



AUTORITÀ DI BACINO REGIONALE

PIANO DI BACINO STRALCIO SUL RISCHIO IDROGEOLOGICO

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

Caratteristiche idrauliche e geologiche del territorio

Valutazione del rischio idraulico e geomorfologico

ALLEGATO VERIFICHE IDRAULICHE – RII FASCEO E CARENDETTA

Ambito di Bacino di rilievo regionale:

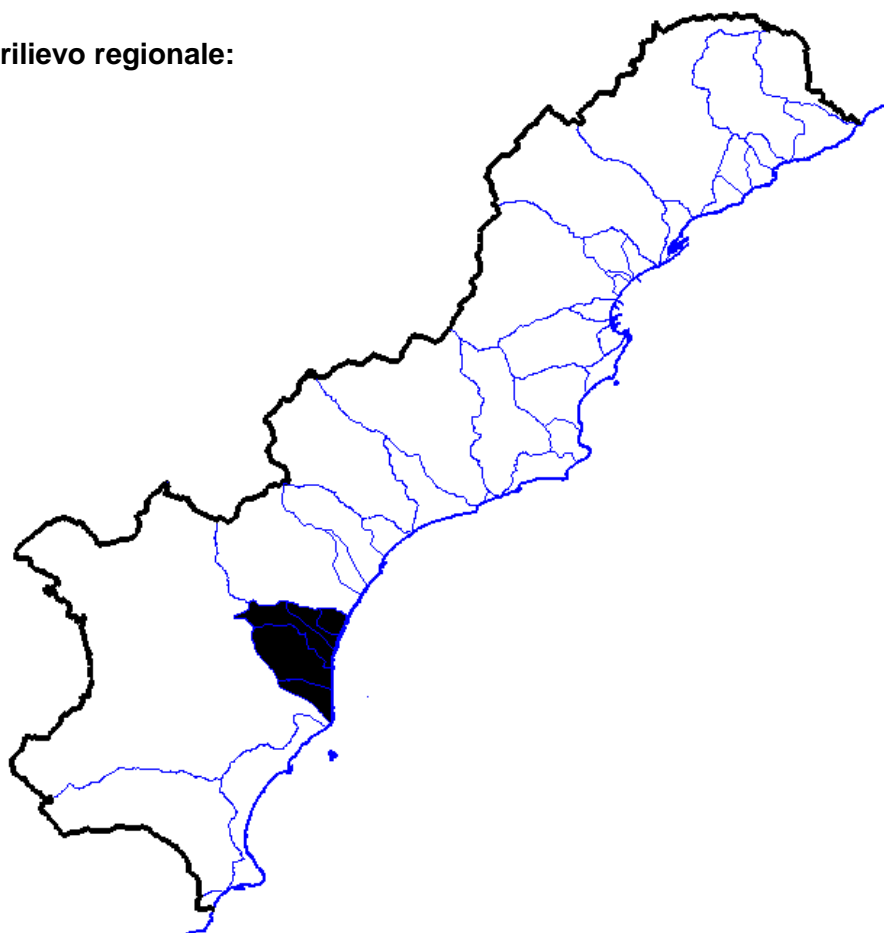
CENTA

Bacino:

CARENDA

Comuni:

ALBENGA



APPROVAZIONE	Delibera del Consiglio Provinciale di Savona n. 47 del 25/11/2003
ULTIMA MODIFICA DELL'ELABORATO	Delibera della Giunta Regionale n. 1324 del 30/12/2016
ENTRATA IN VIGORE	BURL n. 5 parte II del 01/02/2017

