	0.96

HEC-RAS Plan: San_Lorenzo_ (Continued)

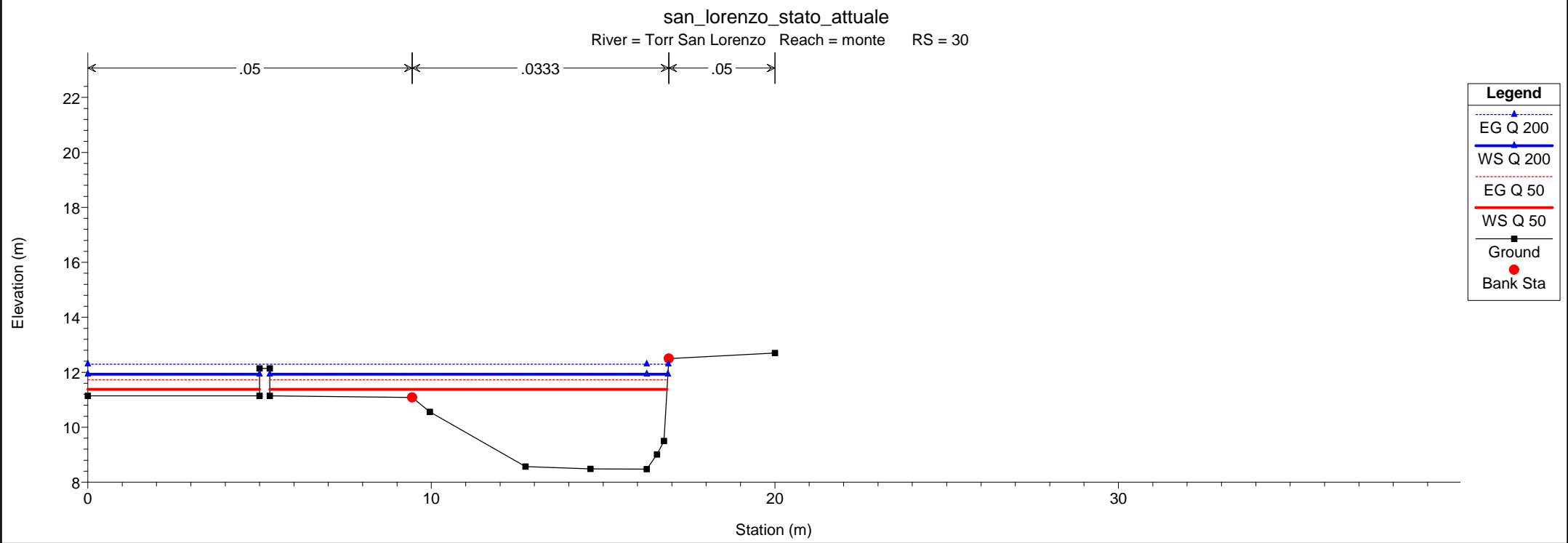
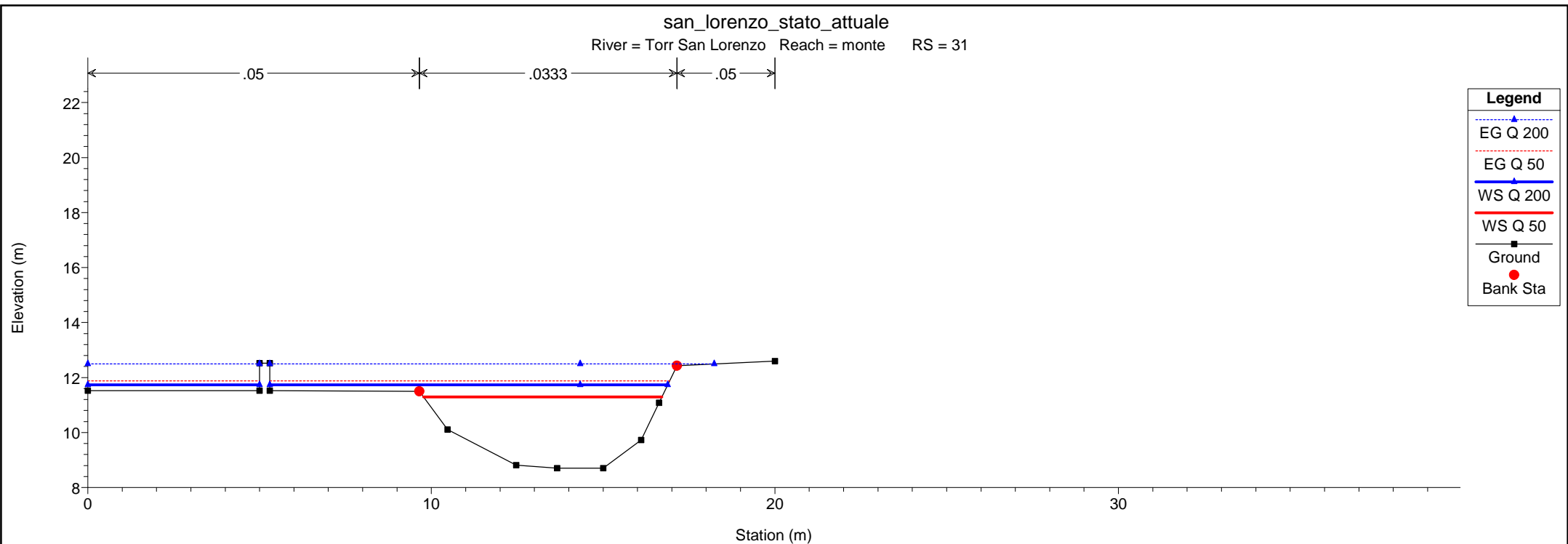
Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
valle	1.9	Q 200	99.11	0.15	1.58	1.77	2.62	0.012043	4.51	21.96	15.35	1.20
valle	1.1	Q 50	78.75	0.15	1.66	1.48	2.18	0.004650	3.20	24.58	16.30	0.83
valle	1.1	Q 200	99.11	0.15	1.42	1.70	2.59	0.012687	4.79	20.67	16.30	1.36
valle	1	Bridge										
valle	0.9	Q 50	78.75	-0.50	0.96	0.83	1.52	0.005106	3.30	23.86	16.30	0.87
valle	0.9	Q 200	99.11	-0.50	0.55	1.06	2.26	0.023214	5.80	17.08	16.30	1.81
valle	0.6	Q 50	78.75	-0.55	0.98	0.80	1.51	0.004640	3.22	24.47	16.00	0.83
valle	0.6	Q 200	99.11	-0.55	0.51	1.02	2.25	0.023438	5.85	16.93	16.00	1.82
valle	0.5	Bridge										
valle	0.4	Q 50	80.35	-0.55	0.50	0.26	0.55	0.001474	1.52	119.04	187.90	0.49
valle	0.4	Q 200	99.11	-0.55	0.04	0.30	1.84	0.078640	7.36	32.52	187.90	3.21

HEC-RAS Plan: San_Lorenzo_ River: rio Sorba Reach: rio Sorba

Reach	River Sta	Profile	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
rio Sorba	105	Q 50 x sorba	45.40	5.10	7.34	6.94	7.92	0.008438	3.37	13.79	8.42	0.74
rio Sorba	105	Q 200 x sorba	65.70	5.10	7.81	7.52	8.58	0.009317	3.92	17.72	8.46	0.78
rio Sorba	104	Q 50 x sorba	45.40	4.95	6.96	6.96	7.76	0.012343	3.97	11.95	8.39	0.94
rio Sorba	104	Q 200 x sorba	65.70	4.95	7.42	7.42	8.40	0.012325	4.46	15.83	8.43	0.95
rio Sorba	103	Q 50 x sorba	45.40	4.85	6.45	6.70	7.54	0.020703	4.65	10.26	8.39	1.20
rio Sorba	103	Q 200 x sorba	65.70	4.85	6.85	7.13	8.18	0.020258	5.21	13.58	8.42	1.20
rio Sorba	102	Q 50 x sorba	45.40	3.49	6.99	5.59	7.19	0.002167	2.08	25.59	11.91	0.37
rio Sorba	102	Q 200 x sorba	65.70	3.49	7.49	6.34	7.76	0.002563	2.47	31.66	12.22	0.41
rio Sorba	101	Q 50 x sorba	45.40	3.34	6.90		7.16	0.002571	2.30	21.31	8.10	0.42
rio Sorba	101	Q 200 x sorba	65.70	3.34	7.31		7.72	0.003528	2.91	24.70	8.41	0.50
rio Sorba	100.5	Q 50 x sorba	45.40	3.21	6.91		7.14	0.002286	2.15	22.63	8.36	0.38
rio Sorba	100.5	Q 200 x sorba	65.70	3.21	7.33		7.69	0.003268	2.72	26.11	8.40	0.46
rio Sorba	100	Q 50 x sorba	45.40	3.28	6.16	5.24	7.05	0.037323	4.19	11.21	8.78	0.78
rio Sorba	100	Q 200 x sorba	65.70	3.28	7.45	5.35	7.61	0.005149	1.97	38.33	22.73	0.28

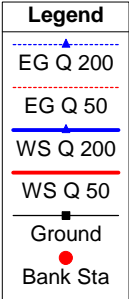
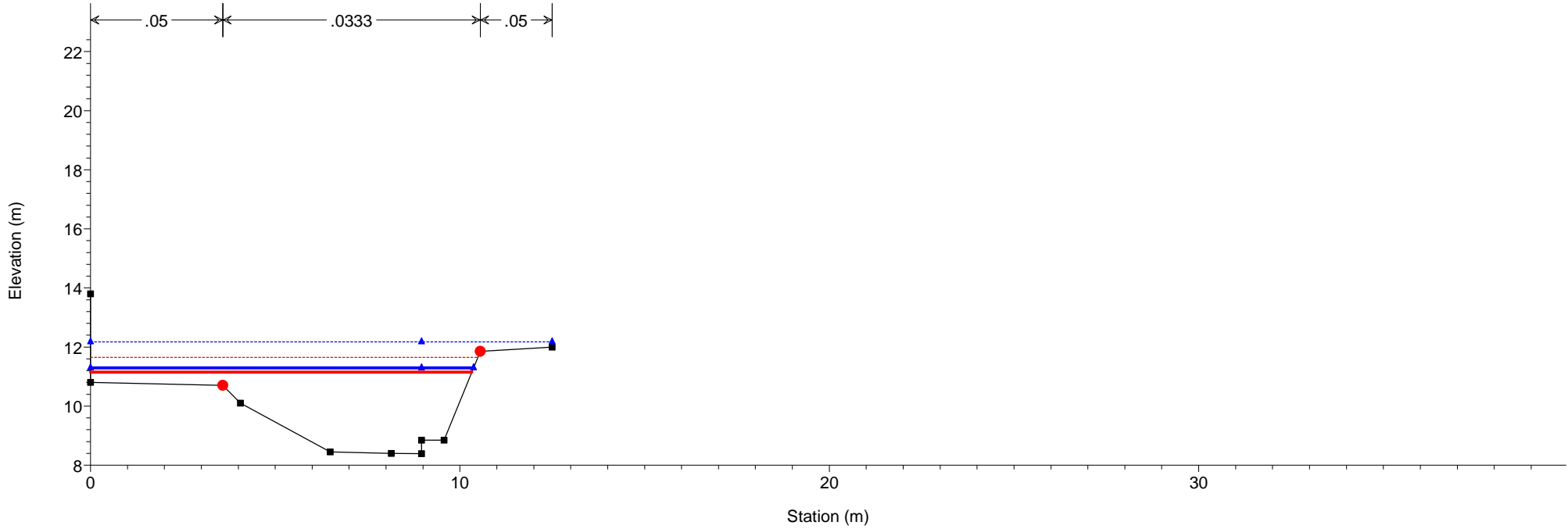


0.4 0.5 1 2.10 2.15 2.20 2.30 2.40 2.50 2.60 2.70 2.75 2.80 2.90 3 3.9 4.5 5.9 6.9 7.5 8 9 13 14 15.9 16 16.5 16.9 17.5 18 19 19.6 20 20.9 21.4 21.5 22 23 24 25 25.5 25.9 26.4 26.5 26.9 27.3 27.4 27.5 27.9 28.5 28.9 29 29.5 30 31

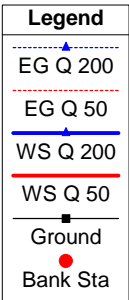
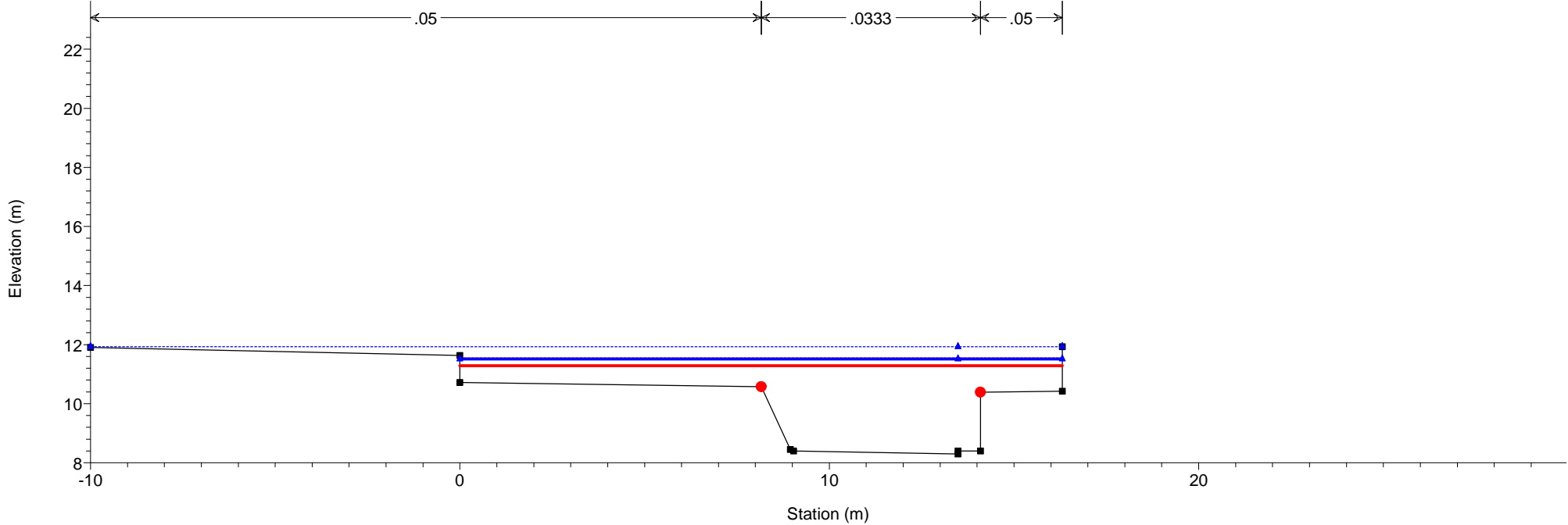


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

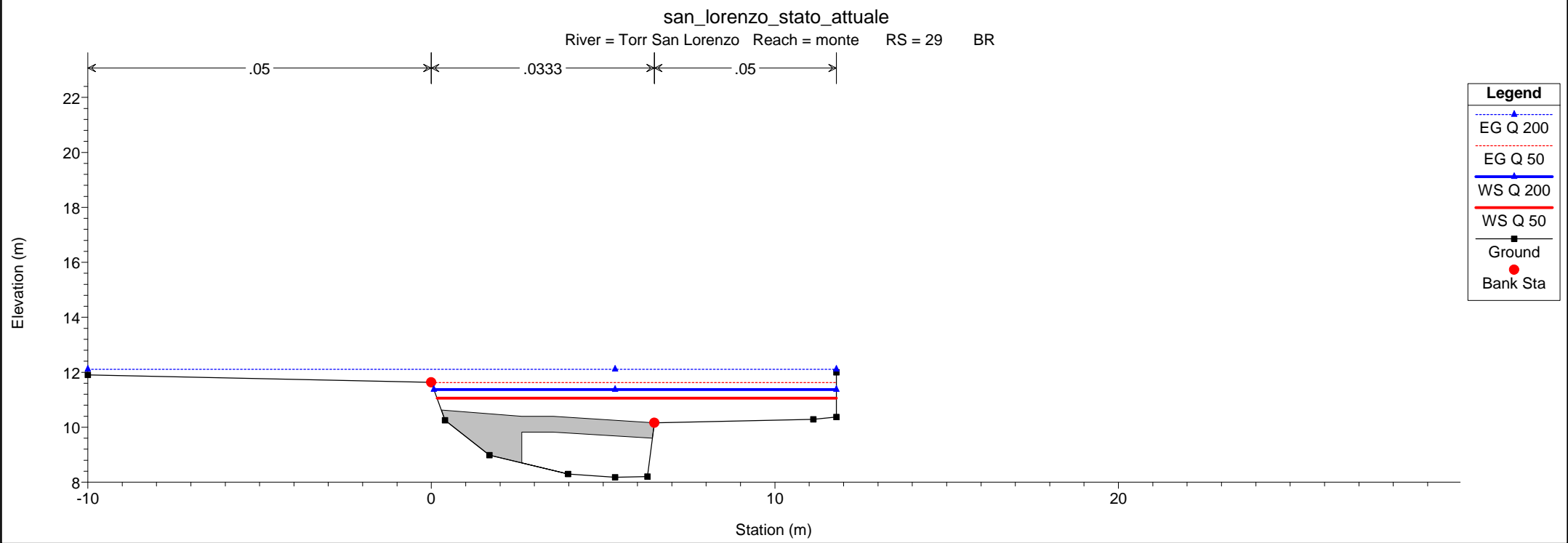
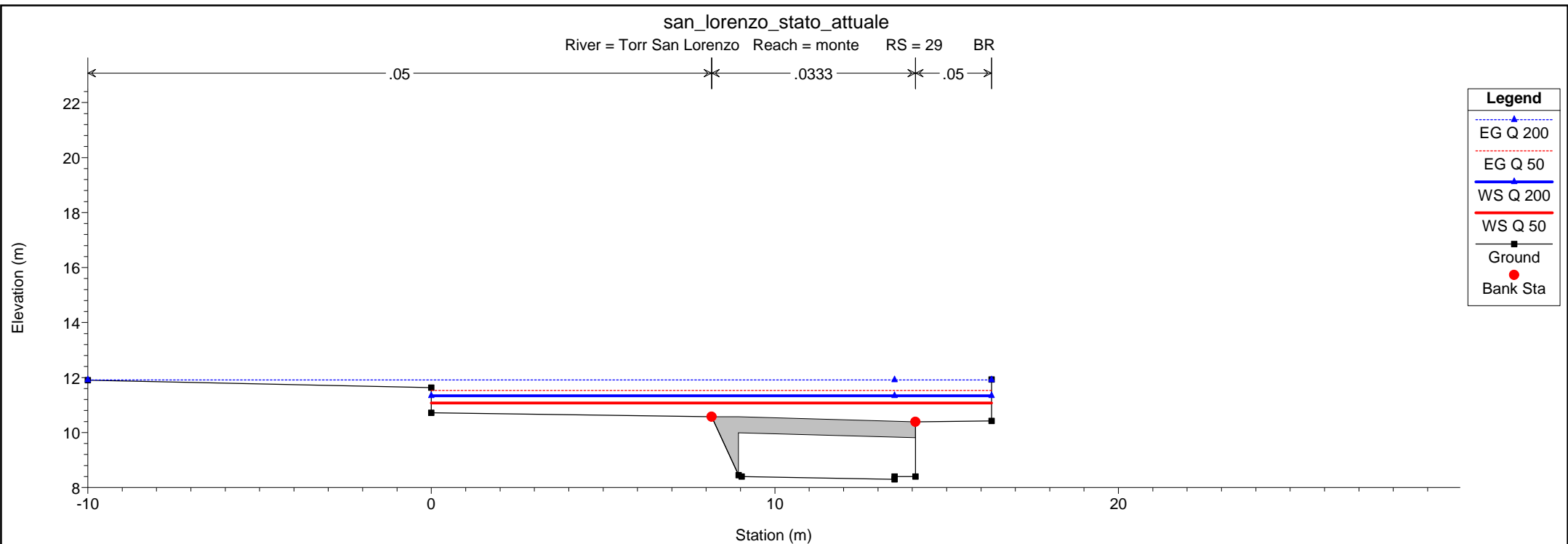
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 River = Torr San Lorenzo Reach = monte RS = 29.5



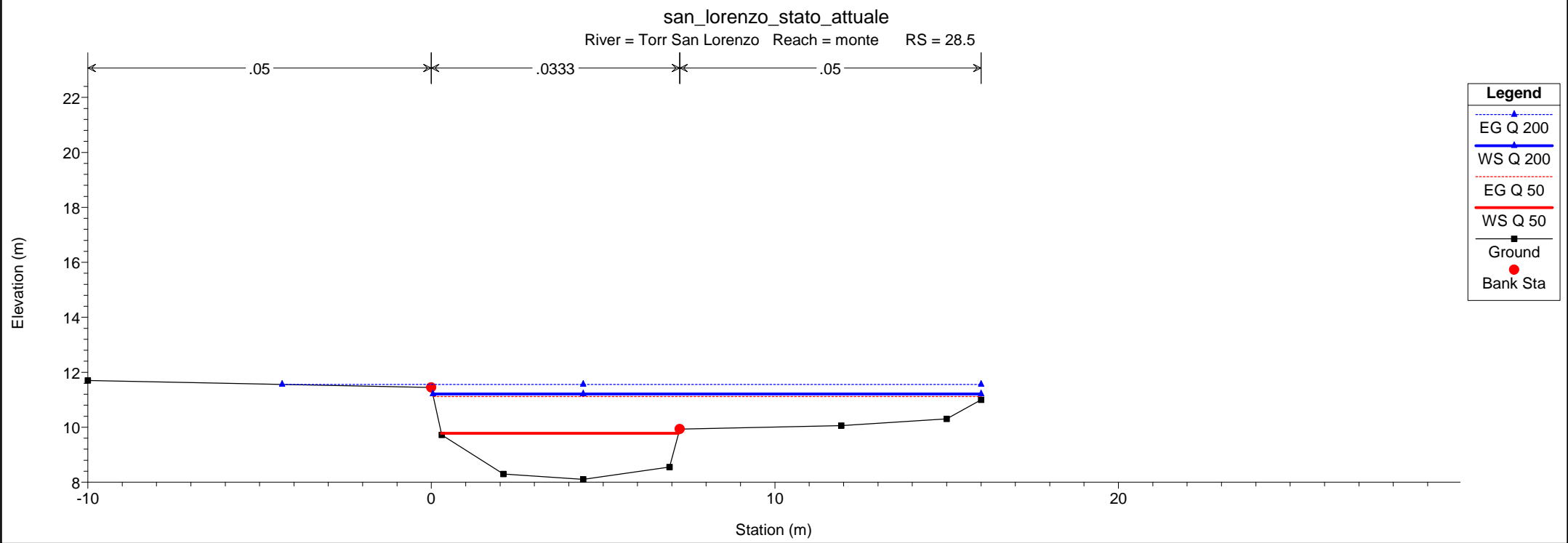
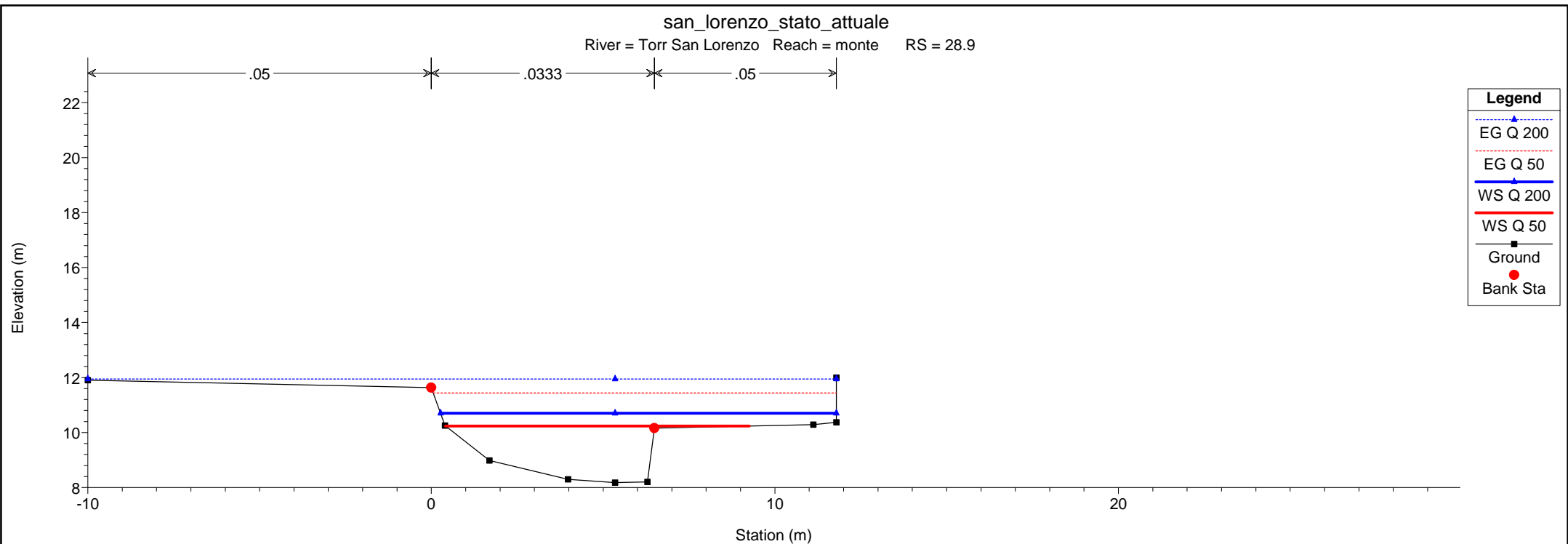
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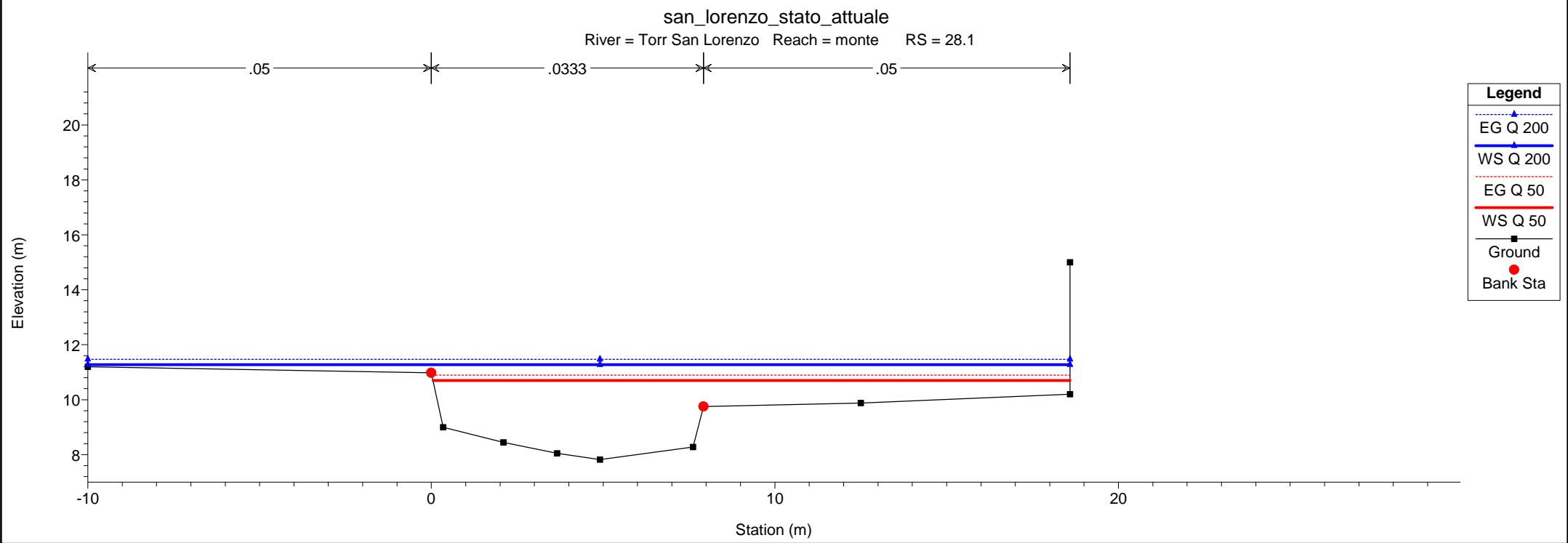
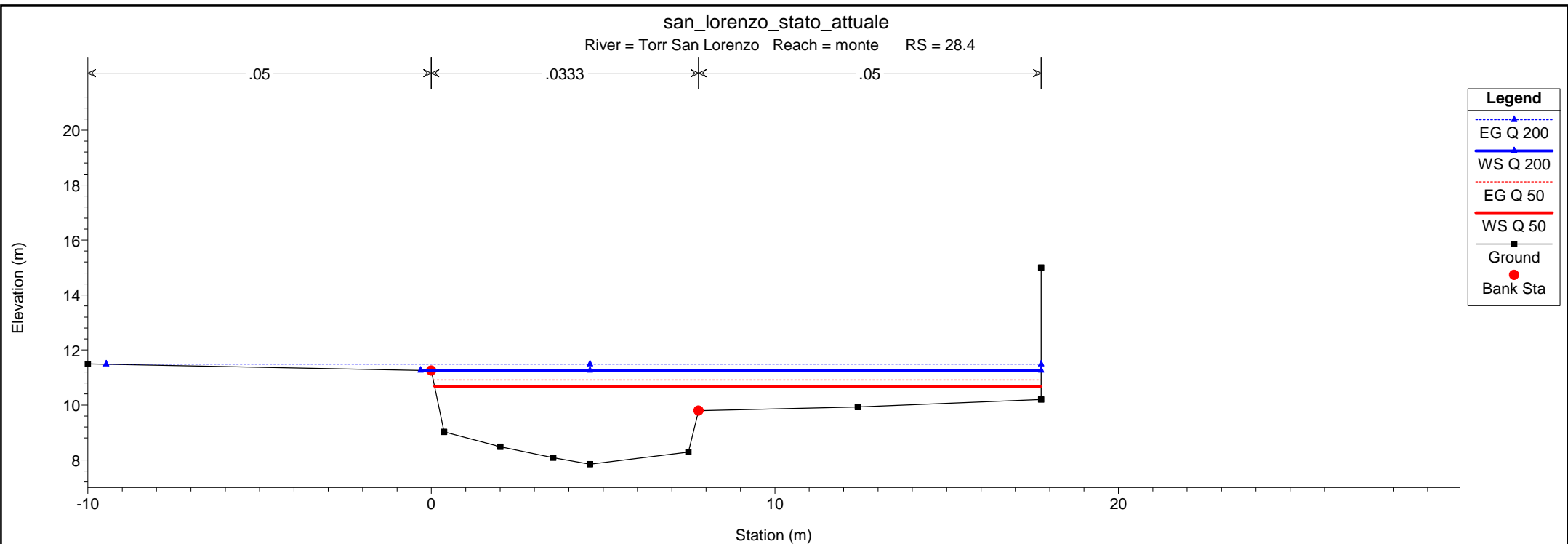
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



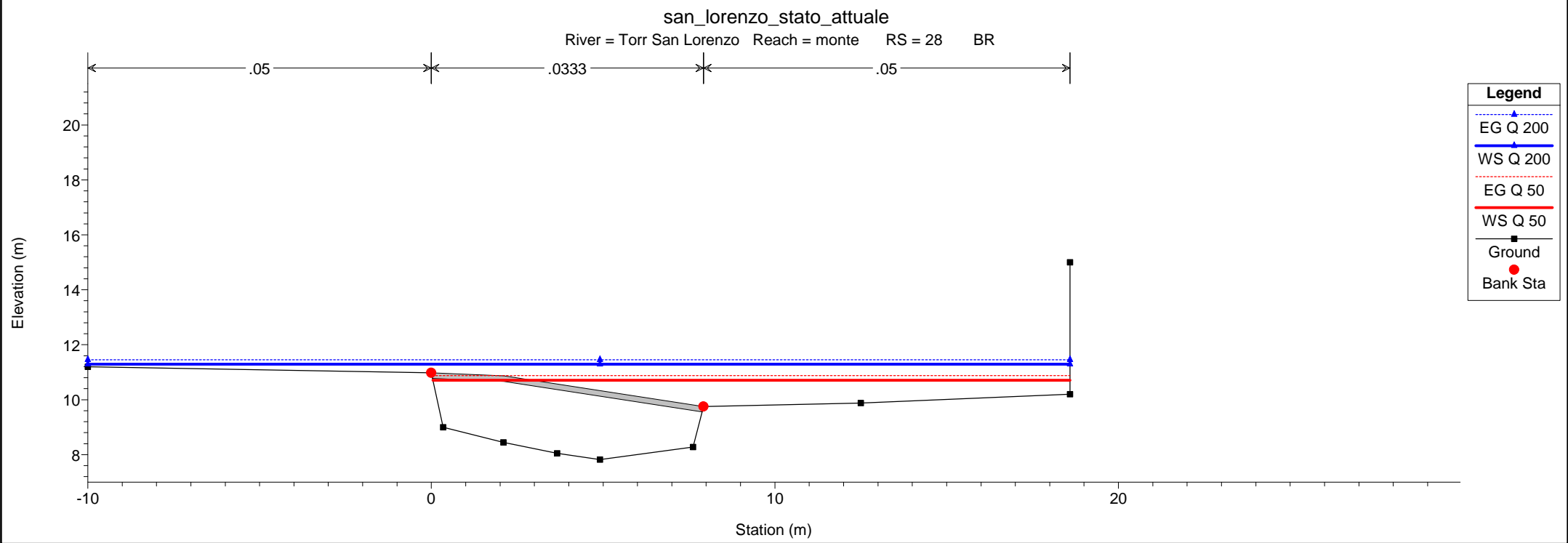
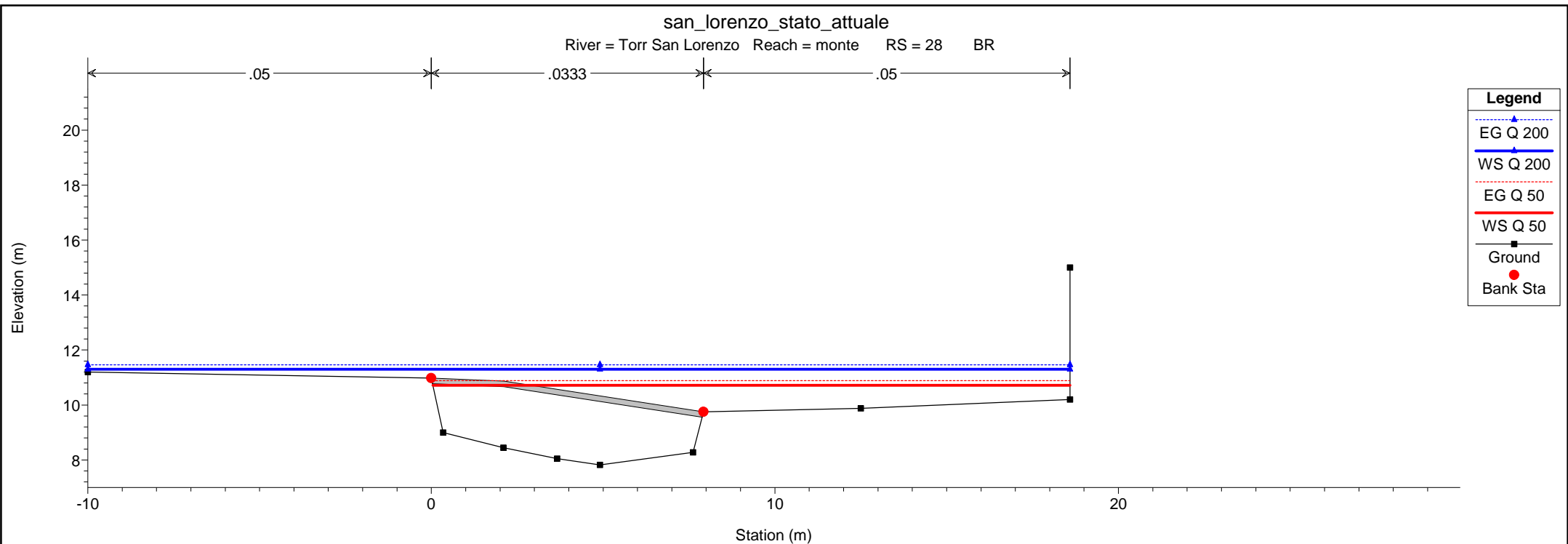
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



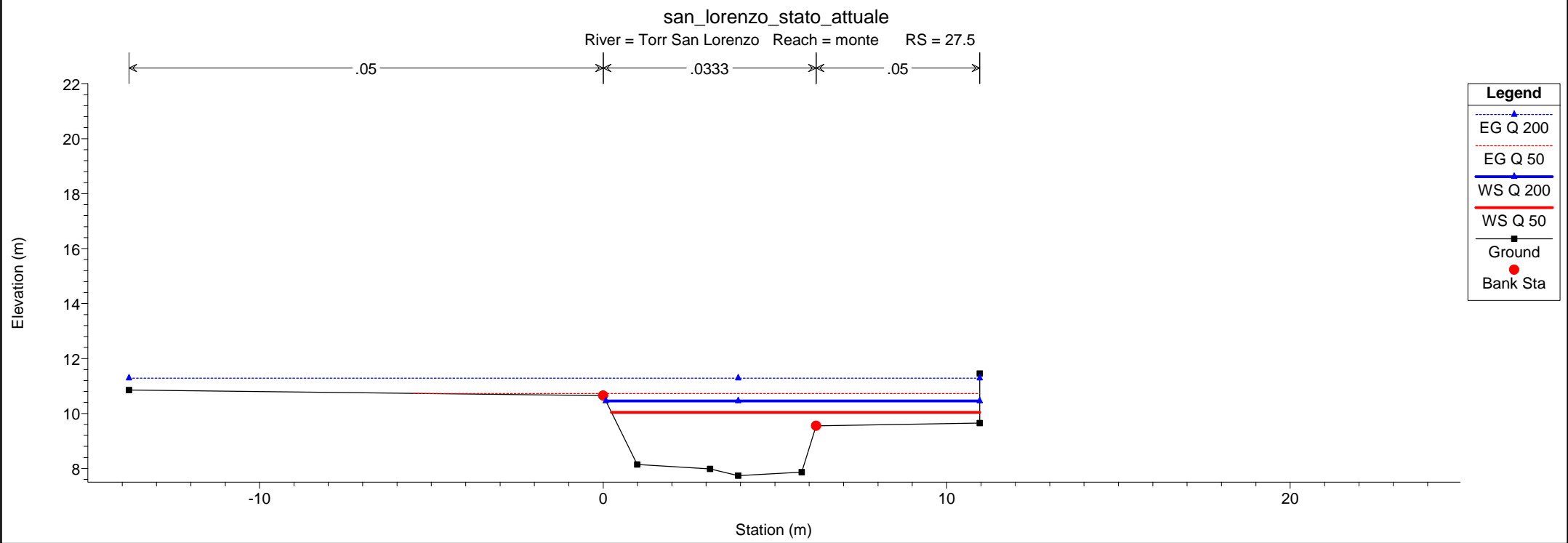
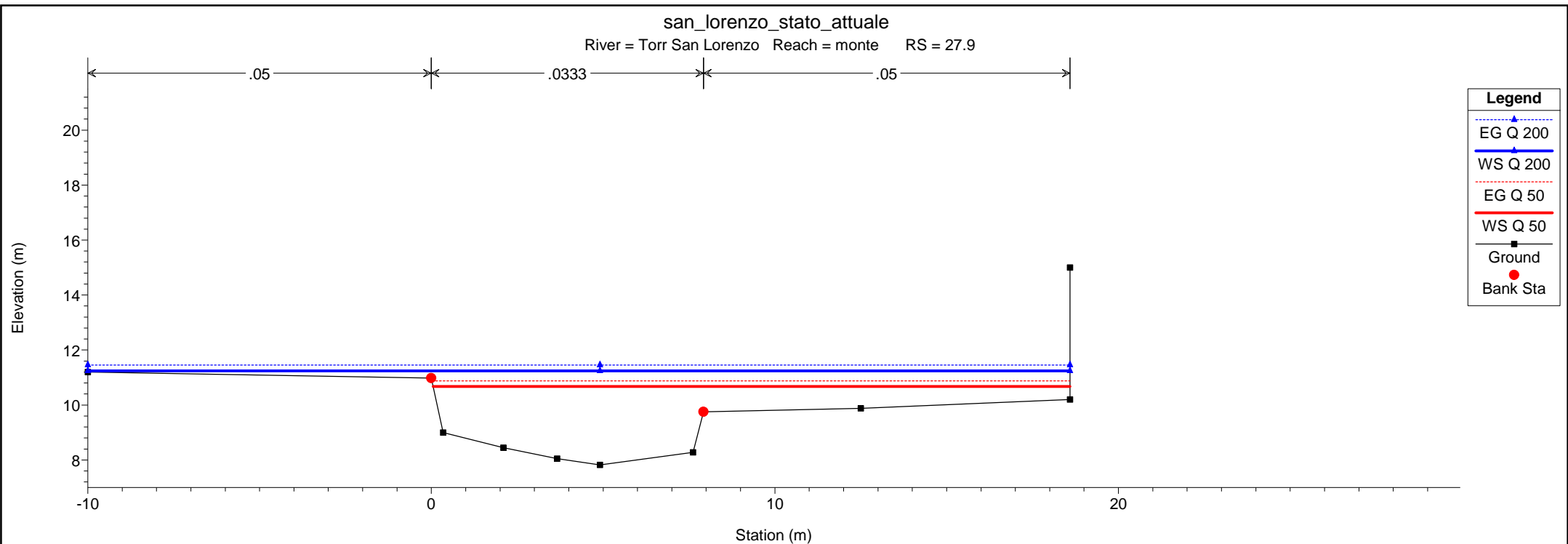
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



