REGIONE TOSCANA

AUTORITÀ DI BACINO INTERREGIONALE
DEL FIUME MAGRA

REGIONE LIGURIA

PROGETTAZIONE PRELIMINARE

DEGLI INTERVENTI PER LA MESSA IN SICUREZZA IDRAULICA DELL'ABITATO DI PONTREMOLI IN PROVINCIA DI MASSA CARRARA

ELABORATO:	DESCRIZIONE:	DATA:
A2	**VERIFICHE IDRAULICHE STATO DI PROGETTO**	02/2013

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C.F. FCRGNN67E03D612U - P.IVA 05395830481

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Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

- Fiume Magra
- Torrente Verde
- Torrente Gordana
- Canale dell’Ardoglia

Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

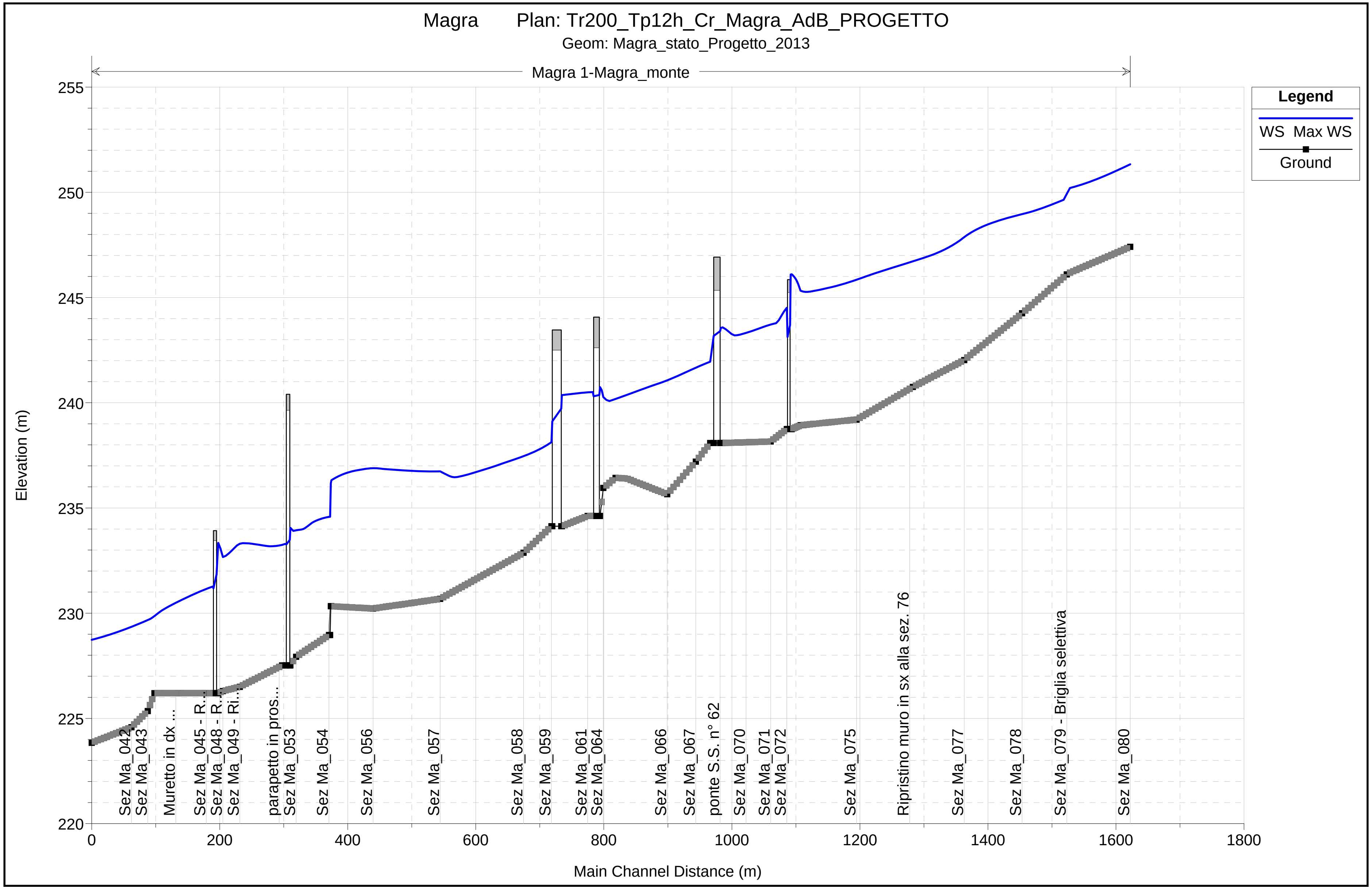
Scenario A - Evento critico sul fiume Magra

FIUME MAGRA - Soluzione progettuale 1

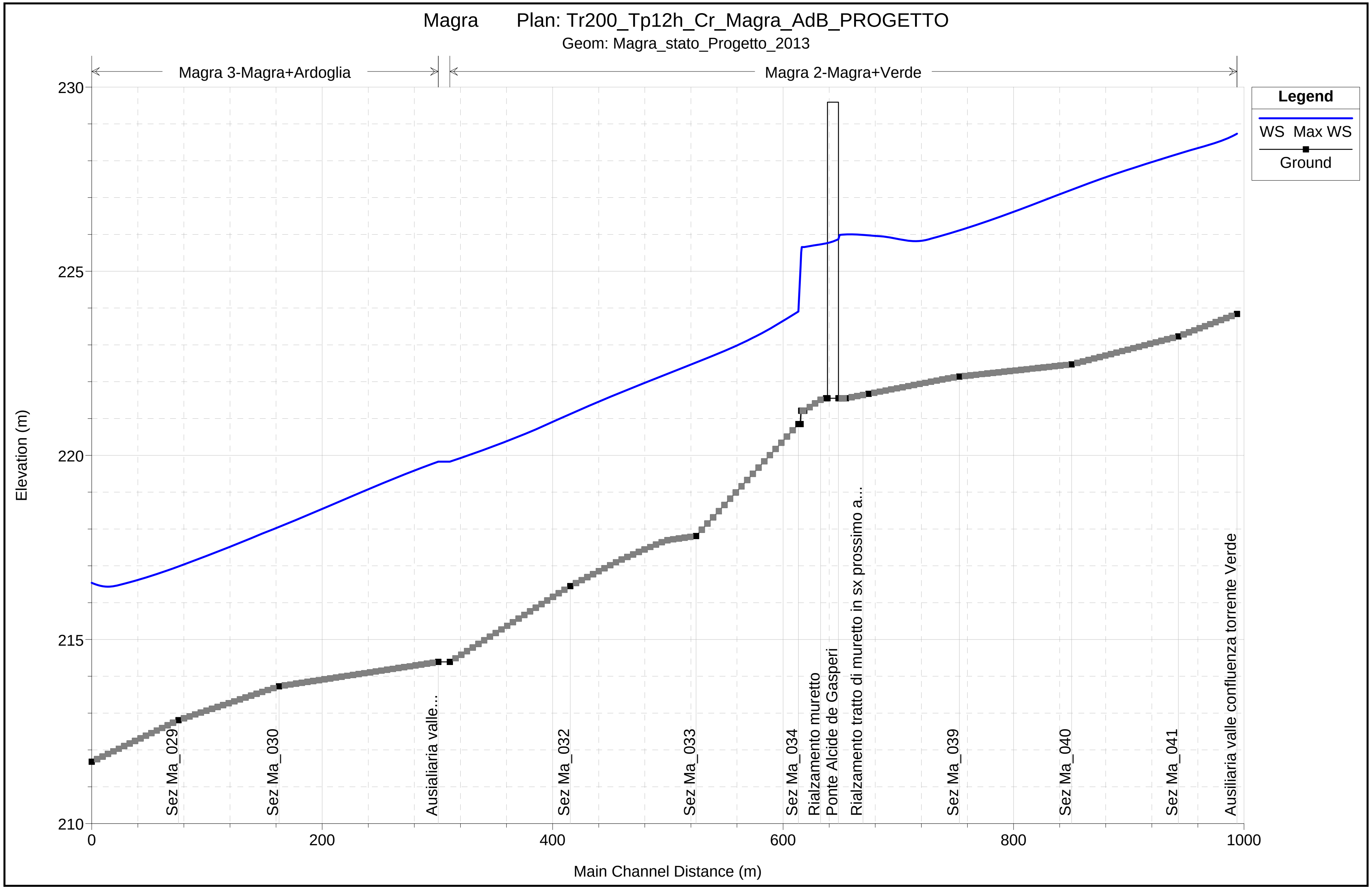
Tr = 200 anni

- Profili
- Sezioni
- Tabella di output

Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

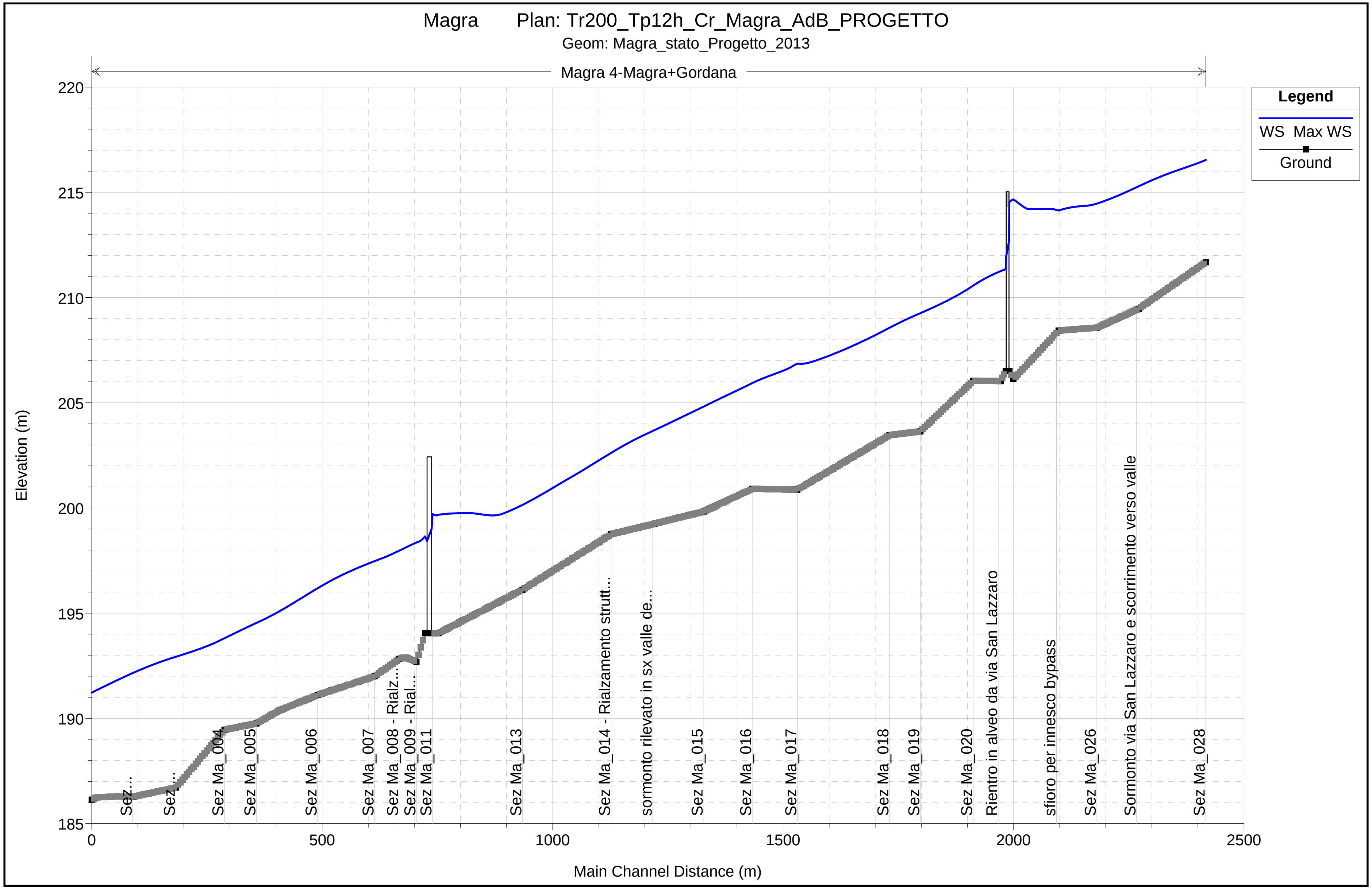


Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

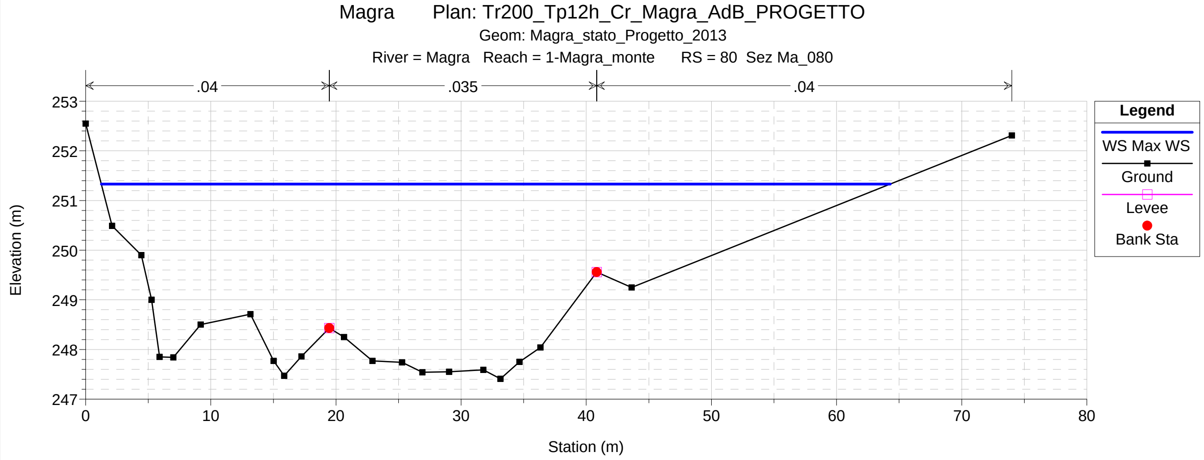


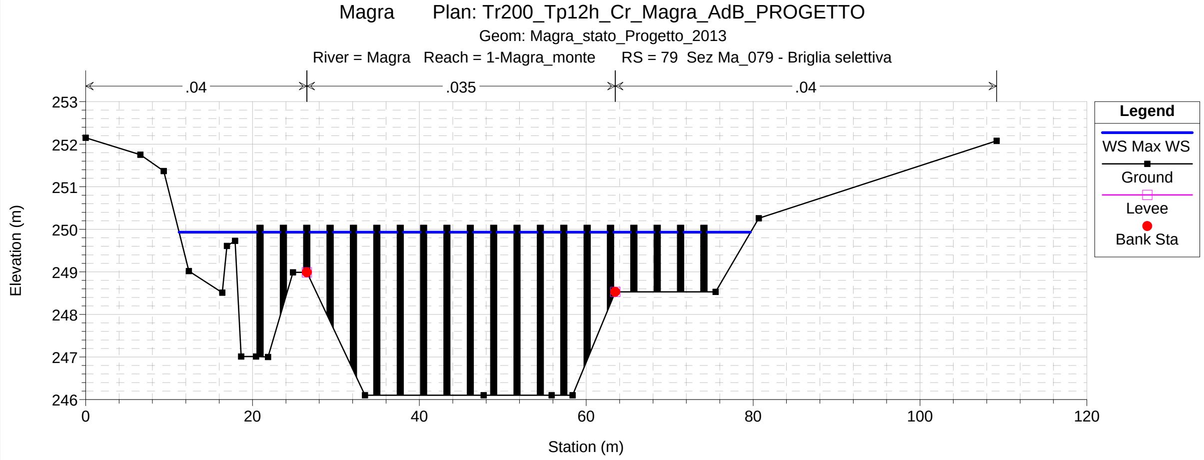
Profilo Magra+Verde+Ardoglia tratto Sez. Ma_041-Ma_029

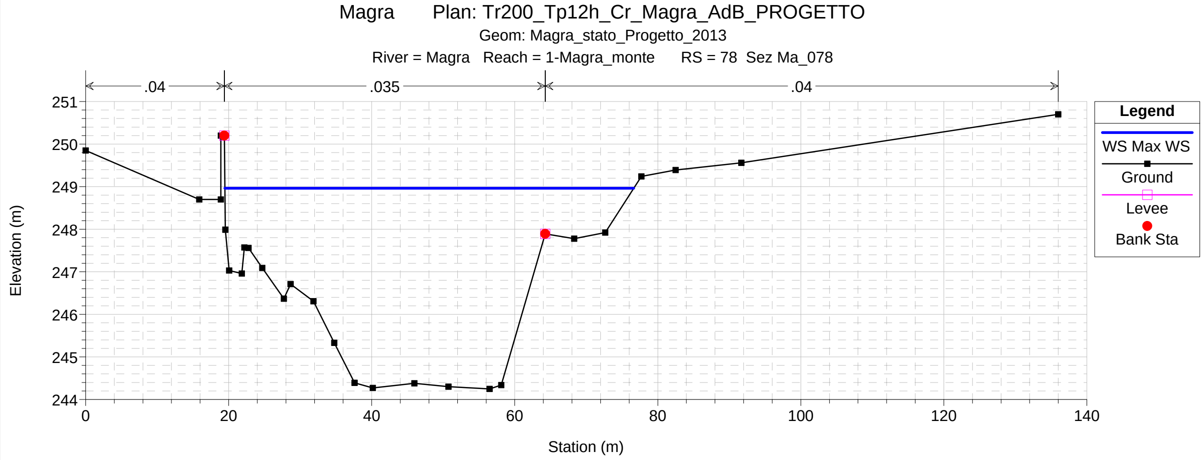
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

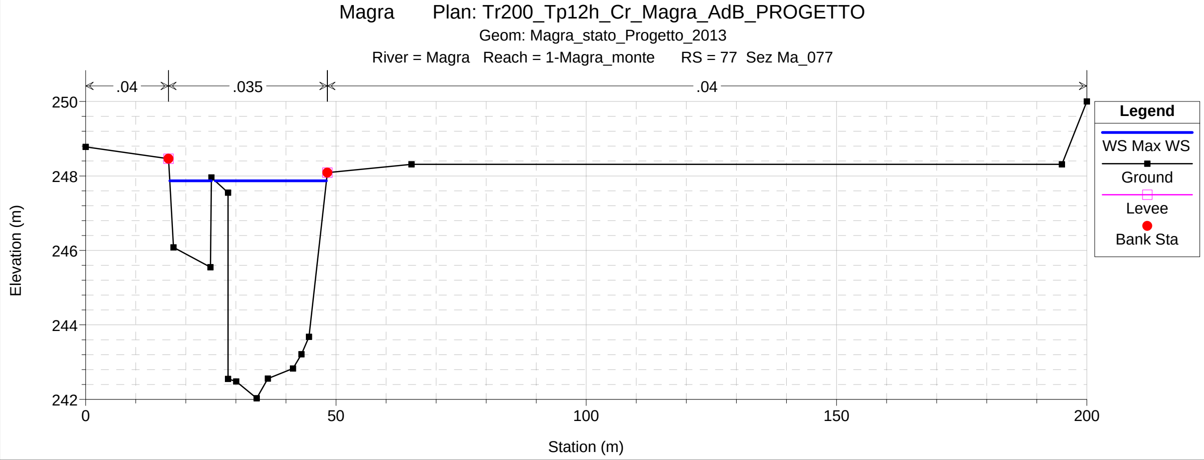


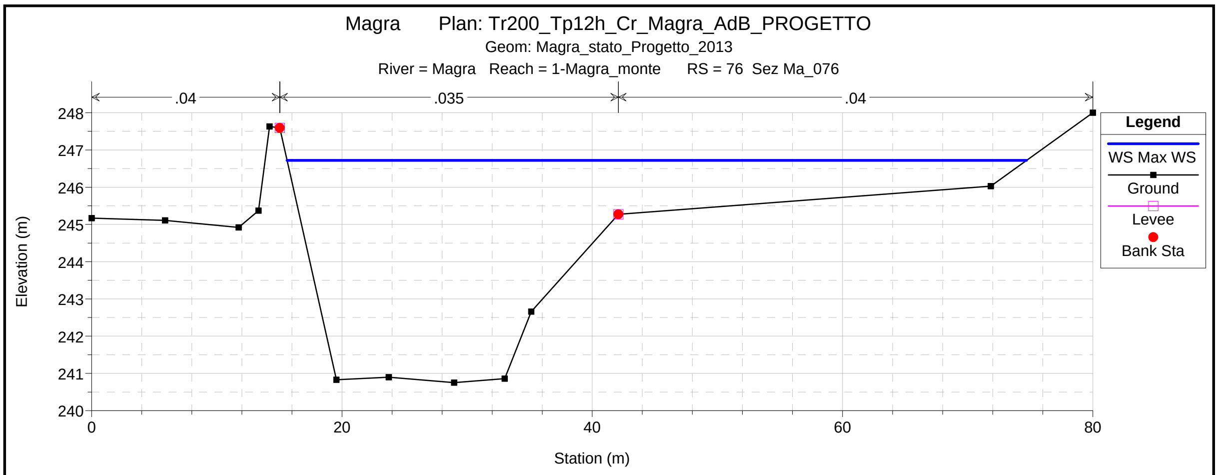
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-







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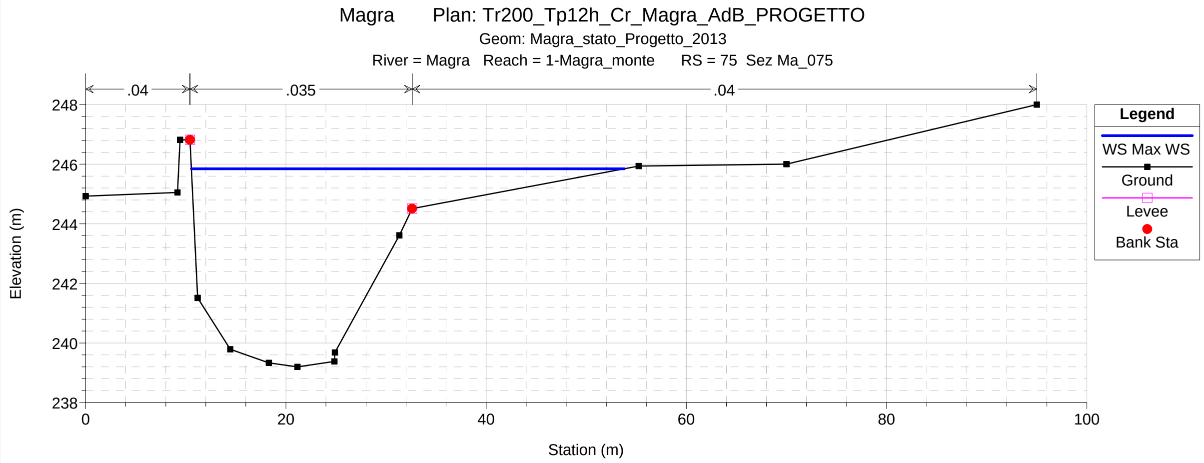
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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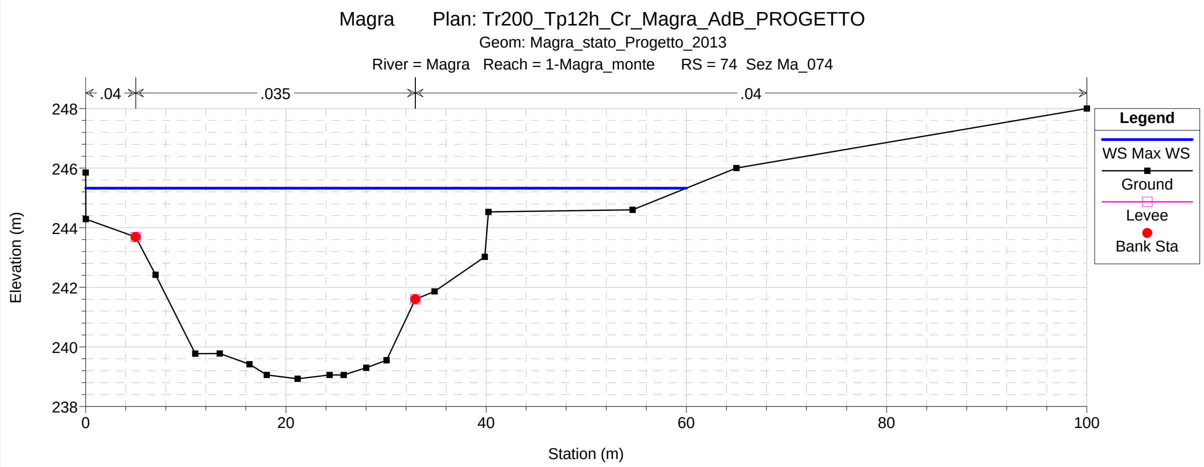
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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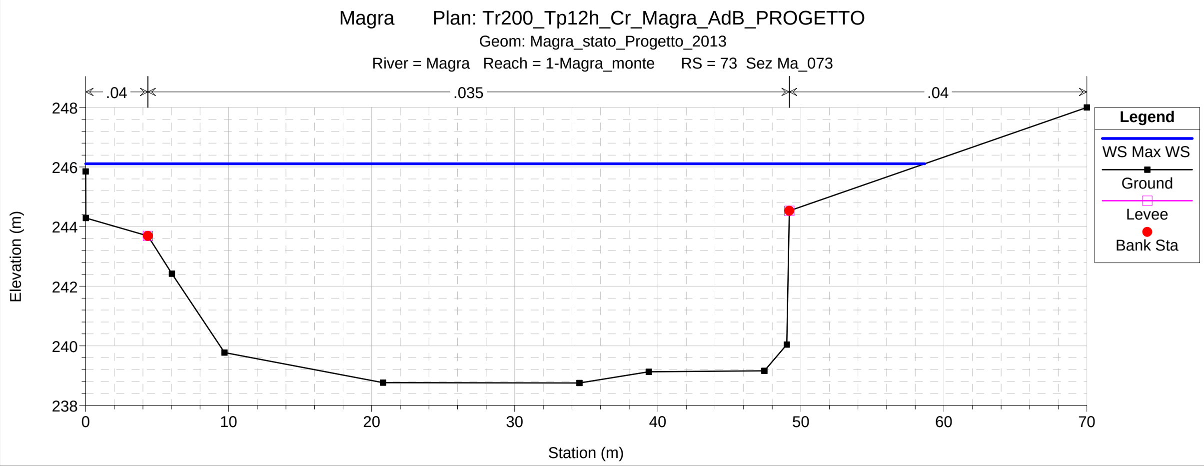
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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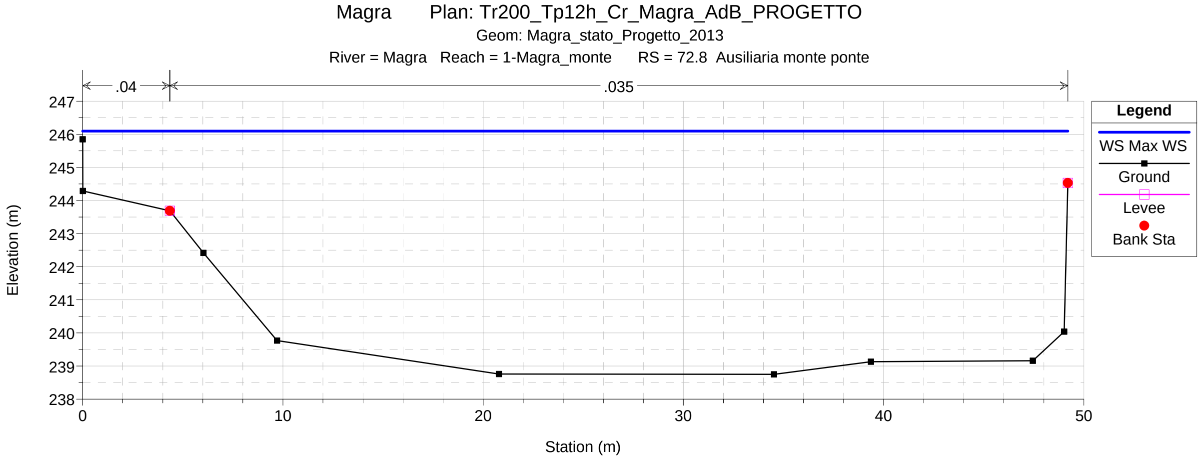
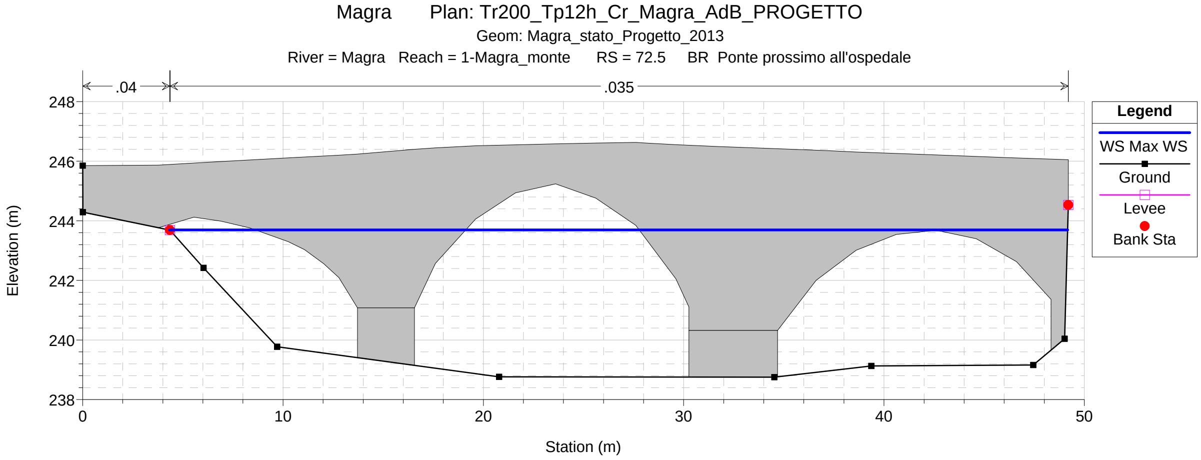
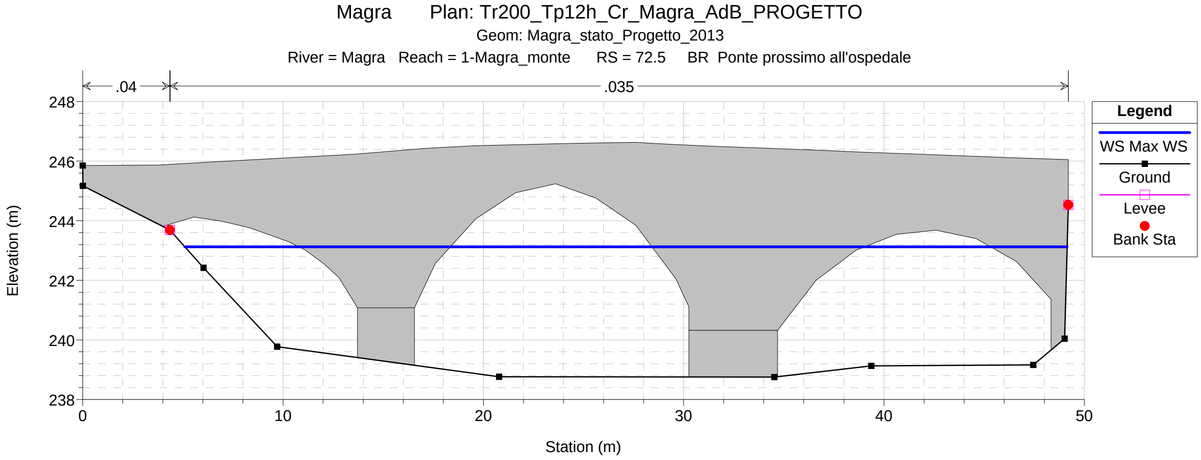
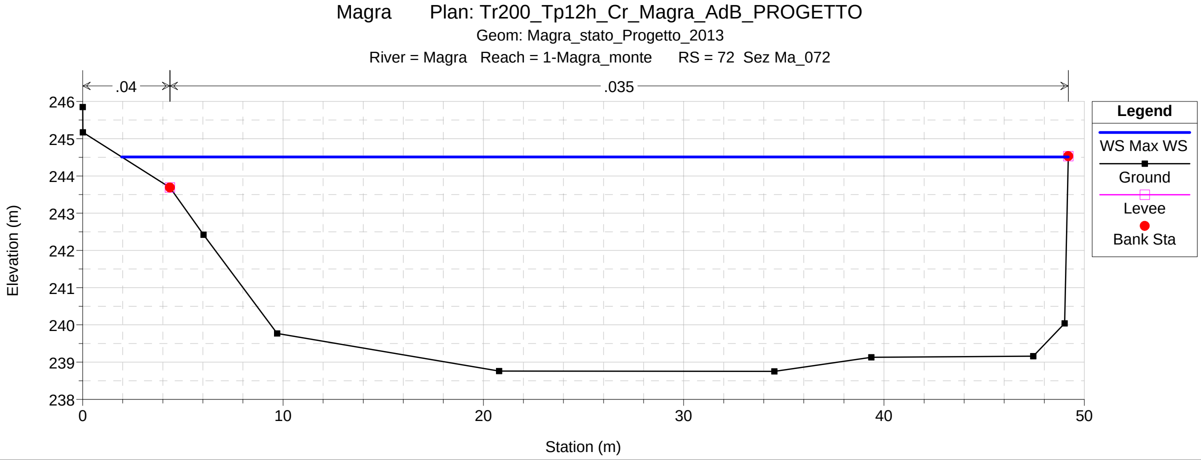
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

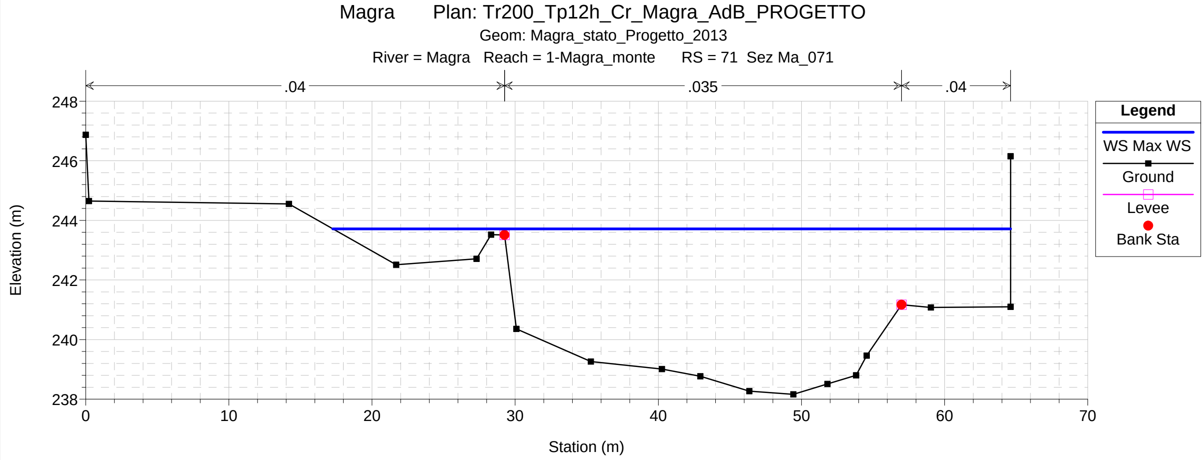
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-