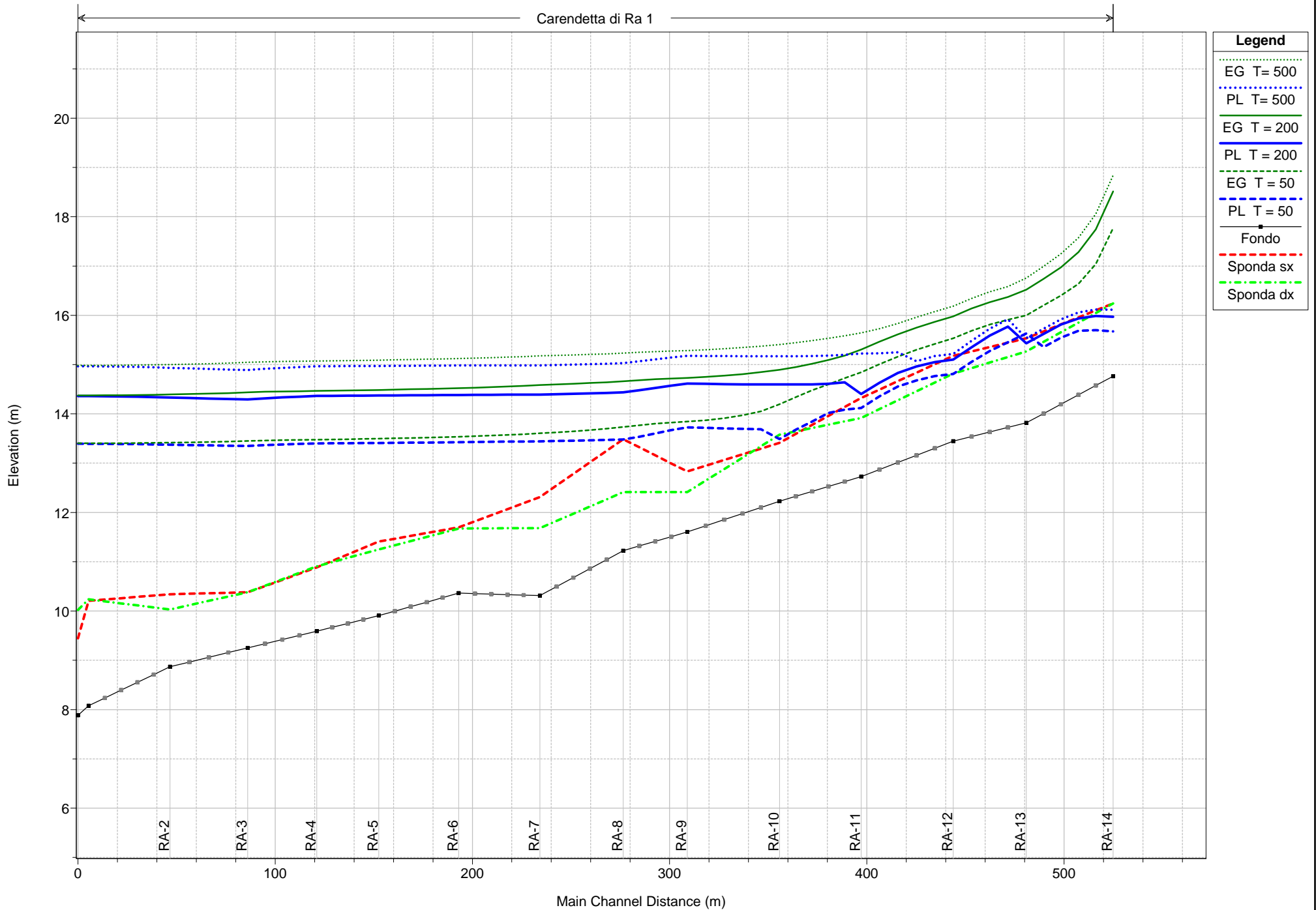
OUTPUT MODELLO IDRAULICO

Rio Carenetta di Rapalline

- Profili di rigurgito
- Sezioni idrauliche
- Tabelle dei risultati

Stato attuale Plan: Plan 03

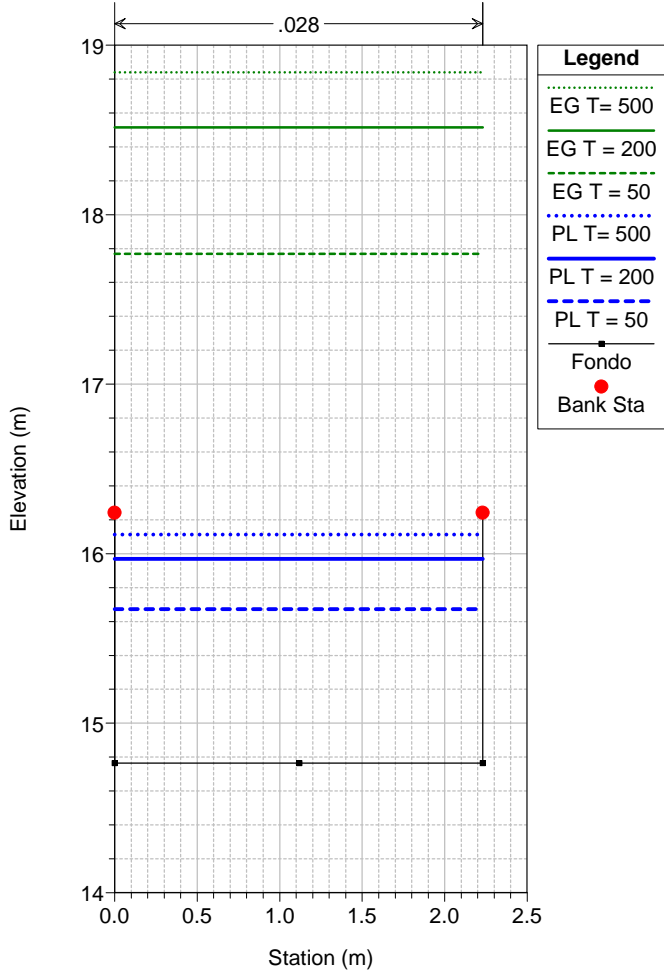
Carendetta di Ra 1



1 cm Horiz. = 25 m 1 cm Vert. = 1 m

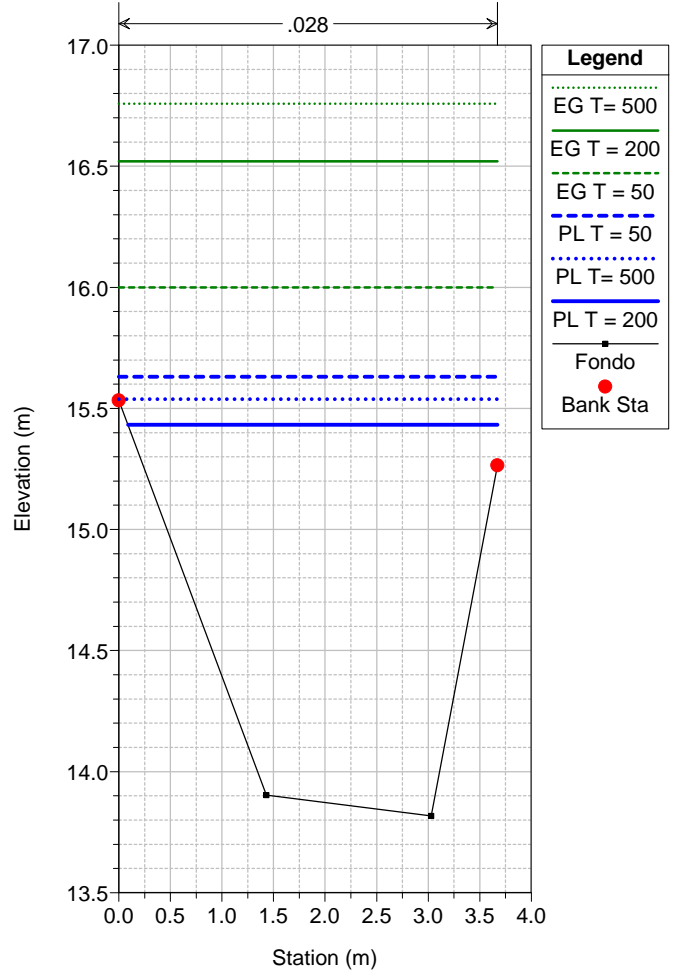
Stato attuale Plan: Plan 03

River = Carendetta di Ra Reach = 1 RA-14 Sezione iniziale



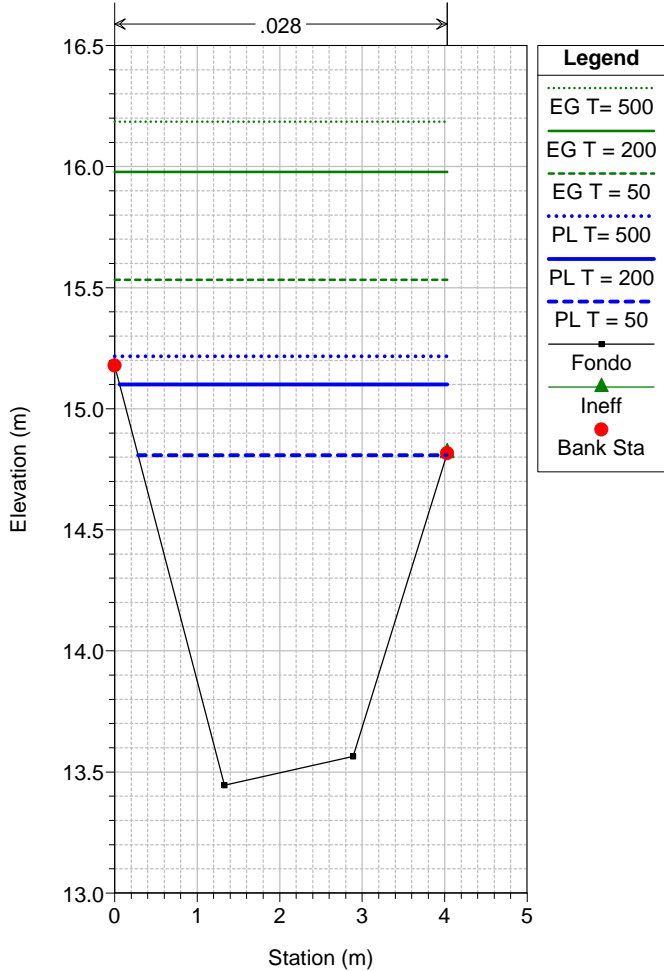
Stato attuale Plan: Plan 03

River = Carendetta di Ra Reach = 1 RA-13



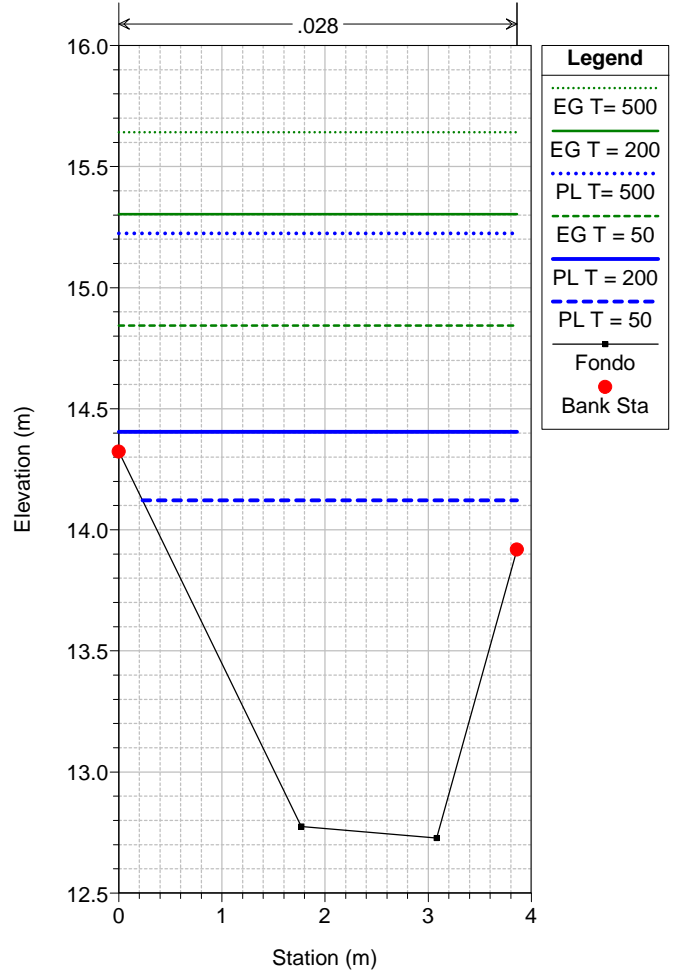
Stato attuale Plan: Plan 03

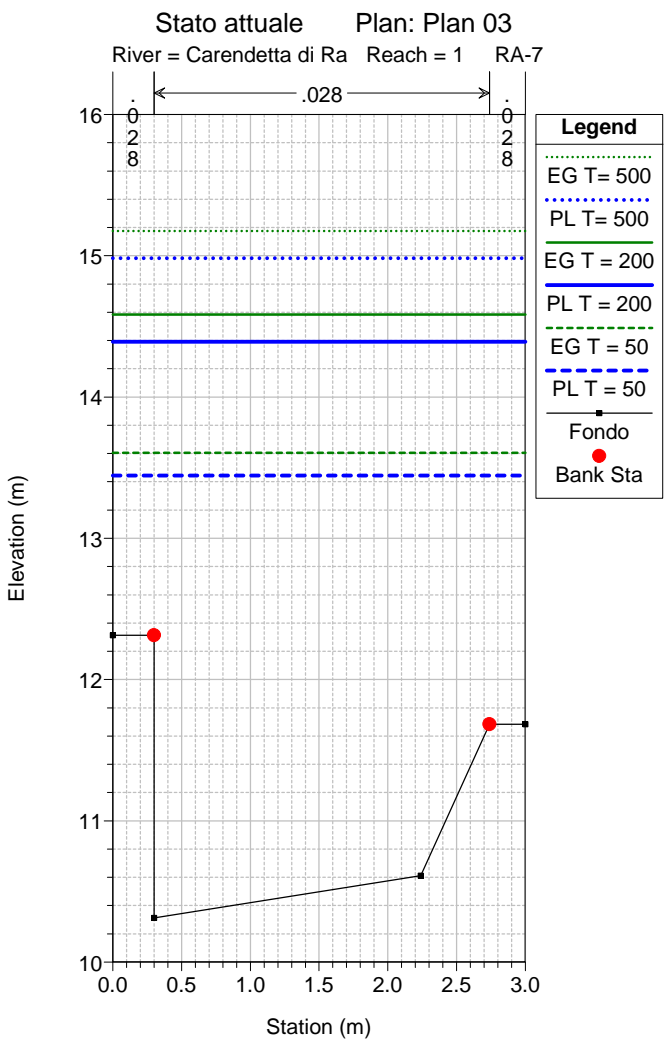
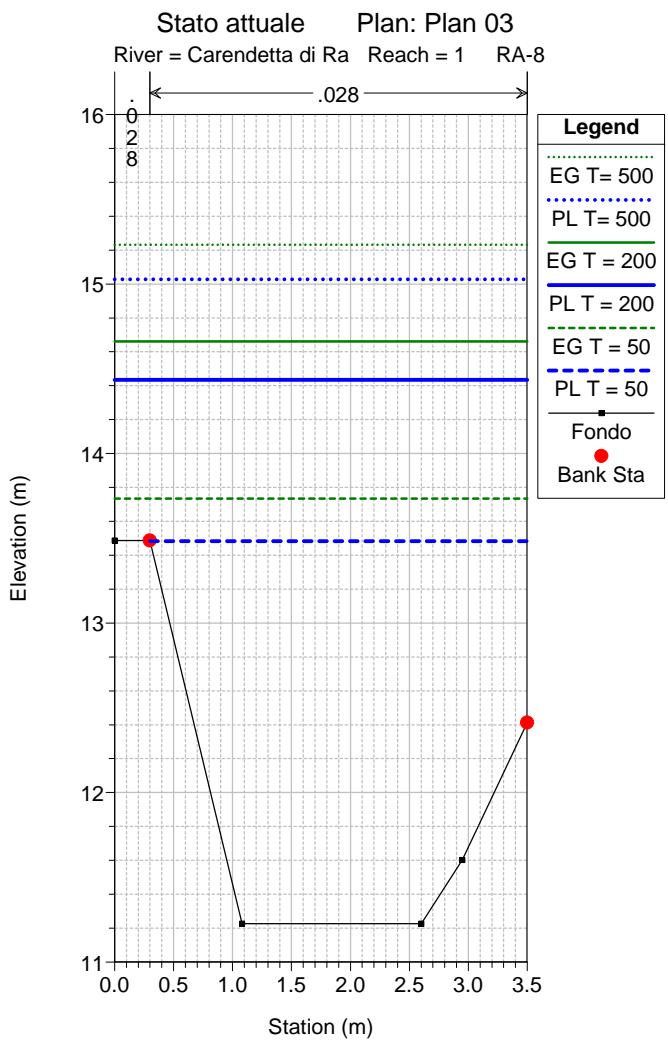
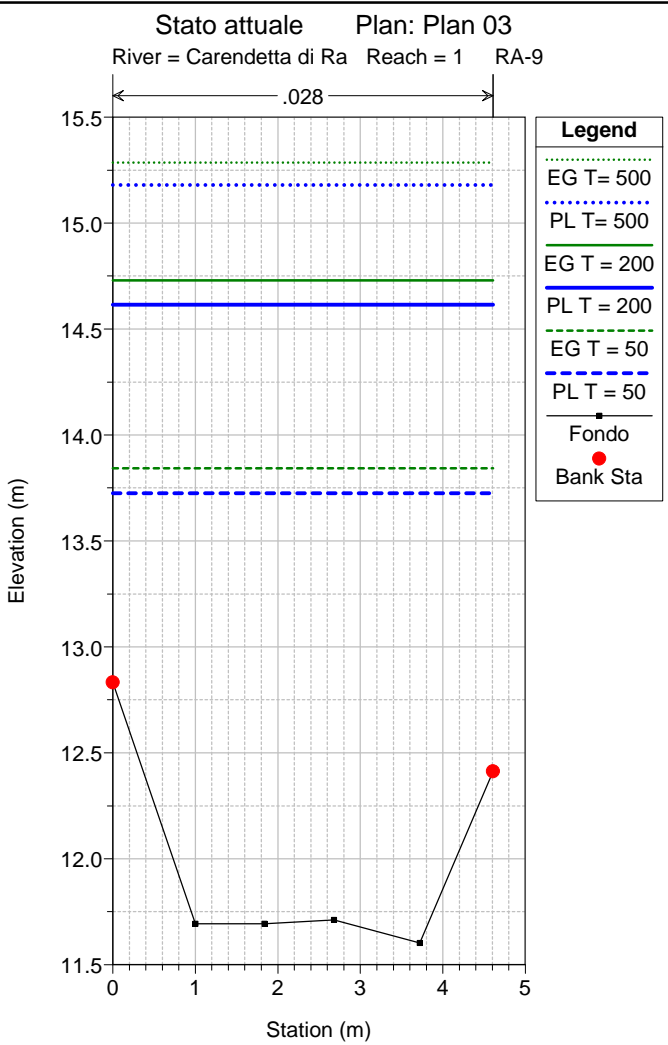
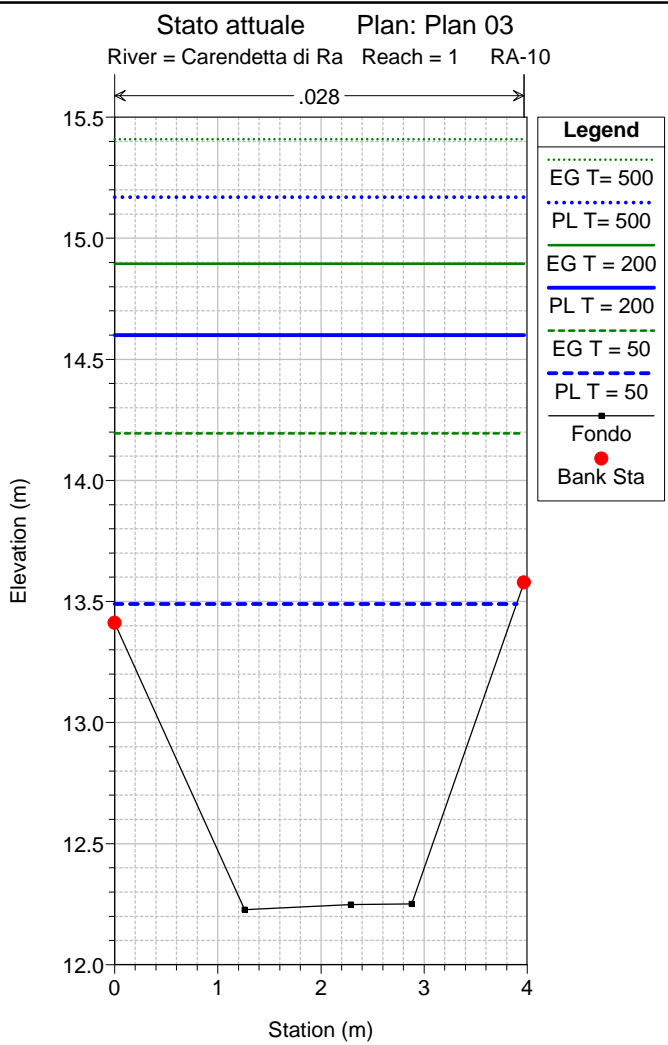
River = Carendetta di Ra Reach = 1 RA-12

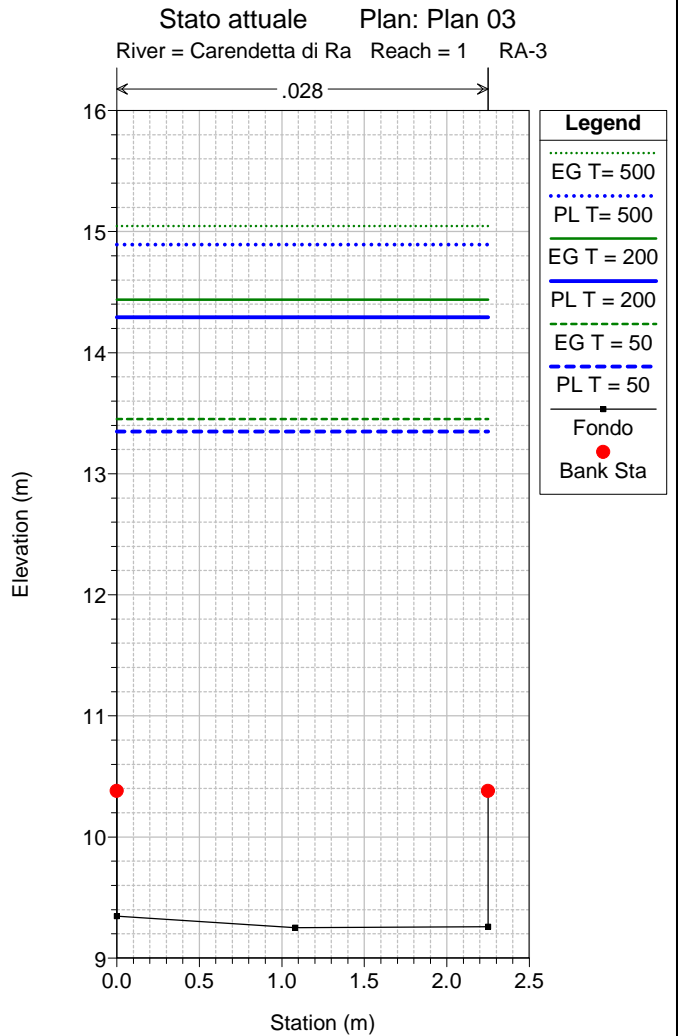
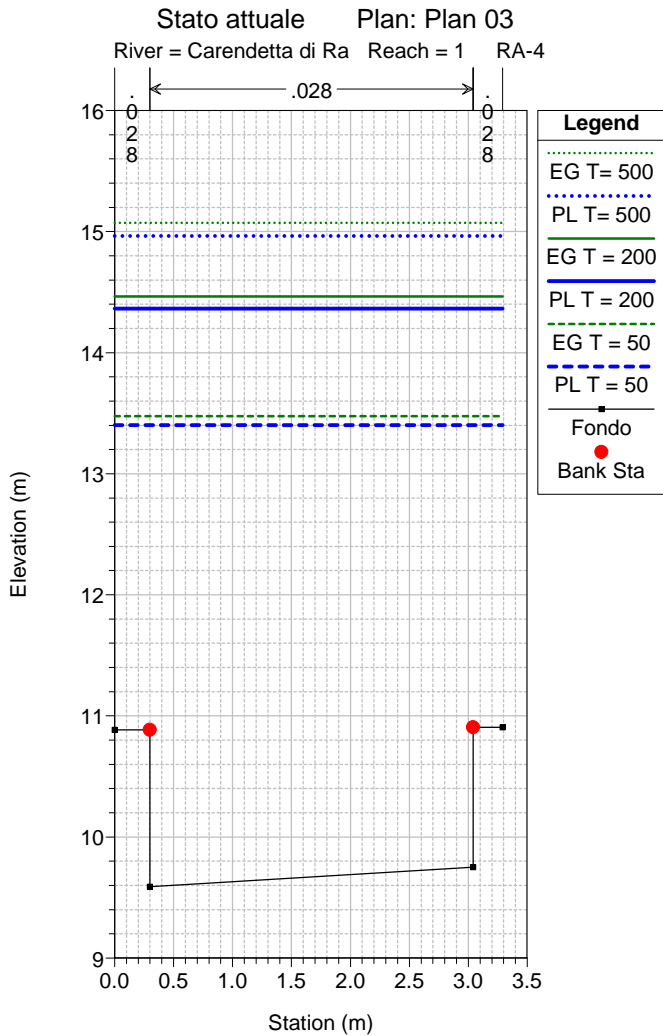
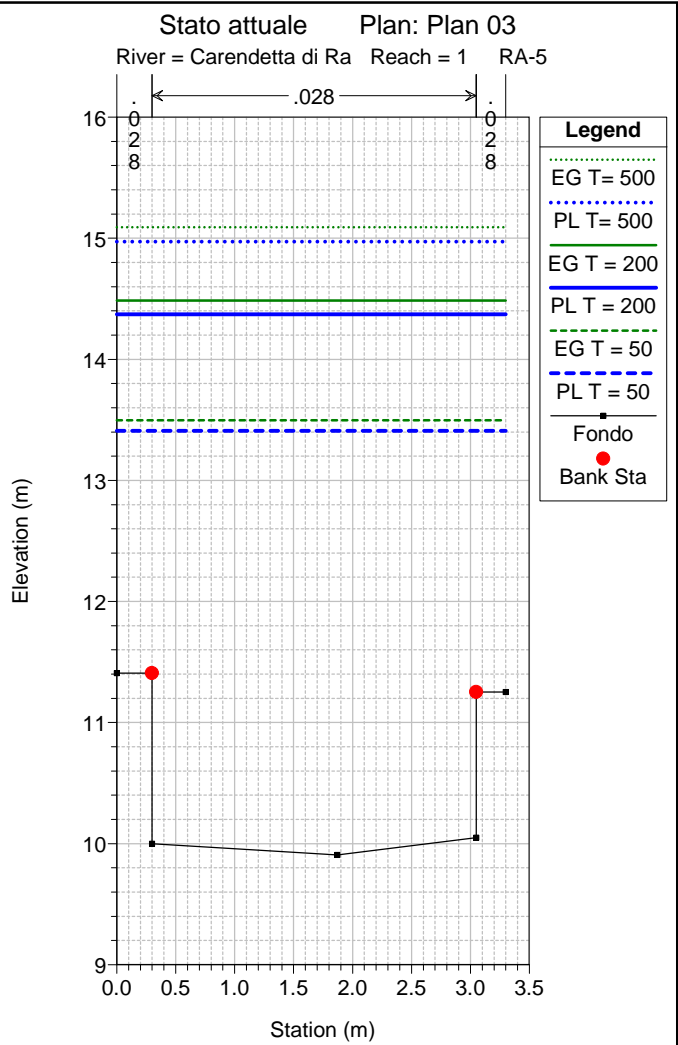
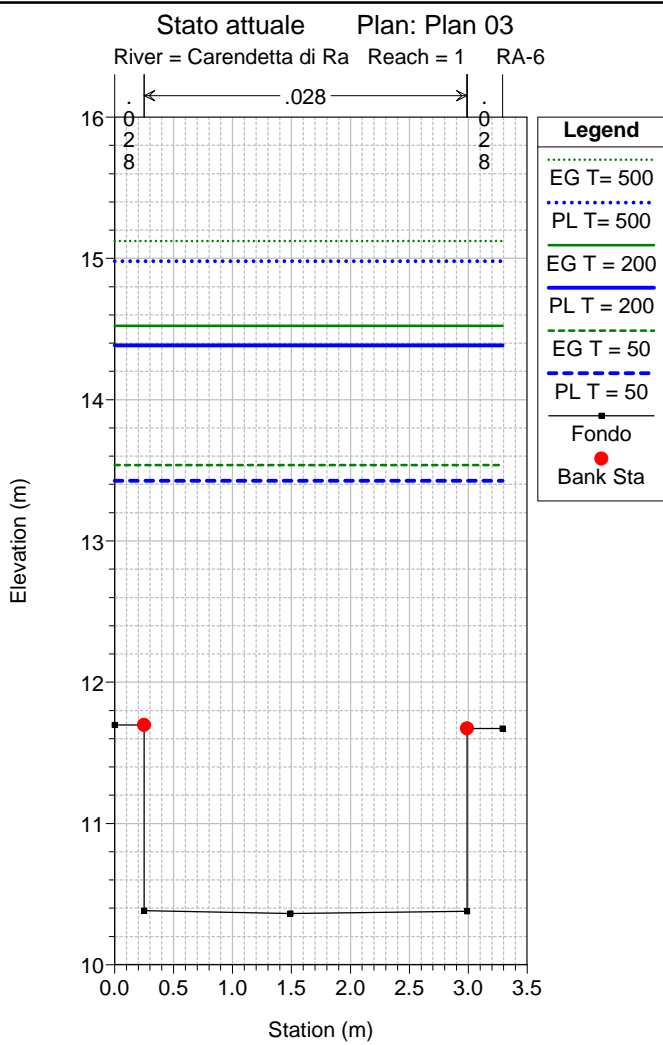


