



COMUNE DI BUTI
(PROVINCIA DI PISA)

STUDIO IDRAULICO A SUPPORTO DI DUE VARIANTI
IN LOCALITA' LA TURA - CASCINE DI BUTI
COMUNE DI BUTI (PI)

STUDIO IDROLOGICO - IDRAULICO

ALL
B

Allegato idraulico - Simulazioni sul reticolo idraulico

Data emissione: Maggio 2019	CODICE ELABORATO	Anno	Commessa	Progetto	Tipologia	Elaborato n°
		2019	005	S.I.	ALL	B
LIVELLO		Numero	Data	Stesura	Controllo	Approvazione
Prima emissione		01	11/02/2019	FB	PB	PB
Seconda emissione		02	14/05/2019	FB	PB	PB

Analisi idrauliche

INGEO

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Il Progettista
dott. ing. Paolo Barsotti

MODELLI IDRAULICI MONODIMENSIONALI

Si riportano gli output forniti dal codice di calcolo Hec-Ras 5.0.3 sul reticolo analizzato con simulazione del deflusso trentennale e duecentennale. Si allegano

- I profili;
- Le sezioni dei corsi d'acqua;
- L'output tabellare con i risultati delle simulazioni svolte.

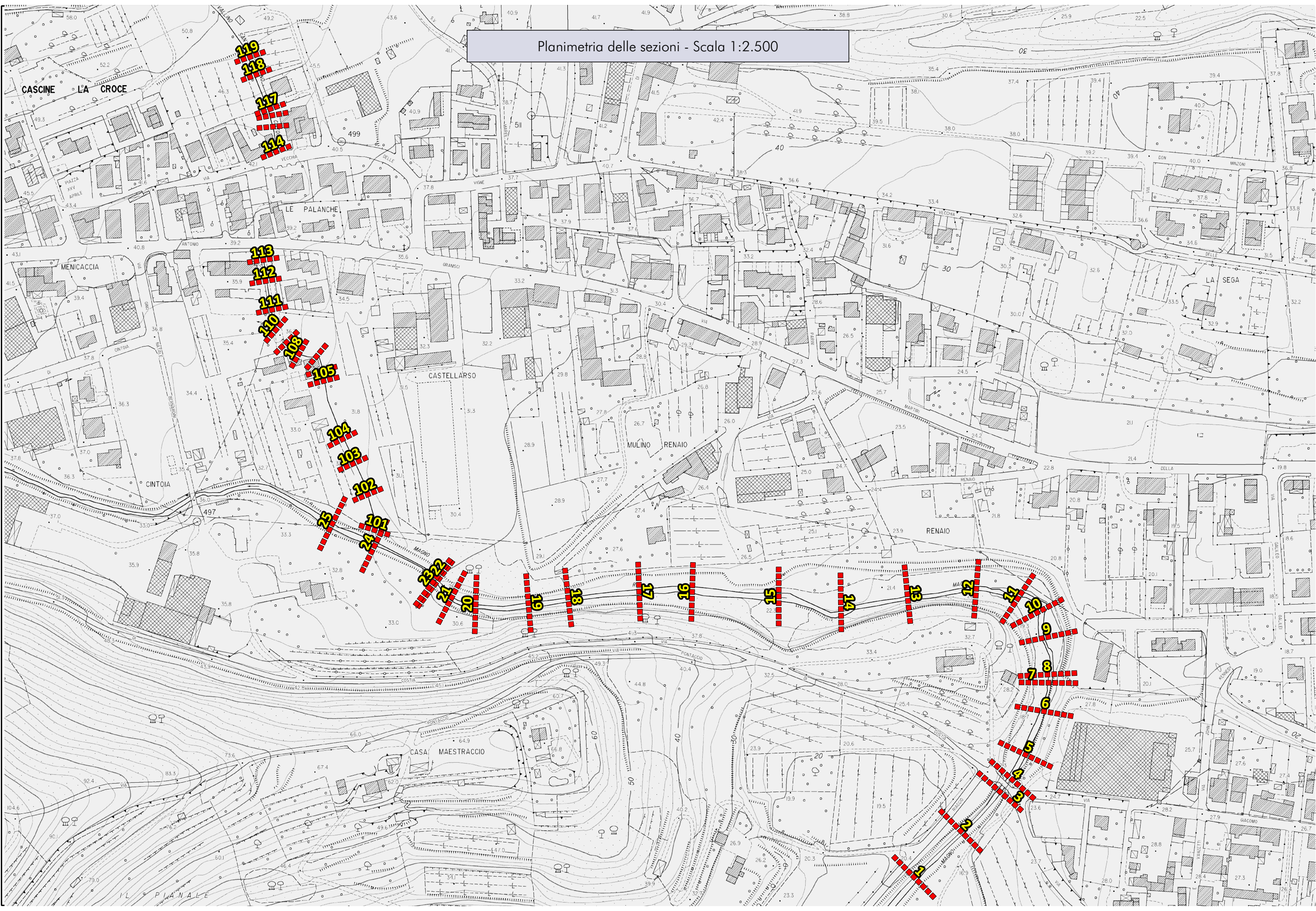
Si riporta un estratto fuori scala con indicazione della posizione delle sezioni.

LEGENDA TABELLE

Le grandezze riportate in tabella hanno il seguente significato

- River station Sezione trasversale del corso d'acqua
- Q Total Portata idraulica
- Min Ch Elev Quota del fondo rispetto al prescelto sistema di riferimento
- W.S. Elev Quota del pelo libero rispetto al prescelto sistema di riferimento
- Max Chl Dpth Tirante idraulico massimo (differenza dei termini W.S Elev e il termine Min Ch Elev)
- LOB Elev Quota della sommità arginale sinistra rispetto al prescelto sistema di riferimento
- ROB Elev Quota della sommità arginale destra rispetto al prescelto sistema di riferimento
- L.Freeboard Franco sinistro: differenza fra il termine LOB Elev e il termine W.S Elev
- R.Freeboard Franco destro: differenza fra il termine ROB Elev e il termine W.S Elev
- Vel Chnl Velocità media della corrente
- Froude n. Numero di Froude: se maggiore di 1 indica la presenza di corrente veloce, se inferiore a 1 segnala la presenza di corrente lenta

Planimetria delle sezioni - Scala 1:2.500

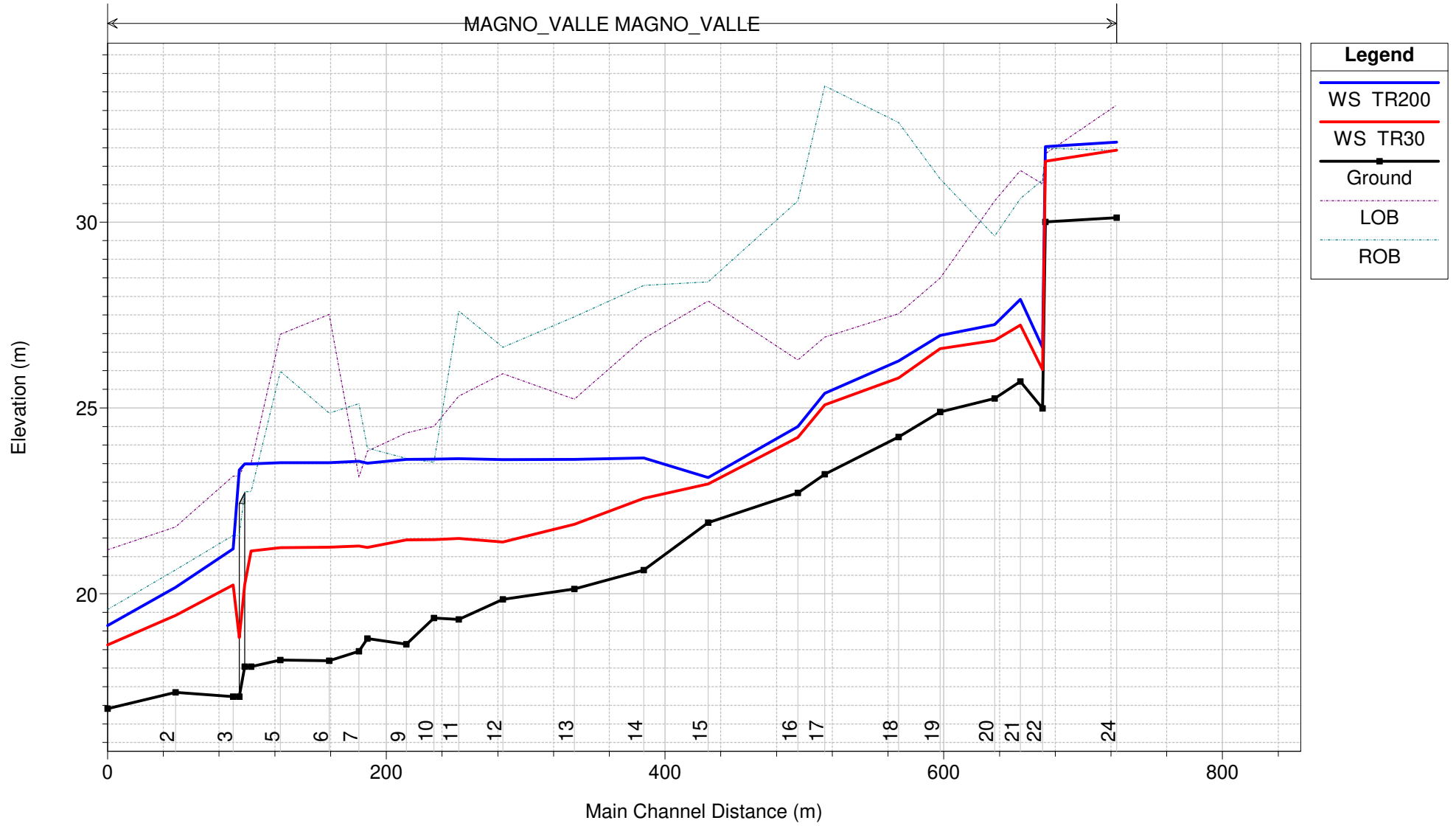


PROFILI

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

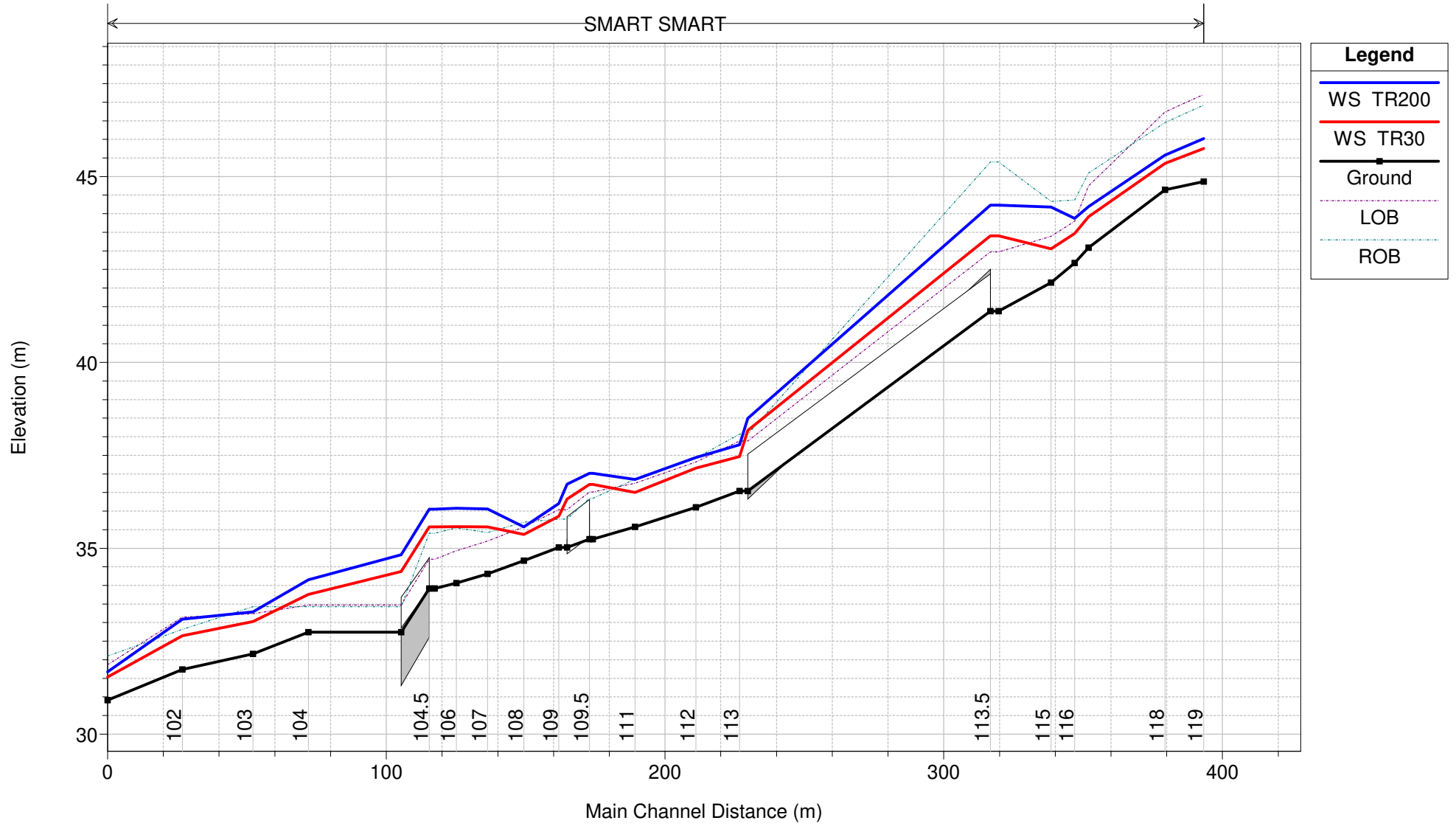
MAGNO_VALLE MAGNO_VALLE



1 cm Horiz. = 40 m 1 cm Vert. = 1.5 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

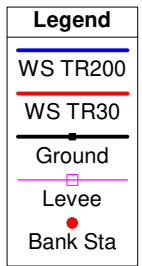
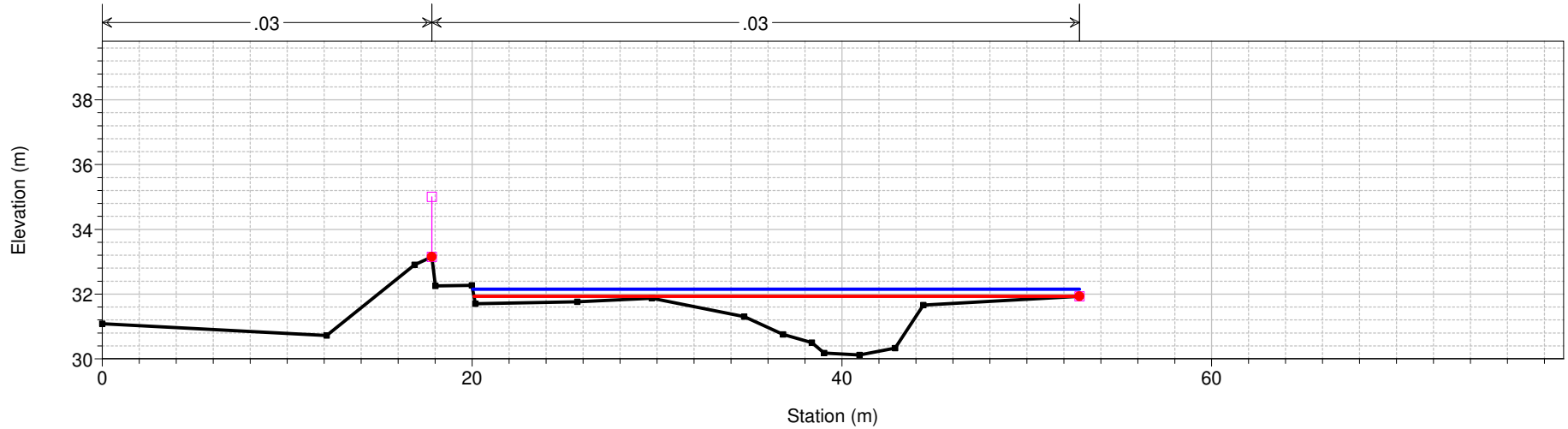
SMART SMART



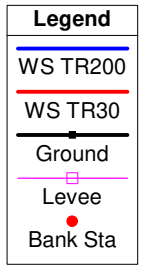
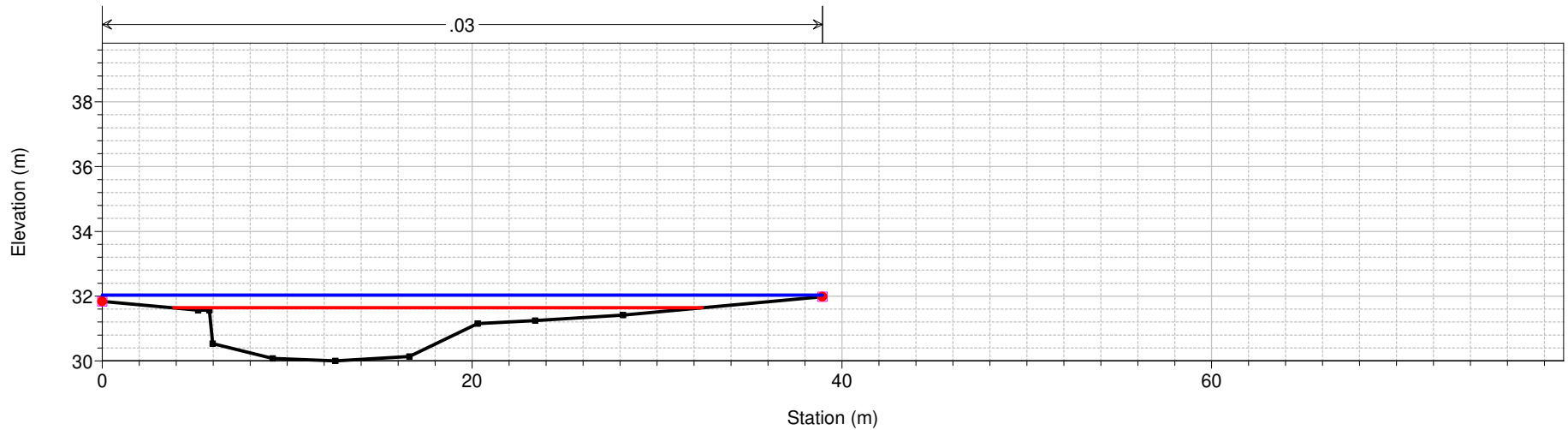
1 cm Horiz. = 20 m 1 cm Vert. = 1.5 m