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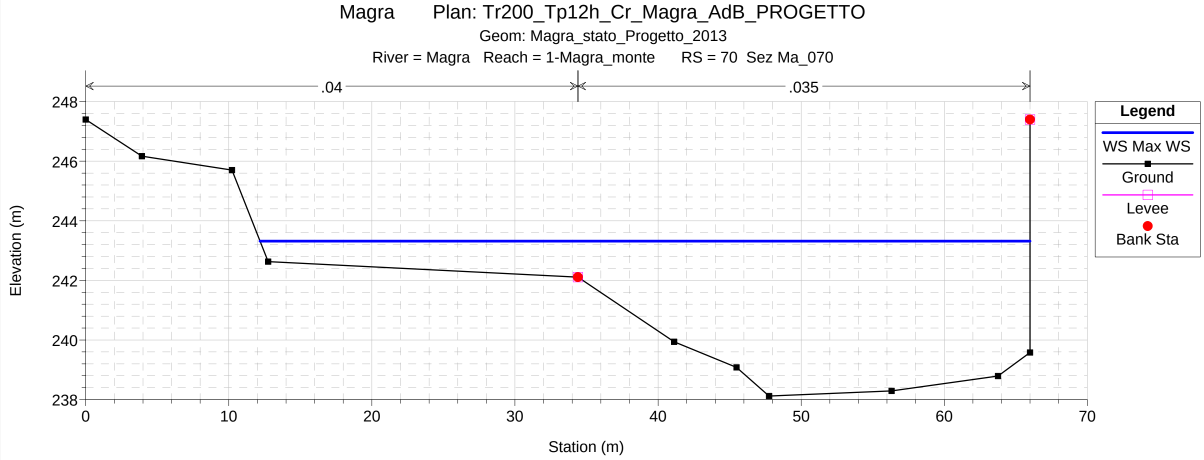
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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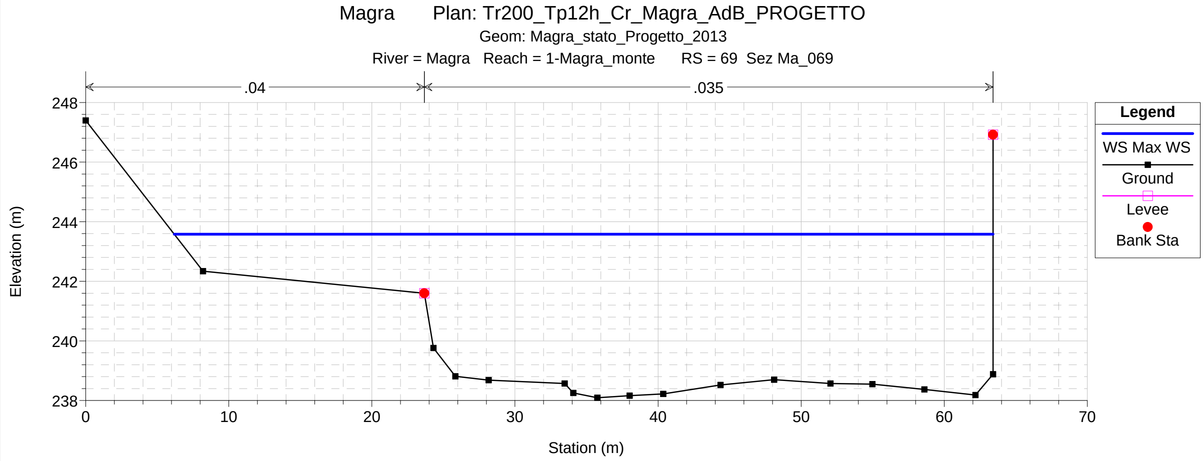
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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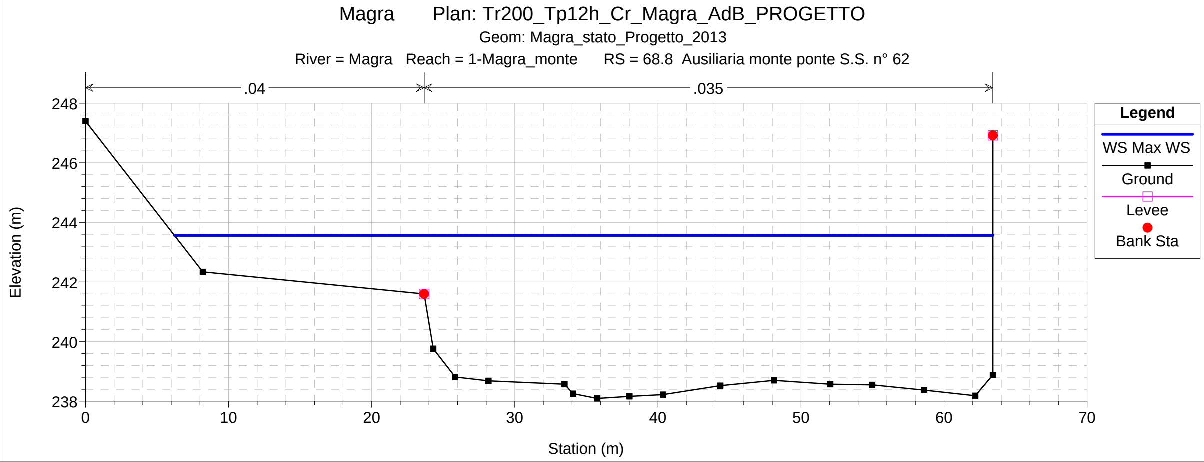
.04
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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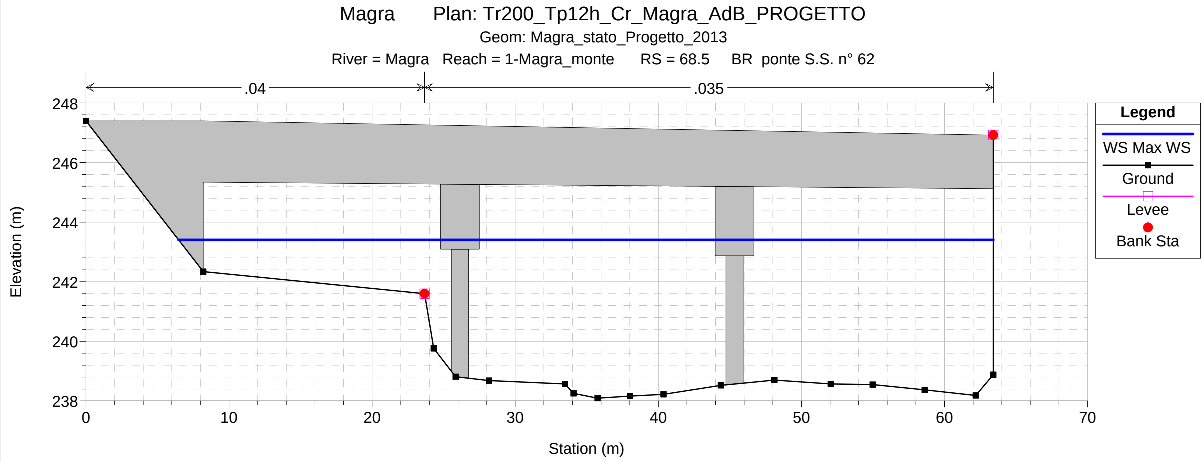
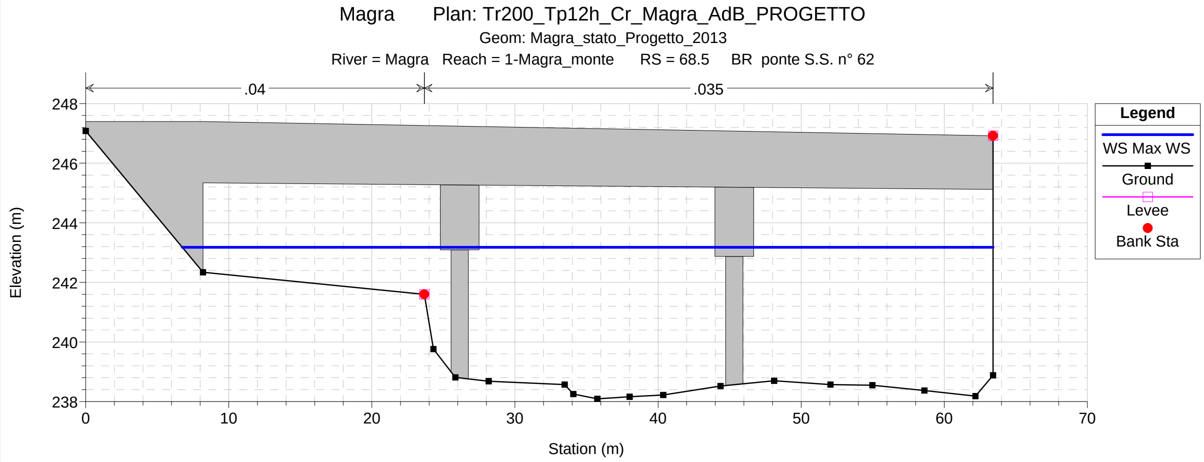
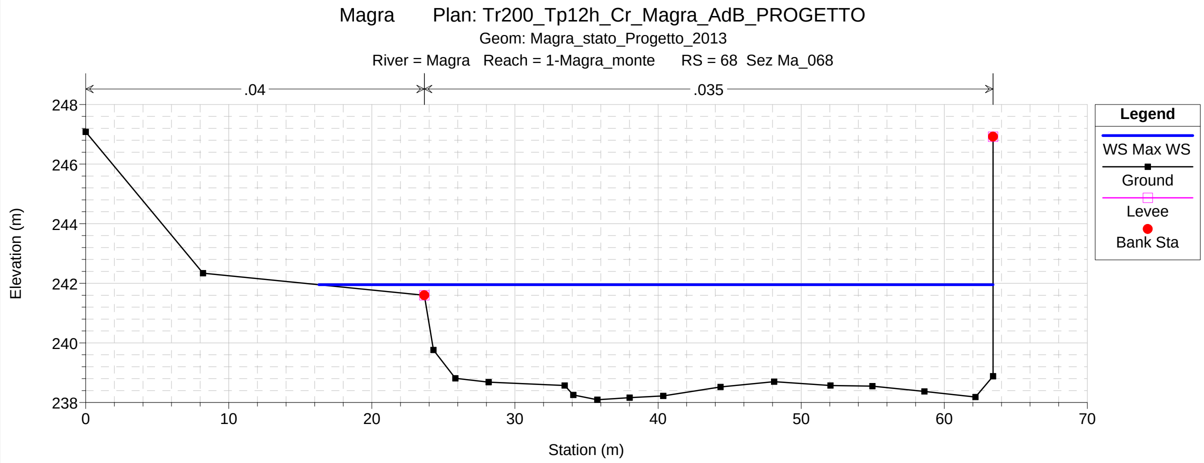
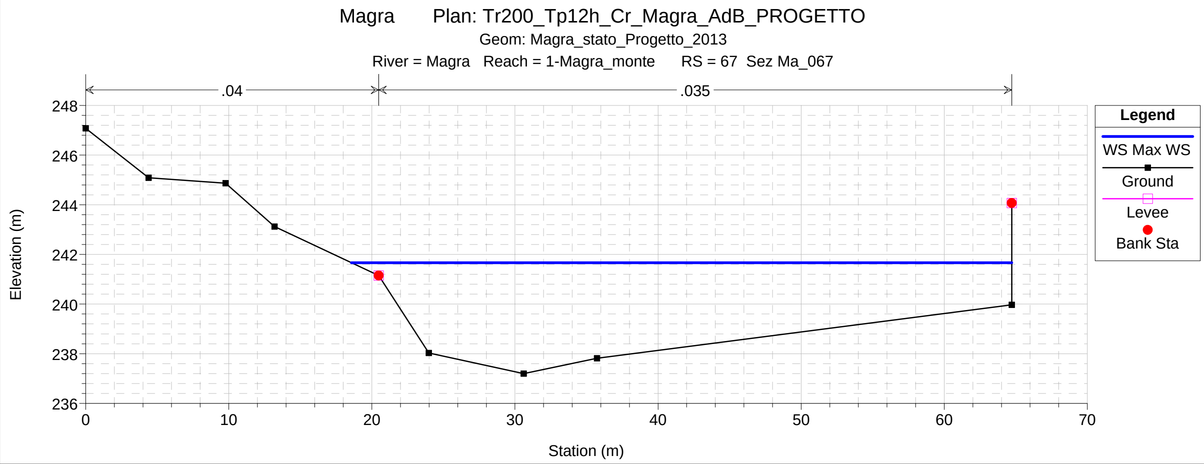
.04
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

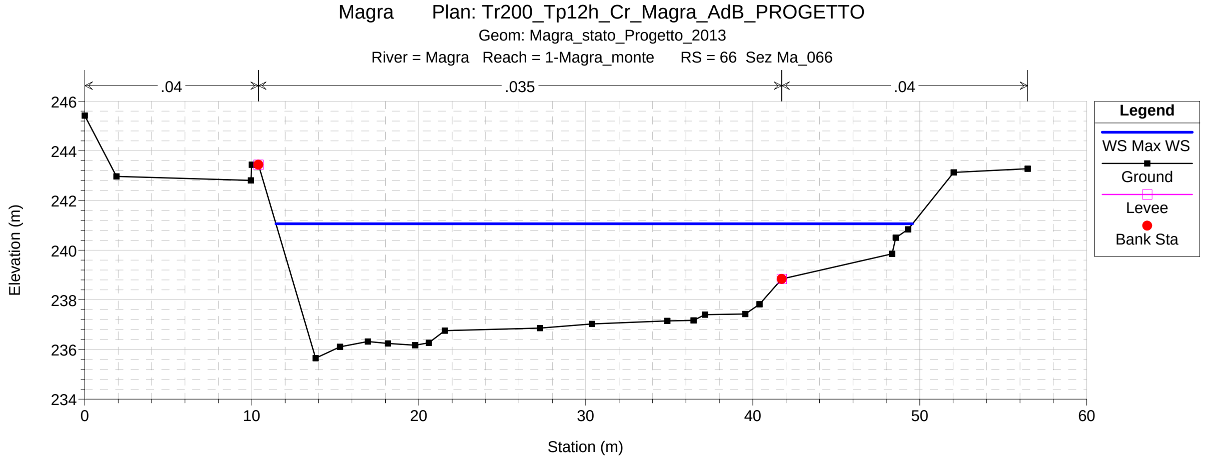
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-







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.035
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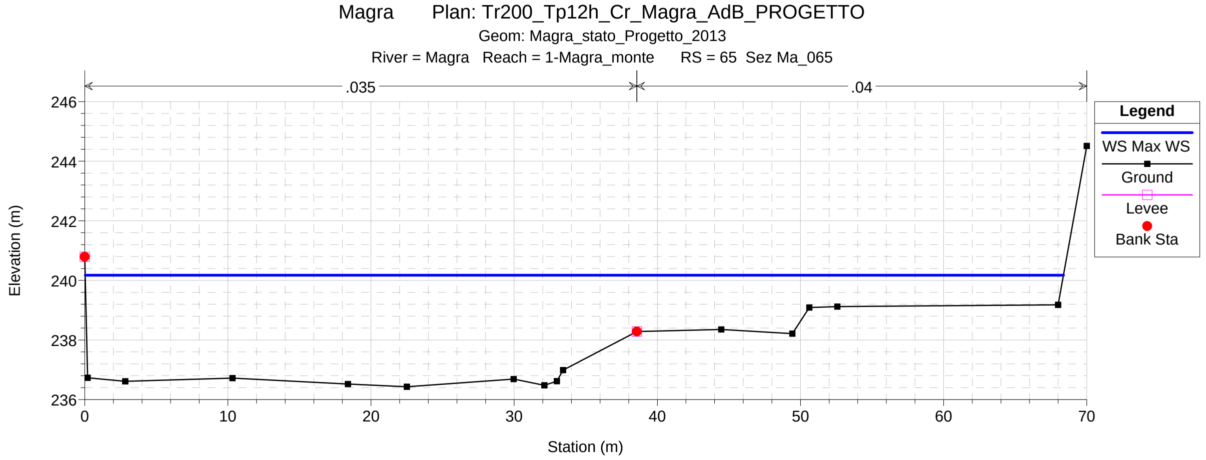
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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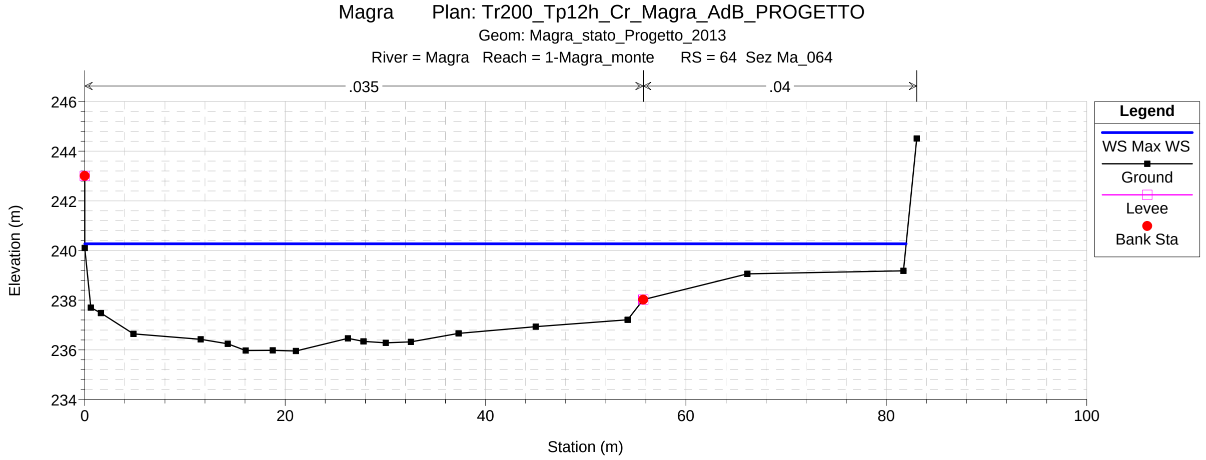
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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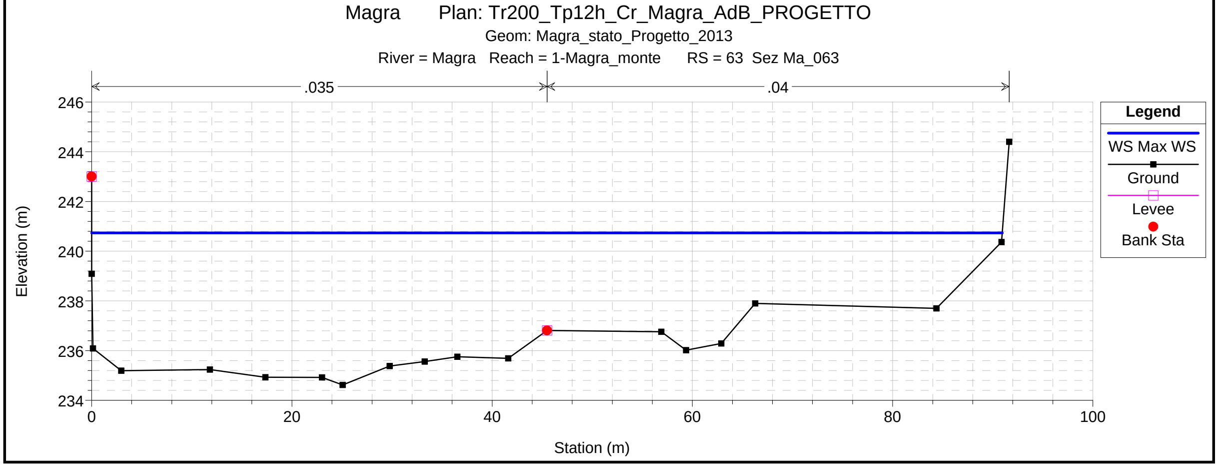
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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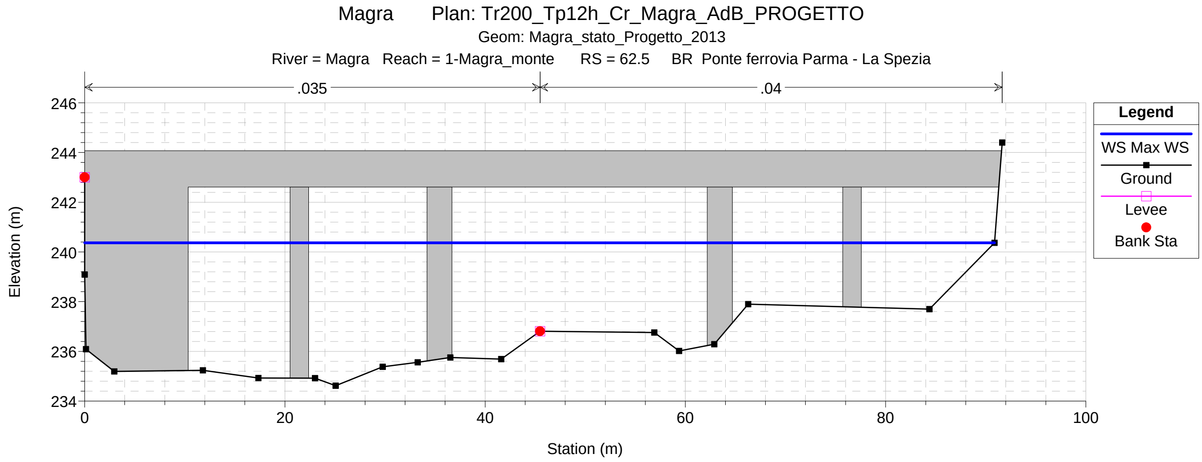
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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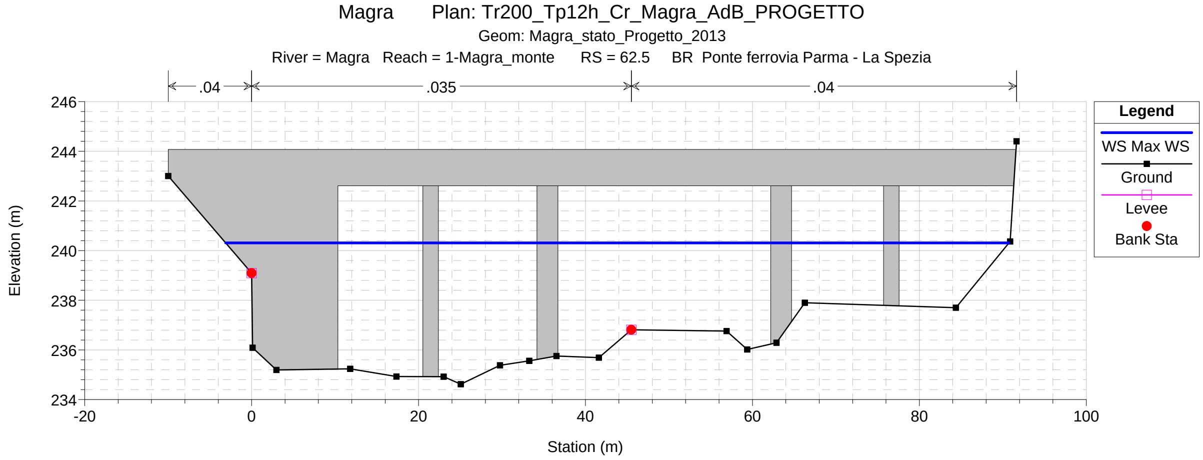
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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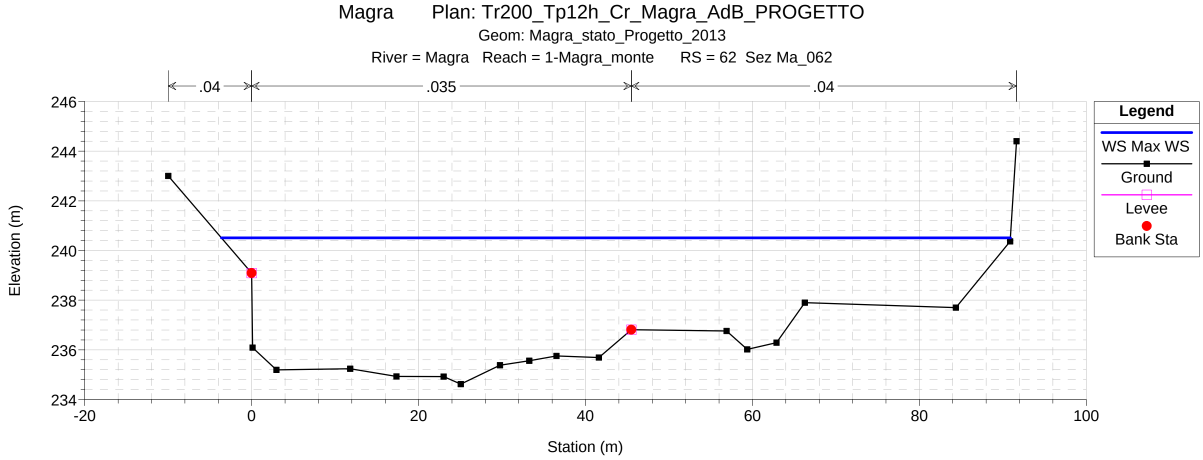
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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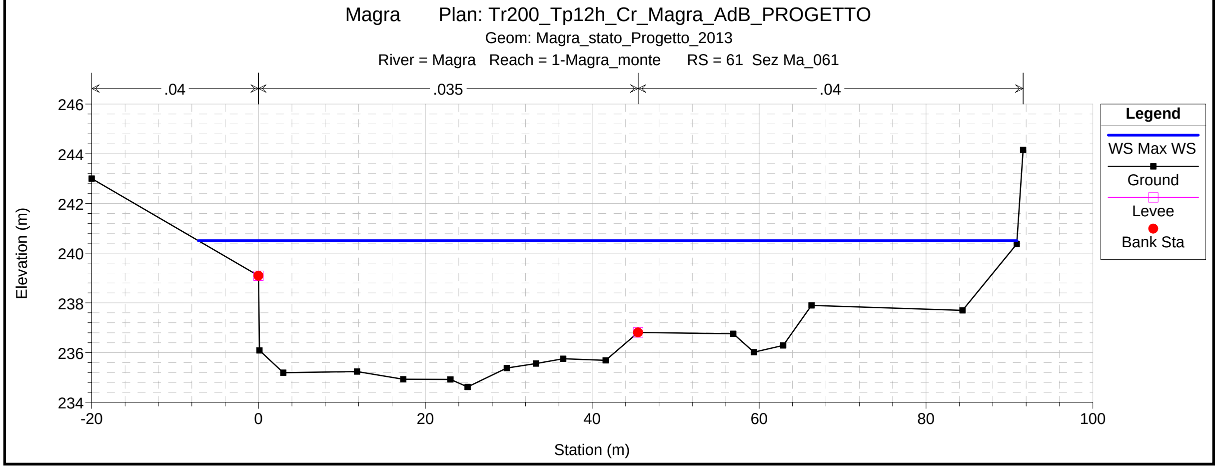
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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Ground
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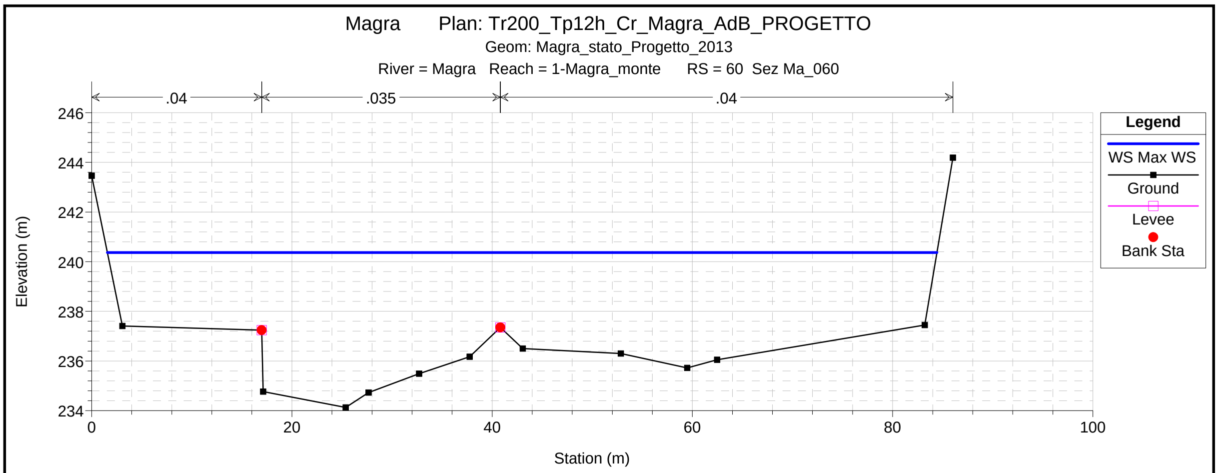
Bank Sta
Elevation (m)
Station (m)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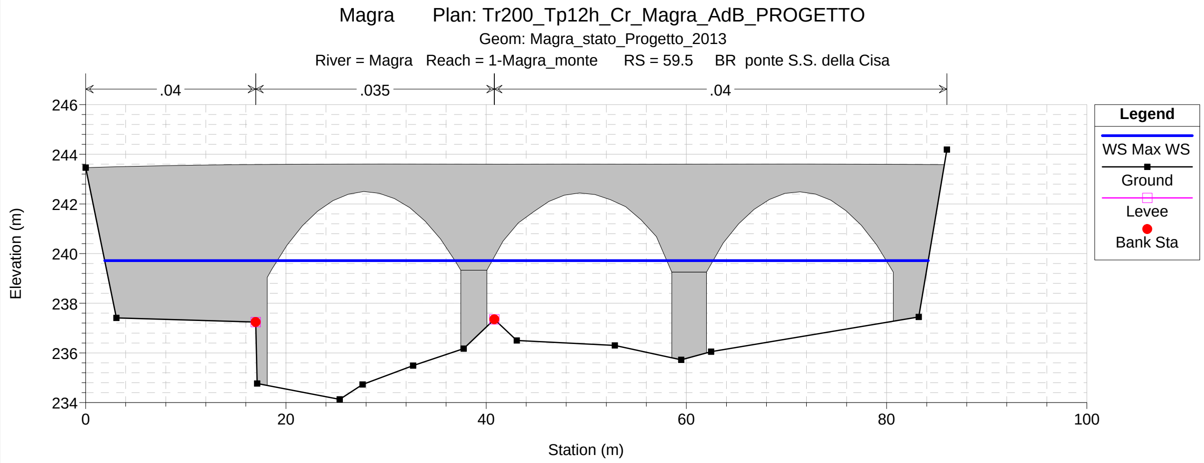
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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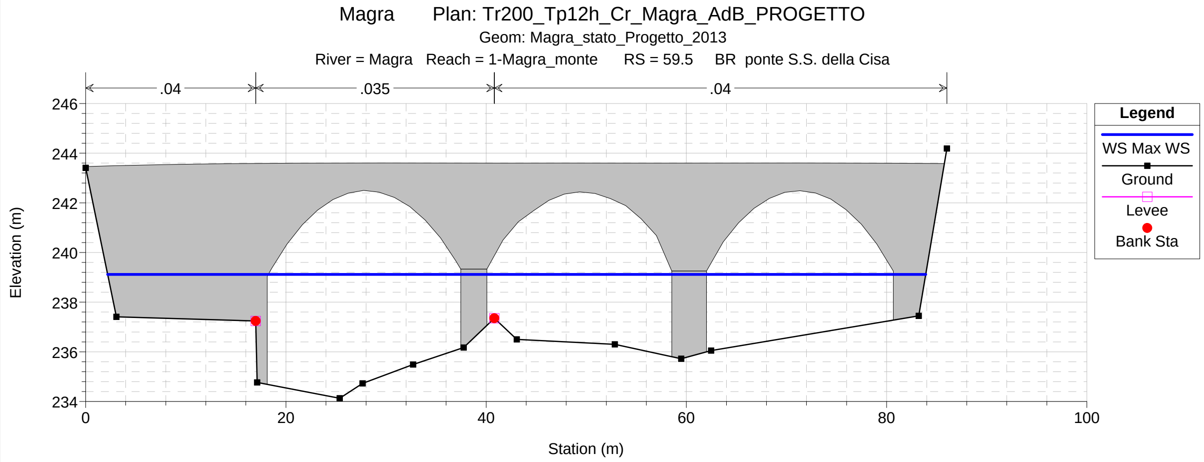
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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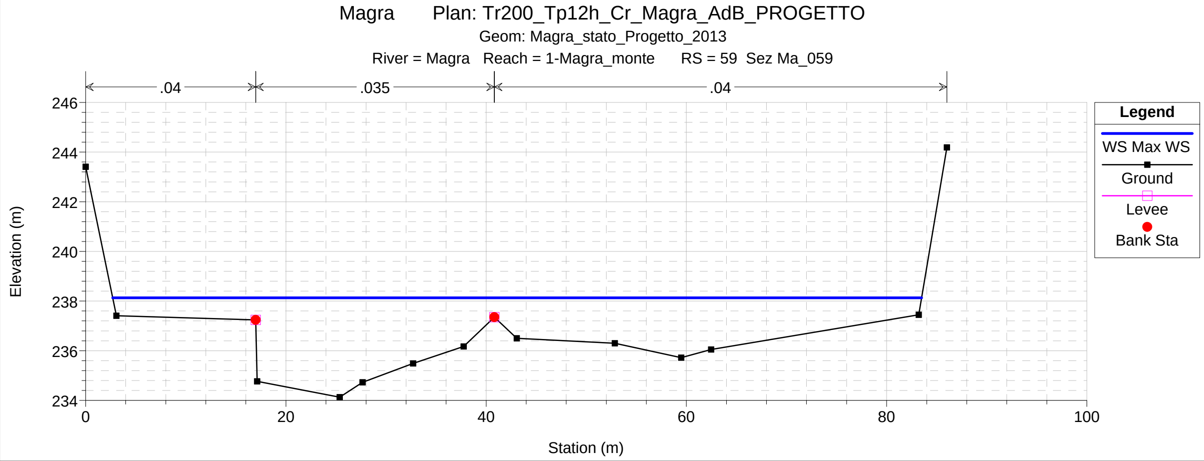
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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Elevation (m)
Station (m)
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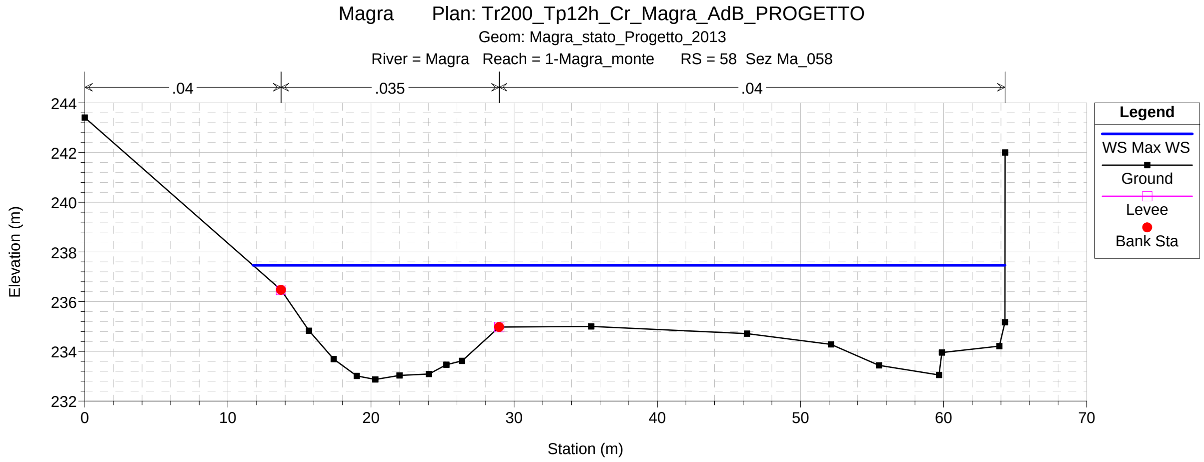
WS Max WS
Ground
Levee
Bank Sta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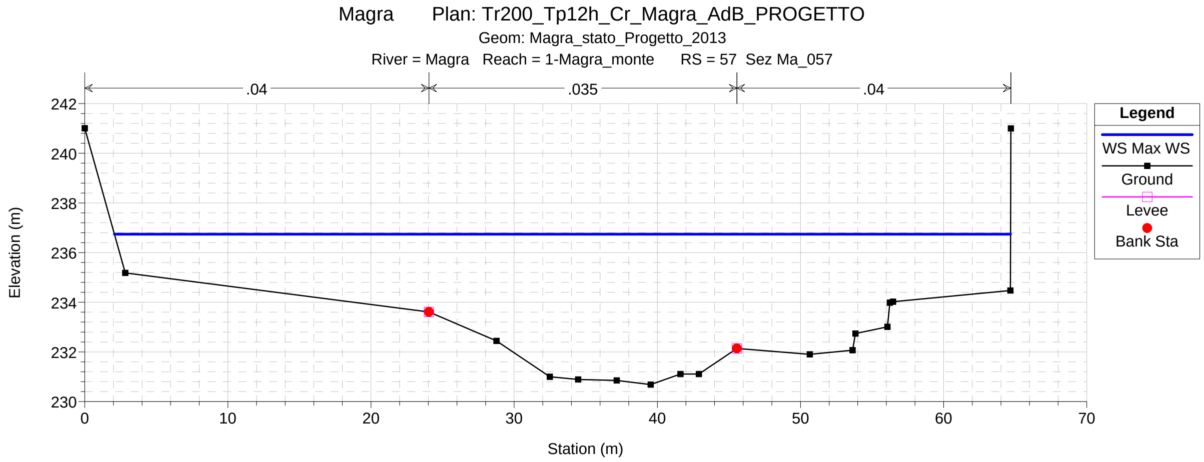
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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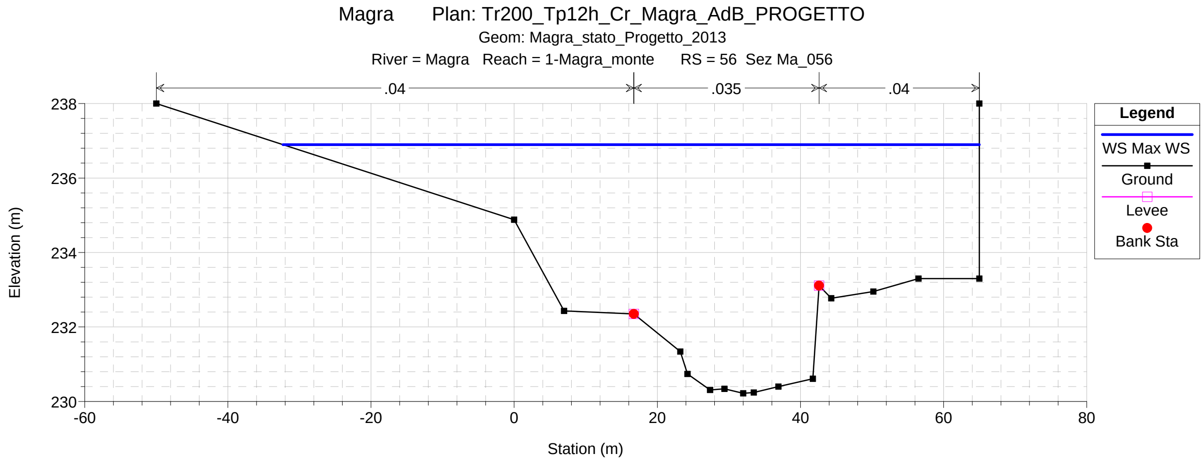
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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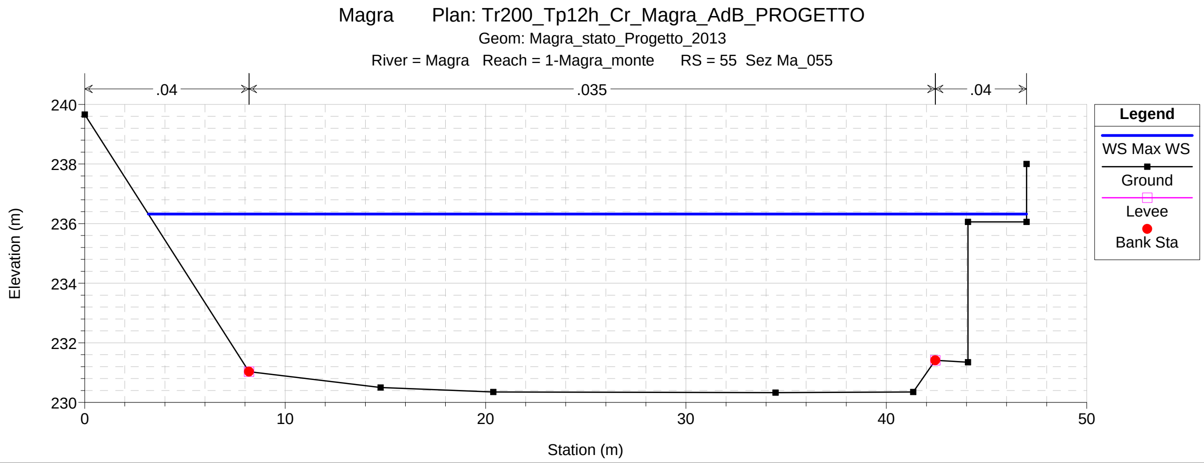
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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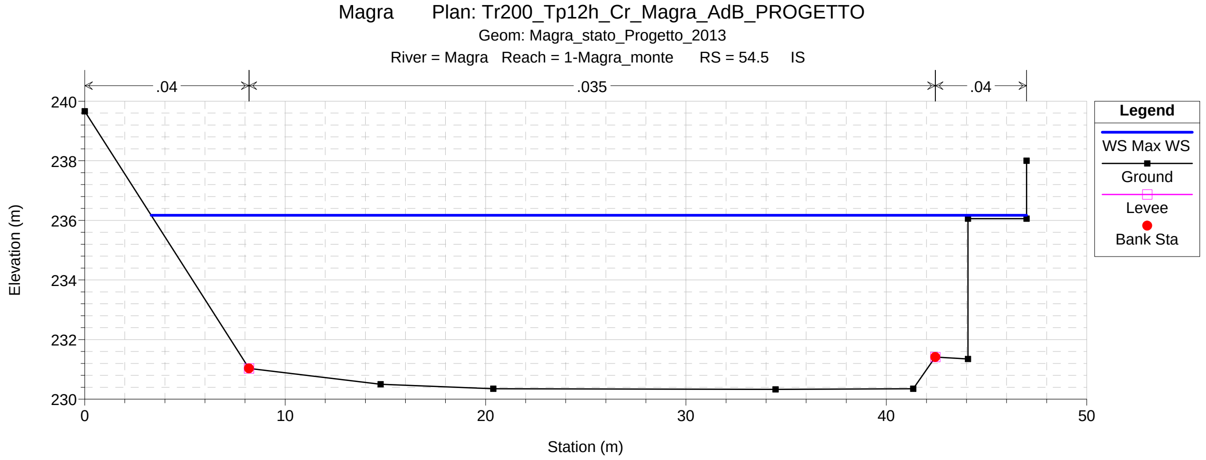
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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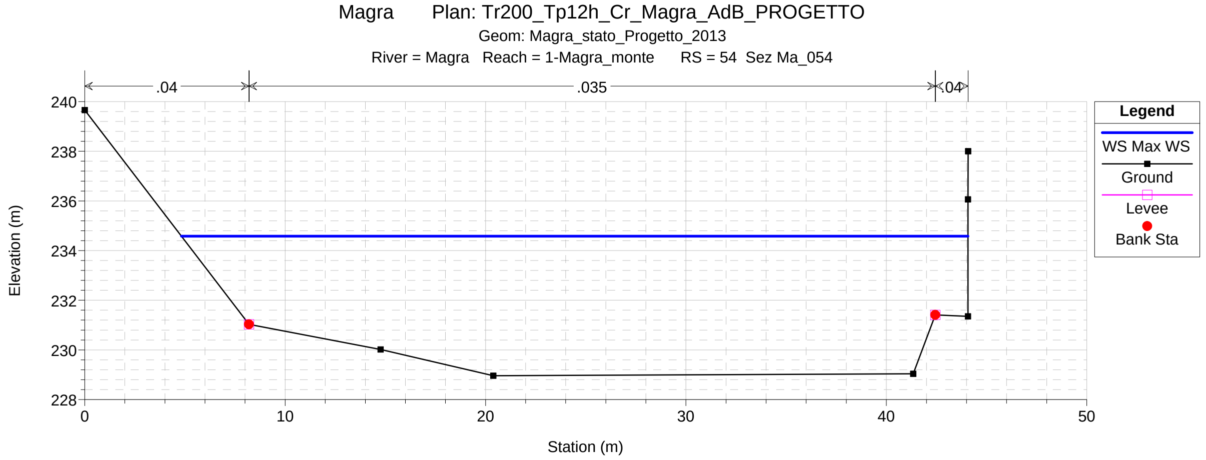
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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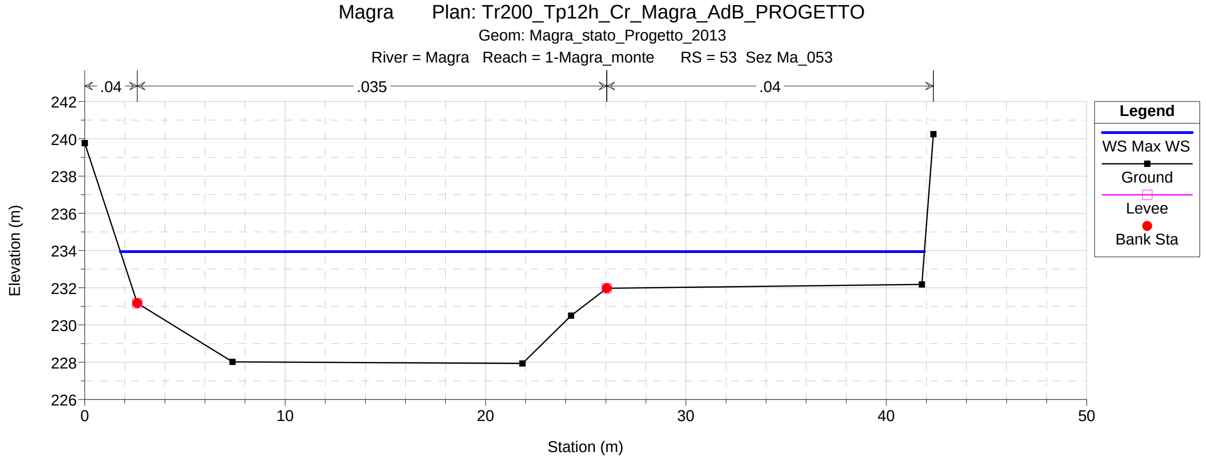
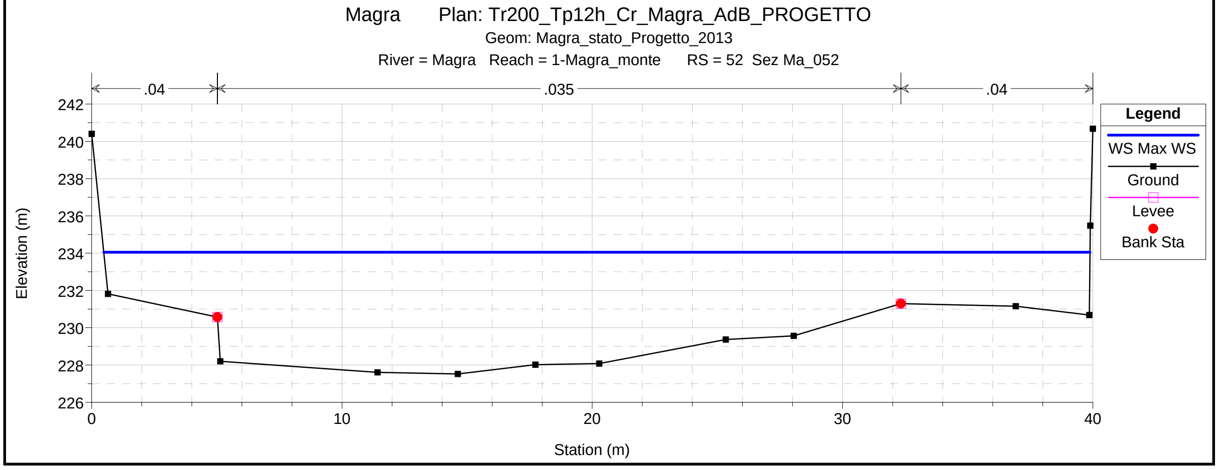
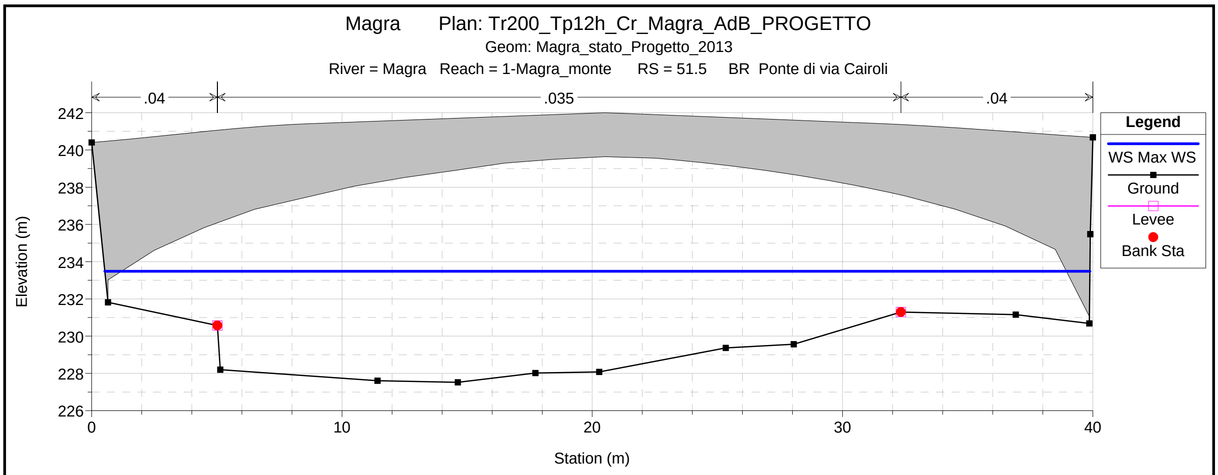
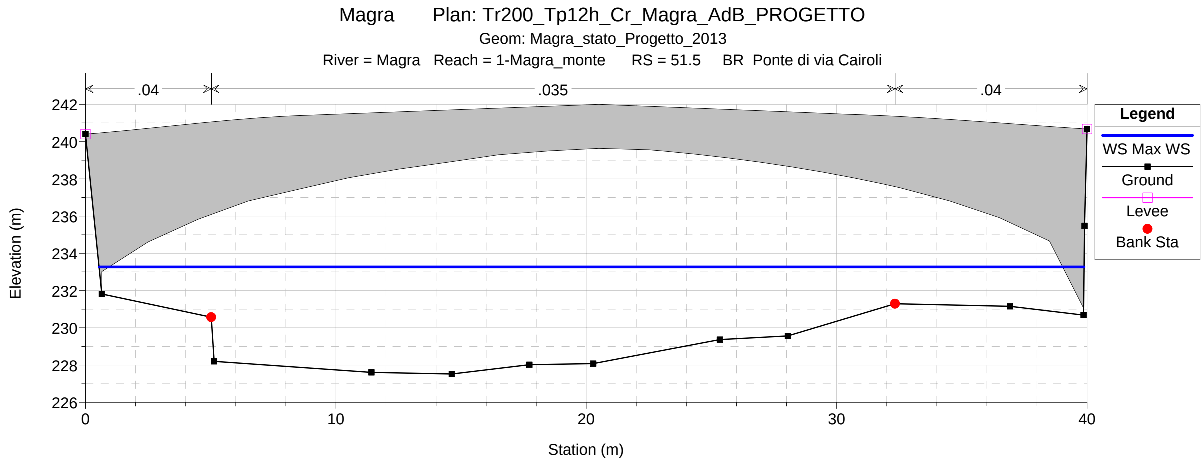
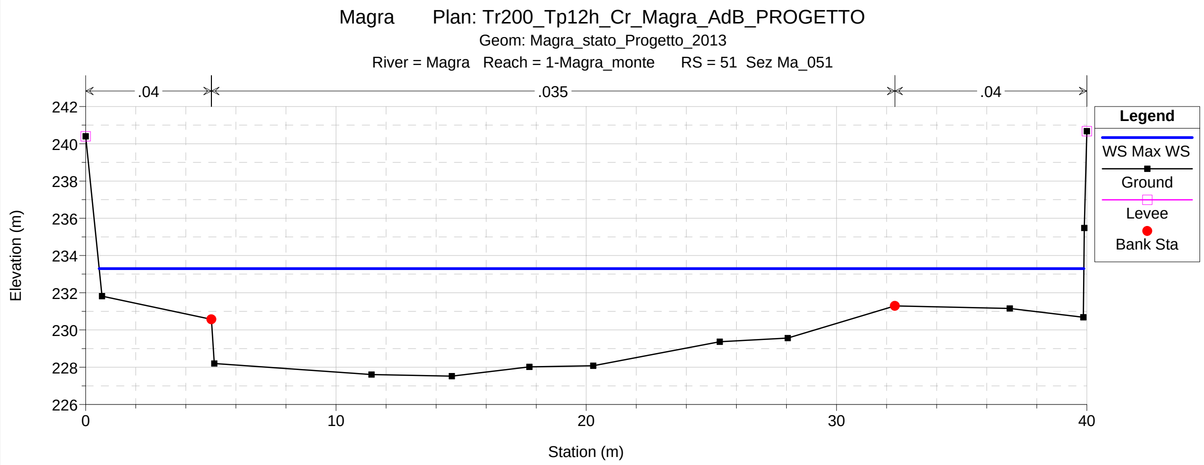
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