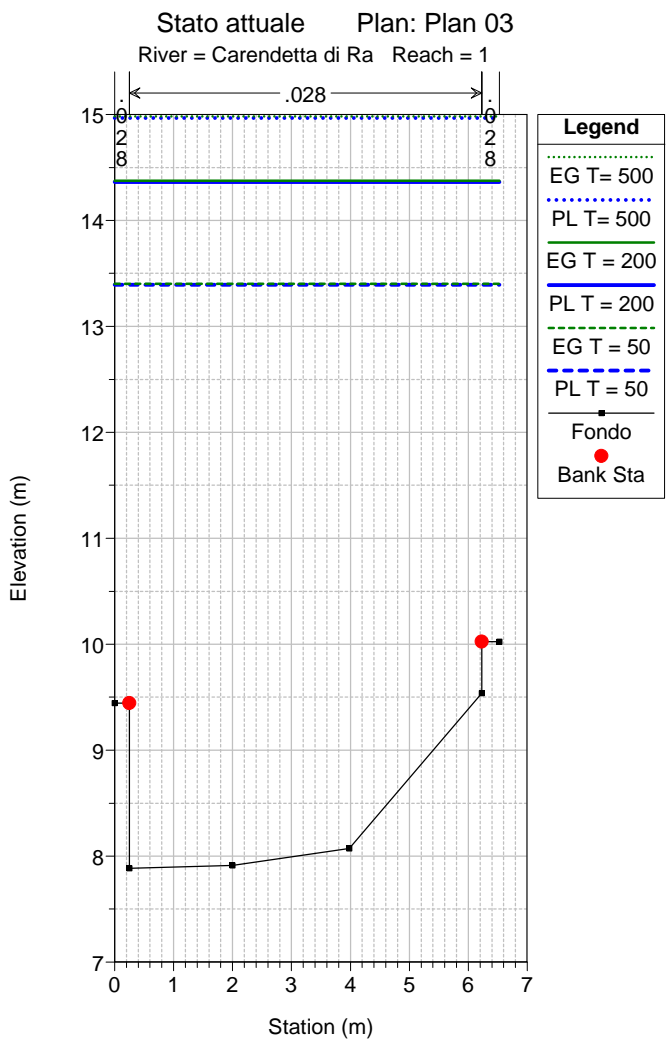
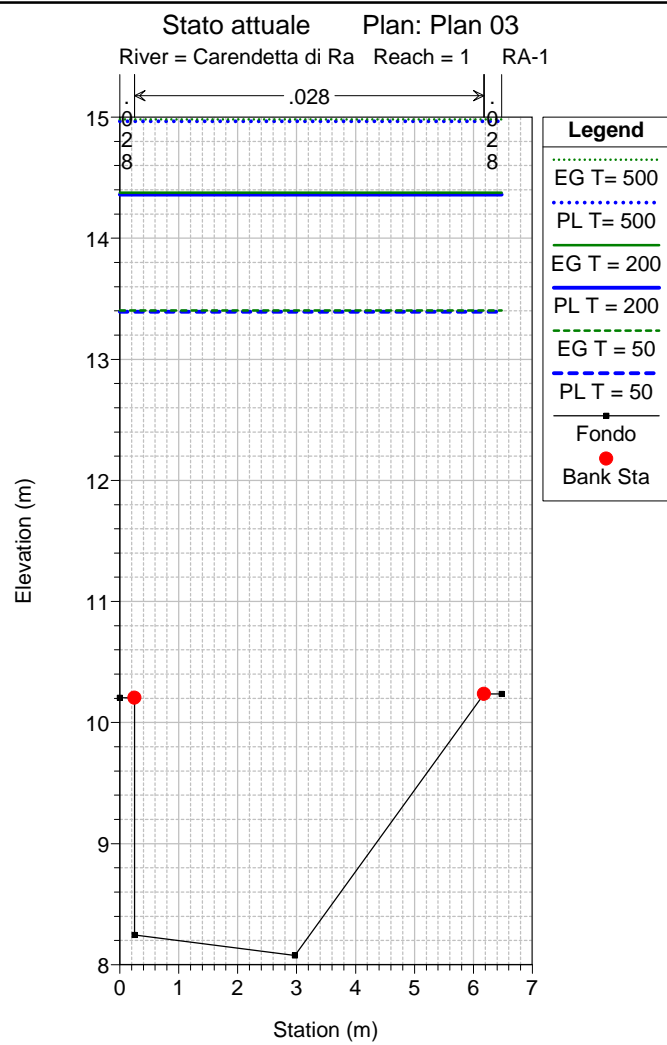
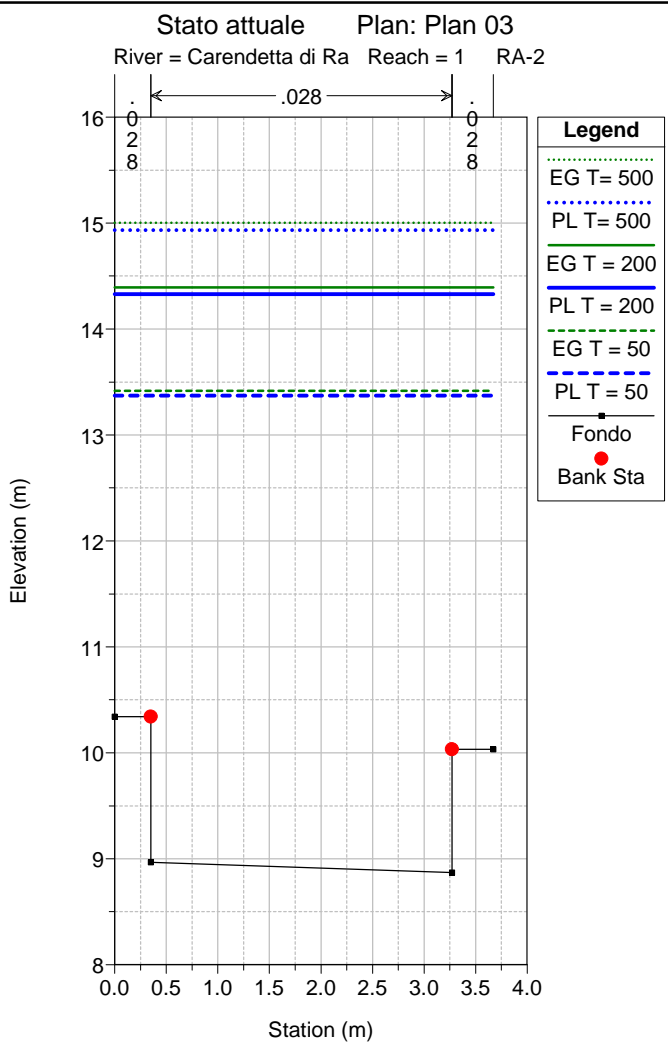
Stato attuale Plan: Plan 03

River = Carendetta di Ra Reach = 1 RA-11









Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
1	15 RA-14	T = 50	13.00	14.76	15.67	16.24	0.57	16.24	0.57	16.27	17.77	0.081136	6.41	2.03	2.23	2.15
1	15 RA-14	T = 200	19.00	14.76	15.97	16.24	0.27	16.24	0.27	16.71	18.51	0.081084	7.07	2.69	2.23	2.05
1	15 RA-14	T = 500	22.00	14.76	16.11	16.24	0.13	16.24	0.13	16.90	18.84	0.081067	7.32	3.01	2.23	2.01
1	14 RA-13	T = 50	13.00	13.82	15.63	15.53	-0.10	15.26	-0.37	15.38	16.00	0.007248	2.69	4.84	3.67	0.75
1	14 RA-13	T = 200	19.00	13.82	15.43	15.53	0.10	15.26	-0.17	15.71	16.52	0.024016	4.62	4.11	3.58	1.38
1	14 RA-13	T = 500	22.00	13.82	15.54	15.53	-0.01	15.26	-0.27	15.85	16.76	0.025360	4.89	4.50	3.67	1.41
1	13 RA-12	T = 50	13.00	13.45	14.81	15.18	0.37	14.82	0.01	14.96	15.53	0.018112	3.77	3.45	3.74	1.25
1	13 RA-12	T = 200	19.00	13.45	15.10	15.18	0.08	14.82	-0.28	15.28	15.98	0.017804	4.15	4.58	3.97	1.23
1	13 RA-12	T = 500	22.00	13.45	15.22	15.18	-0.04	14.82	-0.40	15.41	16.19	0.018312	4.36	5.04	4.03	1.24
1	12 RA-11	T = 50	13.00	12.73	14.12	14.32	0.20	13.92	-0.20	14.27	14.84	0.018103	3.76	3.45	3.63	1.23
1	12 RA-11	T = 200	19.00	12.73	14.40	14.32	-0.08	13.92	-0.49	14.59	15.30	0.018630	4.20	4.52	3.86	1.24
1	12 RA-11	T = 500	22.00	12.73	15.22	14.32	-0.90	13.92	-1.31		15.64	0.005981	2.86	7.69	3.86	0.65
1	11 RA-10	T = 50	13.00	12.23	13.49	13.41	-0.08	13.58	0.09	13.64	14.19	0.017582	3.72	3.50	3.90	1.25
1	11 RA-10	T = 200	19.00	12.23	14.60	13.41	-1.19	13.58	-1.02		14.89	0.004066	2.41	7.90	3.97	0.54
1	11 RA-10	T = 500	22.00	12.23	15.17	13.41	-1.76	13.58	-1.59		15.41	0.002857	2.16	10.16	3.97	0.43
1	10 RA-9	T = 50	13.00	11.60	13.72	12.83	-0.89	12.41	-1.31		13.84	0.001566	1.52	8.54	4.61	0.36
1	10 RA-9	T = 200	19.00	11.60	14.61	12.83	-1.78	12.41	-2.20		14.73	0.001197	1.50	12.64	4.61	0.29
1	10 RA-9	T = 500	22.00	11.60	15.18	12.83	-2.35	12.41	-2.77		15.29	0.000999	1.44	15.25	4.61	0.25
1	9 RA-8	T = 50	13.00	11.23	13.48	13.49	0.00	12.41	-1.07		13.73	0.004446	2.22	5.84	3.20	0.53
1	9 RA-8	T = 200	19.00	11.23	14.44	13.49	-0.95	12.41	-2.02		14.66	0.002756	2.11	9.18	3.50	0.40
1	9 RA-8	T = 500	22.00	11.23	15.03	13.49	-1.54	12.41	-2.62		15.23	0.002135	2.01	11.25	3.50	0.35
1	8 RA-7	T = 50	13.00	10.31	13.44	12.31	-1.13	11.68	-1.76		13.61	0.001727	1.81	7.73	3.00	0.34
1	8 RA-7	T = 200	19.00	10.31	14.39	12.31	-2.08	11.68	-2.71		14.58	0.001406	1.98	10.57	3.00	0.32
1	8 RA-7	T = 500	22.00	10.31	14.98	12.31	-2.67	11.68	-3.30		15.18	0.001162	1.98	12.35	3.00	0.30
1	7 RA-6	T = 50	13.00	10.36	13.42	11.70	-1.73	11.67	-1.75		13.54	0.000978	1.50	9.32	3.29	0.27
1	7 RA-6	T = 200	19.00	10.36	14.38	11.70	-2.69	11.67	-2.71		14.52	0.000840	1.67	12.48	3.29	0.27
1	7 RA-6	T = 500	22.00	10.36	14.98	11.70	-3.28	11.67	-3.31		15.12	0.000709	1.69	14.44	3.29	0.25
1	6 RA-5	T = 50	13.00	9.91	13.41	11.41	-2.00	11.25	-2.16		13.50	0.000650	1.33	10.62	3.30	0.23
1	6 RA-5	T = 200	19.00	9.91	14.37	11.41	-2.96	11.25	-3.12		14.49	0.000611	1.52	13.79	3.30	0.23
1	6 RA-5	T = 500	22.00	9.91	14.97	11.41	-3.56	11.25	-3.72		15.09	0.000536	1.55	15.77	3.30	0.22
1	5 RA-4	T = 50	13.00	9.59	13.40	10.88	-2.52	10.91	-2.50		13.48	0.000481	1.23	11.60	3.29	0.20
1	5 RA-4	T = 200	19.00	9.59	14.36	10.88	-3.48	10.91	-3.46		14.46	0.000479	1.43	14.77	3.29	0.21
1	5 RA-4	T = 500	22.00	9.59	14.96	10.88	-4.08	10.91	-4.06		15.07	0.000431	1.47	16.74	3.29	0.20
1	4 RA-3	T = 50	13.00	9.25	13.35	10.38	-2.97	10.38	-2.97		13.45	0.001854	1.42	9.17	2.25	0.22
1	4 RA-3	T = 200	19.00	9.25	14.29	10.38	-3.91	10.38	-3.91		14.44	0.002472	1.68	11.29	2.25	0.24
1	4 RA-3	T = 500	22.00	9.25	14.89	10.38	-4.51	10.38	-4.51		15.05	0.002579	1.74	12.64	2.25	0.23
1	3 RA-2	T = 50	13.00	8.87	13.37	10.34	-3.03	10.03	-3.34		13.42	0.000223	0.95	15.41	3.67	0.14
1	3 RA-2	T = 200	19.00	8.87	14.33	10.34	-3.99	10.03	-4.30		14.39	0.000250	1.15	18.92	3.67	0.16
1	3 RA-2	T = 500	22.00	8.87	14.93	10.34	-4.59	10.03	-4.90		15.00	0.000237	1.20	21.13	3.67	0.16
1	2 RA-1	T = 50	13.00	8.08	13.39	10.21	-3.19	10.24	-3.16		13.40	0.000035	0.46	29.57	6.48	0.07
1	2 RA-1	T = 200	19.00	8.08	14.36	10.21	-4.15	10.24	-4.12		14.38	0.000040	0.56	35.84	6.48	0.08
1	2 RA-1	T = 500	22.00	8.08	14.97	10.21	-4.76	10.24	-4.73		14.98	0.000038	0.59	39.76	6.48	0.07

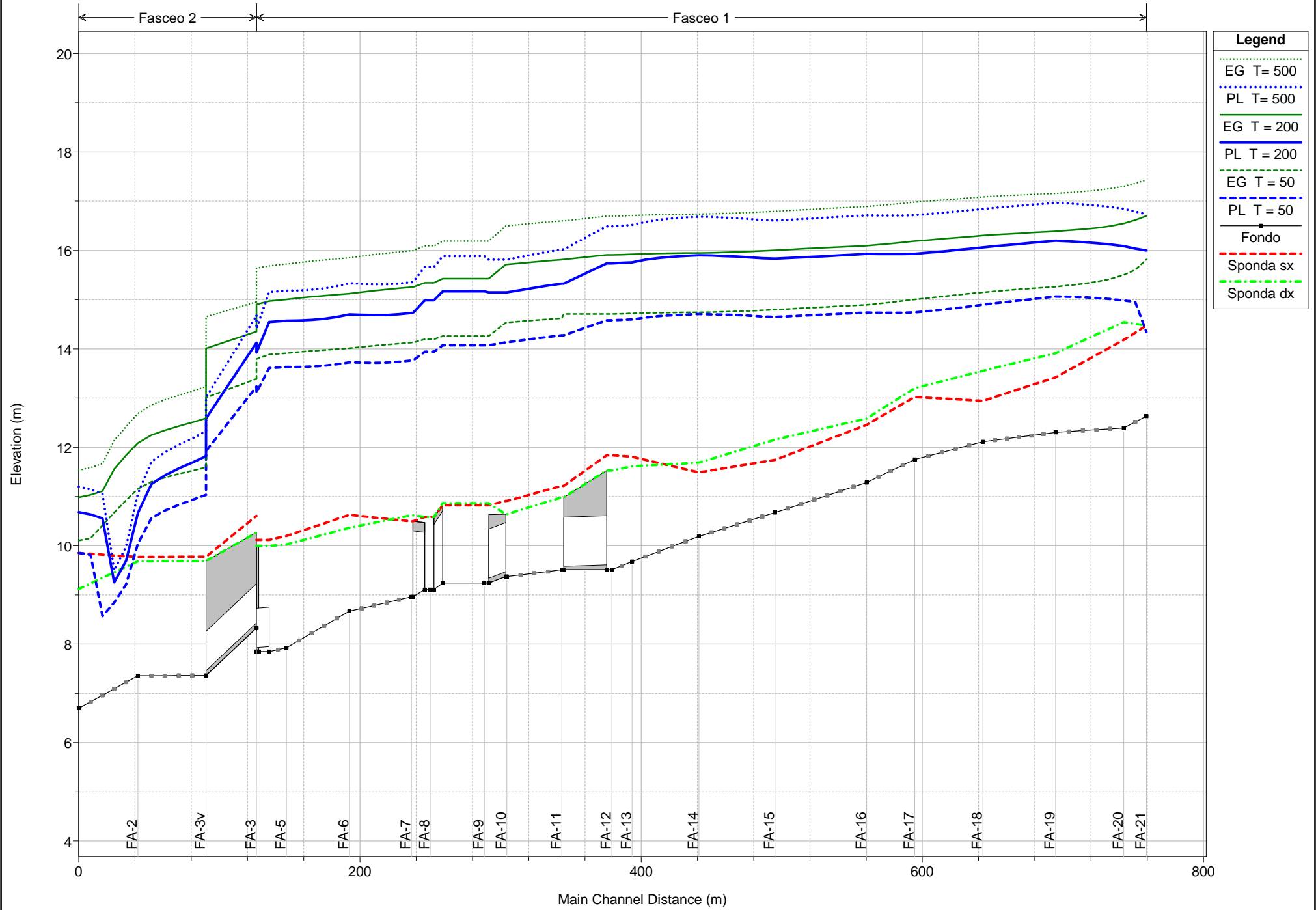
HEC-RAS Plan: Plan 03 River: Carendetta di Ra Reach: 1 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
1	1	T = 50	13.00	7.88	13.39	9.44	-3.95	10.02	-3.37		13.40	0.000025	0.42	32.63	6.53	0.06
1	1	T = 200	19.00	7.88	14.36	9.44	-4.92	10.02	-4.34		14.37	0.000030	0.52	38.95	6.53	0.07
1	1	T = 500	22.00	7.88	14.97	9.44	-5.52	10.02	-4.94		14.98	0.000029	0.54	42.90	6.53	0.07