SEZIONI

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 24 MAGNO_24

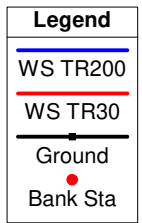
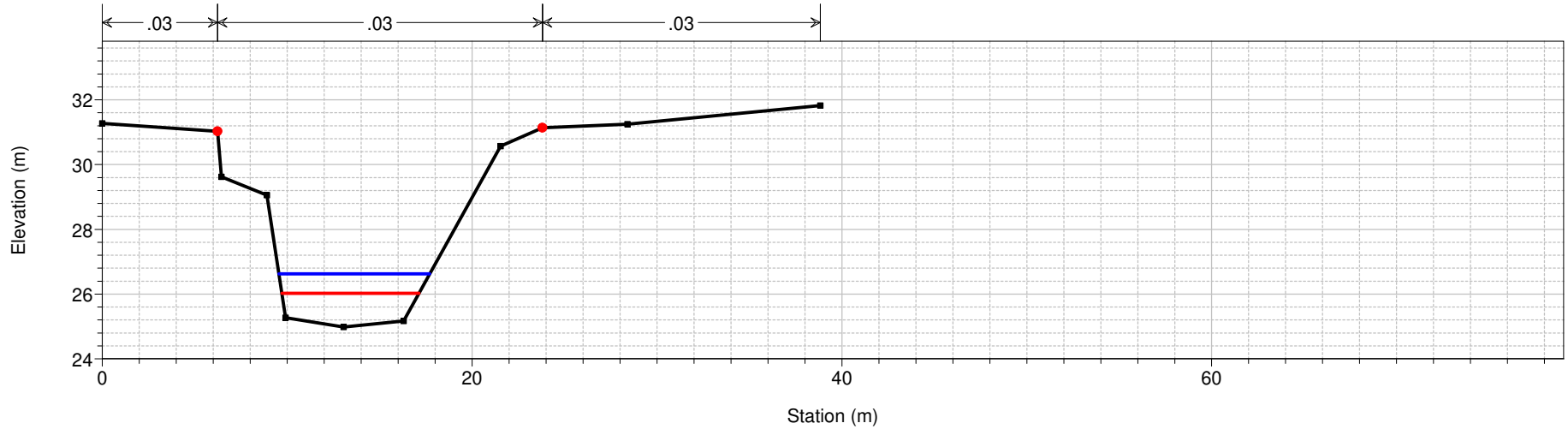


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 23 MAGNO_23

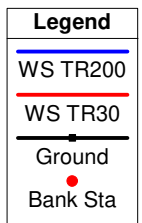
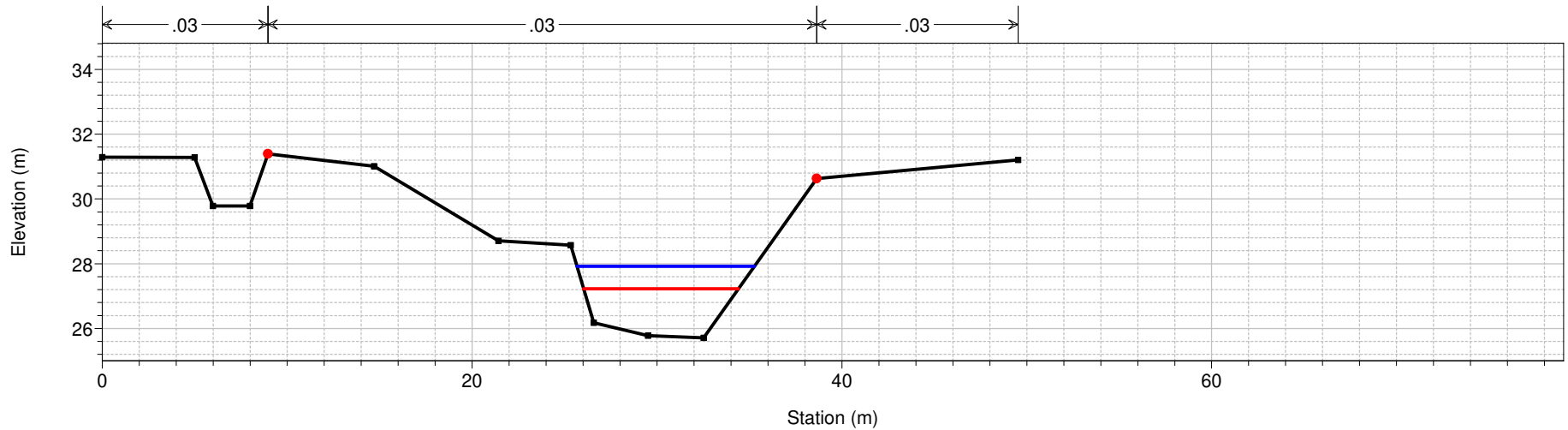


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 22 MAGNO_22

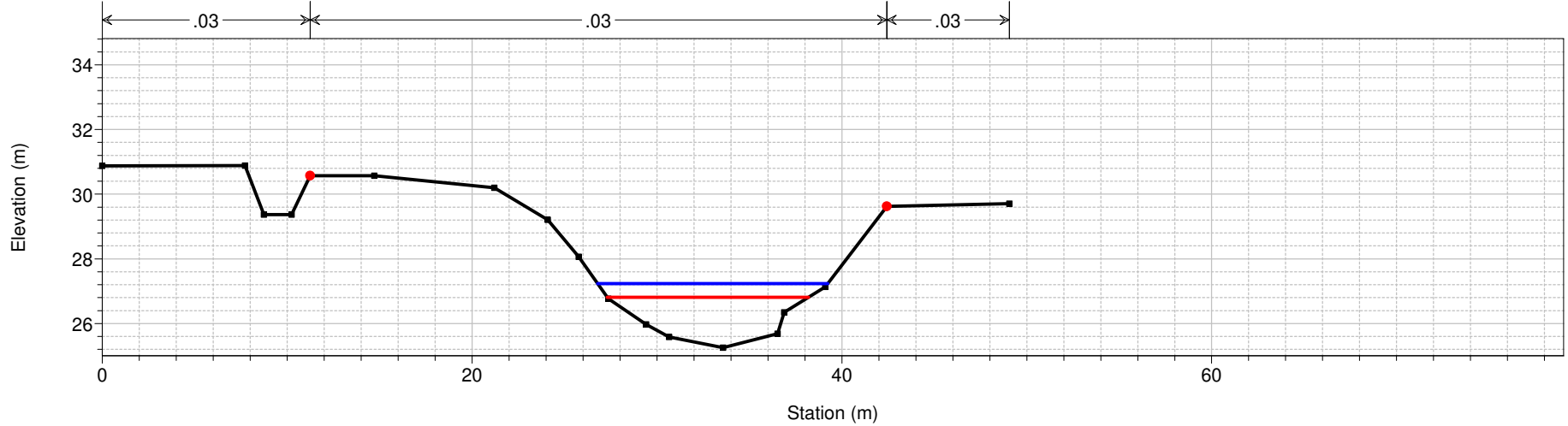


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 21 MAGNO_21

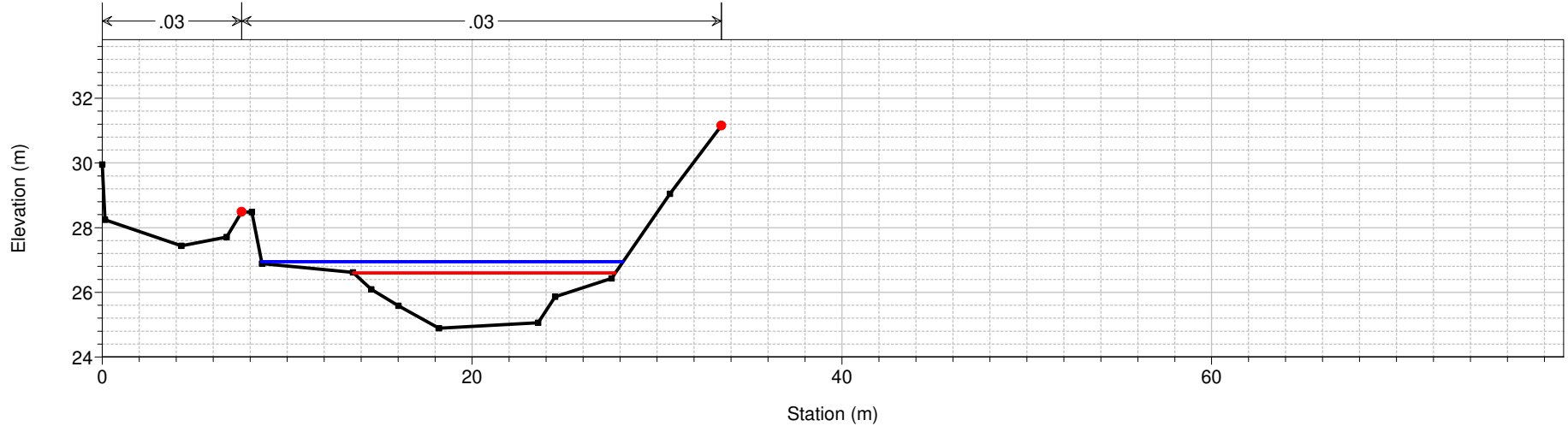


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 20 MAGNO_20



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 19 MAGNO_19

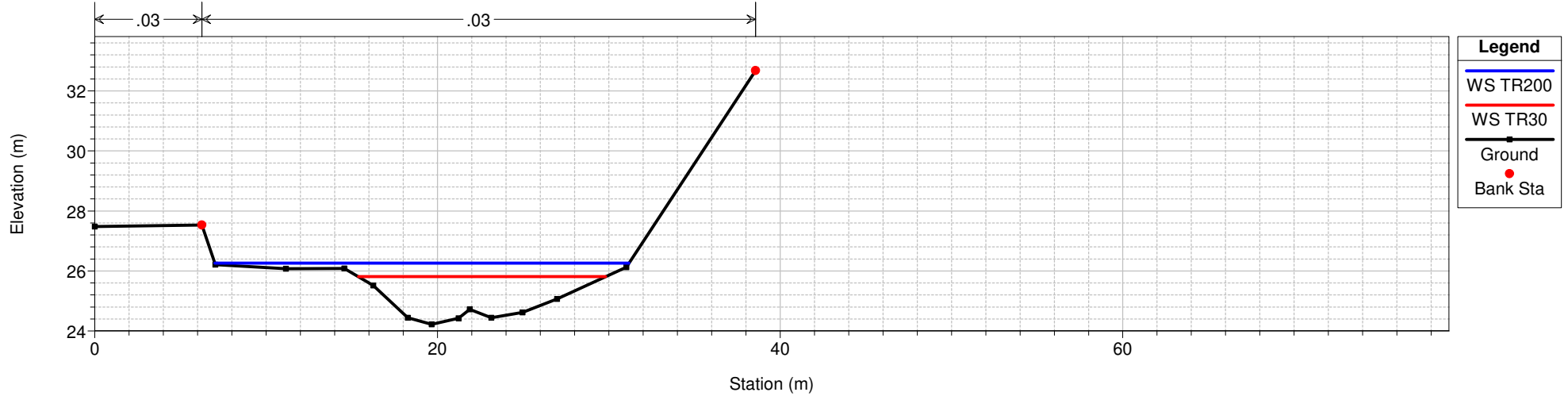


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

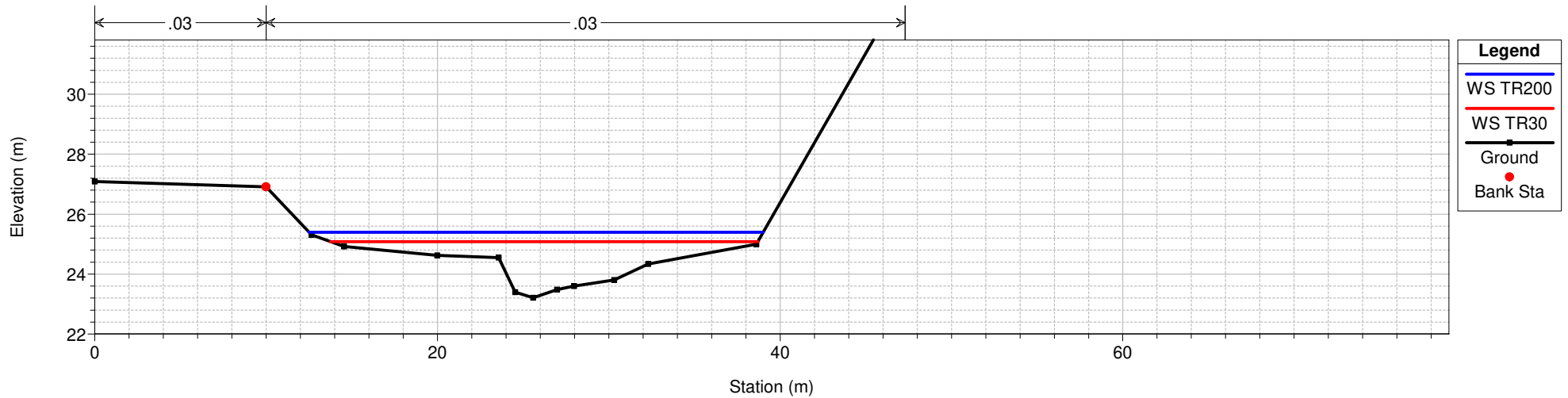
River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 18 MAGNO_18



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

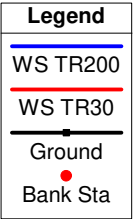
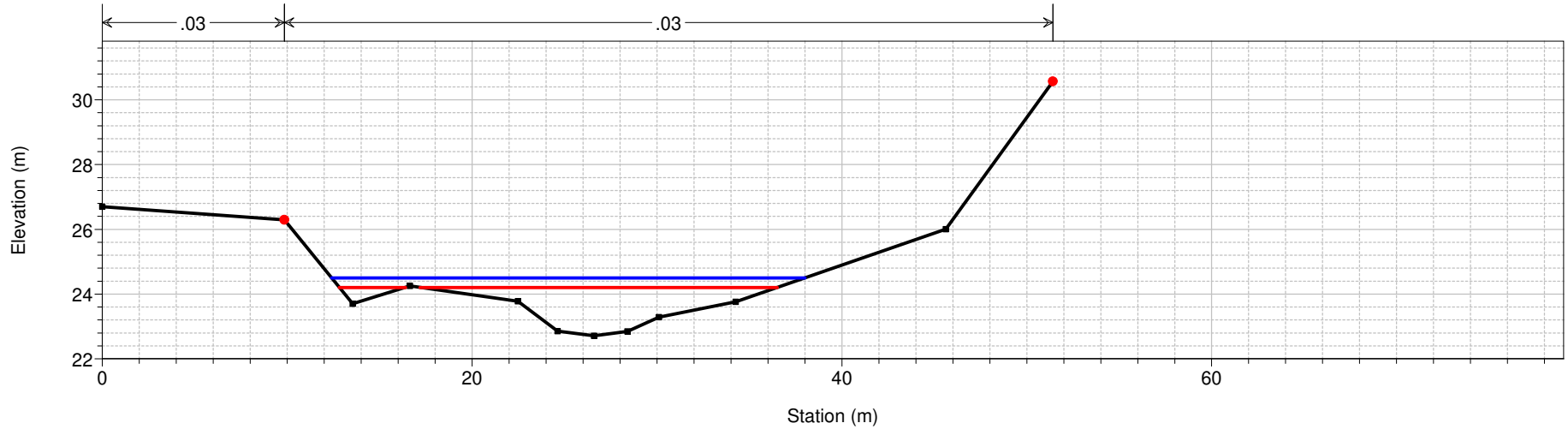
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 17 MAGNO_17

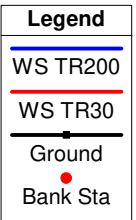
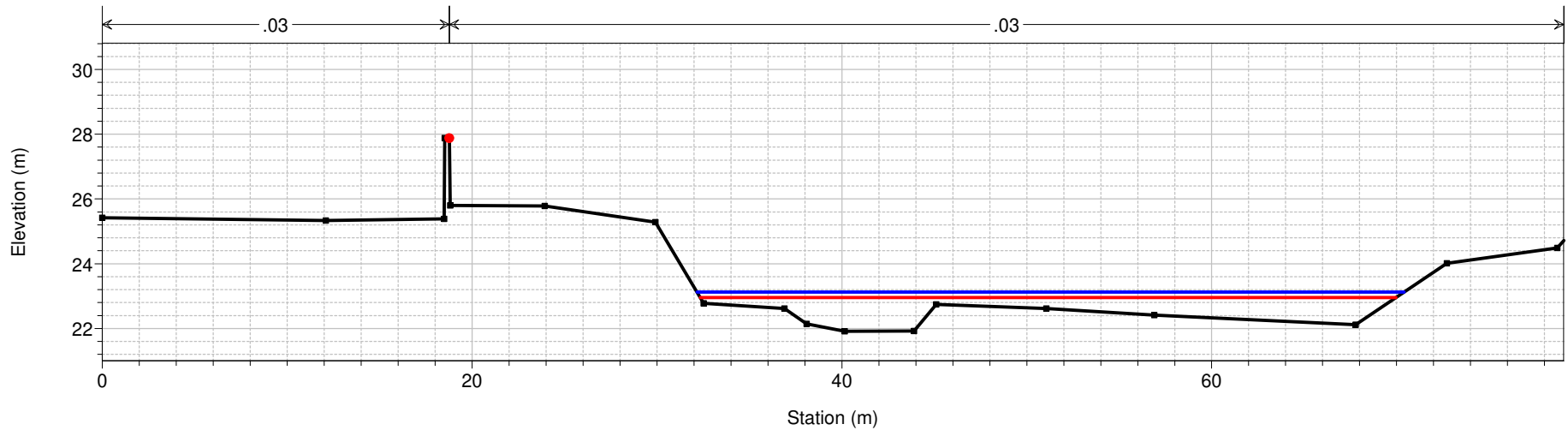


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 16 MAGNO_16



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 15 MAGNO_15

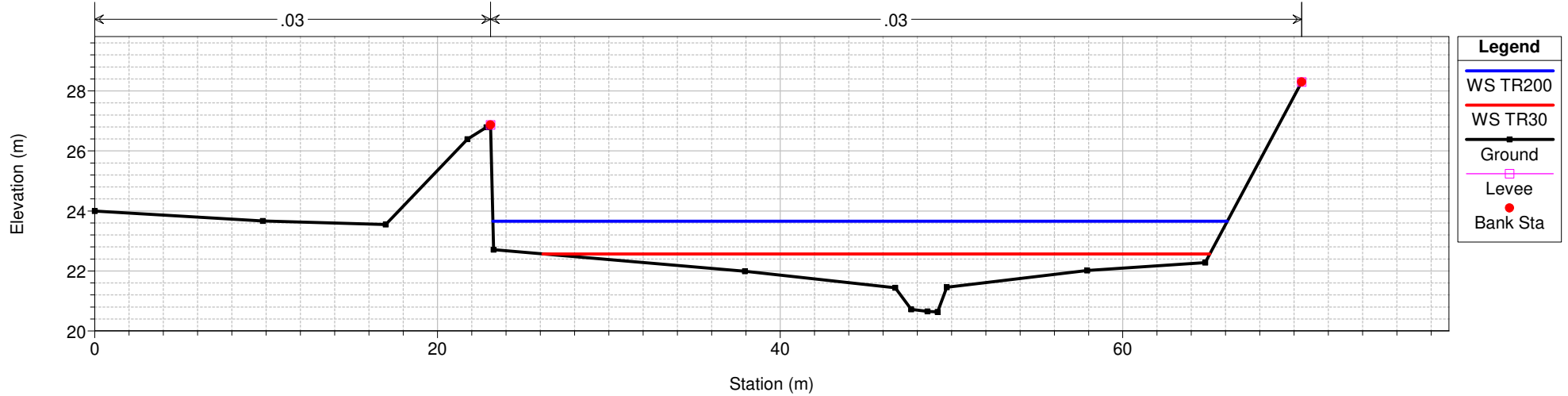


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

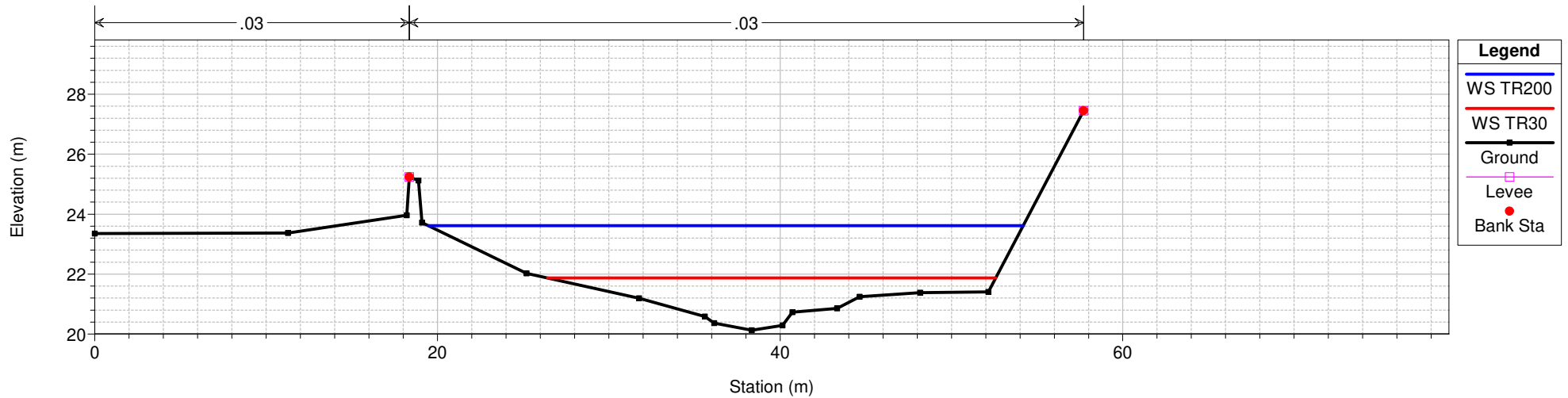
River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 14 MAGNO_14