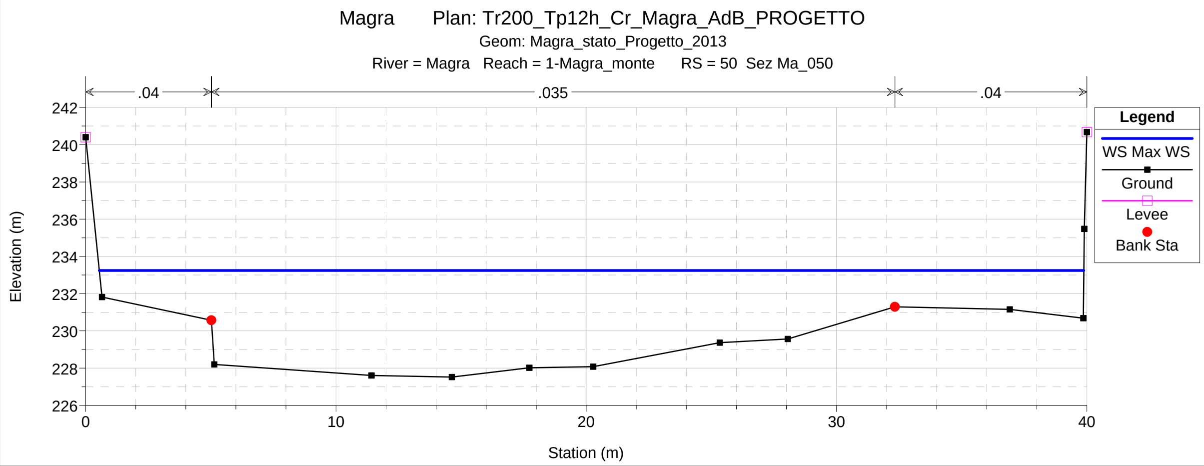

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 53 Sez Ma_053
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 52 Sez Ma_052
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 51.5 BR Ponte di via Cairoli
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

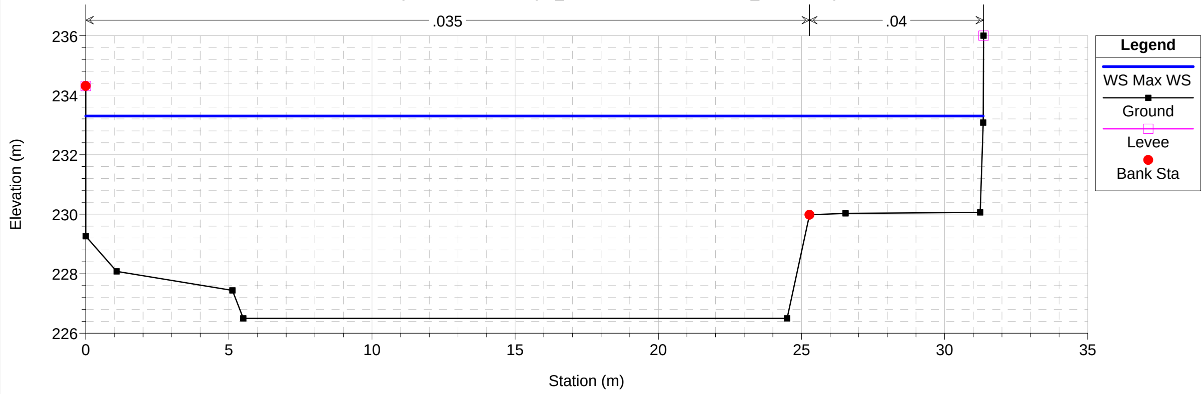

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 51.5 BR Ponte di via Cairoli
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 51 Sez Ma_051
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

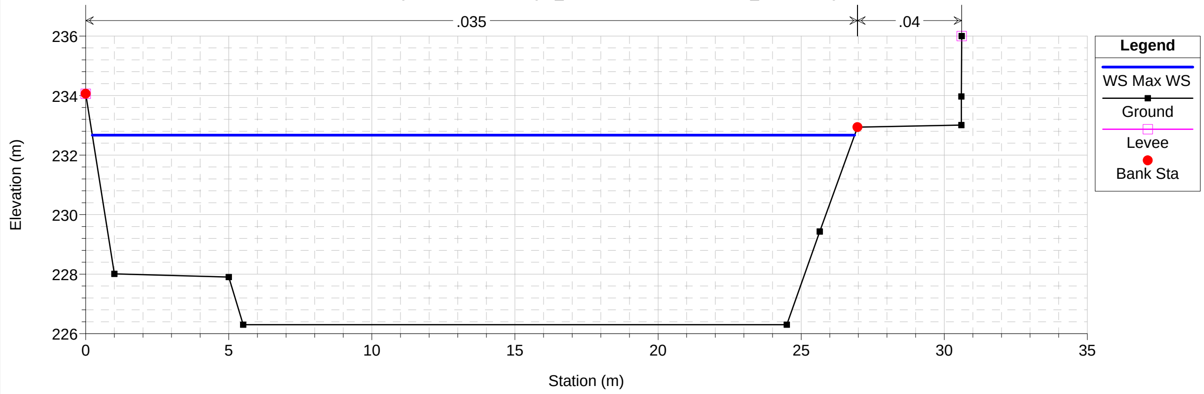

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 50 Sez Ma_050
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

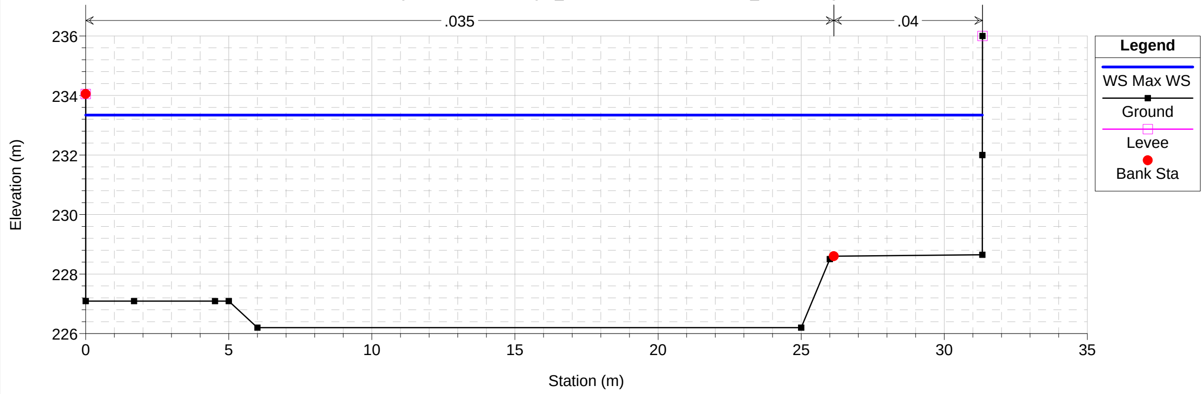
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 49 Sez Ma_049 - Risagomata



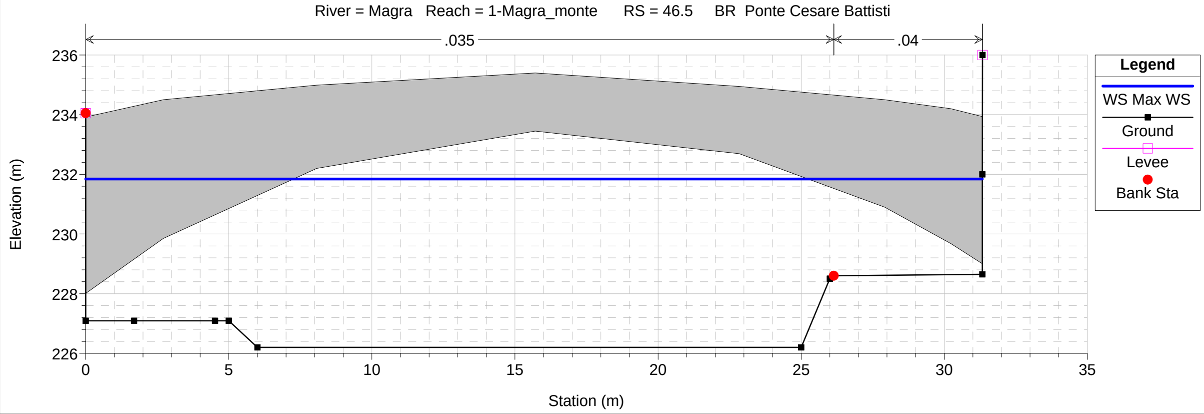
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 48 Sez Ma_048 - Risagomata

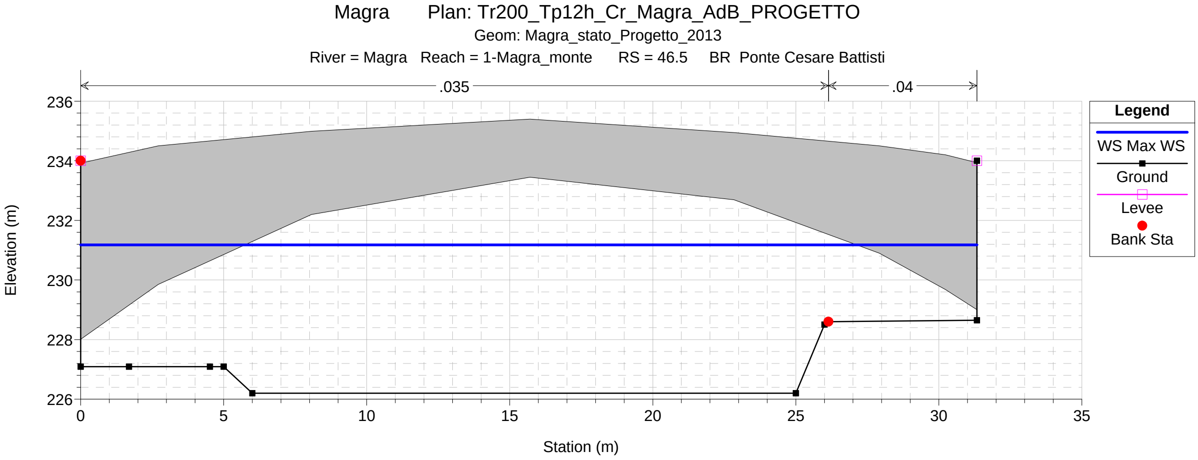


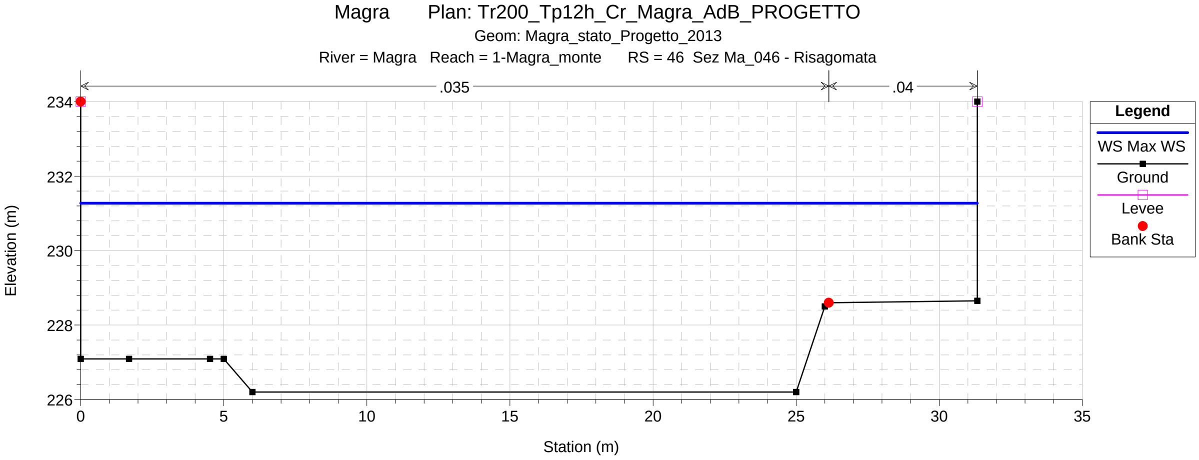
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 47 Sez Ma_047 - Risagomata

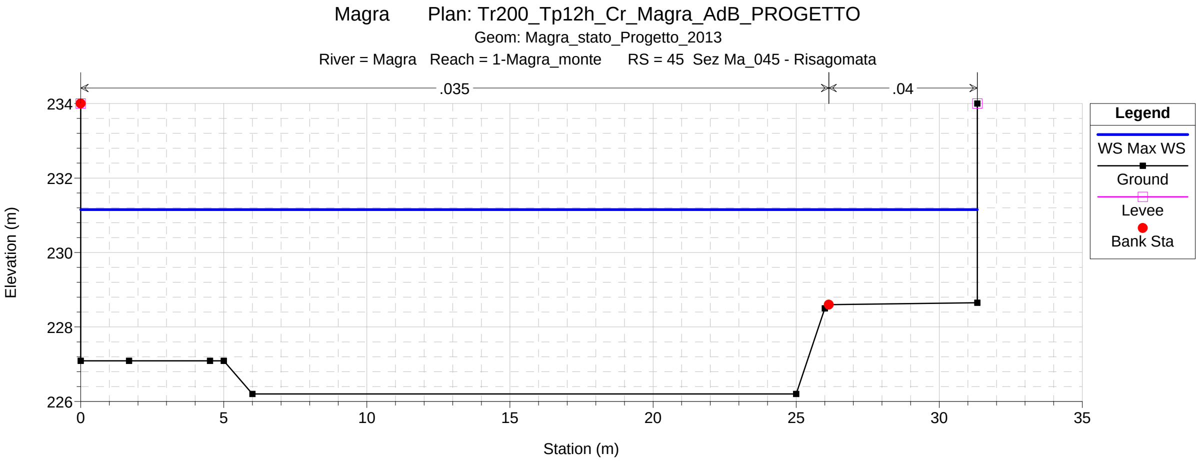


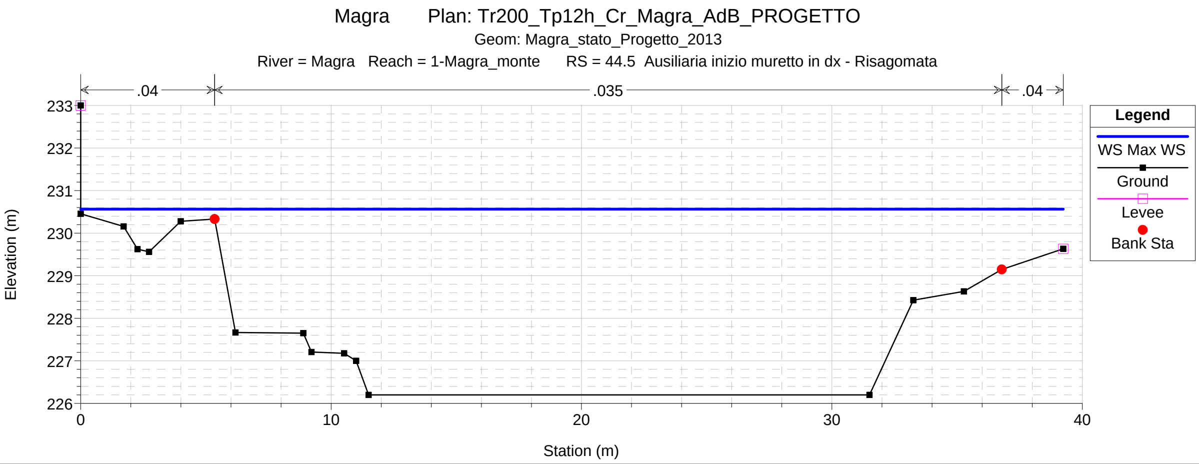
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 46.5 BR Ponte Cesare Battisti

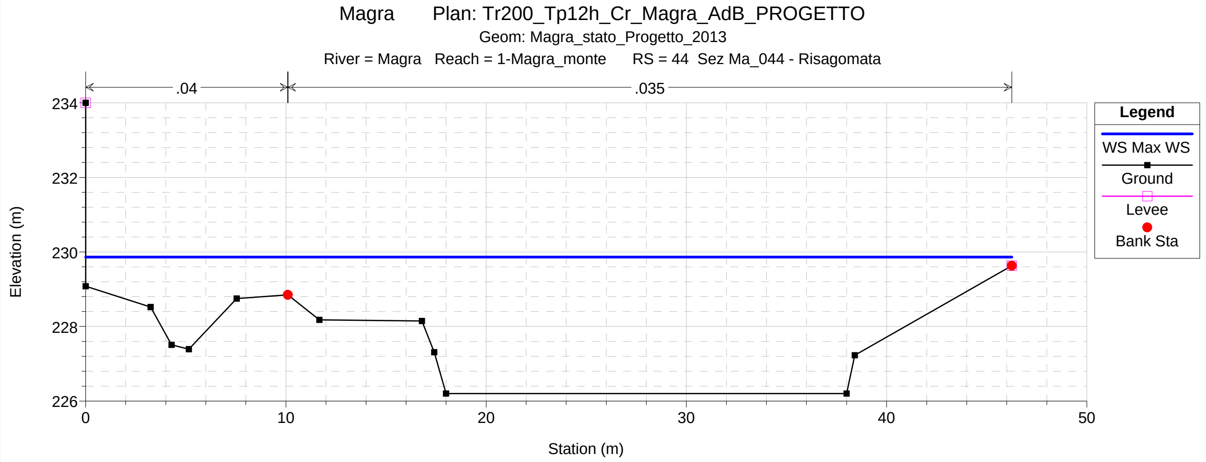


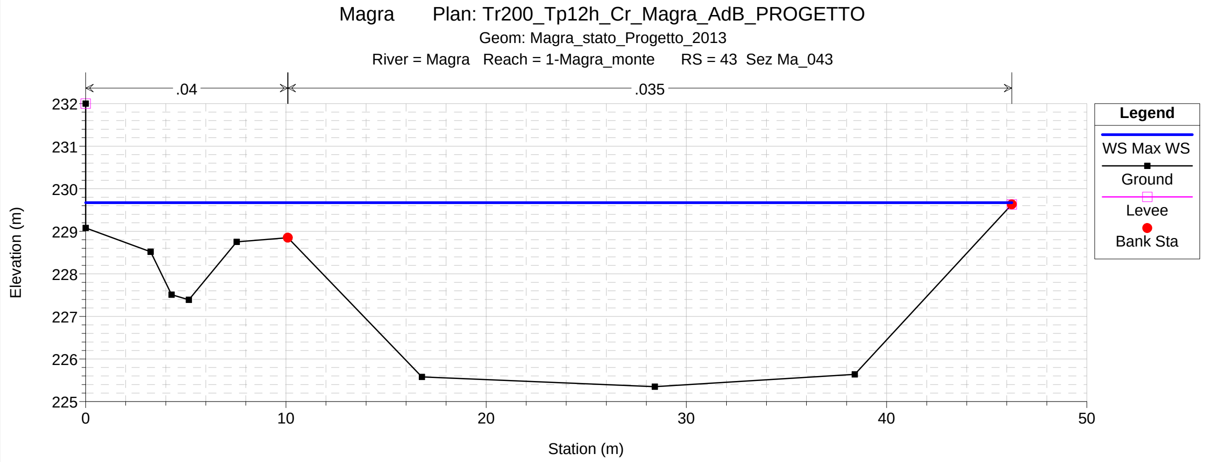

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 46.5 BR Ponte Cesare Battisti
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

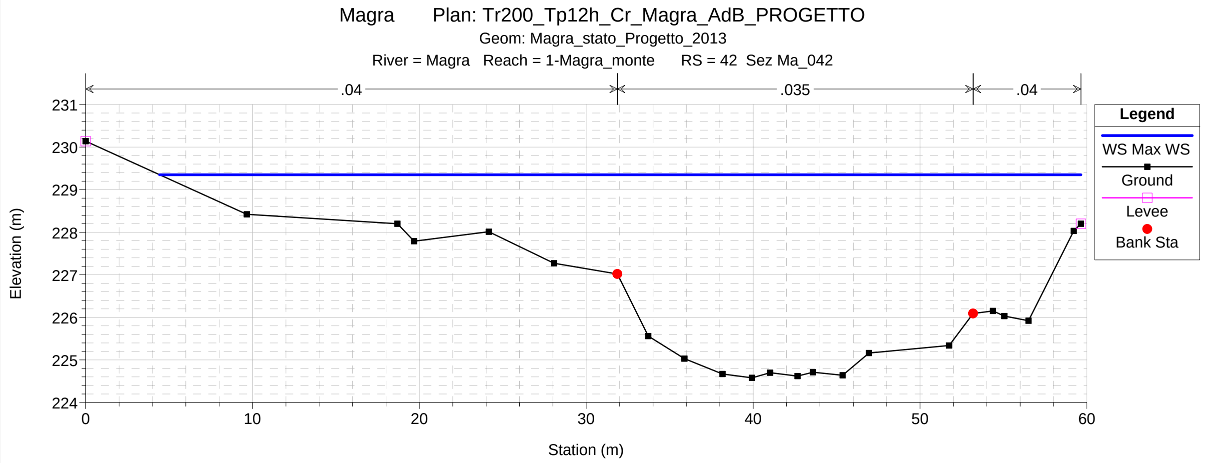

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 46 Sez Ma_046 - Risagomata
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

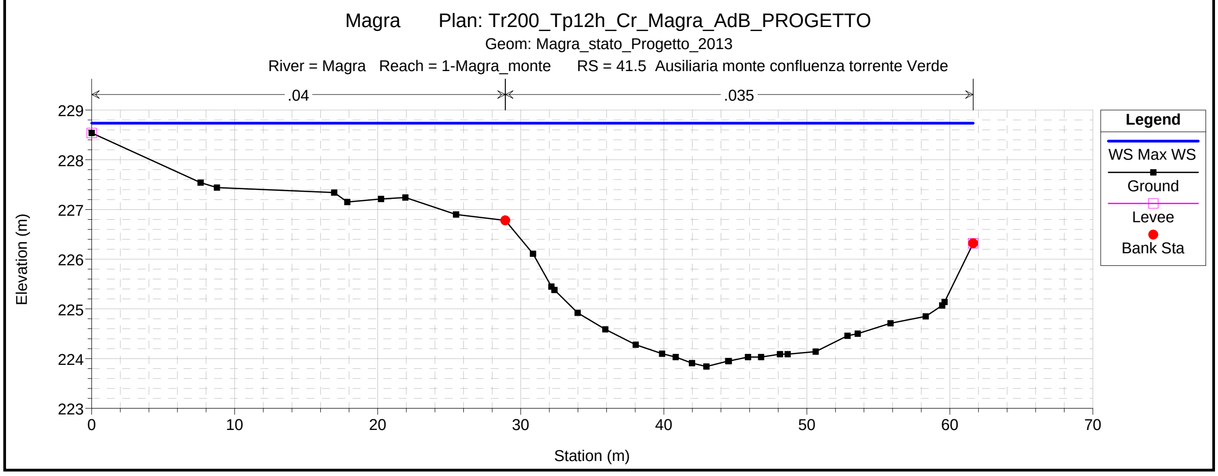

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 45 Sez Ma_045 - Risagomata
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 44.5 Ausiliaria inizio muretto in dx - Risagomata
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

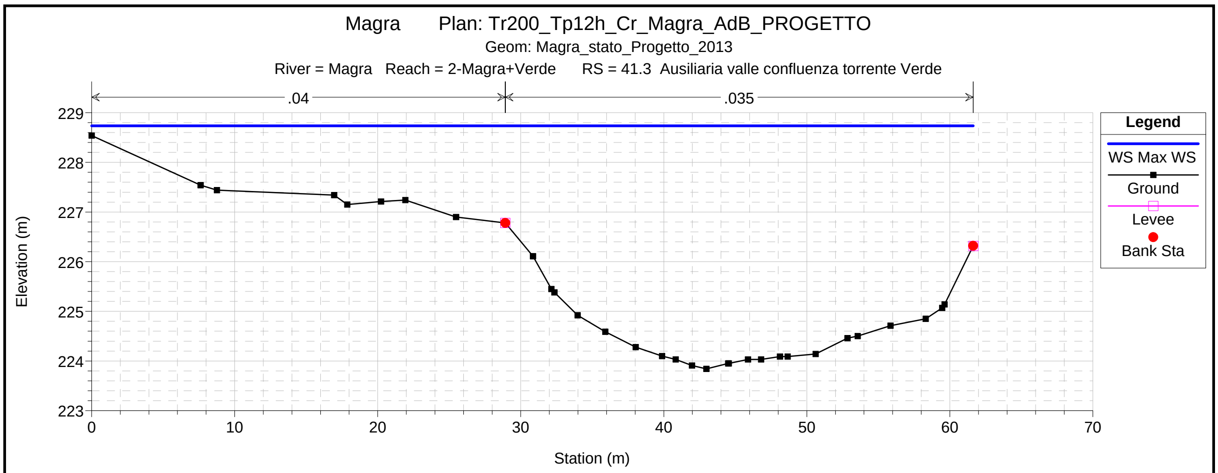

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 44 Sez Ma_044 - Risagomata
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

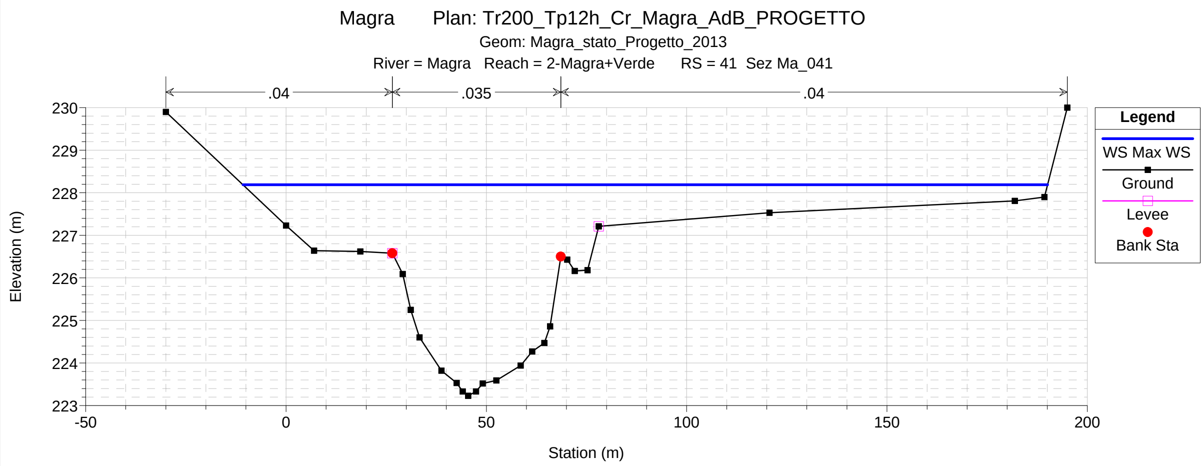

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 43 Sez Ma_043
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

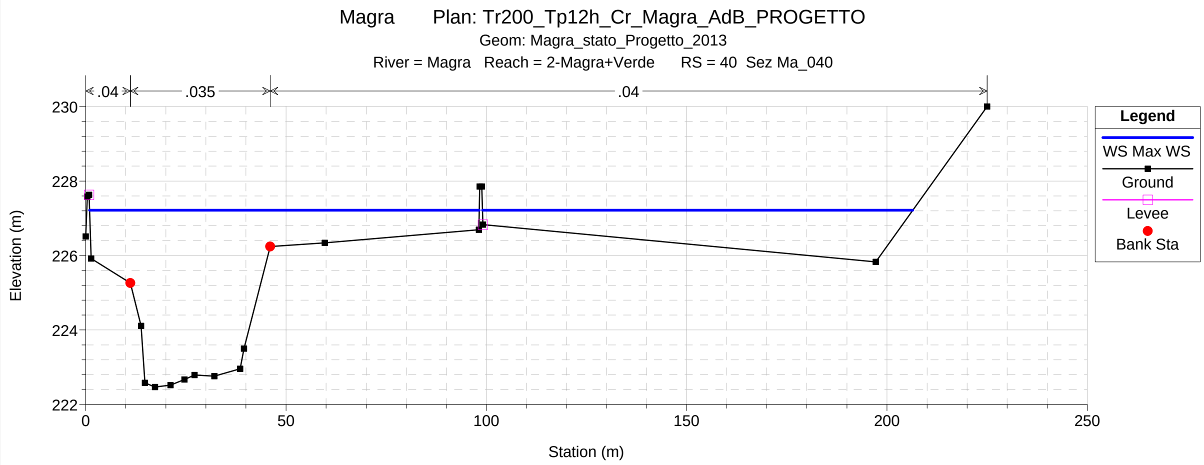

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 42 Sez Ma_042
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

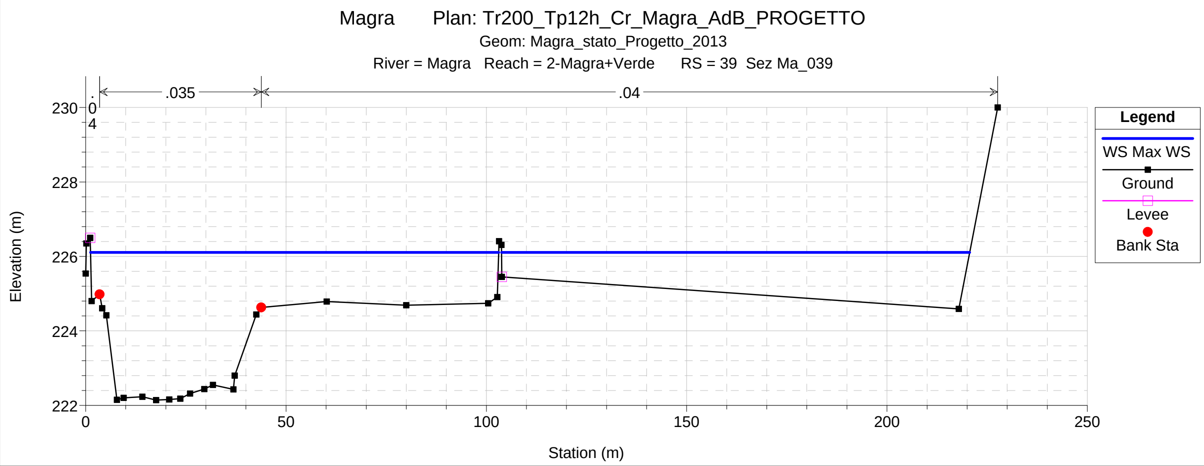

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 1-Magra_monte RS = 41.5 Ausiliaria monte confluenza torrente Verde
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