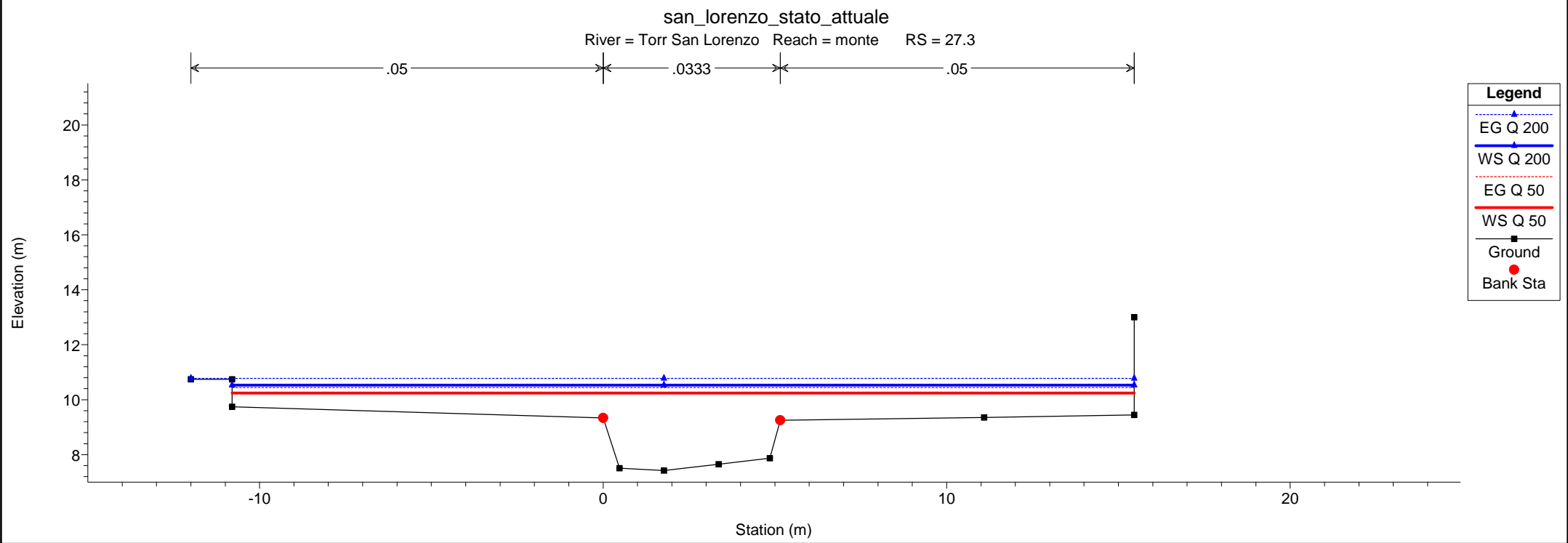
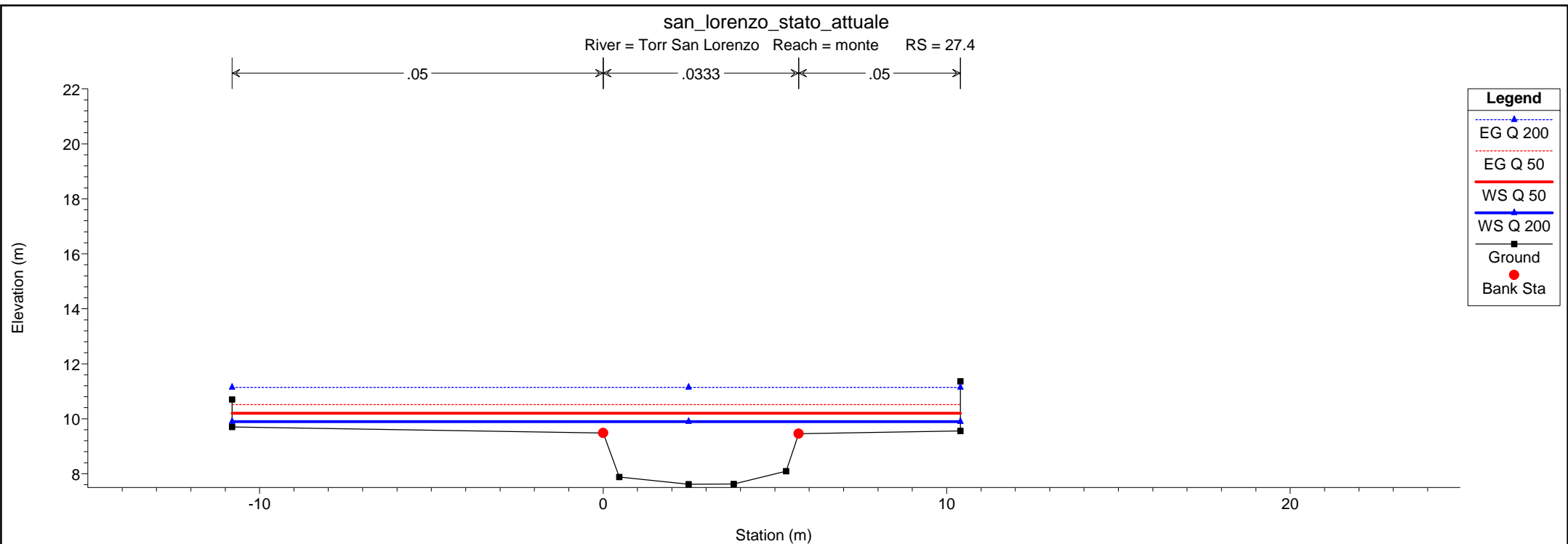
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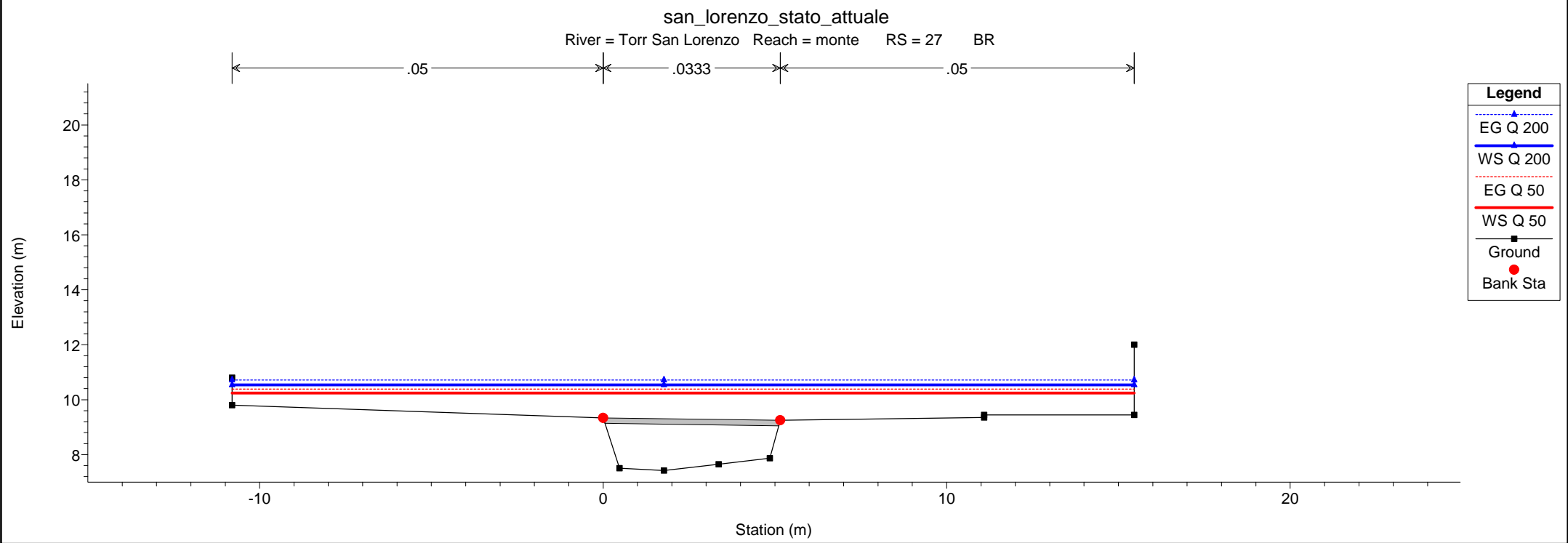
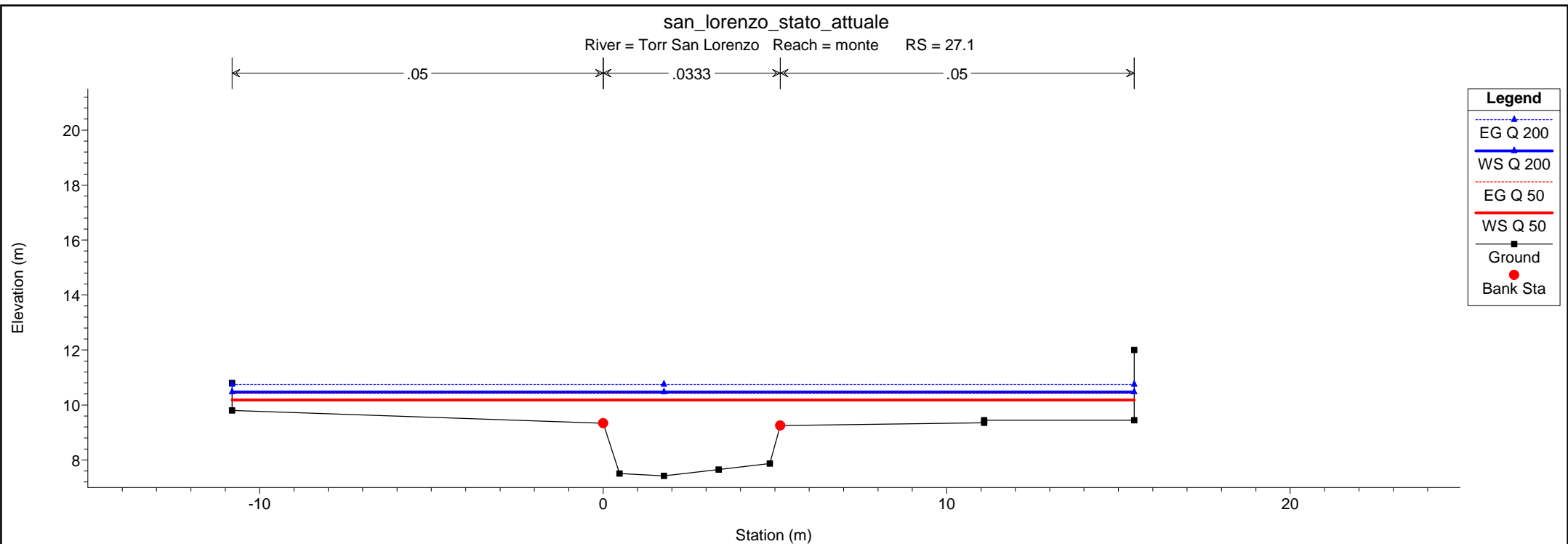
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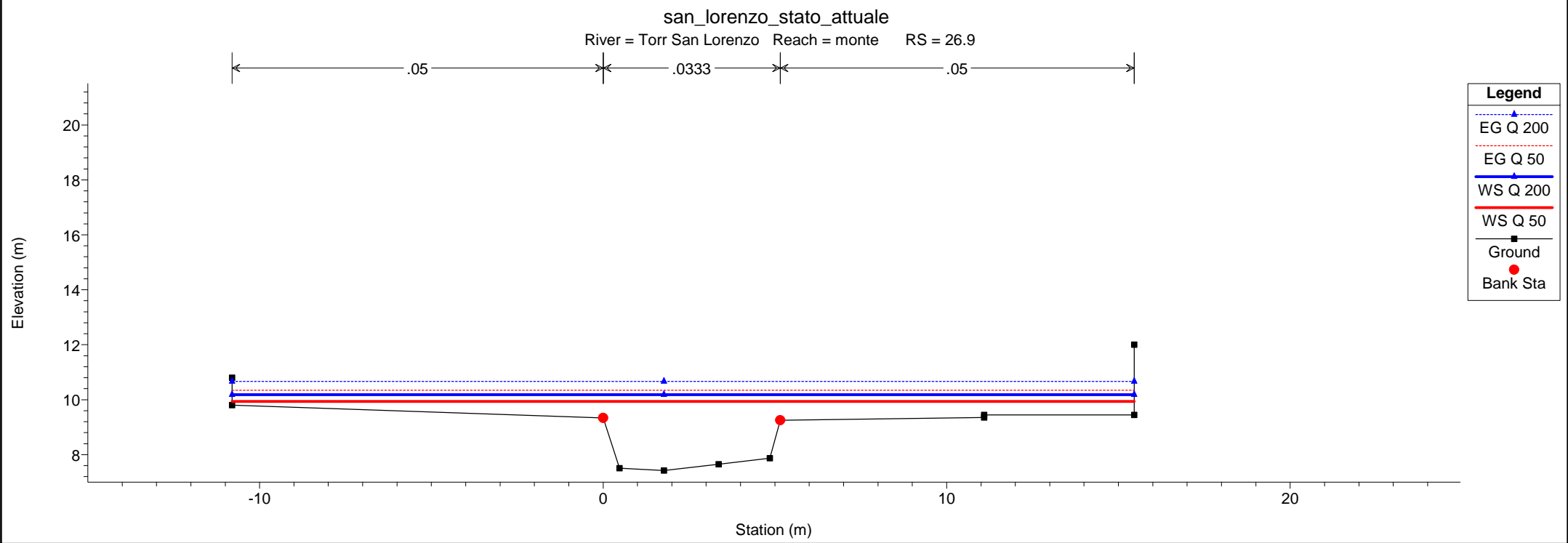
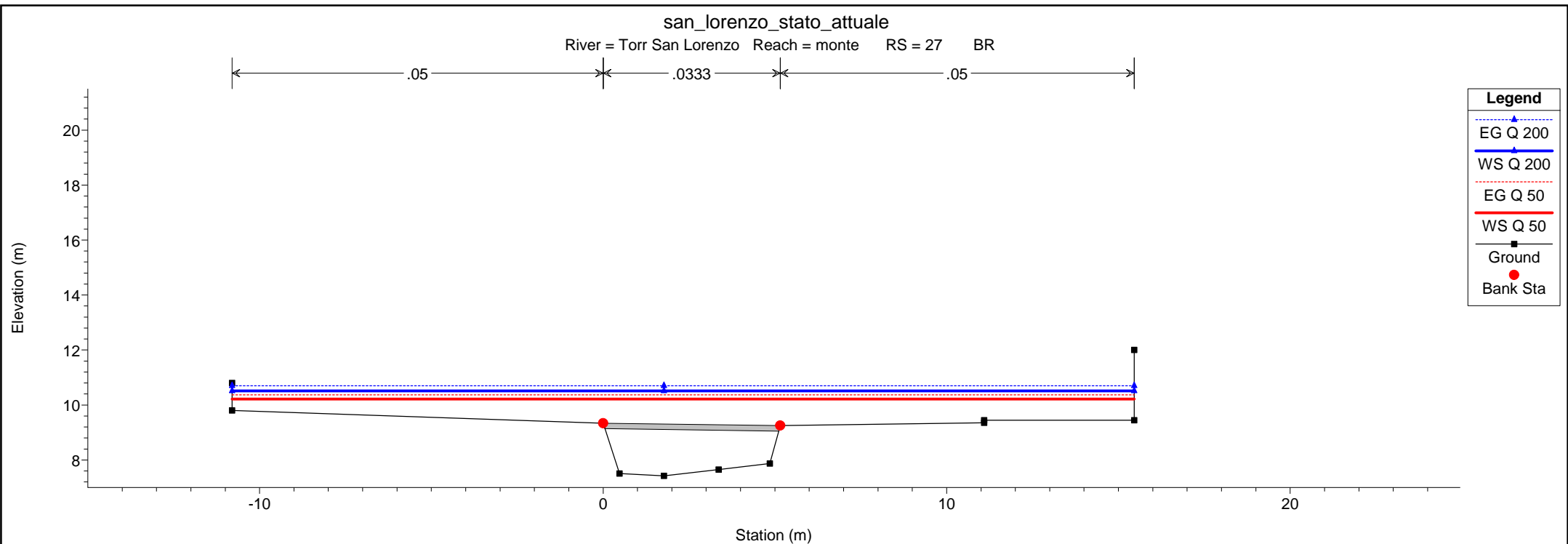
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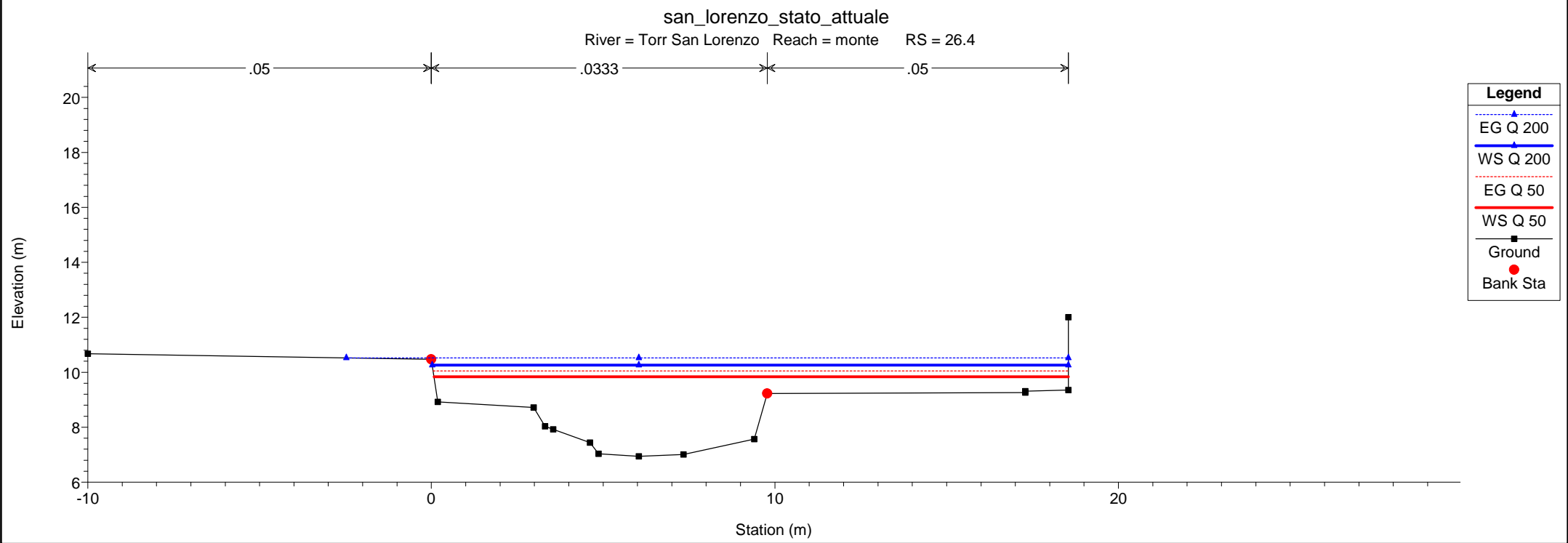
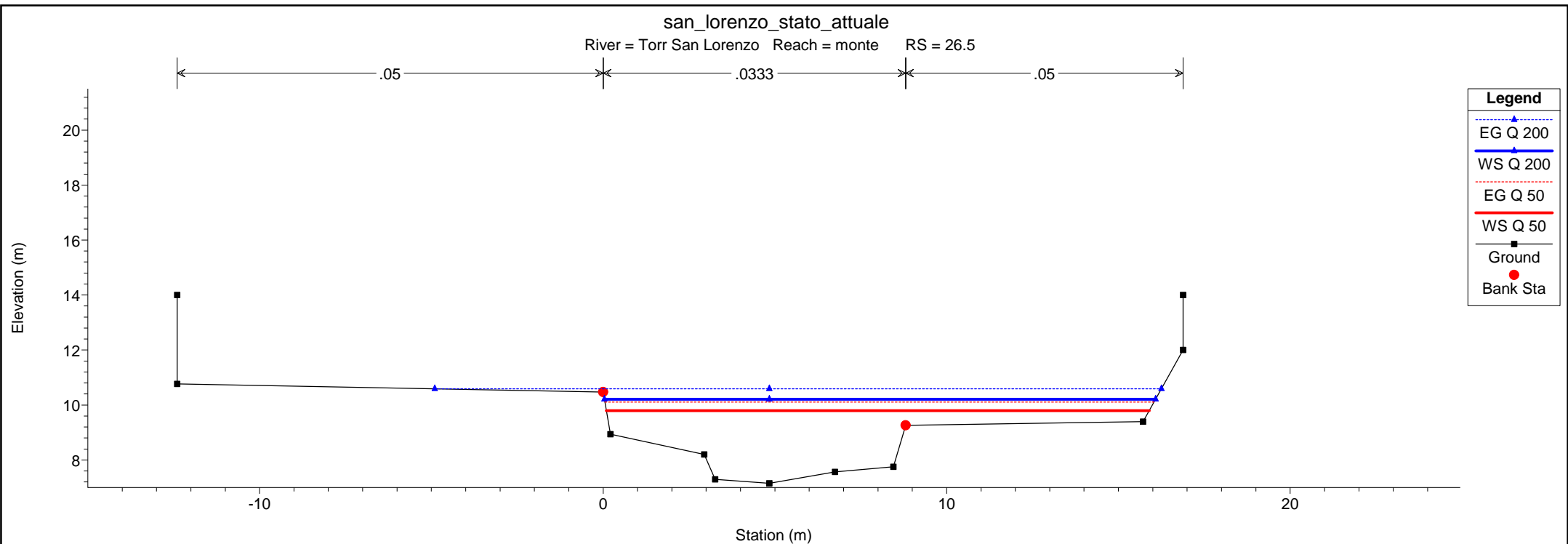
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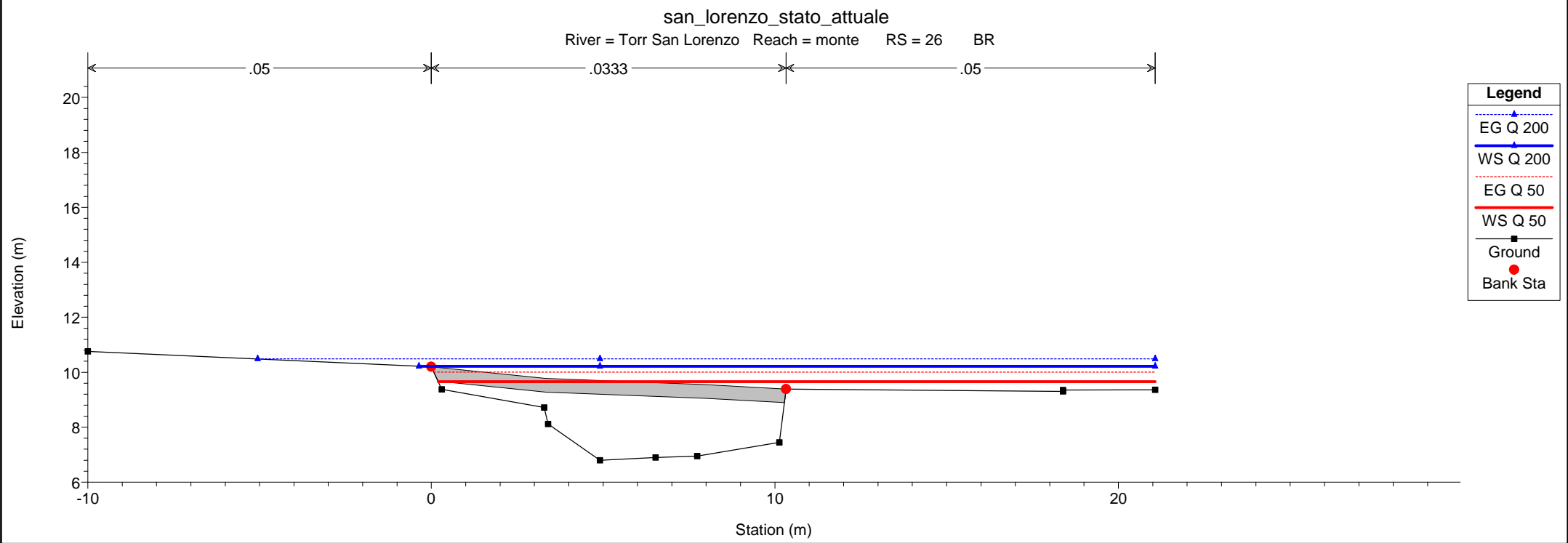
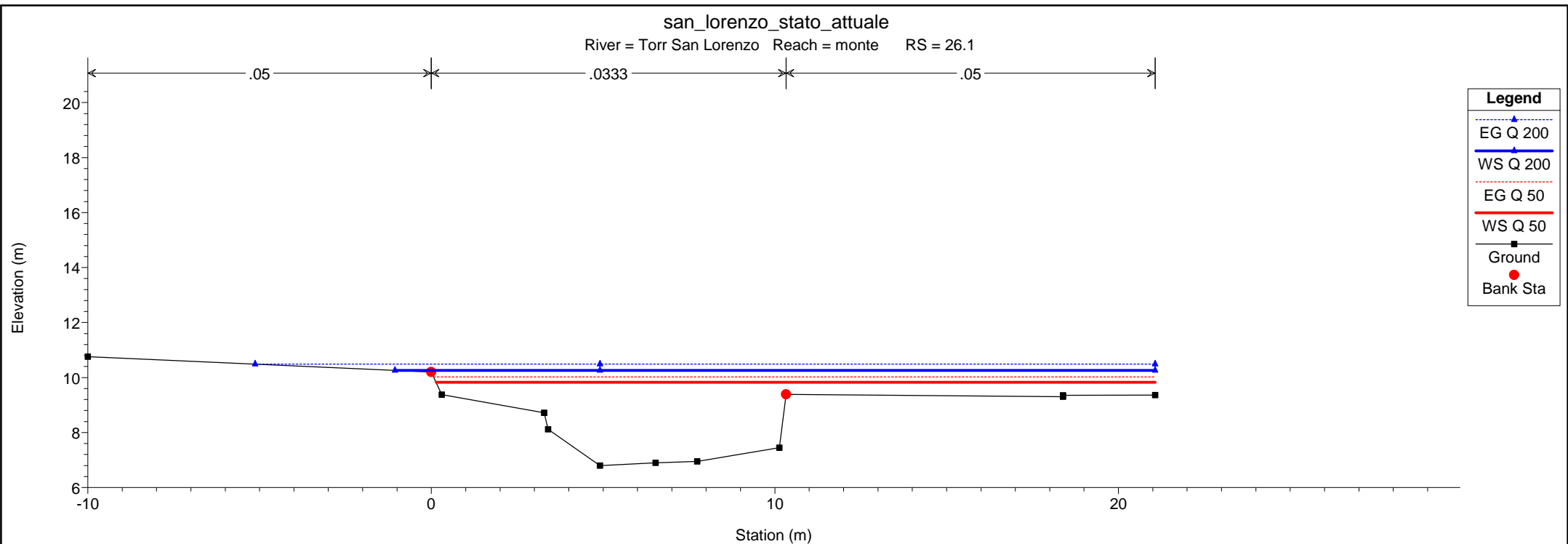
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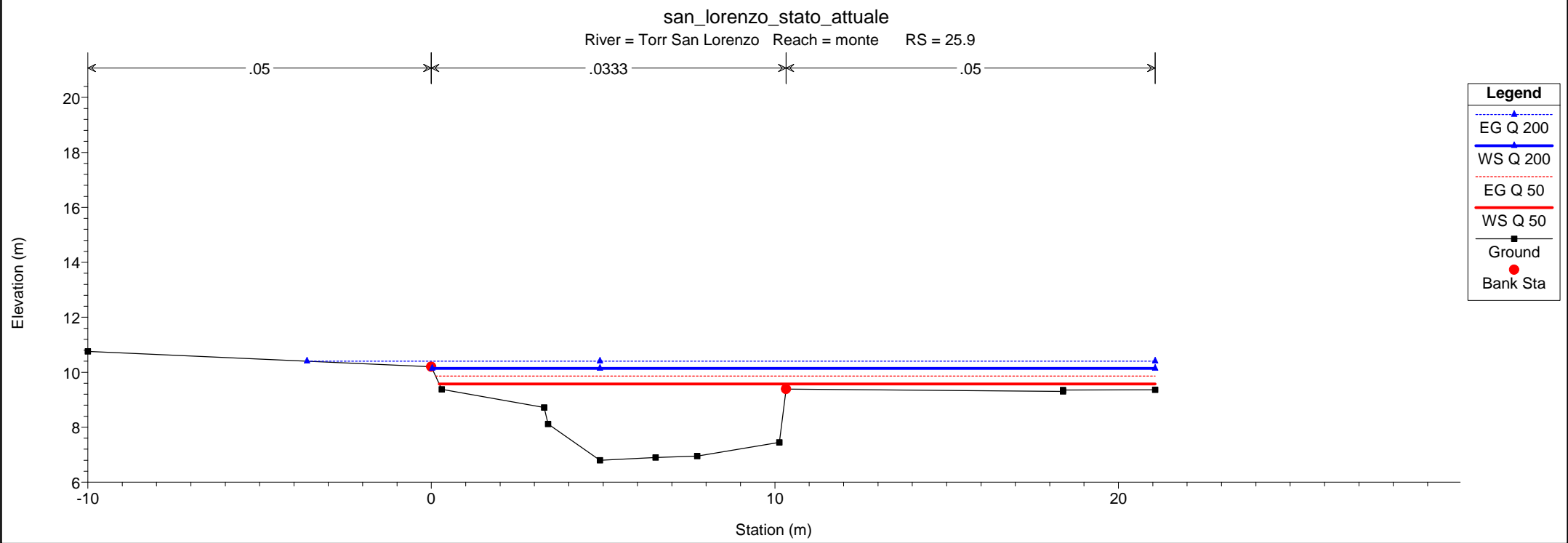
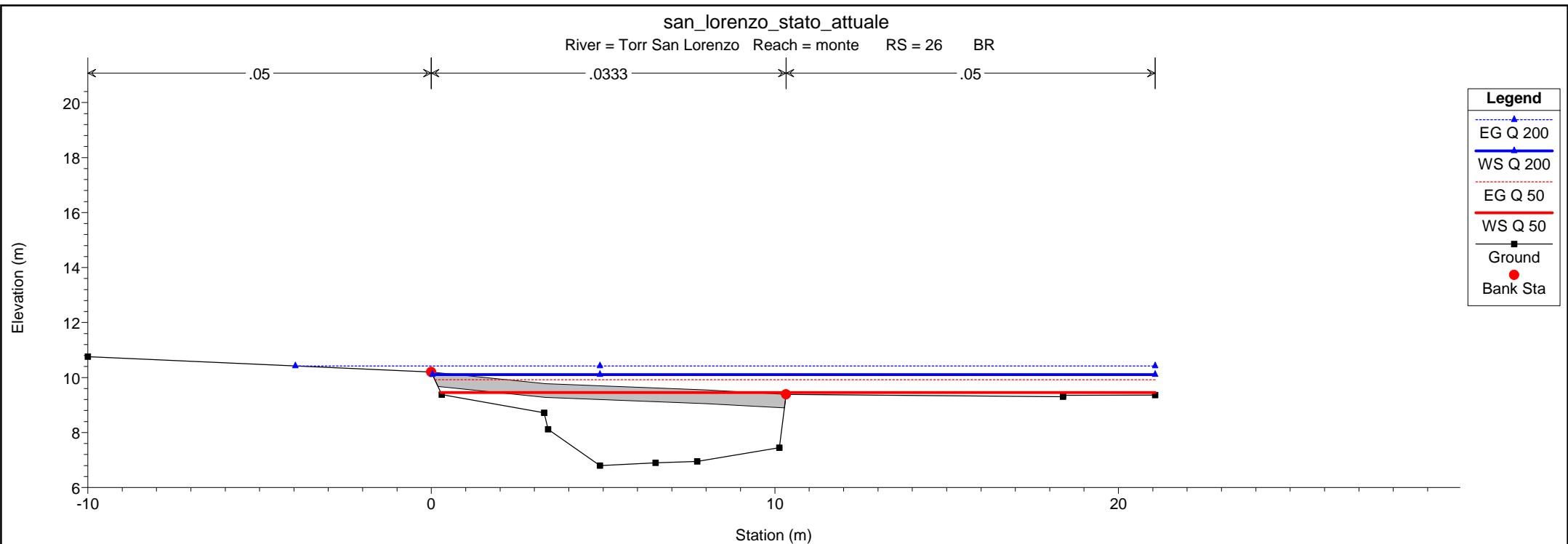
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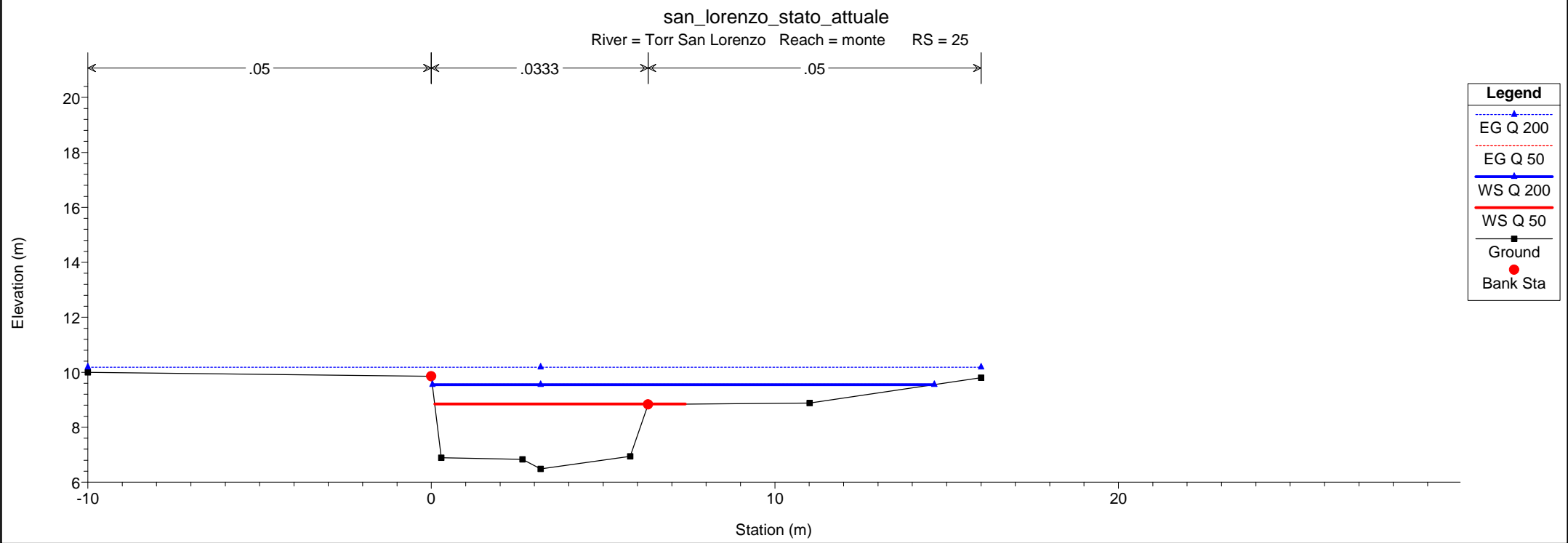
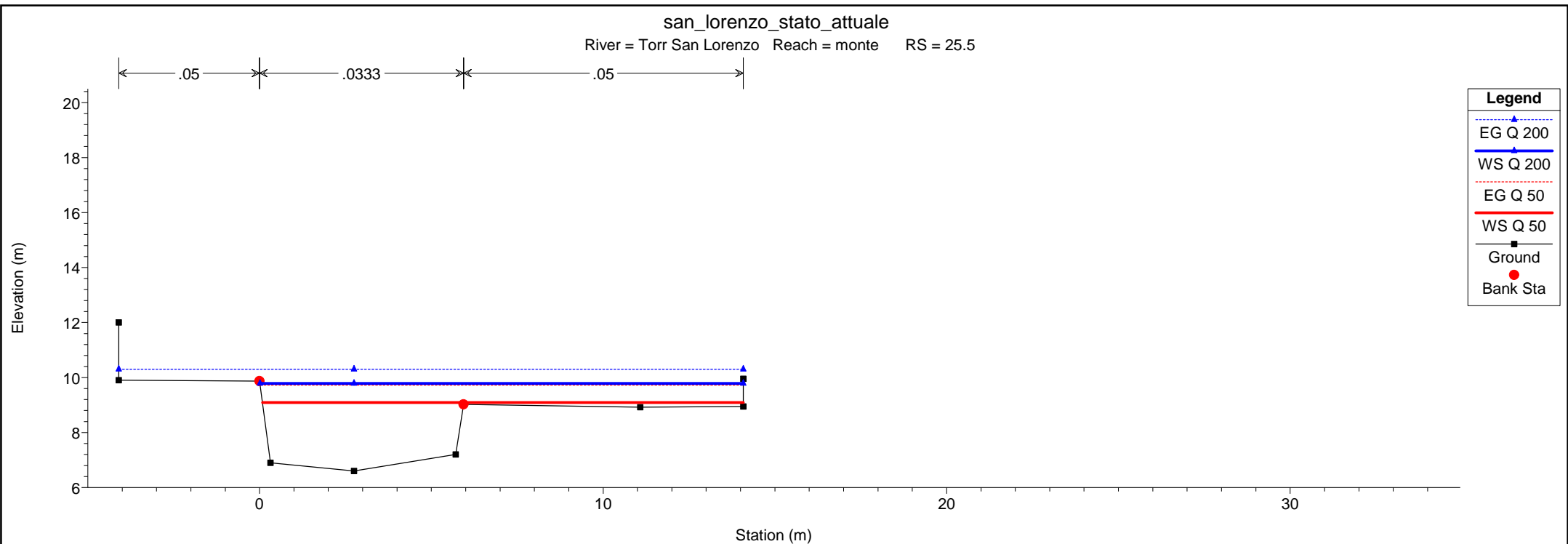
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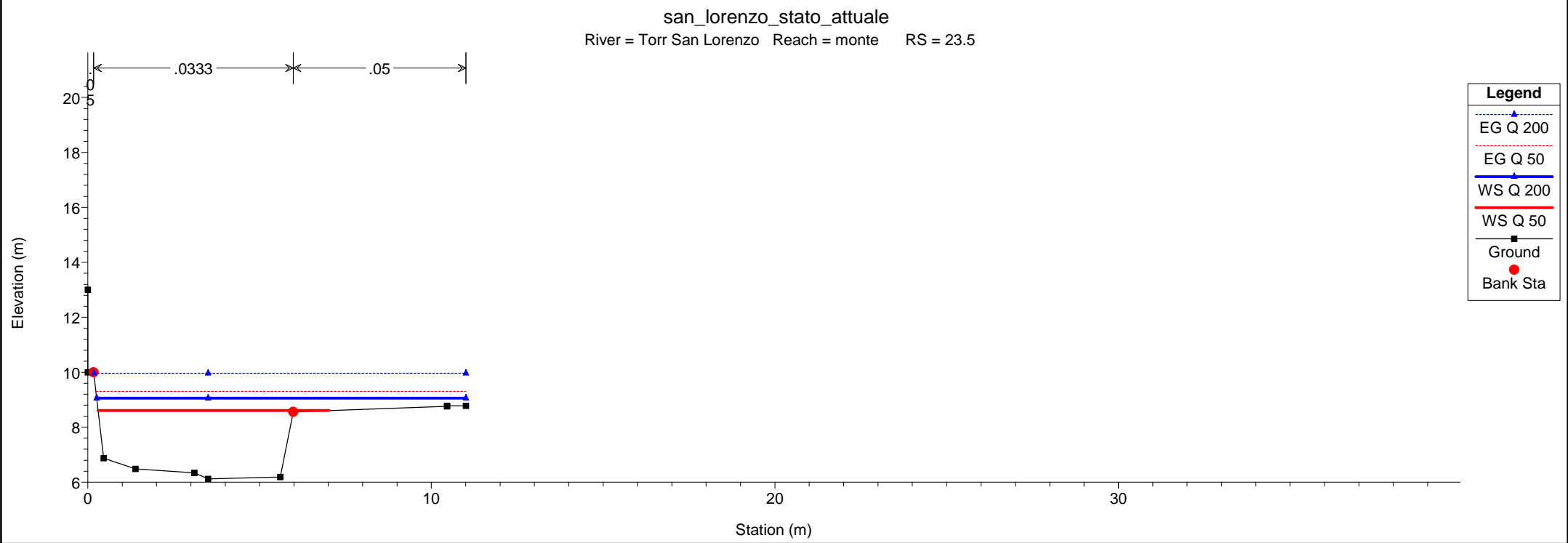
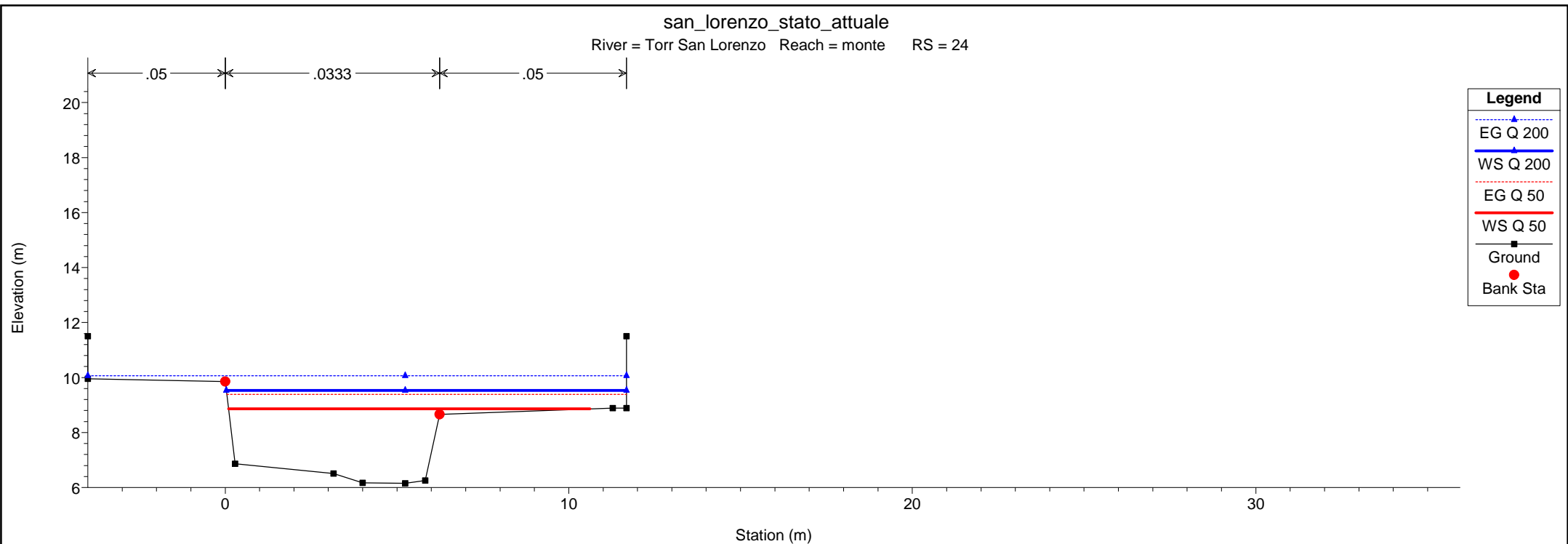
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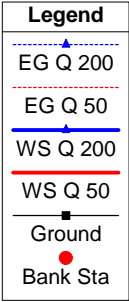
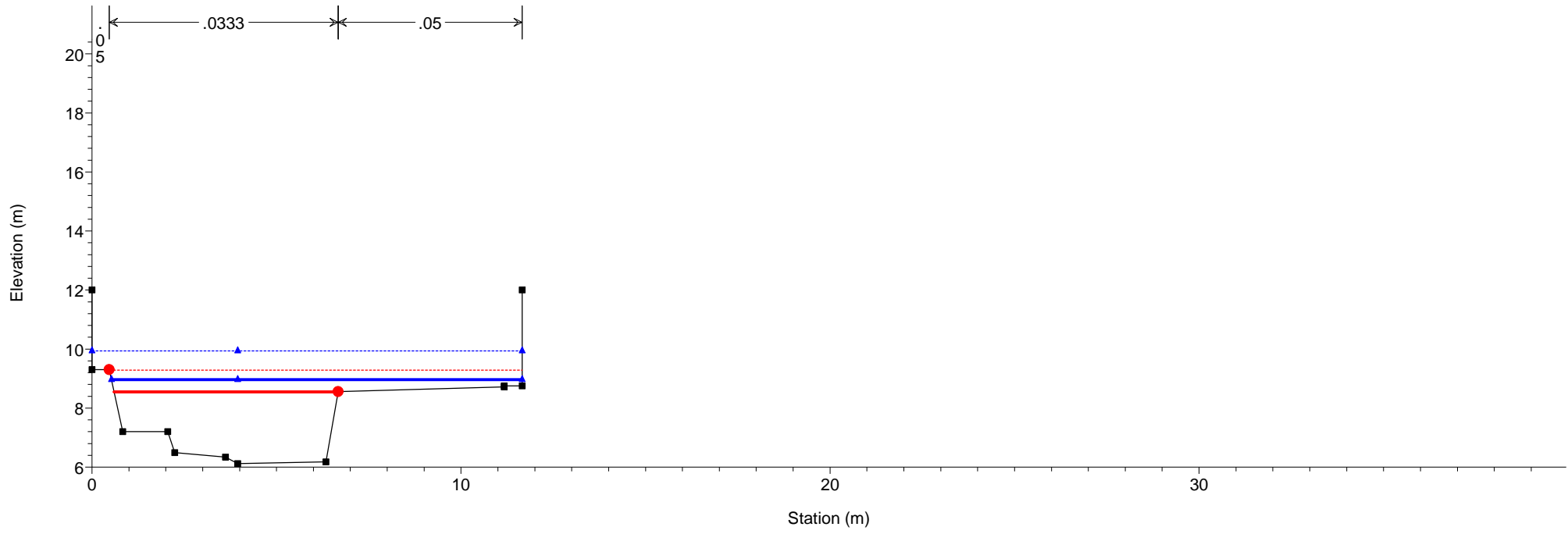