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

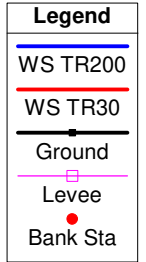
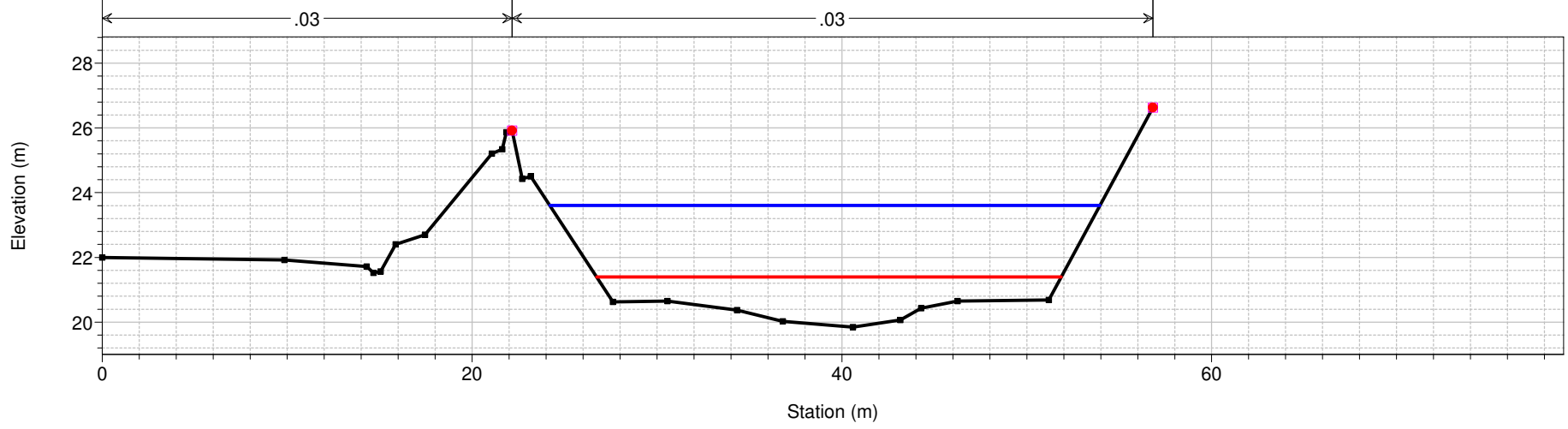
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 13 MAGNO_13

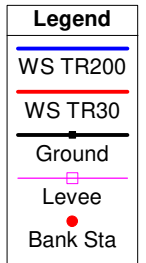
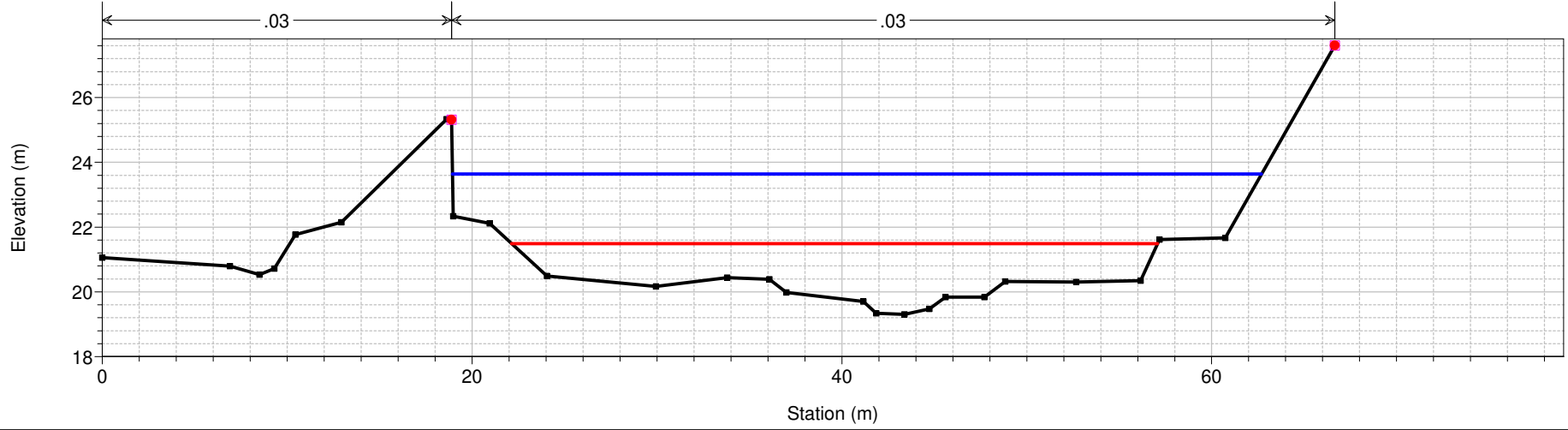


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 12 MAGNO_12

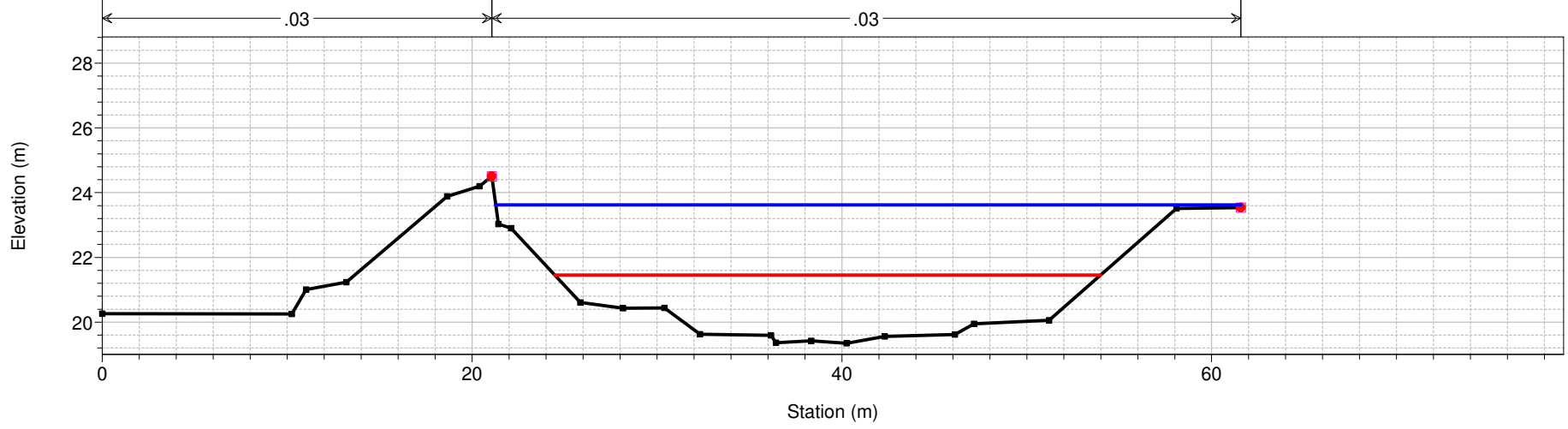


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 11 MAGNO_11

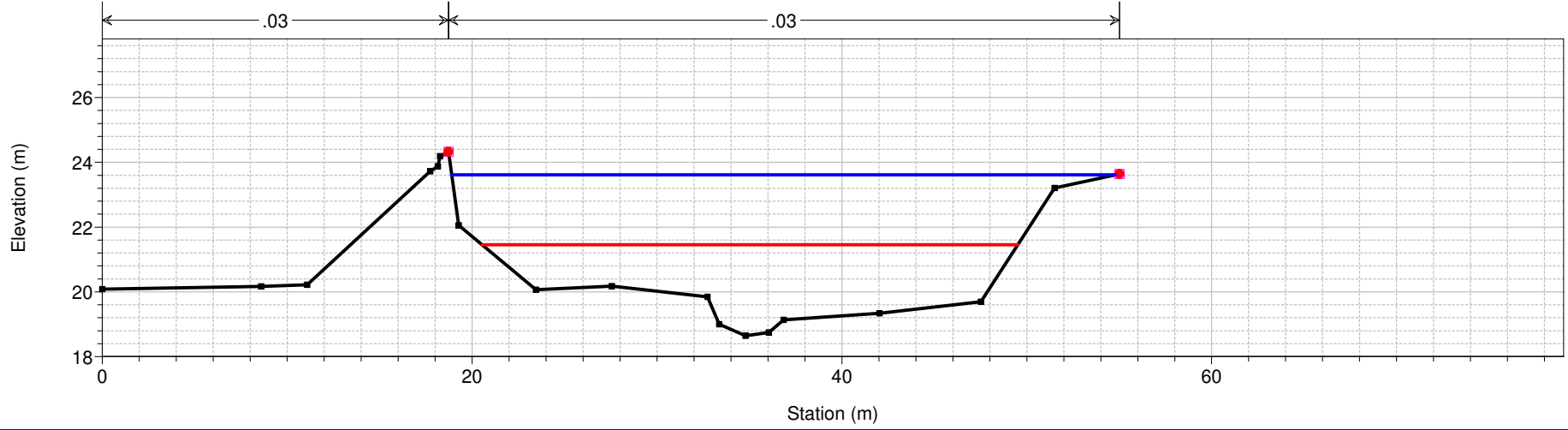


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 10 MAGNO_10

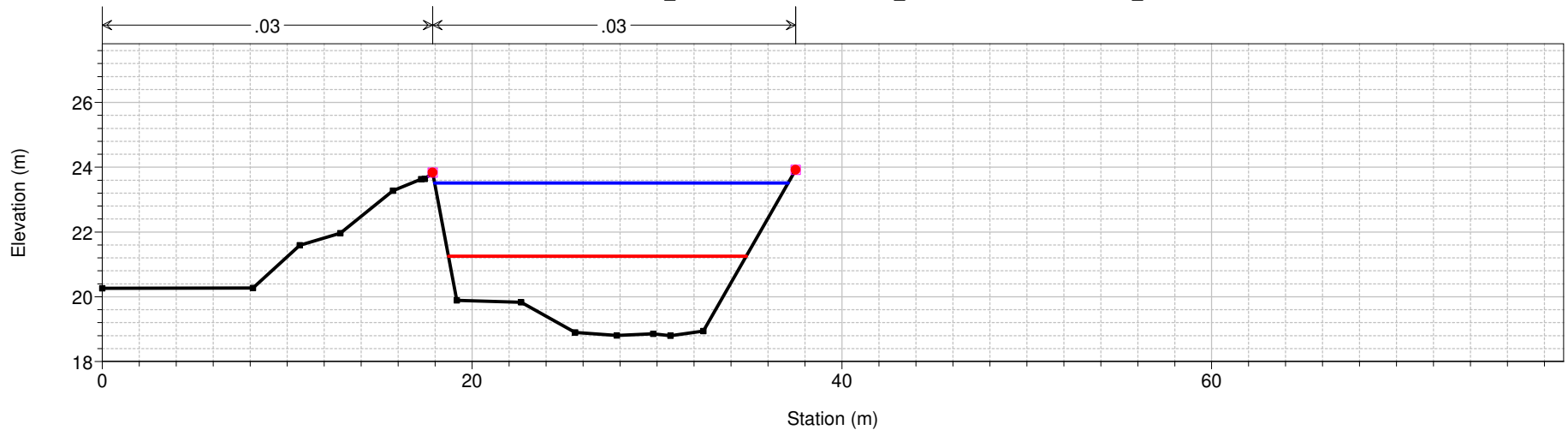


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 9 MAGNO_09

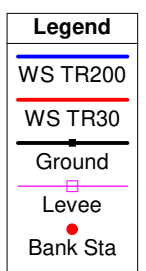
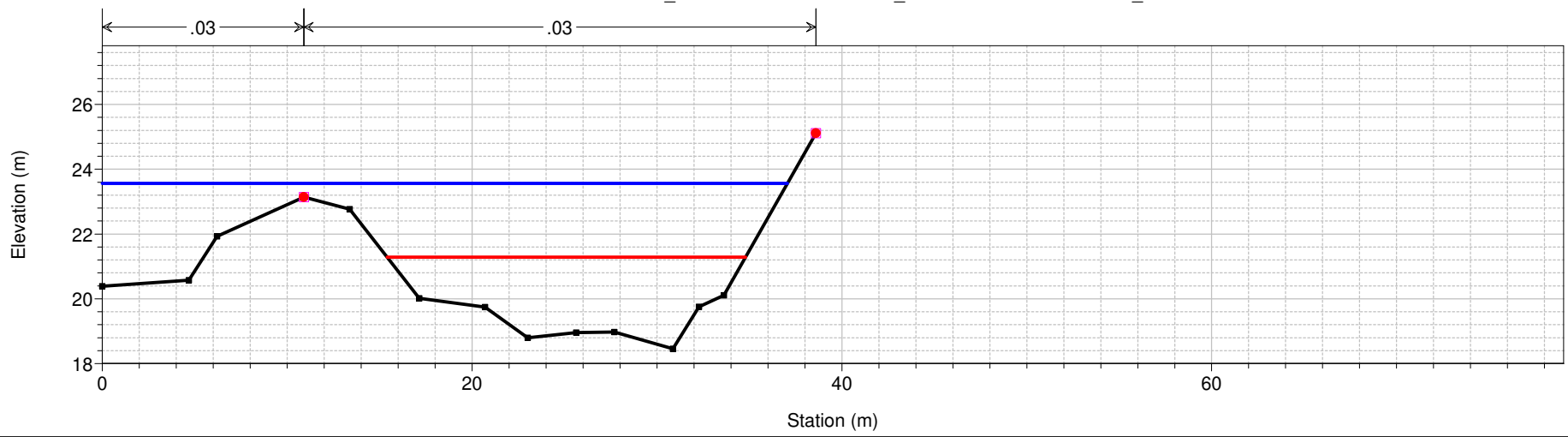


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 8 MAGNO_08



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 7 MAGNO_07

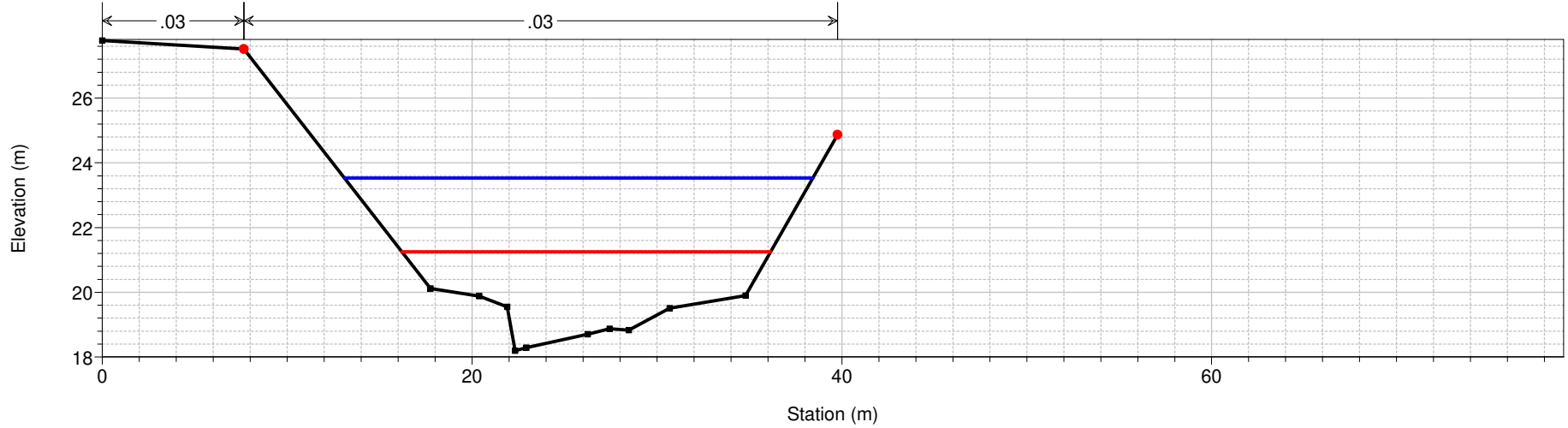


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

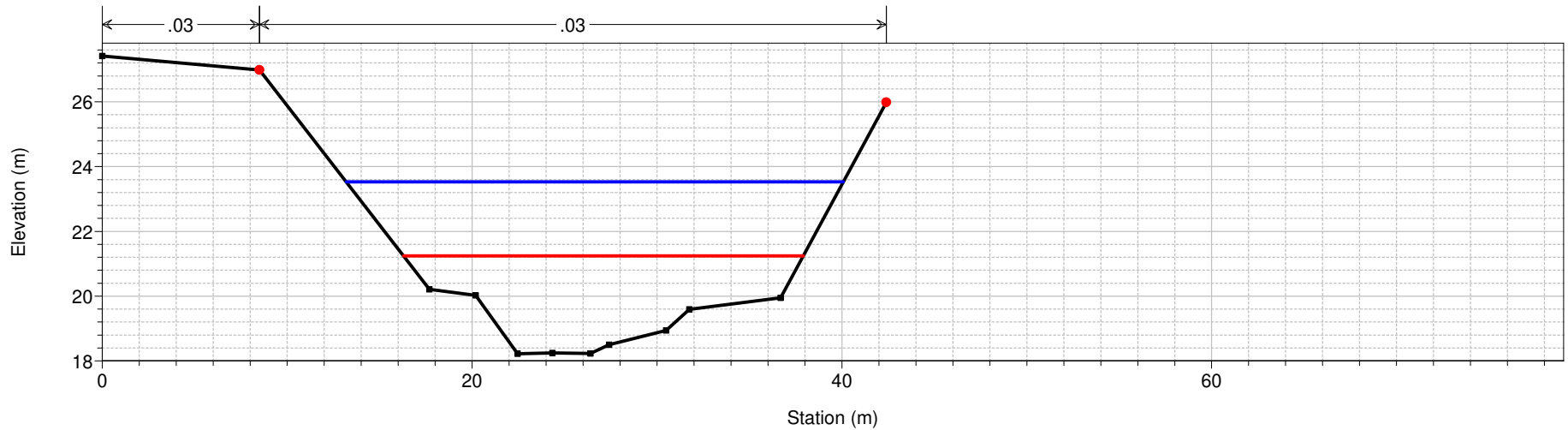
River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 6 MAGNO_06