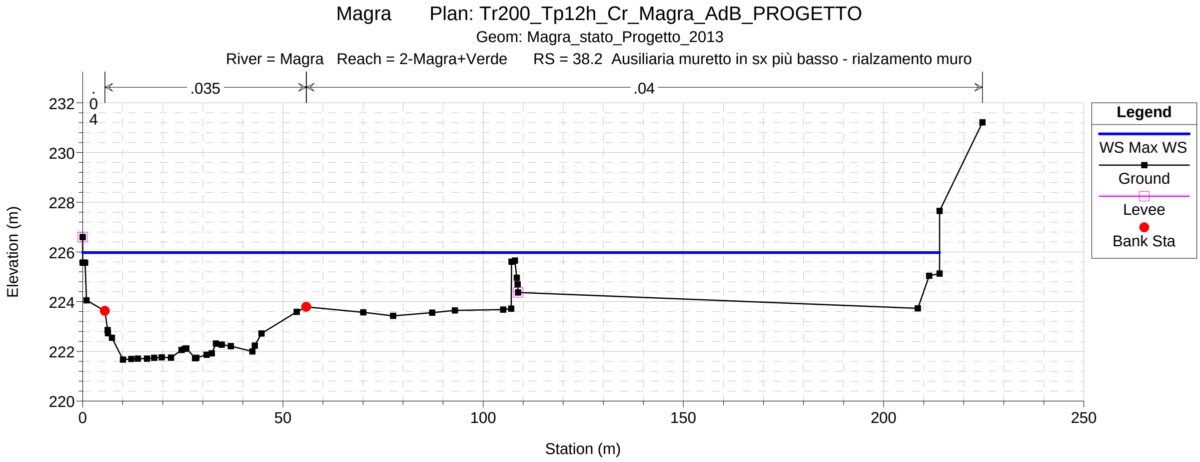
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

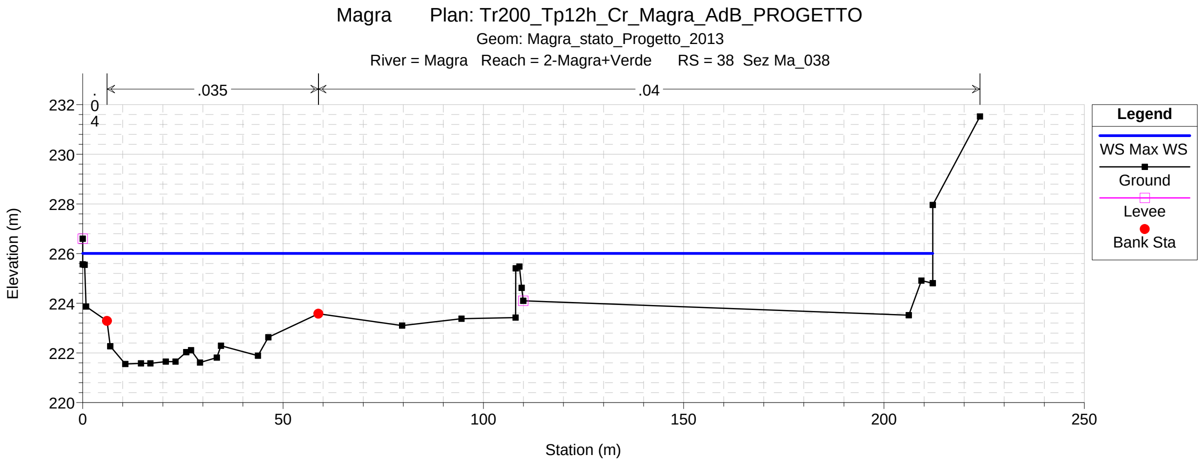


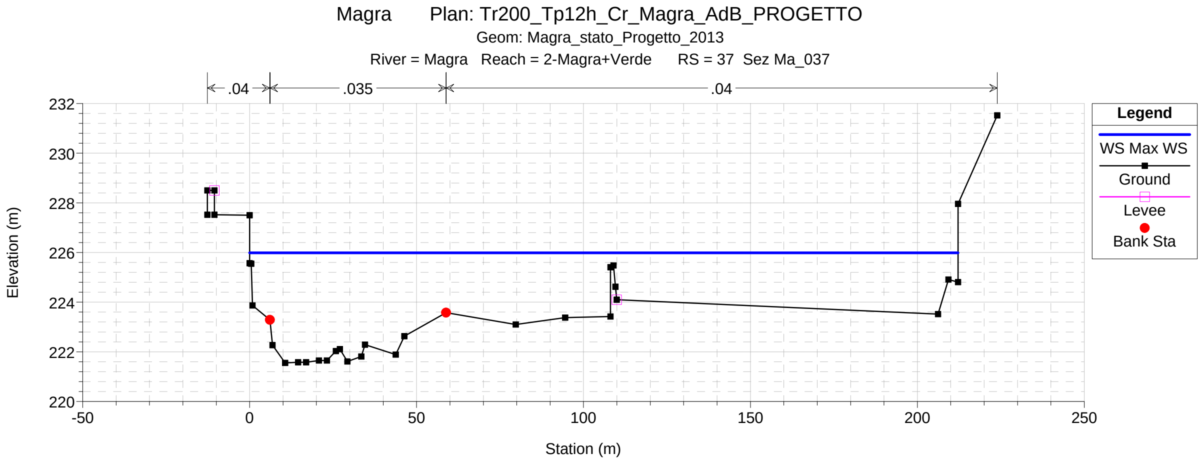


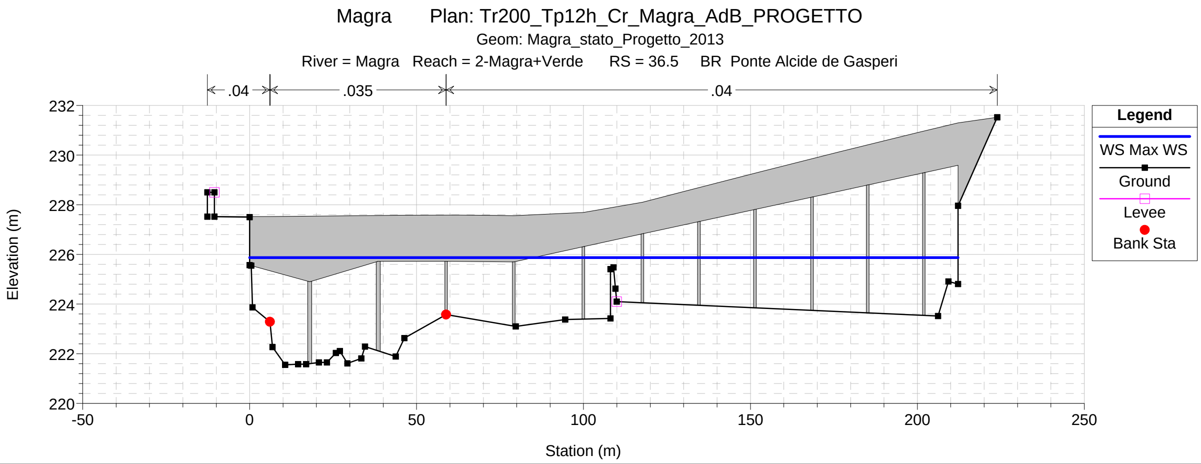


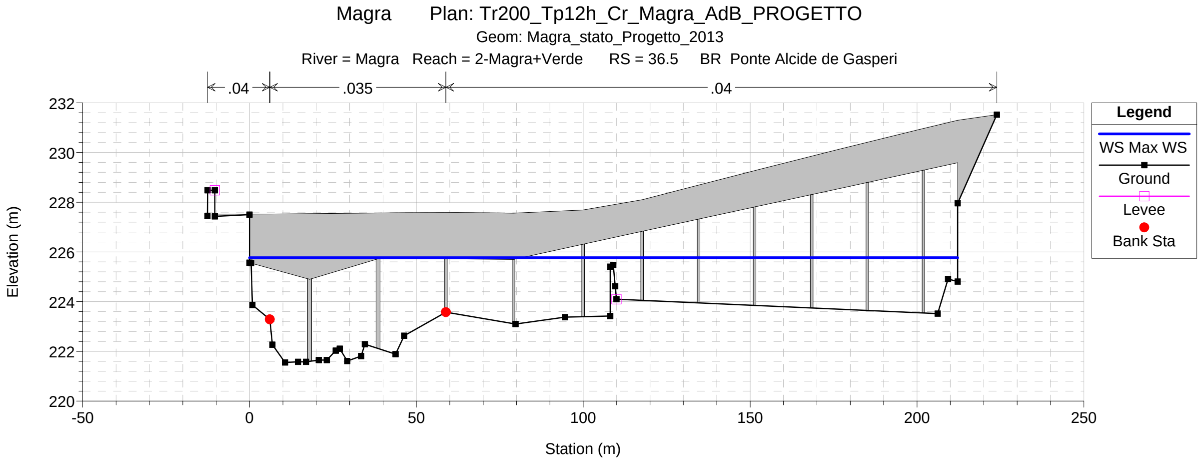


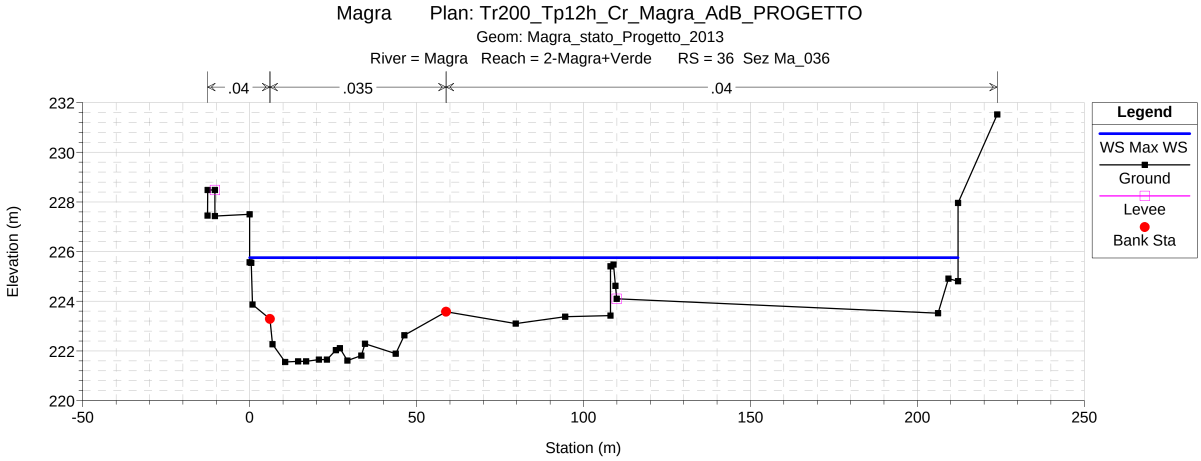

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 38.2 Ausiliaria muretto in sx più basso - rialzamento muro
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

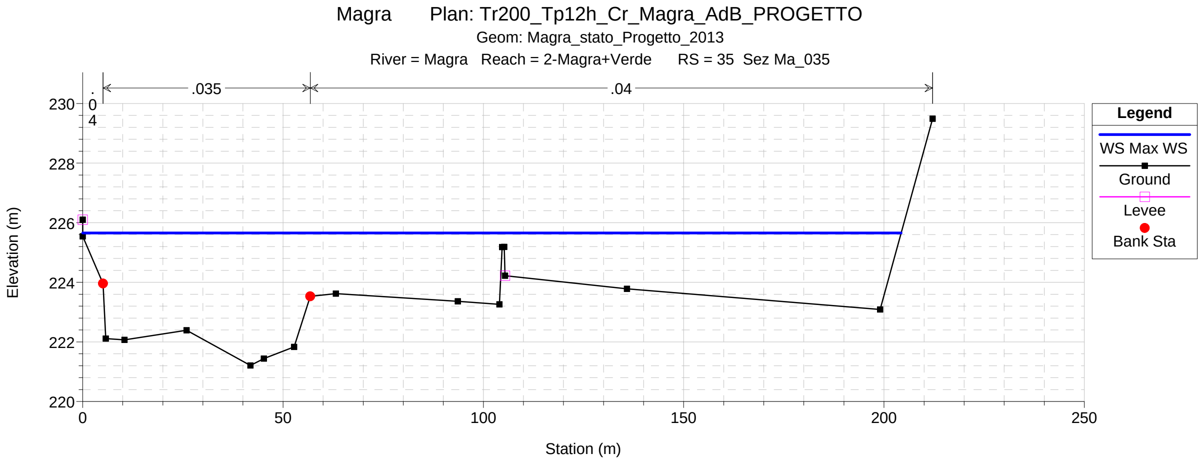

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 38 Sez Ma_038
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

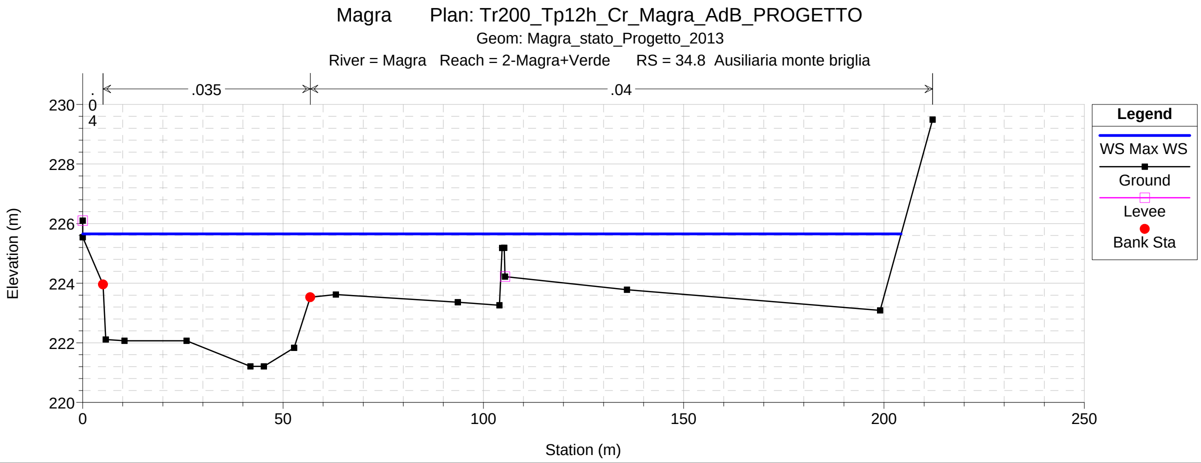

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 37 Sez Ma_037
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 36.5 BR Ponte Alcide de Gasperi
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

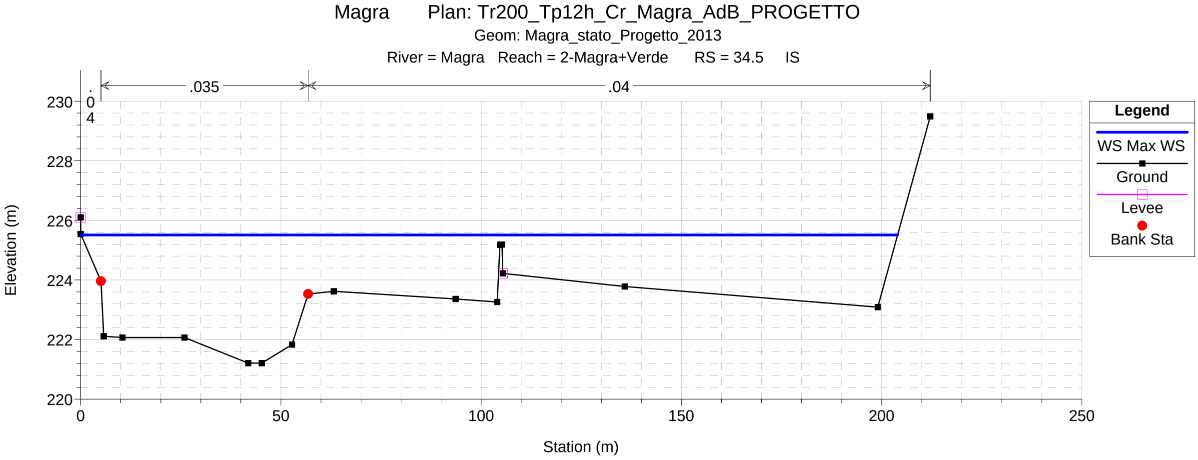

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 36.5 BR Ponte Alcide de Gasperi
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

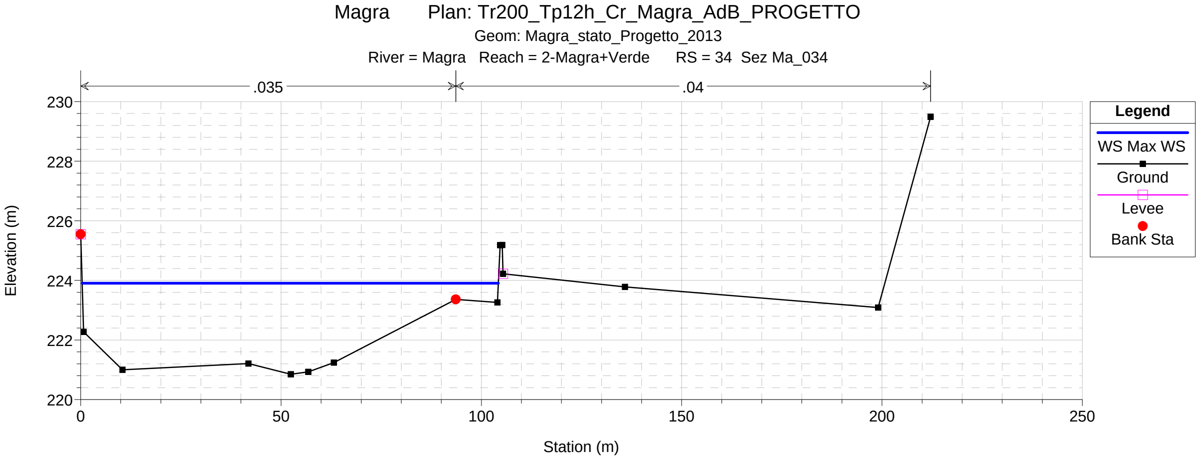

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 36 Sez Ma_036
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

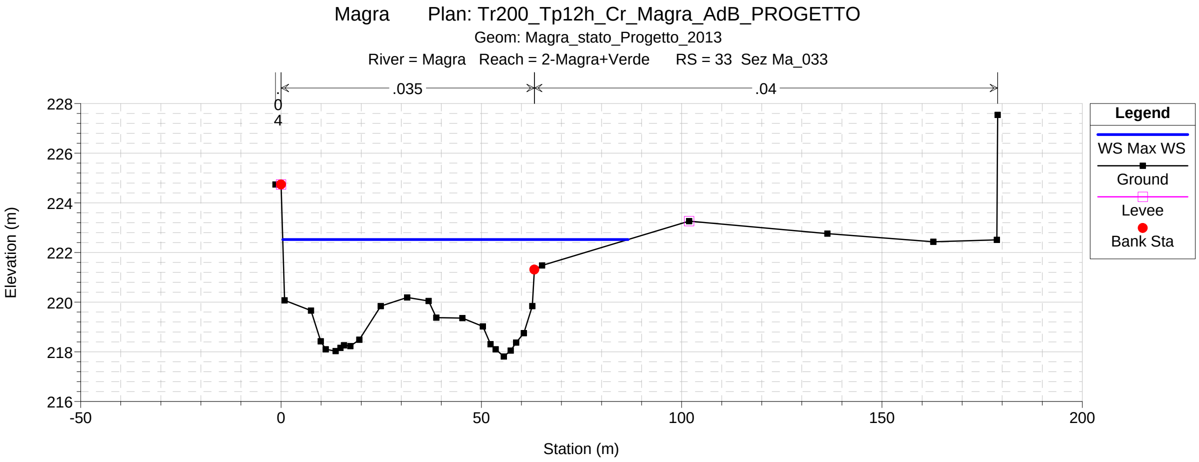

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 35 Sez Ma_035
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

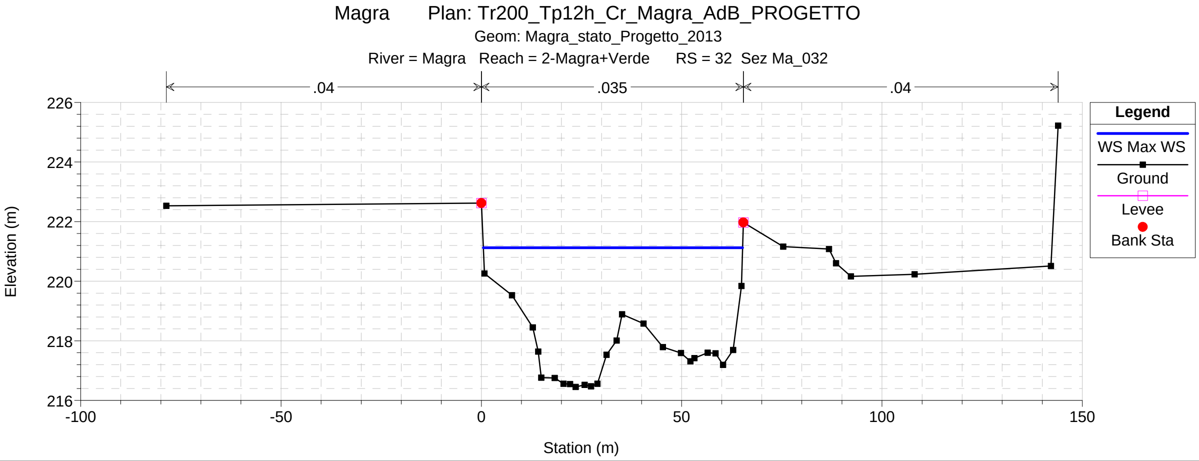

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 34.8 Auisiliaria monte briglia
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

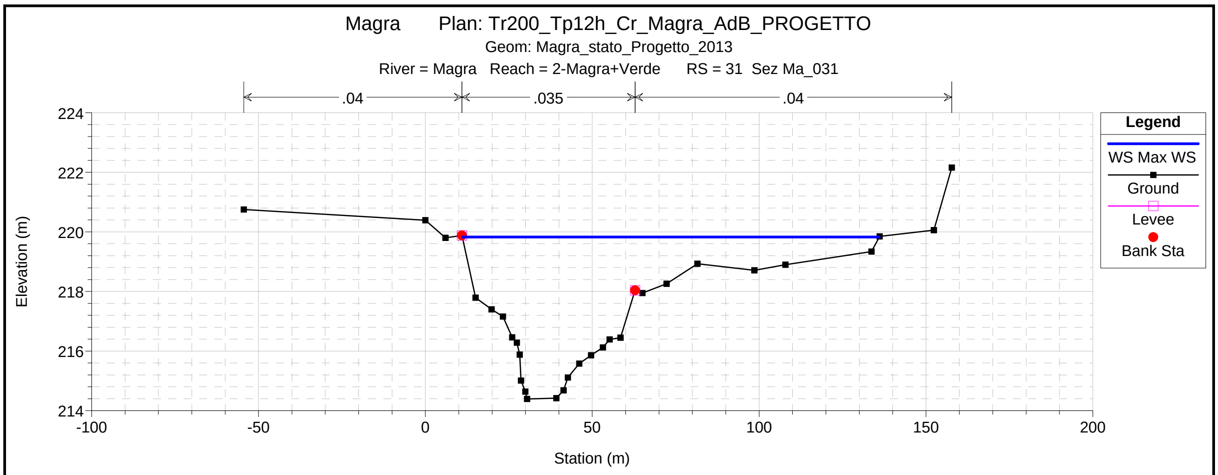
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

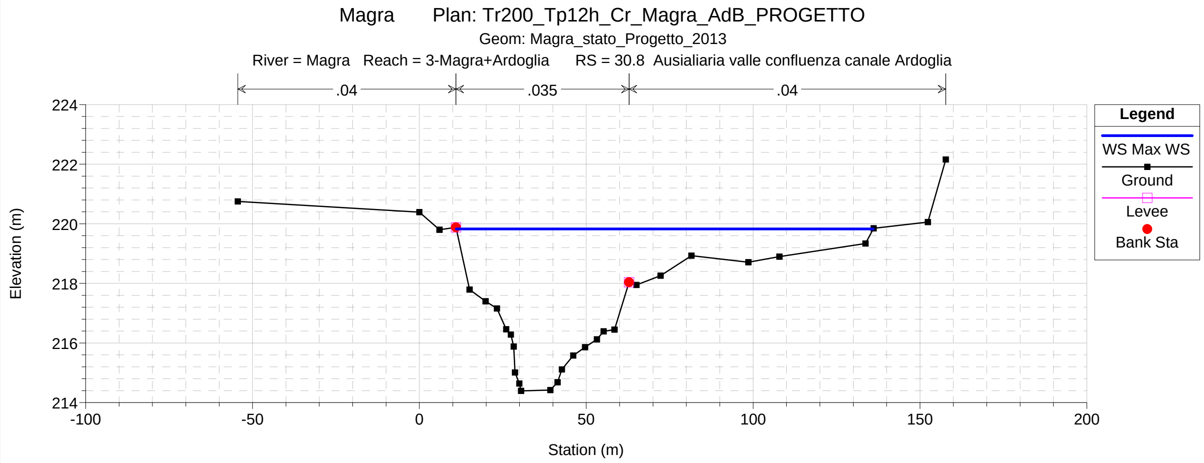


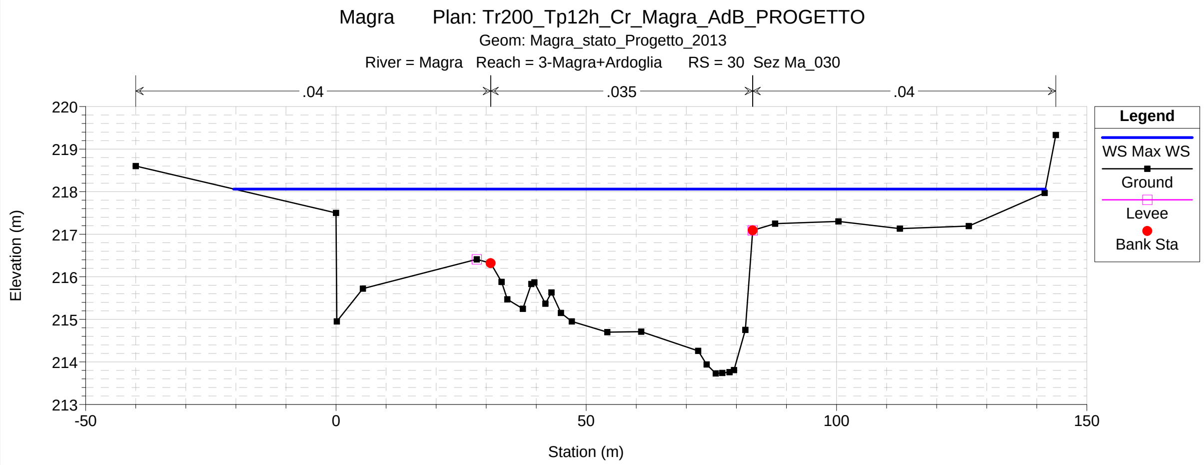


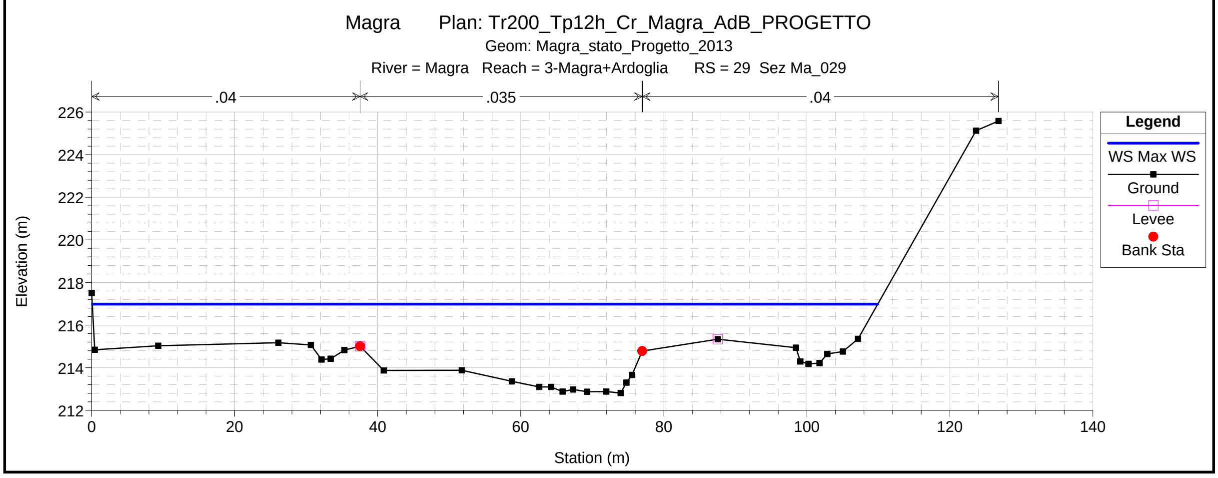


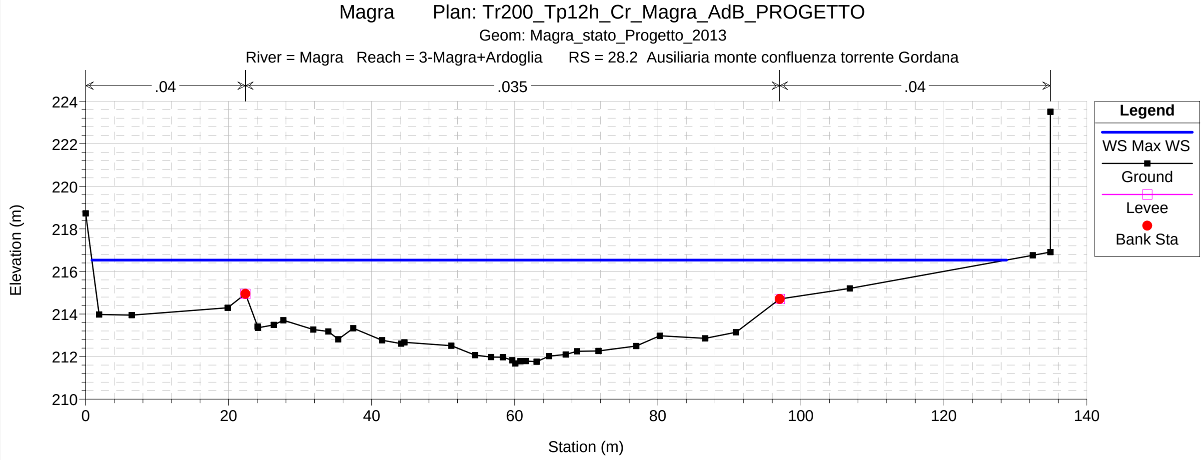


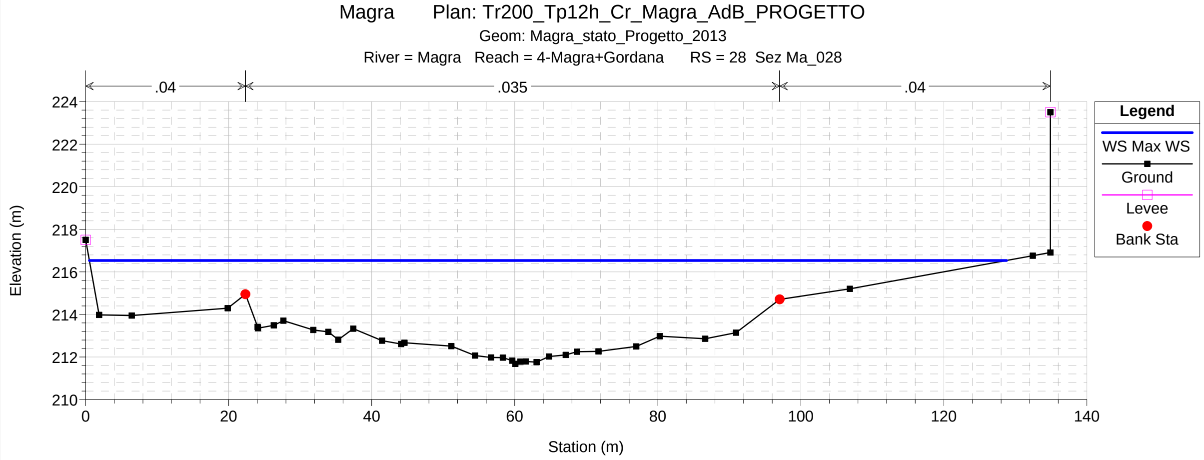

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 2-Magra+Verde RS = 31 Sez Ma_031
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

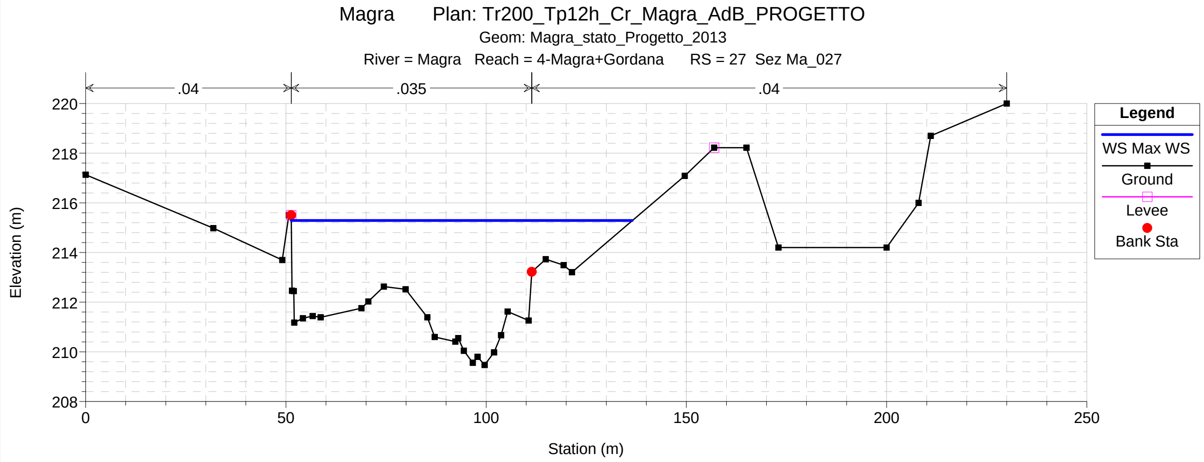

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 3-Magra+Ardoglia RS = 30.8 Ausialiaria valle confluenza canale Ardoglia
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

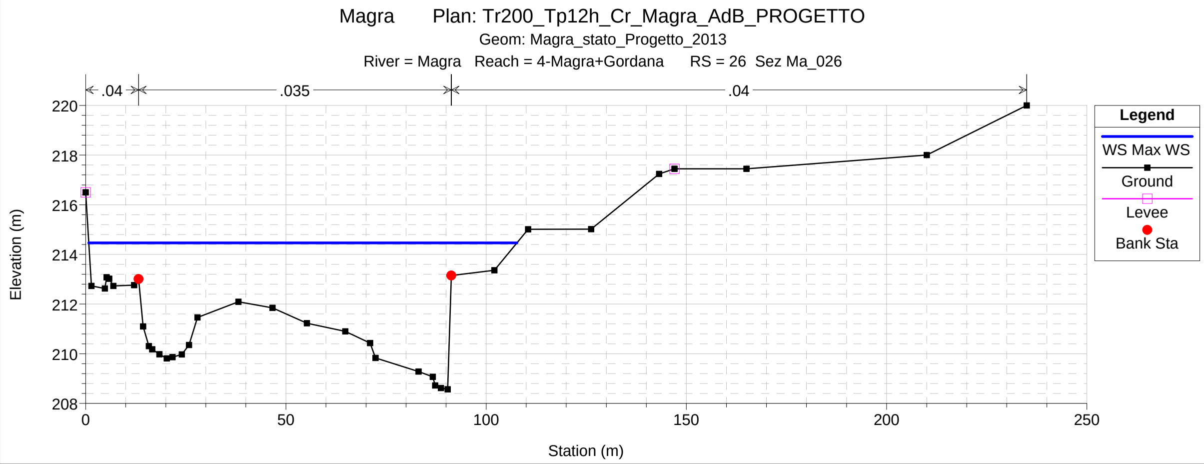

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 3-Magra+Ardoglia RS = 30 Sez Ma_030
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 3-Magra+Ardoglia RS = 29 Sez Ma_029
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

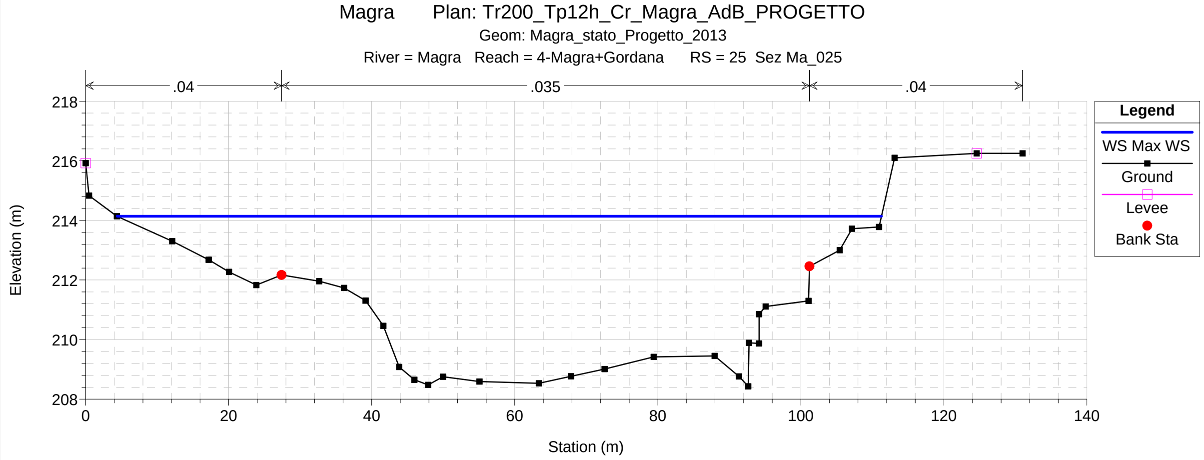

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 3-Magra+Ardoglia RS = 28.2 Ausiliaria monte confluenza torrente Gordana
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

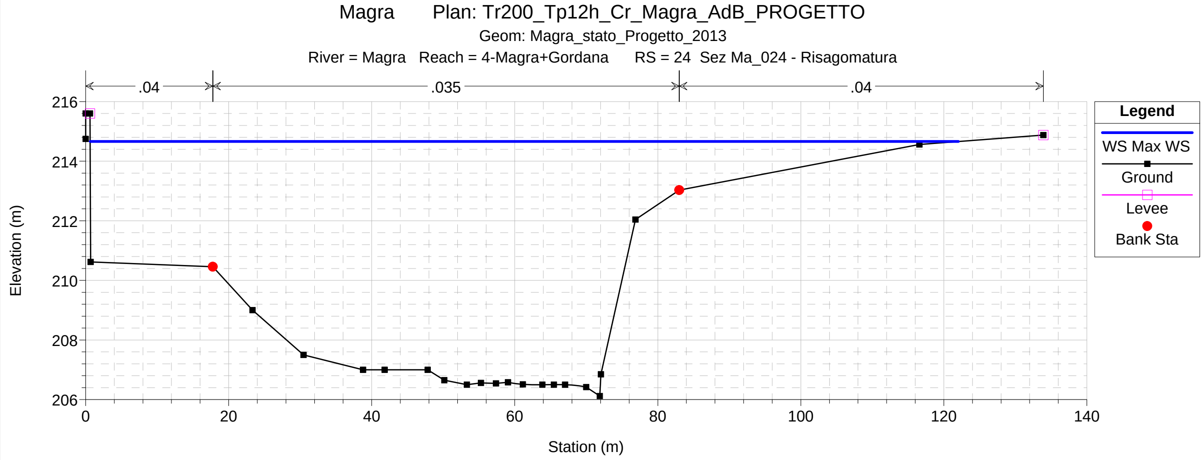

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 28 Sez Ma_028
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