OUTPUT MODELLO IDRAULICO

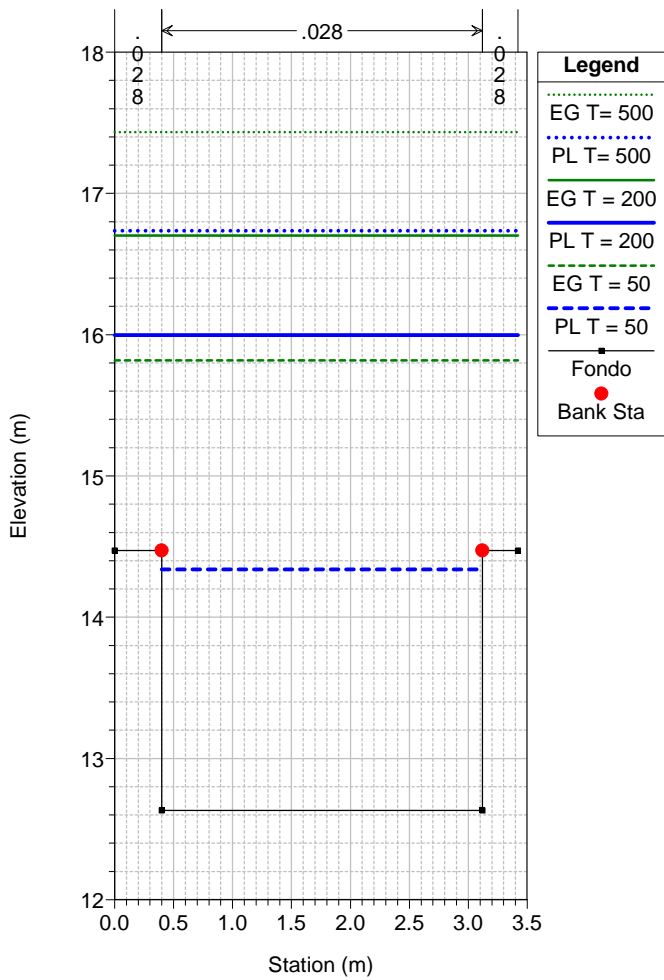
Rio Fasceo

- Profili di rigurgito
- Sezioni idrauliche
- Tabelle dei risultati

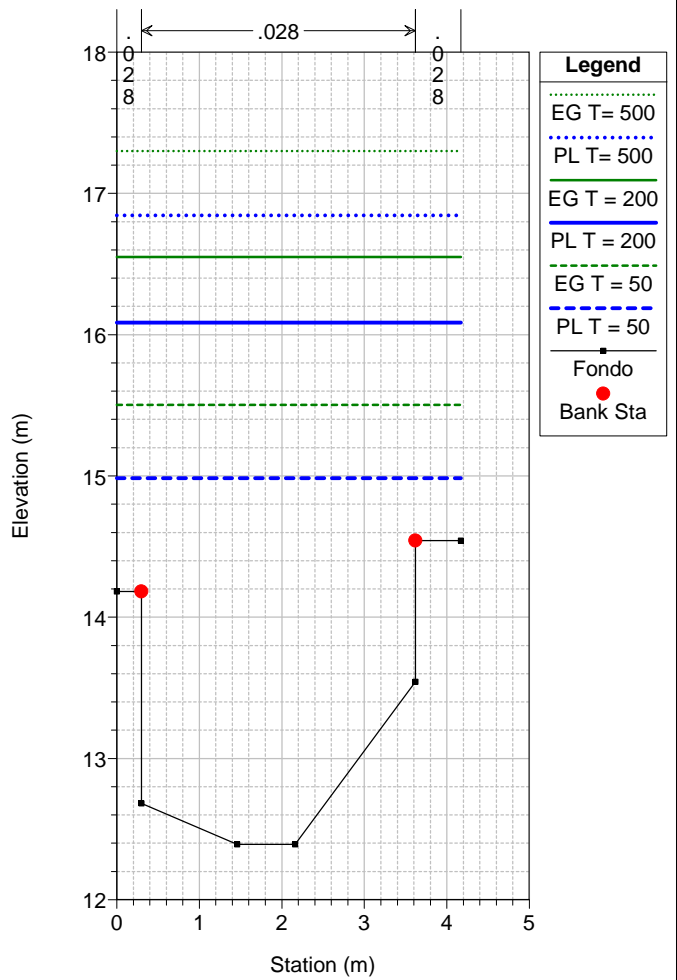


1 cm Horiz. = 35 m 1 cm Vert. = 1 m

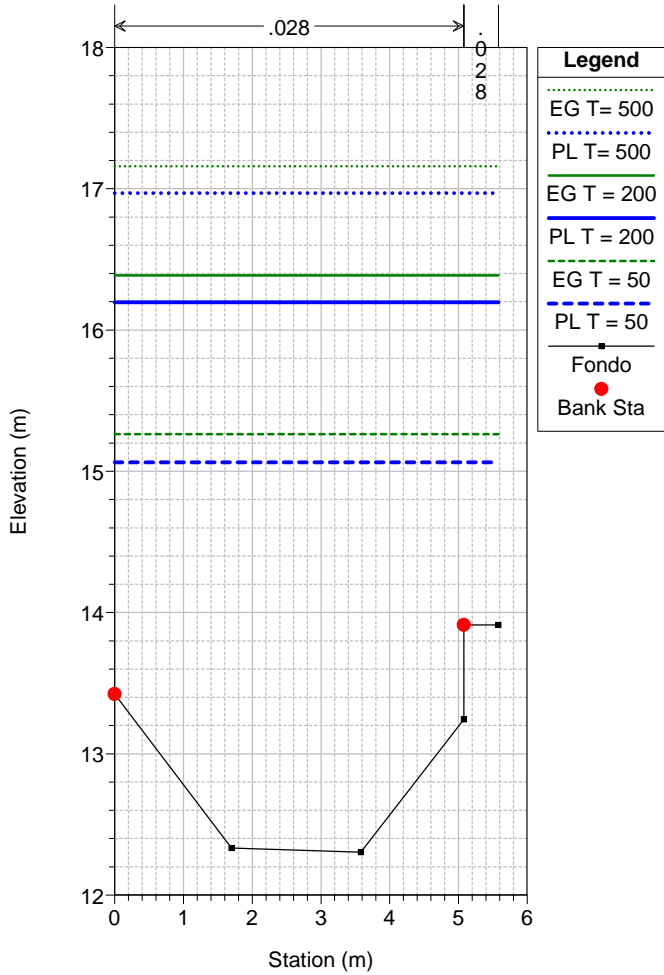
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-21



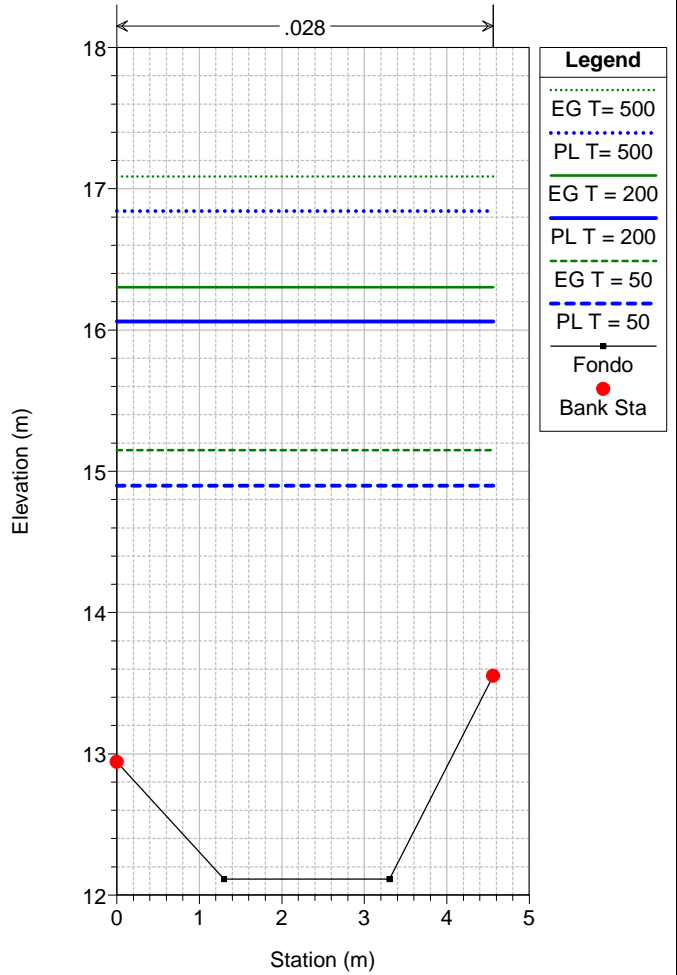
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River = Fasceo Reach = 1 FA-20



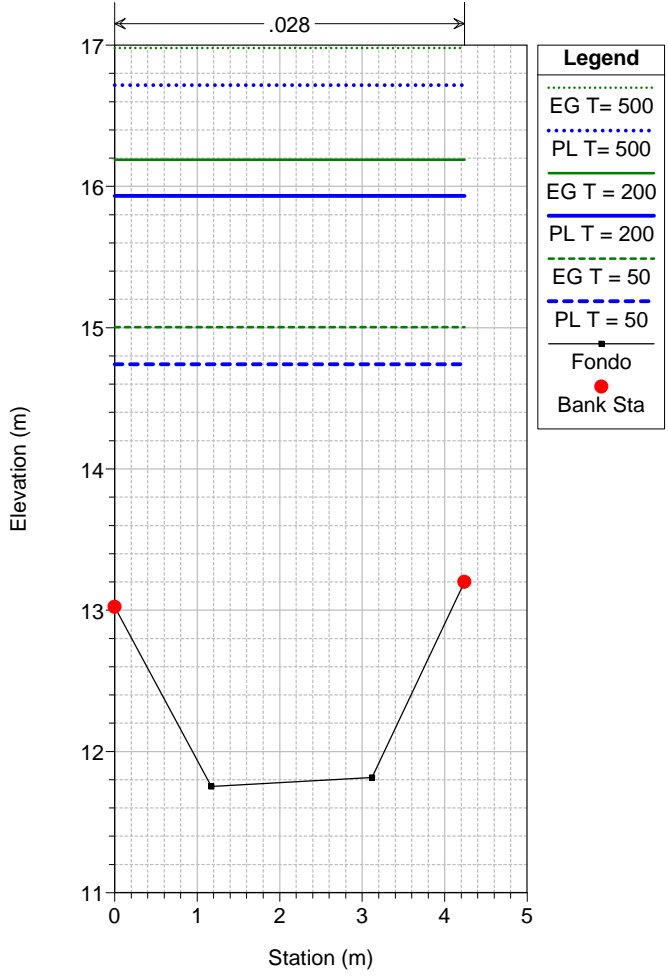
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River = Fasceo Reach = 1 FA-19



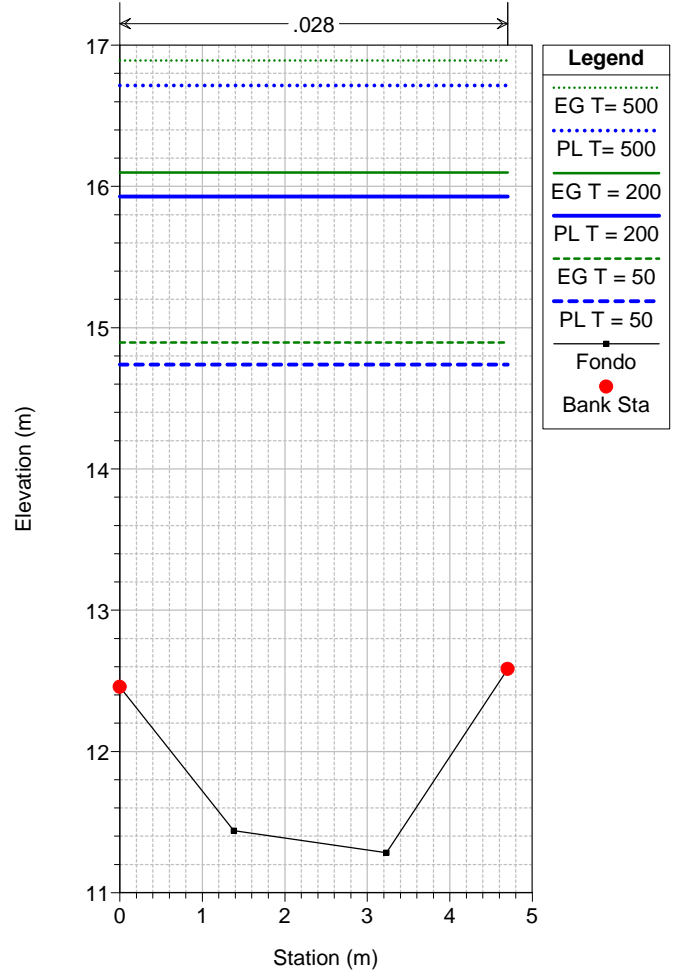
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-18



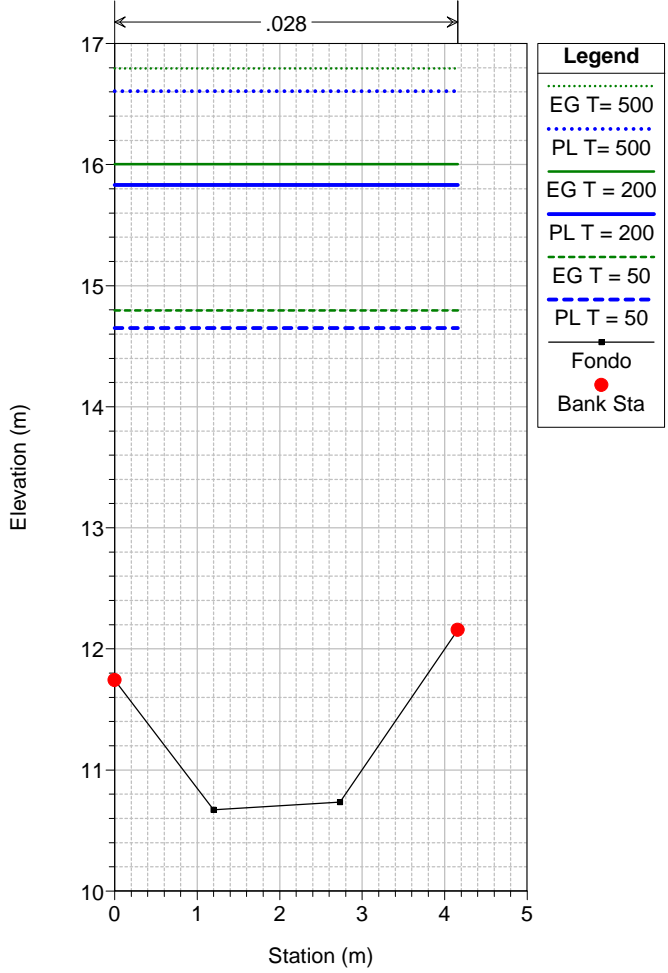
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-17