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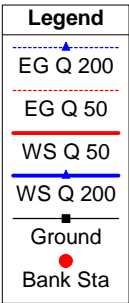
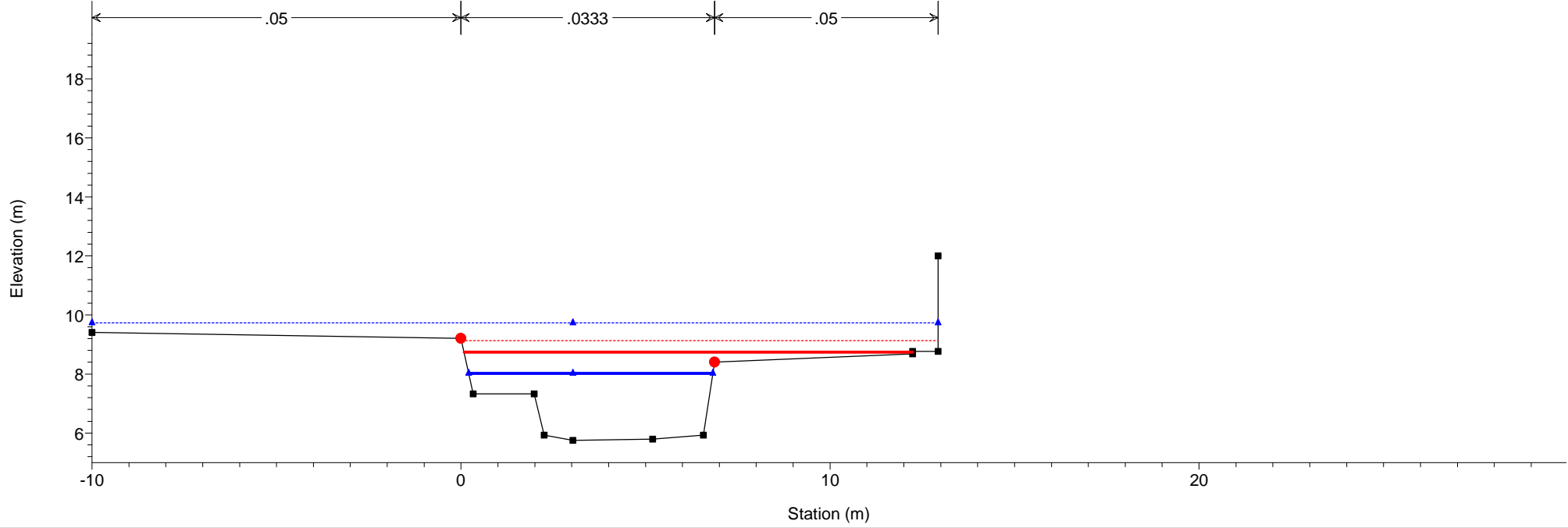


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

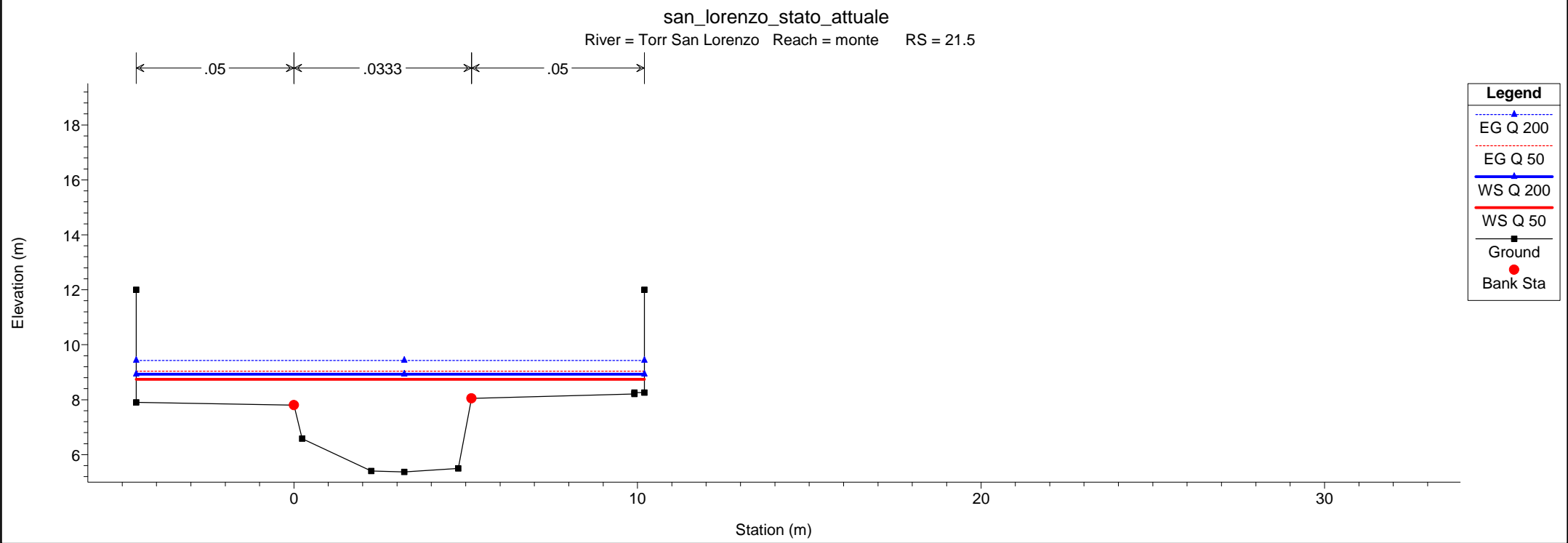
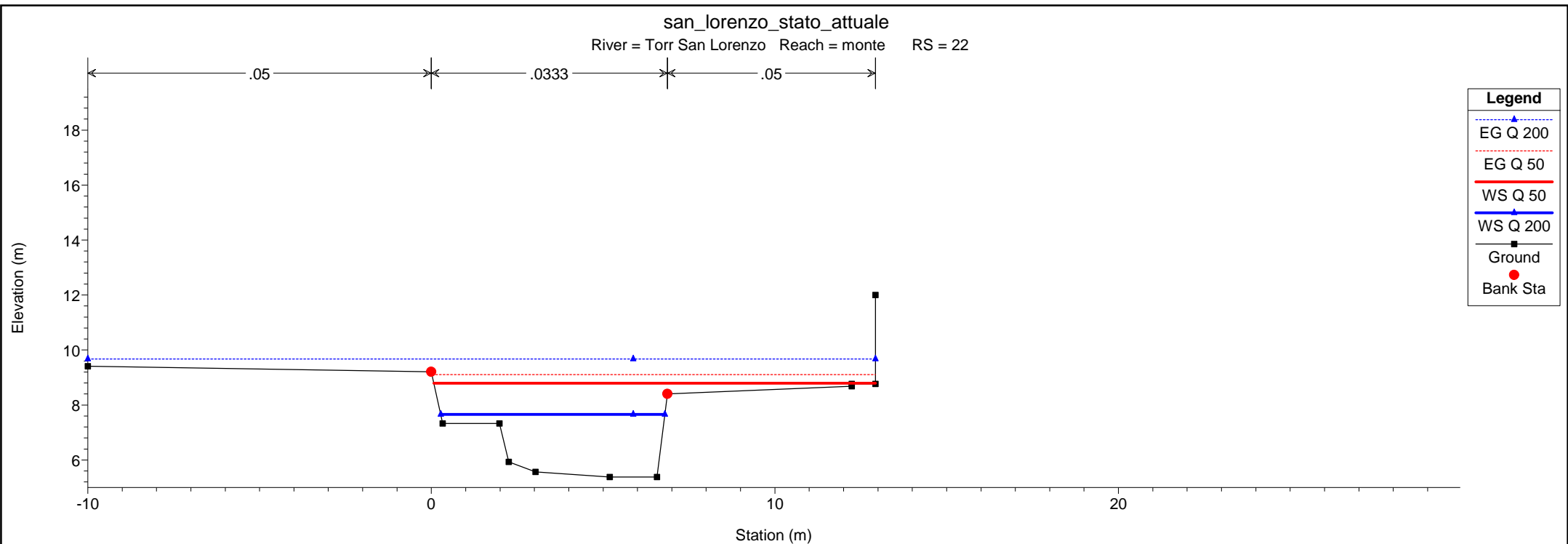
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 River = Torr San Lorenzo Reach = monte RS = 23



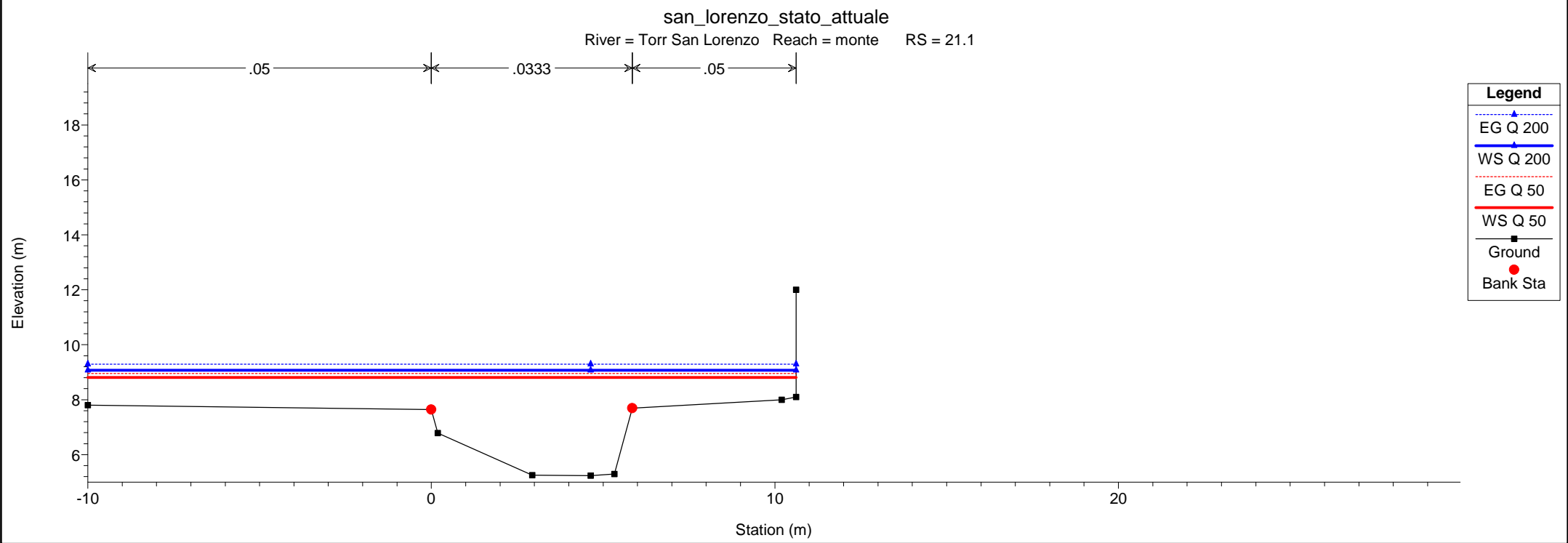
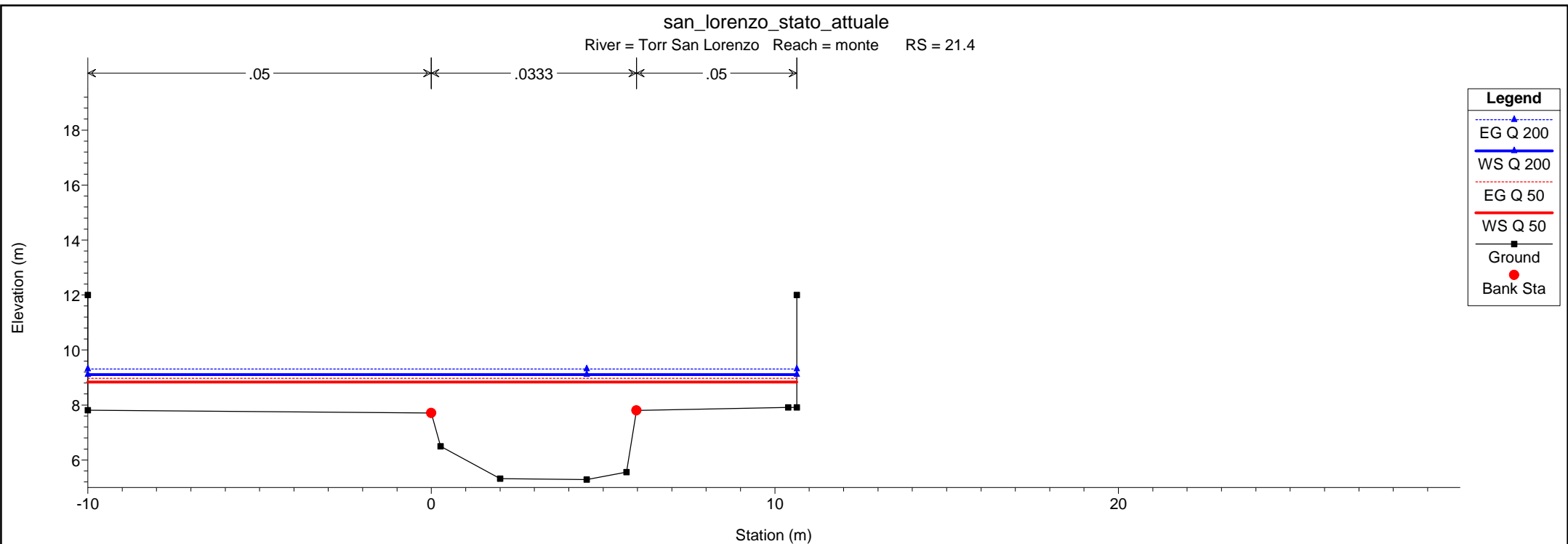
san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = monte RS = 22.1



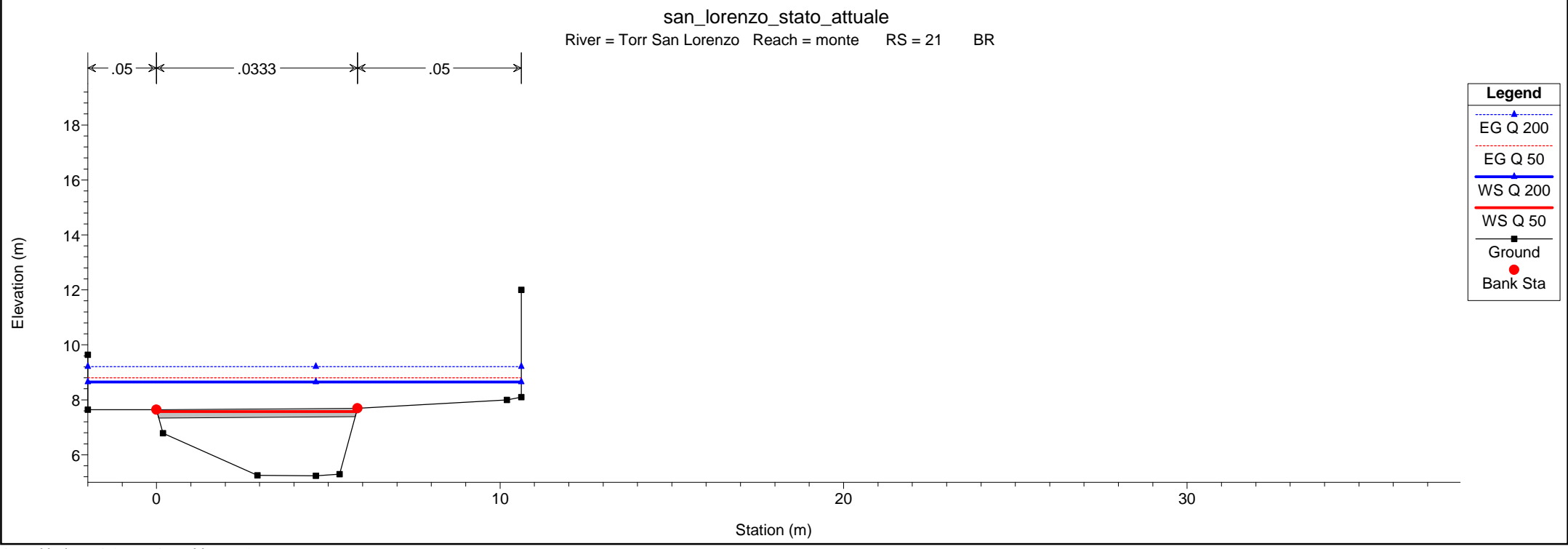
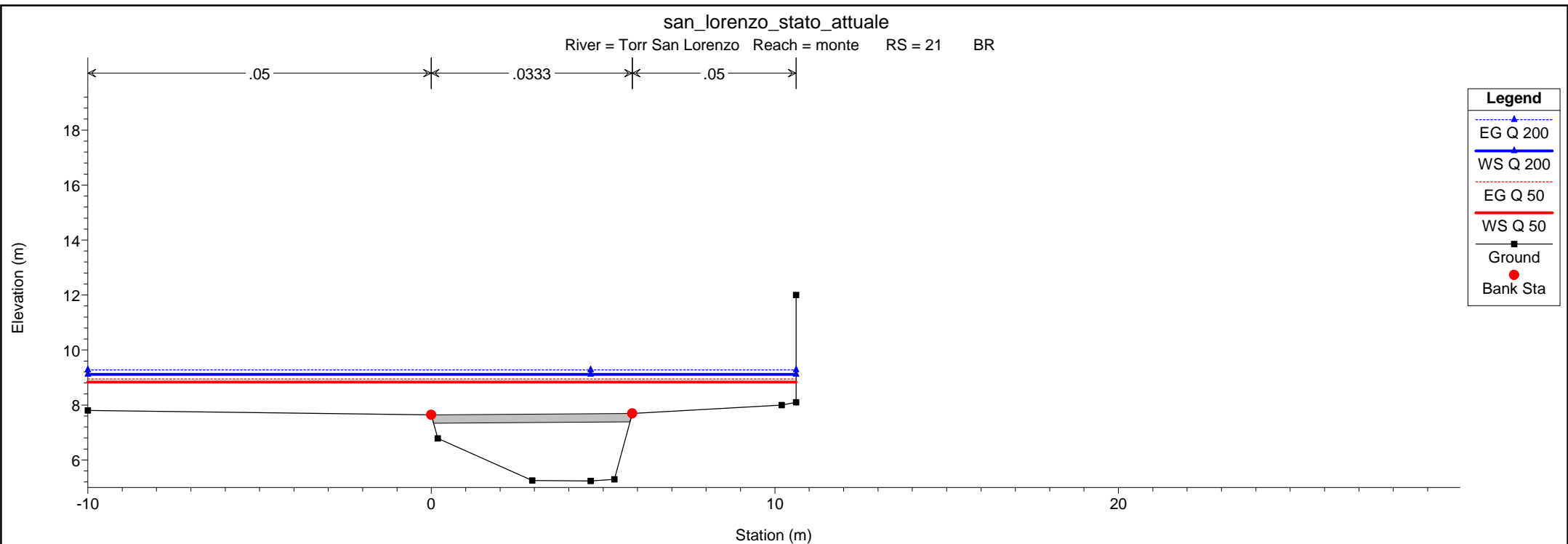
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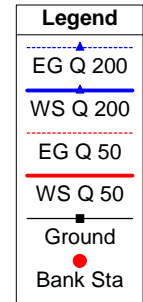
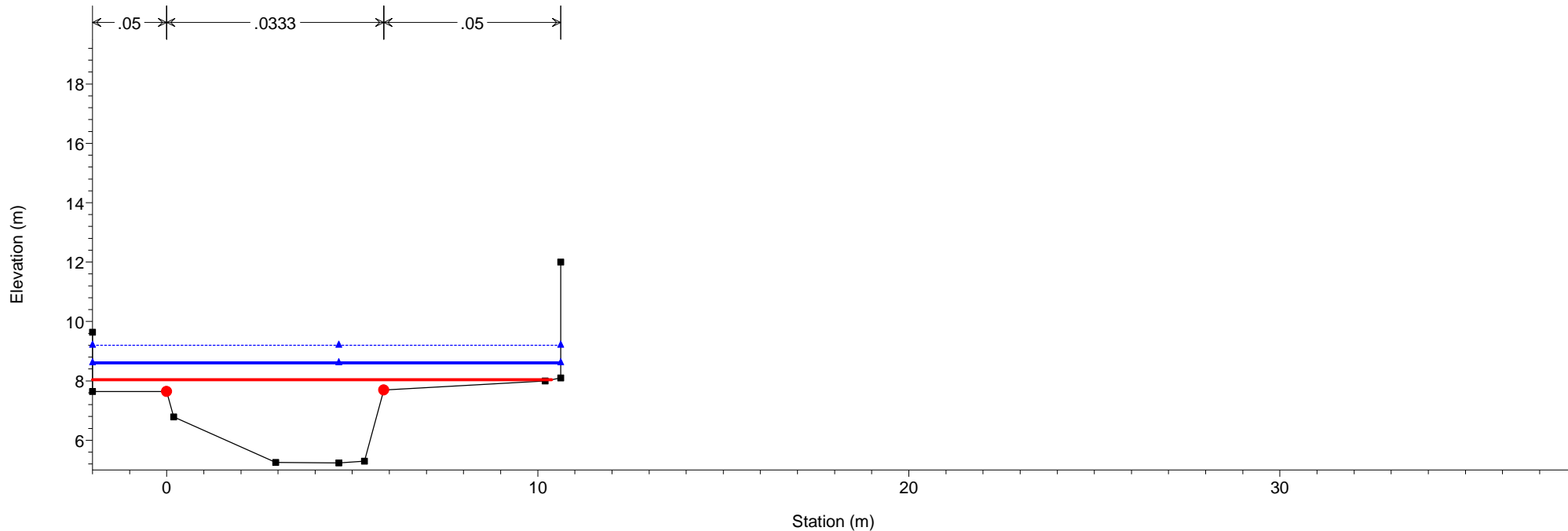
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1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

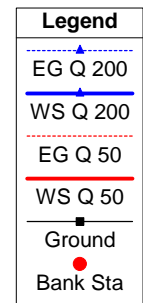
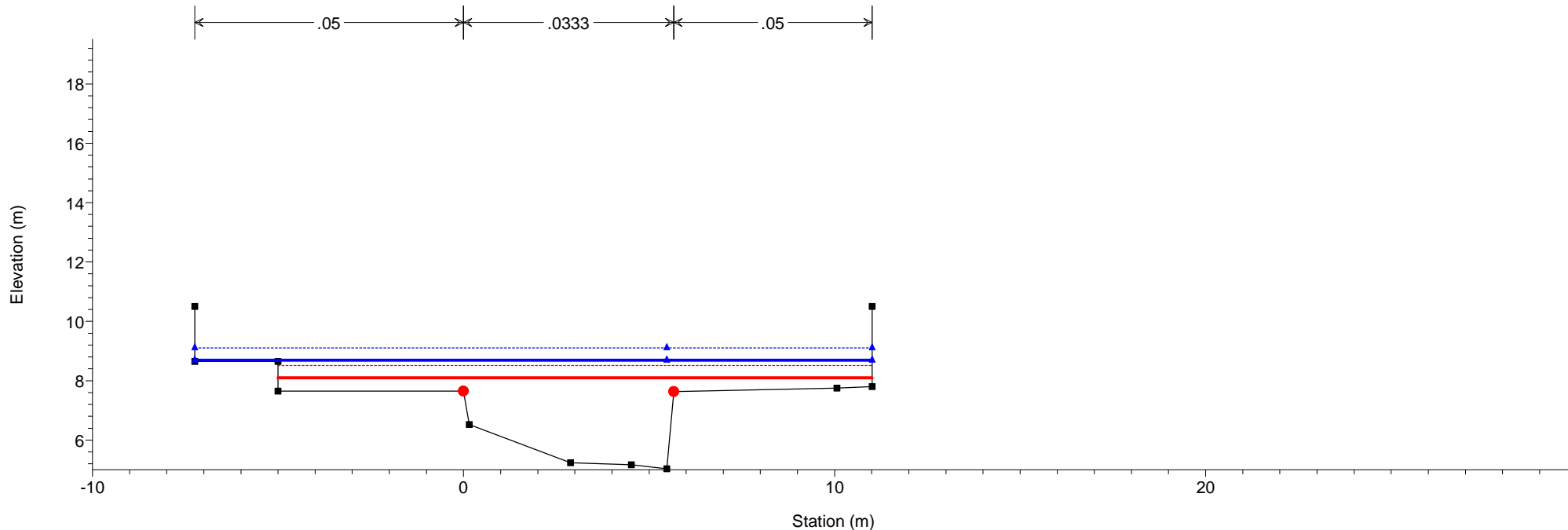
san_lorenzo_stato_attuale

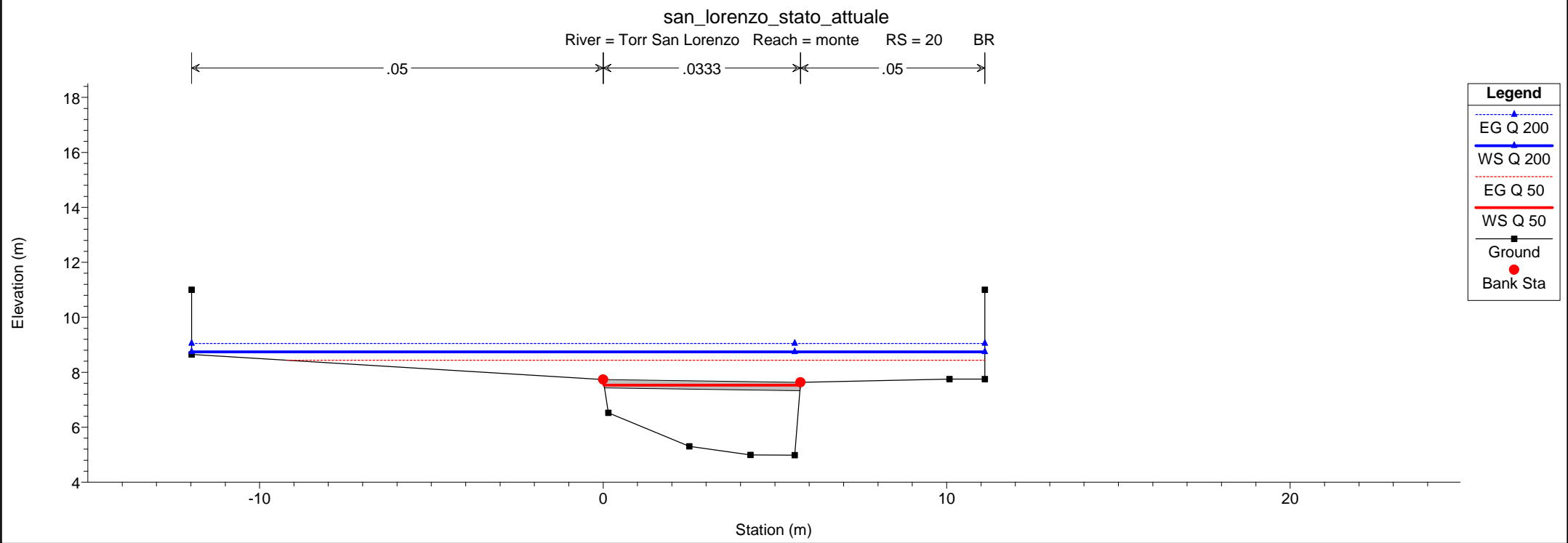
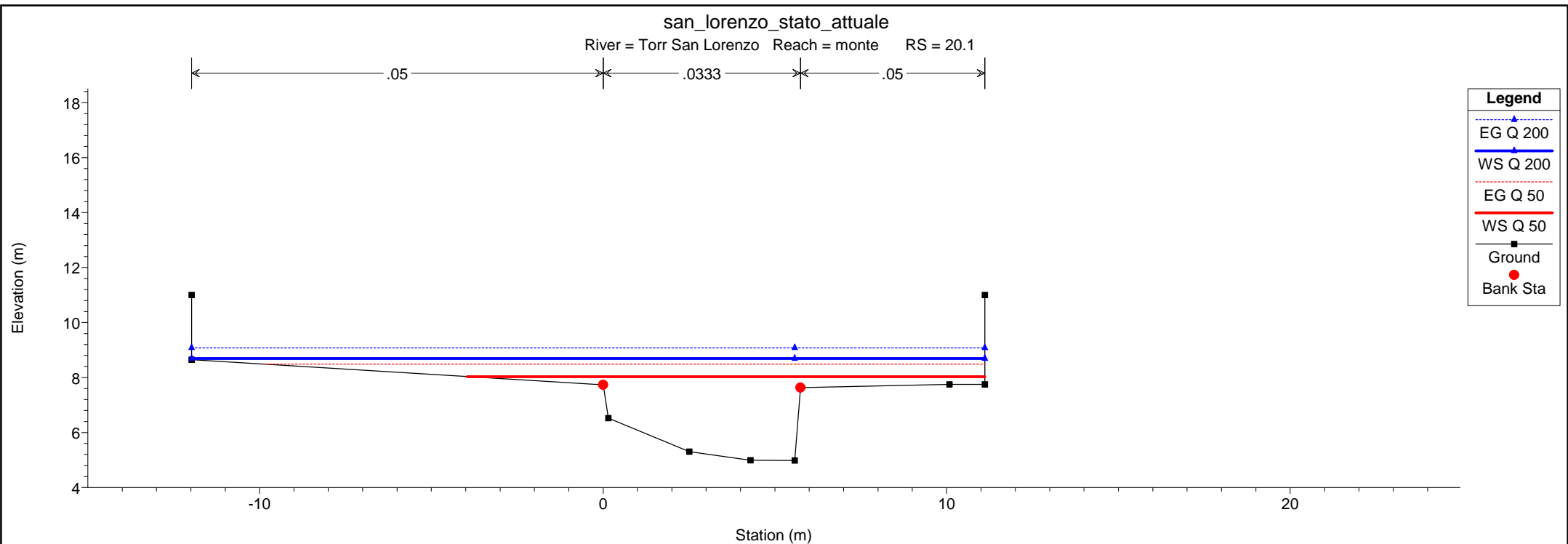
River = Torr San Lorenzo Reach = monte RS = 20.9