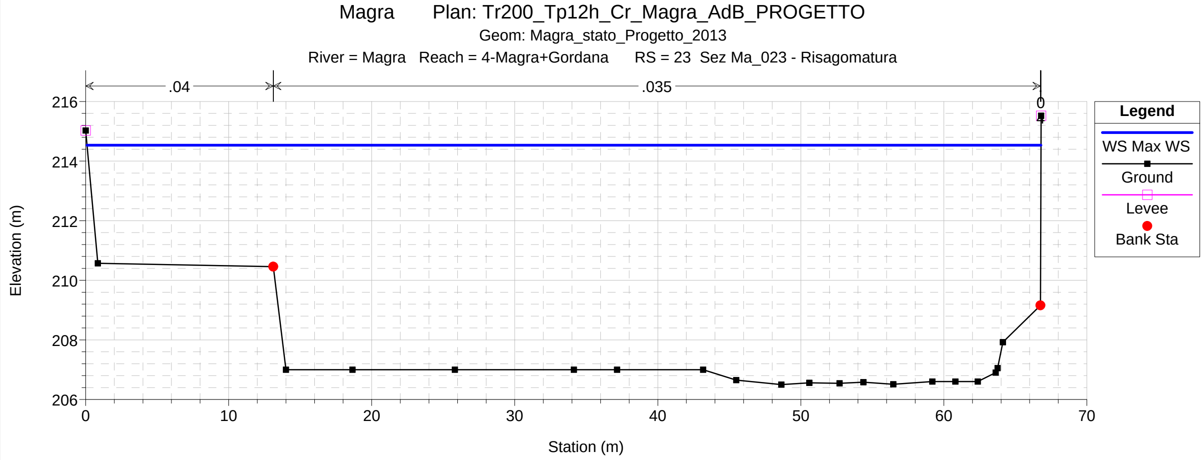

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 27 Sez Ma_027
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

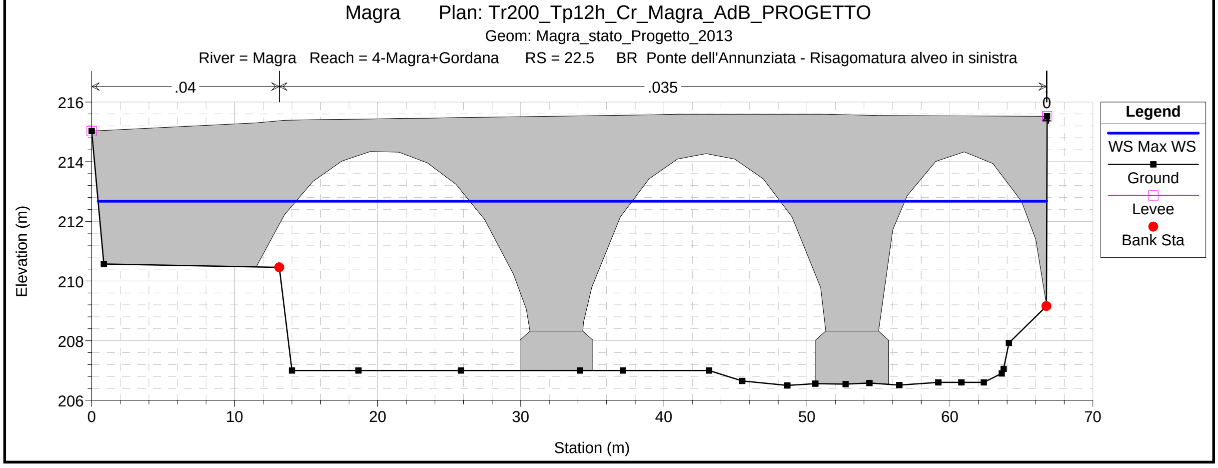

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 26 Sez Ma_026
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

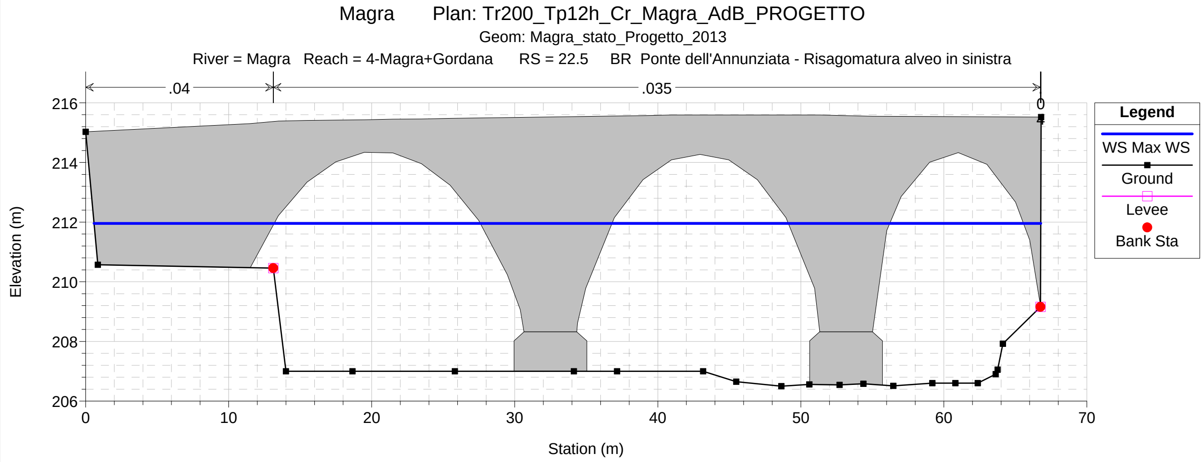


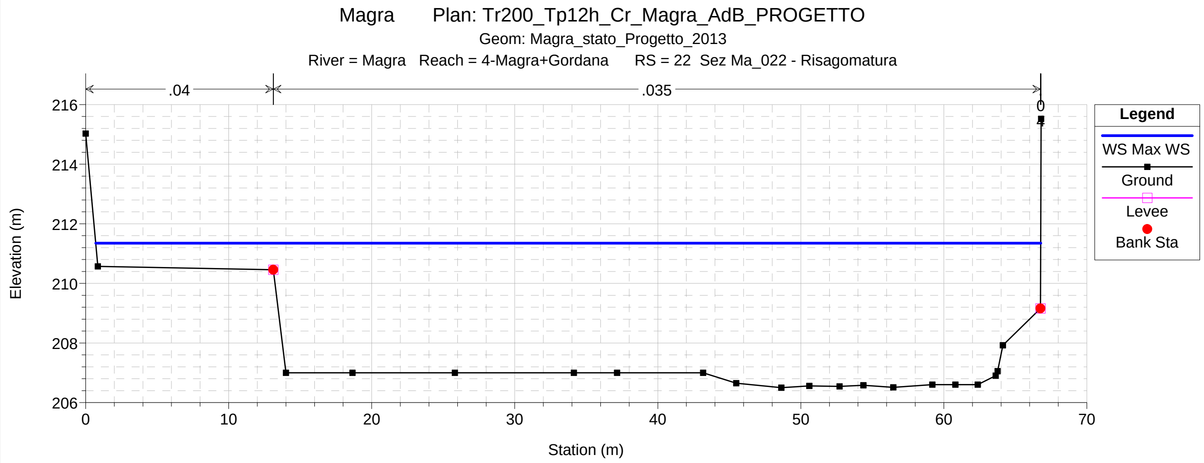


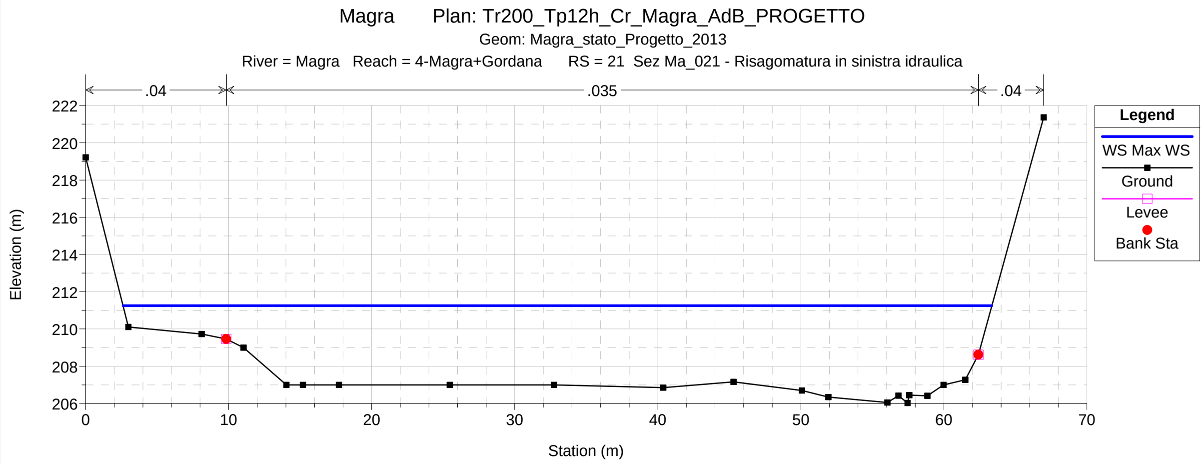


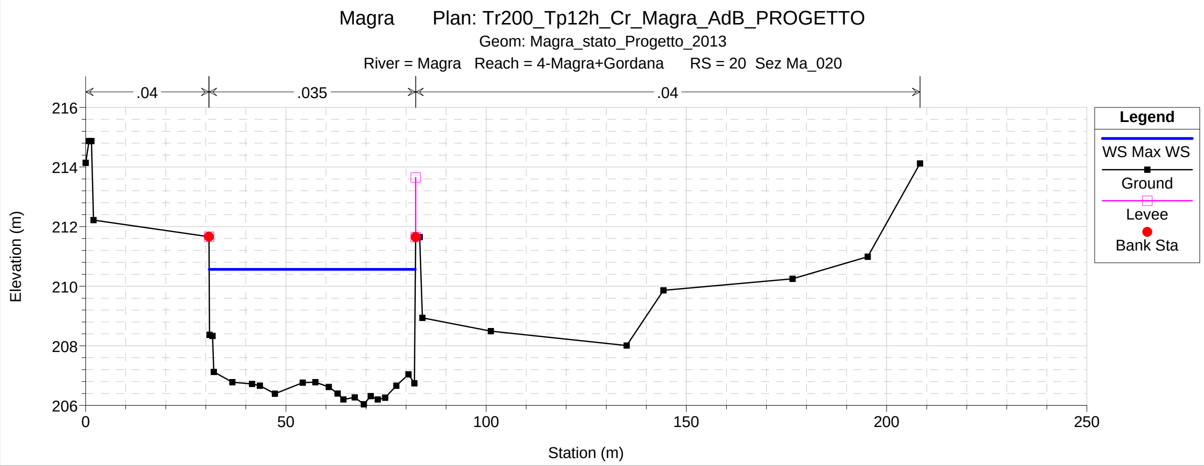


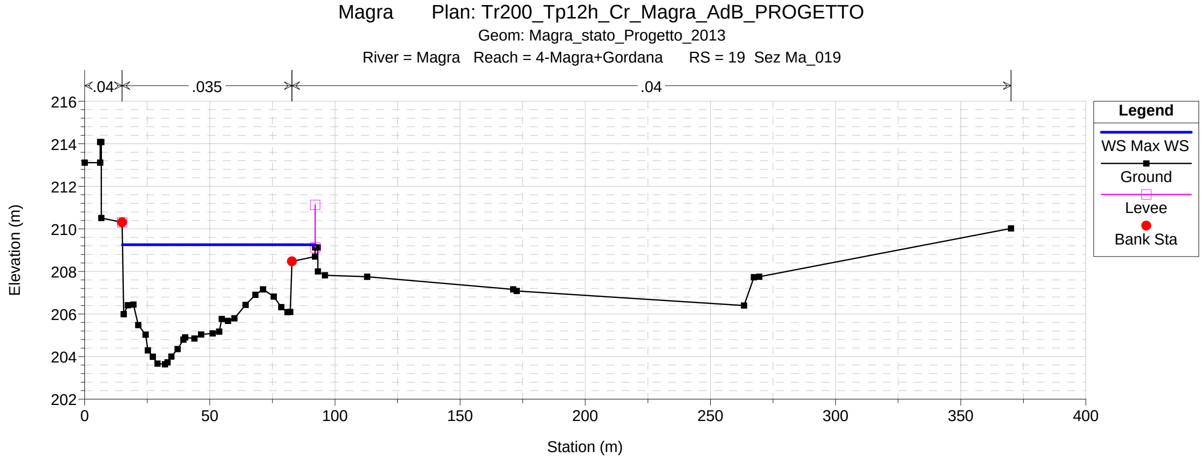
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

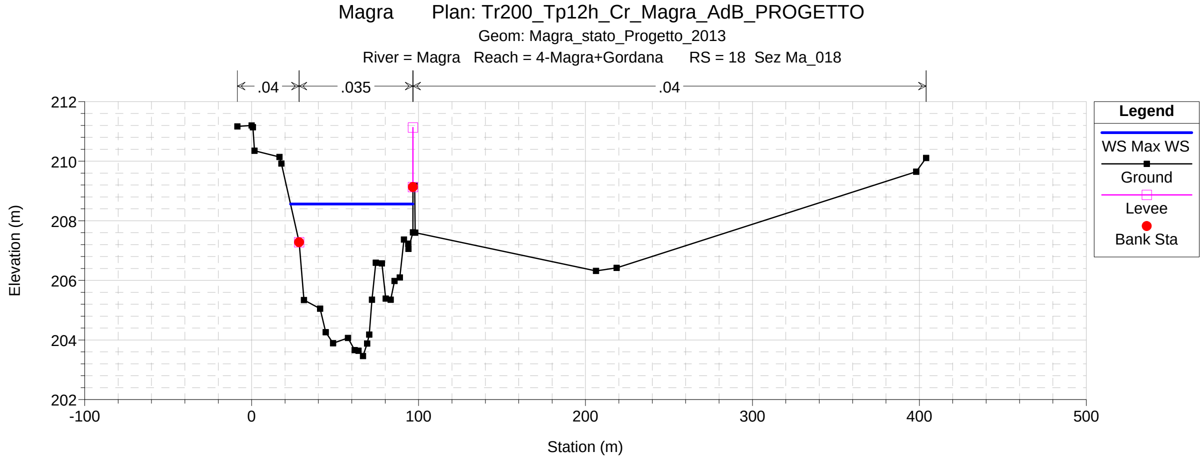


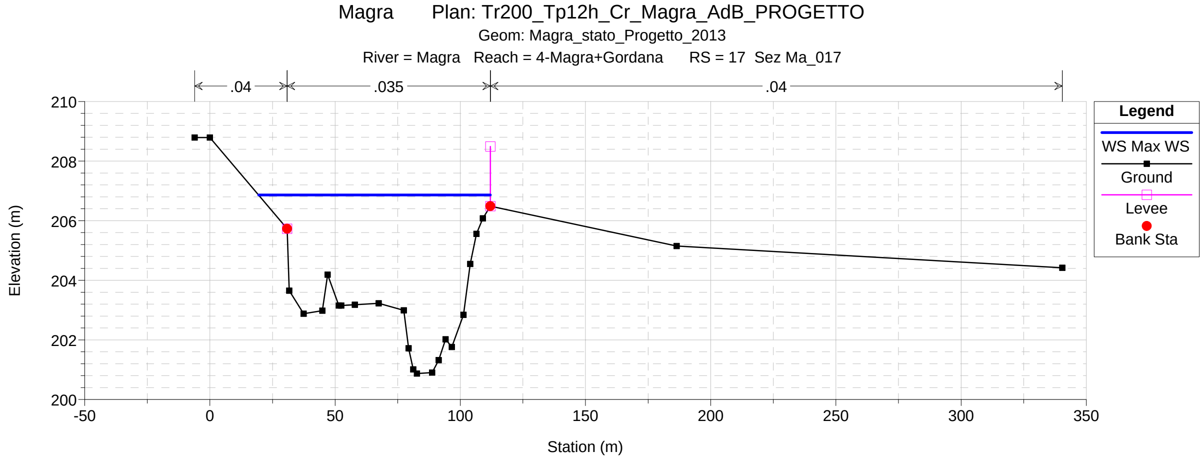


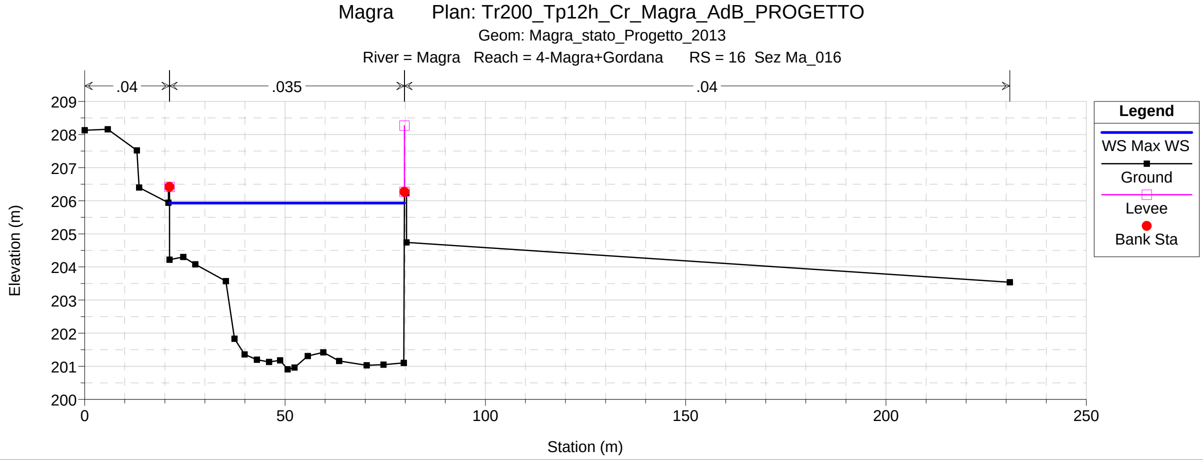




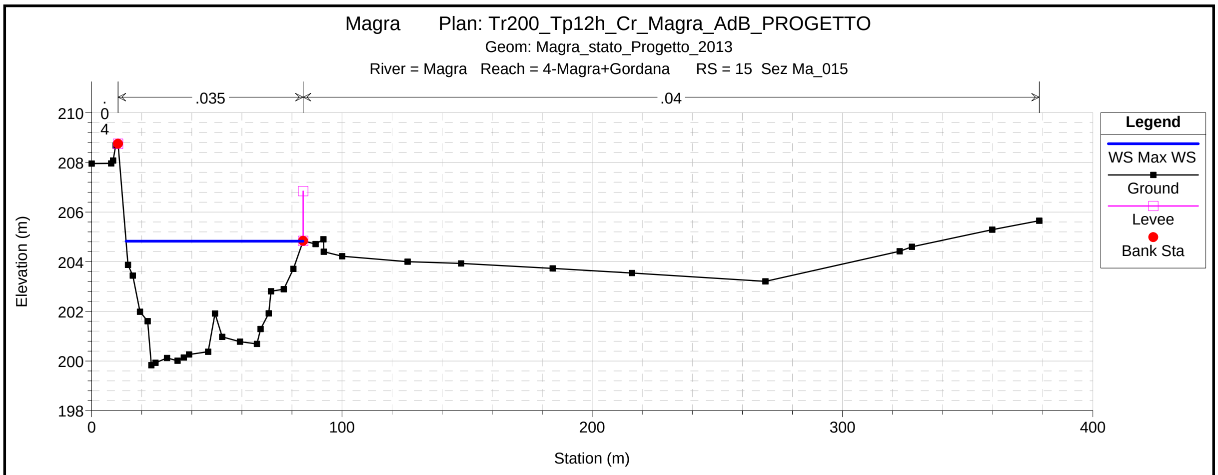

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 19 Sez Ma_019
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

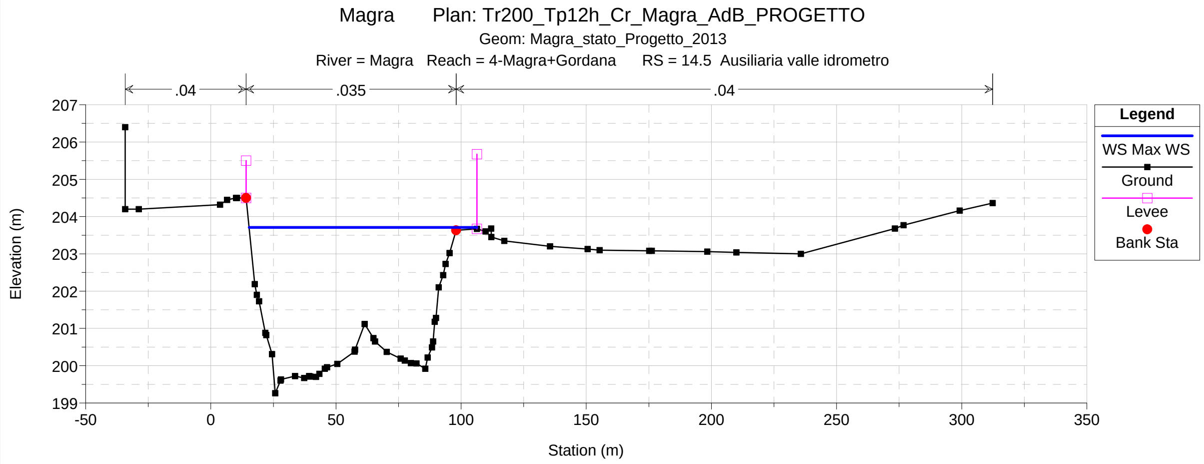

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 18 Sez Ma_018
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

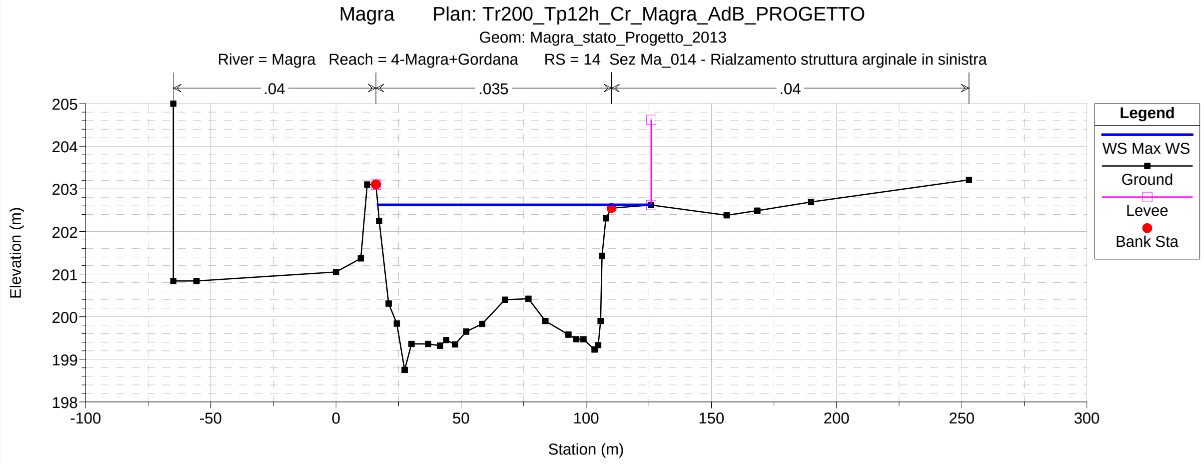

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 17 Sez Ma_017
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

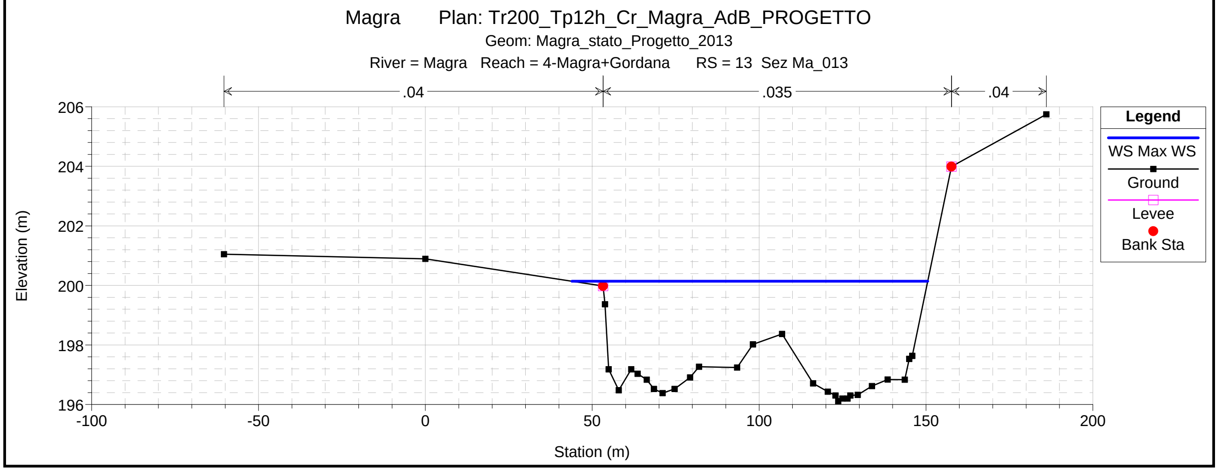

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 16 Sez Ma_016
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

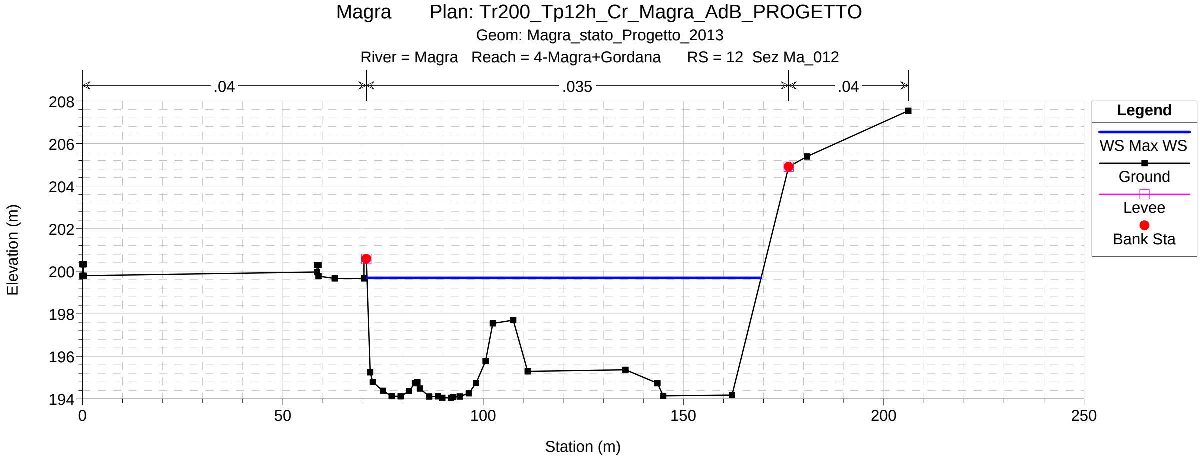


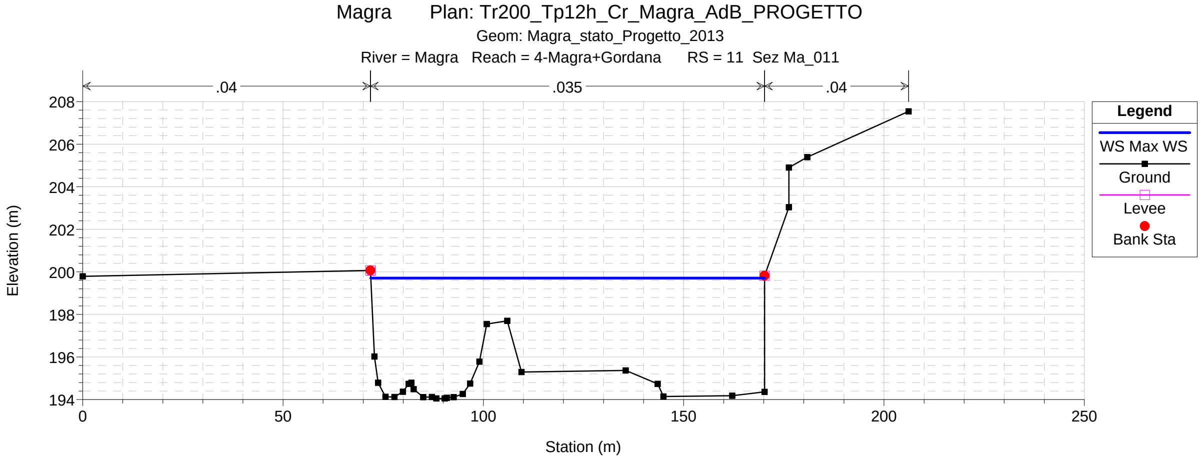


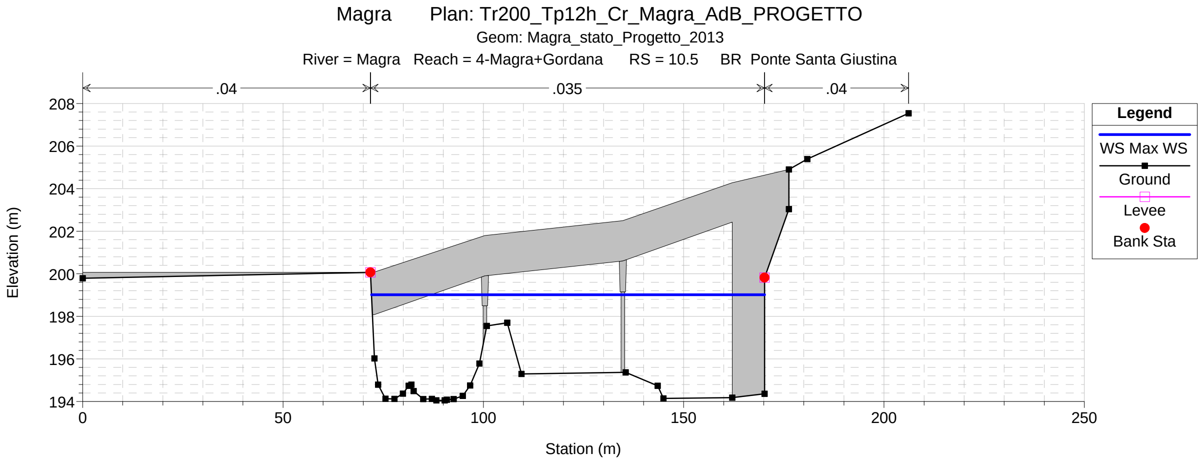


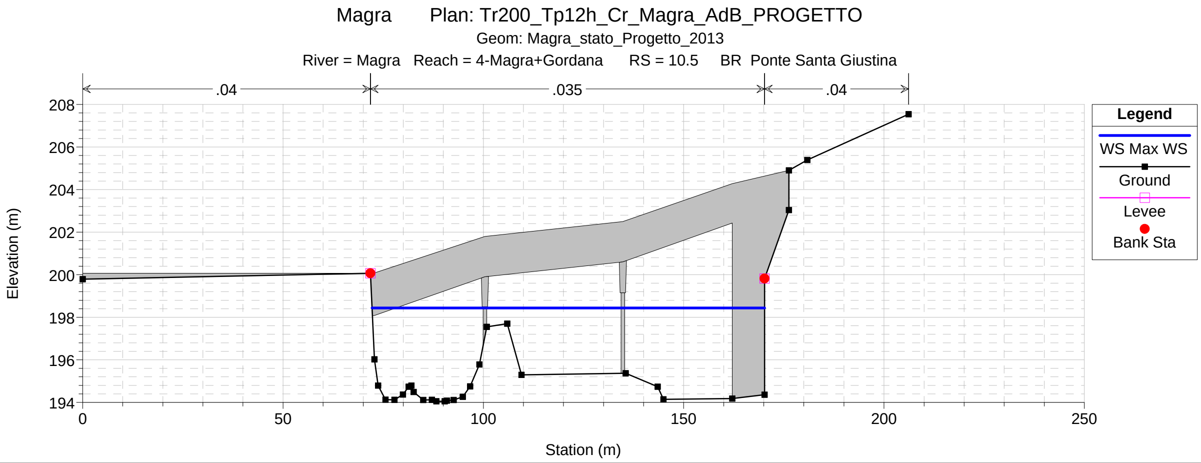


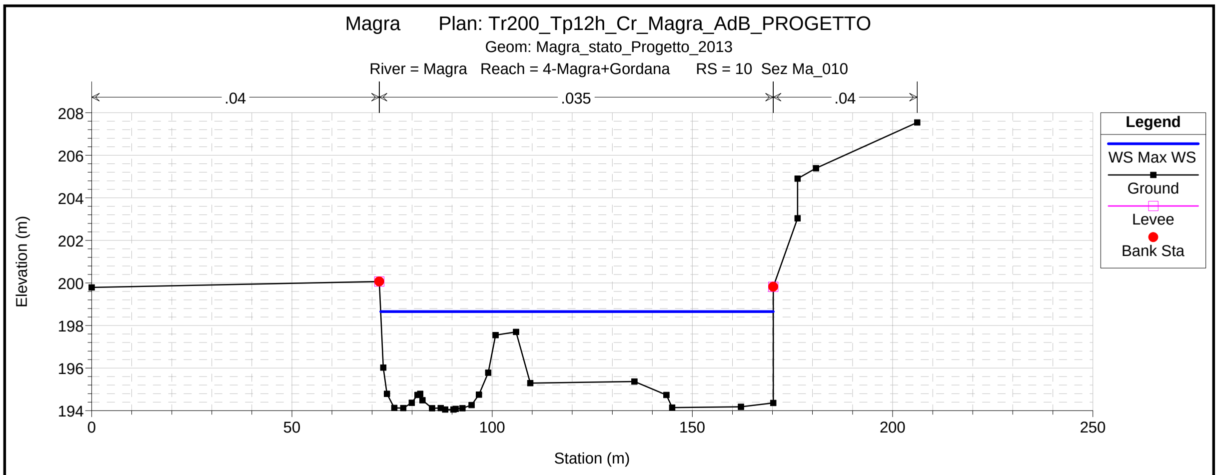
Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-

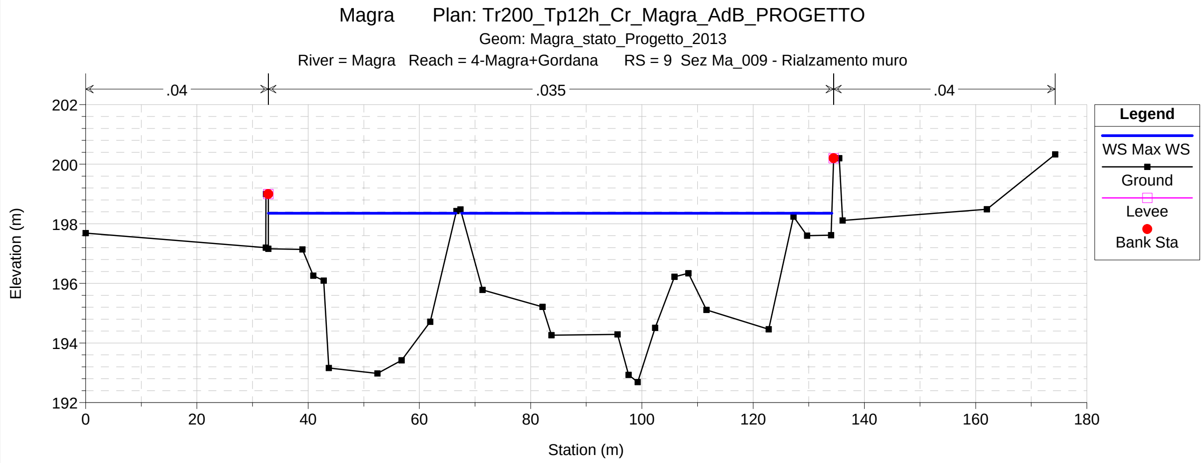


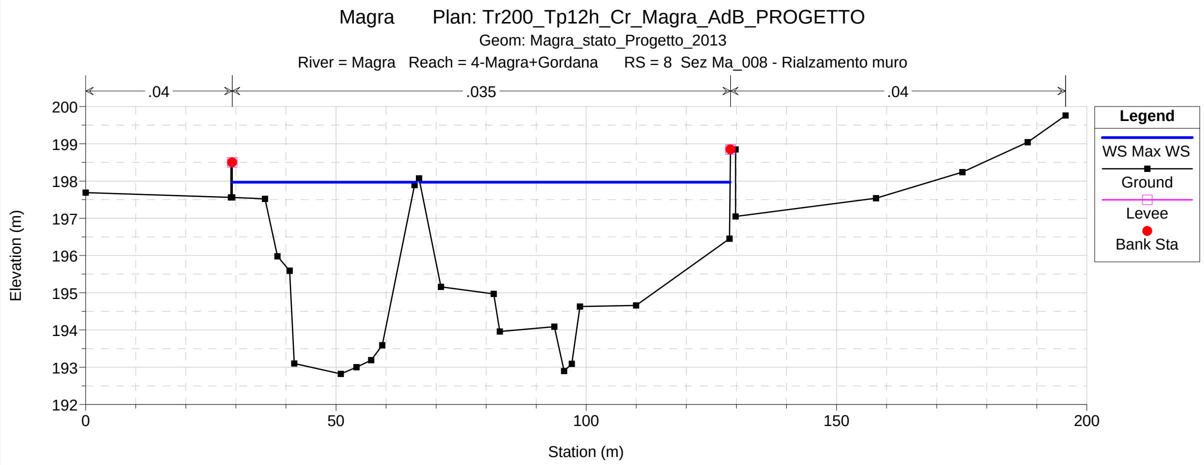


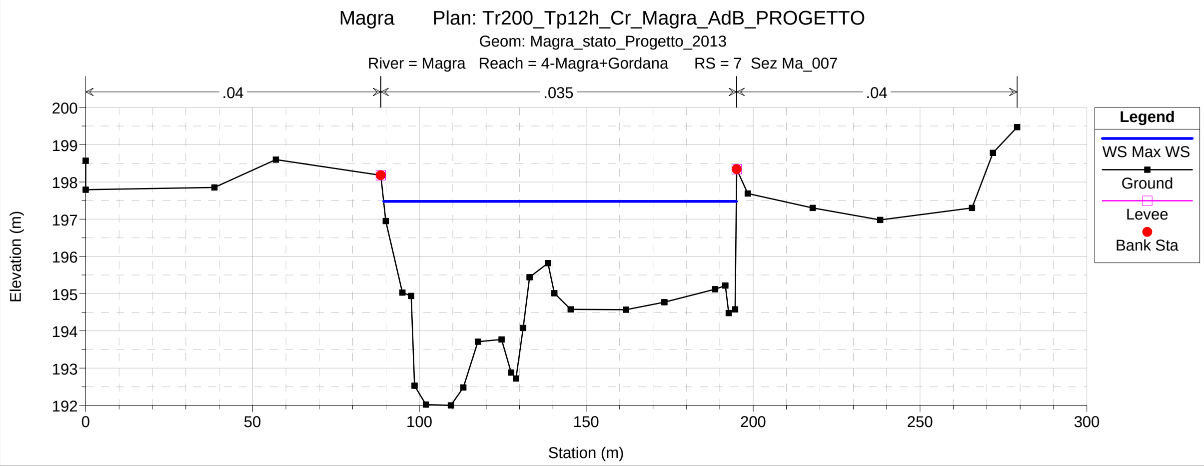




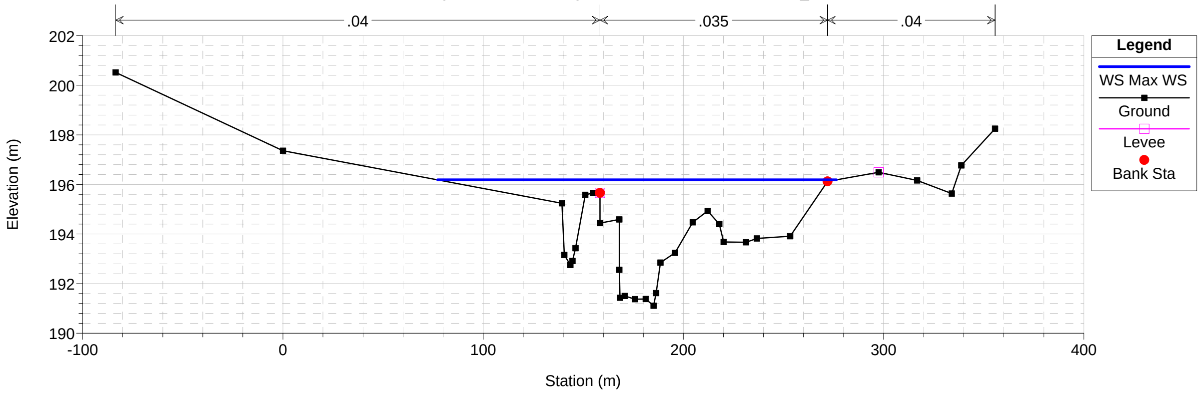

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 10 Sez Ma_010
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 9 Sez Ma_009 - Rialzamento muro
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