19005_1D Plan: 19005_1D_BRIDGE 4/19/2019

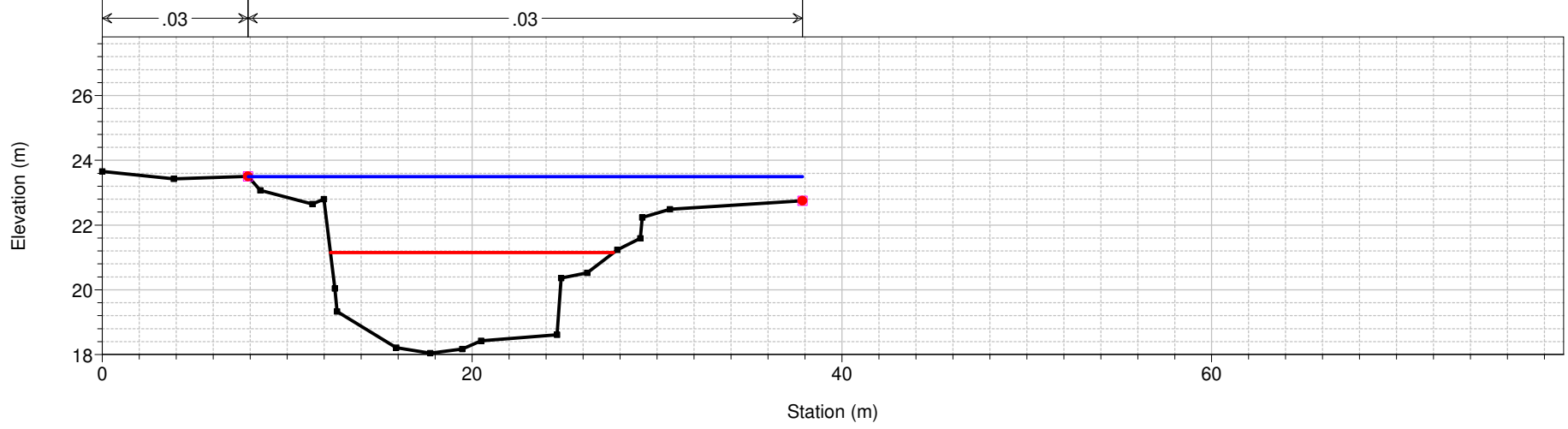
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW

River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 5 MAGNO_05



1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

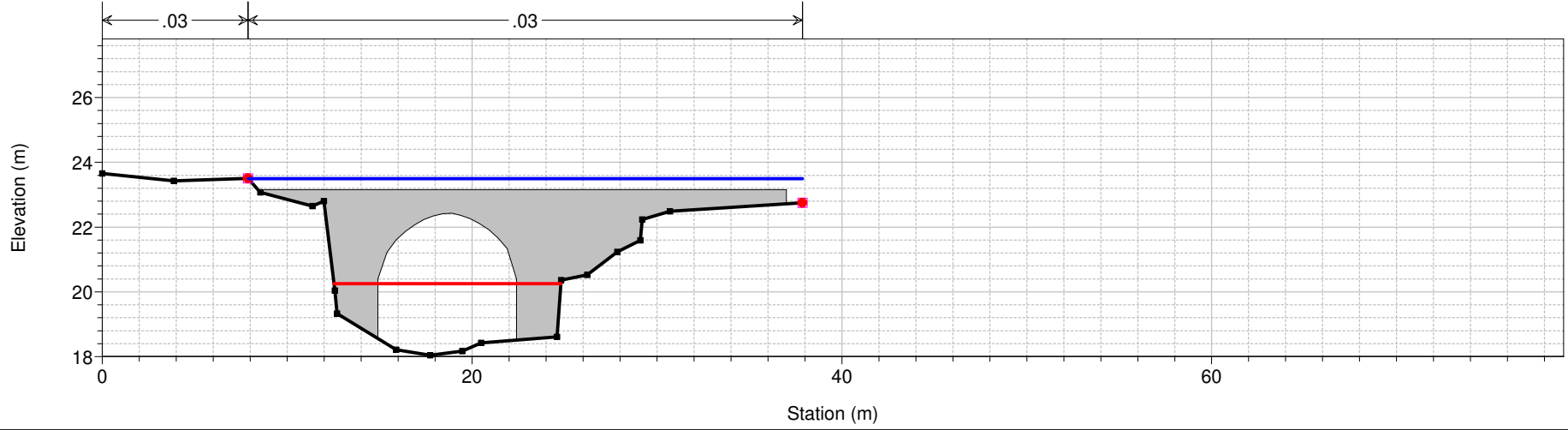
19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 4 MAGNO_04



Legend

- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 3.5 BR

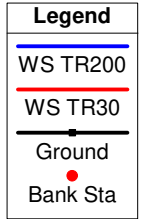
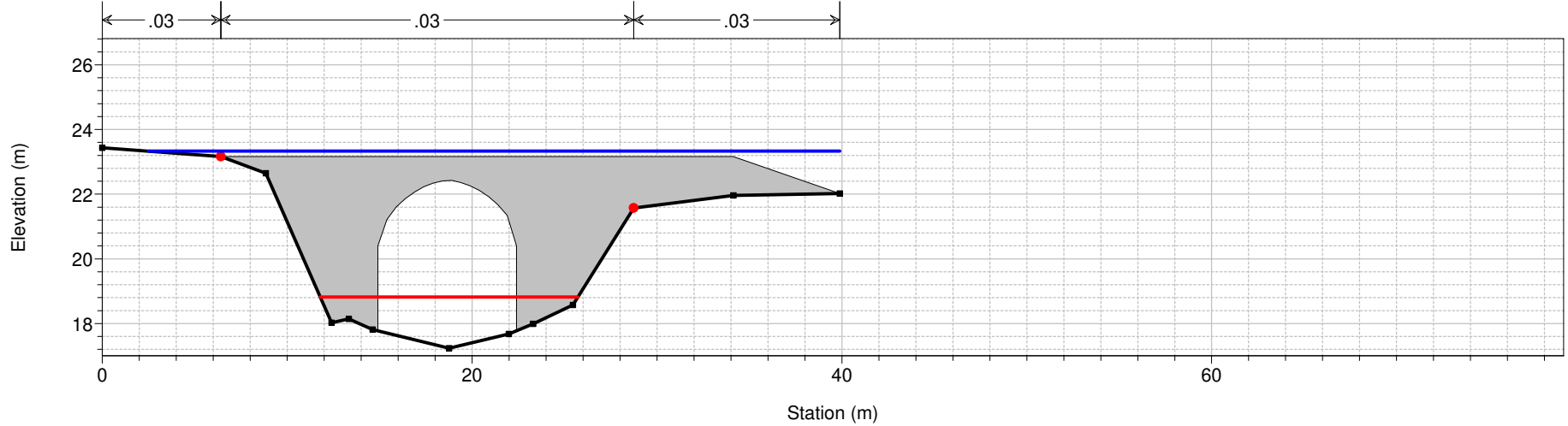


Legend

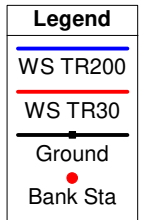
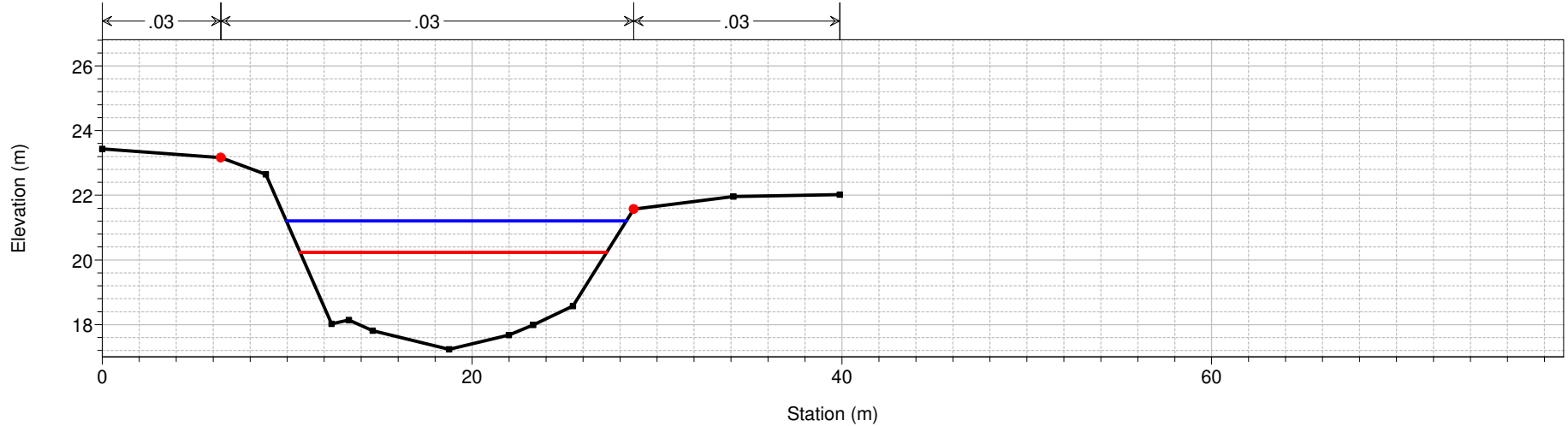
- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 3.5 BR

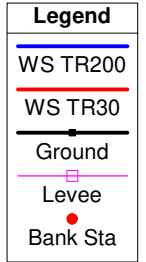
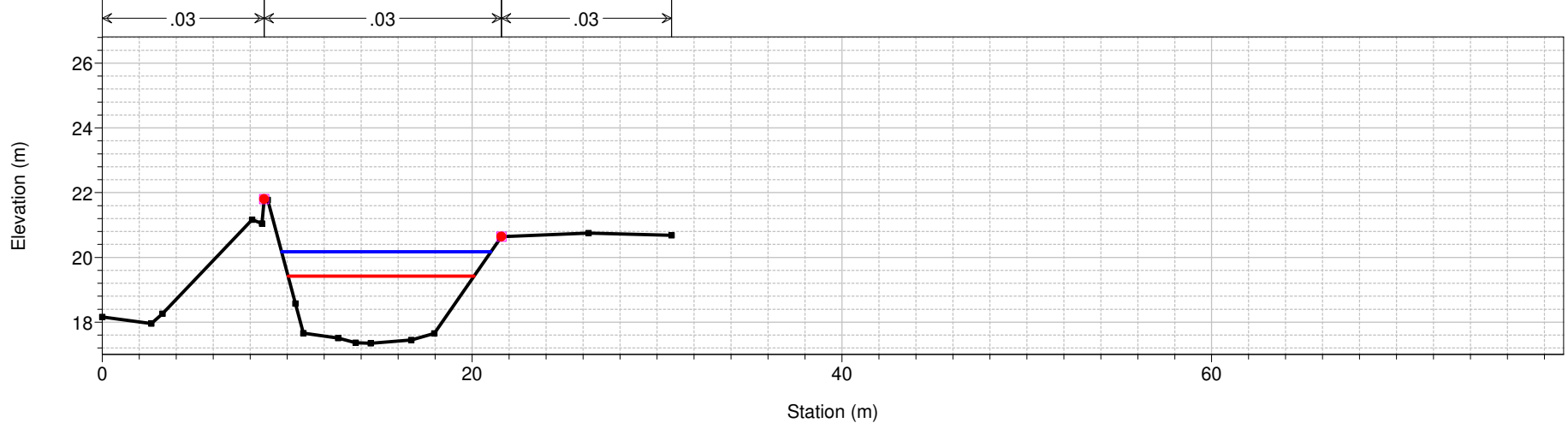


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 3 MAGNO_03

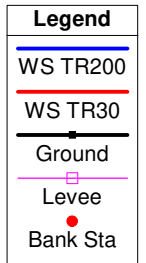
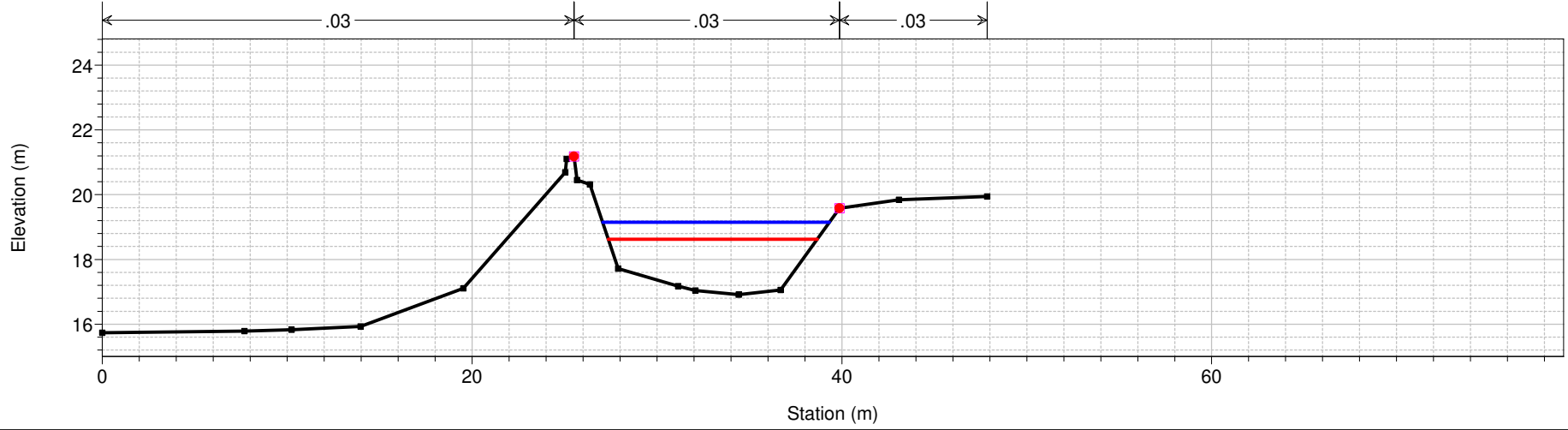


1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 2 MAGNO_02

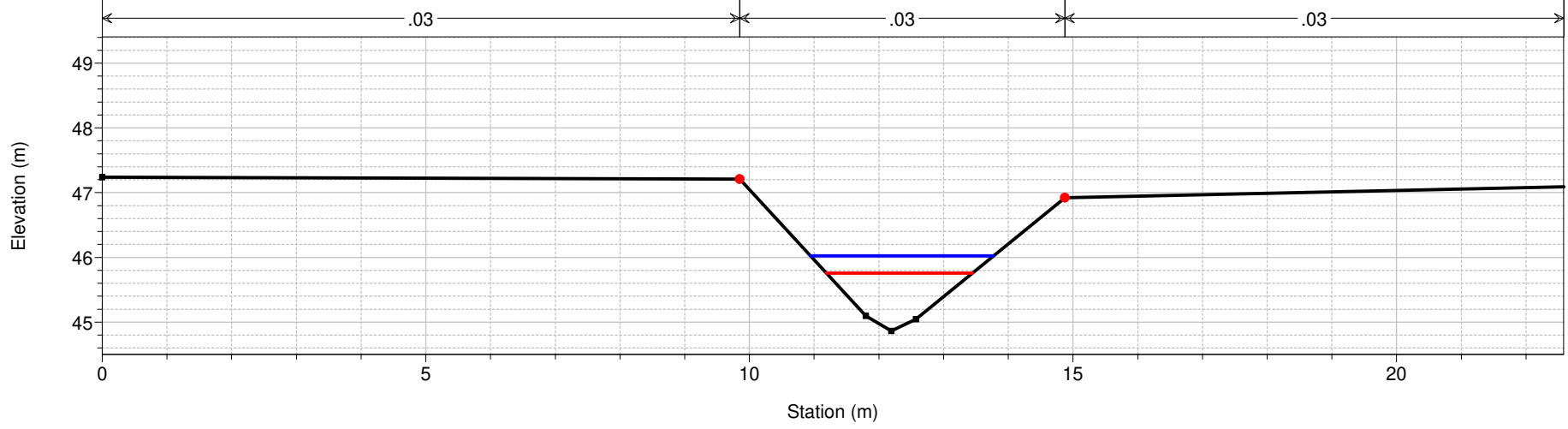


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = MAGNO_VALLE Reach = MAGNO_VALLE RS = 1 MAGNO_01



1 cm Horiz. = 3.5 m 1 cm Vert. = 2 m

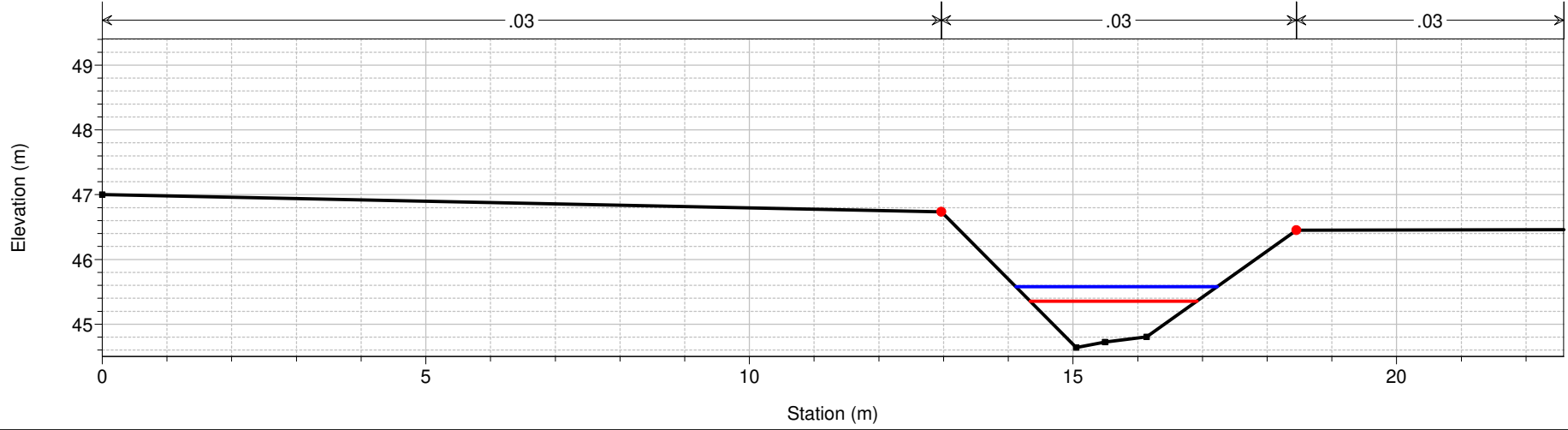
19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 119 SMART_19