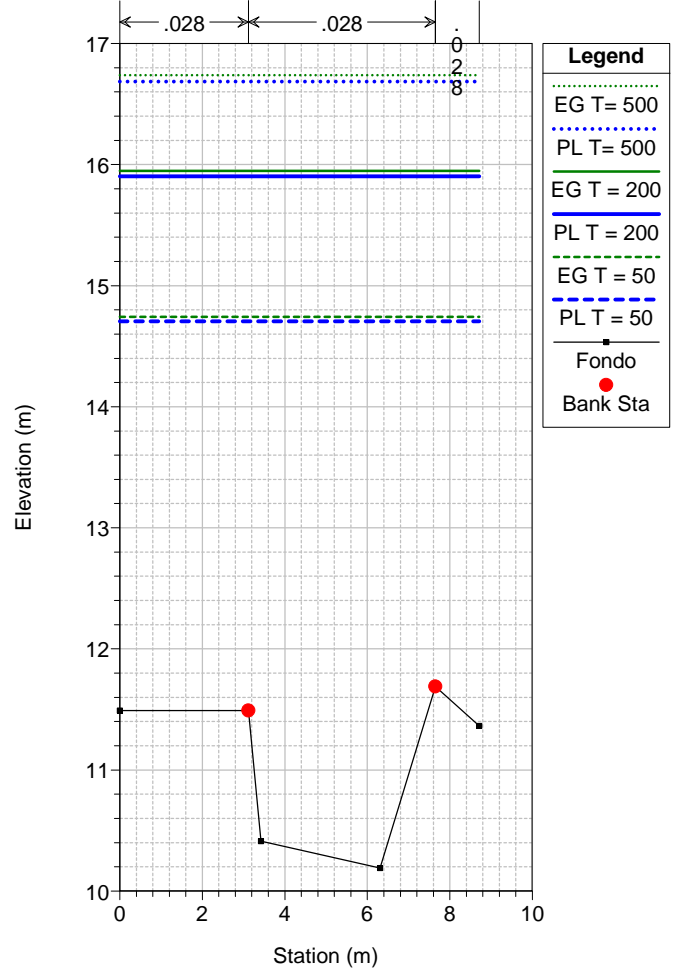
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-16



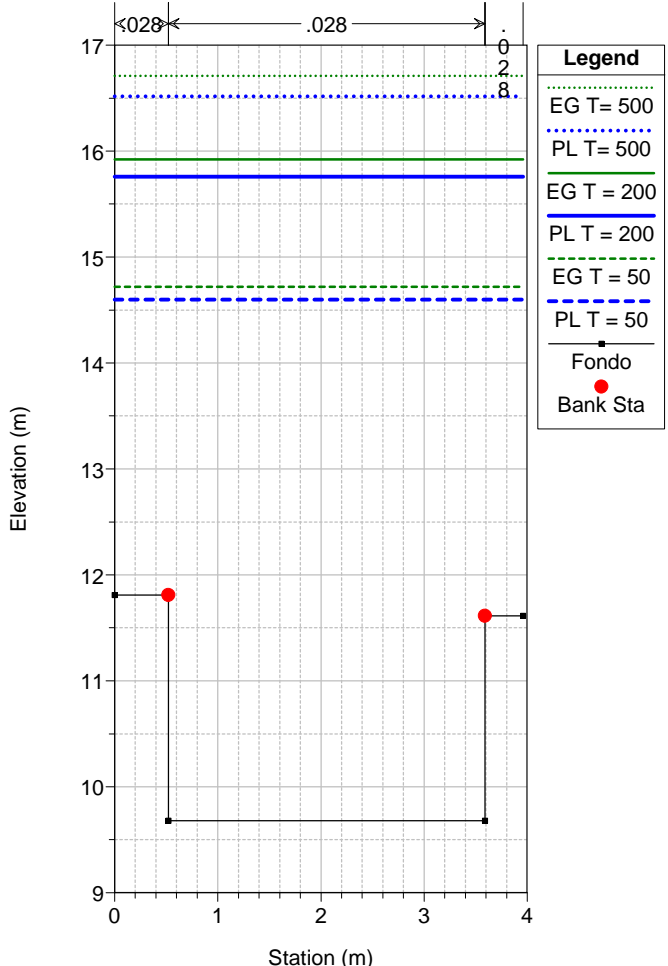
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-15



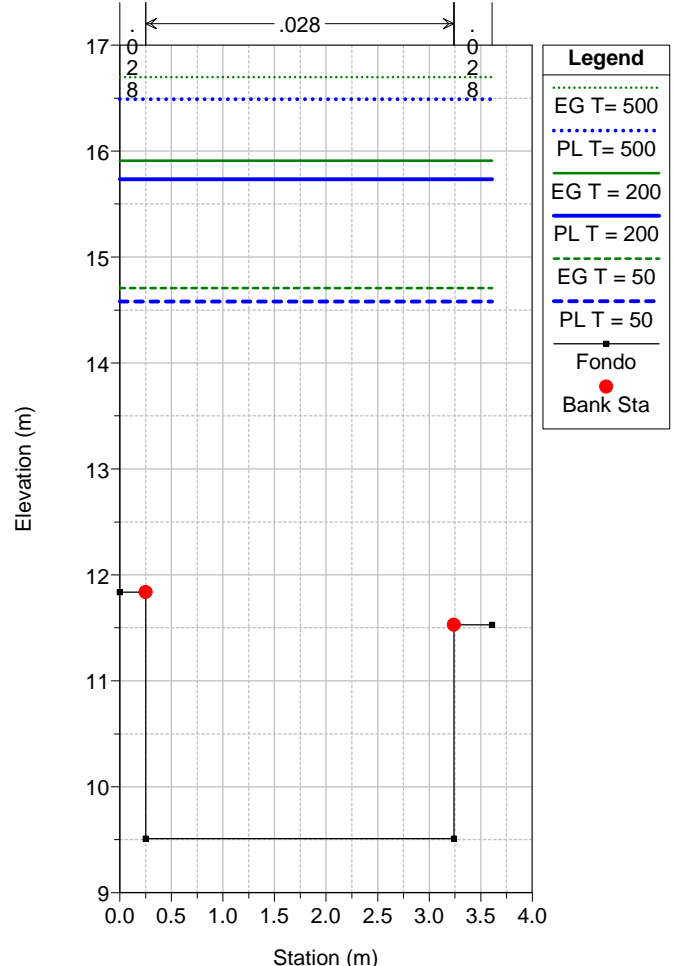
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-14



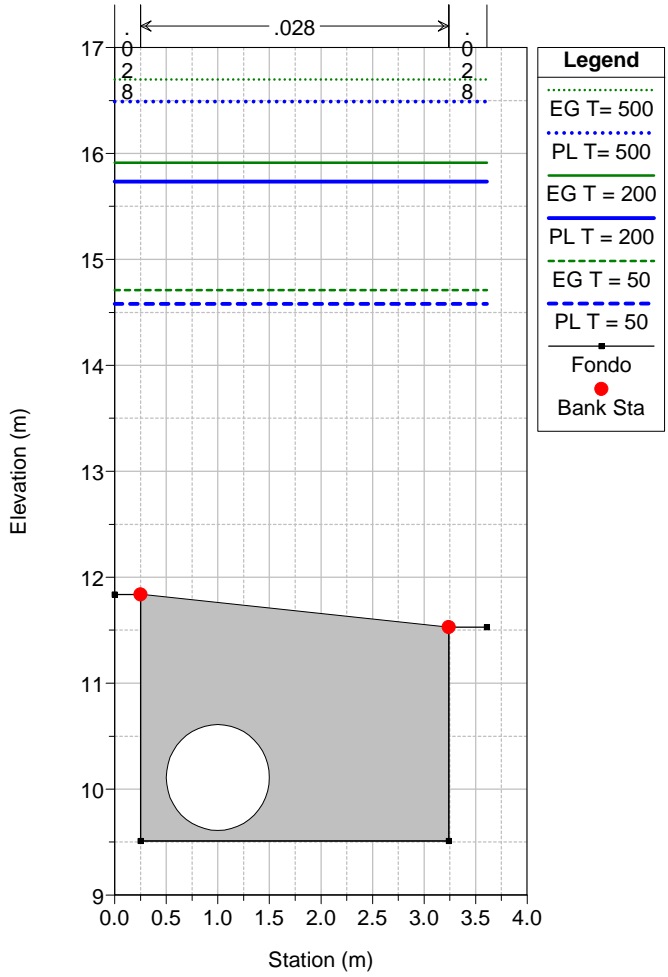
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-13



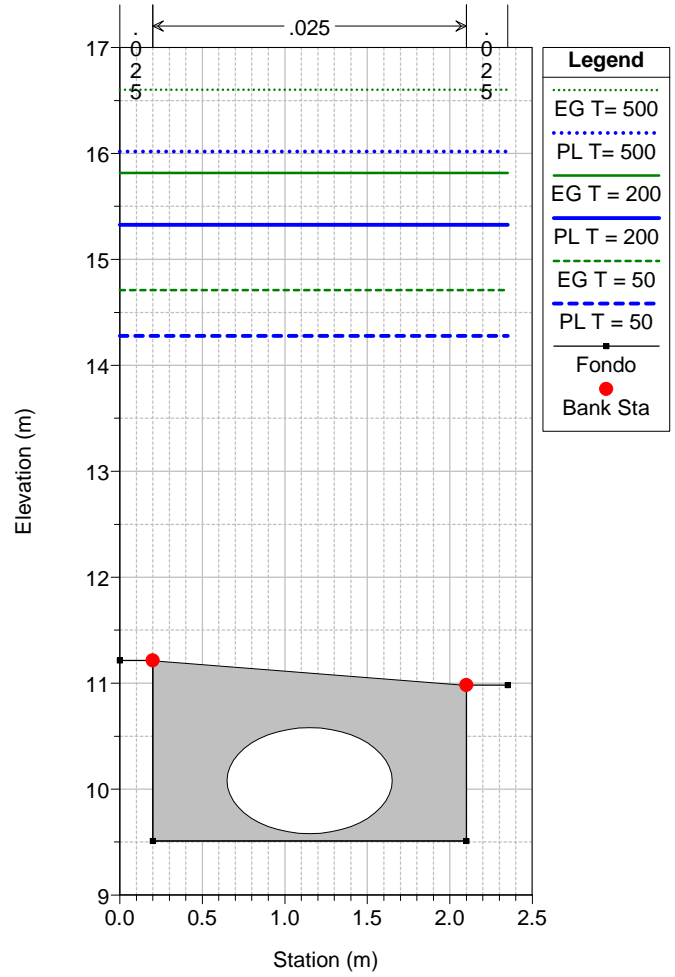
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-12



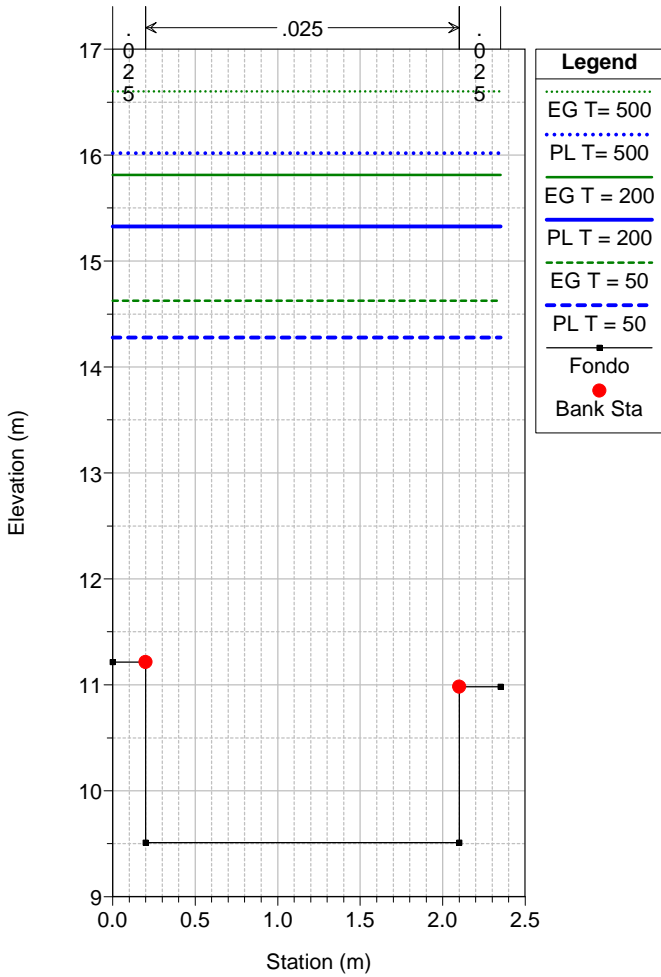
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



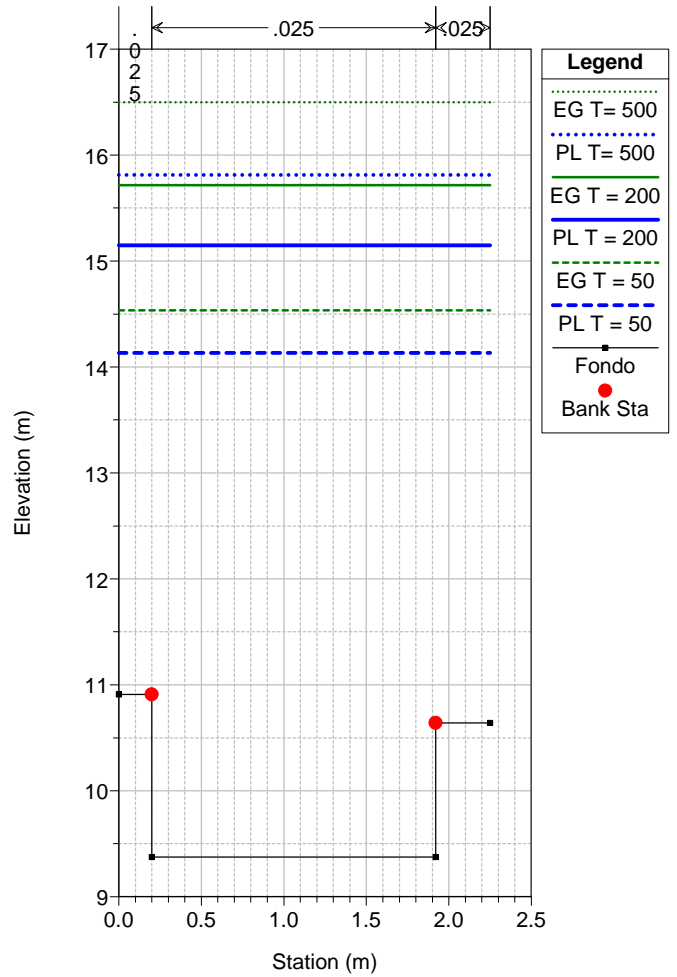
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



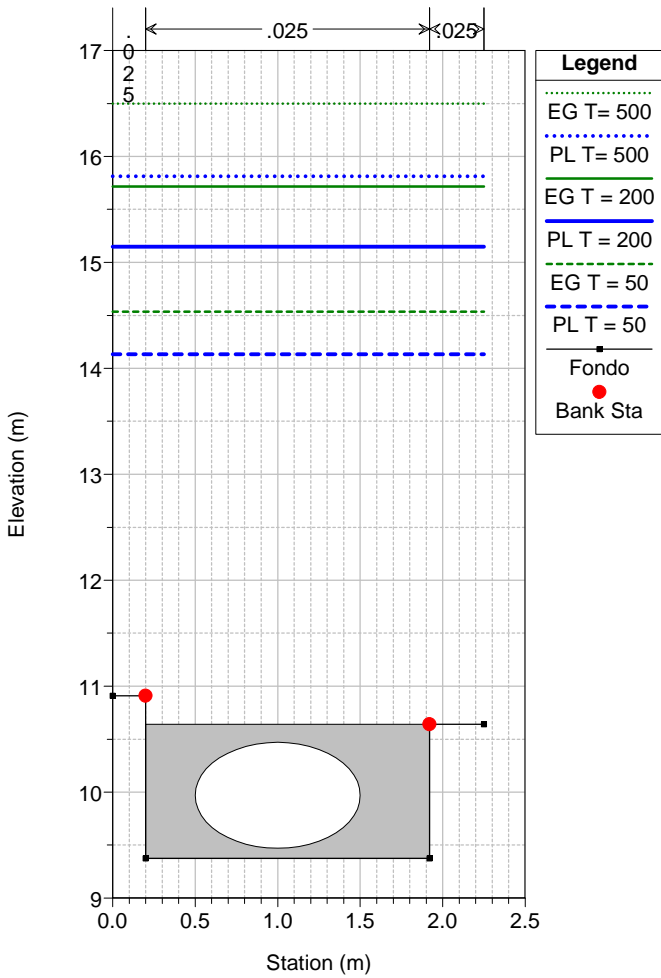
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-11