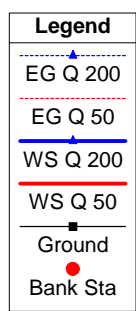
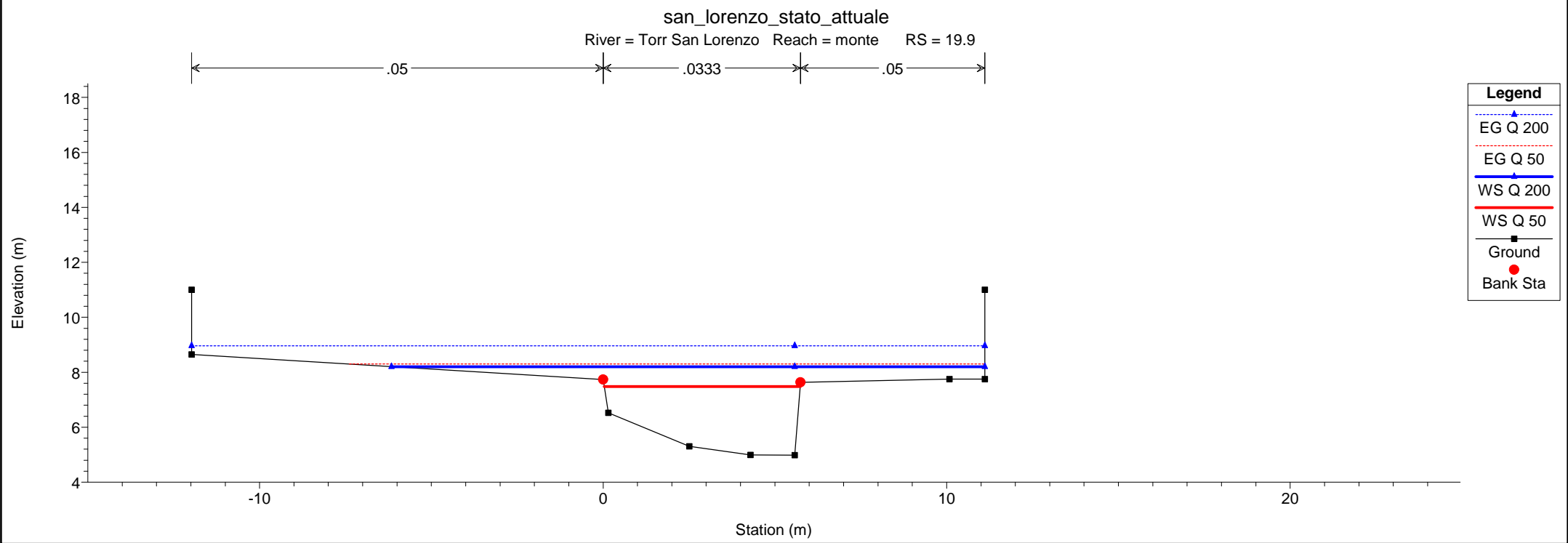
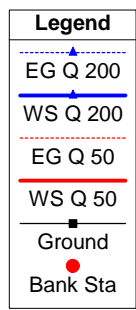
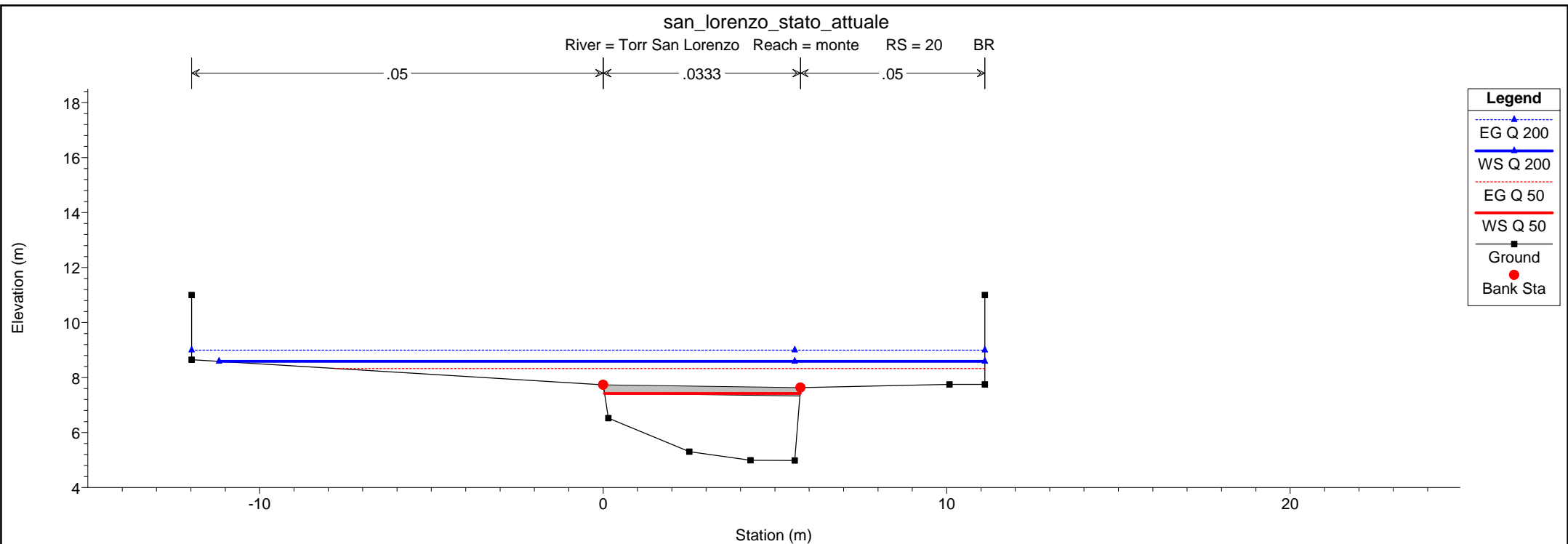
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = monte RS = 20.5

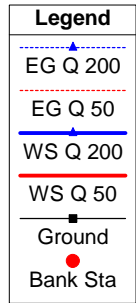
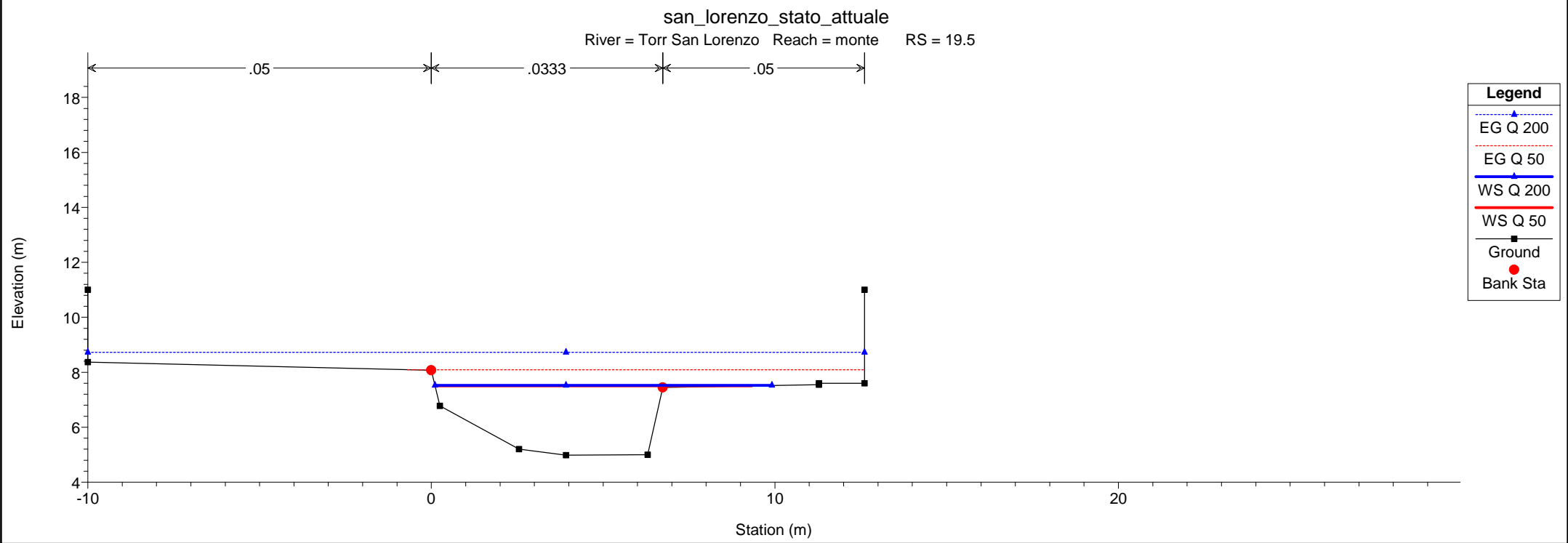
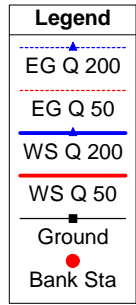
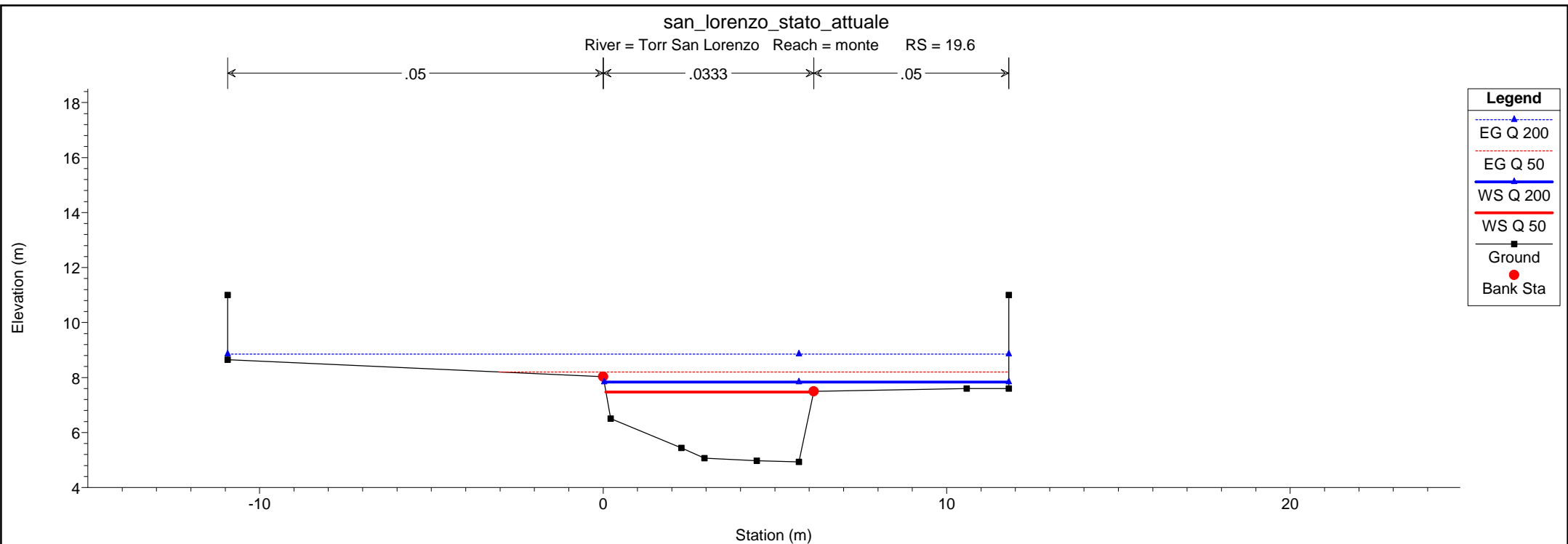




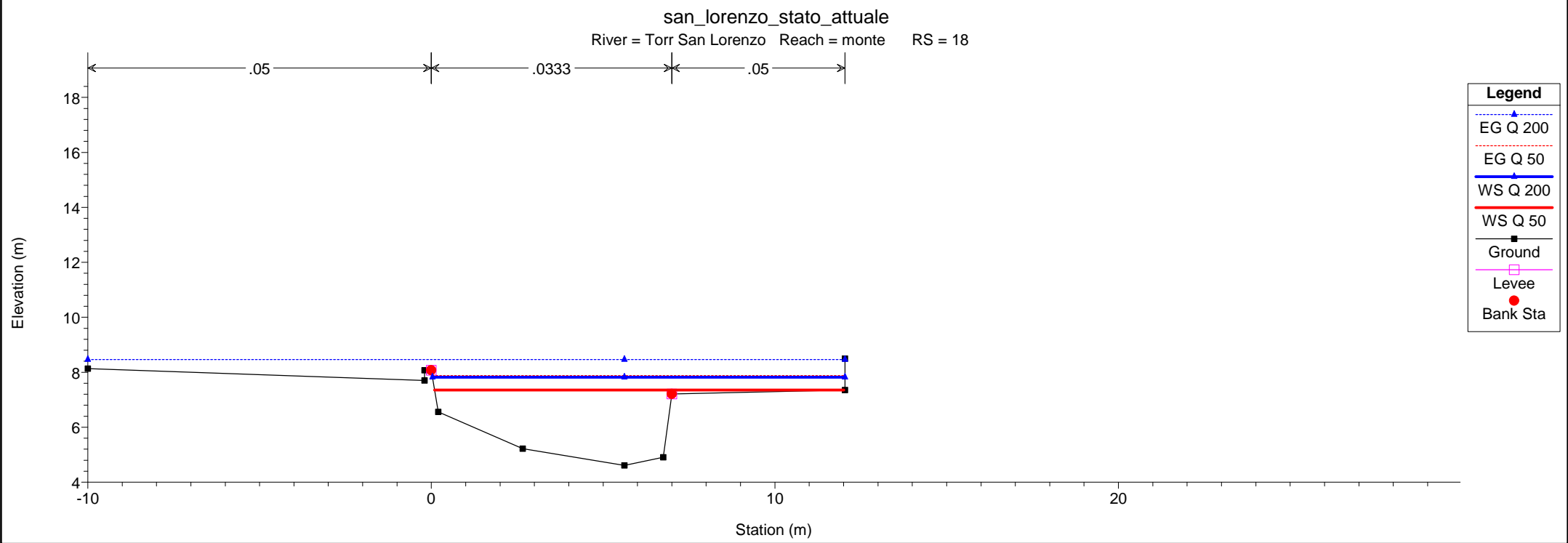
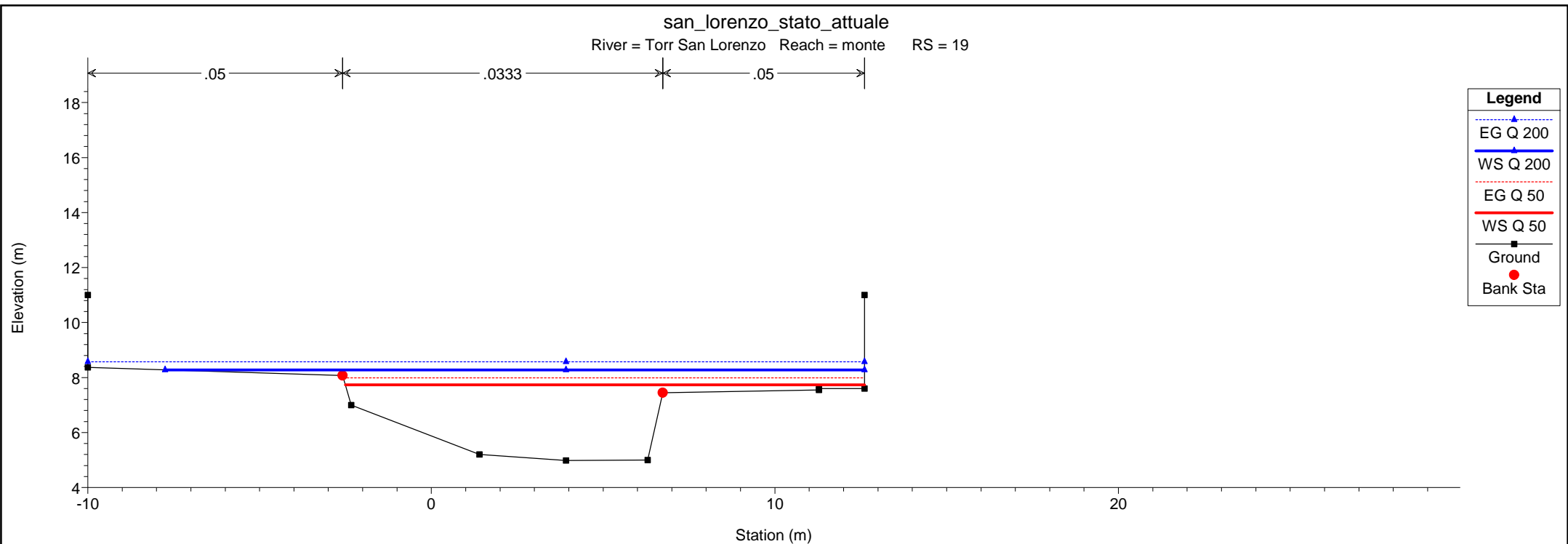
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



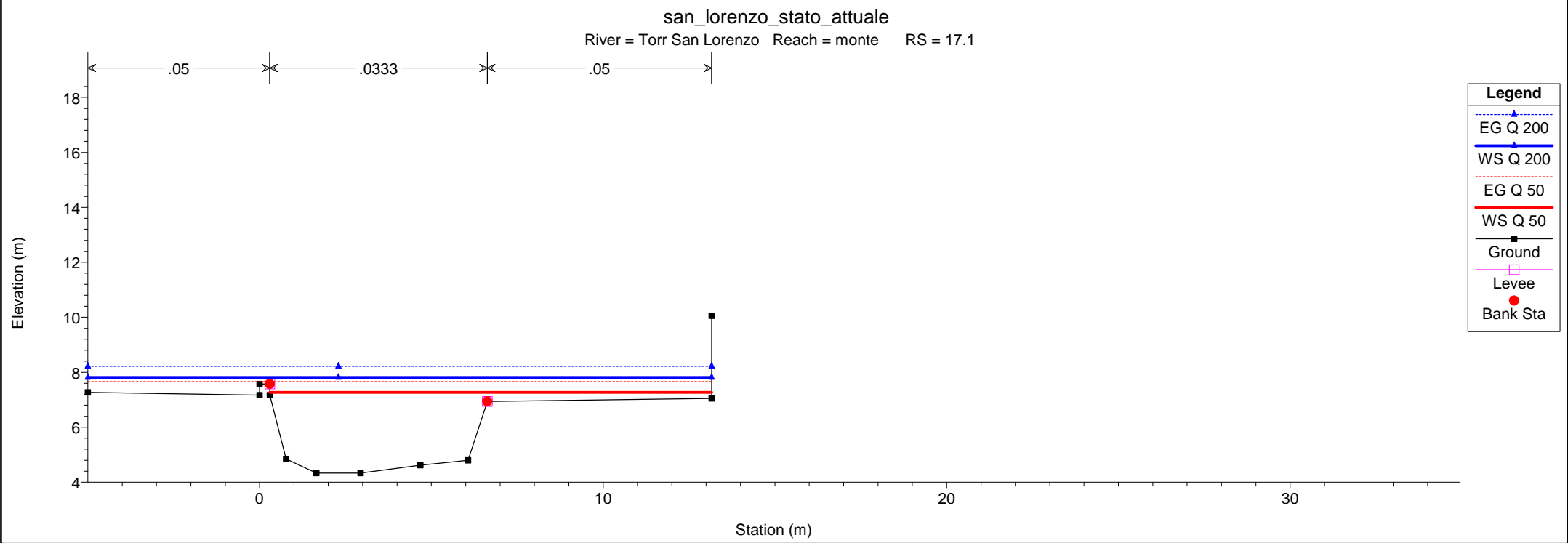
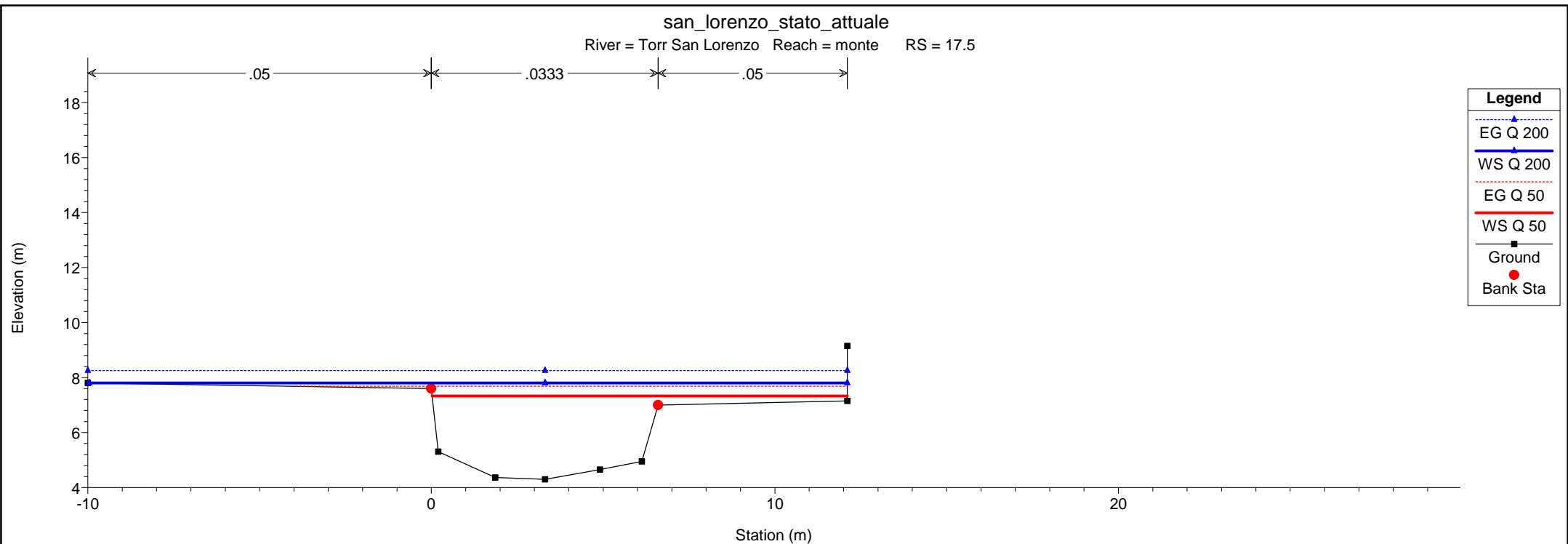
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



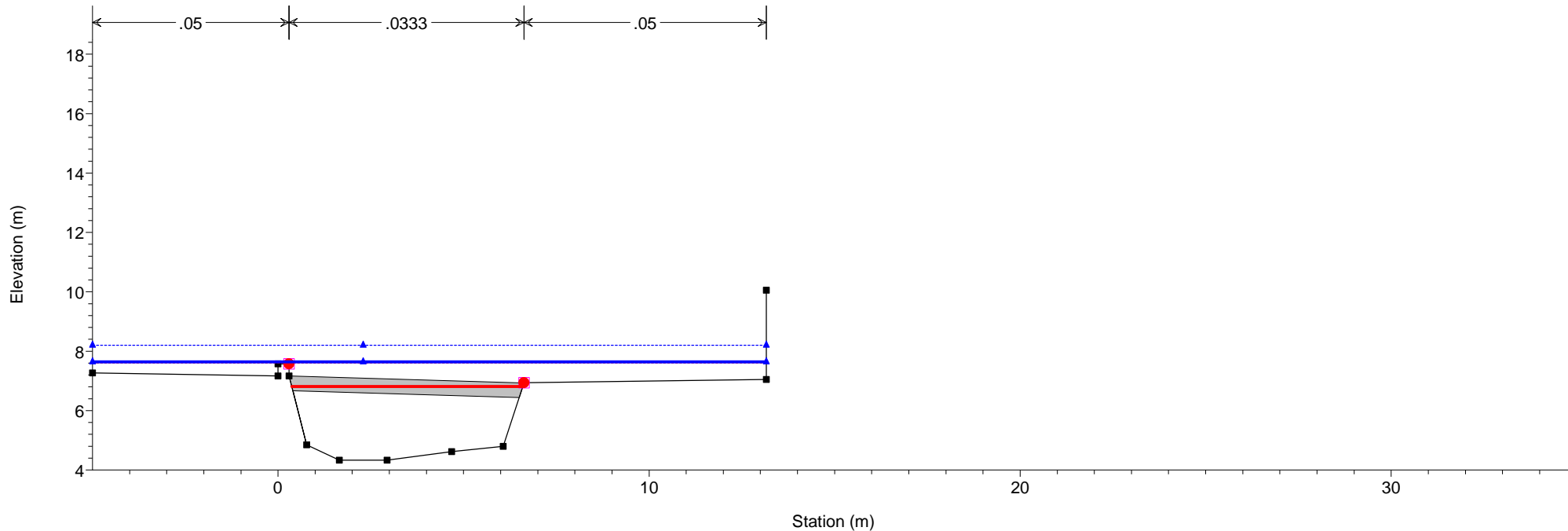
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

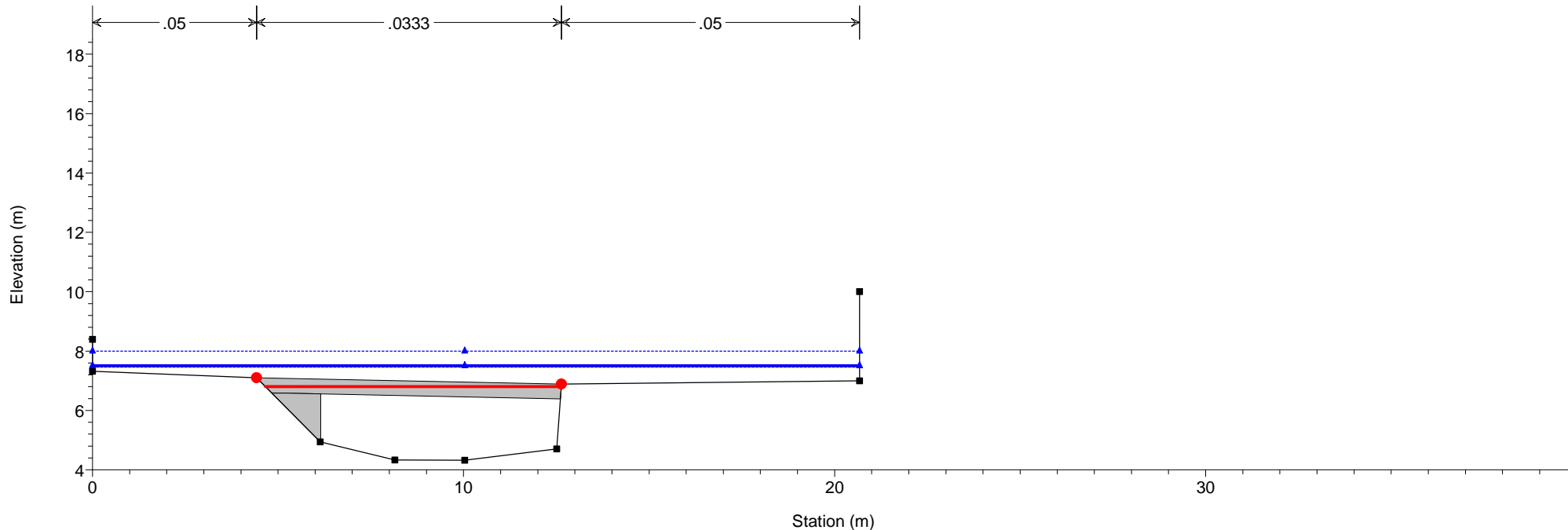
san_lorenzo_stato_attuale

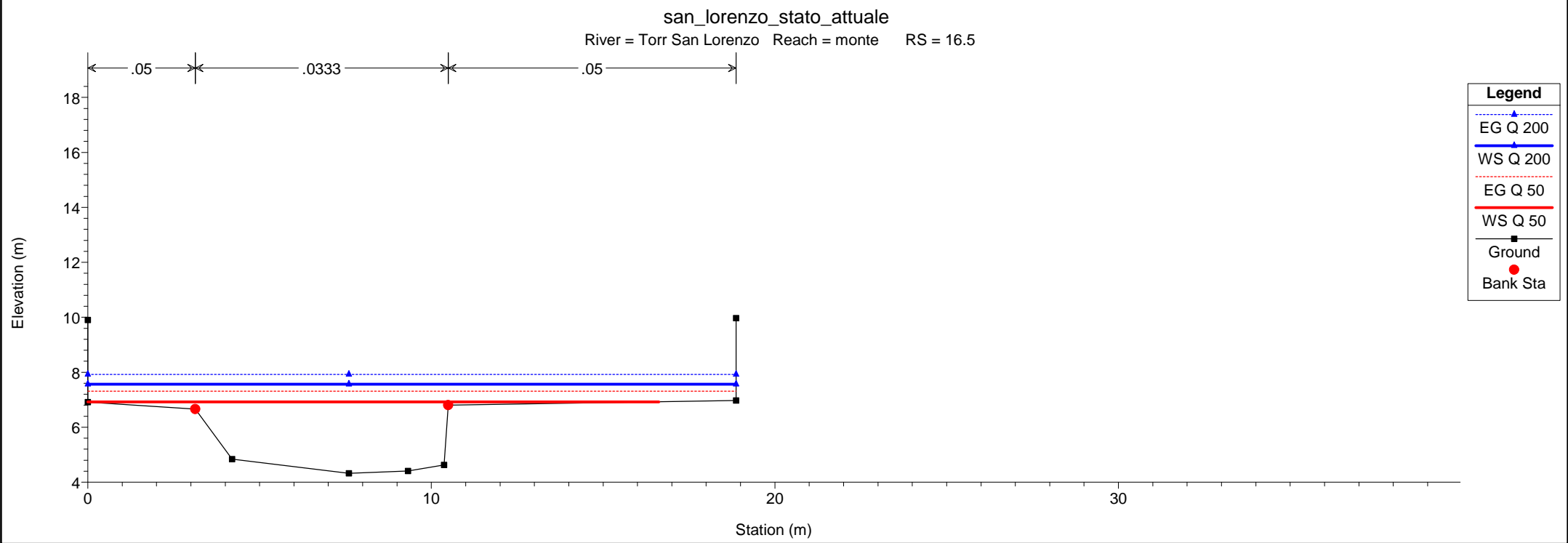
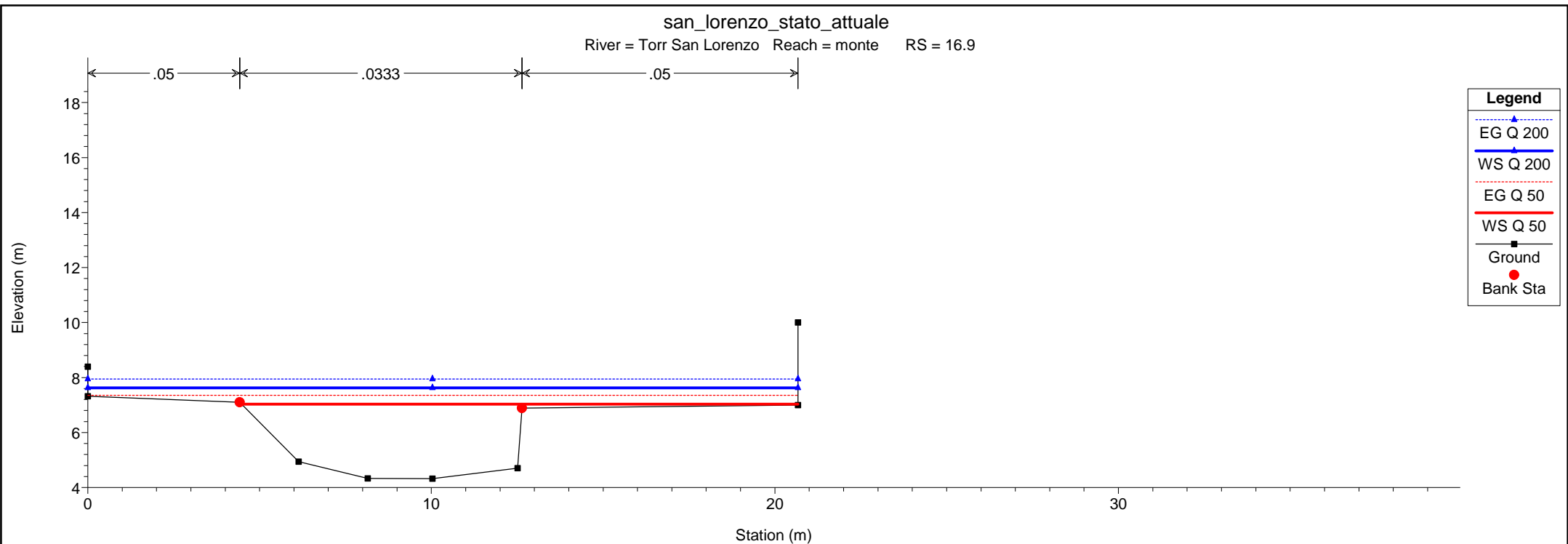
River = Torr San Lorenzo Reach = monte RS = 17 BR



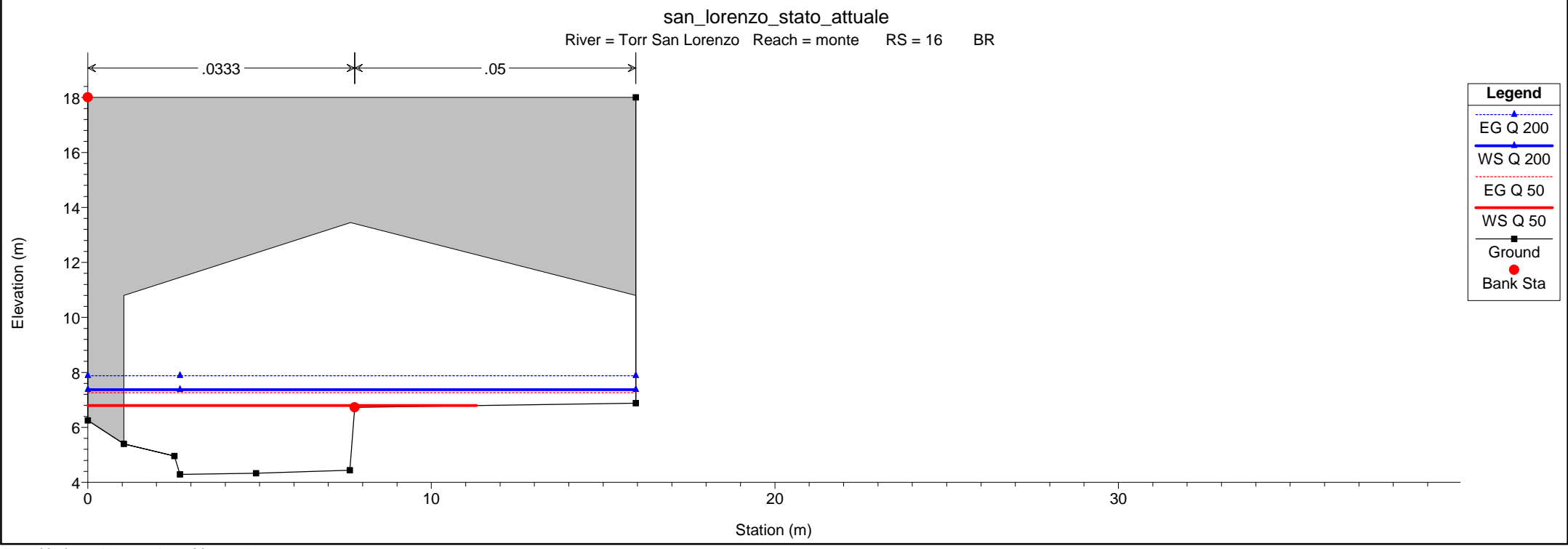
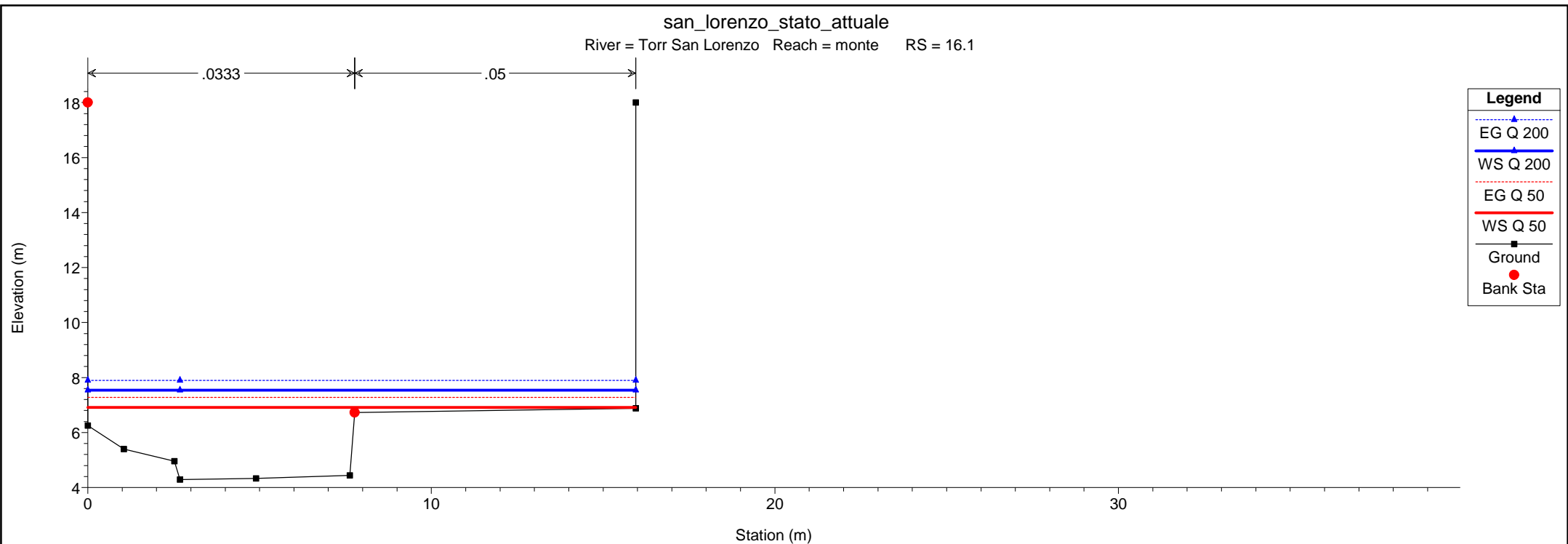
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = monte RS = 17 BR