Legend

- WS TR200
- WS TR30
- Ground
- Bank Sta

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 118 SMART_18

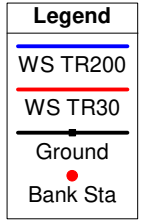
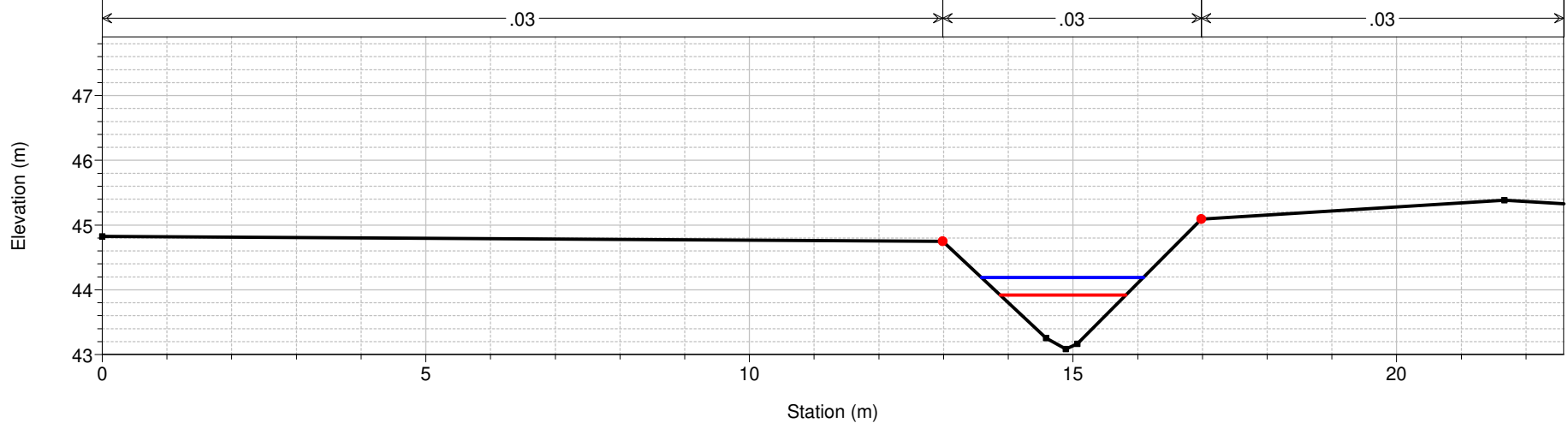


Legend

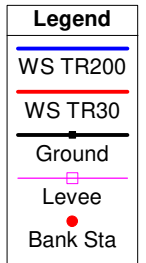
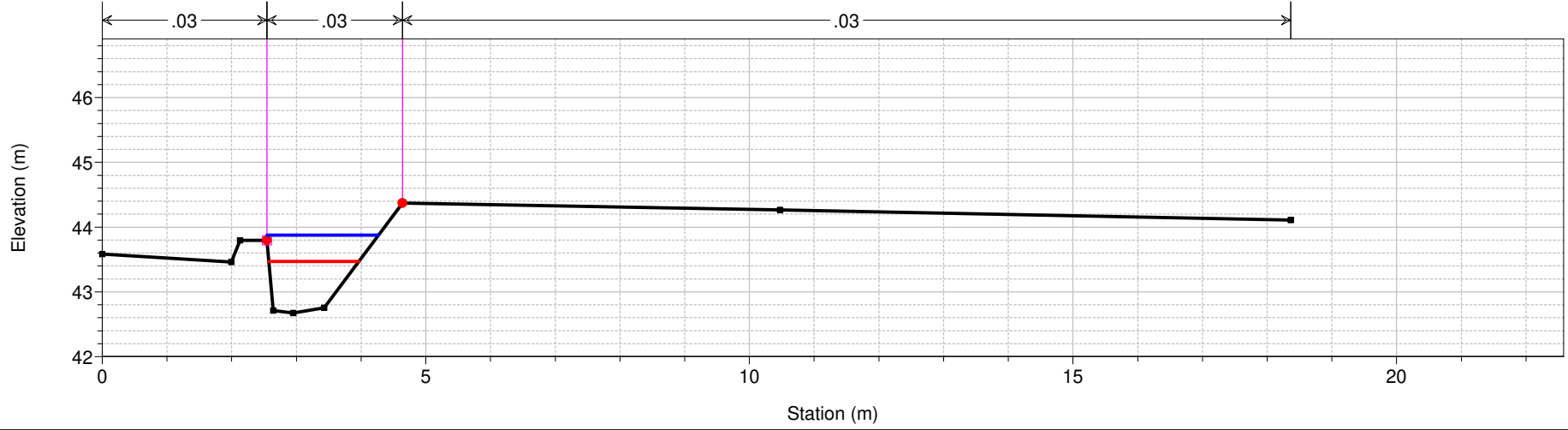
- WS TR200
- WS TR30
- Ground
- Bank Sta

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

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 117 SMART_17

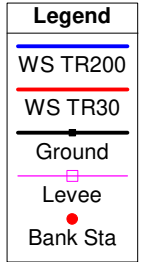
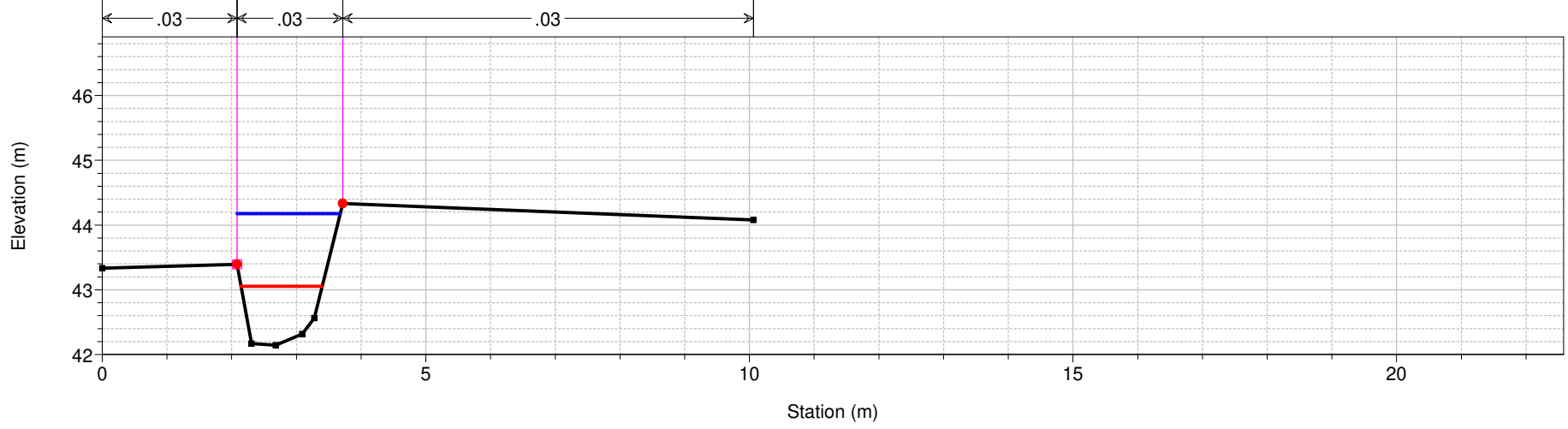


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 116 SMART_16

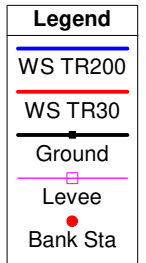
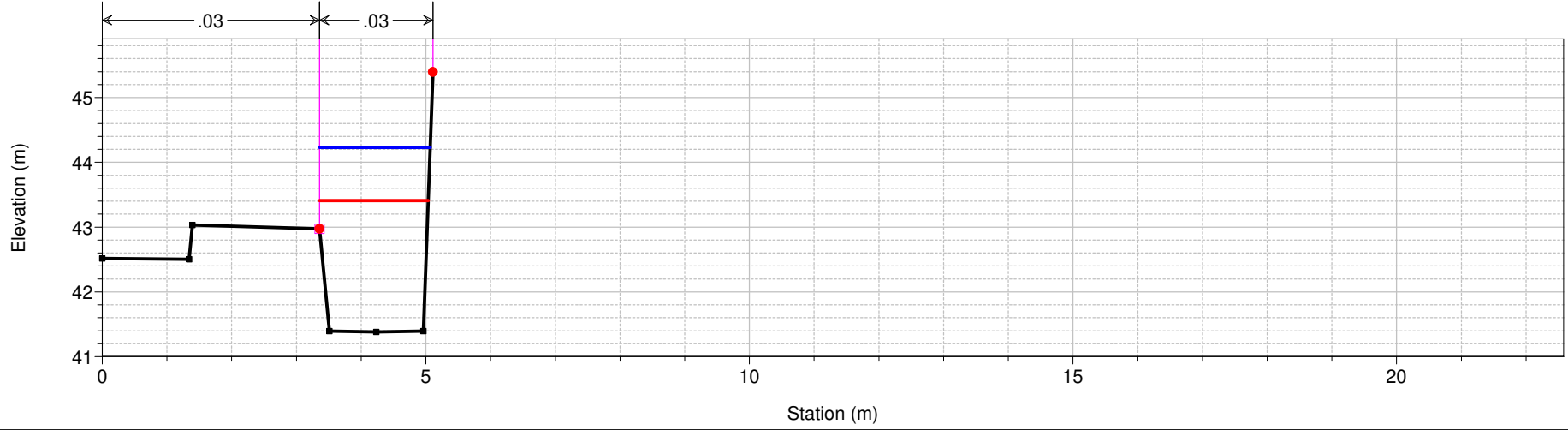


1 cm Horiz. = 1 m 1 cm Vert. = 1 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 115 SMART_15

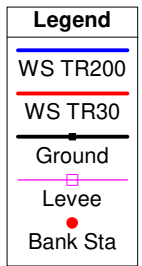
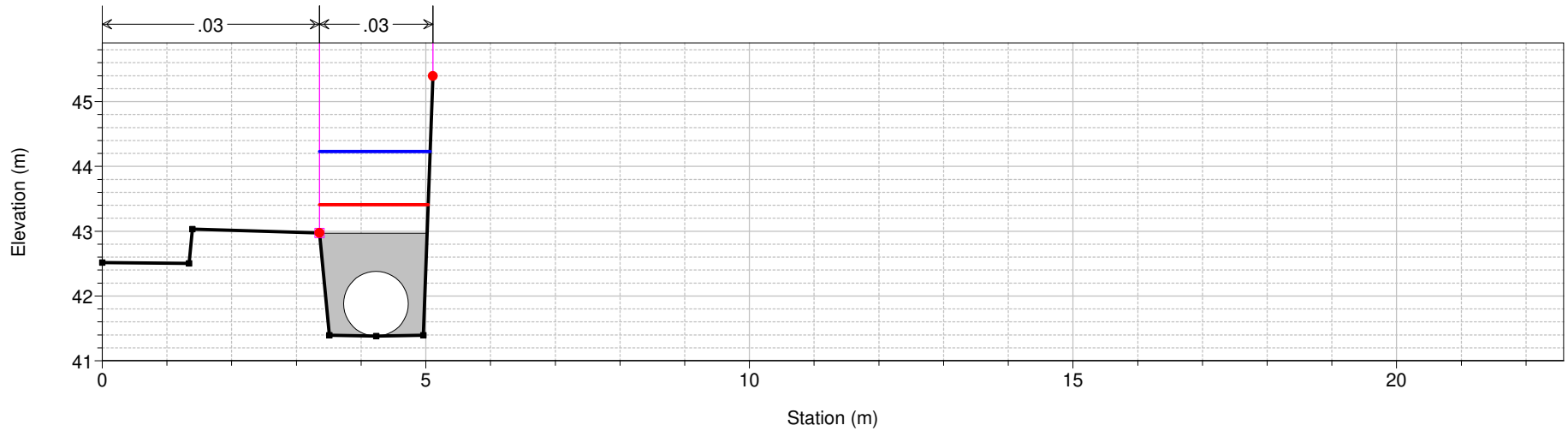


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 114 SMART_14

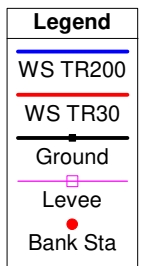
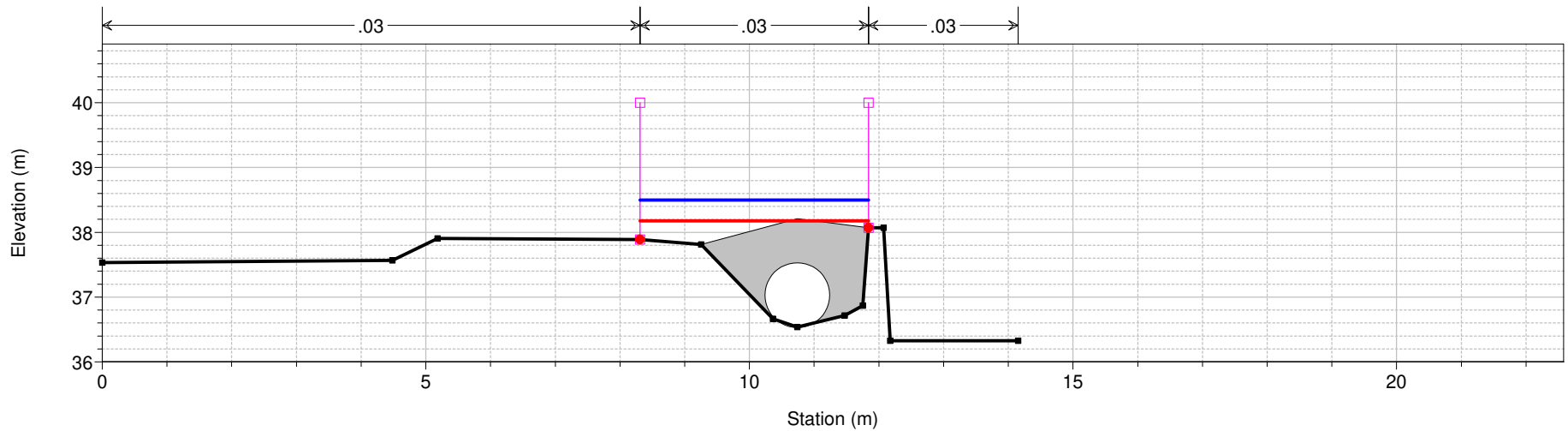


1 cm Horiz. = 1 m 1 cm Vert. = 1 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 113.5 Culv

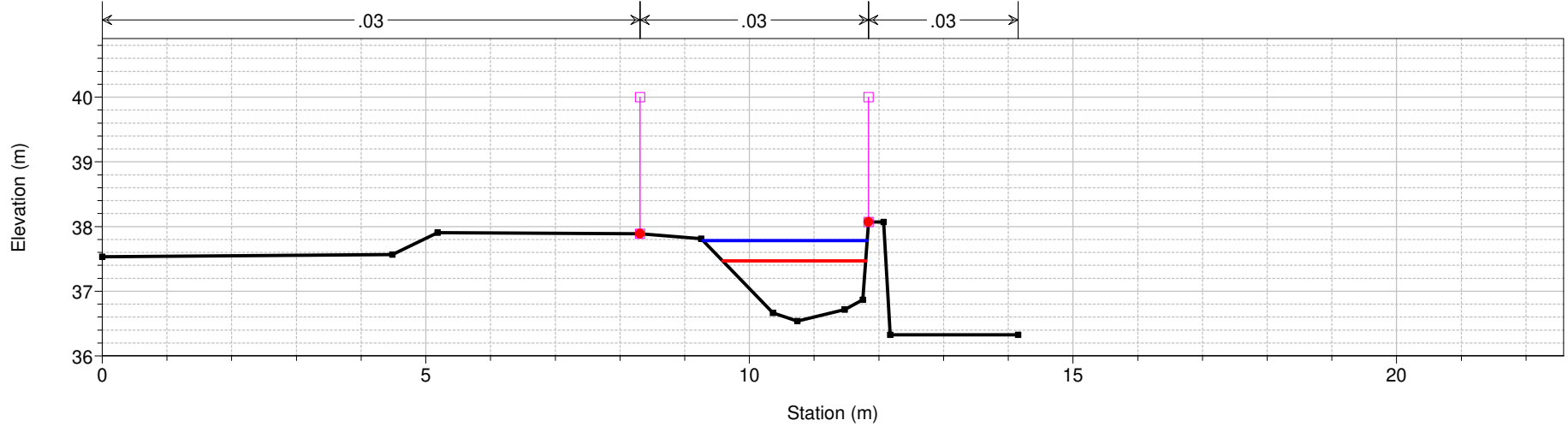


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 113.5 Culv

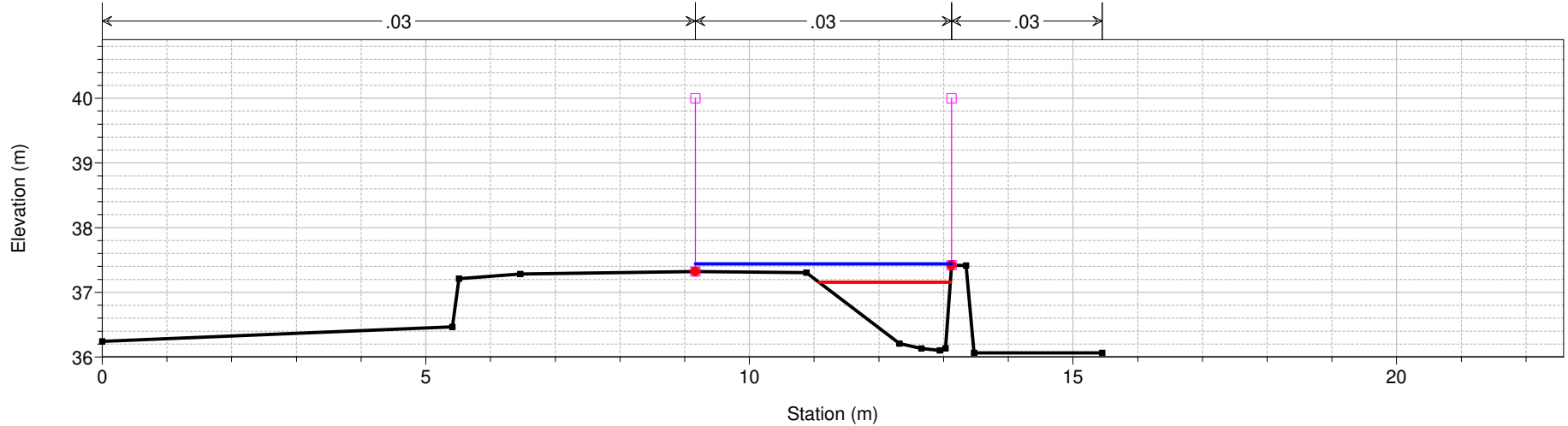


1 cm Horiz. = 1 m 1 cm Vert. = 1 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 113 SMART_13