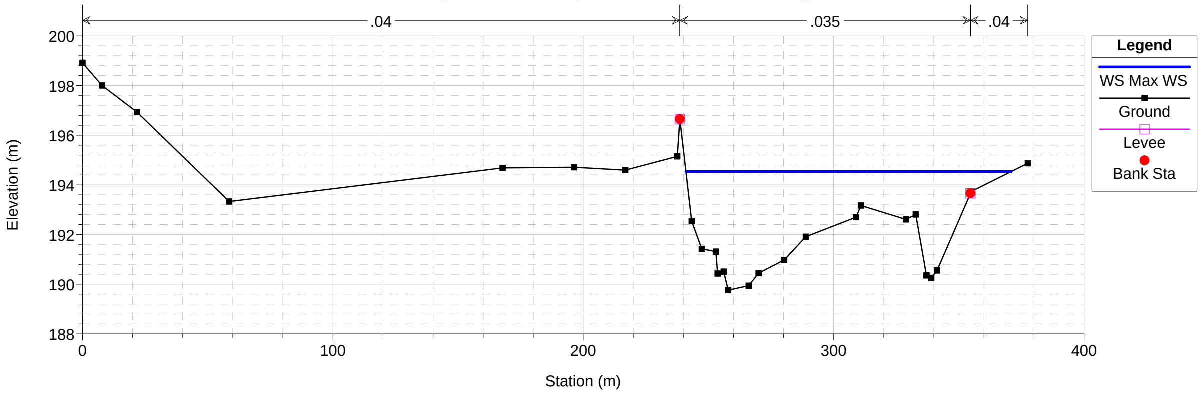

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 8 Sez Ma_008 - Rialzamento muro
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 7 Sez Ma_007
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

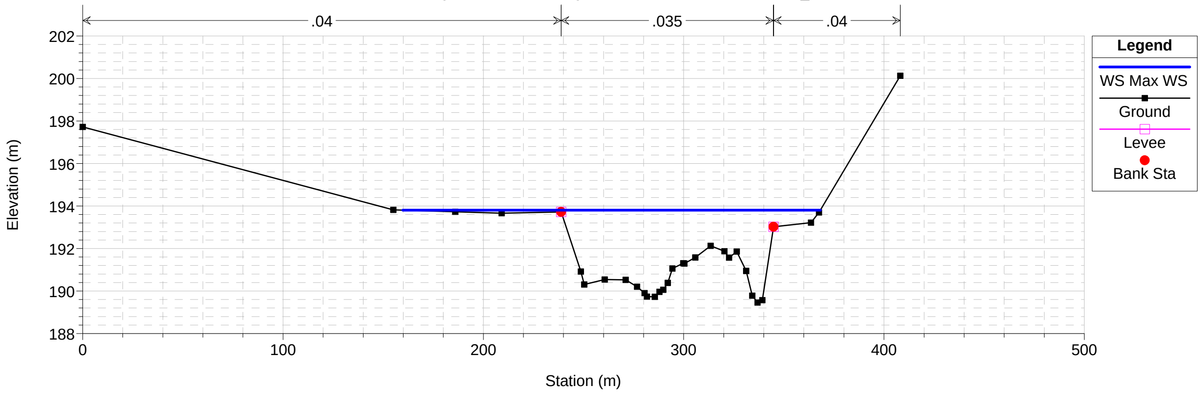
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 6 Sez Ma_006



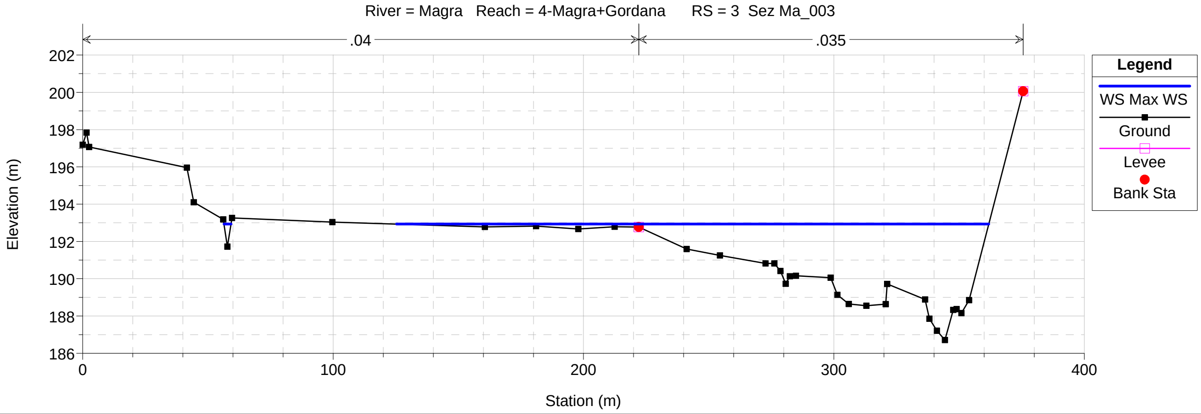
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 5 Sez Ma_005



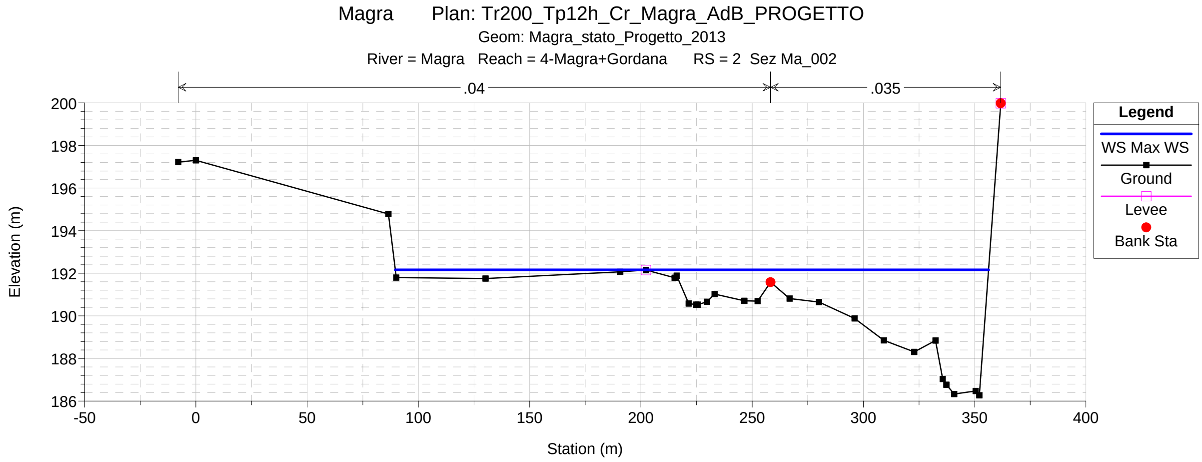
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 4 Sez Ma_004

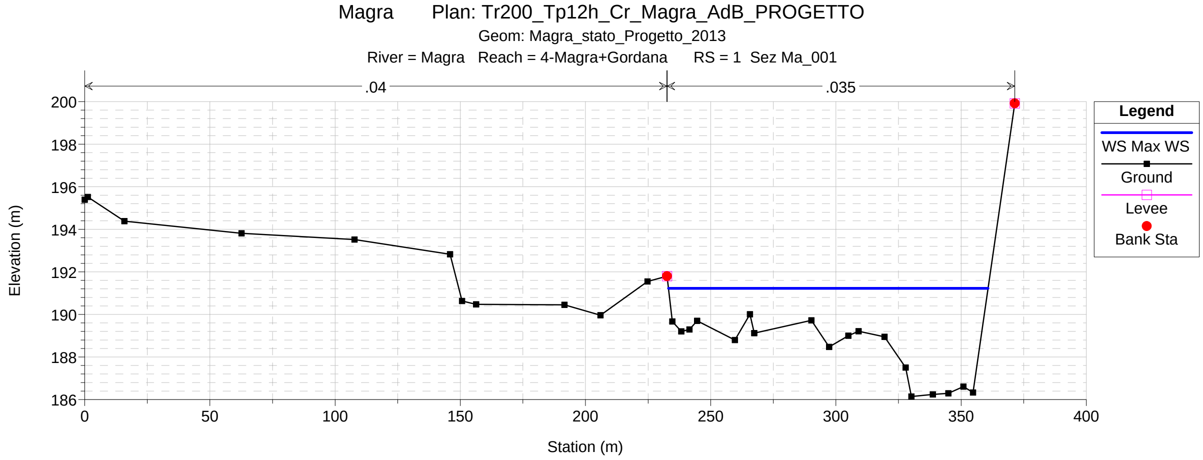


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Magra Reach = 4-Magra+Gordana RS = 3 Sez Ma_003



Allegato 2 - Verifiche idrauliche stato di progetto
-fiume Magra-





HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS

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)	
1-Magra_monte	80	Max WS	903.20	247.41	251.33	251.98	253.63	0.014454	7.62	147.92	63.05	1.33
1-Magra_monte	79	Max WS	903.18	246.10	249.93	250.86	252.68	0.102552	7.64	124.39	52.48	1.32
1-Magra_monte	78	Max WS	904.31	244.25	248.96	248.94	250.48	0.007571	5.52	170.91	57.18	0.93
1-Magra_monte	77	Max WS	905.77	242.03	247.87	249.30	251.41	0.023258	8.34	108.63	30.53	1.41
1-Magra_monte	76	Max WS	906.86	240.75	246.72	247.29	248.94	0.009347	6.87	153.32	59.08	1.03
1-Magra_monte	75.99		Lat Struct									
1-Magra_monte	75	Max WS	908.44	239.20	245.85	246.85	248.74	0.010812	7.64	129.34	43.23	1.07
1-Magra_monte	74	Max WS	909.84	238.93	245.33		246.77	0.004341	5.53	191.99	60.01	0.76
1-Magra_monte	73	Max WS	910.05	238.75	246.11		246.55	0.000996	2.96	318.95	58.66	0.36
1-Magra_monte	72.8	Max WS	910.07	238.75	246.10	242.80	246.55	0.001054	2.98	310.91	49.20	0.37
1-Magra_monte	72.5		Bridge									
1-Magra_monte	72	Max WS	910.06	238.75	244.51		245.30	0.002528	3.94	231.63	47.25	0.55
1-Magra_monte	71	Max WS	910.48	238.16	243.71	243.87	245.71	0.007951	6.49	156.39	47.35	0.97
1-Magra_monte	70	Max WS	911.12	238.12	243.32	243.73	245.42	0.009456	6.57	152.13	53.82	1.03
1-Magra_monte	69	Max WS	911.72	238.09	243.58		244.48	0.003223	4.31	226.68	57.22	0.61
1-Magra_monte	68.8	Max WS	911.77	238.09	243.56	242.49	244.47	0.003262	4.33	225.70	57.20	0.62
1-Magra_monte	68.5		Bridge									
1-Magra_monte	68	Max WS	911.75	238.09	241.95	242.48	244.24	0.012490	6.70	137.20	47.11	1.16
1-Magra_monte	67	Max WS	912.13	237.20	241.67	242.14	243.96	0.013534	6.71	136.27	46.15	1.22
1-Magra_monte	66	Max WS	912.88	235.65	241.06	241.50	243.54	0.011282	7.09	135.10	38.13	1.12
1-Magra_monte	65	Max WS	914.20	236.43	240.18	240.46	241.84	0.009687	6.02	172.39	68.34	1.04
1-Magra_monte	64	Max WS	914.52	235.95	240.27		241.10	0.004024	4.17	238.94	81.98	0.70
1-Magra_monte	63	Max WS	914.58	234.62	240.74	238.65	241.04	0.001058	2.67	393.67	90.95	0.37
1-Magra_monte	62.5		Bridge									
1-Magra_monte	62	Max WS	914.61	234.62	240.51		240.85	0.001210	2.83	375.40	94.53	0.40
1-Magra_monte	61	Max WS	914.73	234.62	240.50		240.84	0.001214	2.83	377.14	98.12	0.40
1-Magra_monte	60	Max WS	915.37	234.13	240.36	238.81	240.79	0.001787	3.36	333.47	82.86	0.47
1-Magra_monte	59.5		Bridge									
1-Magra_monte	59	Max WS	915.37	234.13	238.13	238.81	240.43	0.020342	7.78	150.52	80.80	1.45
1-Magra_monte	58	Max WS	916.07	232.87	237.46	237.55	239.15	0.010846	6.64	163.69	52.54	1.11
1-Magra_monte	57	Max WS	917.99	230.68	236.74		237.73	0.003745	5.11	230.36	62.61	0.72
1-Magra_monte	56	Max WS	919.70	230.22	236.90		237.39	0.001633	3.65	340.87	97.31	0.47
1-Magra_monte	55	Max WS	920.84	230.33	236.32	234.57	237.28	0.002297	4.42	222.99	43.83	0.58
1-Magra_monte	54.5		Inl Struct									
1-Magra_monte	54	Max WS	920.82	228.96	234.58		235.88	0.003793	5.09	188.22	39.24	0.72
1-Magra_monte	53	Max WS	837.06	227.93	233.94		235.71	0.005815	6.14	153.72	40.12	0.86
1-Magra_monte	52	Max WS	834.14	227.52	234.05	233.07	235.24	0.003644	5.02	184.56	39.41	0.68

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS (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)	
1-Magra_monte	51.5		Bridge									
1-Magra_monte	51	Max WS	921.78	227.52	233.29	233.32	235.34	0.007579	6.56	154.71	39.34	0.96
1-Magra_monte	50	Max WS	921.87	227.52	233.25	233.33	235.34	0.007866	6.63	152.82	39.34	0.98
1-Magra_monte	49.99		Lat Struct									
1-Magra_monte	49	Max WS	922.99	226.50	233.30		234.69	0.004213	5.34	182.50	31.35	0.67
1-Magra_monte	48	Max WS	923.44	226.30	232.67		234.55	0.006685	6.08	151.91	26.64	0.81
1-Magra_monte	47	Max WS	923.56	226.20	233.34	231.34	234.45	0.003060	4.78	204.71	31.33	0.58
1-Magra_monte	46.5		Bridge									
1-Magra_monte	46	Max WS	923.56	226.20	231.27	231.34	233.62	0.009537	6.93	139.88	31.33	1.01
1-Magra_monte	45	Max WS	923.74	226.20	231.15	231.34	233.64	0.010344	7.12	136.16	31.33	1.05
1-Magra_monte	44.5	Max WS	924.48	226.20	230.57	231.31	233.58	0.014678	7.74	123.25	39.24	1.28
1-Magra_monte	44.48		Lat Struct									
1-Magra_monte	44	Max WS	925.92	226.20	229.86	230.92	233.45	0.025655	8.61	114.26	46.25	1.65
1-Magra_monte	43	Max WS	926.11	225.35	229.67	230.28	232.23	0.013280	7.22	135.56	46.25	1.25
1-Magra_monte	42	Max WS	926.54	224.58	229.35	230.22	232.14	0.012306	8.09	143.18	55.22	1.25
1-Magra_monte	41.5	Max WS	926.53	223.84	228.74	229.01	230.50	0.008082	6.17	171.64	61.64	0.97
2-Magra+Verde	41.3	Max WS	1423.01	223.84	228.74	230.00	232.90	0.019063	9.48	171.64	61.64	1.50
2-Magra+Verde	41	Max WS	1422.97	223.23	228.19	228.82	230.16	0.009619	6.87	295.53	200.83	1.11
2-Magra+Verde	40	Max WS	1428.99	222.47	227.21	227.94	229.48	0.012308	7.63	285.96	204.66	1.23
2-Magra+Verde	39	Max WS	1435.42	222.14	226.11	226.50	227.45	0.009739	6.24	347.86	218.74	1.08
2-Magra+Verde	38.2	Max WS	1440.52	221.67	225.98		226.47	0.003170	3.80	517.68	213.96	0.63
2-Magra+Verde	38.19		Lat Struct									
2-Magra+Verde	38	Max WS	1441.85	221.55	226.01		226.39	0.002362	3.37	569.66	212.16	0.55
2-Magra+Verde	37	Max WS	1442.22	221.55	225.99	225.20	226.38	0.002415	3.39	565.72	212.16	0.55
2-Magra+Verde	36.5		Bridge									
2-Magra+Verde	36	Max WS	1442.20	221.55	225.75		226.24	0.003208	3.75	516.44	212.15	0.63
2-Magra+Verde	35.99		Lat Struct									
2-Magra+Verde	35	Max WS	1443.49	221.21	225.66		226.18	0.003385	3.87	497.16	204.28	0.64
2-Magra+Verde	34.8	Max WS	1443.63	221.21	225.66	225.14	226.17	0.003206	3.85	503.19	204.28	0.63
2-Magra+Verde	34.5		Inl Struct									
2-Magra+Verde	34	Max WS	1443.64	220.85	223.90	224.53	226.02	0.016647	6.48	226.97	103.88	1.34
2-Magra+Verde	33	Max WS	1449.71	217.81	222.52	223.11	224.83	0.012361	6.79	223.04	86.20	1.19
2-Magra+Verde	32	Max WS	1457.31	216.45	221.12	221.66	223.65	0.014026	7.05	206.74	64.72	1.26
2-Magra+Verde	31.99		Lat Struct									
2-Magra+Verde	31	Max WS	1457.18	214.39	219.83	220.50	221.87	0.010274	6.72	262.70	124.93	1.12
3-Magra+Ardoglia	30.8	Max WS	1502.11	214.39	219.83	220.57	222.00	0.010918	6.92	262.70	124.93	1.16
3-Magra+Ardoglia	30	Max WS	1501.99	213.73	218.06	218.75	220.03	0.012664	6.87	283.76	162.15	1.22

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS (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)	
3-Magra+Ardoglia	29	Max WS	1501.86	212.81	216.98	217.37	218.82	0.011512	6.90	273.85	109.83	1.19
3-Magra+Ardoglia	28.2	Max WS	1501.03	211.68	216.54		217.55	0.004694	4.67	360.24	127.91	0.77
4-Magra+Gordana	28	Max WS	1771.16	211.68	216.54		217.94	0.006522	5.51	360.70	128.27	0.91
4-Magra+Gordana	27	Max WS	1771.13	209.47	215.29	215.81	217.65	0.010774	6.98	272.37	85.17	1.12
4-Magra+Gordana	26.99		Lat Struct									
4-Magra+Gordana	26	Max WS	1773.65	208.57	214.46	214.49	216.08	0.007650	5.75	328.98	106.90	0.95
4-Magra+Gordana	25	Max WS	1775.59	208.43	214.14		215.47	0.004917	5.21	364.90	106.88	0.79
4-Magra+Gordana	24.98		Lat Struct									
4-Magra+Gordana	24	Max WS	1635.19	206.12	214.66		215.20	0.001170	3.37	538.96	121.42	0.41
4-Magra+Gordana	23	Max WS	1604.34	206.50	214.54	211.57	215.21	0.001239	3.71	457.44	66.70	0.43
4-Magra+Gordana	22.5		Bridge									
4-Magra+Gordana	22	Max WS	1604.34	206.50	211.35	211.57	213.63	0.008401	6.72	246.01	66.07	1.02
4-Magra+Gordana	21	Max WS	1604.68	206.03	211.25	211.57	213.73	0.009238	7.03	235.30	60.75	1.09
4-Magra+Gordana	20.99		Lat Struct									
4-Magra+Gordana	20	Max WS	1606.41	206.04	210.57	211.26	213.76	0.014587	7.92	202.81	51.50	1.27
4-Magra+Gordana	19.98		Lat Struct									
4-Magra+Gordana	19	Max WS	1609.65	203.64	209.26	209.45	211.28	0.009403	6.32	259.07	76.99	1.04
4-Magra+Gordana	18	Max WS	1611.37	203.46	208.56	209.00	210.93	0.011668	6.83	238.38	73.35	1.17
4-Magra+Gordana	17	Max WS	1614.22	200.87	206.86		208.19	0.005638	5.12	320.02	92.59	0.83
4-Magra+Gordana	16	Max WS	1613.51	200.91	205.93	206.18	208.33	0.010527	6.86	235.32	58.64	1.09
4-Magra+Gordana	15.98		Lat Struct									
4-Magra+Gordana	15	Max WS	1616.74	199.83	204.82	205.16	207.09	0.011175	6.67	242.25	70.69	1.15
4-Magra+Gordana	14.5	Max WS	1620.04	199.26	203.71	203.99	205.66	0.010393	6.18	262.50	91.01	1.11
4-Magra+Gordana	14.49		Lat Struct									
4-Magra+Gordana	14	Max WS	1639.20	198.75	202.62	203.10	204.76	0.014050	6.47	253.81	109.16	1.26
4-Magra+Gordana	13	Max WS	1810.49	196.11	200.14	200.53	202.11	0.011465	6.22	291.62	106.67	1.15
4-Magra+Gordana	12	Max WS	1816.20	194.05	199.68		200.52	0.002967	4.06	447.32	98.35	0.61
4-Magra+Gordana	11	Max WS	1816.62	194.05	199.71	198.22	200.48	0.002683	3.89	466.59	98.30	0.57
4-Magra+Gordana	10.5		Bridge									
4-Magra+Gordana	10	Max WS	1816.63	194.05	198.65		199.93	0.006053	5.01	362.64	98.04	0.83
4-Magra+Gordana	9.99		Lat Struct									
4-Magra+Gordana	9	Max WS	1817.25	192.69	198.35	198.40	200.02	0.009720	5.72	317.96	100.31	1.02
4-Magra+Gordana	8	Max WS	1818.48	192.82	197.97	198.15	199.78	0.010695	5.96	305.05	98.83	1.08
4-Magra+Gordana	7	Max WS	1820.20	192.00	197.48	197.41	198.97	0.008278	5.41	336.43	105.67	0.97
4-Magra+Gordana	6	Max WS	1824.28	191.11	196.18	196.73	197.86	0.013554	5.93	344.37	199.14	1.20
4-Magra+Gordana	5	Max WS	1828.70	189.76	194.54	194.75	196.18	0.010326	5.70	326.12	129.86	1.08
4-Magra+Gordana	4	Max WS	1830.93	189.46	193.81	194.35	195.60	0.011229	5.99	321.91	208.47	1.14

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS (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)	
4-Magra+Gordana	3	Max WS	1834.48	186.71	192.93	192.77	194.03	0.006856	4.65	407.37	239.32	0.88
4-Magra+Gordana	2	Max WS	1837.73	186.27	192.16	192.61	193.71	0.009653	5.73	384.30	266.60	1.05
4-Magra+Gordana	1	Max WS	1837.66	186.14	191.23	191.33	192.71	0.010020	5.40	340.27	127.67	1.06

Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

Scenario A - Evento critico sul fiume Magra

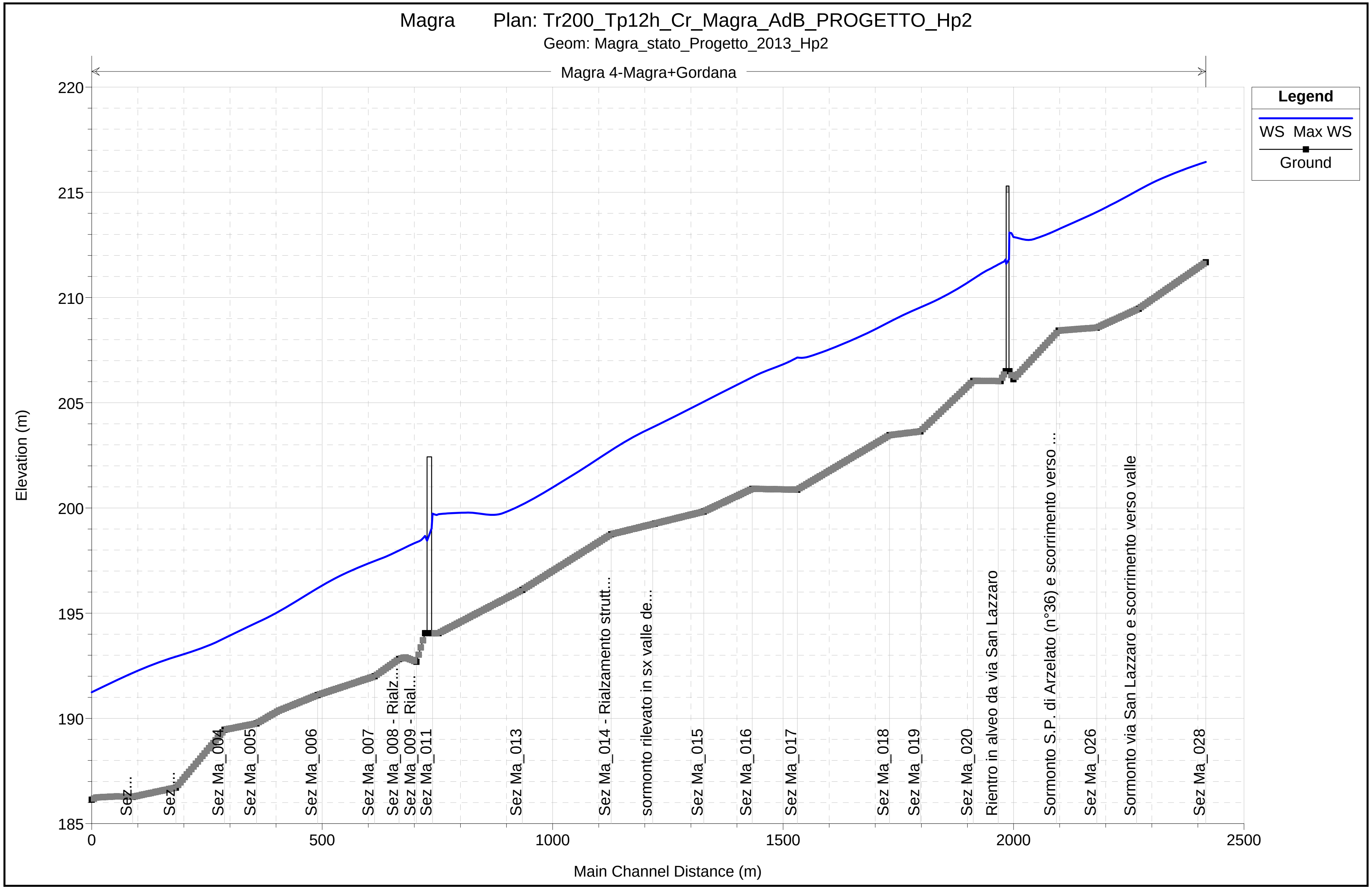
FIUME MAGRA - Soluzione progettuale 2

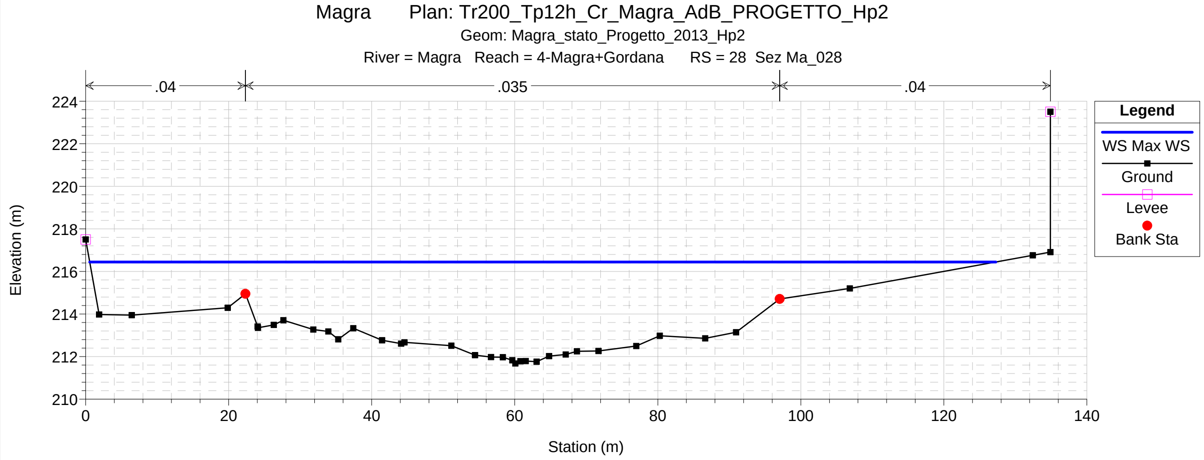
Tratto a valle della confluenza con il t. Gordana – Sez. Ma_028-Ma_001

Tr = 200 anni

- Profili
- Sezioni
- Tabella di output

Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2

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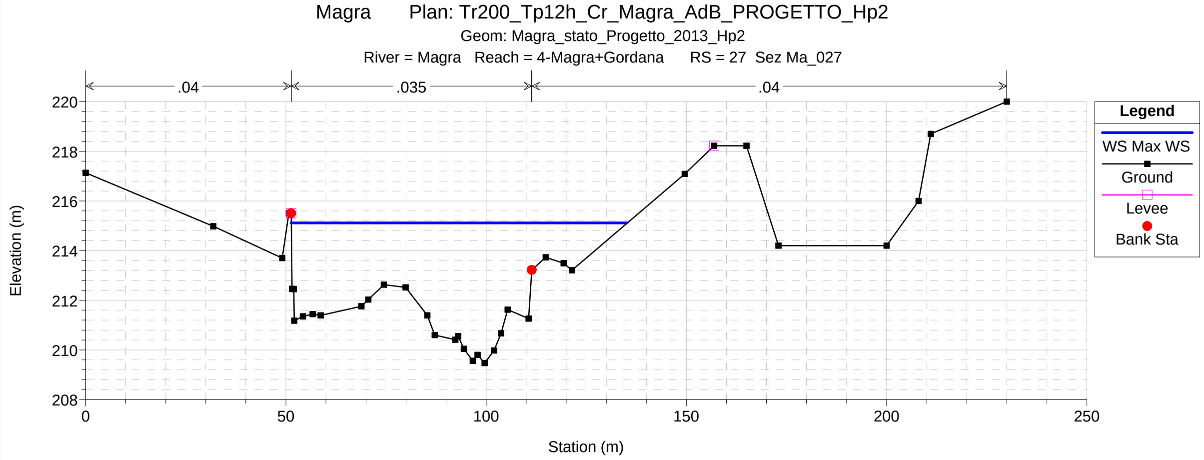
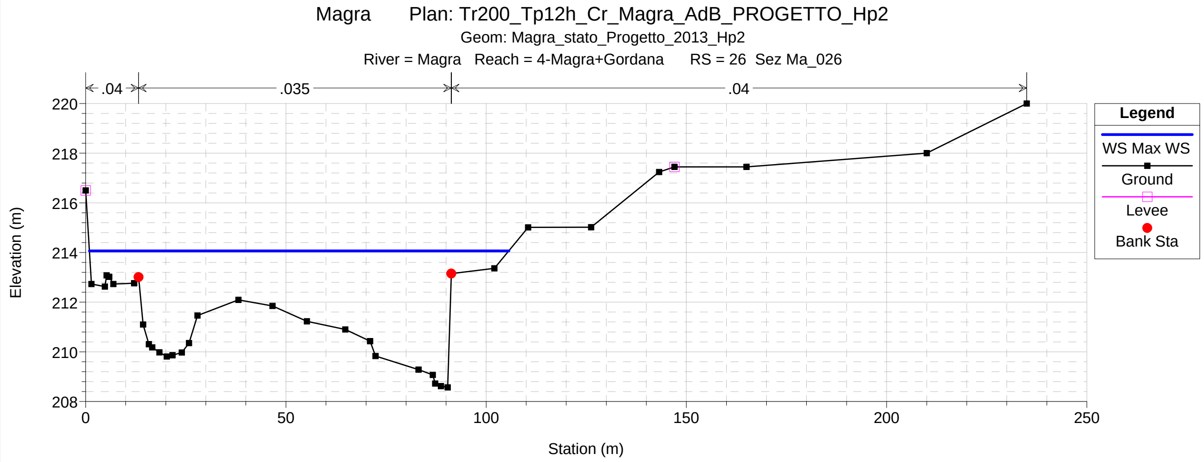
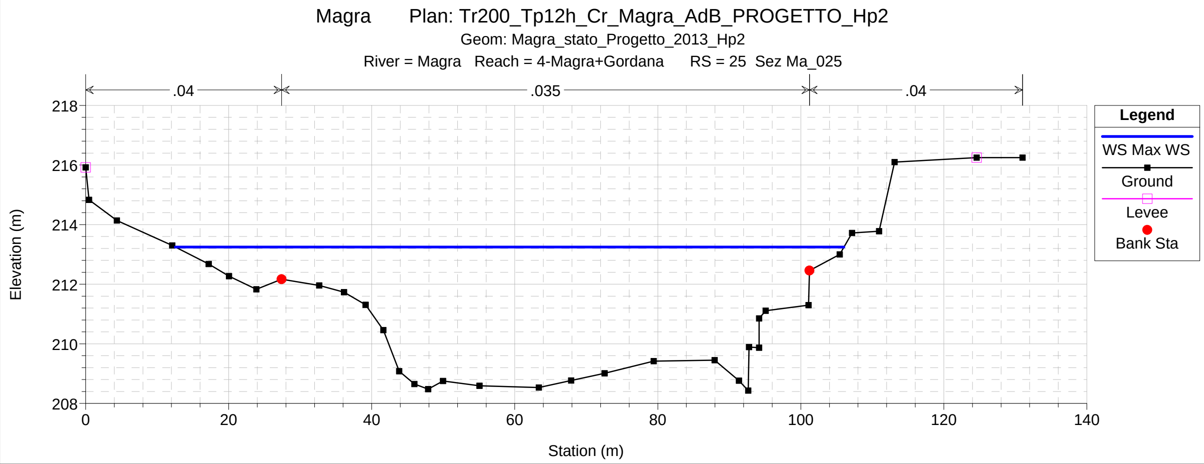
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 28 Sez Ma_028
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 27 Sez Ma_027
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 26 Sez Ma_026
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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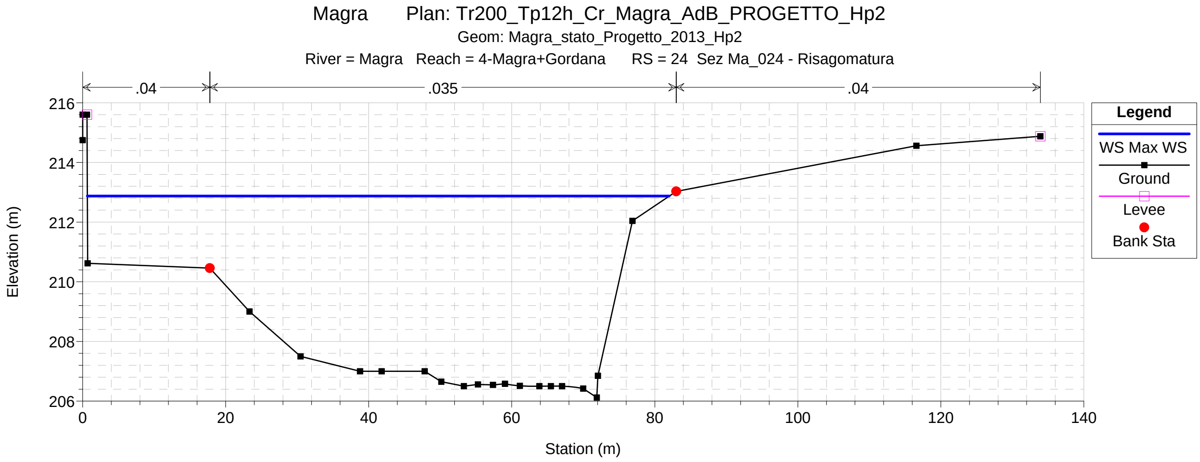
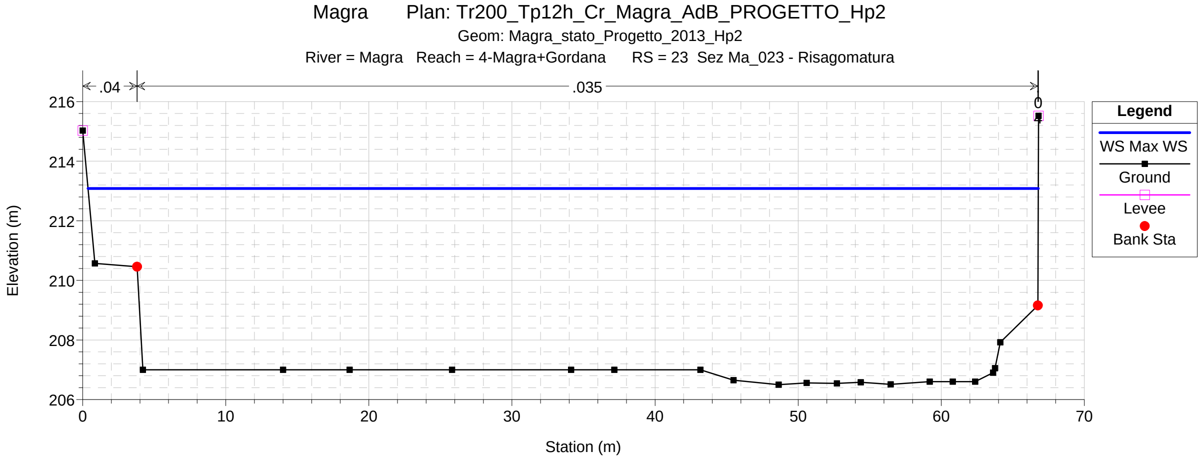
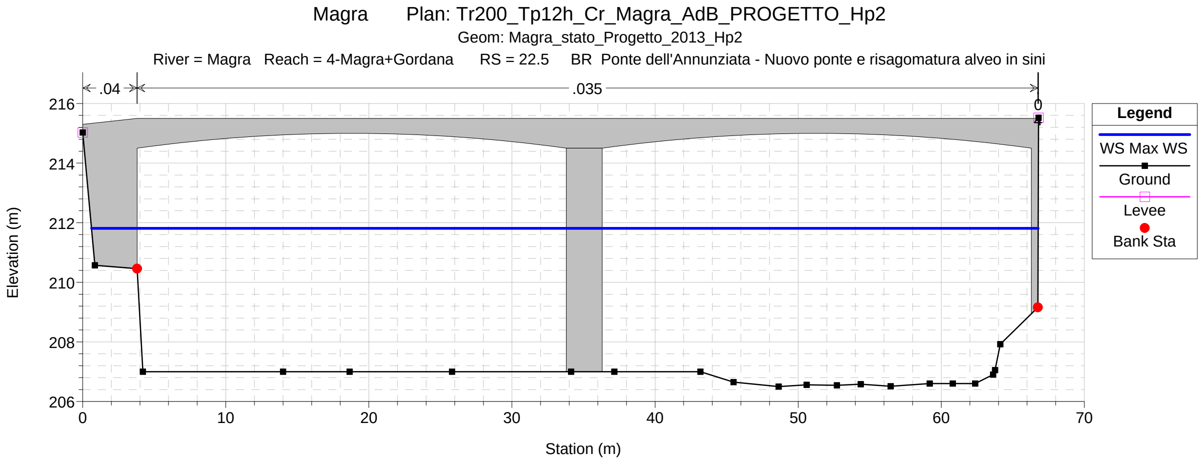
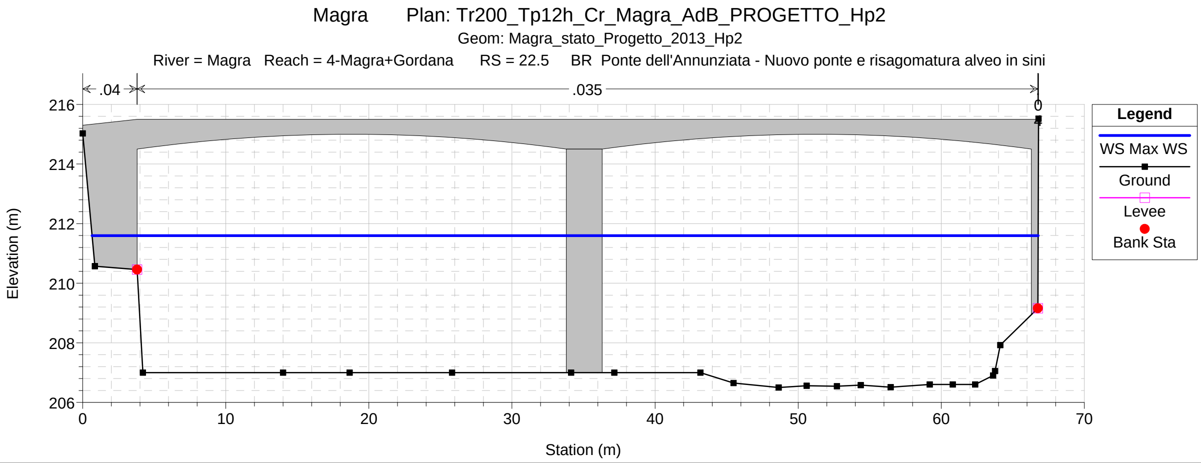
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 25 Sez Ma_025
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