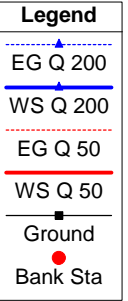
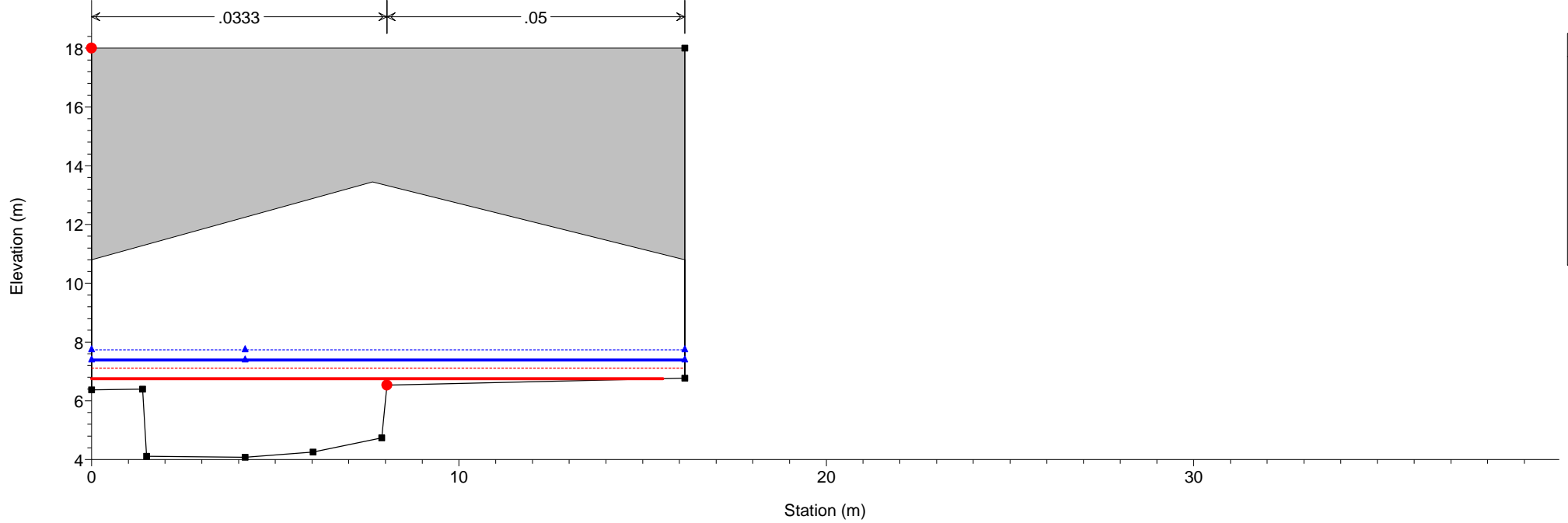
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

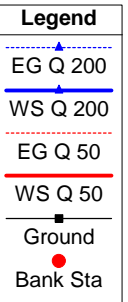
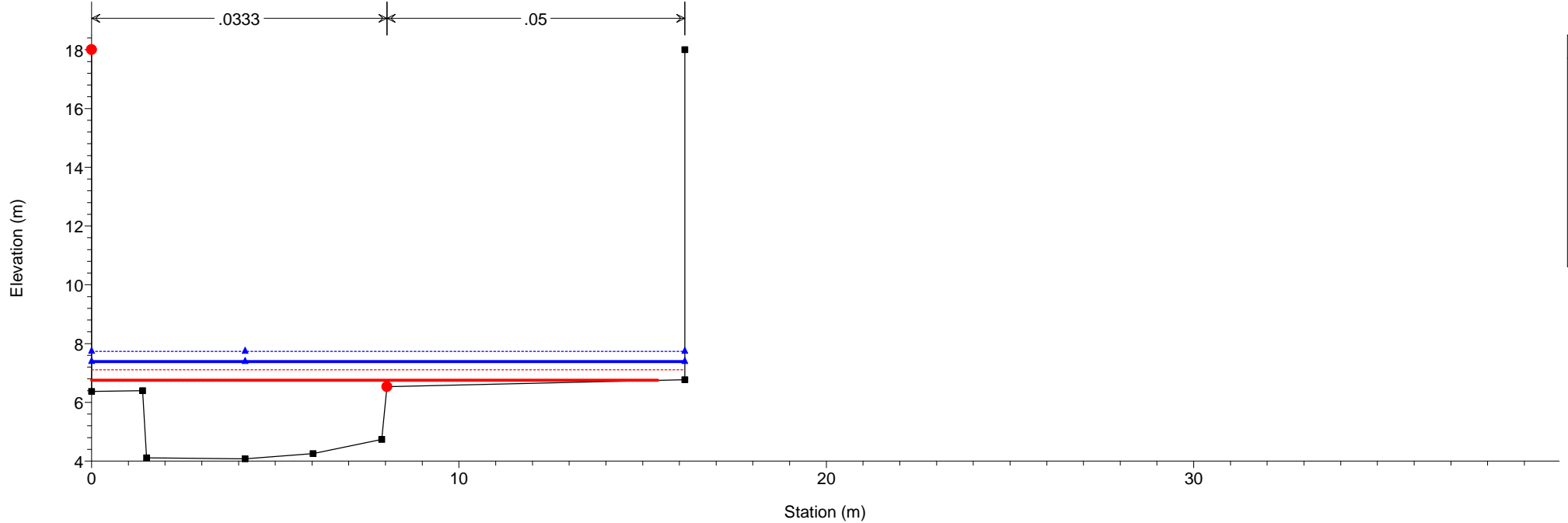
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = monte RS = 16 BR



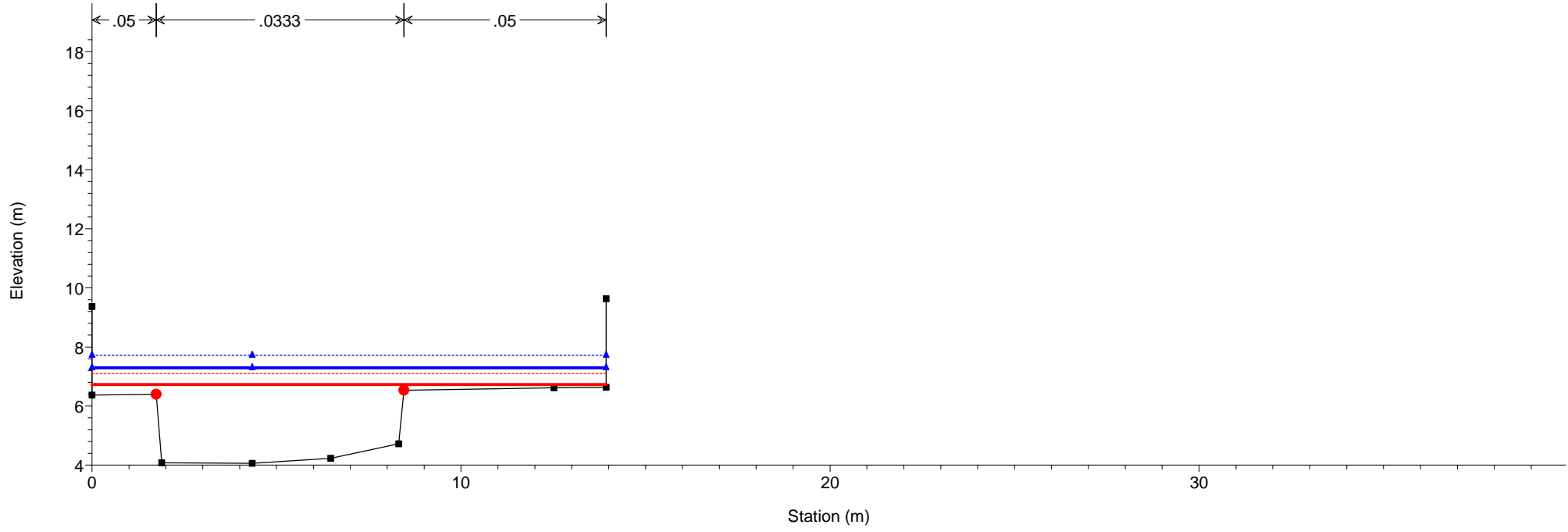
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = monte RS = 15.9

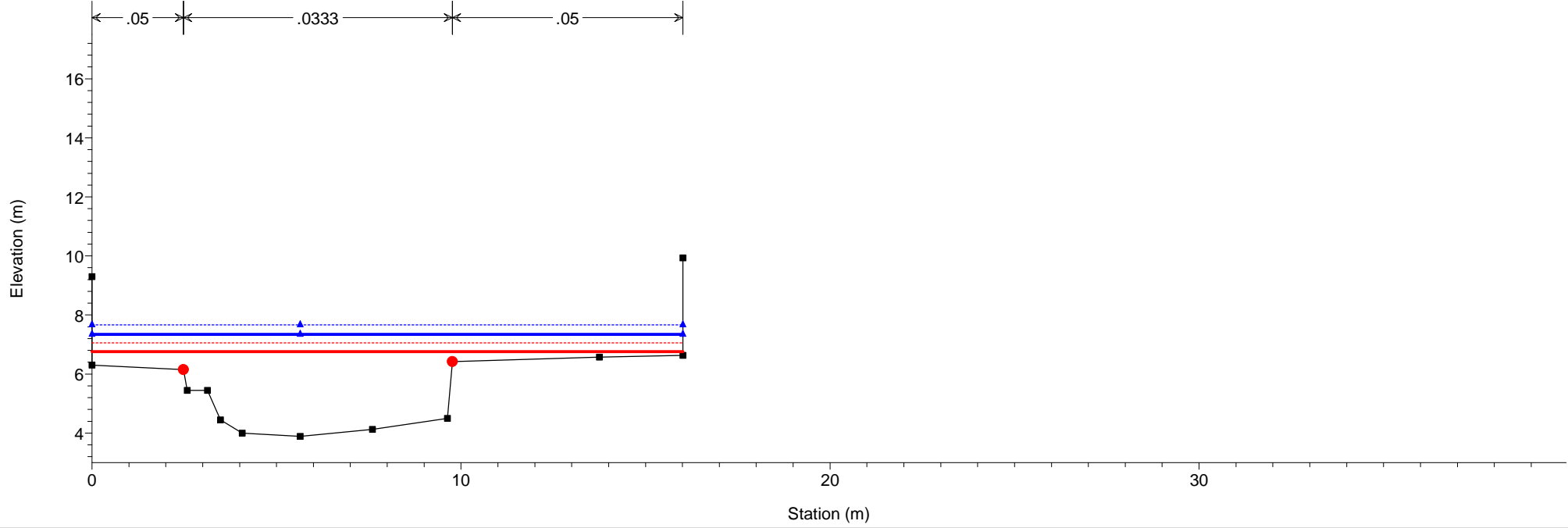


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

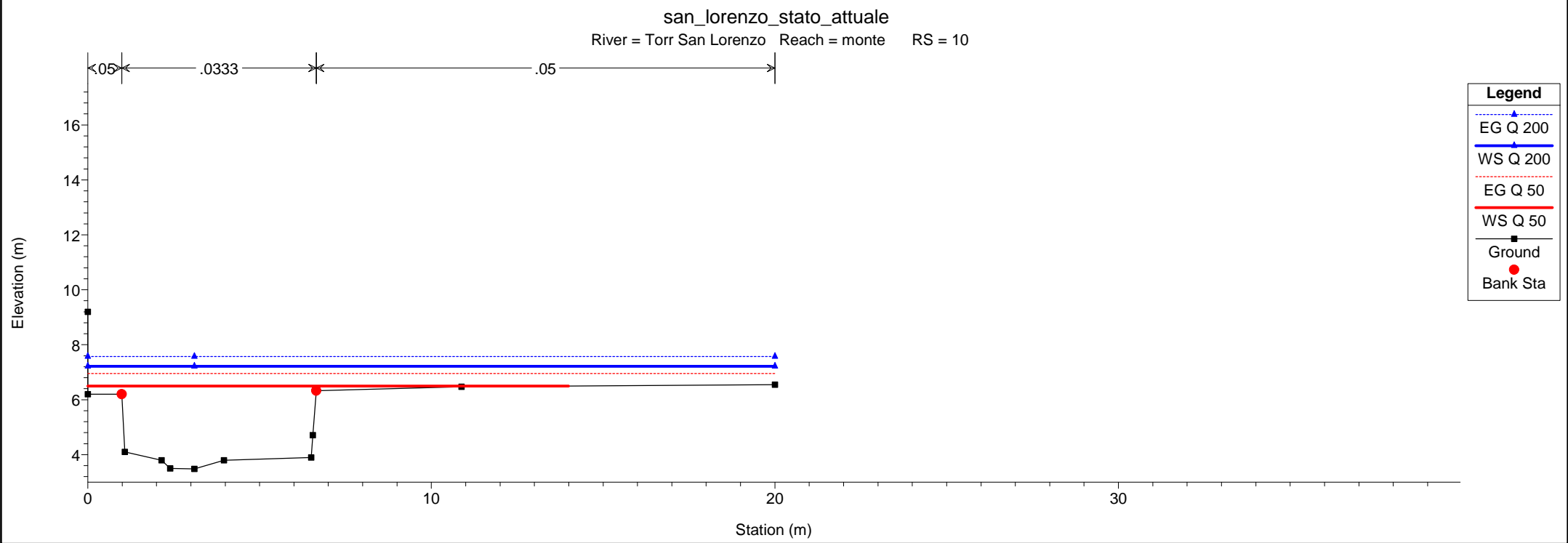
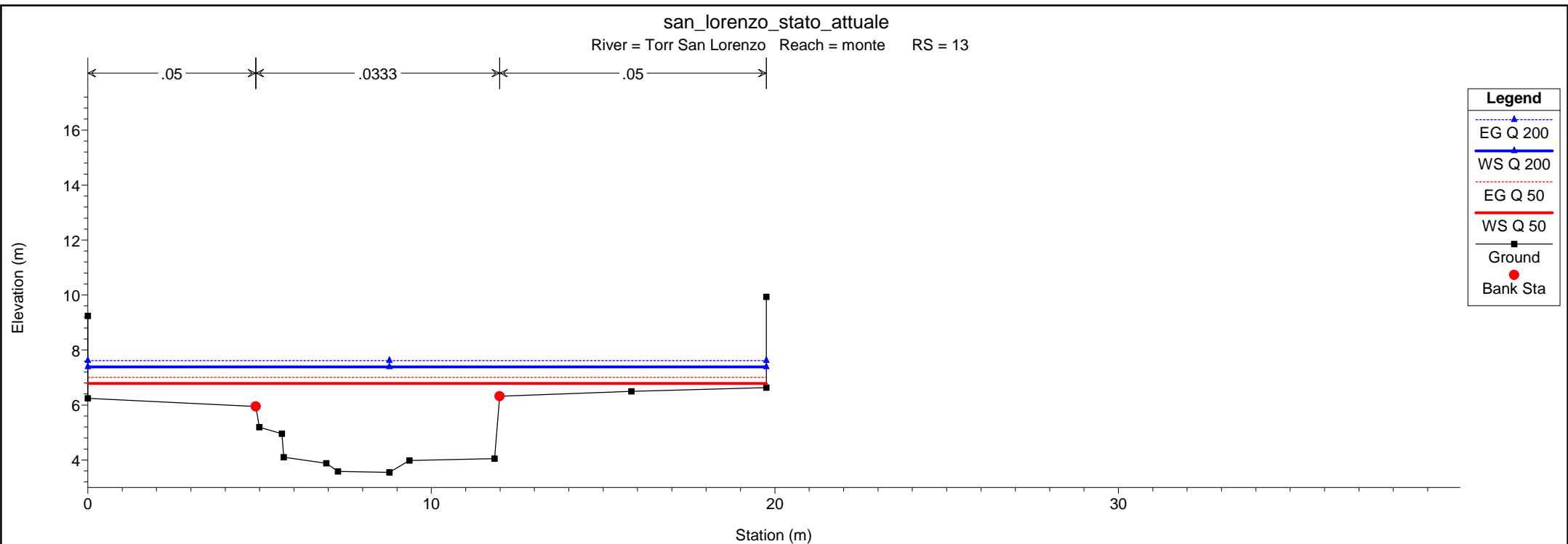
san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = monte RS = 15



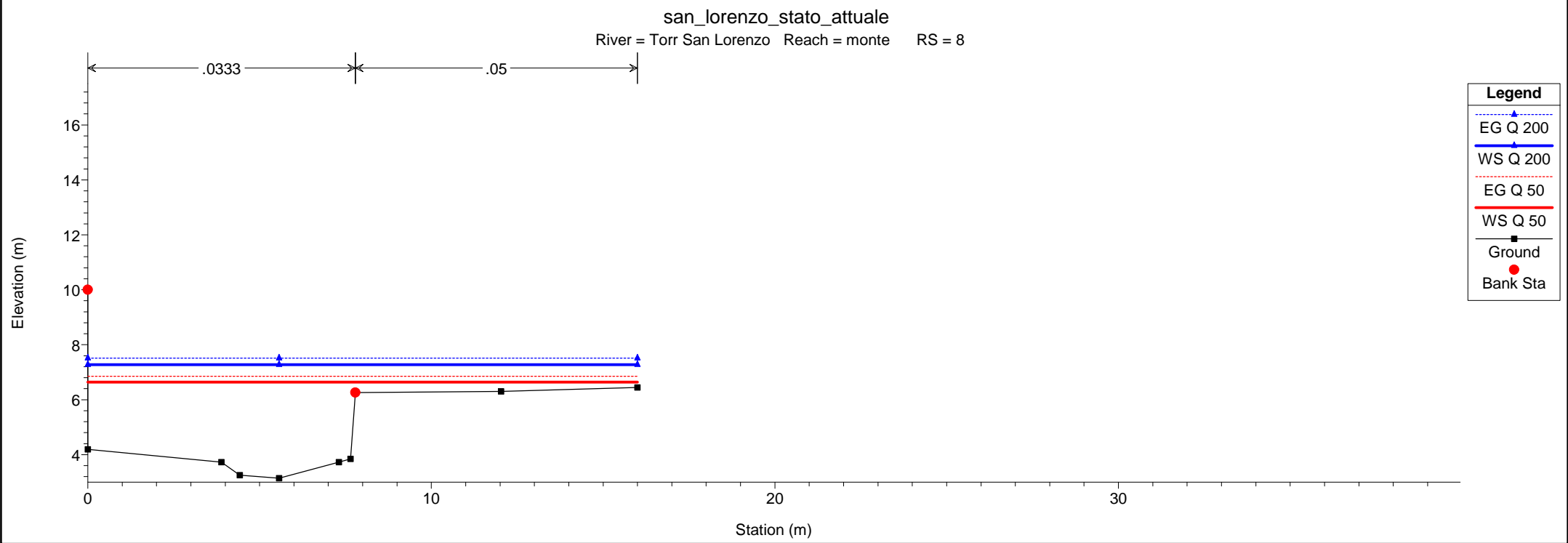
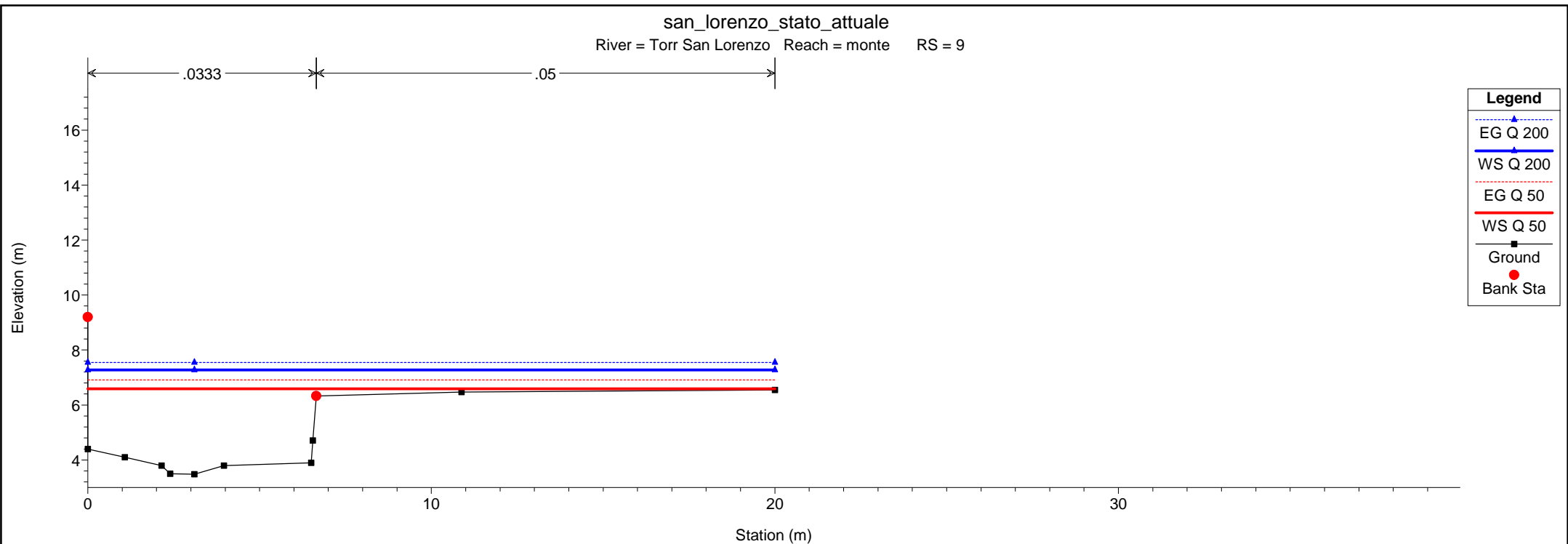
san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = monte RS = 14



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



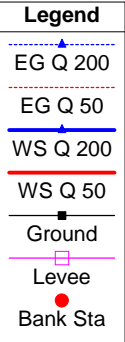
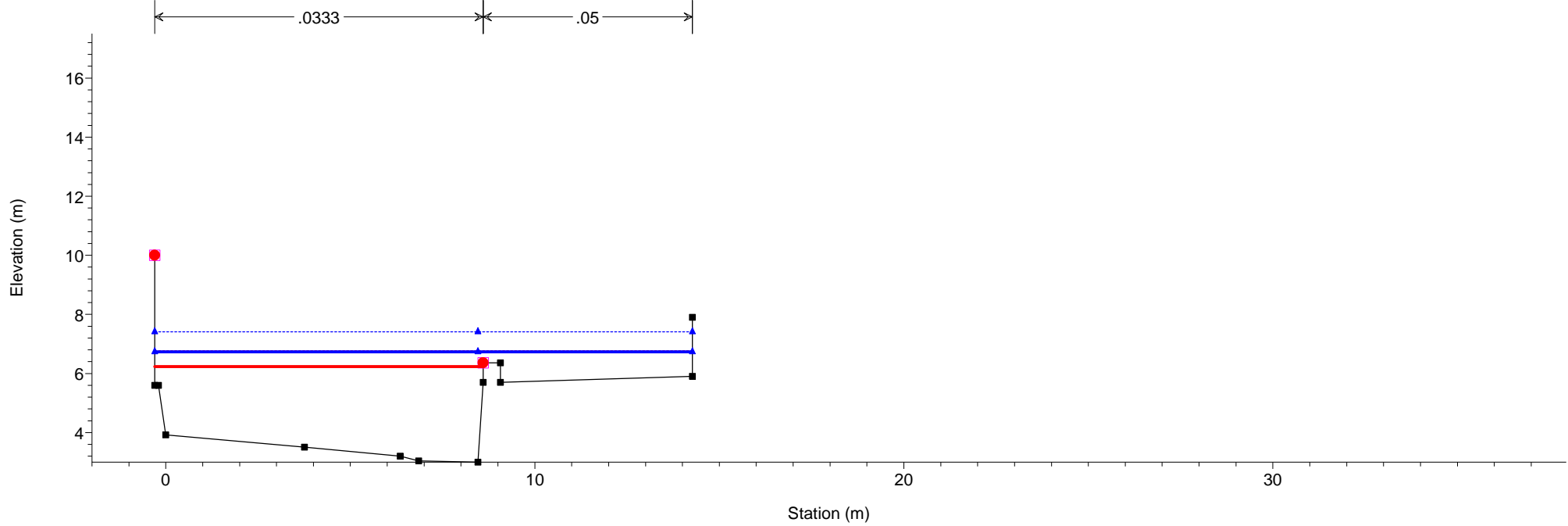
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

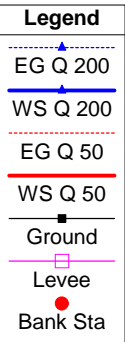
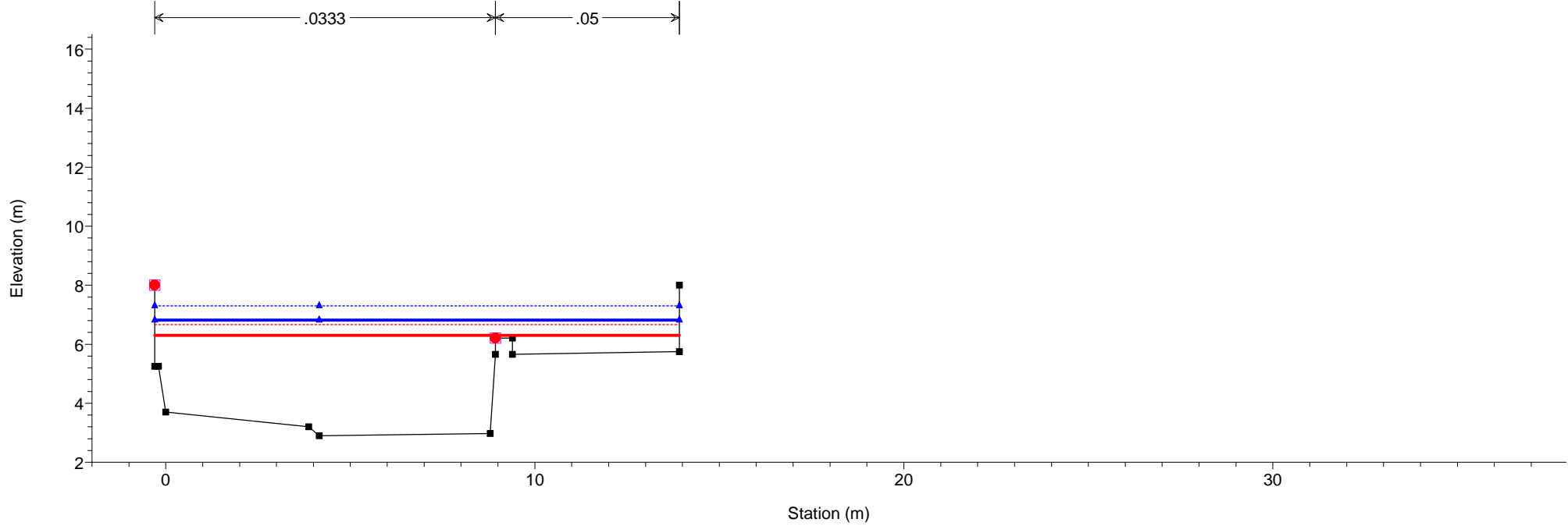
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 7.5



san_lorenzo_stato_attuale

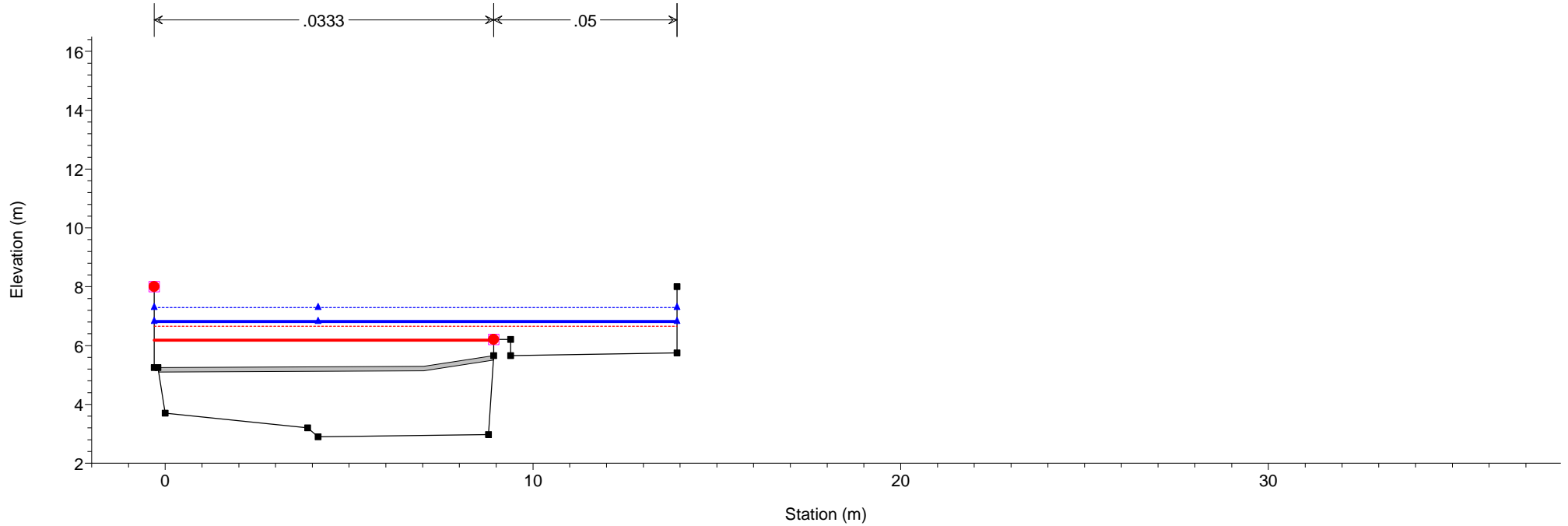
River = Torr San Lorenzo Reach = valle RS = 7.1



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

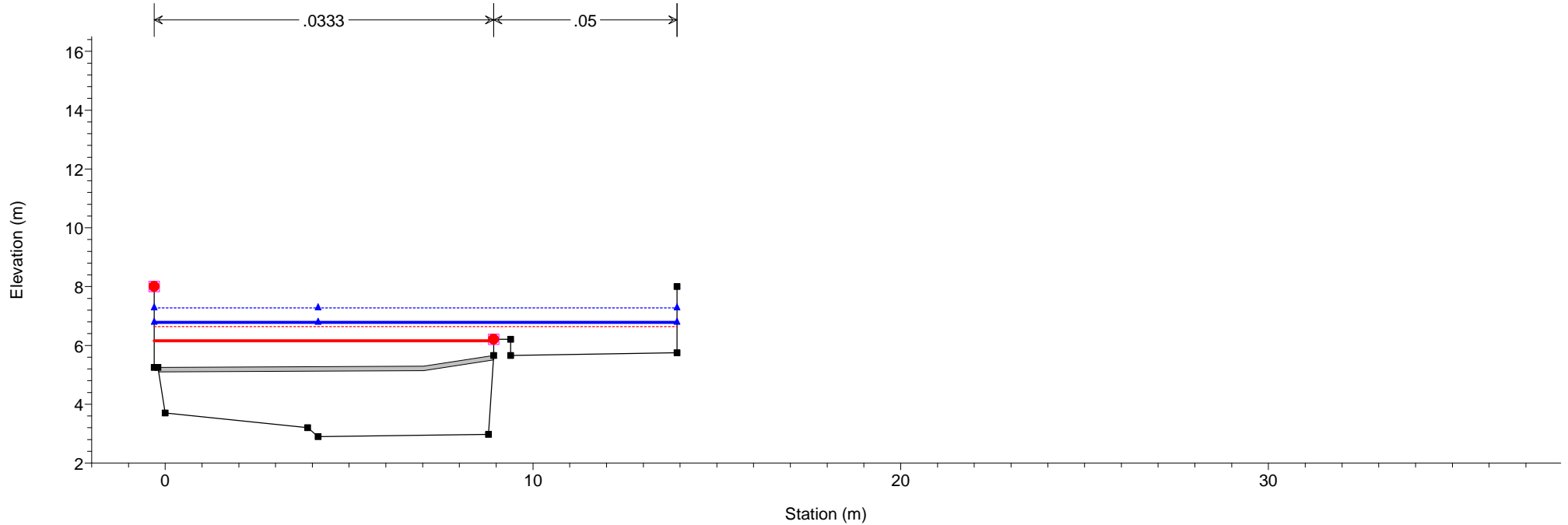
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 7 BR



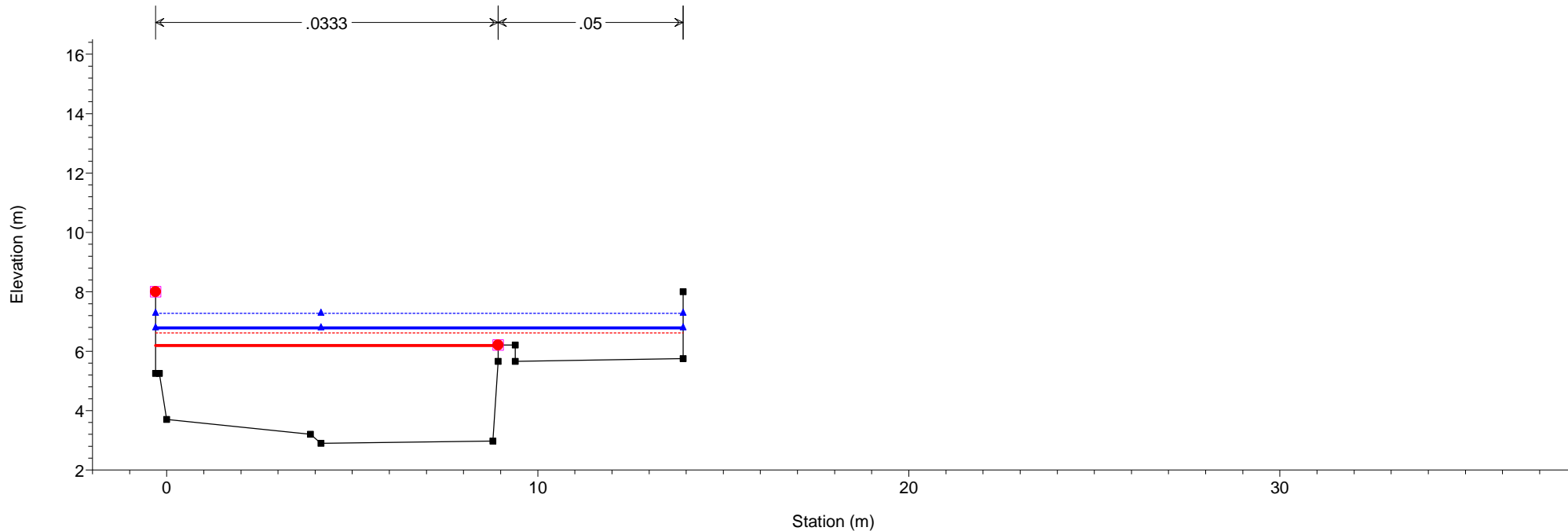
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 7 BR



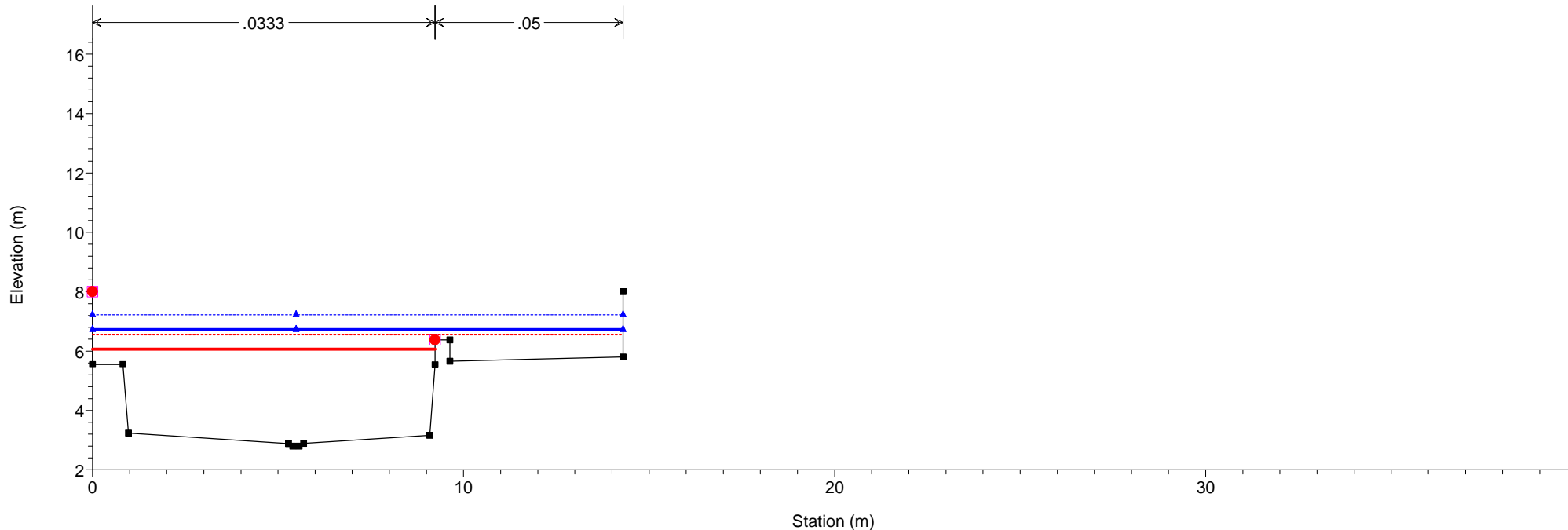
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 6.9



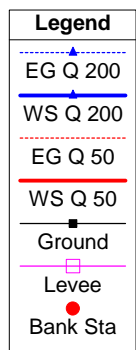
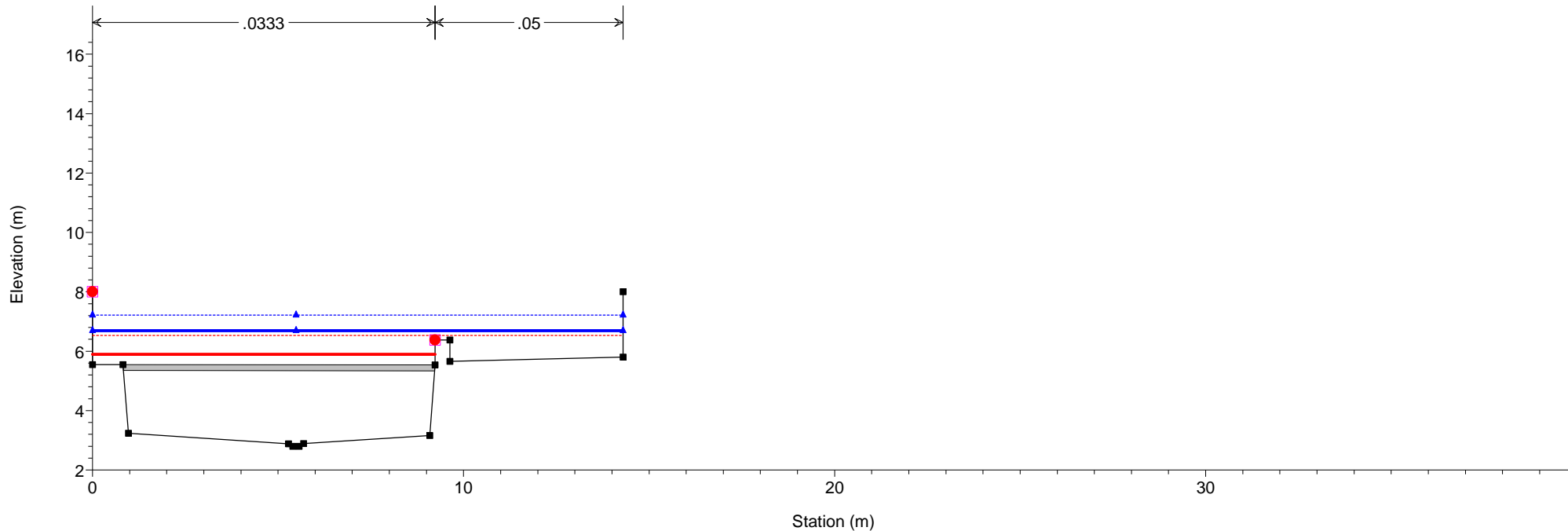
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 6.1