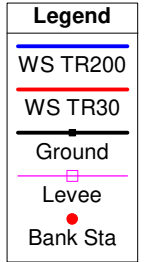
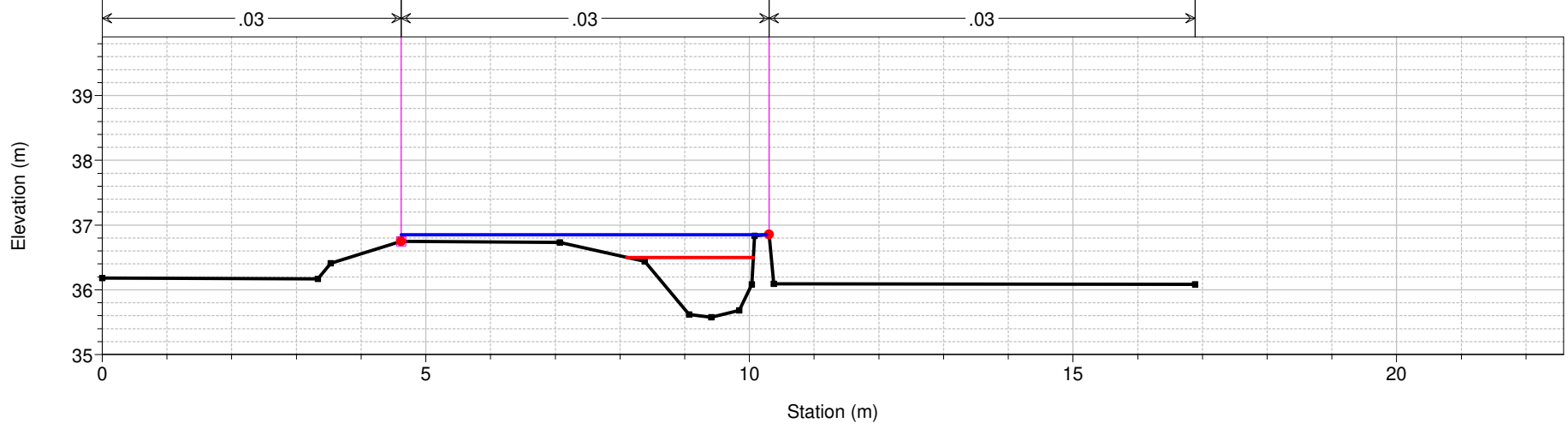


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 112 SMART_12

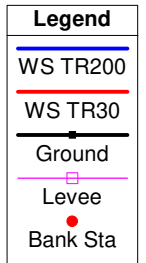
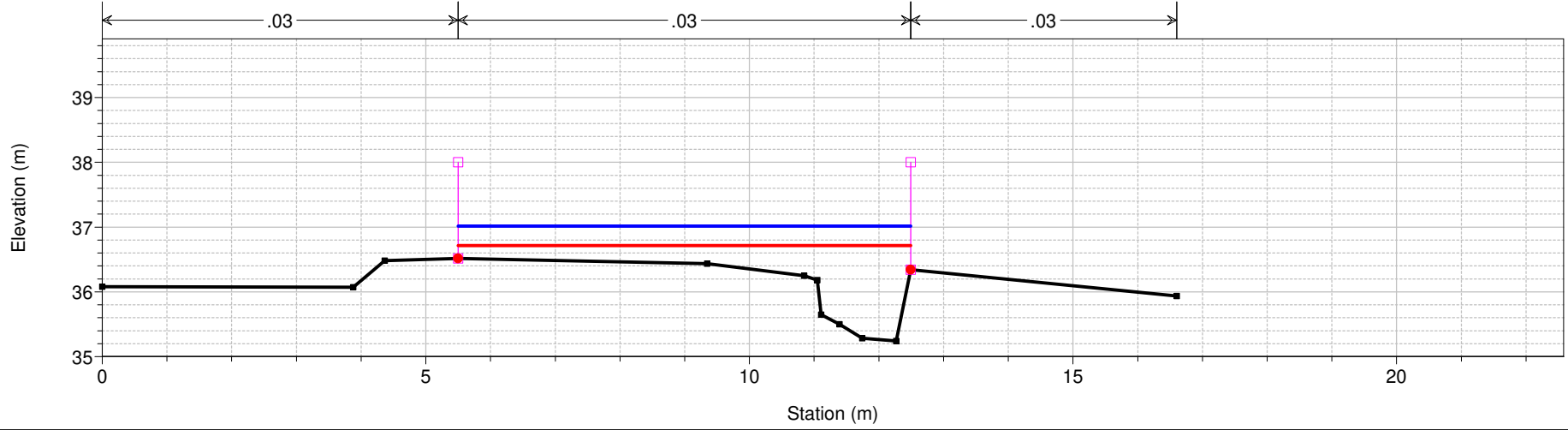


1 cm Horiz. = 1 m 1 cm Vert. = 1 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 111 SMART_1

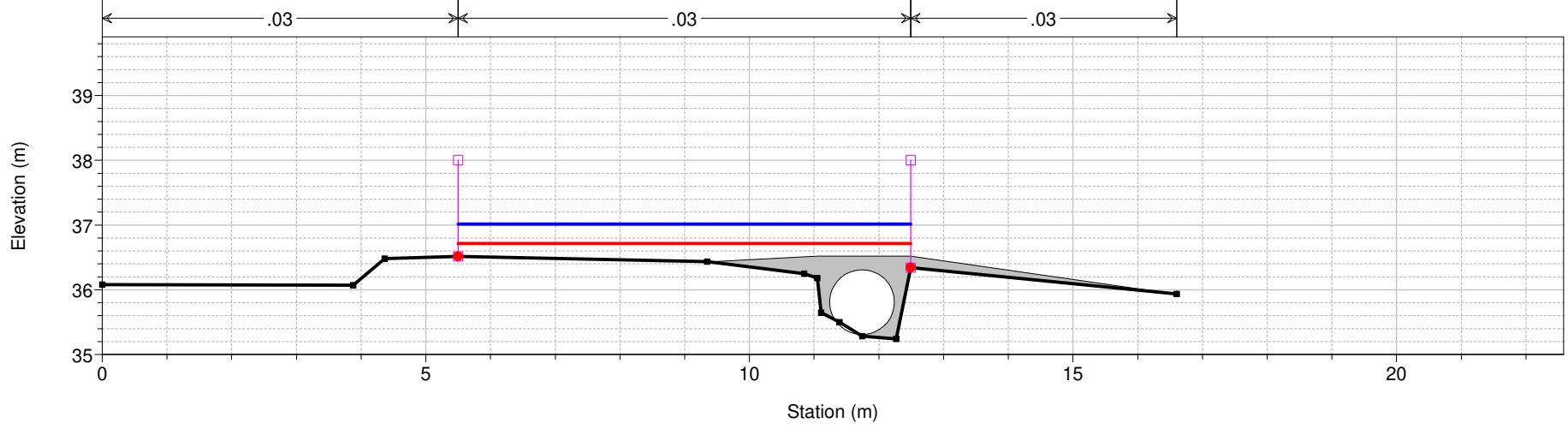


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 110 SMART_10



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

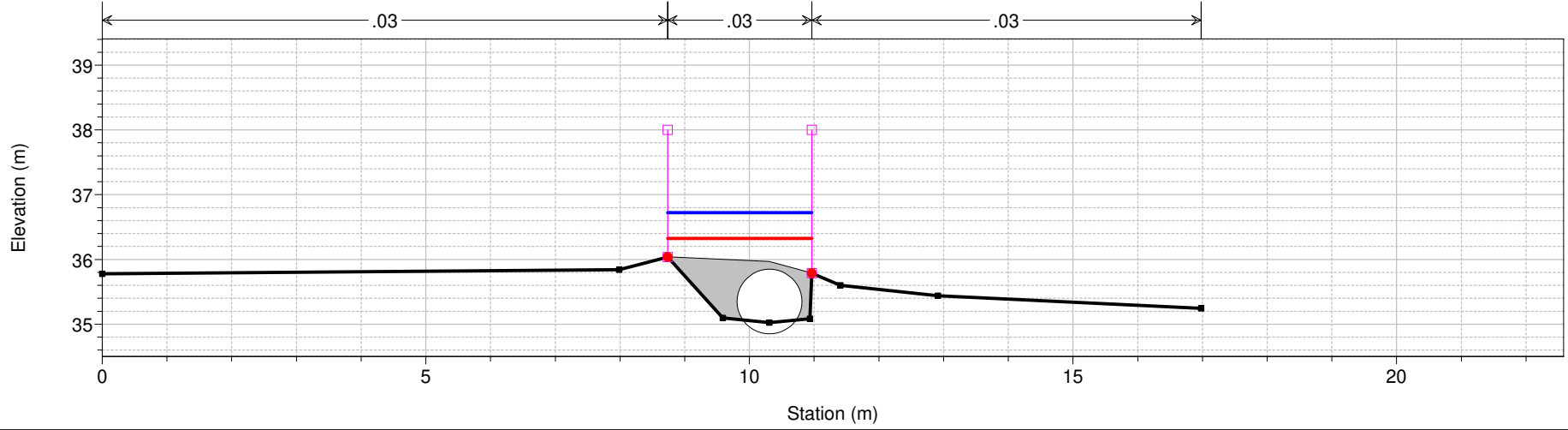
19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
River = SMART Reach = SMART RS = 109.5 Culv



Legend

- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
River = SMART Reach = SMART RS = 109.5 Culv

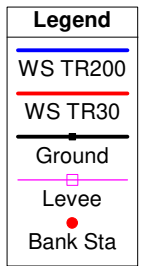
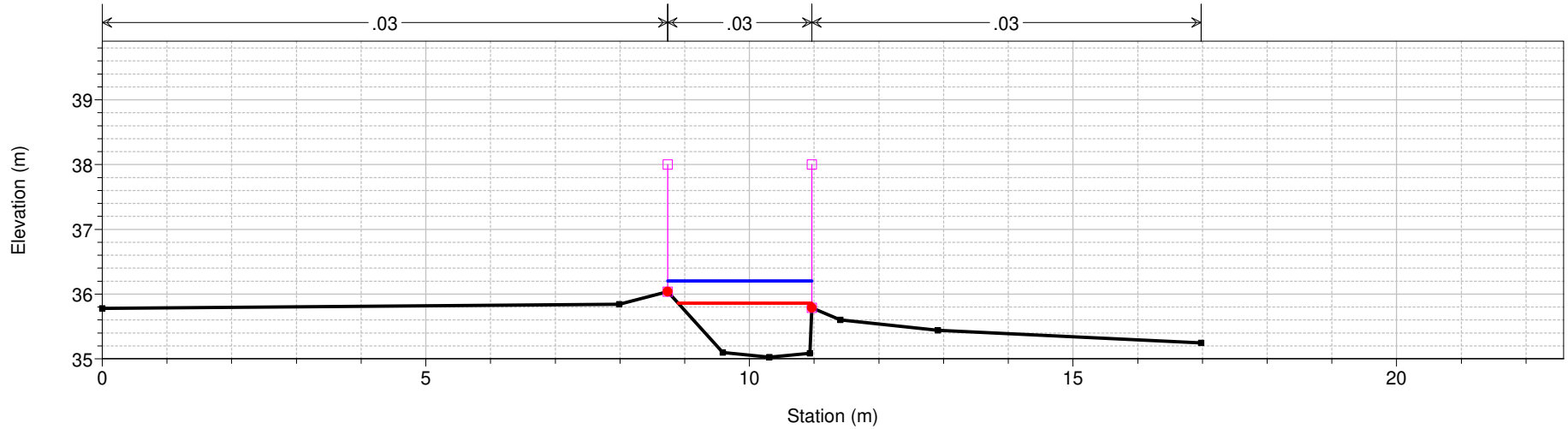


Legend

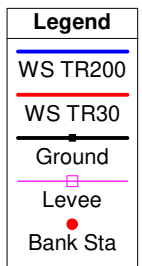
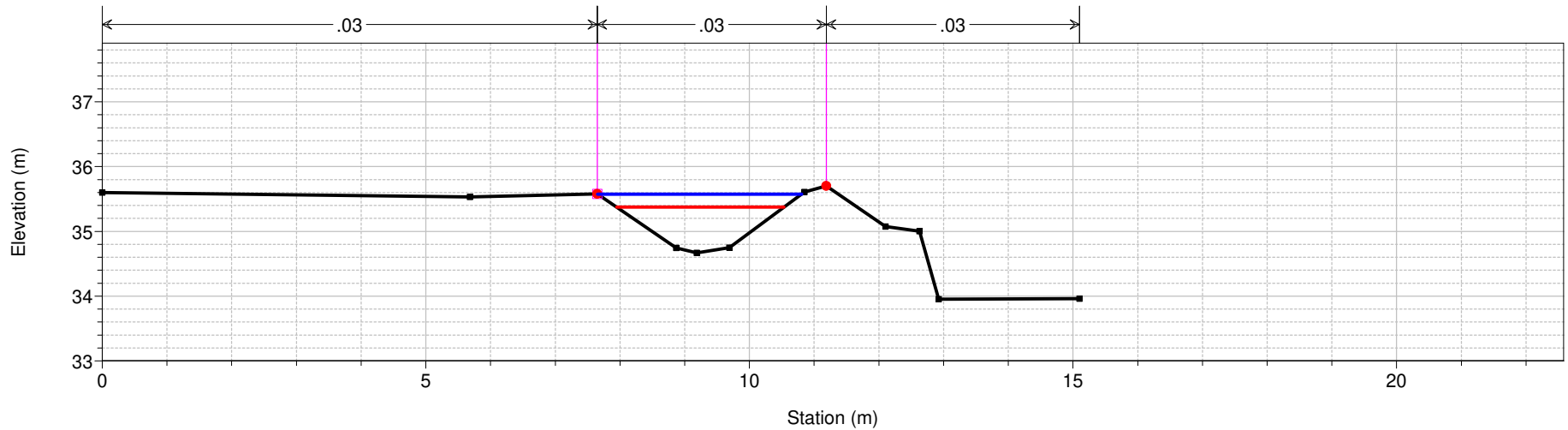
- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

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

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 109 SMART_09

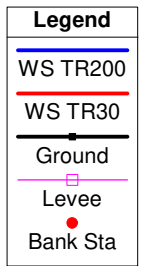
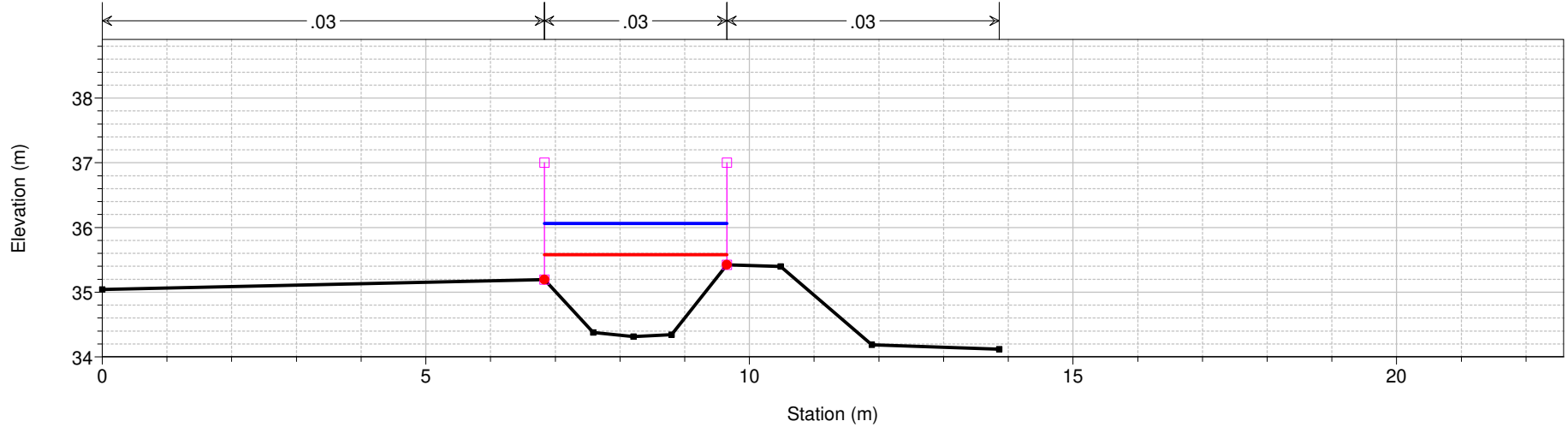


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 108 SMART_08

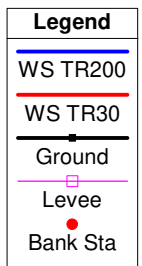
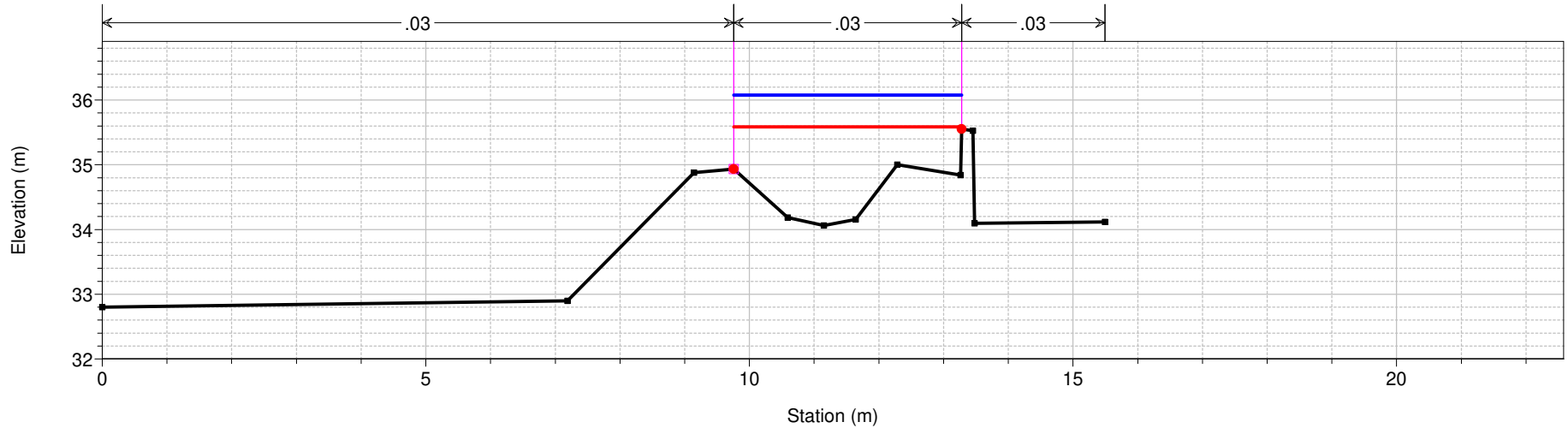