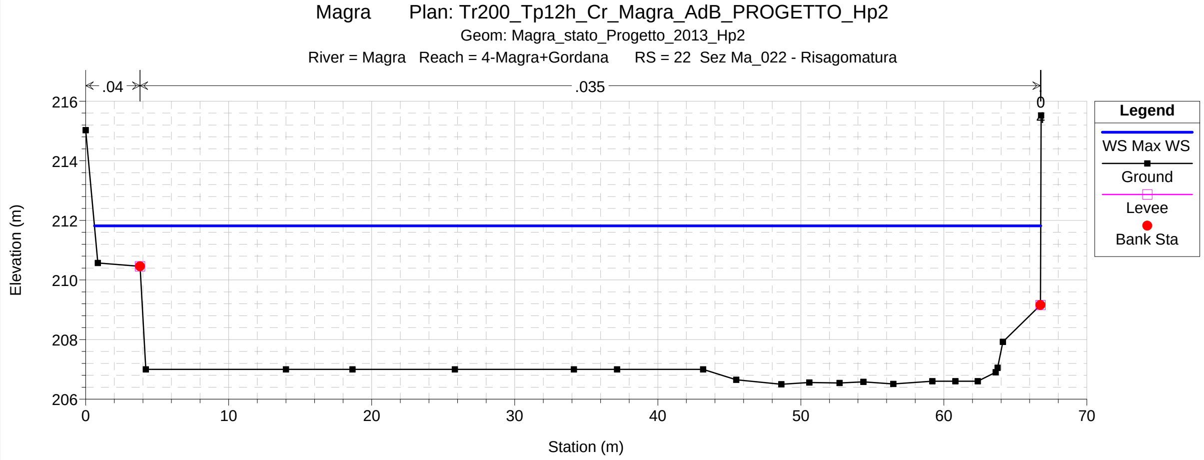
Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2







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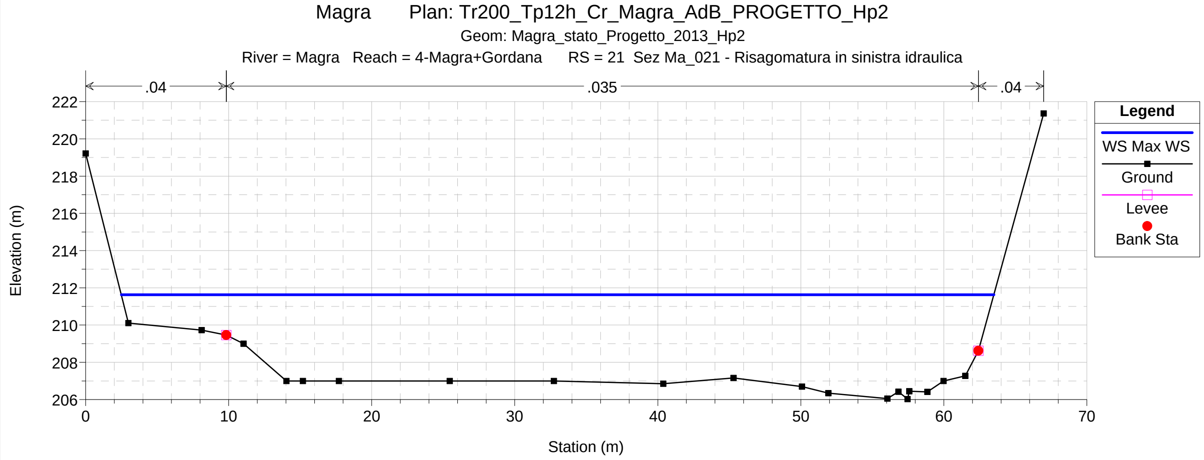
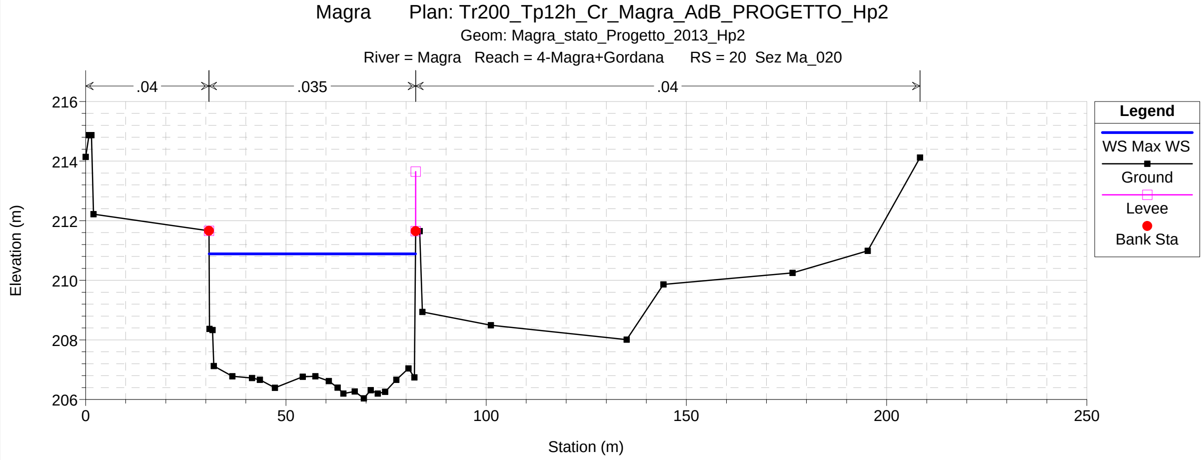
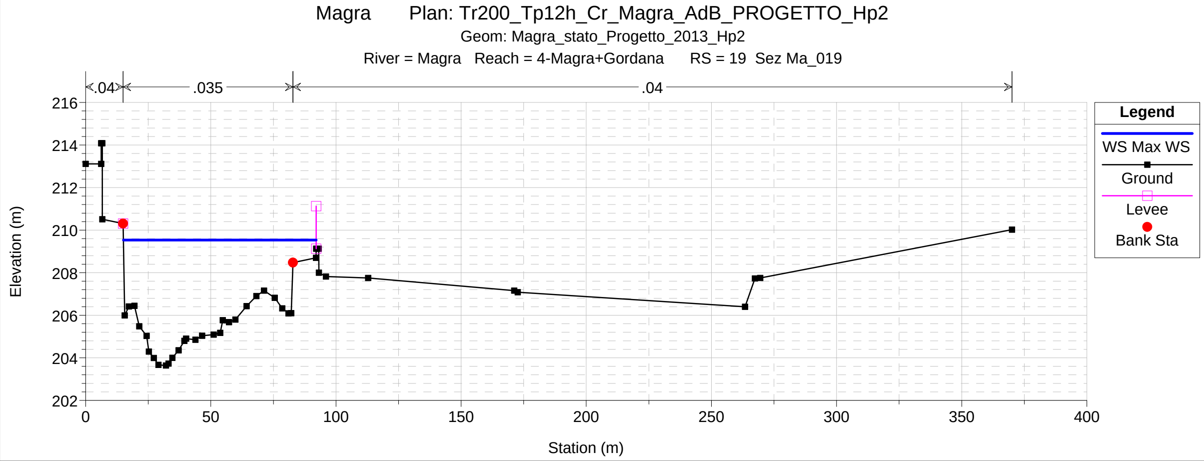
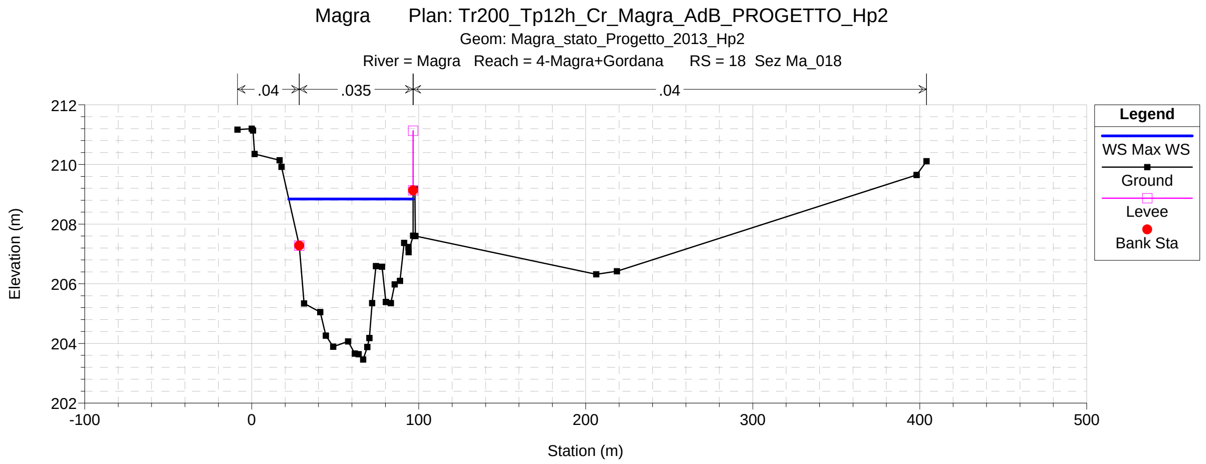
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 22 Sez Ma_022 - Risagomatura
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

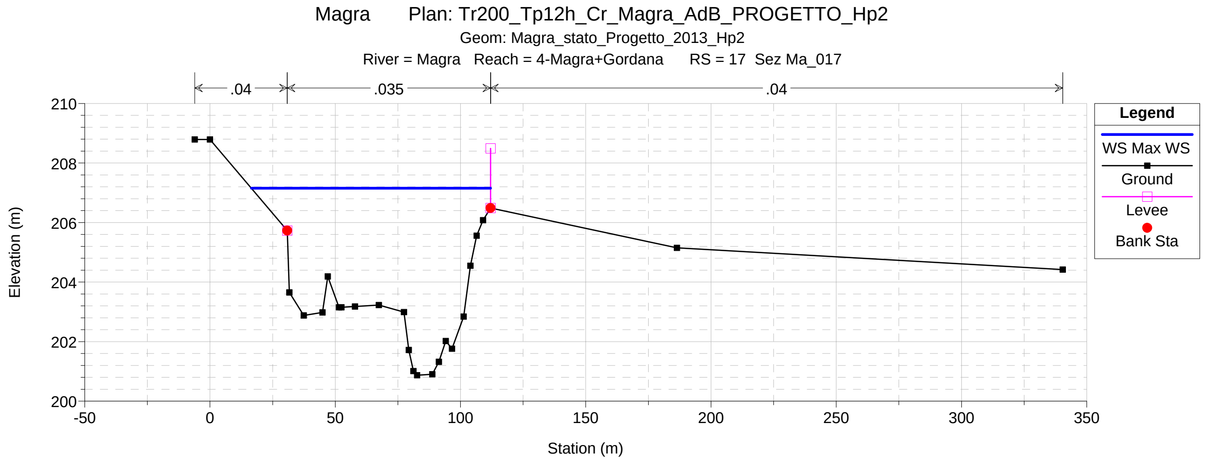

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 21 Sez Ma_021 - Risagomatura in sinistra idraulica
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

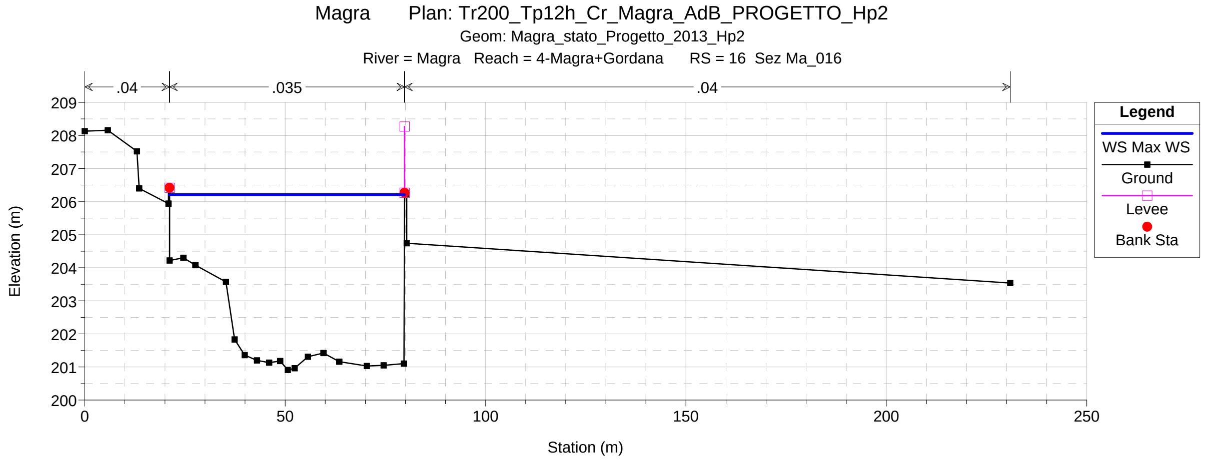

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 20 Sez Ma_020
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

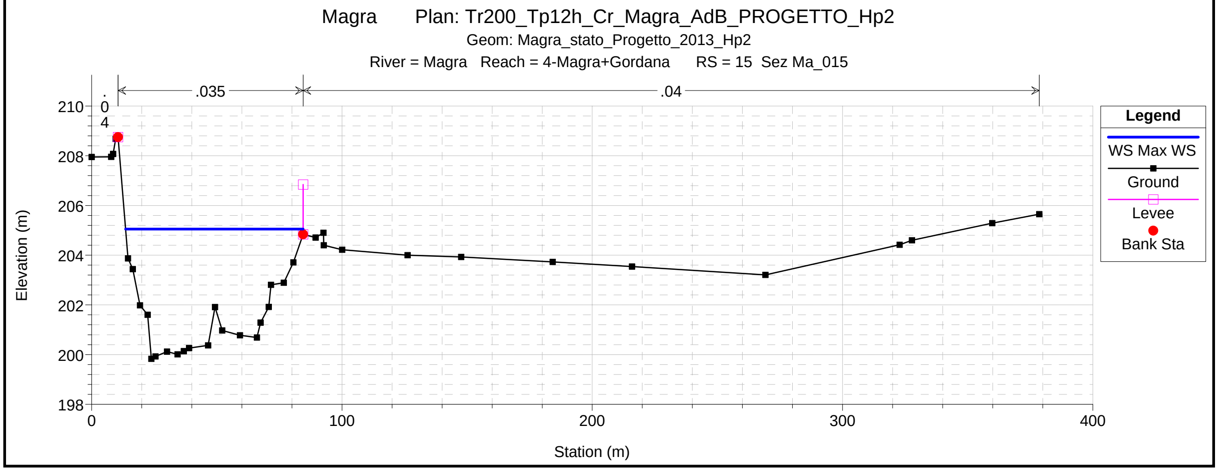

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 19 Sez Ma_019
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

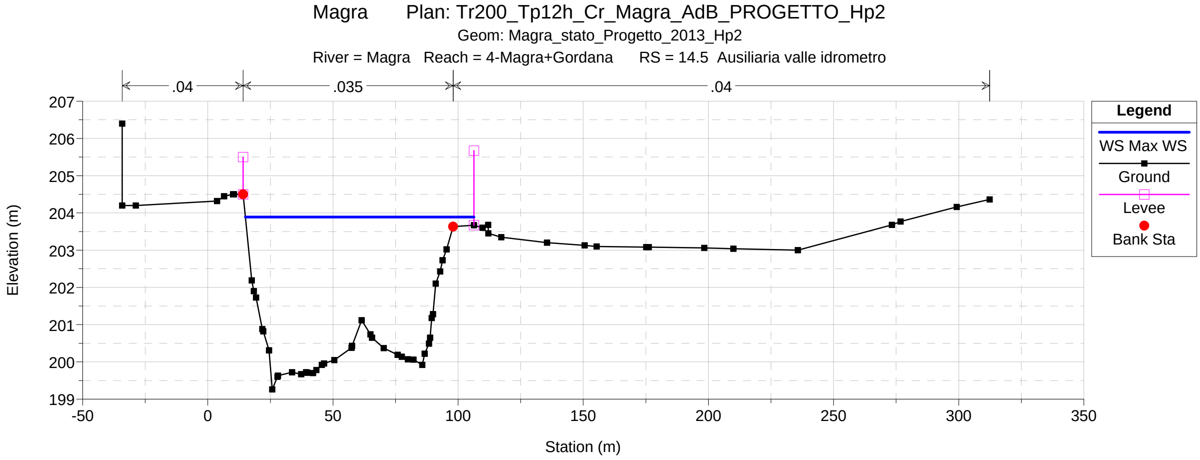
Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2

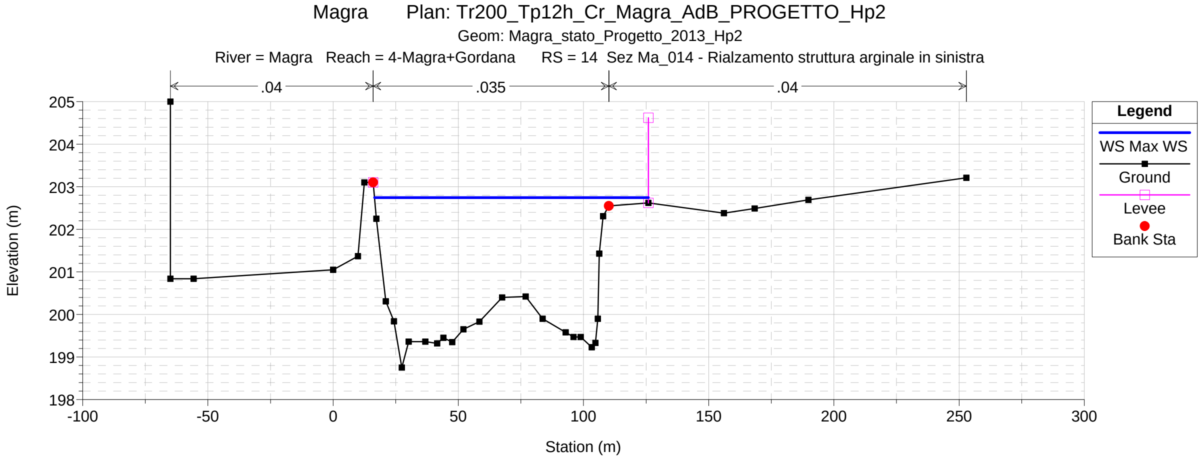


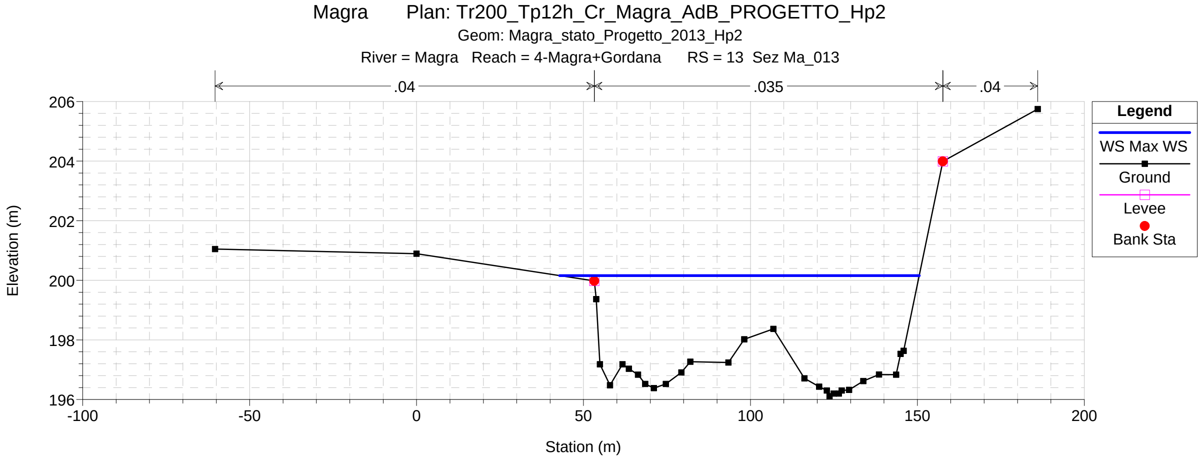


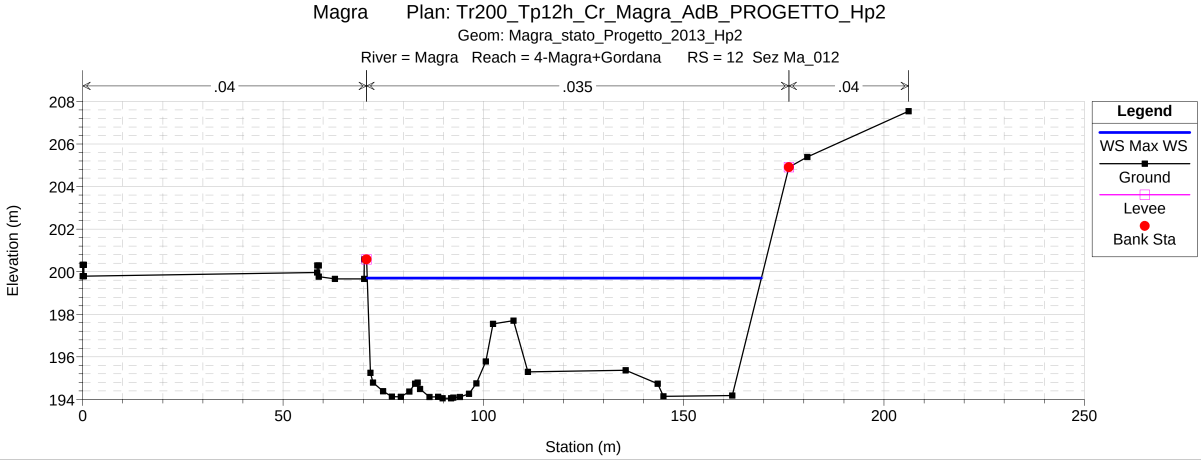




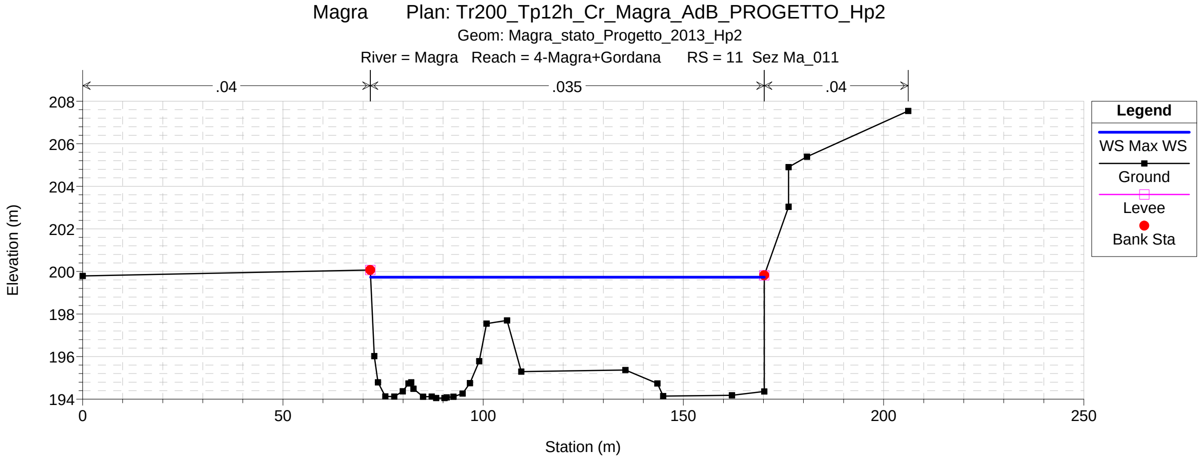

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 14.5 Ausiliaria valle idrometro
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

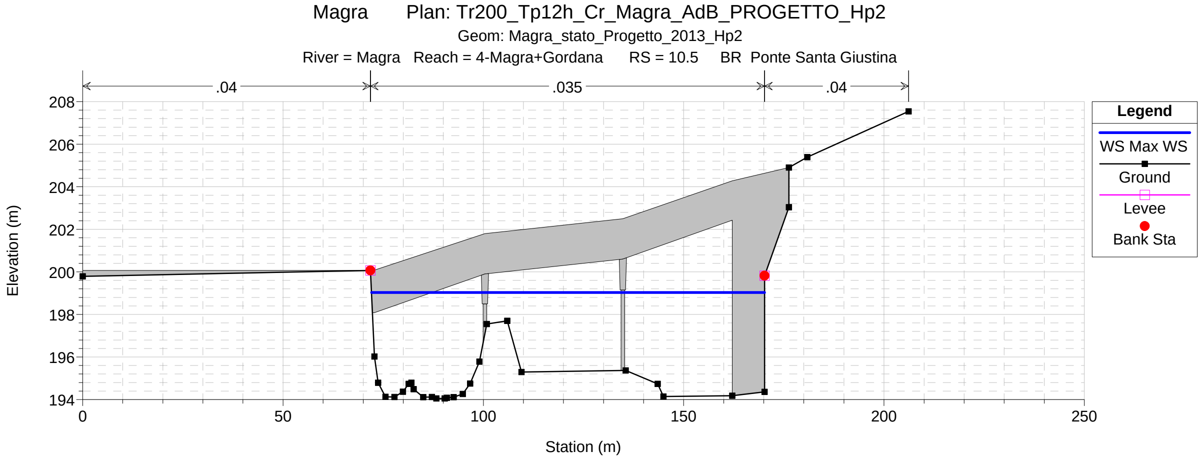

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 14 Sez Ma_014 - Rialzamento struttura arginale in sinistra
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

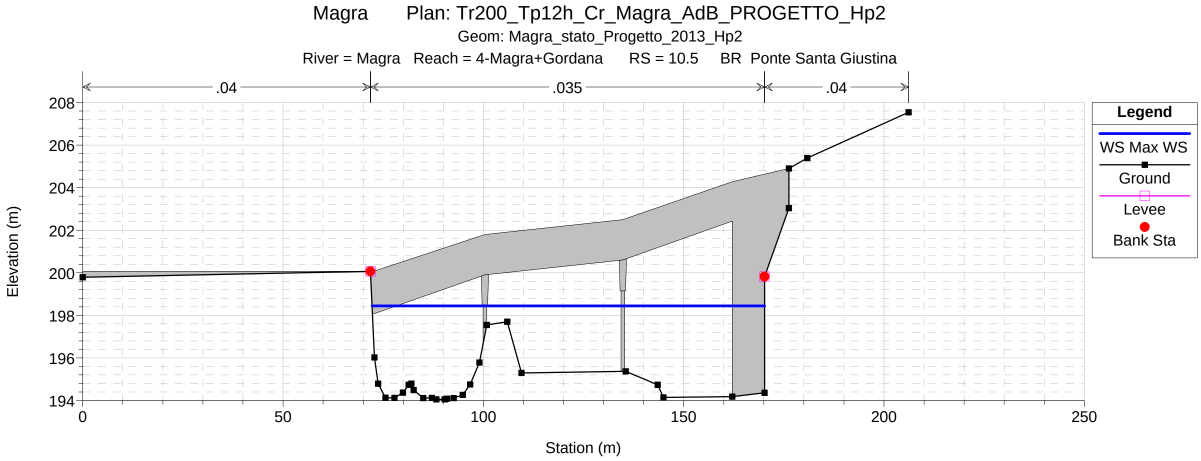

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 13 Sez Ma_013
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

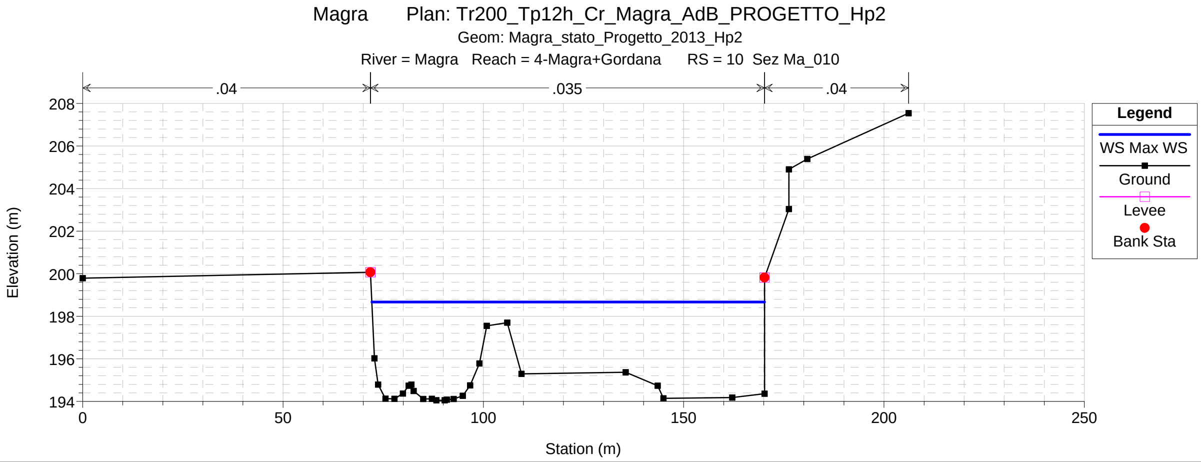

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 12 Sez Ma_012
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2