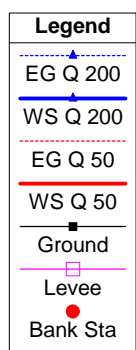
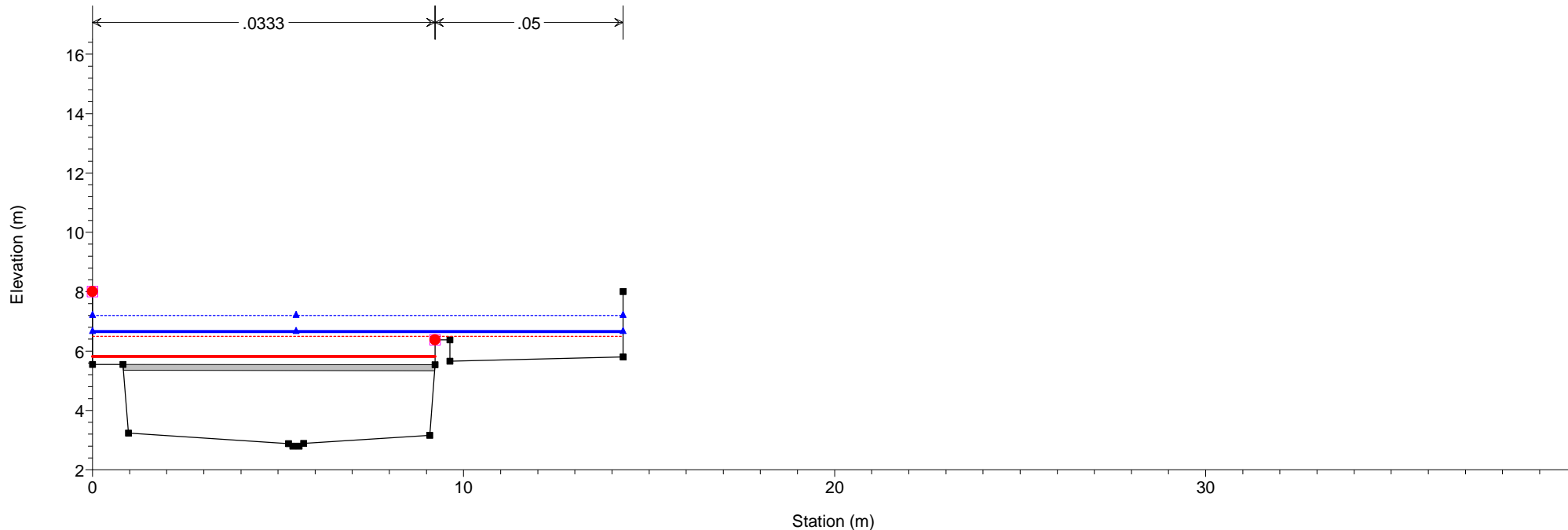
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 6 BR



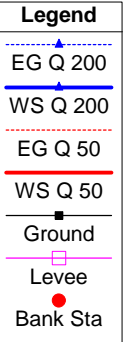
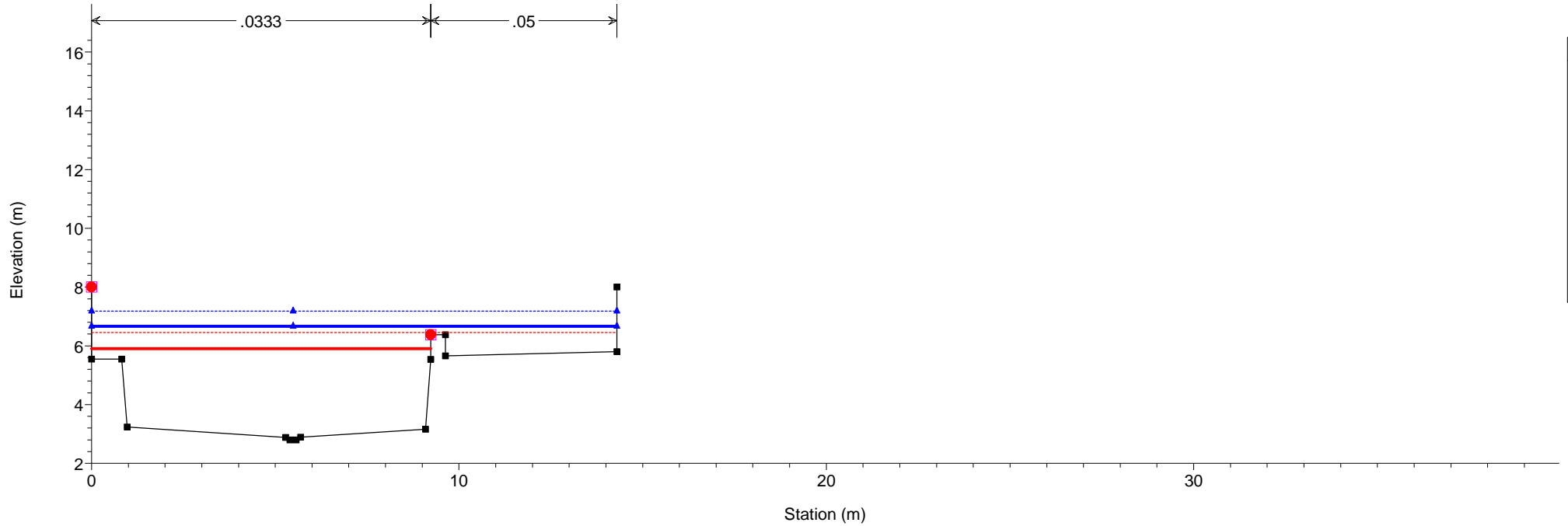
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 6 BR



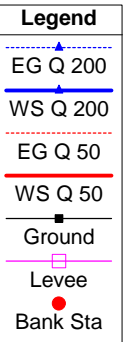
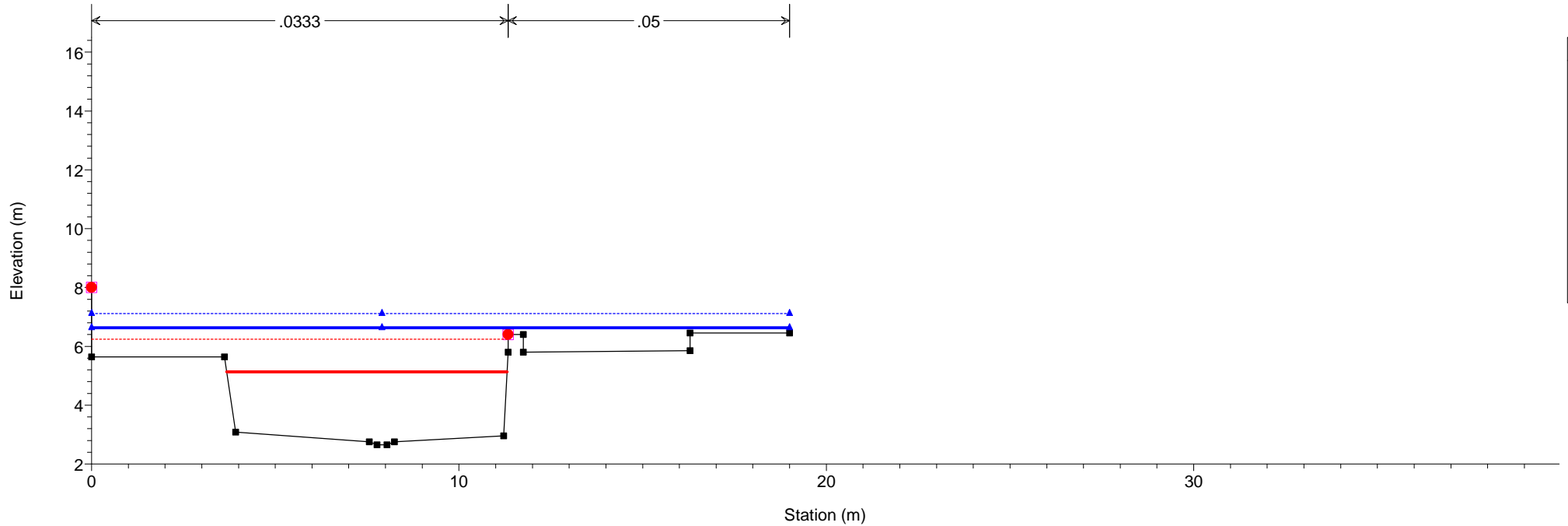
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 5.9

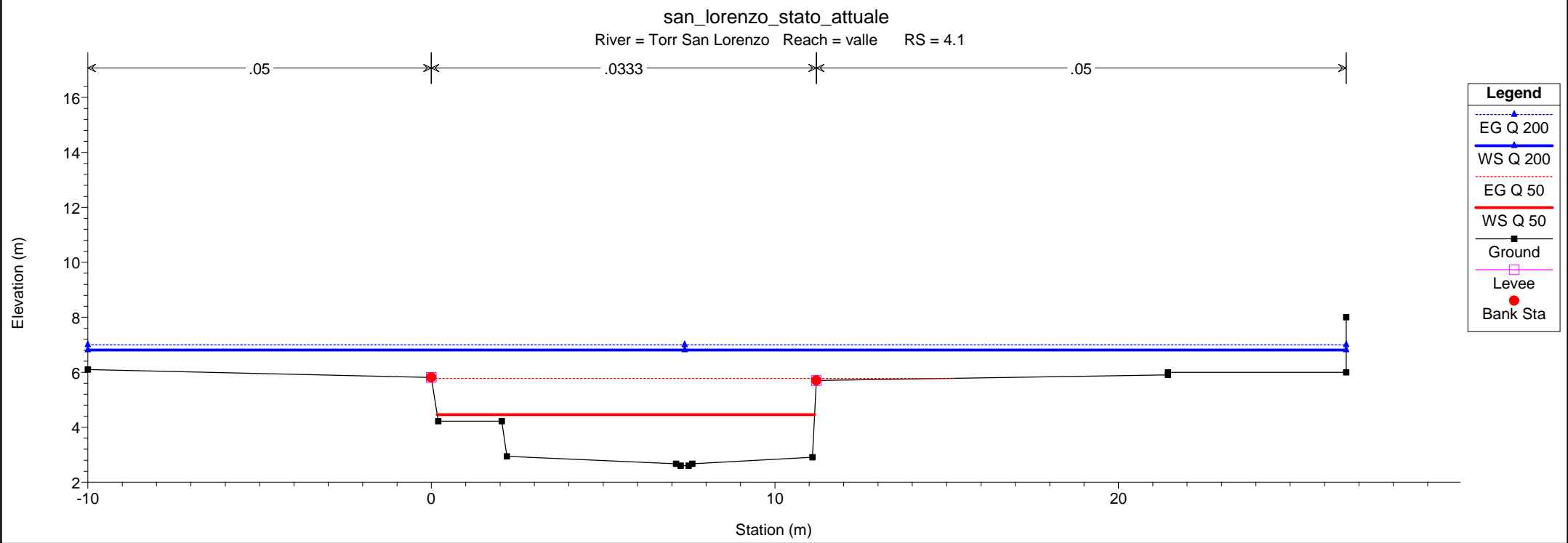
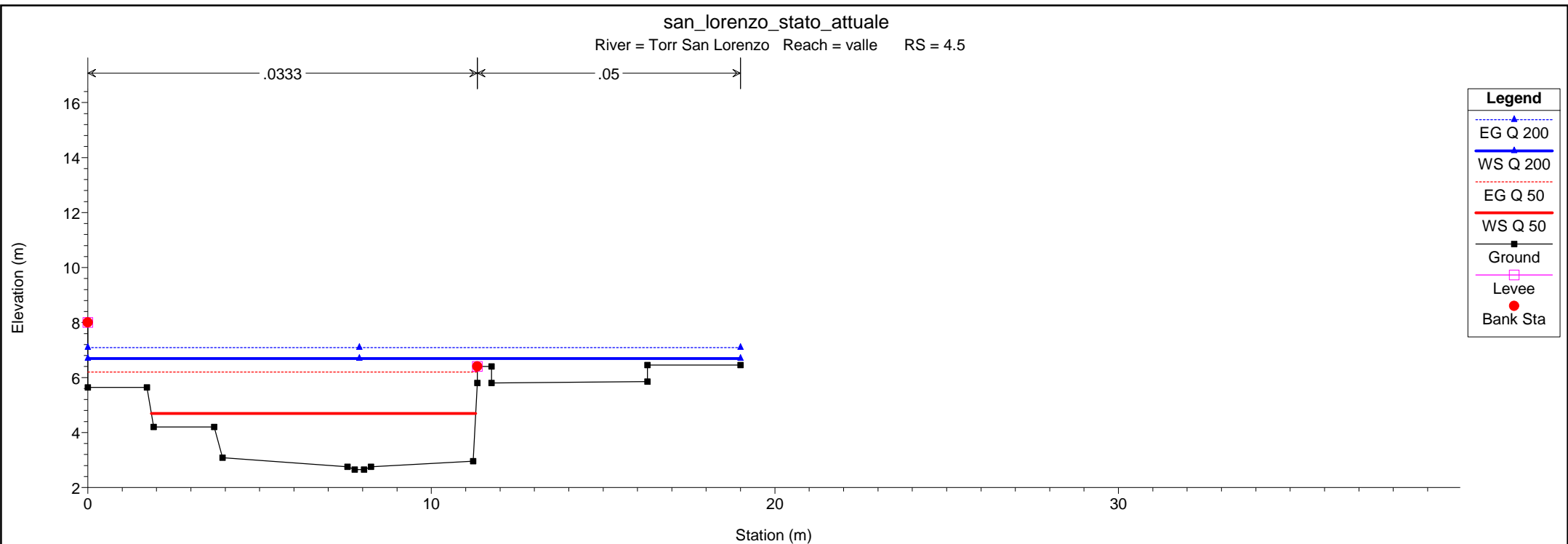


san_lorenzo_stato_attuale

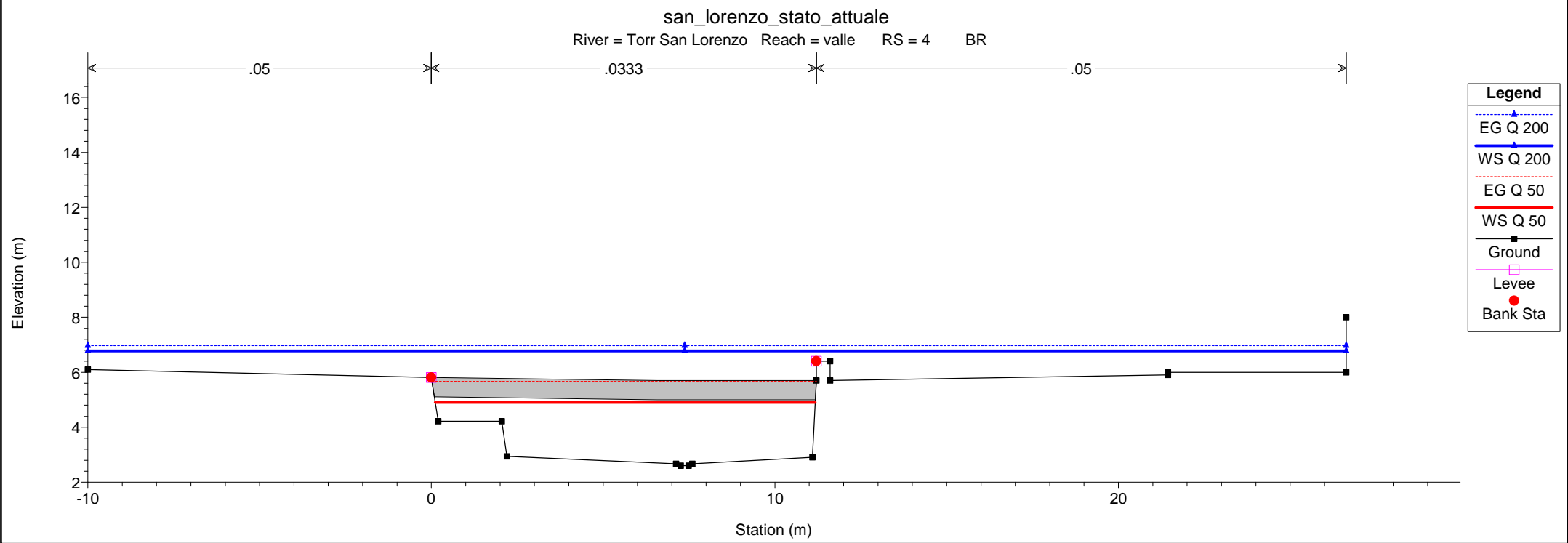
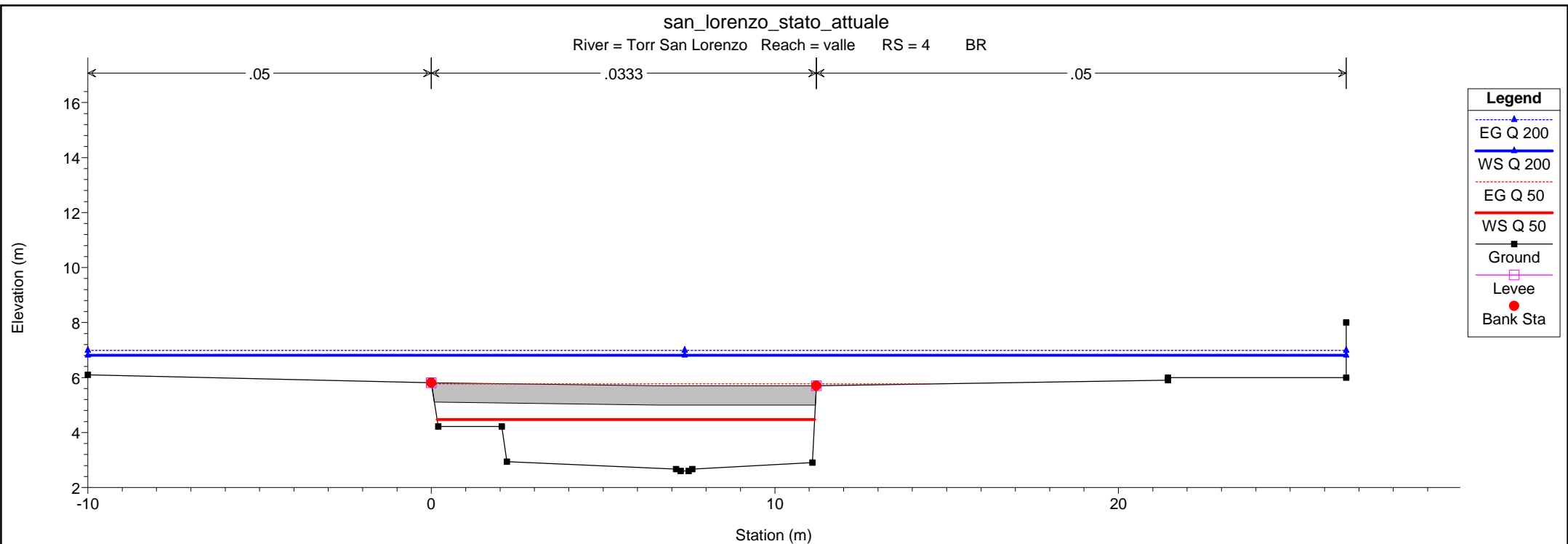
River = Torr San Lorenzo Reach = valle RS = 5



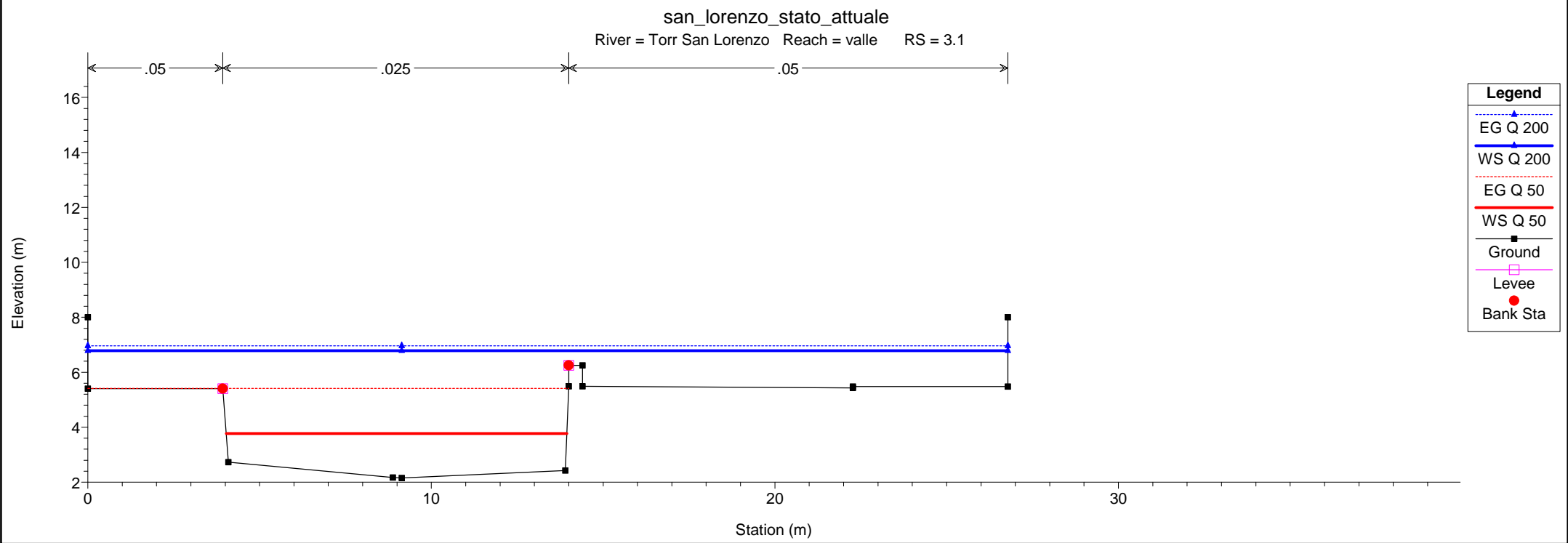
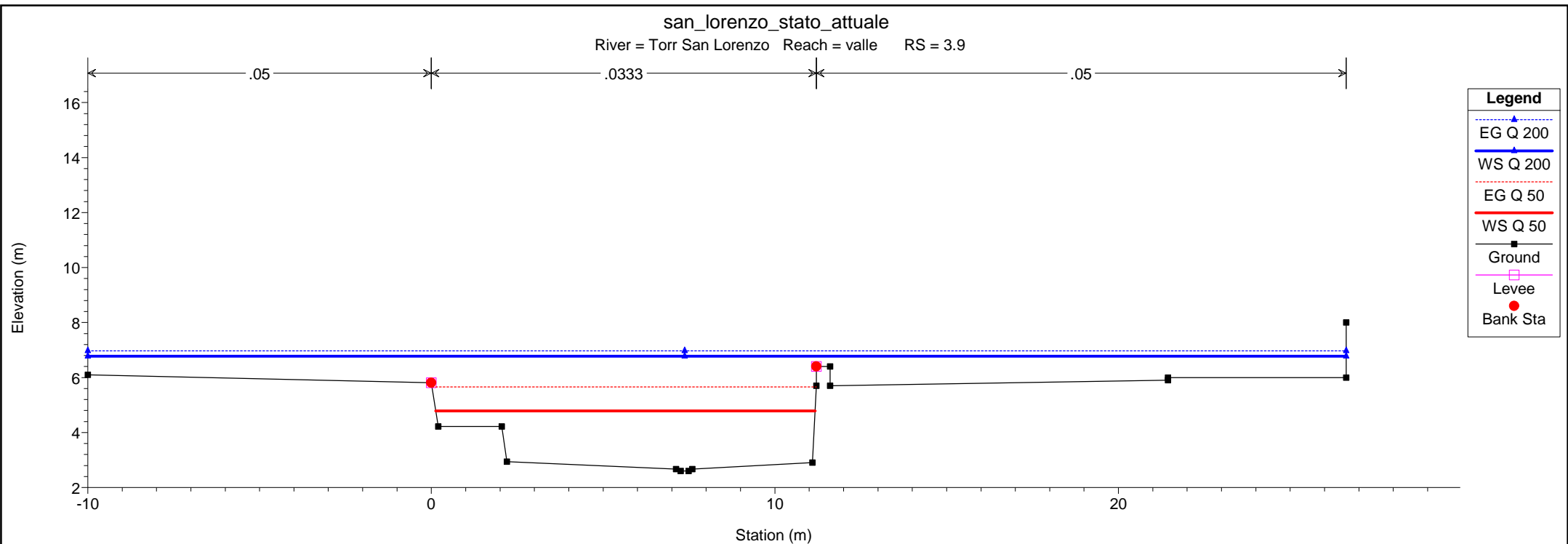
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



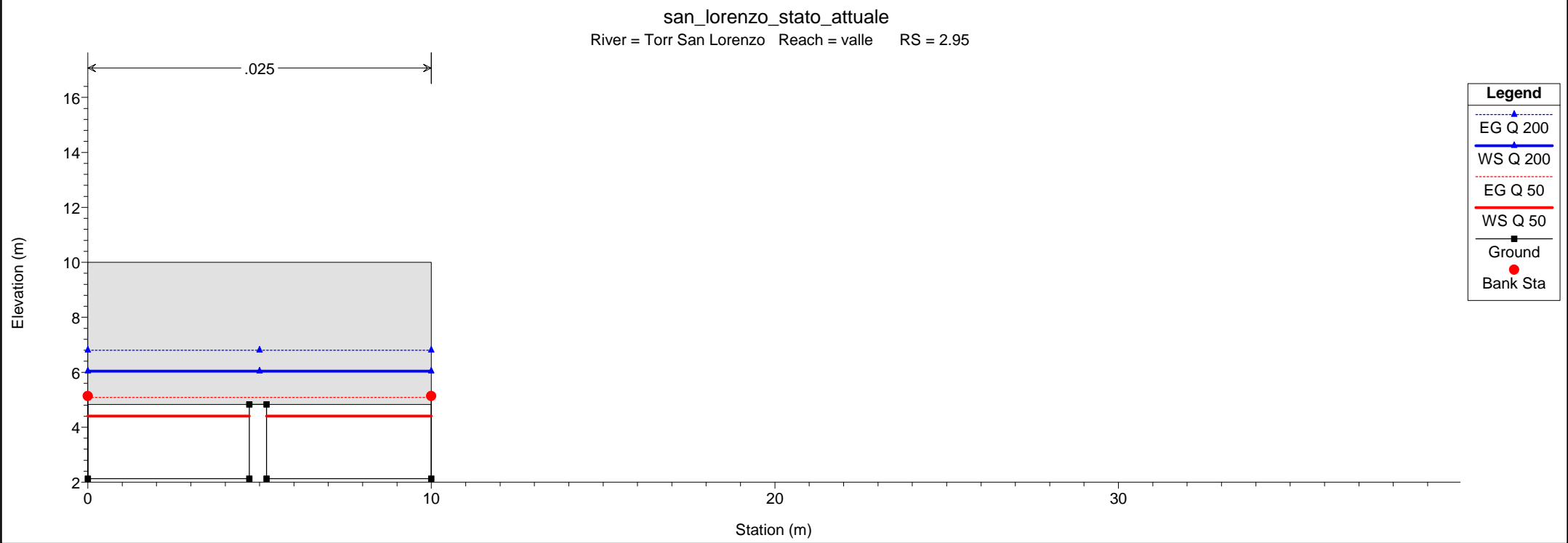
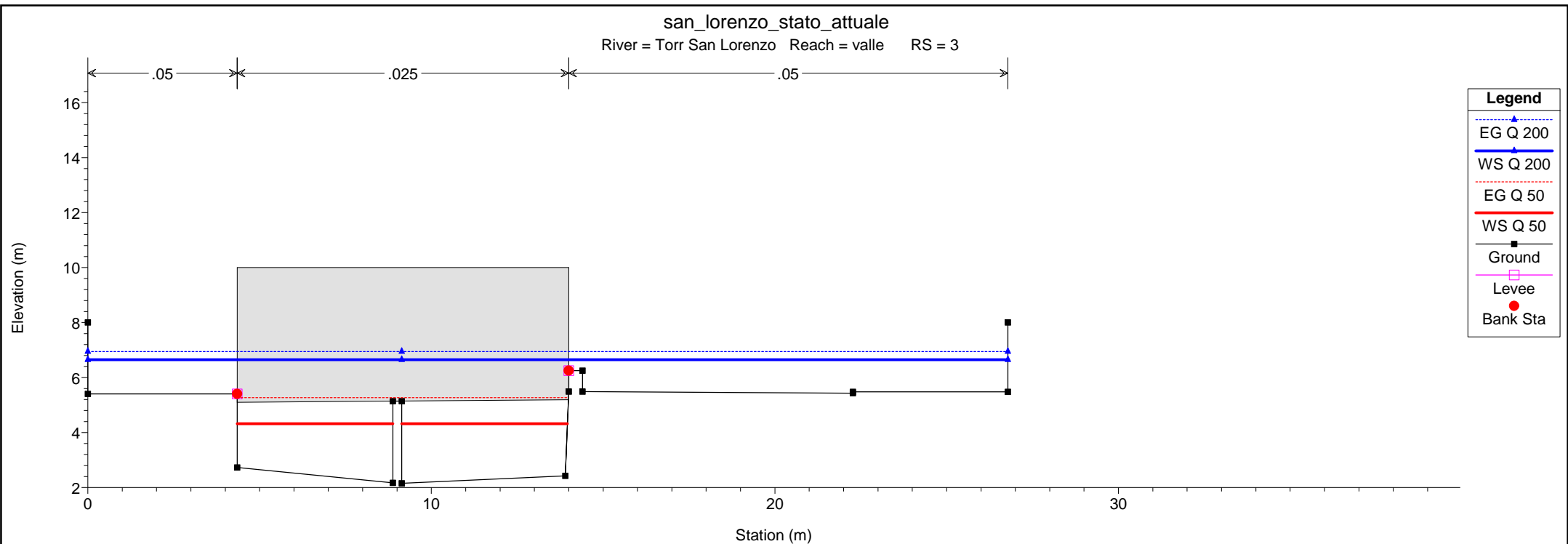
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

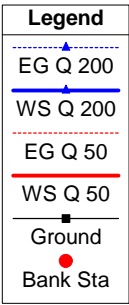
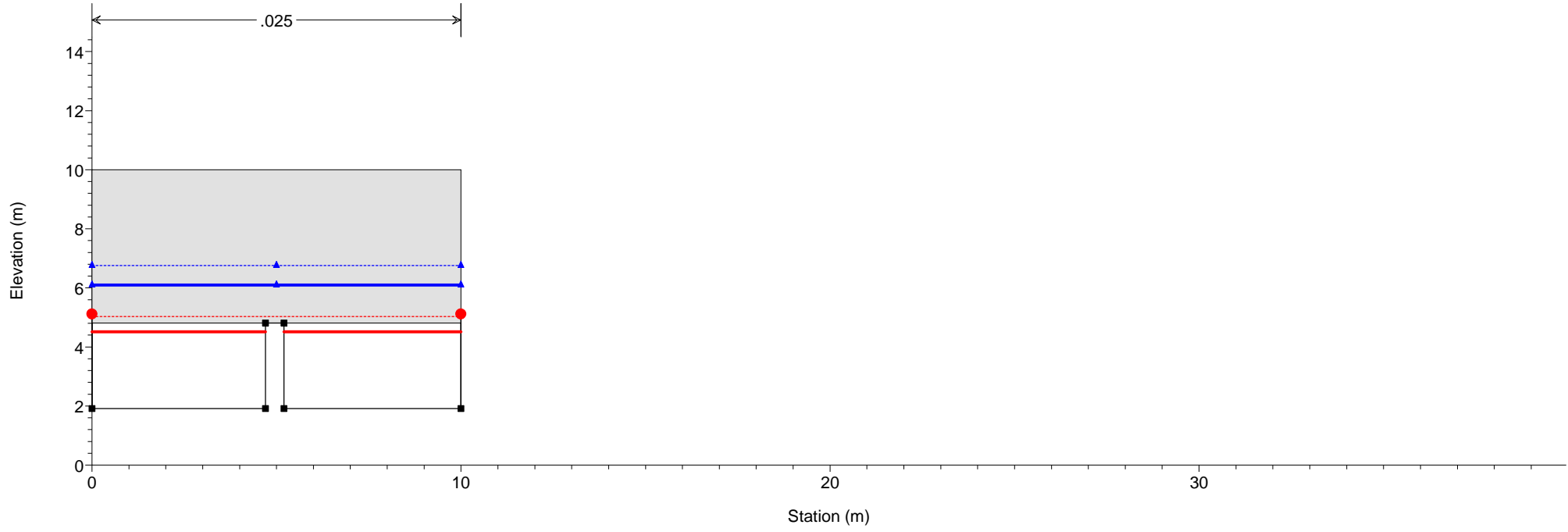


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

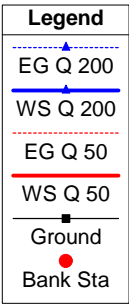
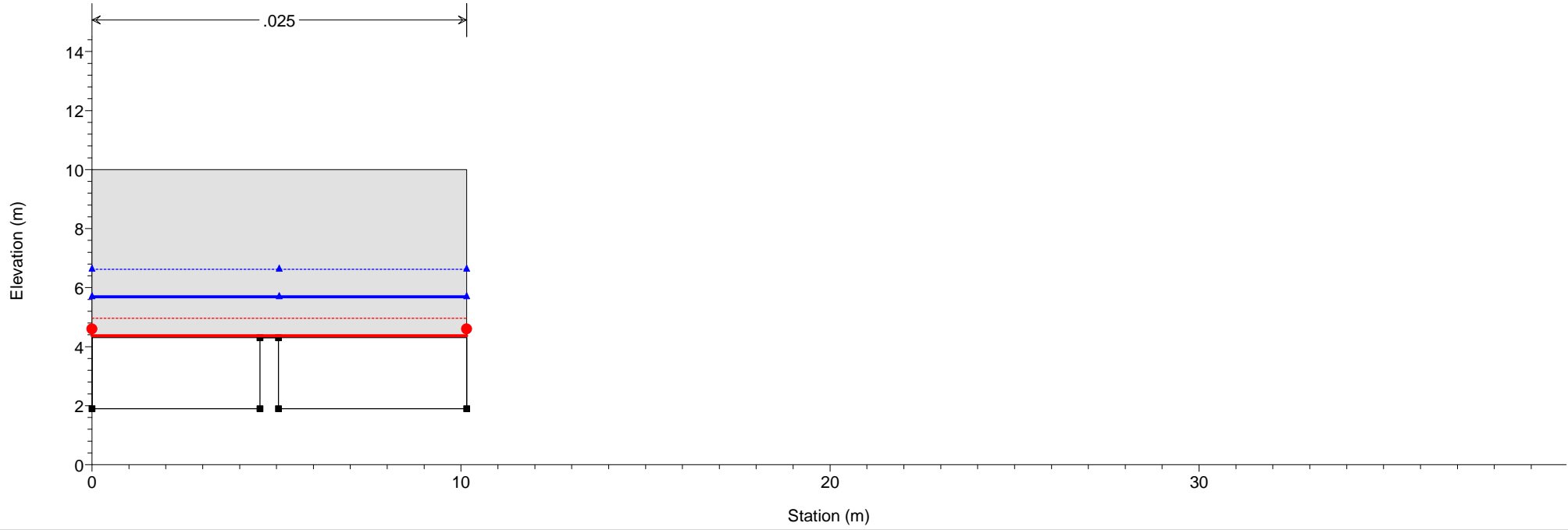


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.90

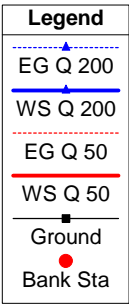
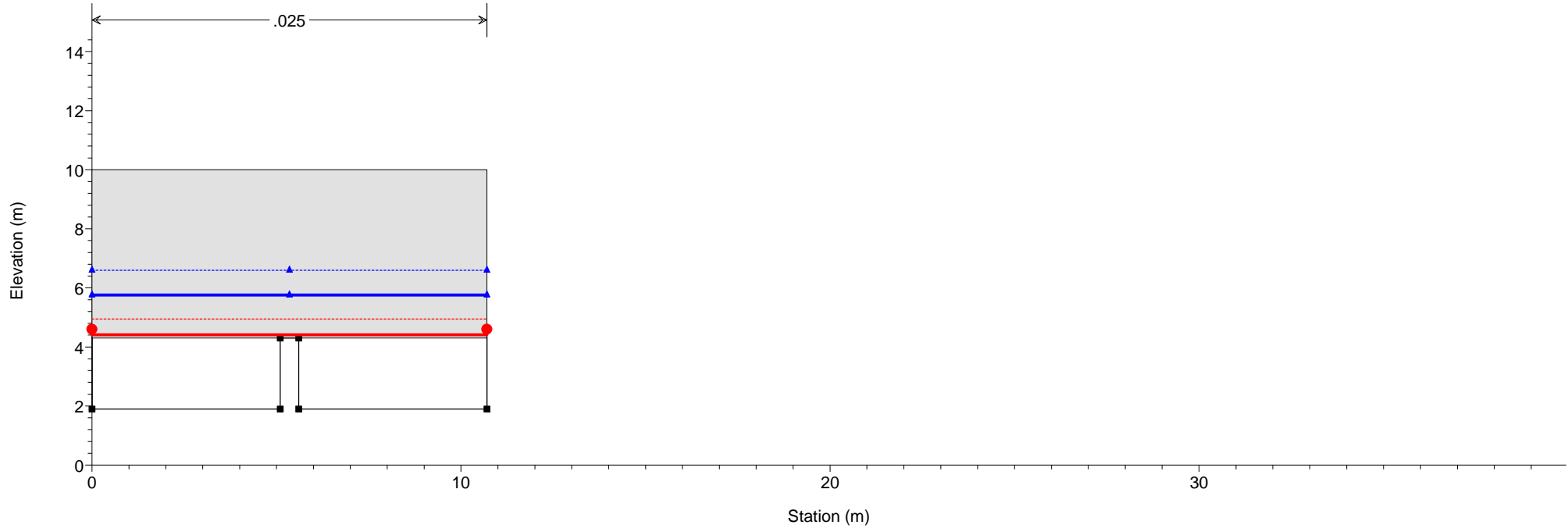


san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.85

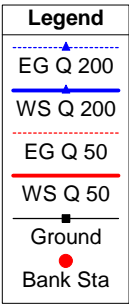
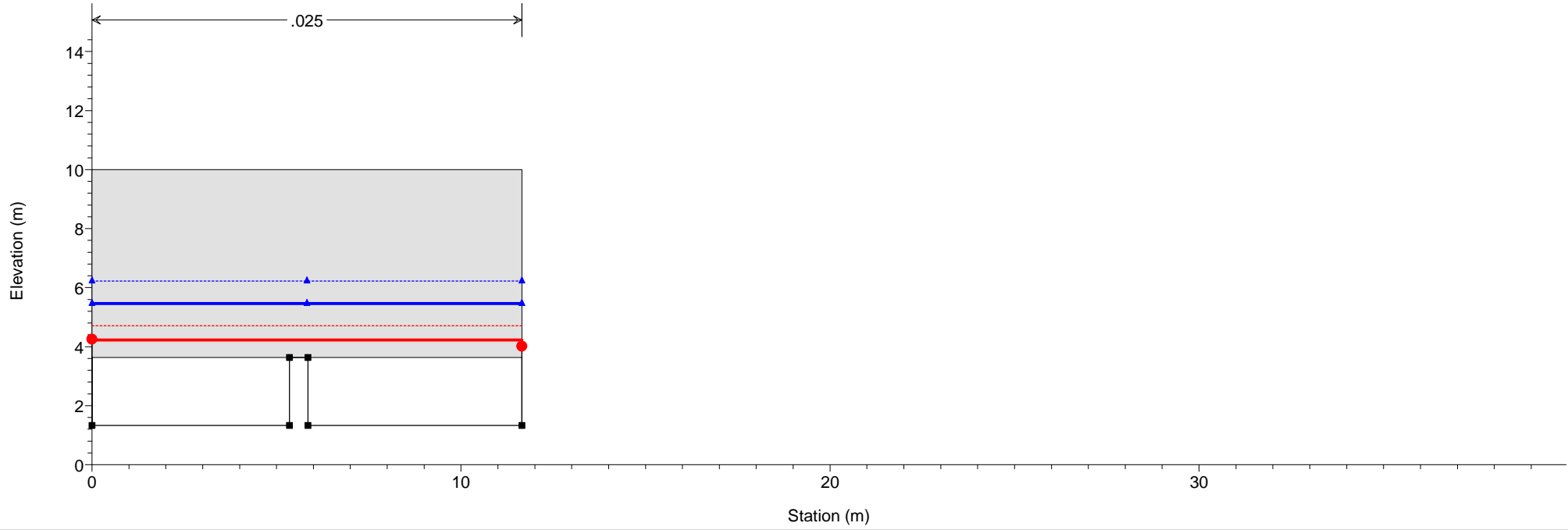