1 cm Horiz. = 1 m 1 cm Vert. = 1 m

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 107 SMART_07

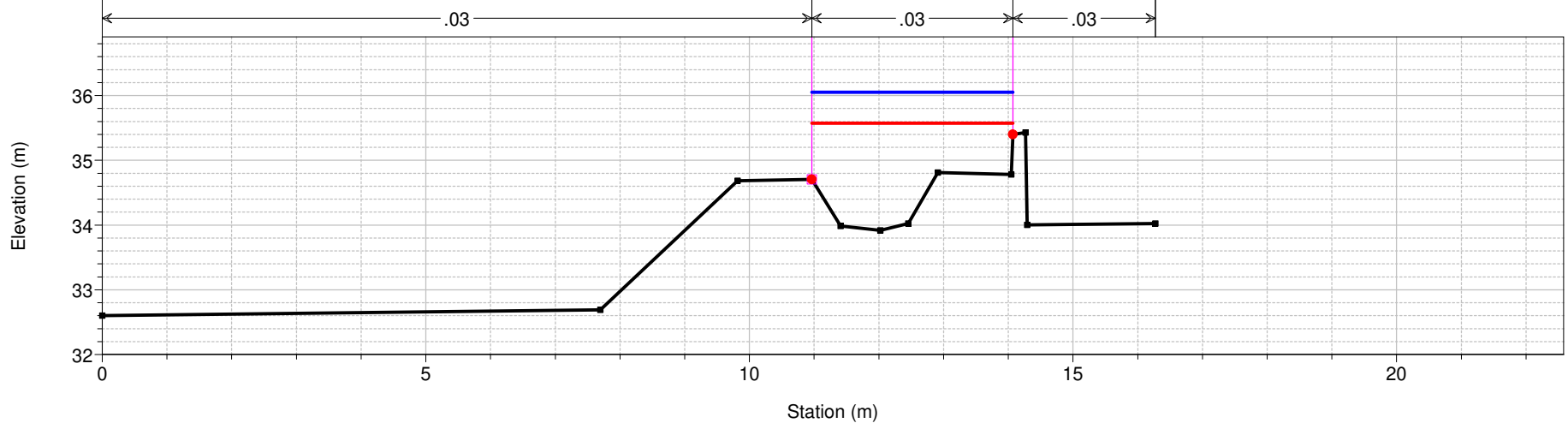


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 106 SMART_06



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

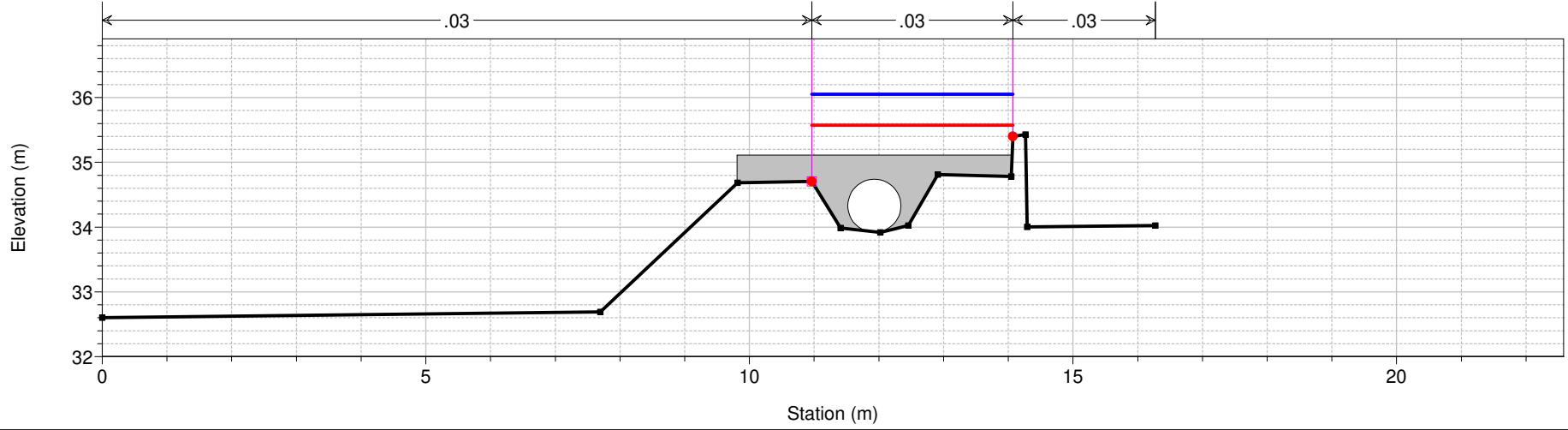
19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 105 SMART_05



Legend

- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 104.5 Culv

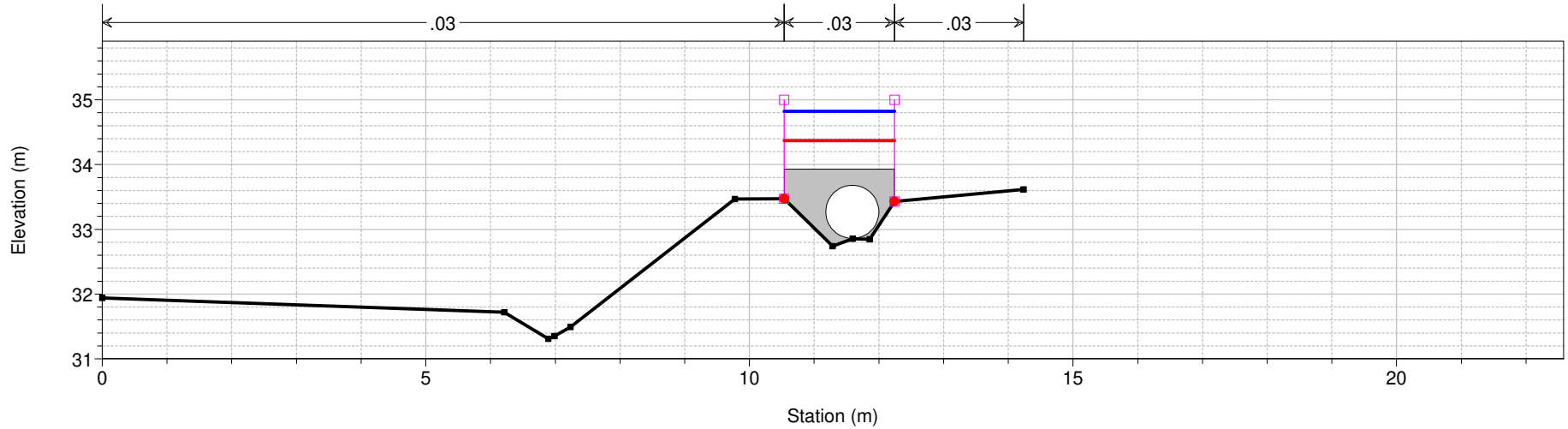


Legend

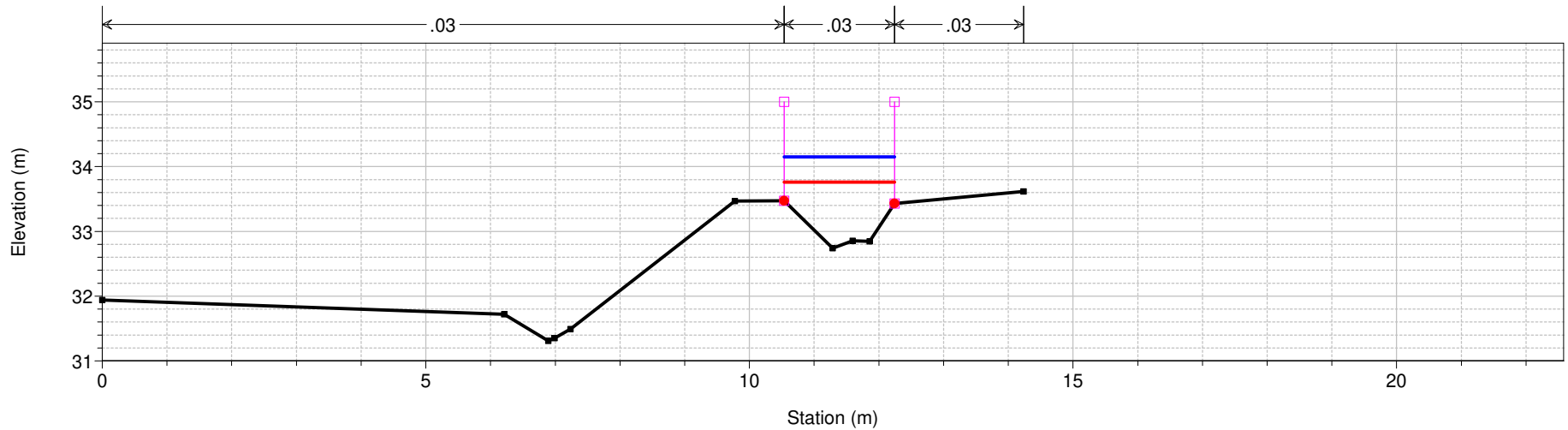
- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

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

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 104.5 Culv

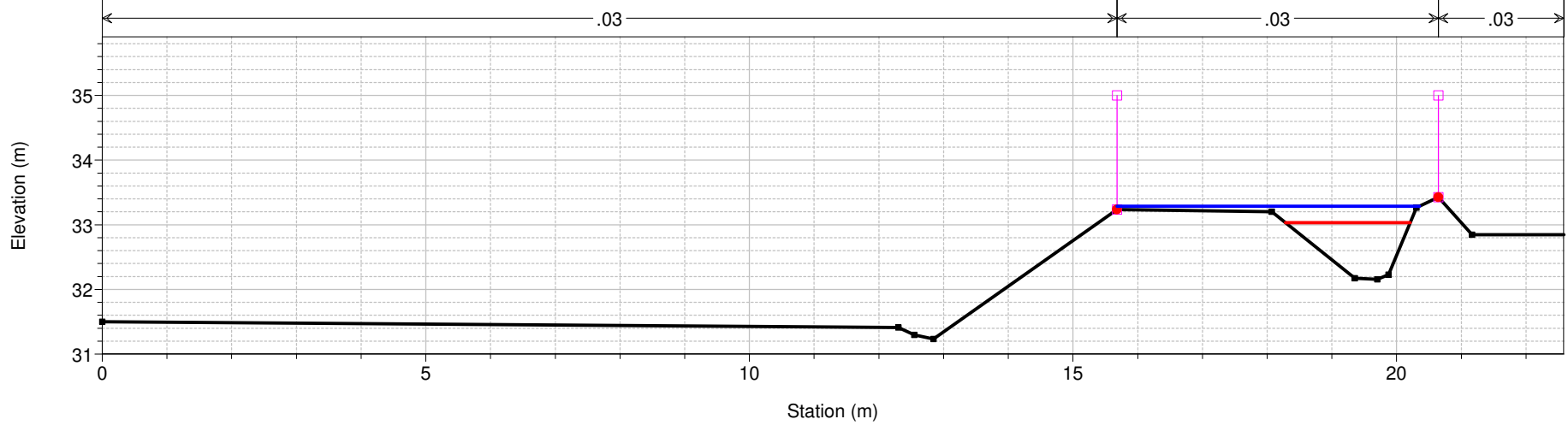


19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 104 SMART_04



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

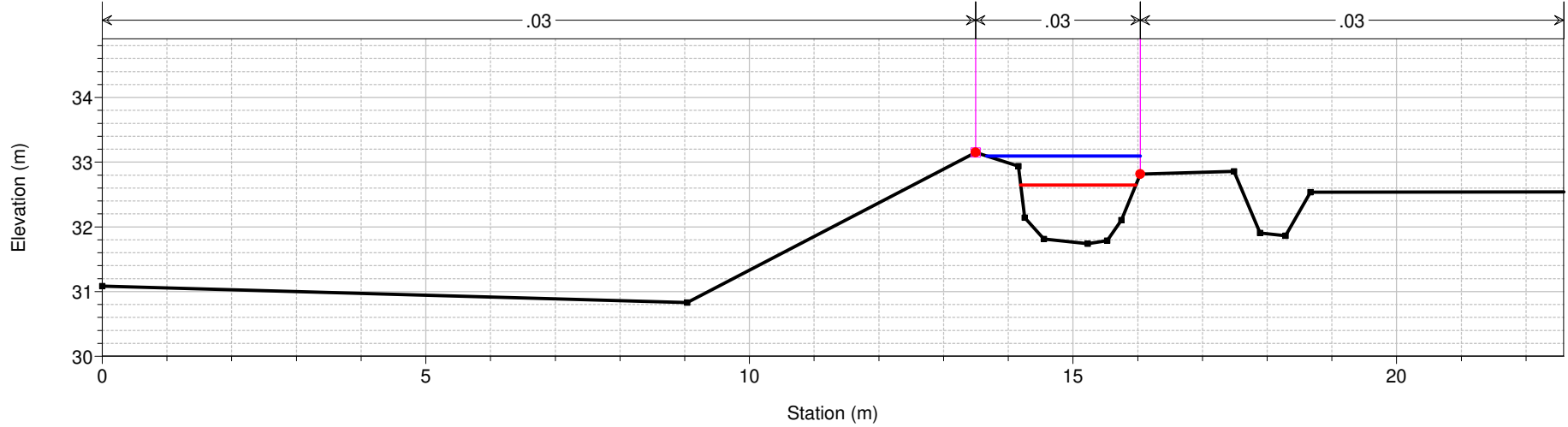
19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 103 SMART_03



Legend

- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
 Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
 River = SMART Reach = SMART RS = 102 SMART_02

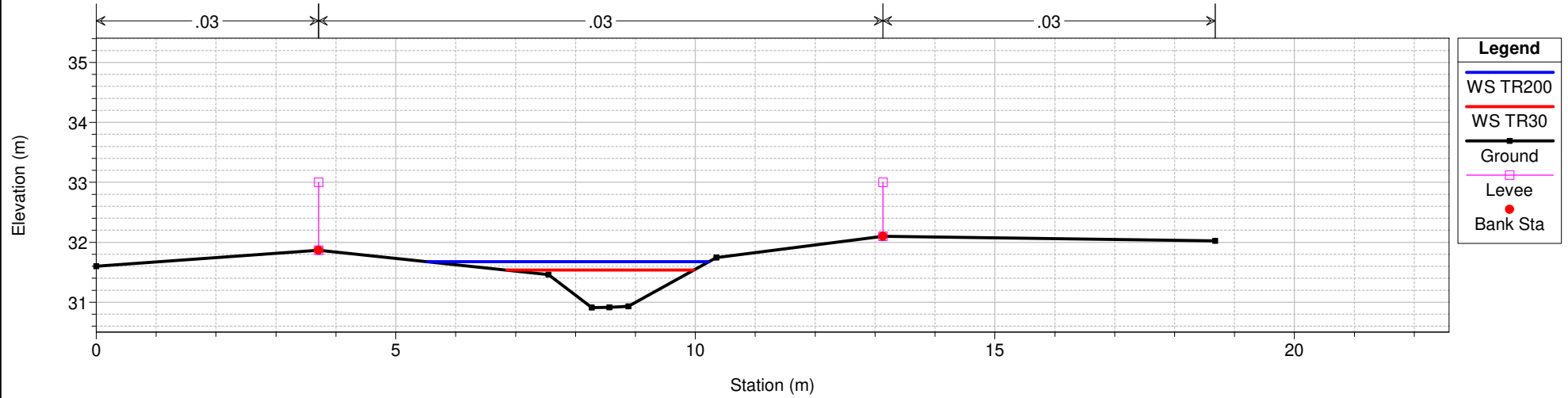


Legend

- WS TR200
- WS TR30
- Ground
- Levee
- Bank Sta

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

19005_1D Plan: 19005_1D_BRIDGE 4/19/2019
Geom: 19005_1d_GEOM_02 Flow: 19005_1D_FLOW
River = SMART Reach = SMART RS = 101 SMART_01



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

TABELLE DI OUTPUT

HEC-RAS Plan: 19005_1D_BRIDGE River: MAGNO_VALLE Reach: MAGNO_VALLE

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	ROB Elev (m)	L. Freeboard (m)	R. Freeboard (m)	Froude # Chl	Vel Chnl (m/s)	Length Chnl (m)
MAGNO_VALLE	24	TR200	112.39	30.12	32.15	33.15	31.93	1.00	-0.22	1.66	4.53	51.08
MAGNO_VALLE	24	TR30	65.51	30.12	31.93	33.15	31.93	1.21	-0.01	1.61	3.70	51.08
MAGNO_VALLE	23	TR200	112.39	30.00	32.03	31.84	31.98	-0.19	-0.05	1.00	3.05	2.09
MAGNO_VALLE	23	TR30	65.51	30.00	31.64	31.84	31.98	0.20	0.34	1.00	2.82	2.09
MAGNO_VALLE	22	TR200	112.39	24.99	26.62	31.02	31.14	4.40	4.51	2.82	10.24	15.86
MAGNO_VALLE	22	TR30	65.51	24.99	26.03	31.02	31.14	5.00	5.11	3.58	10.35	15.86
MAGNO_VALLE	21	TR200	112.39	25.71	27.92	31.39	30.63	3.47	2.71	1.72	6.98	18.47
MAGNO_VALLE	21	TR30	65.51	25.71	27.23	31.39	30.63	4.16	3.40	1.96	6.65	18.47
MAGNO_VALLE	20	TR200	112.39	25.25	27.24	30.57	29.62	3.33	2.38	2.01	7.11	39.18
MAGNO_VALLE	20	TR30	65.51	25.25	26.81	30.57	29.62	3.75	2.81	1.93	6.04	39.18
MAGNO_VALLE	19	TR200	112.39	24.89	26.95	28.49	31.16	1.54	4.21	1.59	5.22	29.79
MAGNO_VALLE	19	TR30	65.51	24.89	26.60	28.49	31.16	1.89	4.56	1.30	4.24	29.79
MAGNO_VALLE	18	TR200	112.39	24.22	26.26	27.53	32.68	1.27	6.42	1.69	5.08	52.90
MAGNO_VALLE	18	TR30	65.51	24.22	25.81	27.53	32.68	1.72	6.87	1.54	4.72	52.90
MAGNO_VALLE	17	TR200	112.39	23.21	25.39	26.91	33.66	1.51	8.26	1.37	4.27	19.31
MAGNO_VALLE	17	TR30	65.51	23.21	25.08	26.91	33.66	1.82	8.58	1.34	3.58	19.31
MAGNO_VALLE	16	TR200	112.39	22.71	24.50	26.29	30.57	1.79	6.07	1.78	5.14	64.34
MAGNO_VALLE	16	TR30	65.51	22.71	24.21	26.29	30.57	2.08	6.36	1.79	4.49	64.34
MAGNO_VALLE	15	TR200	112.39	21.92	23.13	27.87	28.39	4.75	5.26	1.54	4.08	46.35
MAGNO_VALLE	15	TR30	65.51	21.92	22.96	27.87	28.39	4.92	5.44	1.33	3.12	46.35
MAGNO_VALLE	14	TR200	112.39	20.64	23.66	26.87	28.30	3.21	4.64	0.39	1.57	49.74
MAGNO_VALLE	14	TR30	65.51	20.64	22.57	26.87	28.30	4.30	5.73	1.00	2.55	49.74
MAGNO_VALLE	13	TR200	112.39	20.13	23.62	25.24	27.45	1.62	3.84	0.32	1.49	51.29
MAGNO_VALLE	13	TR30	65.51	20.13	21.87	25.24	27.45	3.37	5.58	1.08	3.05	51.29