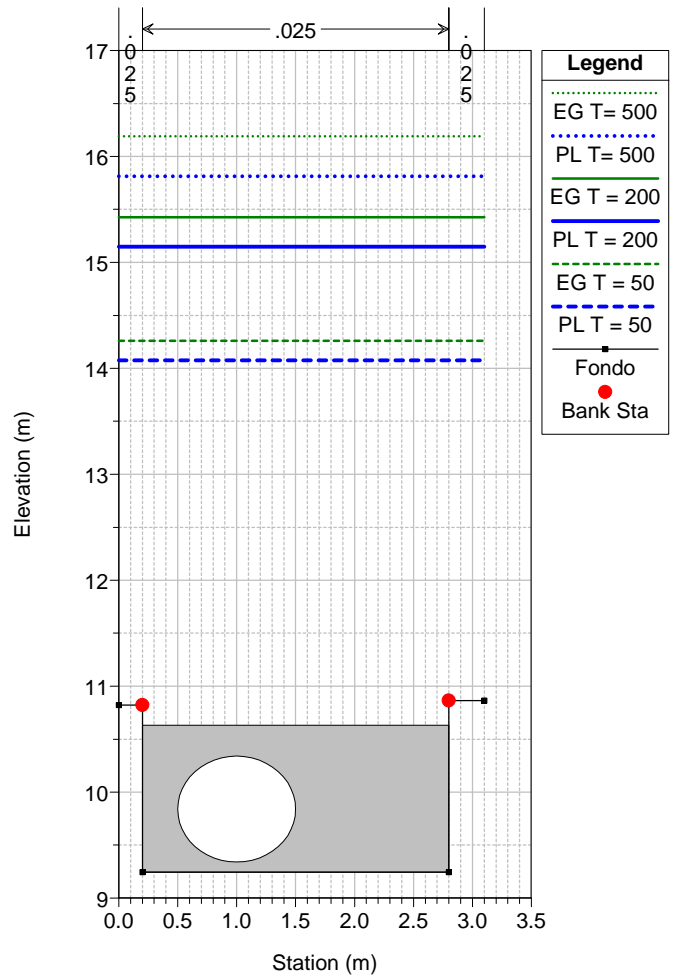
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-10



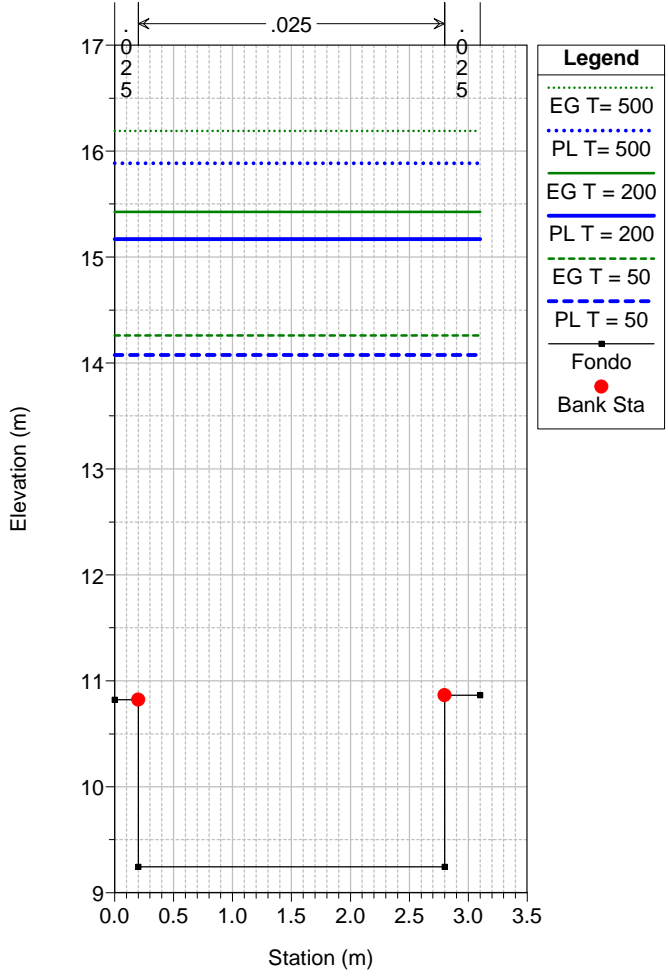
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



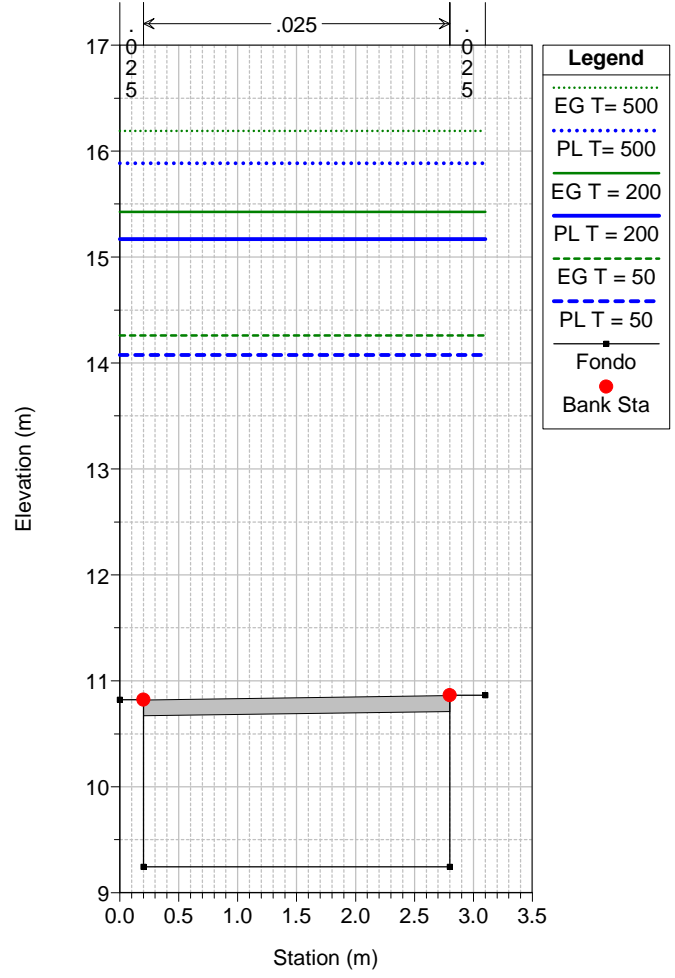
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



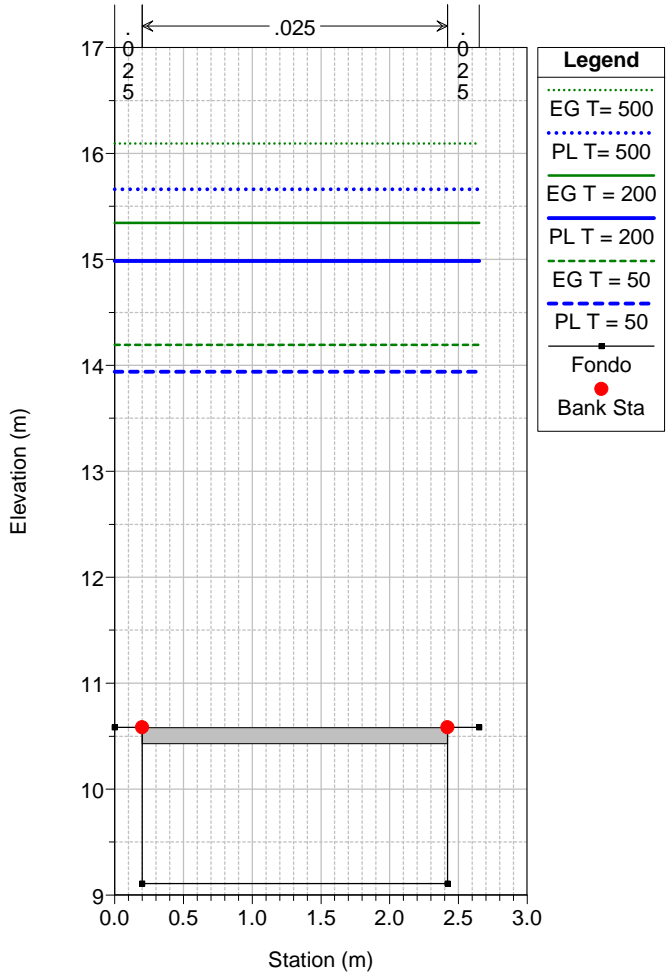
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-9



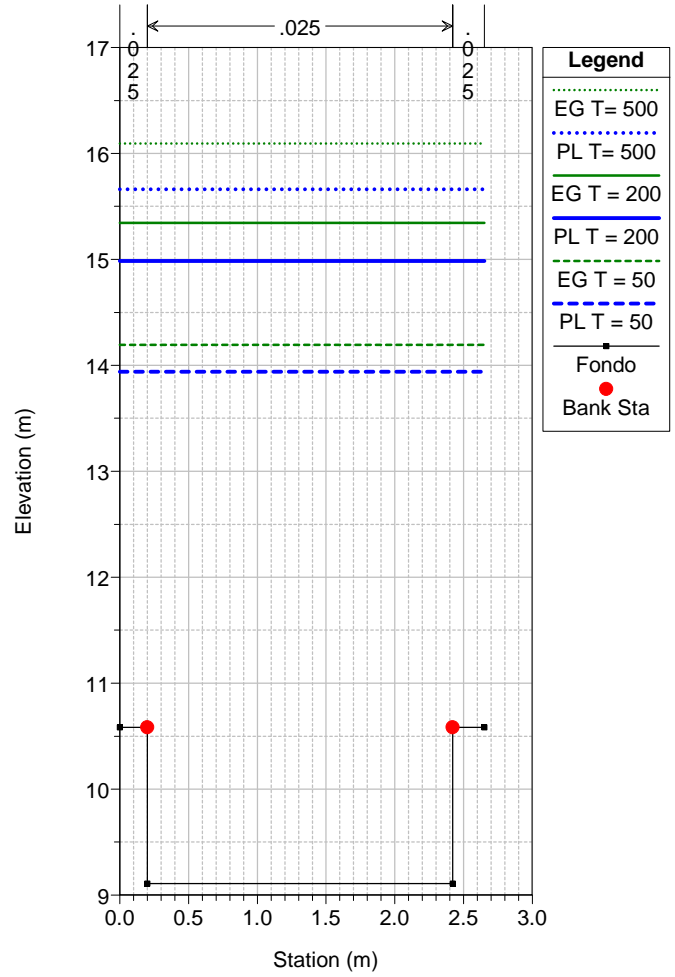
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



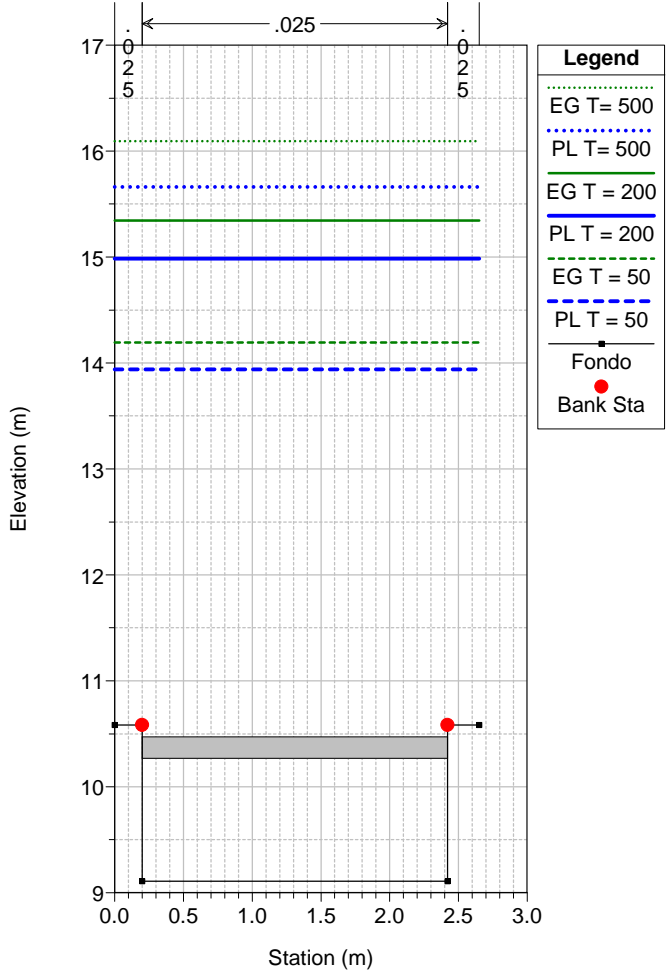
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



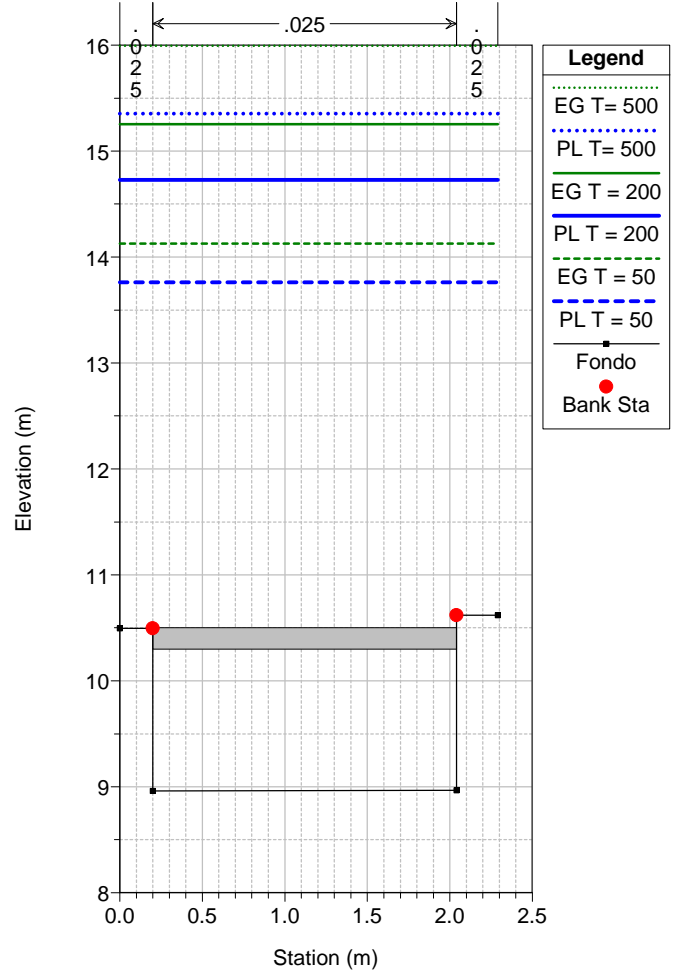
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-8



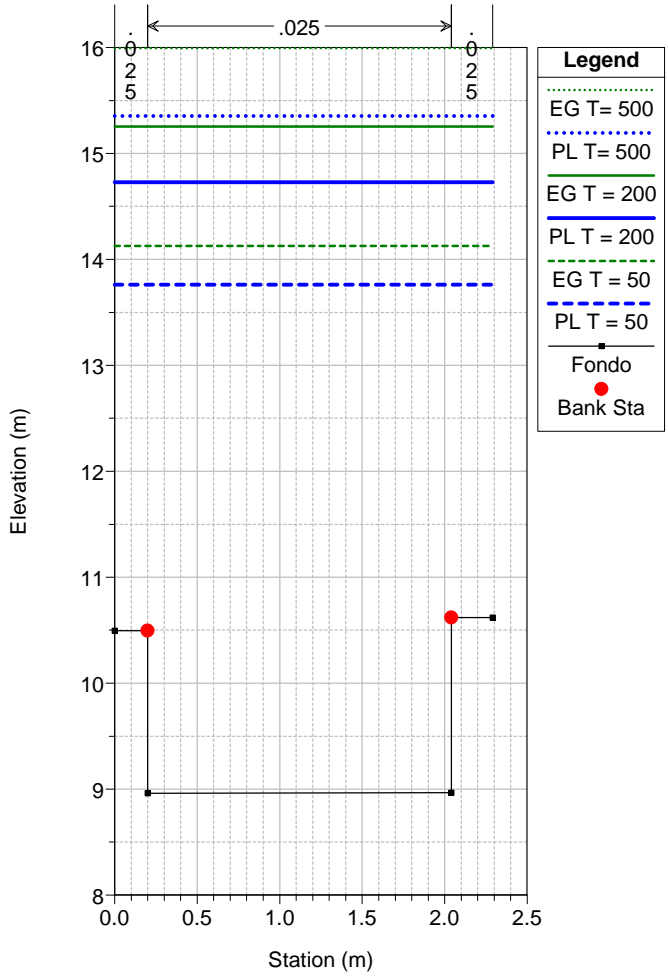
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