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.80

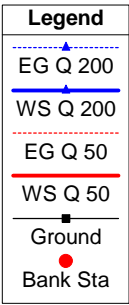
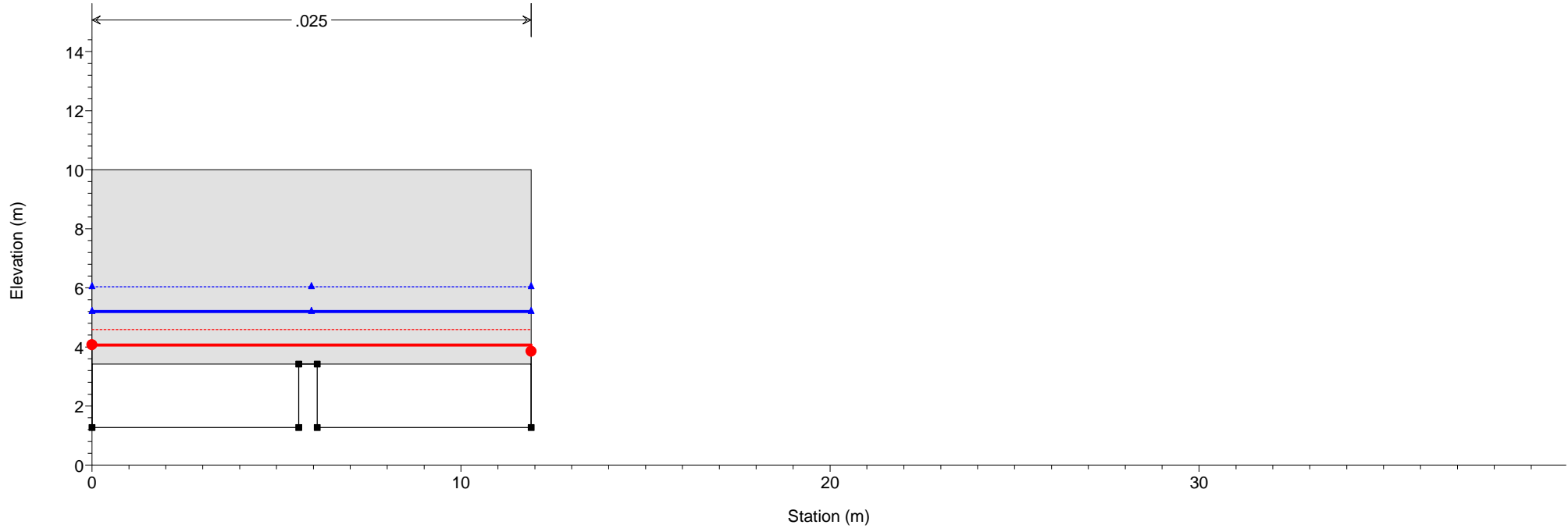


san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.75

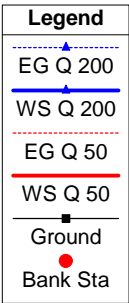
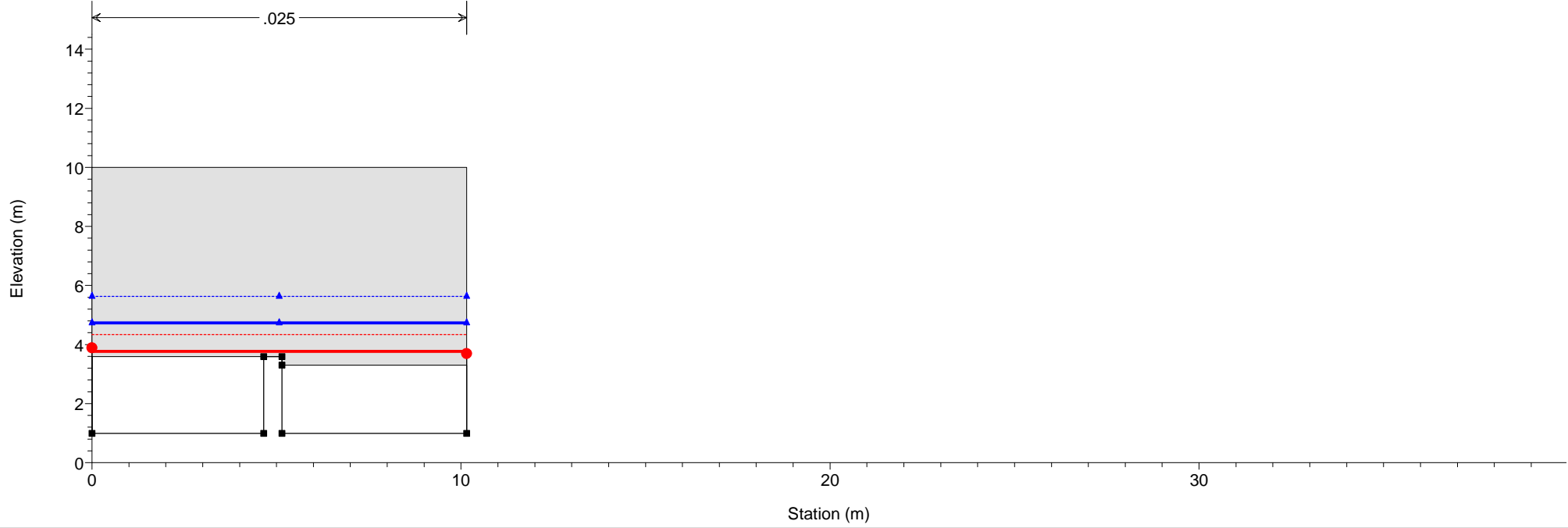


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.70



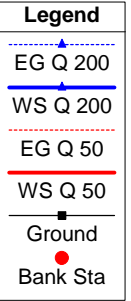
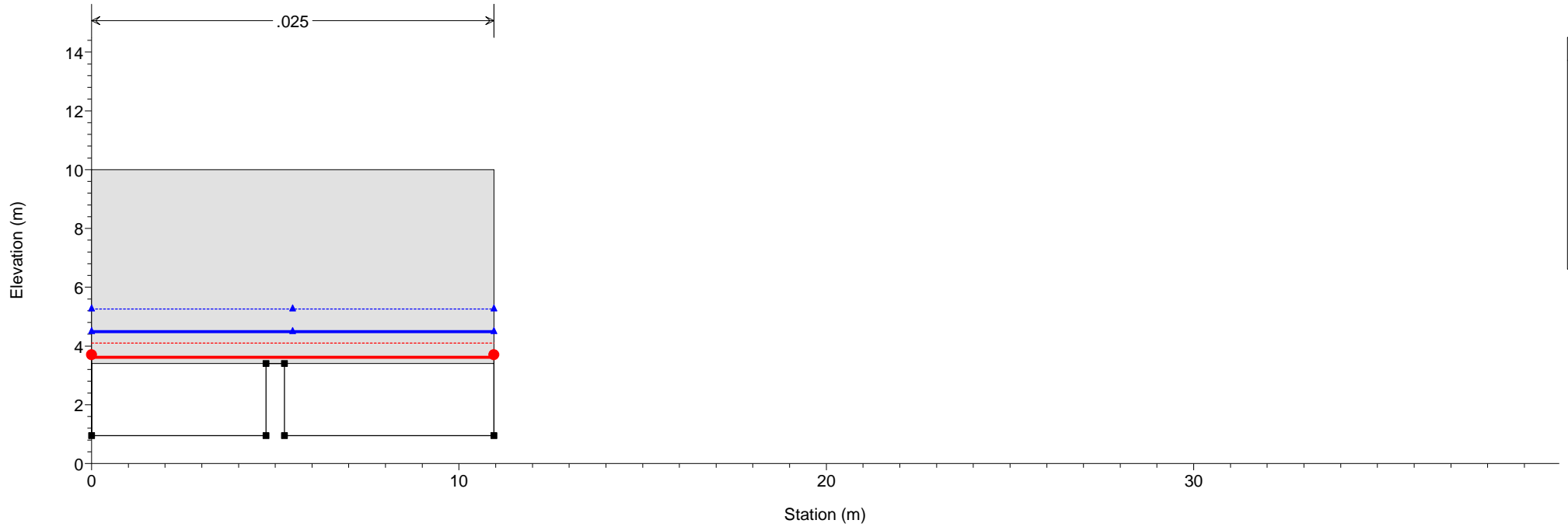
san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.60



1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

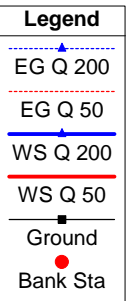
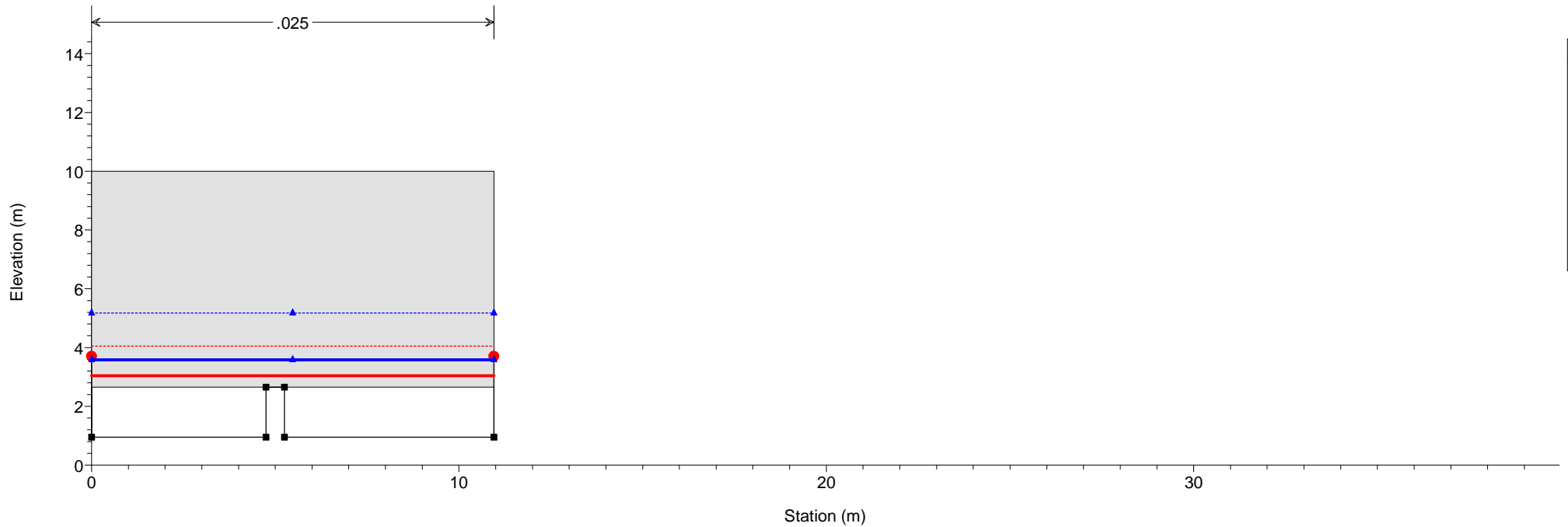
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 2.55



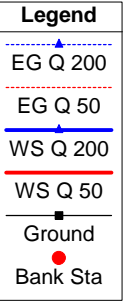
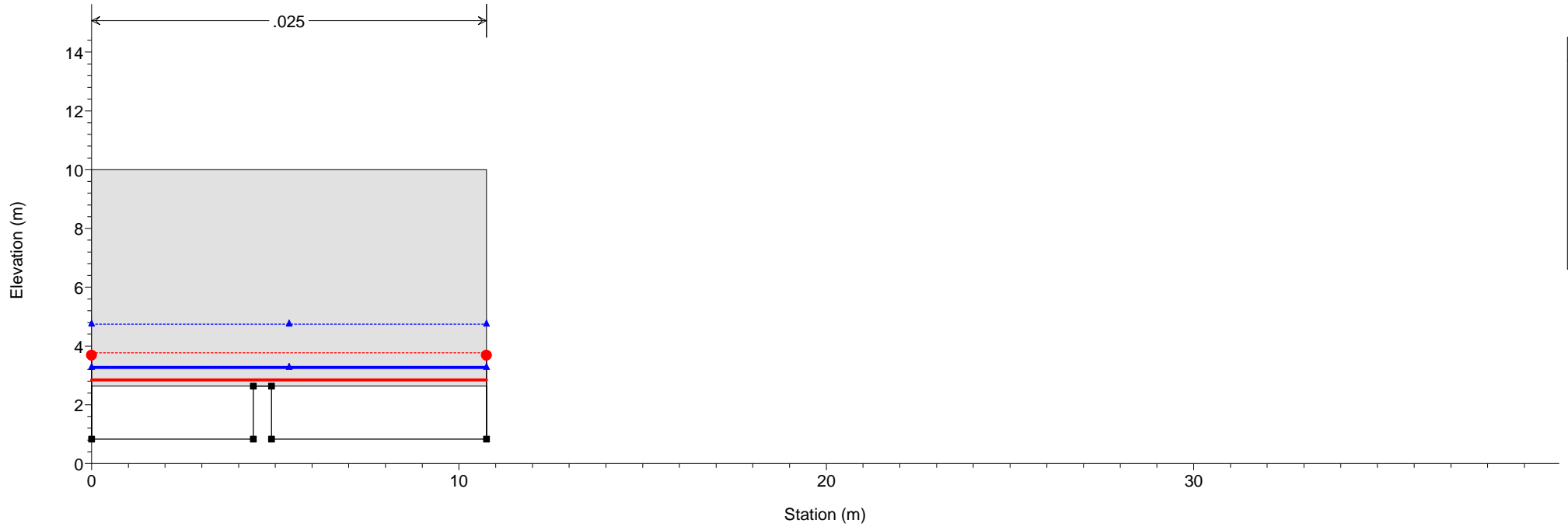
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 2.50



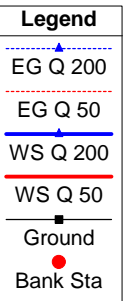
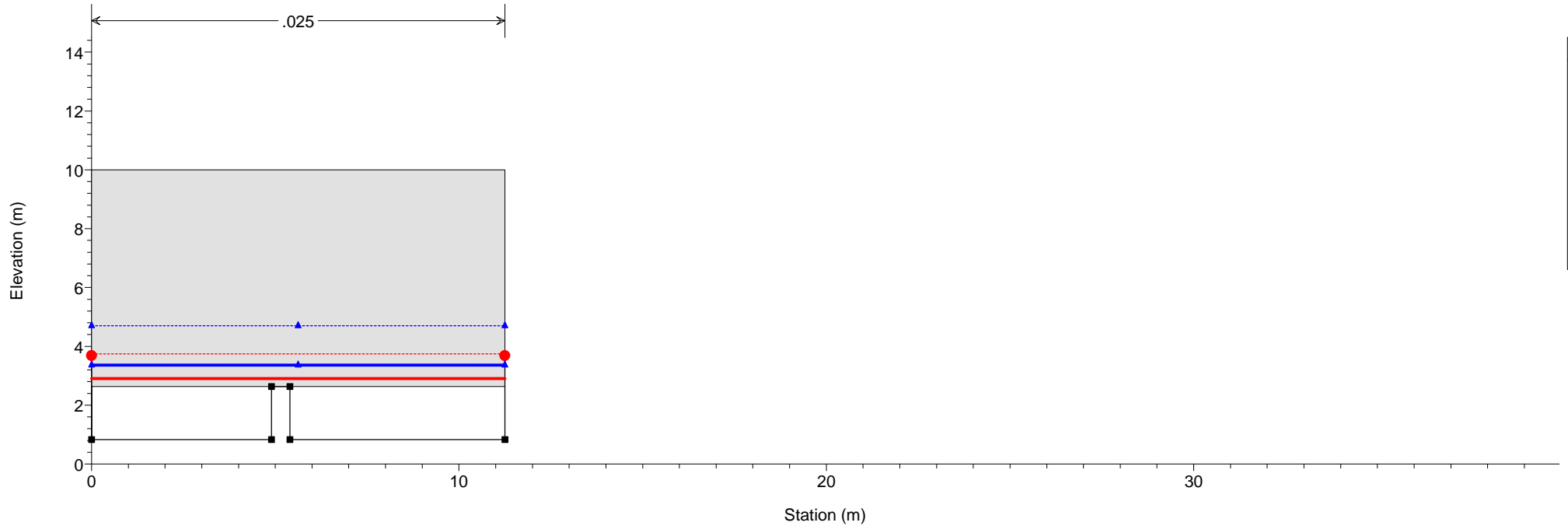
san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 2.45

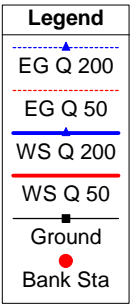
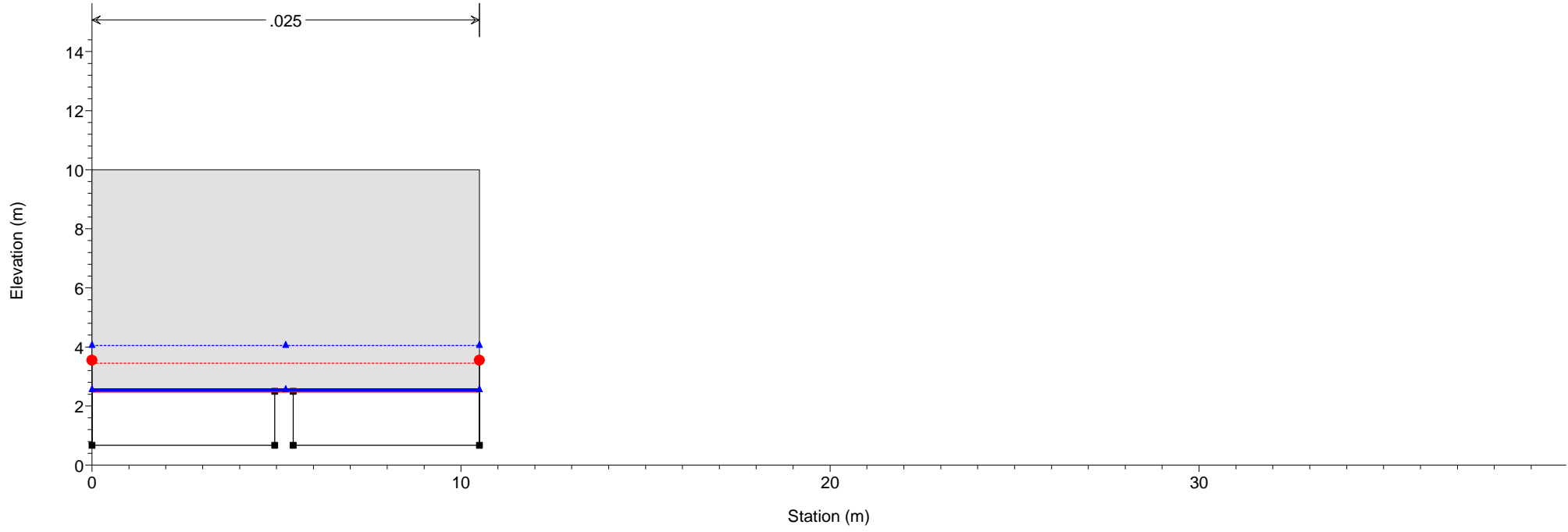


san_lorenzo_stato_attuale

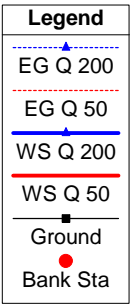
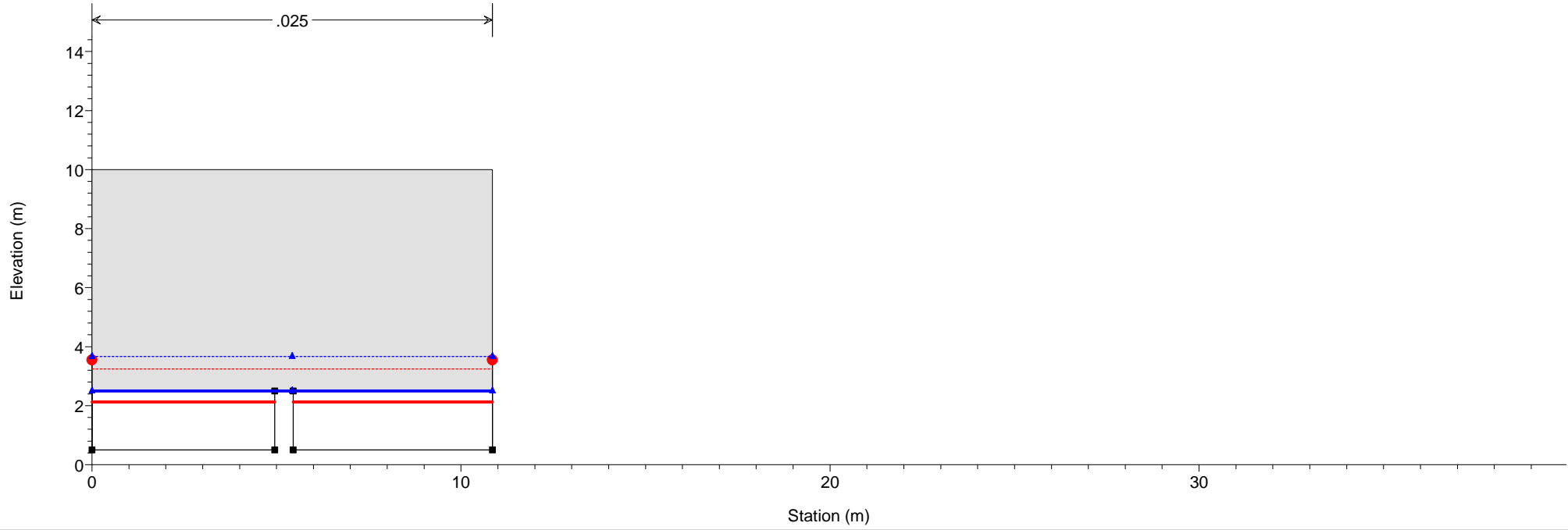
River = Torr San Lorenzo Reach = valle RS = 2.40



san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.30

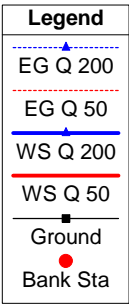
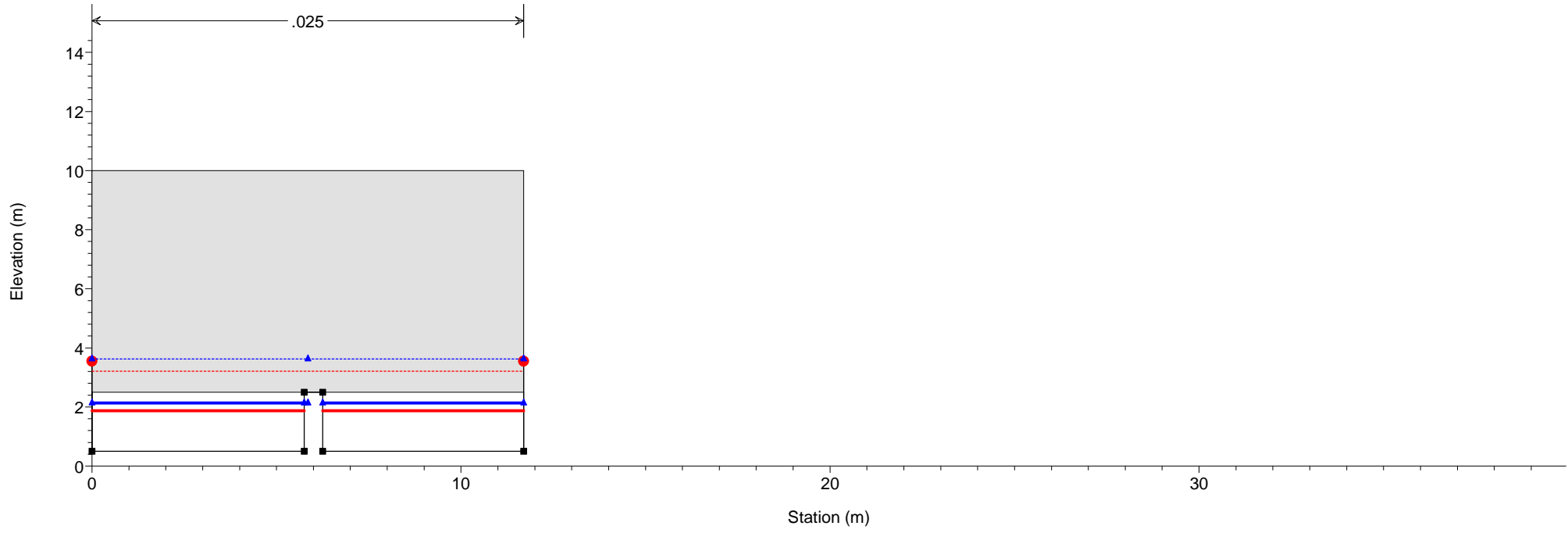


san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.25

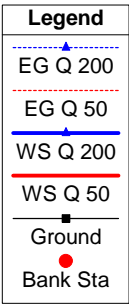
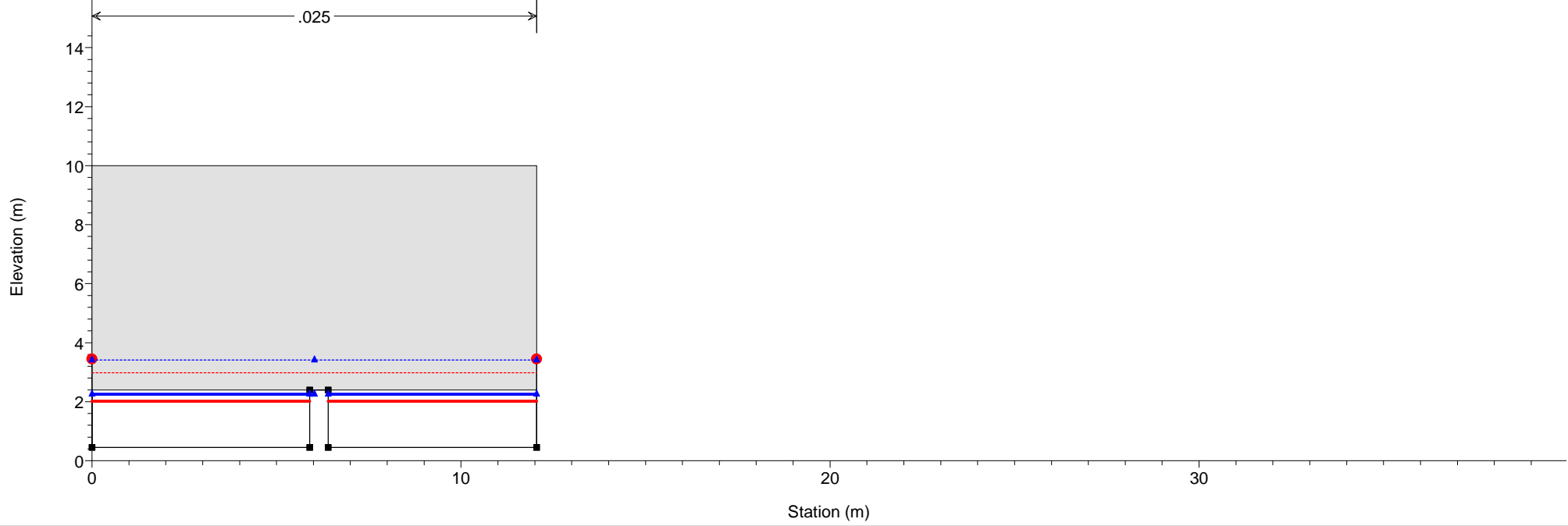


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.20

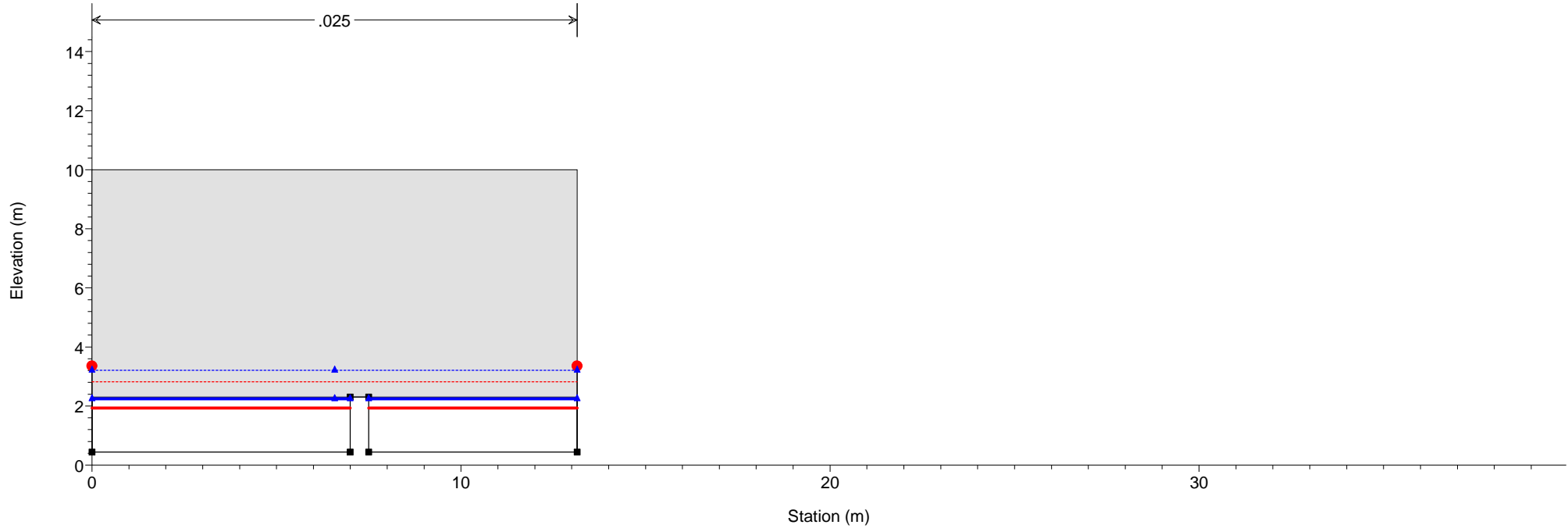


san_lorenzo_stato_attuale
 River = Torr San Lorenzo Reach = valle RS = 2.15

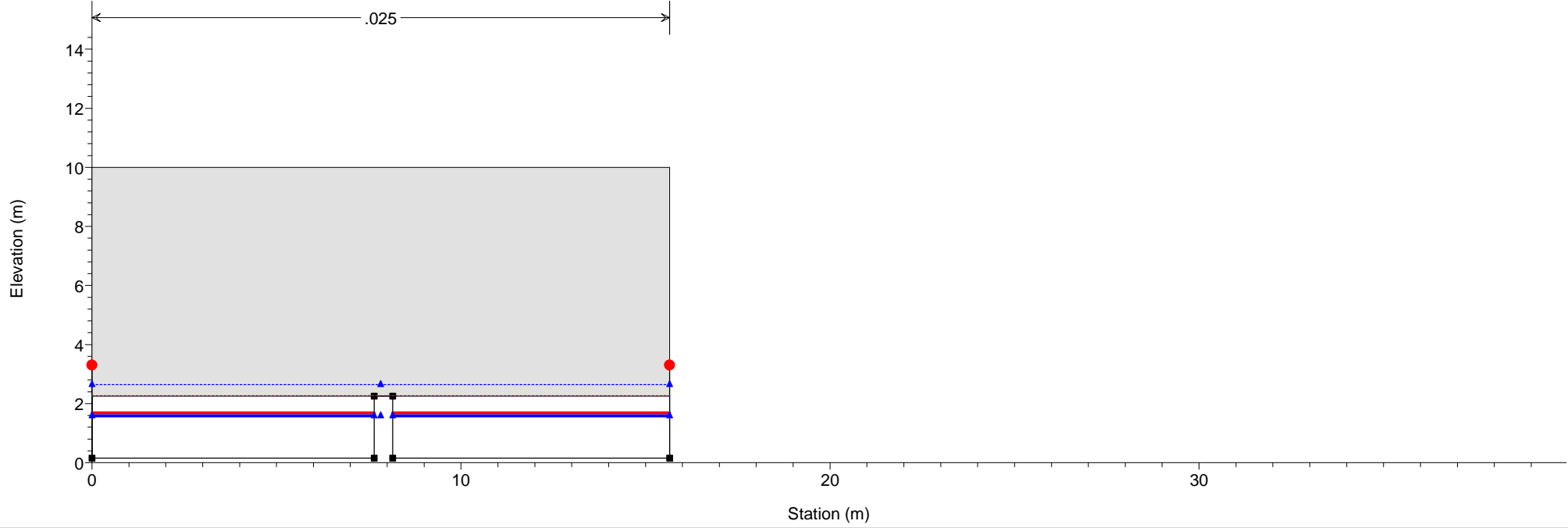


1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m

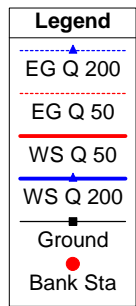
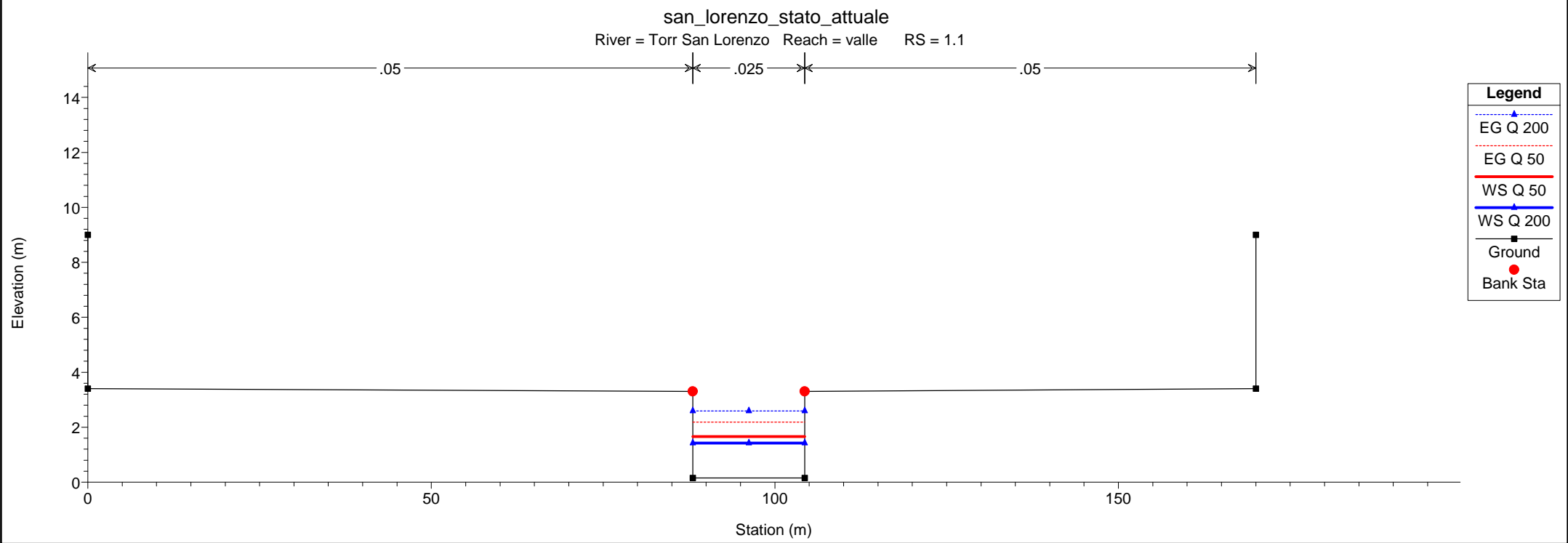
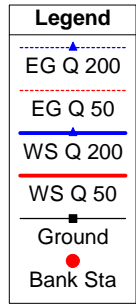
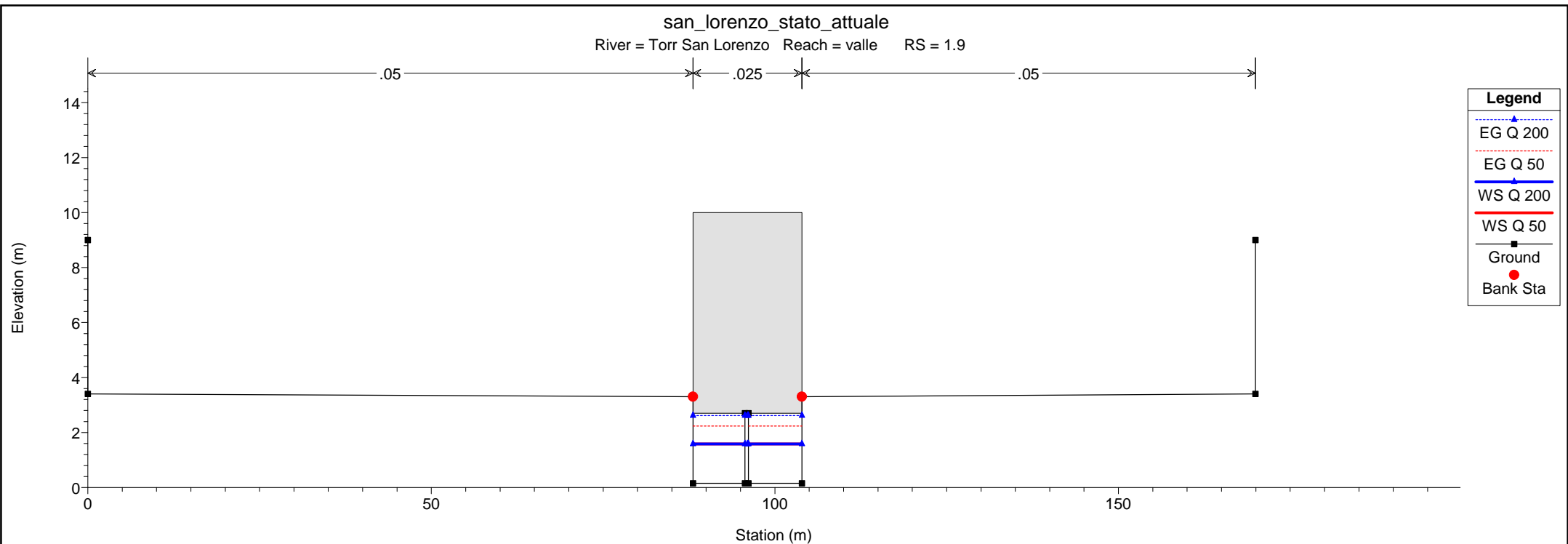
san_lorenzo_stato_attuale
River = Torr San Lorenzo Reach = valle RS = 2.10