HEC-RAS Plan: 19005_1D_BRIDGE River: MAGNO_VALLE Reach: MAGNO_VALLE (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	ROB Elev (m)	L. Freeboard (m)	R. Freeboard (m)	Froude # Chl	Vel Chnl (m/s)	Length Chnl (m)
MAGNO_VALLE	12	TR200	112.39	19.85	23.61	25.92	26.63	2.31	3.02	0.25	1.31	31.61
MAGNO_VALLE	12	TR30	65.51	19.85	21.39	25.92	26.63	4.53	5.24	0.85	2.64	31.61
MAGNO_VALLE	11	TR200	112.39	19.31	23.64	25.32	27.61	1.68	3.98	0.15	0.83	17.80
MAGNO_VALLE	11	TR30	65.51	19.31	21.49	25.32	27.61	3.83	6.12	0.39	1.42	17.80
MAGNO_VALLE	10	TR200	112.39	19.35	23.62	24.50	23.54	0.88	-0.08	0.18	0.96	19.82
MAGNO_VALLE	10	TR30	65.51	19.35	21.46	24.50	23.54	3.05	2.08	0.39	1.49	19.82
MAGNO_VALLE	9	TR200	112.39	18.64	23.62	24.33	23.64	0.71	0.03	0.17	0.95	27.89
MAGNO_VALLE	9	TR30	65.51	18.64	21.45	24.33	23.64	2.88	2.19	0.32	1.33	27.89
MAGNO_VALLE	8	TR200	112.39	18.79	23.51	23.84	23.92	0.32	0.41	0.27	1.61	6.15
MAGNO_VALLE	8	TR30	65.51	18.79	21.25	23.84	23.92	2.59	2.67	0.51	2.19	6.15
MAGNO_VALLE	7	TR200	112.39	18.45	23.56	23.14	25.11	-0.42	1.55	0.19	1.10	21.44
MAGNO_VALLE	7	TR30	65.51	18.45	21.29	23.14	25.11	1.86	3.83	0.43	1.84	21.44
MAGNO_VALLE	6	TR200	112.39	18.20	23.53	27.51	24.86	3.99	1.34	0.22	1.29	34.96
MAGNO_VALLE	6	TR30	65.51	18.20	21.25	27.51	24.86	6.26	3.61	0.43	1.83	34.96
MAGNO_VALLE	5	TR200	112.39	18.22	23.53	26.98	25.99	3.46	2.46	0.20	1.16	21.06
MAGNO_VALLE	5	TR30	65.51	18.22	21.24	26.98	25.99	5.74	4.75	0.37	1.58	21.06
MAGNO_VALLE	4	TR200	112.39	18.04	23.50	23.50	22.75	0.01	-0.75	0.25	1.33	4.50
MAGNO_VALLE	4	TR30	65.51	18.04	21.15	23.50	22.75	2.36	1.60	0.41	1.91	4.50
MAGNO_VALLE	3.5 BR U	TR200	112.39	18.04	23.50	18.56	18.51	-4.94	-4.98	0.41	2.79	4.00
MAGNO_VALLE	3.5 BR U	TR30	65.51	18.04	20.25	18.56	18.51	-1.69	-1.74	0.95	4.41	4.00
MAGNO_VALLE	3.5 BR D	TR200	112.39	17.23	23.33	17.78	17.78	-5.55	-5.56	0.35	2.64	4.26
MAGNO_VALLE	3.5 BR D	TR30	65.51	17.23	18.82	17.78	17.78	-1.04	-1.04	1.67	6.60	4.26
MAGNO_VALLE	3	TR200	112.39	17.23	21.21	23.17	21.57	1.95	0.36	0.40	2.12	41.31
MAGNO_VALLE	3	TR30	65.51	17.23	20.24	23.17	21.57	2.93	1.33	0.40	1.83	41.31

HEC-RAS Plan: 19005_1D_BRIDGE River: MAGNO_VALLE Reach: MAGNO_VALLE (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	ROB Elev (m)	L. Freeboard (m)	R. Freeboard (m)	Froude # Chl	Vel Chnl (m/s)	Length Chnl (m)
MAGNO_VALLE	2	TR200	112.39	17.35	20.17	21.80	20.64	1.63	0.47	1.00	4.60	48.84
MAGNO_VALLE	2	TR30	65.51	17.35	19.42	21.80	20.64	2.38	1.22	1.00	4.00	48.84
MAGNO_VALLE	1	TR200	112.39	16.91	19.15	21.18	19.58	2.04	0.43	1.33	5.42	
MAGNO_VALLE	1	TR30	65.51	16.91	18.63	21.18	19.58	2.56	0.95	1.26	4.49	

HEC-RAS Plan: 19005_1D_BRIDGE River: SMART Reach: SMART

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	ROB Elev (m)	L. Freeboard (m)	R. Freeboard (m)	Froude # Chl	Vel Chnl (m/s)	Length Chnl (m)
SMART	119	TR200	6.44	44.86	46.02	47.21	46.92	1.19	0.90	1.43	3.58	13.91
SMART	119	TR30	3.43	44.86	45.76	47.21	46.92	1.45	1.17	1.39	3.06	13.91
SMART	118	TR200	6.44	44.64	45.58	46.73	46.45	1.16	0.87	1.53	3.61	27.45
SMART	118	TR30	3.43	44.64	45.36	46.73	46.45	1.38	1.10	1.43	2.99	27.45
SMART	117	TR200	6.44	43.09	44.19	44.75	45.09	0.56	0.90	1.78	4.31	5.01
SMART	117	TR30	3.43	43.09	43.92	44.75	45.09	0.83	1.17	1.83	3.88	5.01
SMART	116	TR200	6.44	42.67	43.88	43.79	44.37	-0.08	0.49	1.54	4.43	8.46
SMART	116	TR30	3.43	42.67	43.47	43.79	44.37	0.33	0.90	1.74	4.18	8.46
SMART	115	TR200	6.44	42.15	44.18	43.39	44.33	-0.78	0.16	0.65	2.56	18.75
SMART	115	TR30	3.43	42.15	43.06	43.39	44.33	0.34	1.28	1.46	3.85	18.75
SMART	114	TR200	6.44	41.38	44.23	42.97	45.39	-1.26	1.16	0.27	1.40	92.96
SMART	114	TR30	3.43	41.38	43.41	42.97	45.39	-0.43	1.99	0.25	1.07	92.96
SMART	113.5		Culvert									
SMART	113	TR200	6.44	36.54	37.78	37.89	38.07	0.10	0.28	1.00	2.92	15.67
SMART	113	TR30	3.43	36.54	37.47	37.89	38.07	0.42	0.60	0.93	2.36	15.67
SMART	112	TR200	6.44	36.10	37.44	37.32	37.42	-0.12	-0.02	1.27	2.95	21.86
SMART	112	TR30	3.43	36.10	37.15	37.32	37.42	0.17	0.27	1.00	2.55	21.86
SMART	111	TR200	6.44	35.57	36.85	36.75	36.85	-0.10	0.00	1.35	2.73	15.12
SMART	111	TR30	3.43	35.57	36.50	36.75	36.85	0.25	0.35	1.25	2.99	15.12
SMART	110	TR200	6.44	35.24	37.01	36.52	36.34	-0.50	-0.67	0.42	1.17	12.19
SMART	110	TR30	3.43	35.24	36.72	36.52	36.34	-0.20	-0.37	0.46	1.01	12.19
SMART	109.5		Culvert									
SMART	109	TR200	6.44	35.02	36.20	36.04	35.79	-0.17	-0.42	1.00	3.05	12.54

HEC-RAS Plan: 19005_1D_BRIDGE River: SMART Reach: SMART (Continued)

Reach	River Sta	Profile	Q Total (m3/s)	Min Ch El (m)	W.S. Elev (m)	LOB Elev (m)	ROB Elev (m)	L. Freeboard (m)	R. Freeboard (m)	Froude # Chl	Vel Chnl (m/s)	Length Chnl (m)
SMART	109	TR30	3.43	35.02	35.86	36.04	35.79	0.18	-0.07	1.00	2.54	12.54
SMART	108	TR200	6.44	34.67	35.58	35.58	35.70	0.00	0.12	1.68	3.83	13.06
SMART	108	TR30	3.43	34.67	35.37	35.58	35.70	0.20	0.33	1.53	3.12	13.06
SMART	107	TR200	6.44	34.31	36.06	35.19	35.42	-0.87	-0.64	0.42	1.59	11.17
SMART	107	TR30	3.43	34.31	35.58	35.19	35.42	-0.39	-0.15	0.42	1.27	11.17
SMART	106	TR200	6.44	34.06	36.08	34.93	35.55	-1.14	-0.52	0.31	1.19	7.79
SMART	106	TR30	3.43	34.06	35.58	34.93	35.55	-0.65	-0.03	0.29	0.93	7.79
SMART	105	TR200	6.44	33.92	36.05	34.71	35.40	-1.34	-0.65	0.31	1.25	45.32
SMART	105	TR30	3.43	33.92	35.57	34.71	35.40	-0.87	-0.17	0.28	0.94	45.32
SMART	104.5		Culvert									
SMART	104	TR200	6.44	32.74	34.15	33.47	33.43	-0.68	-0.72	1.00	3.33	19.86
SMART	104	TR30	3.43	32.74	33.76	33.47	33.43	-0.29	-0.33	1.00	2.70	19.86
SMART	103	TR200	6.44	32.16	33.29	33.24	33.43	-0.05	0.14	1.93	3.69	25.32
SMART	103	TR30	3.43	32.16	33.03	33.24	33.43	0.20	0.40	1.43	3.30	25.32
SMART	102	TR200	6.44	31.74	33.09	33.15	32.82	0.05	-0.28	1.00	2.99	26.86
SMART	102	TR30	3.43	31.74	32.65	33.15	32.82	0.50	0.17	1.00	2.67	26.86
SMART	101	TR200	6.44	30.91	31.68	31.87	32.10	0.19	0.42	2.35	4.20	35.23
SMART	101	TR30	3.43	30.91	31.54	31.87	32.10	0.33	0.56	1.98	3.48	35.23

MODELLI IDRAULICI BIDIMENSIONALI

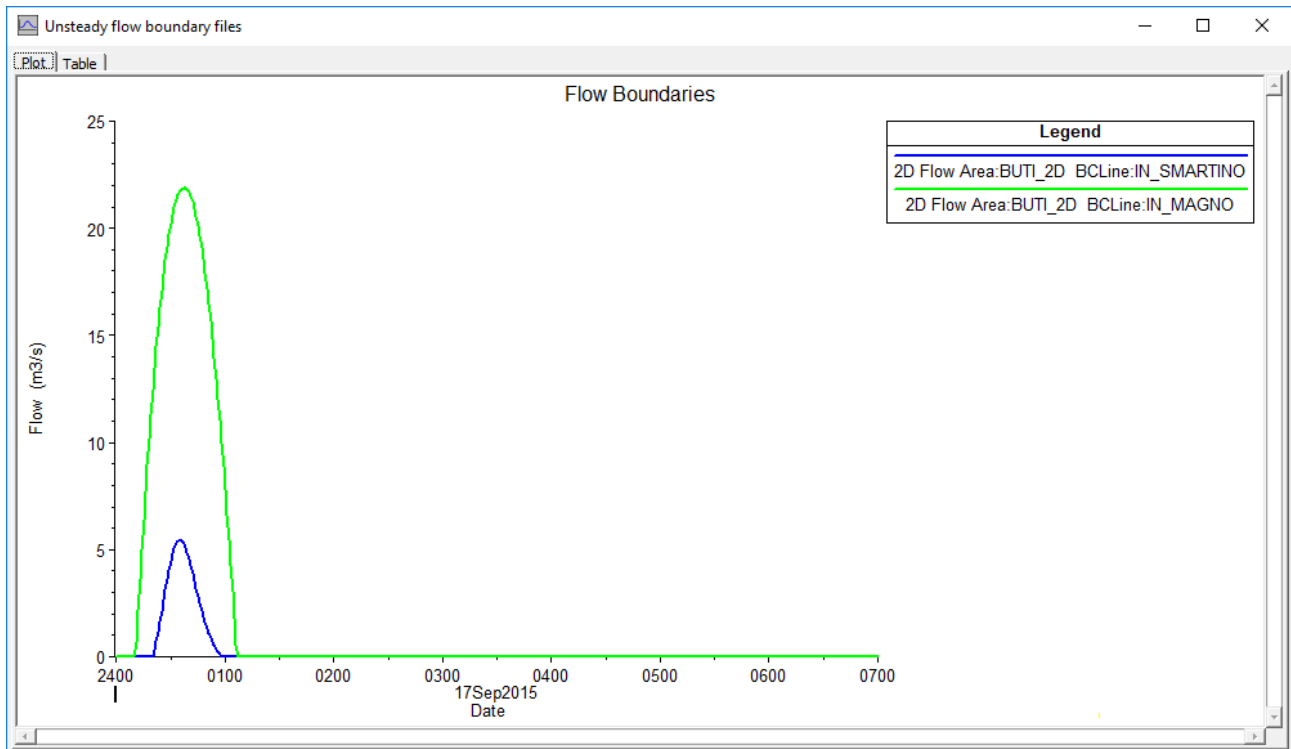
Si riportano gli output forniti dal codice di calcolo Hec-Ras 5.0.3 relativi alle esondazioni: si allegano:

- Gli idrogrammi di ingresso nel modello;
- La planimetria dello schema di modello;
- Alcune sezioni indicative per la dinamica di esondazione;

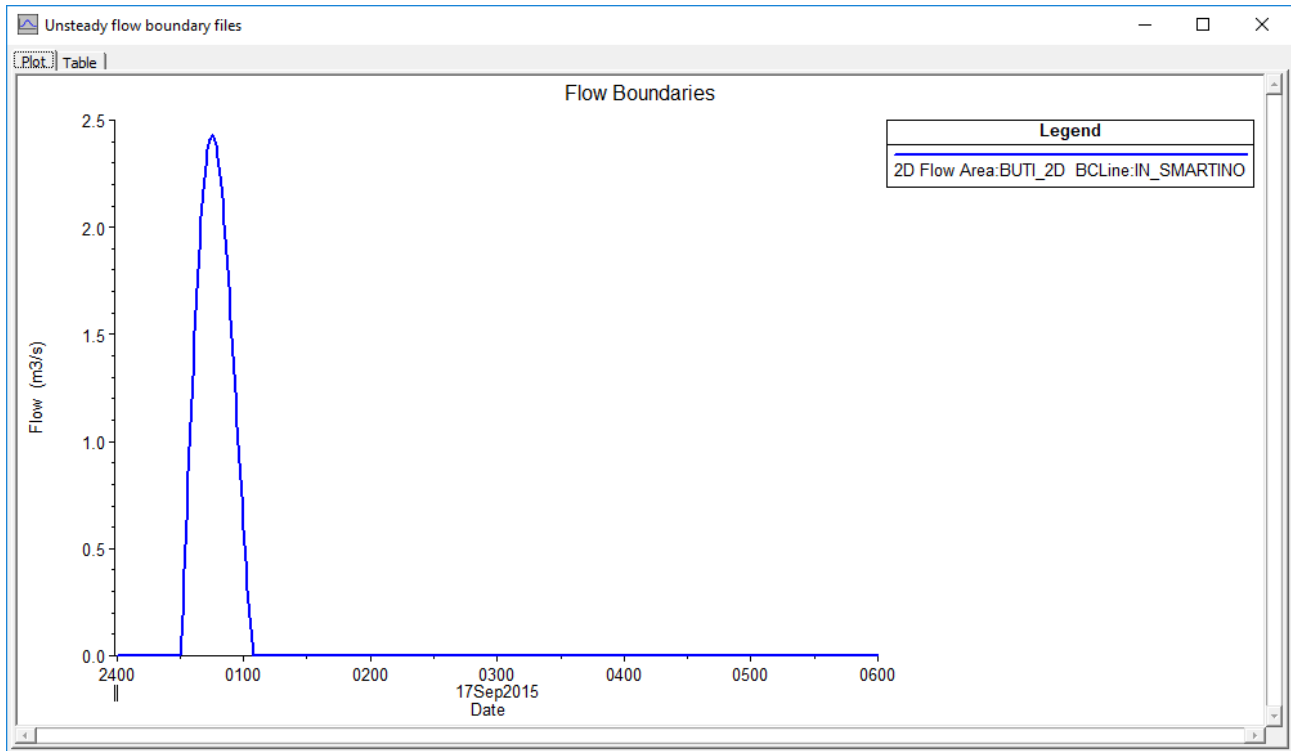
Si fa presente che i risultati in termini di massimo battente idraulico e di massima velocità del flusso di corrente sono riportati negli appositi elaborati grafici (TAV B e TAV C).

IDROGRAMMI IN ENTRATA NEL MODELLO BIDIMENSIONALE

Tempo di ritorno 200 anni

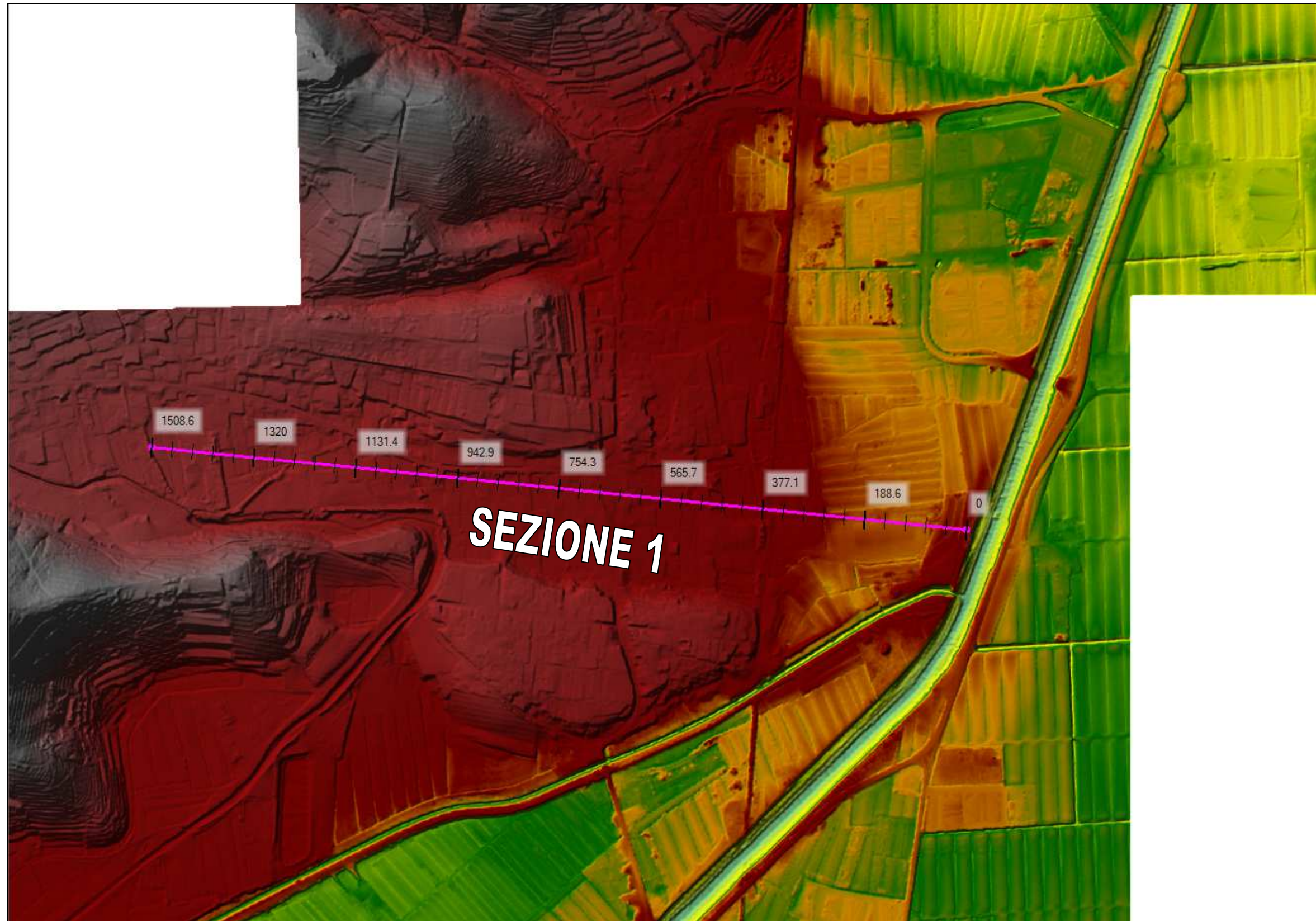


Tempo di ritorno 30 anni



SCHEMA DEL MODELLO DI CALCOLO





SEZIONE 01

RASMapper Plot