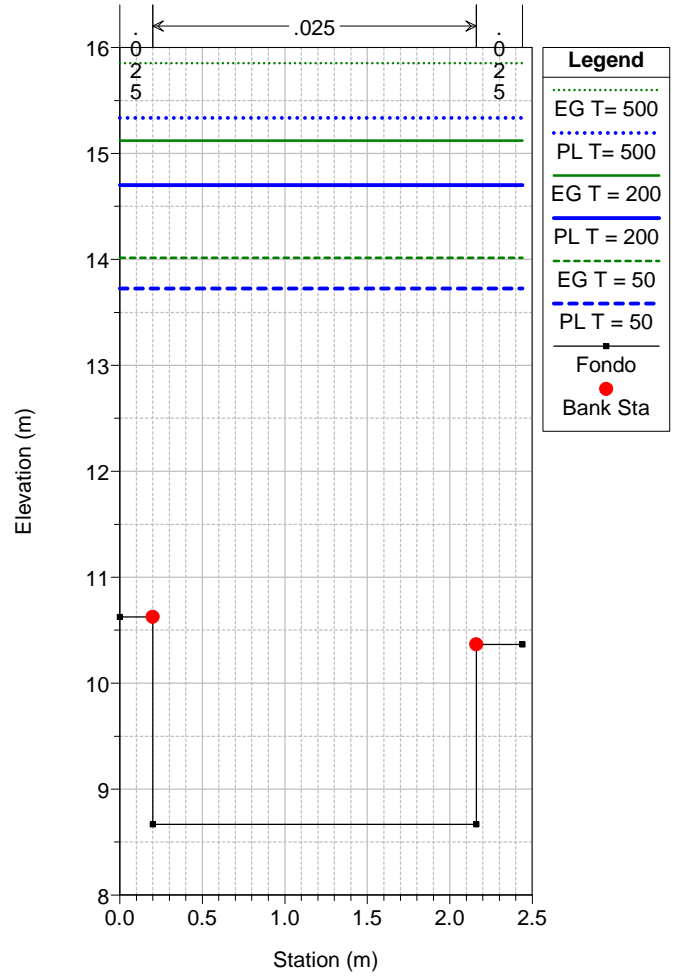
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1



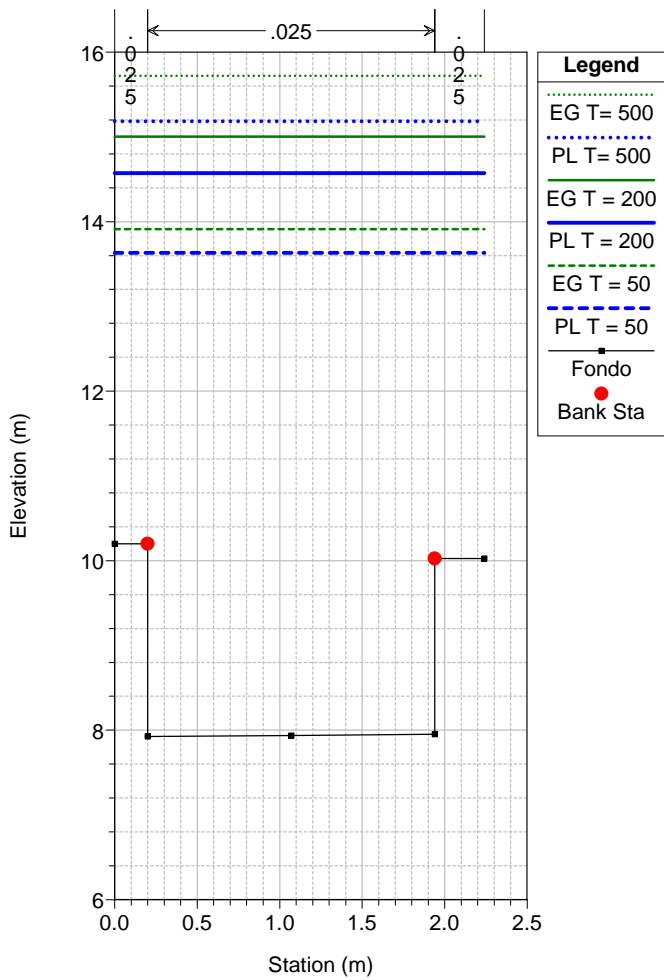
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-7



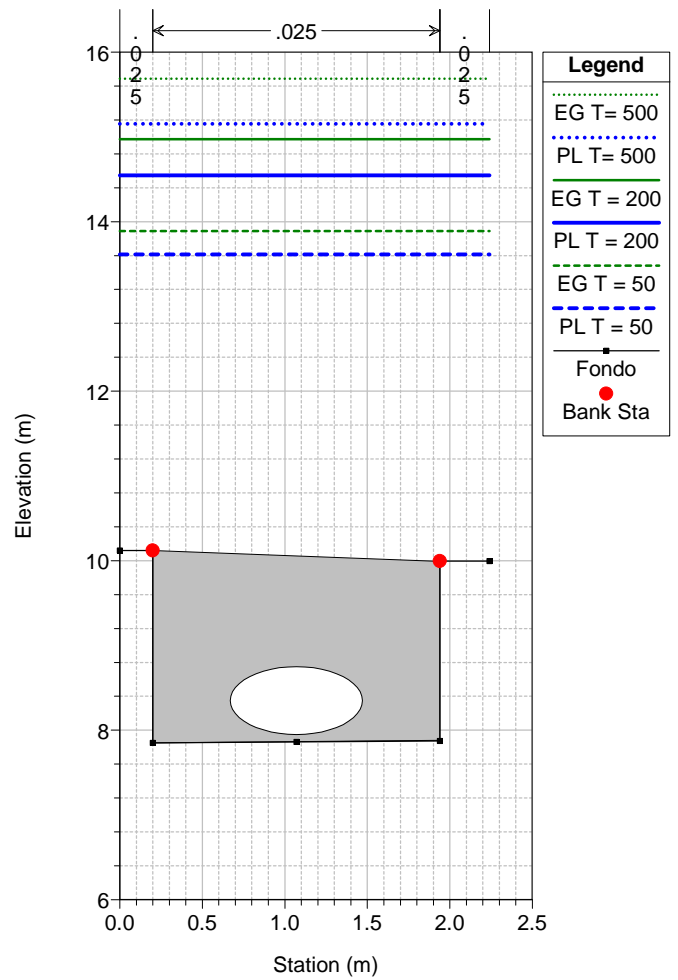
Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-6



Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 FA-5

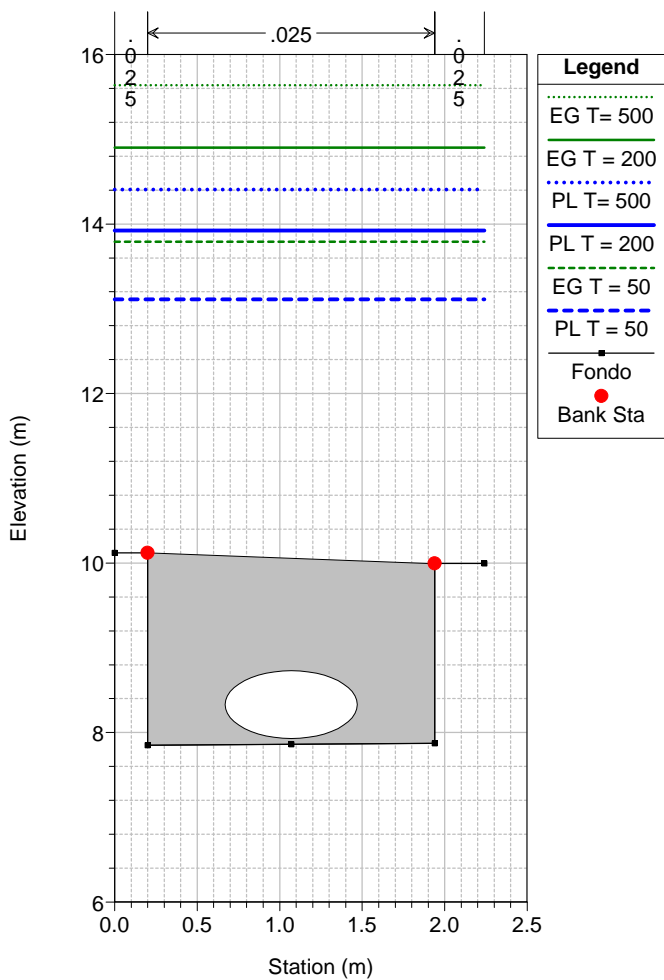


Stato attuale Plan: Plan 03
River = Fasceo Reach = 1 Tratto tombinato immediatamente a monte della confluenza con il r



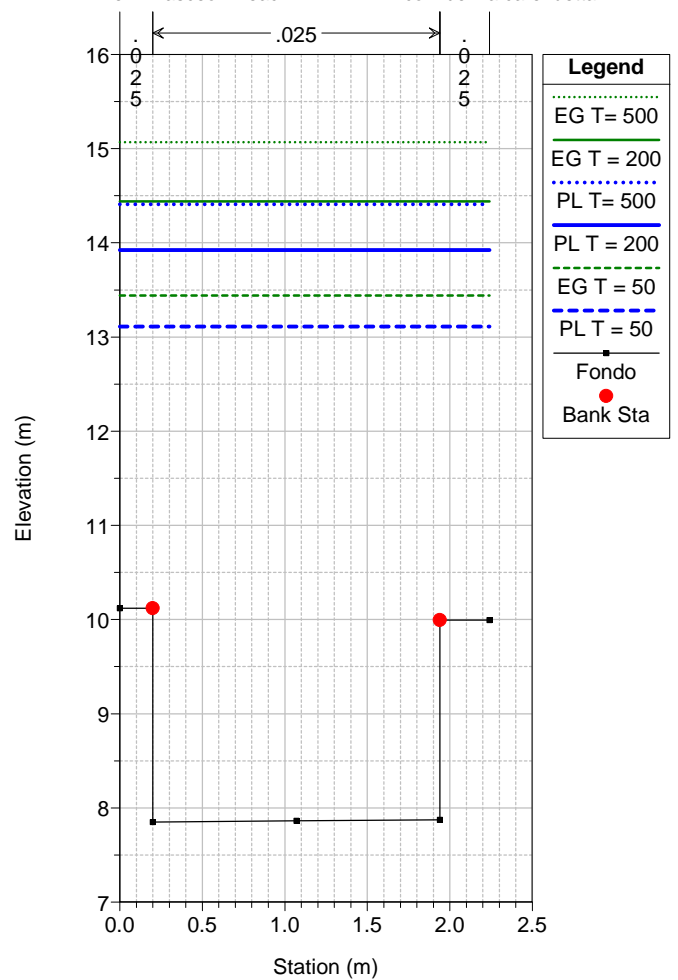
Stato attuale Plan: Plan 03

River = Fasceo Reach = 1 Tratto tombinato immediatamente a monte della confluenza con il r

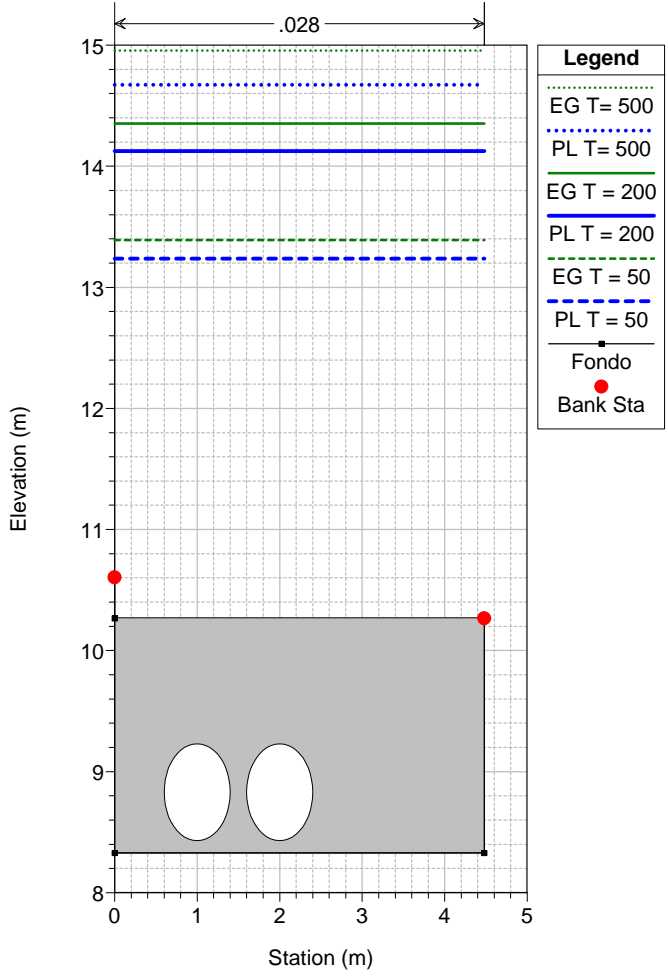


Stato attuale Plan: Plan 03

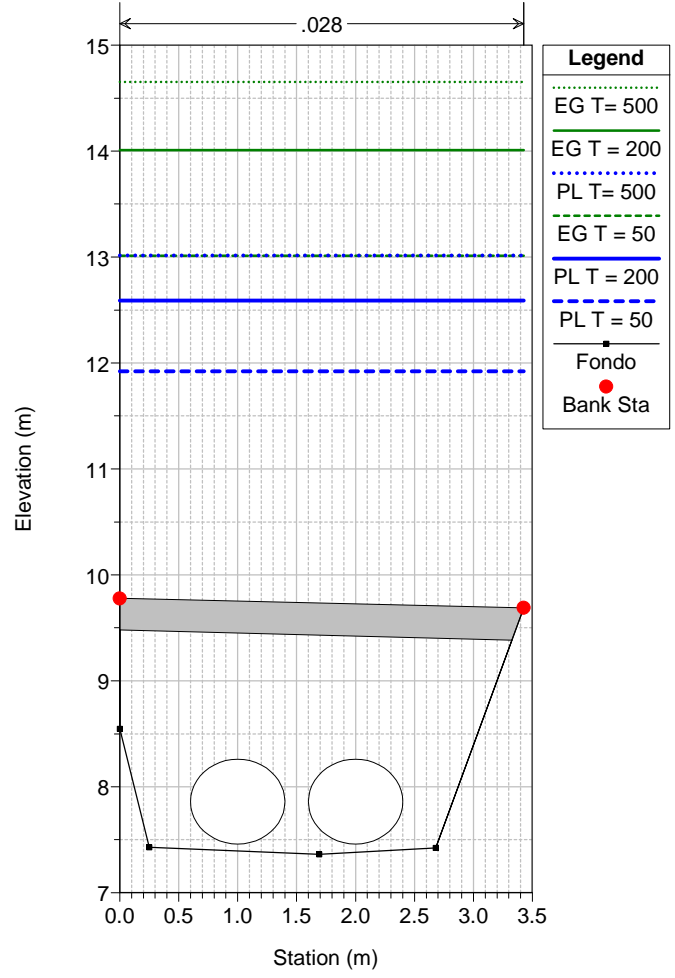
River = Fasceo Reach = 1 FA-4 confluenza carendetta



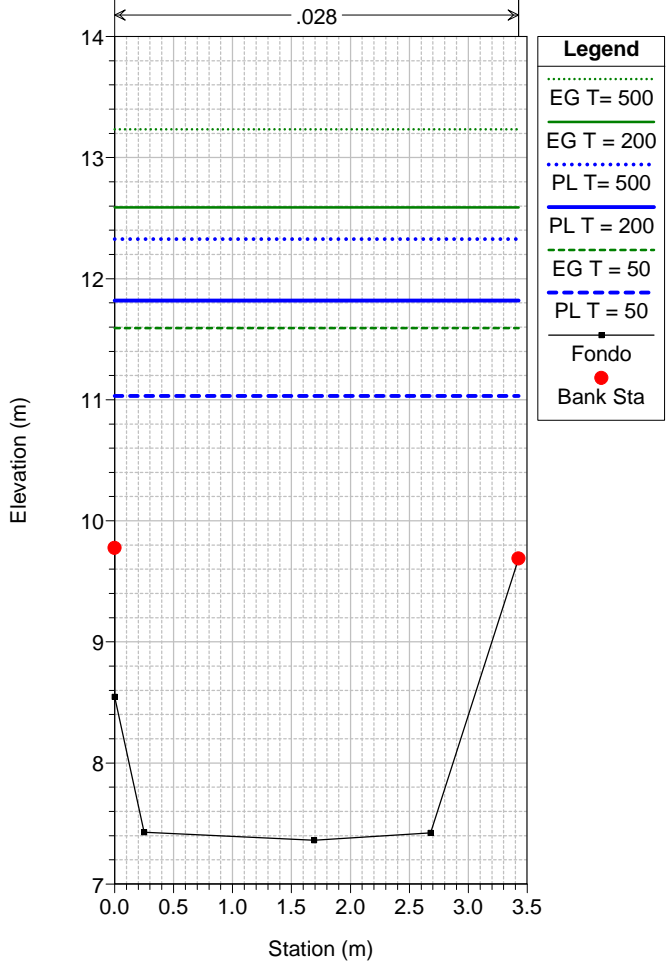
Stato attuale Plan: Plan 03
River = Fasceo Reach = 2 FA-3