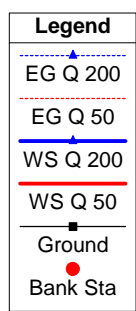
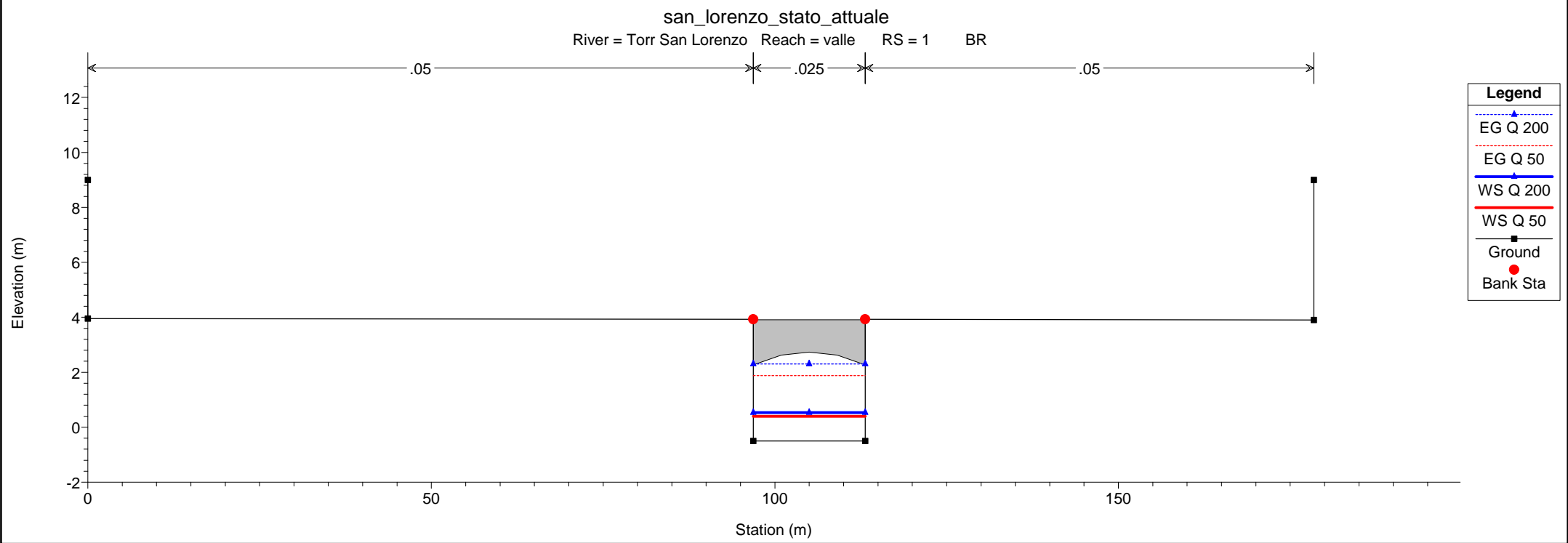
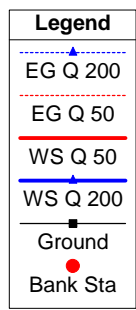
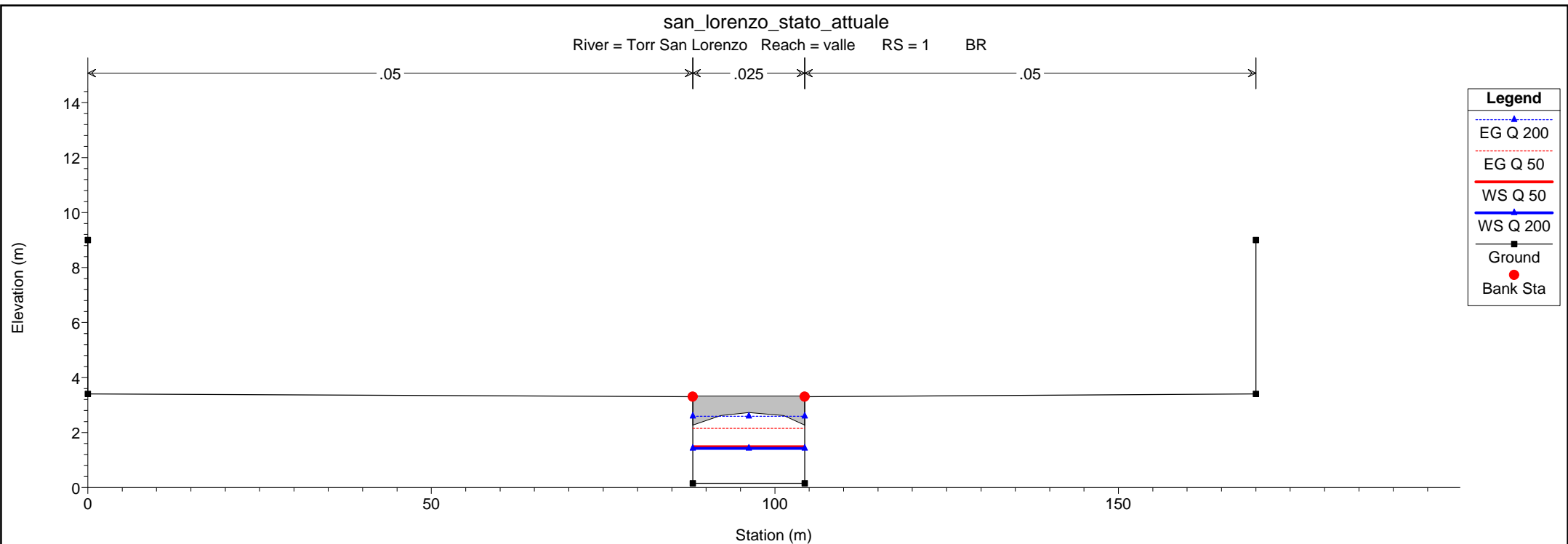
san_lorenzo_stato_attuale
River = Torr San Lorenzo Reach = valle RS = 2



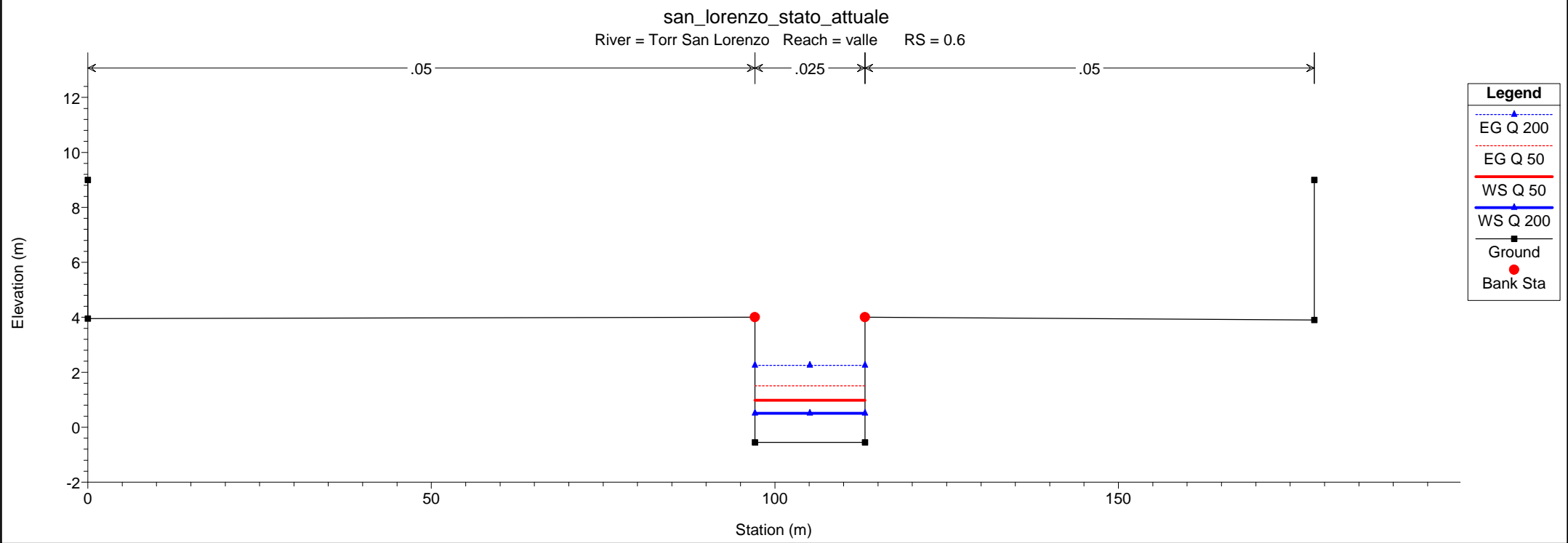
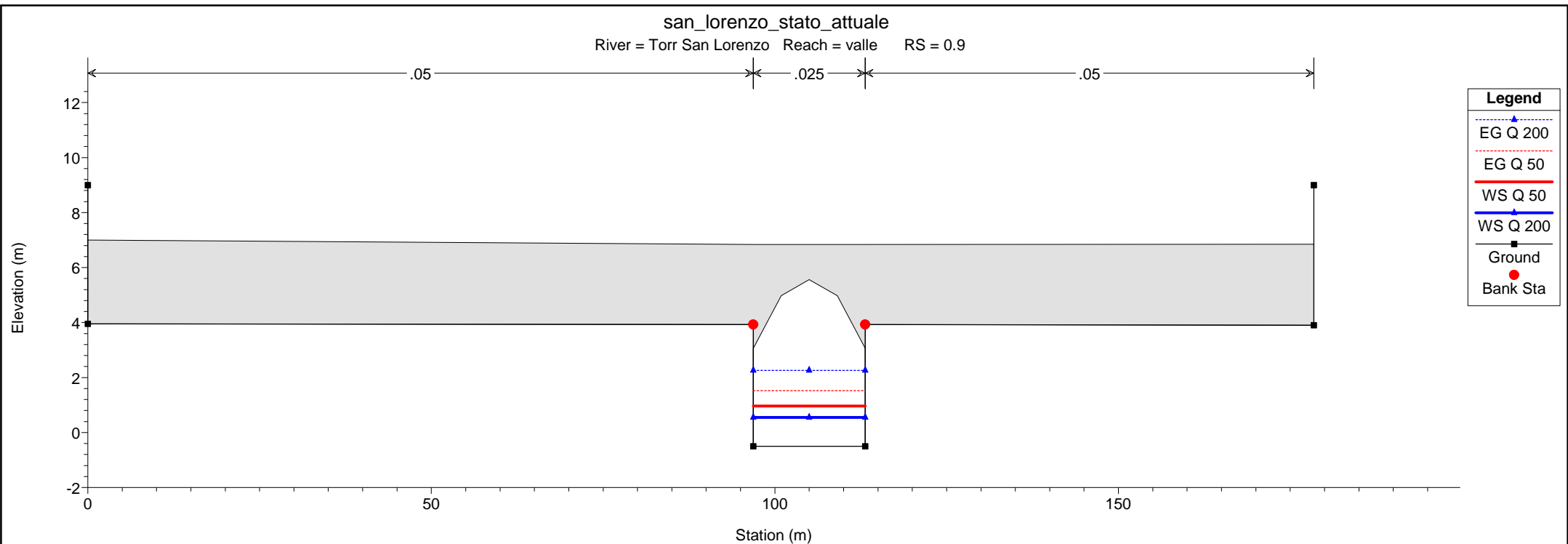
1 cm Horiz. = 1.6 m 1 cm Vert. = 2 m



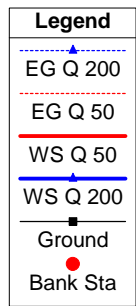
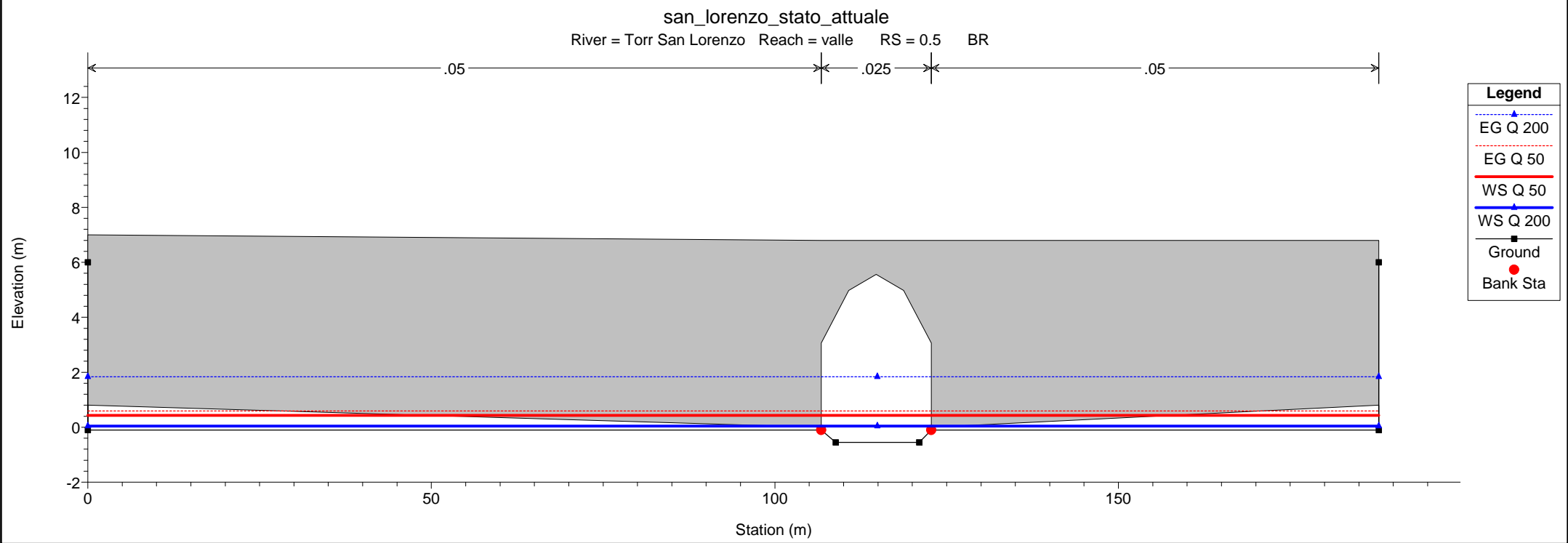
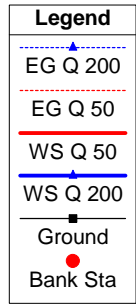
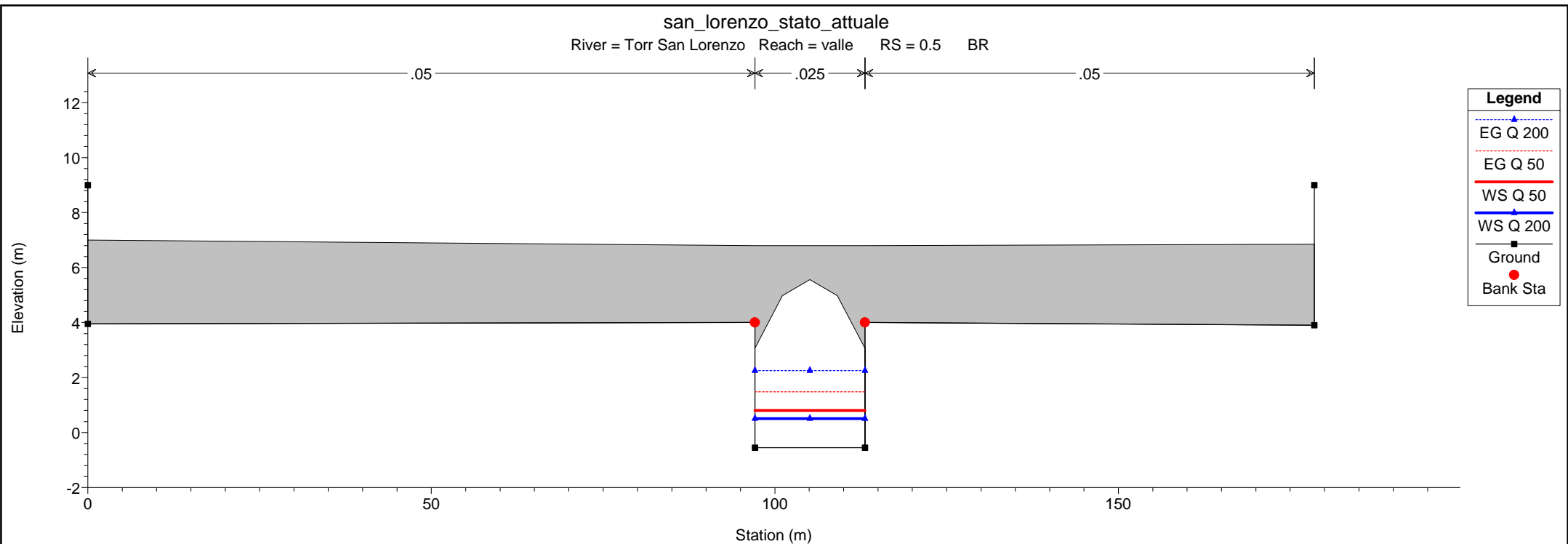
1 cm Horiz. = 8 m 1 cm Vert. = 2 m



1 cm Horiz. = 8 m 1 cm Vert. = 2 m



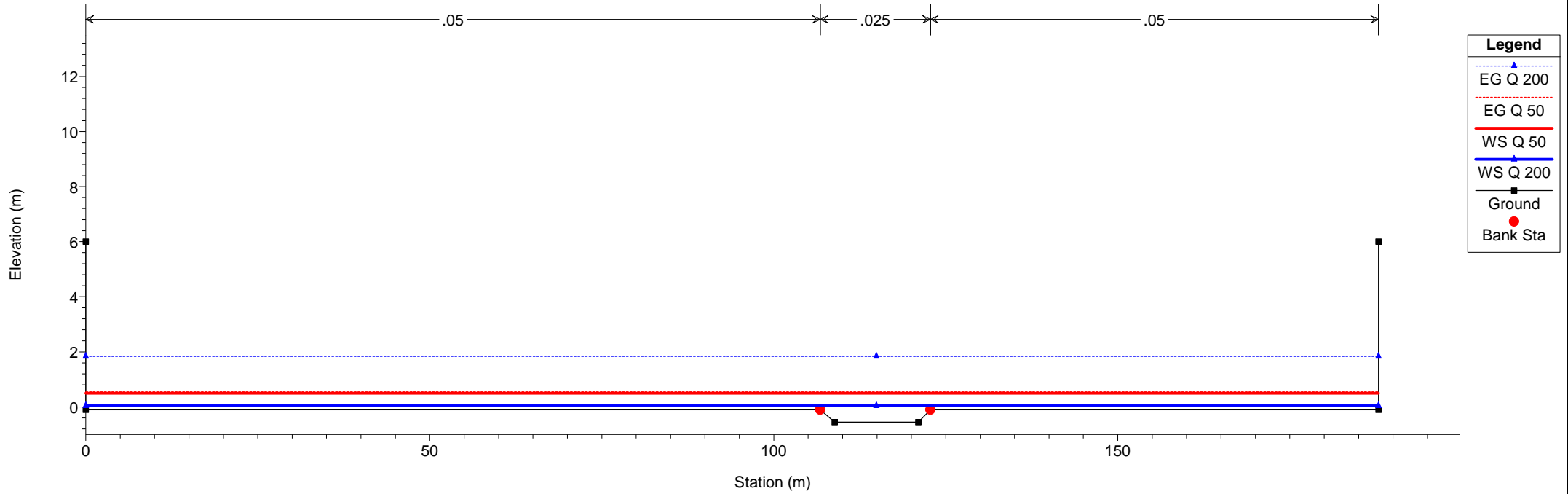
1 cm Horiz. = 8 m 1 cm Vert. = 2 m

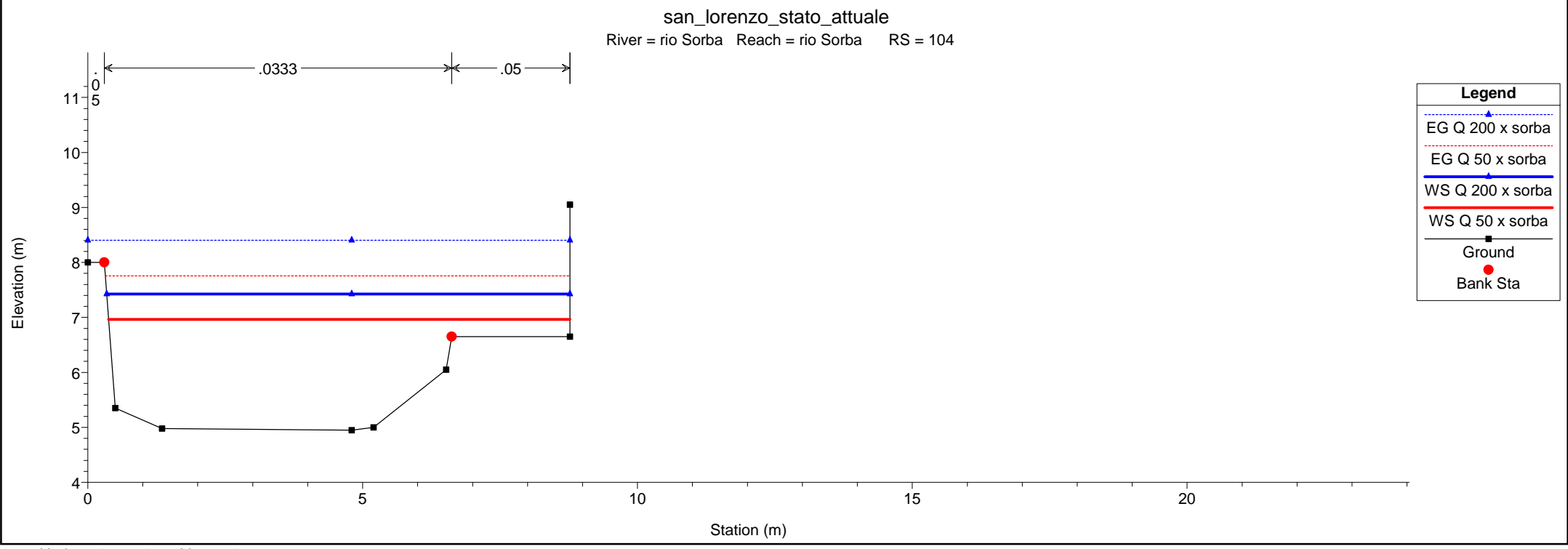
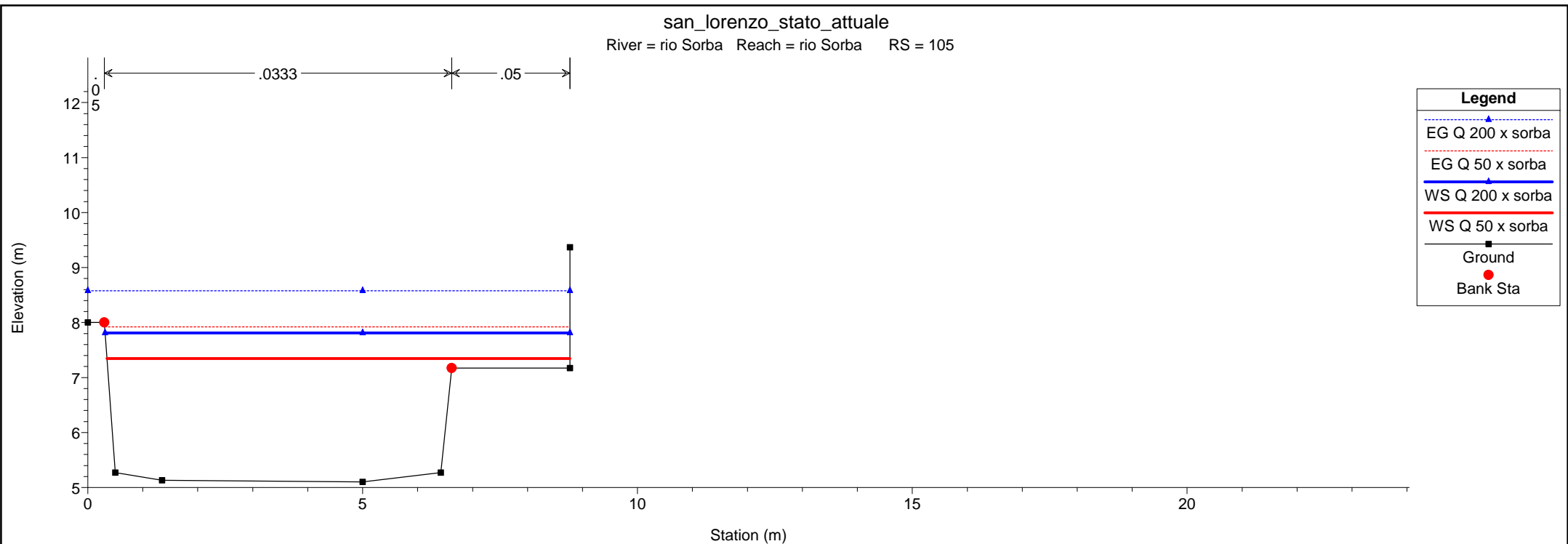


1 cm Horiz. = 8 m 1 cm Vert. = 2 m

san_lorenzo_stato_attuale

River = Torr San Lorenzo Reach = valle RS = 0.4

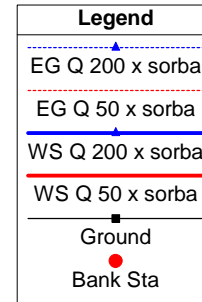
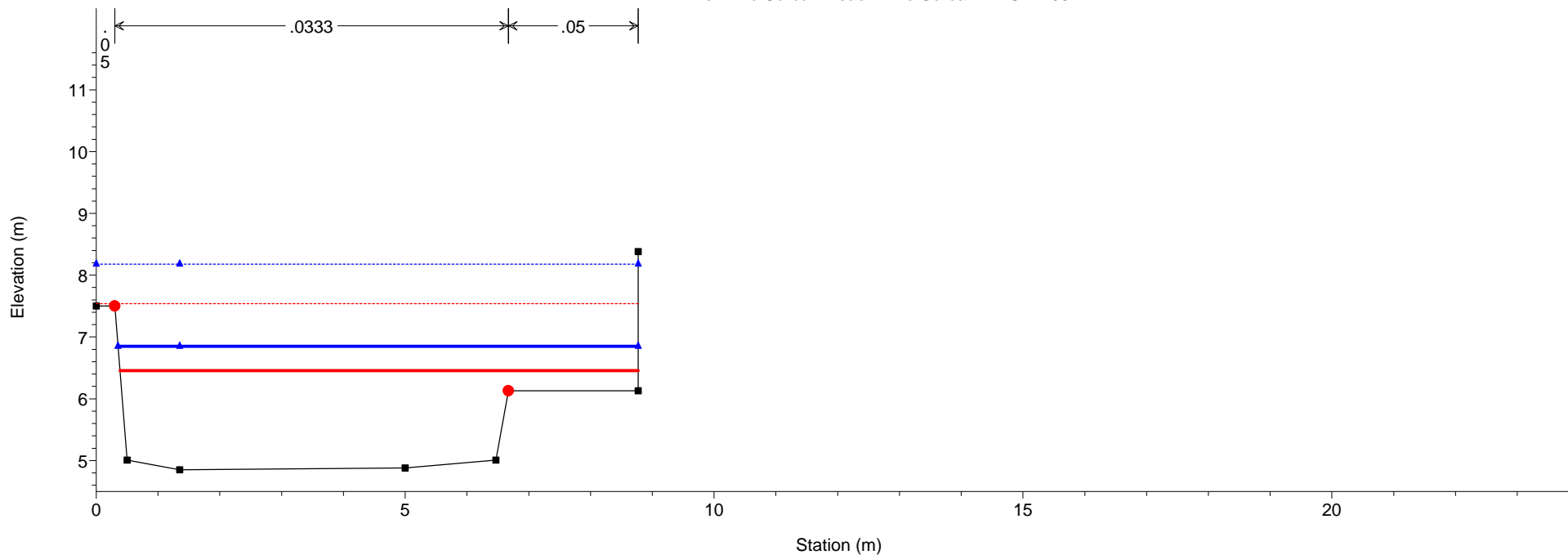




1 cm Horiz. = 1 m 1 cm Vert. = 1 m

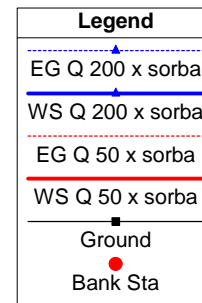
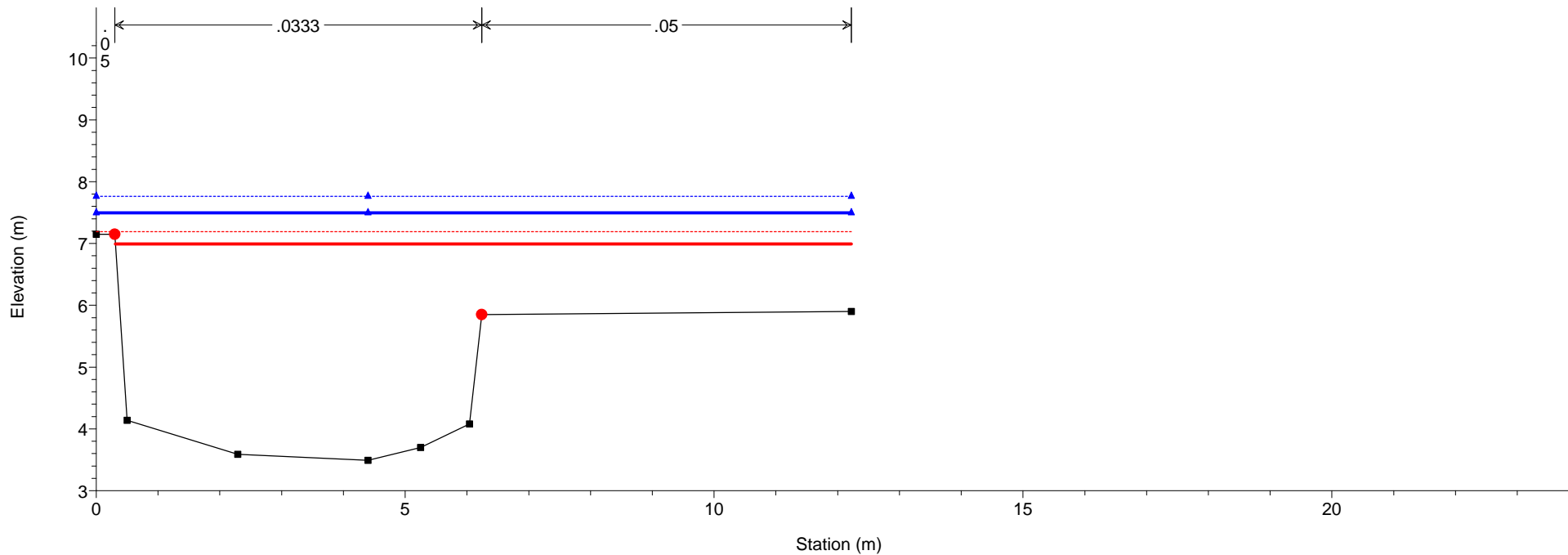
san_lorenzo_stato_attuale

River = rio Sorba Reach = rio Sorba RS = 103

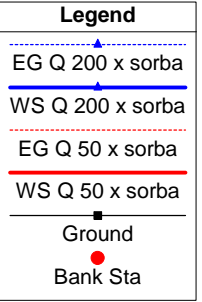
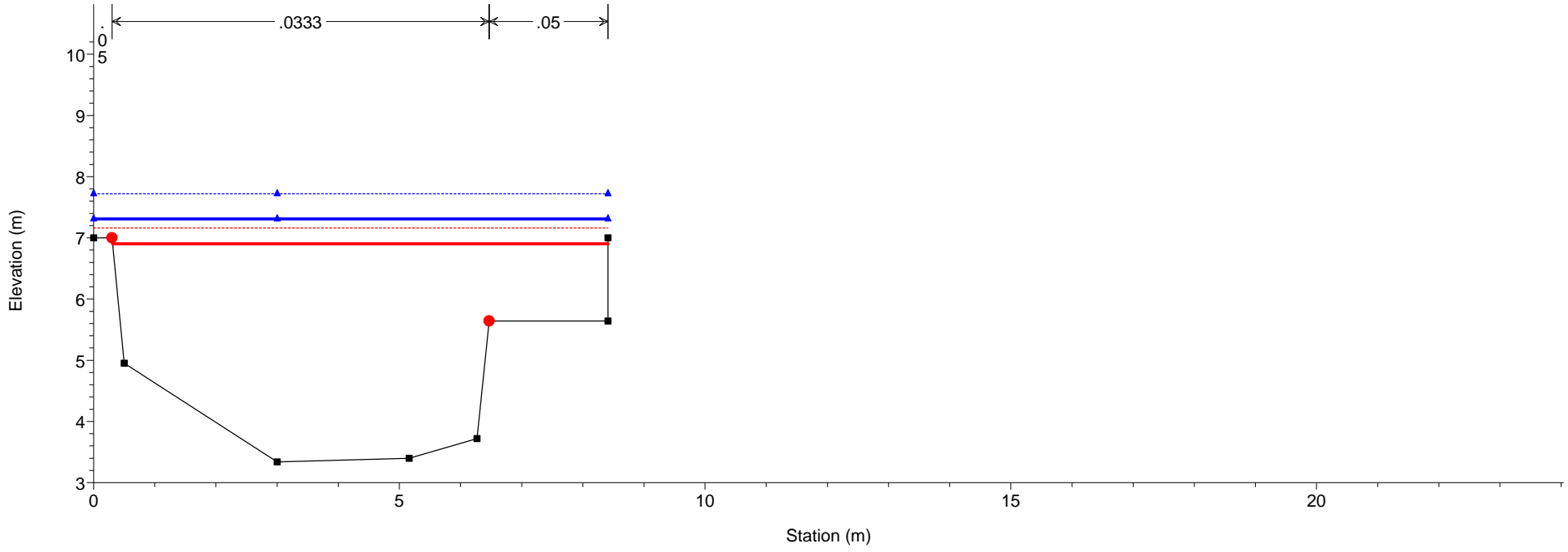


san_lorenzo_stato_attuale

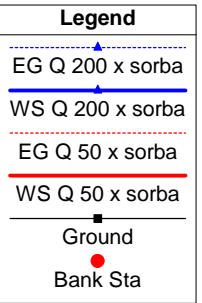
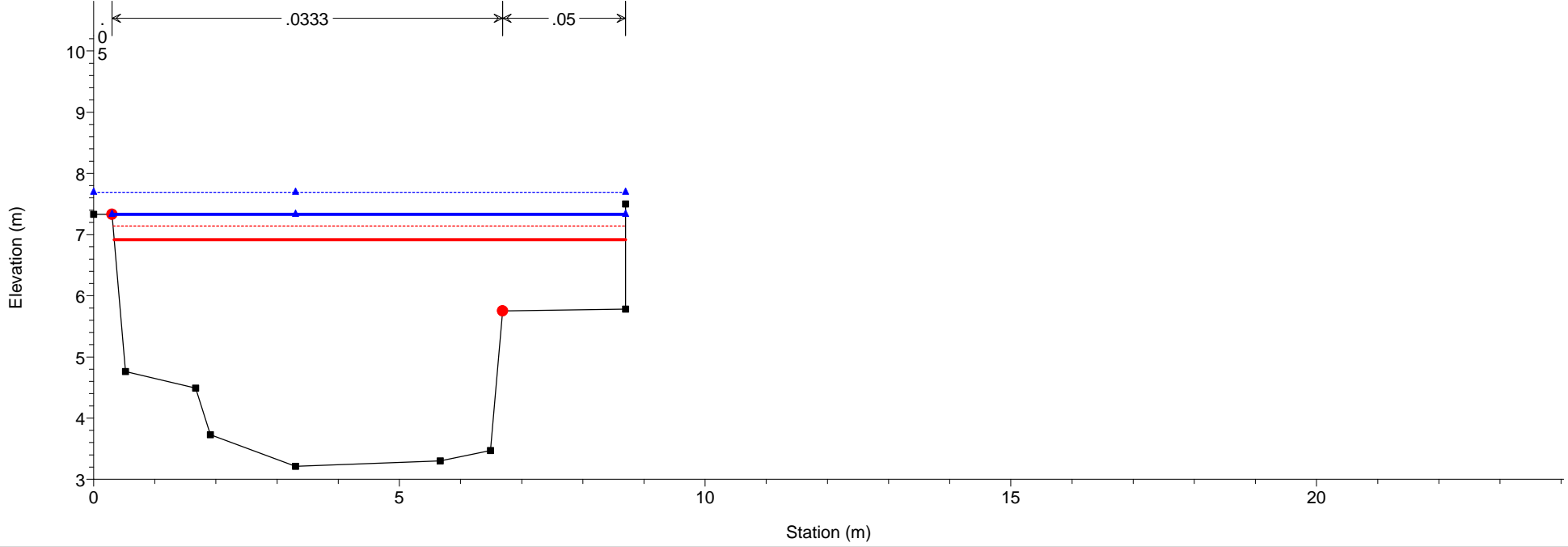
River = rio Sorba Reach = rio Sorba RS = 102



san_lorenzo_stato_attuale
River = rio Sorba Reach = rio Sorba RS = 101



san_lorenzo_stato_attuale
River = rio Sorba Reach = rio Sorba RS = 100.5



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

san_lorenzo_stato_attuale

River = rio Sorba Reach = rio Sorba RS = 100