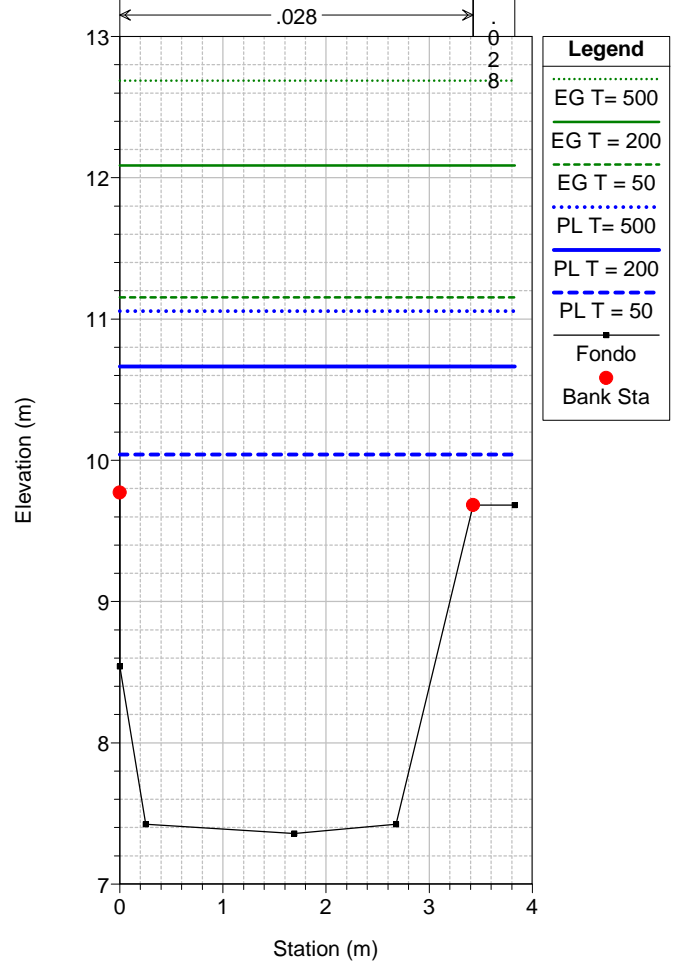
Stato attuale Plan: Plan 03
River = Fasceo Reach = 2 FA-3



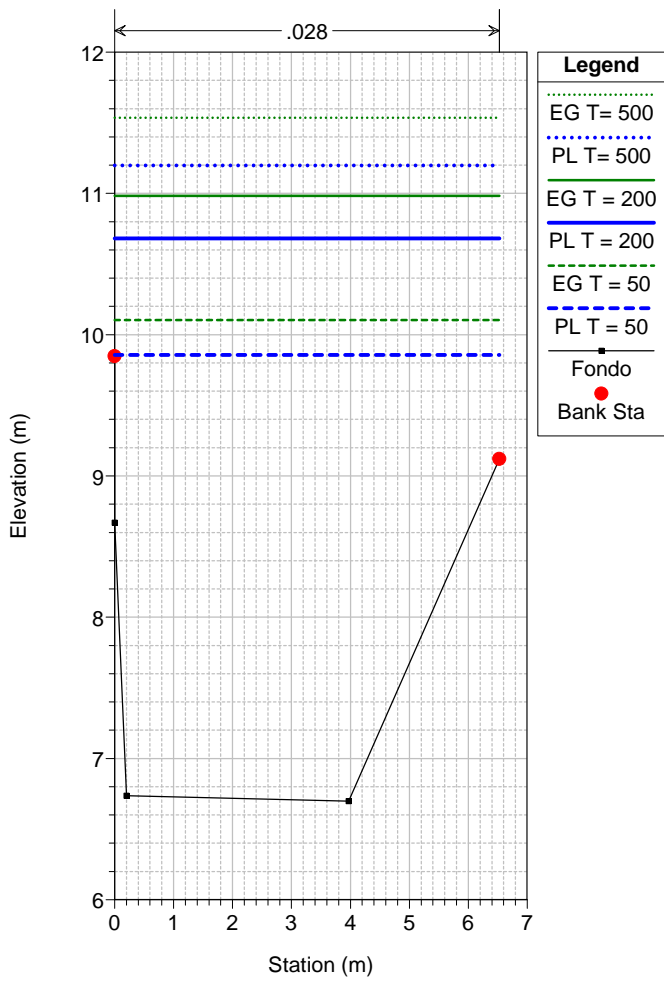
Stato attuale Plan: Plan 03
River = Fasceo Reach = 2 FA-3v



Stato attuale Plan: Plan 03
River = Fasceo Reach = 2 FA-2



Stato attuale Plan: Plan 03
River = Fasceo Reach = 2 FA-1



Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
1	22 FA-21	T = 50	25.00	12.63	14.34	14.47	0.13	14.47	0.13	14.74	15.82	0.033040	5.39	4.64	2.72	1.32
1	22 FA-21	T = 200	36.00	12.63	16.00	14.47	-1.52	14.47	-1.52	15.24	16.70	0.006967	3.78	10.22	3.42	0.66
1	22 FA-21	T= 500	44.00	12.63	16.74	14.47	-2.26	14.47	-2.26	15.58	17.43	0.005325	3.78	12.74	3.42	0.59
1	21 FA-20	T = 50	25.00	12.39	14.98	14.18	-0.80	14.54	-0.44		15.50	0.006288	3.22	8.08	4.17	0.68
1	21 FA-20	T = 200	36.00	12.39	16.09	14.18	-1.90	14.54	-1.54		16.55	0.003377	3.07	12.67	4.17	0.53
1	21 FA-20	T= 500	44.00	12.39	16.84	14.18	-2.66	14.54	-2.30		17.30	0.002554	3.05	15.83	4.17	0.48
1	20 FA-19	T = 50	25.00	12.30	15.06	13.42	-1.64	13.91	-1.15		15.26	0.001751	2.00	12.89	5.58	0.41
1	20 FA-19	T = 200	36.00	12.30	16.20	13.42	-2.77	13.91	-2.28		16.39	0.001196	1.95	19.21	5.58	0.33
1	20 FA-19	T= 500	44.00	12.30	16.97	13.42	-3.55	13.91	-3.06		17.16	0.001033	1.96	23.52	5.58	0.30
1	19 FA-18	T = 50	25.00	12.11	14.90	12.94	-1.95	13.55	-1.34		15.15	0.002769	2.22	11.25	4.56	0.45
1	19 FA-18	T = 200	36.00	12.11	16.06	12.94	-3.12	13.55	-2.51		16.30	0.002168	2.17	16.56	4.56	0.36
1	19 FA-18	T= 500	44.00	12.11	16.84	12.94	-3.90	13.55	-3.29		17.09	0.002017	2.19	20.13	4.56	0.33
1	18 FA-17	T = 50	25.00	11.75	14.74	13.02	-1.72	13.20	-1.54		15.00	0.002953	2.27	11.02	4.24	0.45
1	18 FA-17	T = 200	36.00	11.75	15.93	13.02	-2.91	13.20	-2.73		16.19	0.002402	2.24	16.07	4.24	0.37
1	18 FA-17	T= 500	44.00	11.75	16.72	13.02	-3.69	13.20	-3.52		16.98	0.002286	2.27	19.40	4.24	0.34
1	17 FA-16	T = 50	25.00	11.28	14.74	12.46	-2.28	12.58	-2.15		14.90	0.001509	1.76	14.22	4.70	0.32
1	17 FA-16	T = 200	36.00	11.28	15.93	12.46	-3.47	12.58	-3.35		16.10	0.001377	1.82	19.82	4.70	0.28
1	17 FA-16	T= 500	44.00	11.28	16.71	12.46	-4.26	12.58	-4.13		16.89	0.001366	1.87	23.51	4.70	0.27
1	16 FA-15	T = 50	25.00	10.67	14.65	11.74	-2.91	12.16	-2.49		14.80	0.001442	1.70	14.75	4.16	0.29
1	16 FA-15	T = 200	36.00	10.67	15.83	11.74	-4.09	12.16	-3.68		16.00	0.001500	1.83	19.67	4.16	0.27
1	16 FA-15	T= 500	44.00	10.67	16.61	11.74	-4.86	12.16	-4.45		16.80	0.001571	1.92	22.89	4.16	0.26
1	15 FA-14	T = 50	25.00	10.19	14.71	11.49	-3.22	11.69	-3.02		14.74	0.000151	0.94	32.31	8.71	0.15
1	15 FA-14	T = 200	36.00	10.19	15.90	11.49	-4.41	11.69	-4.21		15.95	0.000136	1.06	42.72	8.71	0.15
1	15 FA-14	T= 500	44.00	10.19	16.69	11.49	-5.20	11.69	-5.00		16.74	0.000131	1.14	49.55	8.71	0.15
1	14 FA-13	T = 50	25.00	9.68	14.60	11.81	-2.79	11.61	-2.98		14.72	0.000710	1.57	17.66	3.96	0.23
1	14 FA-13	T = 200	36.00	9.68	15.76	11.81	-3.95	11.61	-4.14		15.92	0.000726	1.83	22.25	3.96	0.24
1	14 FA-13	T= 500	44.00	9.68	16.52	11.81	-4.71	11.61	-4.90		16.71	0.000734	1.99	25.26	3.96	0.24
1	13 FA-12	T = 50	25.00	9.51	14.58	11.84	-2.74	11.53	-3.05	11.43	14.71	0.000759	1.60	16.98	3.61	0.23
1	13 FA-12	T = 200	36.00	9.51	15.74	11.84	-3.90	11.53	-4.21	12.01	15.91	0.000795	1.87	21.14	3.61	0.24
1	13 FA-12	T= 500	44.00	9.51	16.49	11.84	-4.65	11.53	-4.96	12.34	16.70	0.000811	2.04	23.87	3.61	0.25
1	12		Culvert													
1	11 FA-11	T = 50	25.00	9.51	14.28	11.21	-3.06	10.98	-3.29		14.62	0.002041	2.66	10.49	2.35	0.39
1	11 FA-11	T = 200	36.00	9.51	15.33	11.21	-4.11	10.98	-4.34		15.81	0.002185	3.14	12.96	2.35	0.42
1	11 FA-11	T= 500	44.00	9.51	16.02	11.21	-4.81	10.98	-5.04		16.60	0.002248	3.43	14.59	2.35	0.43
1	10 FA-10	T = 50	25.00	9.37	14.13	10.91	-3.23	10.64	-3.49	12.06	14.53	0.002350	2.88	9.98	2.25	0.42
1	10 FA-10	T = 200	36.00	9.37	15.15	10.91	-4.24	10.64	-4.51	12.74	15.72	0.002574	3.43	12.27	2.25	0.46
1	10 FA-10	T= 500	44.00	9.37	15.81	10.91	-4.90	10.64	-5.17	13.20	16.50	0.002683	3.77	13.76	2.25	0.47
1	9		Culvert													
1	8 FA-9	T = 50	25.00	9.24	14.07	10.82	-3.25	10.86	-3.21	11.37	14.26	0.000834	1.93	14.17	3.10	0.28
1	8 FA-9	T = 200	36.00	9.24	15.17	10.82	-4.35	10.86	-4.31	11.92	15.43	0.000876	2.27	17.57	3.10	0.30
1	8 FA-9	T= 500	44.00	9.24	15.88	10.82	-5.06	10.86	-5.02	12.27	16.19	0.000898	2.48	19.78	3.10	0.31

HEC-RAS Plan: Plan 03 (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	L. Freeboard (m)	ROB Elev (m)	R. Freeboard (m)	Crit W.S. (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m2)	Top Width (m)	Froude # Chl
1	7.5		Bridge													
1	7 FA-8	T = 50	25.00	9.11	13.94	10.58	-3.36	10.58	-3.36	11.44	14.19	0.001213	2.27	12.17	2.65	0.33
1	7 FA-8	T = 200	36.00	9.11	14.99	10.58	-4.40	10.58	-4.40	12.05	15.34	0.001312	2.69	14.94	2.65	0.35
1	7 FA-8	T = 500	44.00	9.11	15.66	10.58	-5.08	10.58	-5.08	12.45	16.09	0.001366	2.95	16.73	2.65	0.37
1	6		Bridge													
1	5 FA-7	T = 50	25.00	8.96	13.76	10.50	-3.27	10.62	-3.14		14.13	0.002189	2.72	10.27	2.29	0.40
1	5 FA-7	T = 200	36.00	8.96	14.73	10.50	-4.23	10.62	-4.11		15.25	0.002467	3.27	12.48	2.29	0.43
1	5 FA-7	T = 500	44.00	8.96	15.35	10.50	-4.86	10.62	-4.74		15.99	0.002619	3.61	13.91	2.29	0.46
1	4 FA-6	T = 50	25.00	8.67	13.73	10.63	-3.10	10.37	-3.36		14.01	0.001721	2.42	11.47	2.44	0.34
1	4 FA-6	T = 200	36.00	8.67	14.70	10.63	-4.08	10.37	-4.34		15.12	0.001986	2.93	13.85	2.44	0.38
1	4 FA-6	T = 500	44.00	8.67	15.34	10.63	-4.71	10.37	-4.97		15.85	0.002129	3.24	15.40	2.44	0.40
1	3 FA-5	T = 50	25.00	7.93	13.63	10.20	-3.43	10.03	-3.61		13.91	0.001885	2.40	11.67	2.24	0.32
1	3 FA-5	T = 200	36.00	7.93	14.57	10.20	-4.38	10.03	-4.55		15.00	0.002349	2.97	13.78	2.24	0.37
1	3 FA-5	T = 500	44.00	7.93	15.18	10.20	-4.98	10.03	-5.16		15.72	0.002622	3.33	15.15	2.24	0.39
1	2	T = 50	25.00	7.85	13.61	10.12	-3.49	10.00	-3.62	10.66	13.89	0.001844	2.38	11.79	2.24	0.32
1	2	T = 200	36.00	7.85	14.55	10.12	-4.43	10.00	-4.55	11.33	14.97	0.002314	2.95	13.88	2.24	0.36
1	2	T = 500	44.00	7.85	15.15	10.12	-5.03	10.00	-5.16	11.78	15.69	0.002592	3.31	15.24	2.24	0.39
1	1.5		Culvert													
1	1 FA-4	T = 50	25.00	7.85	13.11	10.12	-2.99	10.00	-3.12		13.44	0.002501	2.61	10.66	2.24	0.36
1	1 FA-4	T = 200	36.00	7.85	13.92	10.12	-3.80	10.00	-3.93		14.44	0.003204	3.25	12.49	2.24	0.42
1	1 FA-4	T = 500	44.00	7.85	14.41	10.12	-4.29	10.00	-4.41		15.07	0.003708	3.68	13.57	2.24	0.46
2	1	T = 50	38.00	8.33	13.24	10.60	-2.63	10.27	-2.97	10.27	13.39	0.001317	1.73	22.00	4.48	0.25
2	1	T = 200	55.00	8.33	14.12	10.60	-3.52	10.27	-3.86	10.81	14.35	0.001852	2.12	25.98	4.48	0.28
2	1	T = 500	67.00	8.33	14.67	10.60	-4.07	10.27	-4.41	11.16	14.95	0.002222	2.36	28.43	4.48	0.30
2	0.8 FA-3		Culvert													
2	0.6 FA-3v	T = 50	38.00	7.36	11.03	9.78	-1.25	9.69	-1.34		11.59	0.007027	3.32	11.44	3.43	0.58
2	0.6 FA-3v	T = 200	55.00	7.36	11.82	9.78	-2.04	9.69	-2.13		12.59	0.008867	3.89	14.14	3.43	0.61
2	0.6 FA-3v	T = 500	67.00	7.36	12.33	9.78	-2.55	9.69	-2.64		13.23	0.010012	4.22	15.88	3.43	0.63
2	0.4 FA-2	T = 50	38.00	7.36	10.04	9.77	-0.27	9.68	-0.36	10.04	11.15	0.015506	4.69	8.21	3.83	0.97
2	0.4 FA-2	T = 200	55.00	7.36	10.66	9.77	-0.89	9.68	-0.98	10.66	12.09	0.016239	5.32	10.59	3.83	0.98
2	0.4 FA-2	T = 500	67.00	7.36	11.06	9.77	-1.29	9.68	-1.37	11.06	12.69	0.016883	5.70	12.09	3.83	0.99
2	0.2 FA-1	T = 50	38.00	6.70	9.86	9.85	-0.01	9.12	-0.74		10.10	0.002130	2.20	17.25	6.53	0.43
2	0.2 FA-1	T = 200	55.00	6.70	10.68	9.85	-0.83	9.12	-1.56		10.98	0.002165	2.43	22.64	6.53	0.42
2	0.2 FA-1	T = 500	67.00	6.70	11.20	9.85	-1.35	9.12	-2.08		11.54	0.002243	2.58	26.01	6.53	0.41