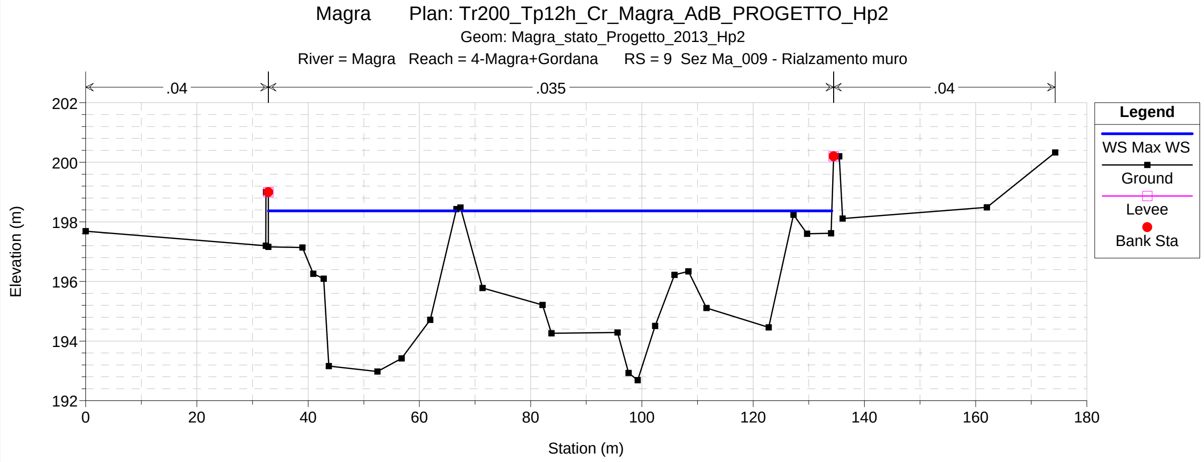


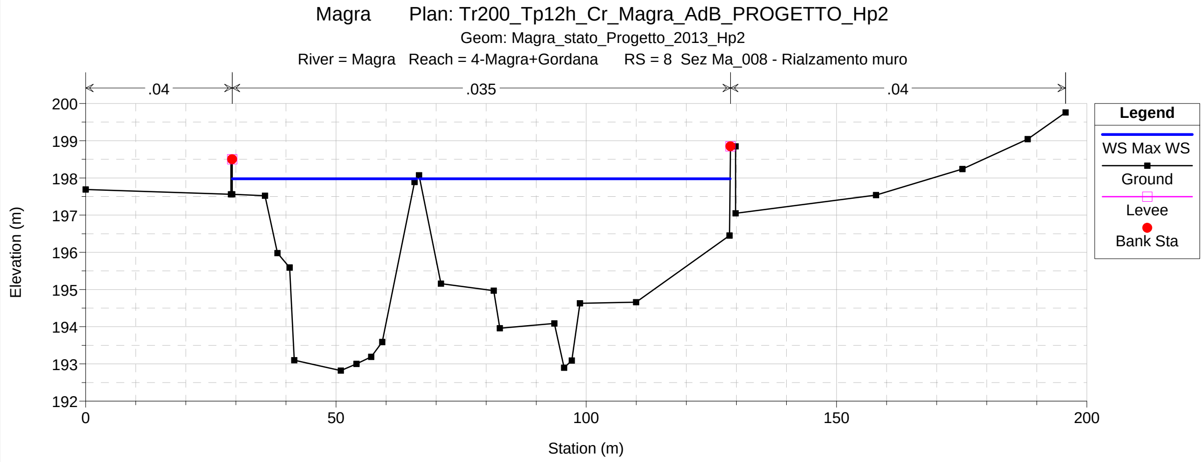


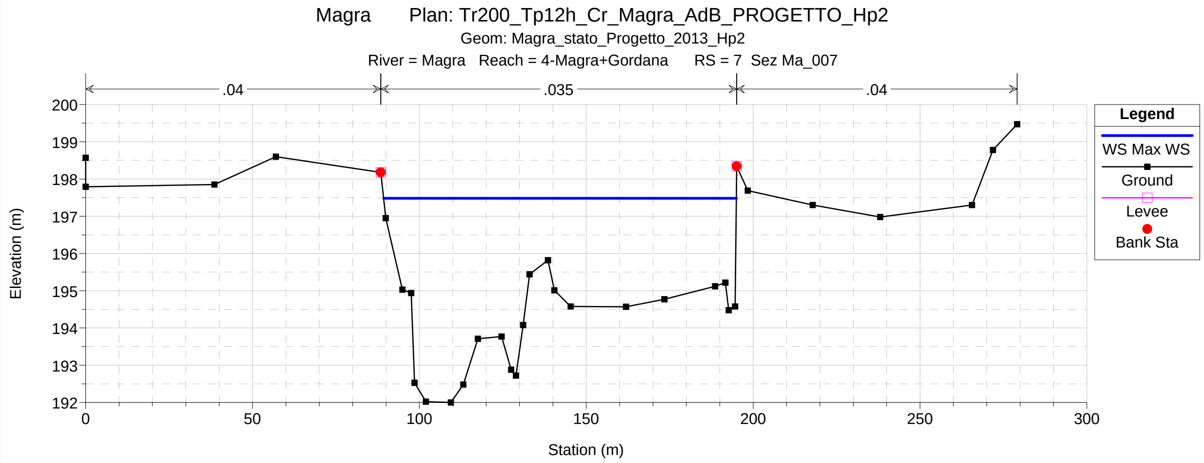


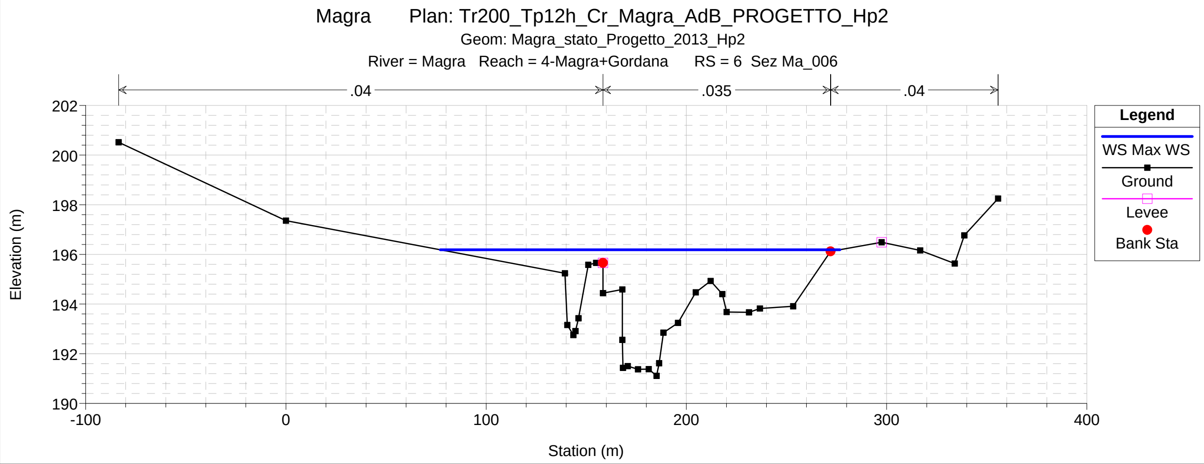


Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2

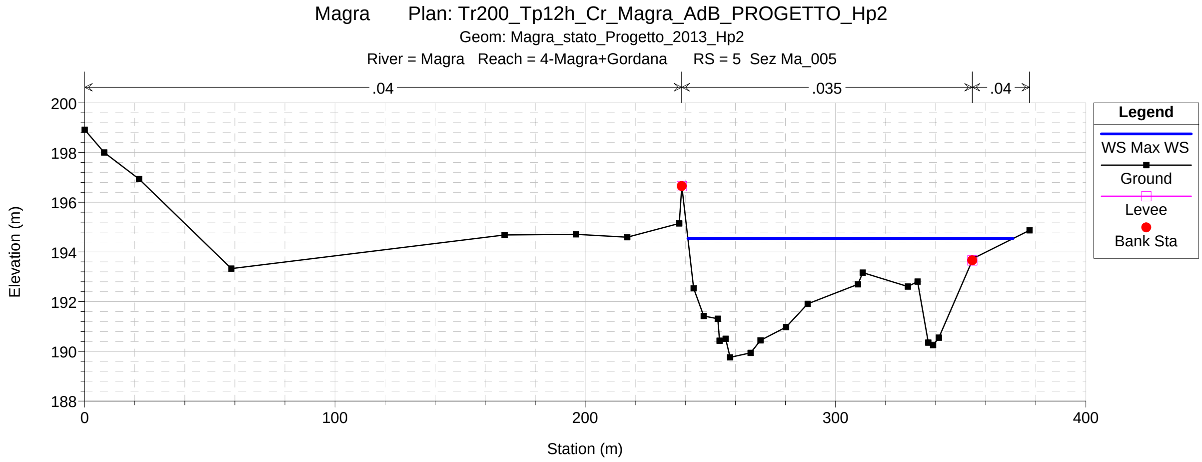


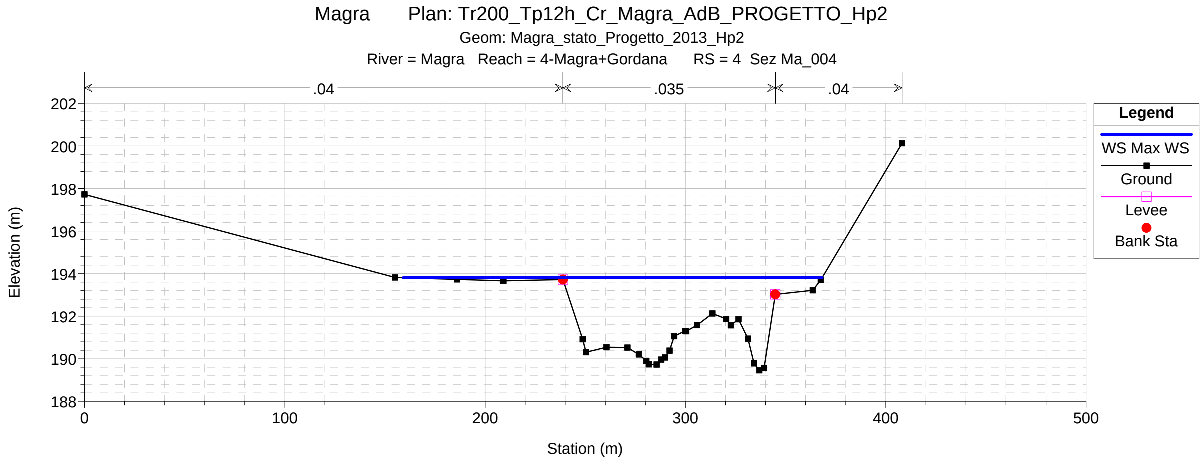


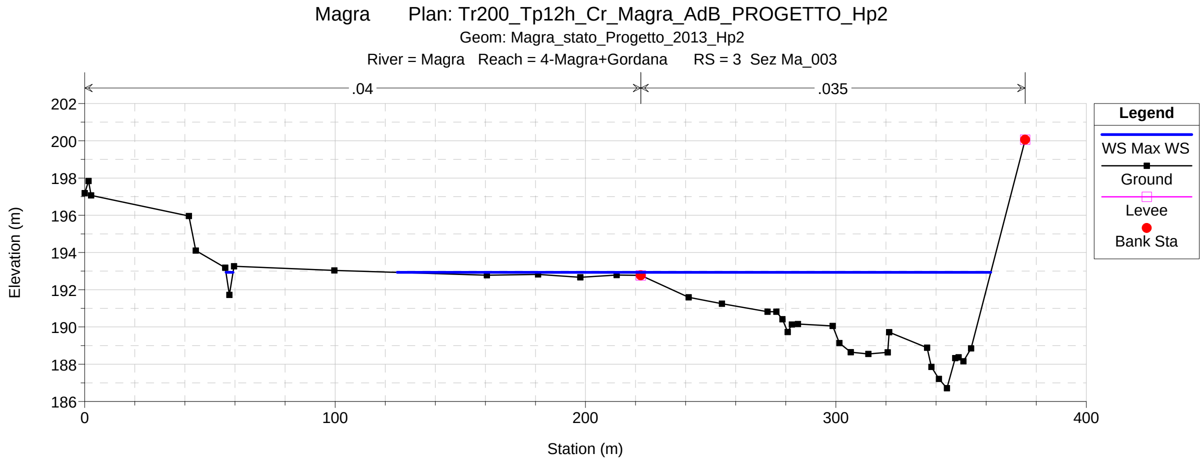


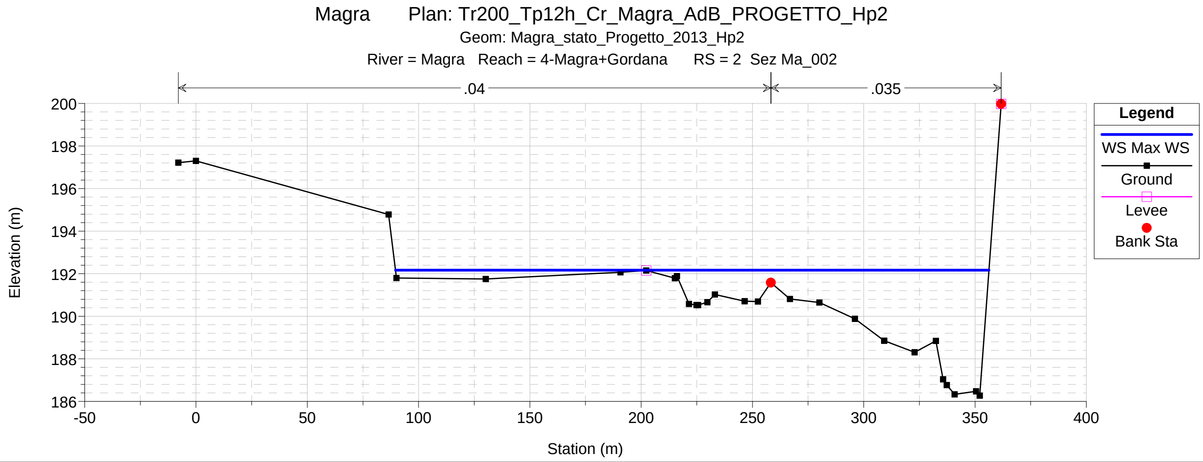


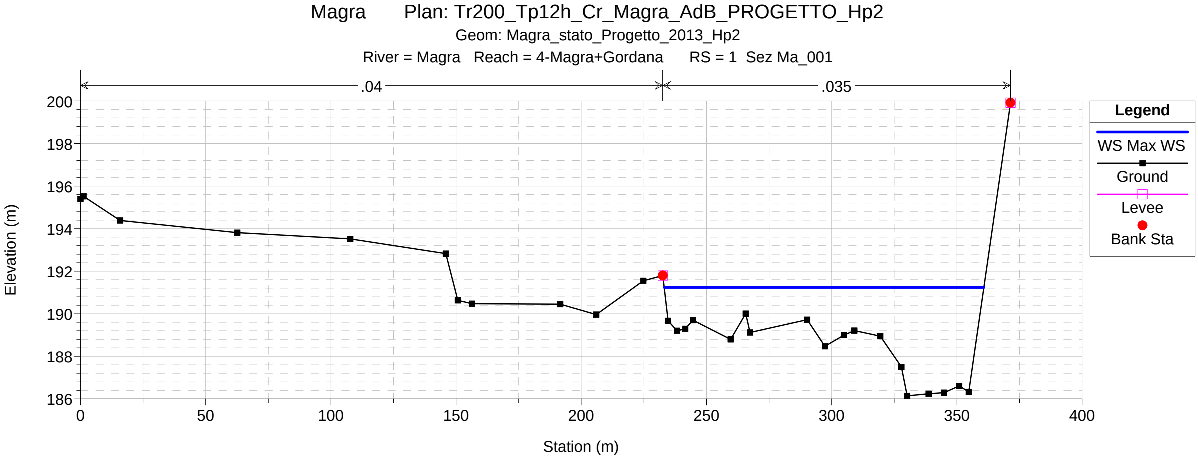
Allegato 2 - Verifiche idrauliche stato di progetto
- fiume Magra - Soluzione 2










Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO_Hp2
Geom: Magra_stato_Progetto_2013_Hp2
River = Magra Reach = 4-Magra+Gordana RS = 1 Sez Ma_001
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
200
198
196
194
192
190
188
186
0
50
100
150
200
250
300
350
400

HEC-RAS Plan: 200_12_CrMa_PRO2 River: Magra Reach: 4-Magra+Gordana Profile: Max WS

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)	
4-Magra+Gordana	28	Max WS	1771.82	211.68	216.45	216.49	217.95	0.007160	5.68	349.04	126.72	0.95
4-Magra+Gordana	27	Max WS	1771.80	209.47	215.11	215.82	217.75	0.012662	7.35	257.51	83.88	1.20
4-Magra+Gordana	26.99		Lat Struct									
4-Magra+Gordana	26	Max WS	1744.57	208.57	214.07	214.46	216.10	0.011069	6.42	287.12	104.74	1.12
4-Magra+Gordana	25	Max WS	1748.12	208.43	213.25	213.64	215.41	0.010556	6.57	275.94	93.51	1.12
4-Magra+Gordana	24.98		Lat Struct									
4-Magra+Gordana	24	Max WS	1684.92	206.12	212.87		214.05	0.003689	4.92	362.45	81.38	0.70
4-Magra+Gordana	23	Max WS	1681.33	206.50	213.09	211.14	214.03	0.002212	4.32	394.57	66.41	0.56
4-Magra+Gordana	22.5		Bridge									
4-Magra+Gordana	22	Max WS	1834.84	206.50	211.82		213.62	0.005742	5.96	310.46	66.16	0.86
4-Magra+Gordana	21	Max WS	1824.36	206.03	211.63	211.96	214.30	0.008926	7.31	258.18	61.00	1.08
4-Magra+Gordana	20.99		Lat Struct									
4-Magra+Gordana	20	Max WS	1809.36	206.04	210.89	211.64	214.36	0.014480	8.25	219.25	51.53	1.28
4-Magra+Gordana	19.98		Lat Struct									
4-Magra+Gordana	19	Max WS	1843.91	203.64	209.53	209.81	211.81	0.009727	6.72	280.10	77.03	1.07
4-Magra+Gordana	18	Max WS	1832.42	203.46	208.84	209.35	211.45	0.011659	7.17	258.97	74.48	1.19
4-Magra+Gordana	17	Max WS	1800.64	200.87	207.15		208.57	0.005504	5.30	347.22	95.50	0.83
4-Magra+Gordana	16	Max WS	1735.40	200.91	206.21	206.45	208.63	0.009826	6.89	251.81	58.65	1.06
4-Magra+Gordana	15.98		Lat Struct									
4-Magra+Gordana	15	Max WS	1719.93	199.83	205.05	205.33	207.31	0.010309	6.66	258.36	70.93	1.11
4-Magra+Gordana	14.5	Max WS	1810.87	199.26	203.89	204.26	206.06	0.010857	6.54	278.69	91.27	1.14
4-Magra+Gordana	14.49		Lat Struct									
4-Magra+Gordana	14	Max WS	1794.72	198.75	202.75	203.10	205.08	0.014571	6.78	267.03	109.35	1.29
4-Magra+Gordana	13	Max WS	1814.86	196.11	200.16	200.54	202.12	0.011297	6.20	293.54	107.76	1.14
4-Magra+Gordana	12	Max WS	1828.62	194.05	199.70		200.55	0.002965	4.07	449.33	98.38	0.61
4-Magra+Gordana	11	Max WS	1828.42	194.05	199.73	198.24	200.51	0.002677	3.90	468.78	98.31	0.57
4-Magra+Gordana	10.5		Bridge									
4-Magra+Gordana	10	Max WS	1814.03	194.05	198.67		199.93	0.005935	4.98	364.53	98.04	0.82
4-Magra+Gordana	9.99		Lat Struct									
4-Magra+Gordana	9	Max WS	1813.75	192.69	198.37	198.41	200.01	0.009556	5.68	319.30	100.35	1.02
4-Magra+Gordana	8	Max WS	1812.00	192.82	197.98	198.14	199.76	0.010519	5.92	306.02	98.90	1.07
4-Magra+Gordana	7	Max WS	1826.08	192.00	197.48	197.42	198.98	0.008290	5.42	336.95	105.68	0.97
4-Magra+Gordana	6	Max WS	1826.39	191.11	196.19	196.73	197.86	0.013529	5.93	344.92	199.51	1.20
4-Magra+Gordana	5	Max WS	1823.61	189.76	194.54	194.74	196.17	0.010235	5.67	326.48	129.91	1.08
4-Magra+Gordana	4	Max WS	1830.86	189.46	193.81	194.35	195.60	0.011197	5.98	322.36	209.21	1.13
4-Magra+Gordana	3	Max WS	1834.21	186.71	192.93	192.77	194.03	0.006836	4.64	407.88	239.83	0.88
4-Magra+Gordana	2	Max WS	1863.21	186.27	192.16	192.63	193.75	0.009834	5.79	385.92	266.62	1.06

HEC-RAS Plan: 200_12_CrMa_PRO2 River: Magra Reach: 4-Magra+Gordana Profile: Max WS (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)	
4-Magra+Gordana	1	Max WS	1856.81	186.14	191.24	191.35	192.74	0.010023	5.42	342.41	127.70	1.06

Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

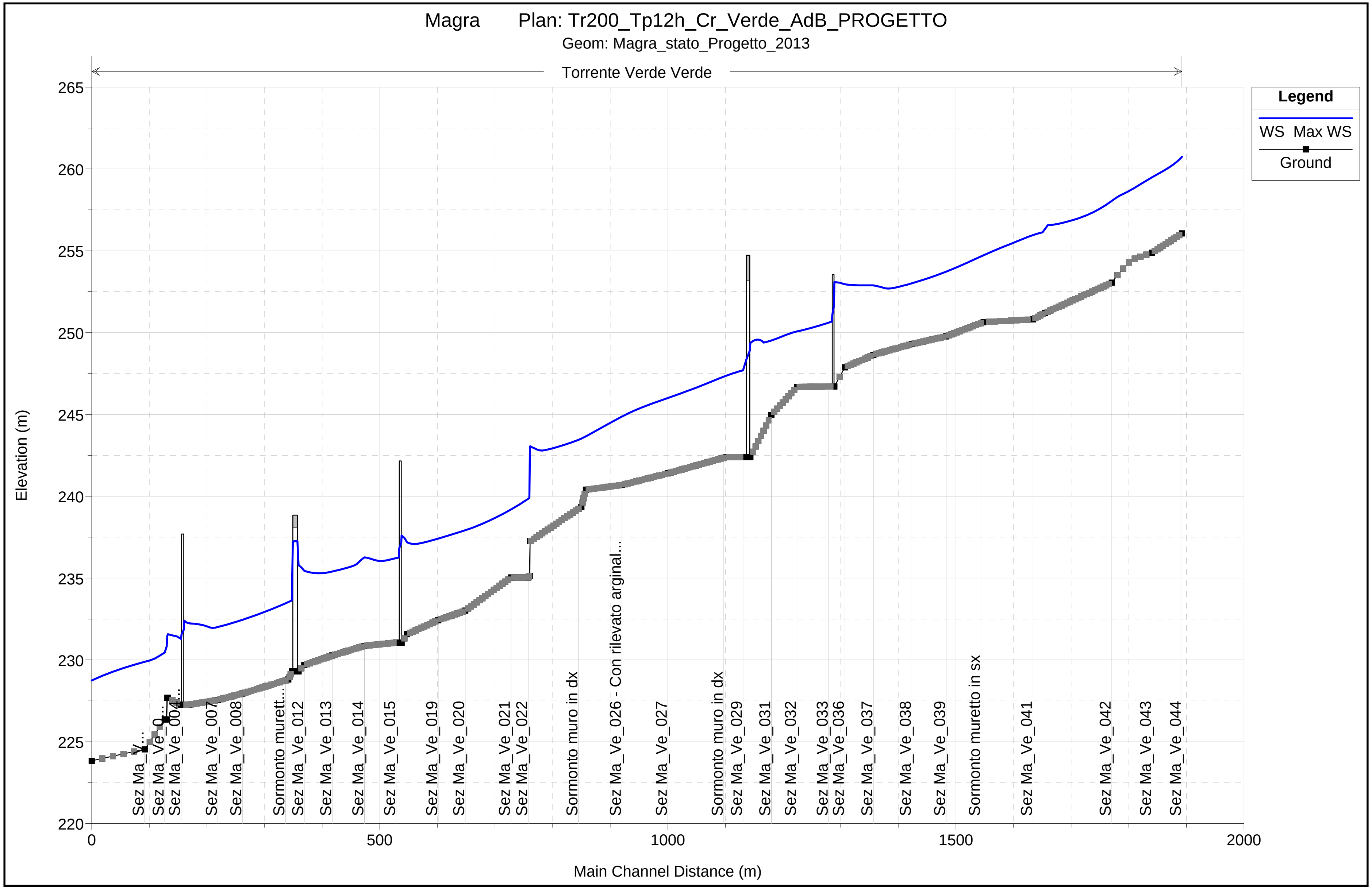
Scenario B - Evento critico sul torrente Verde

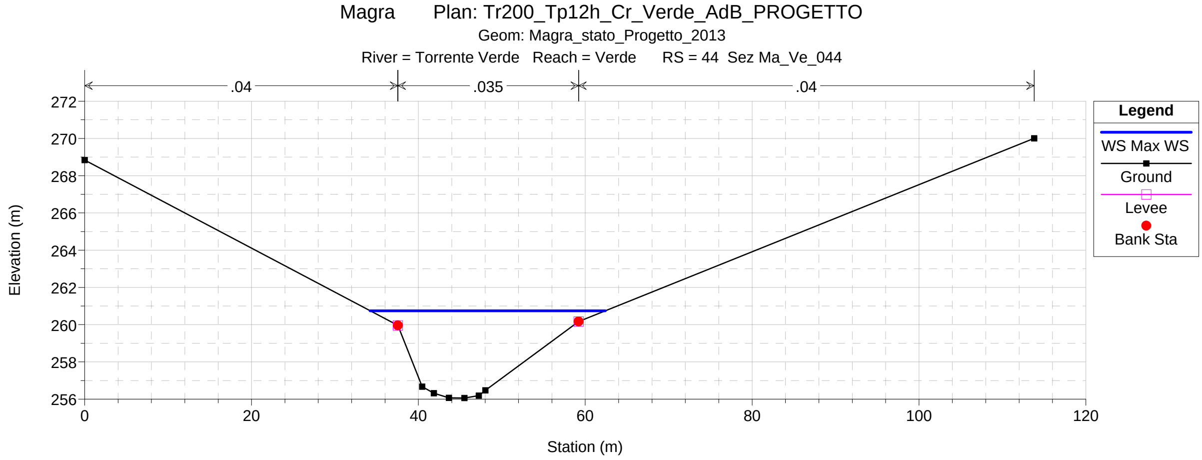
TORRENTE VERDE

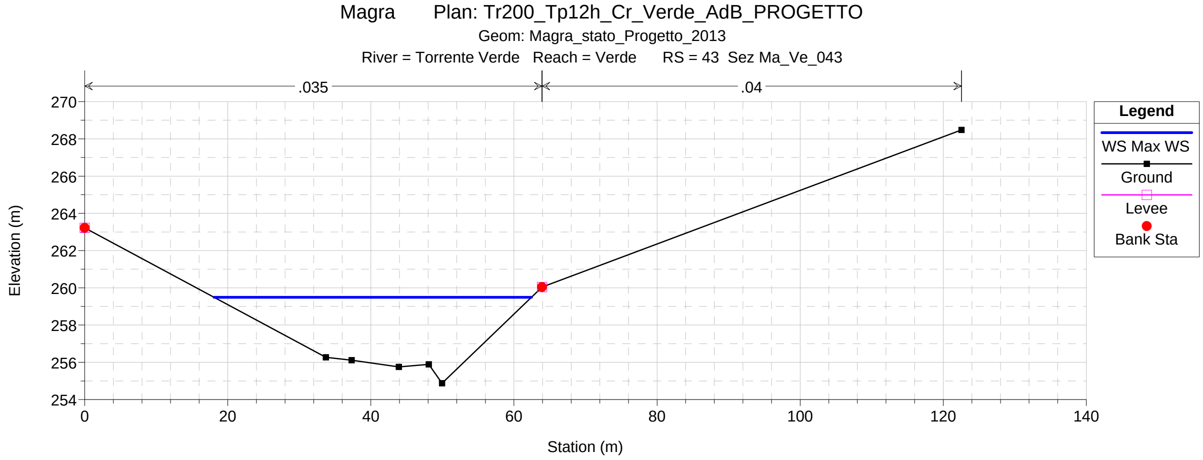
Tr = 200 anni

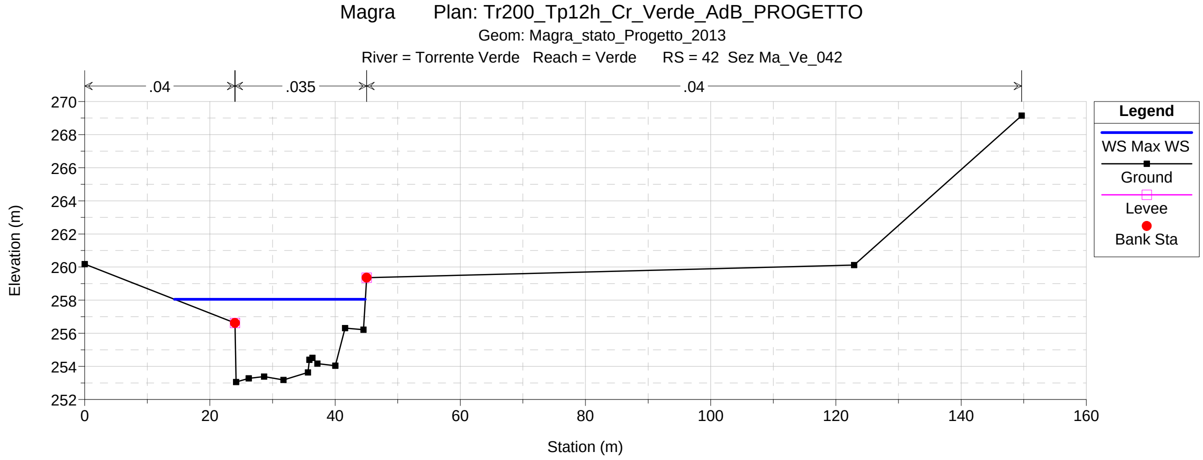
- Profili
- Sezioni
- Tabella di output

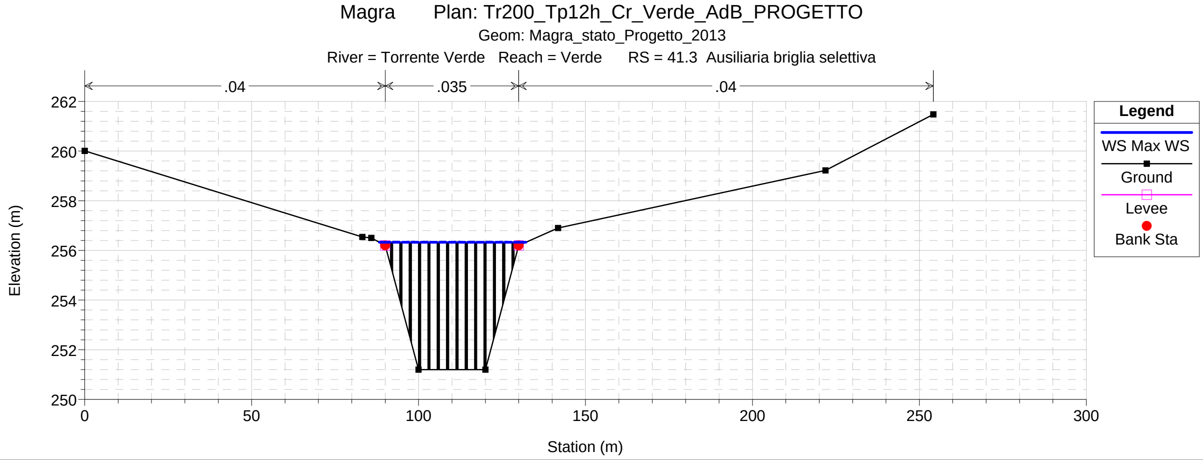
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

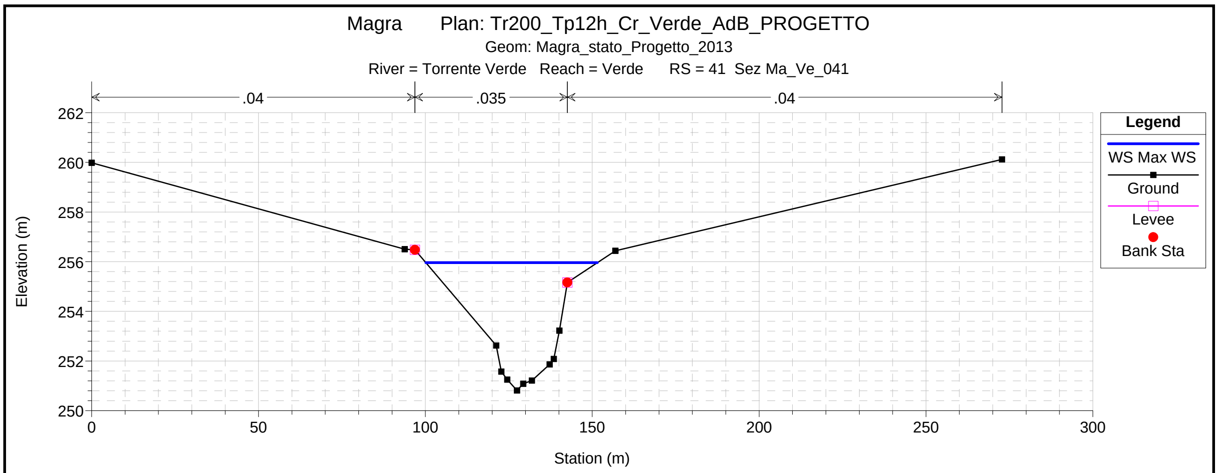


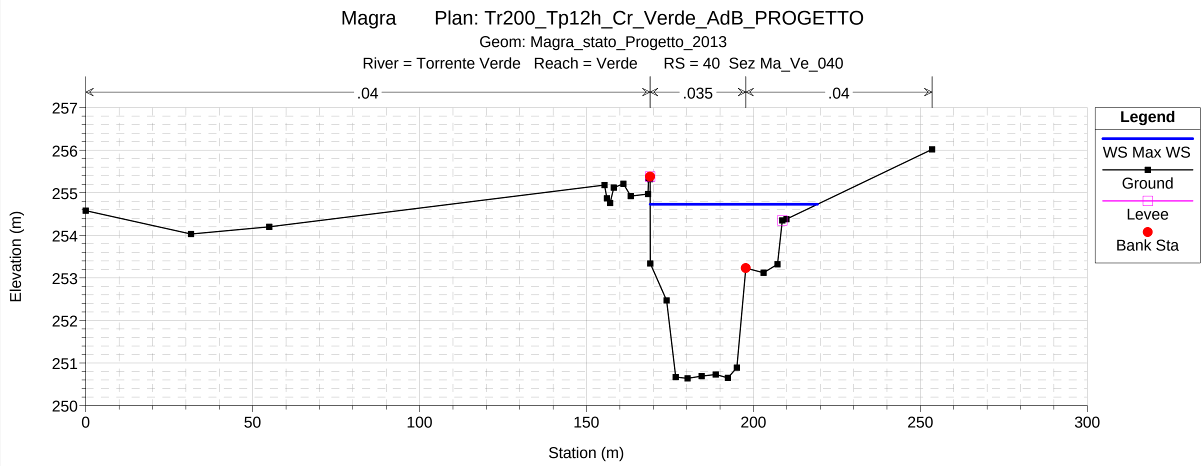

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 44 Sez Ma_Ve_044
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

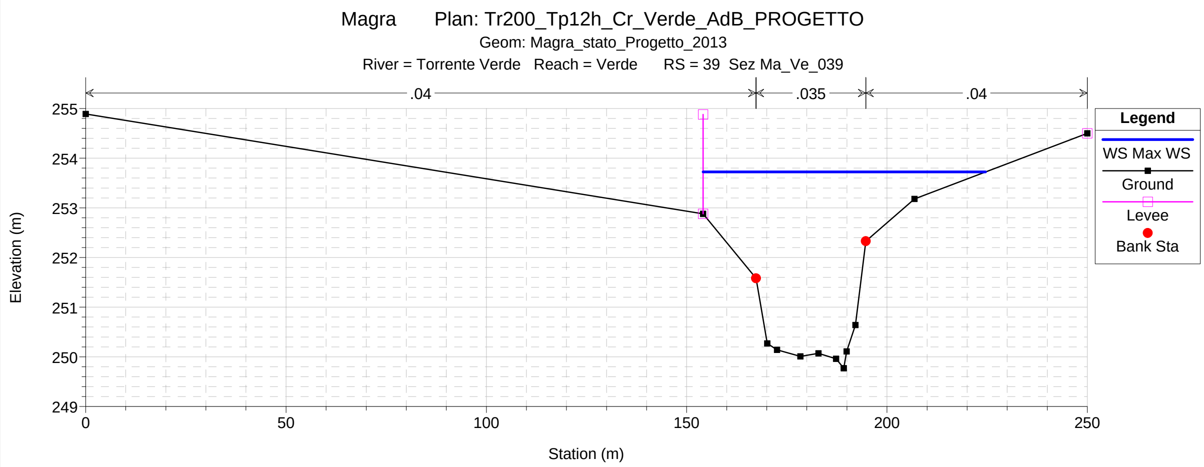

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 43 Sez Ma_Ve_043
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

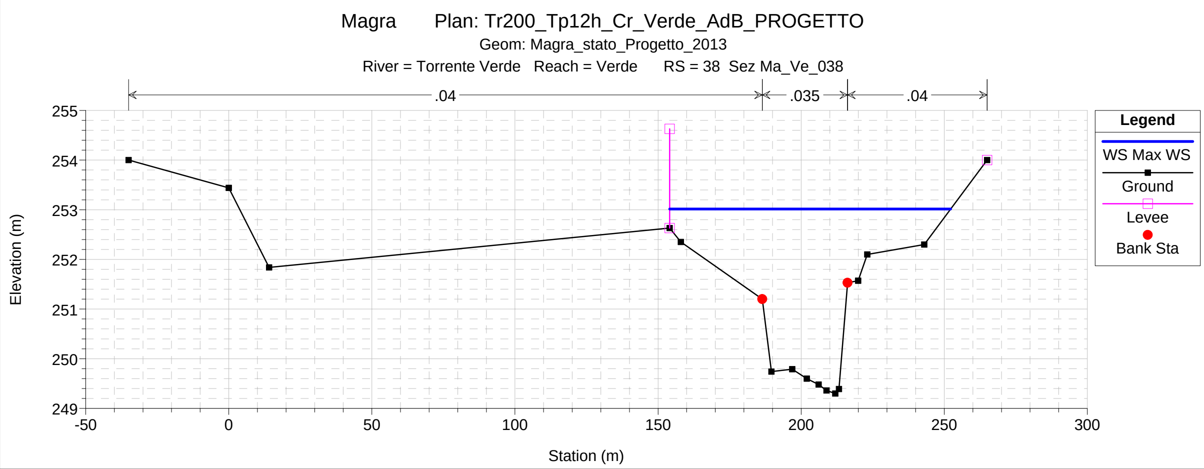

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 42 Sez Ma_Ve_042
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 41.3 Ausiliaria briglia selettiva
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

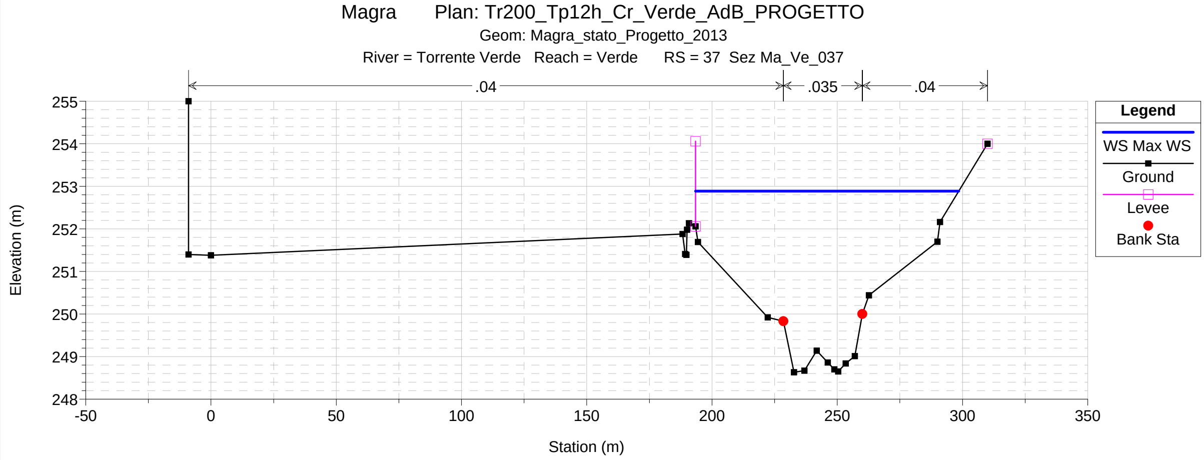

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 41 Sez Ma_Ve_041
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

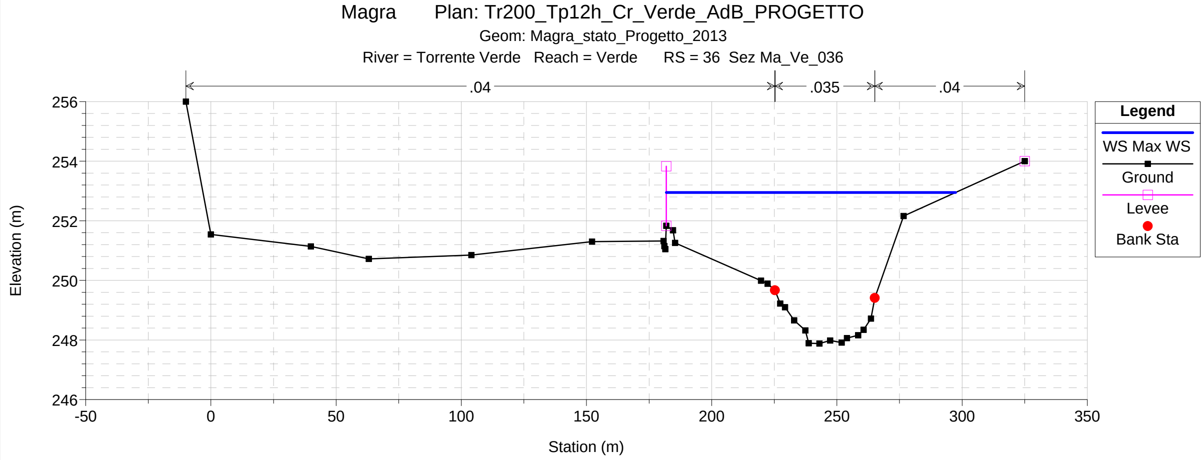

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 40 Sez Ma_Ve_040
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

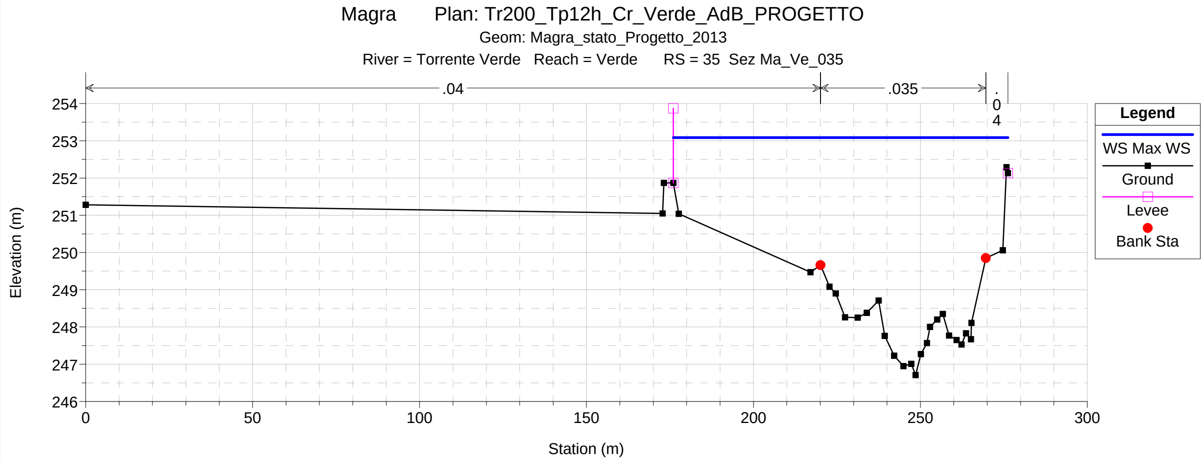

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 39 Sez Ma_Ve_039
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

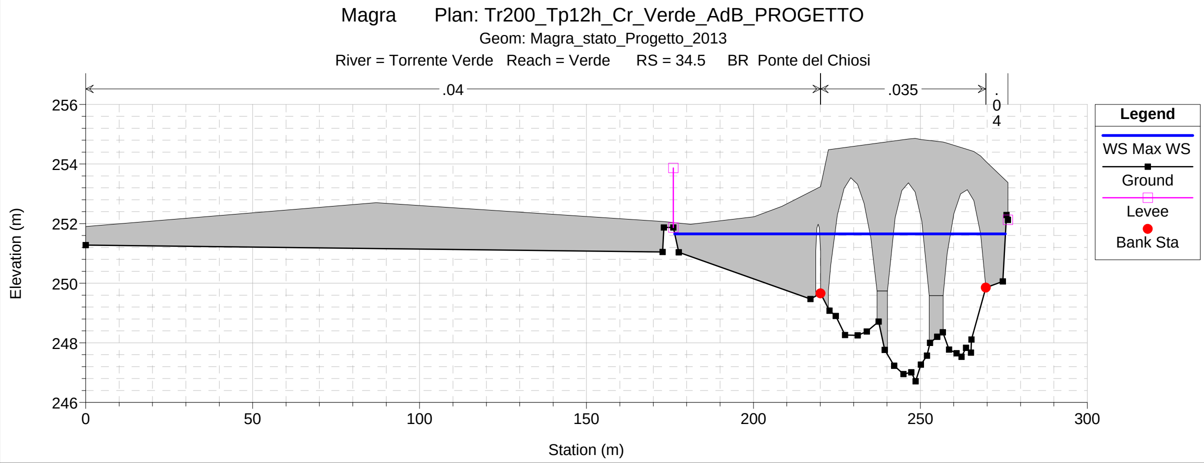

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 38 Sez Ma_Ve_038
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

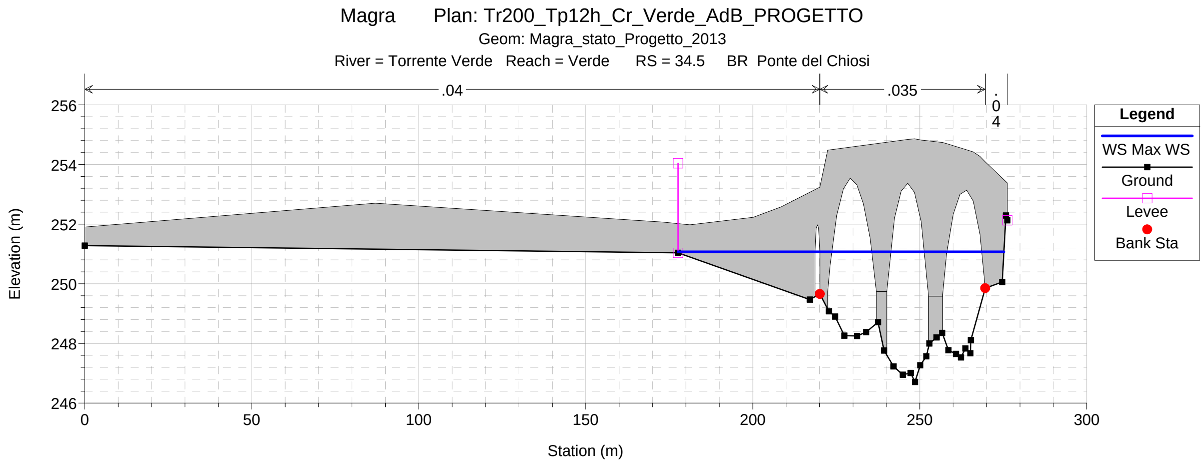


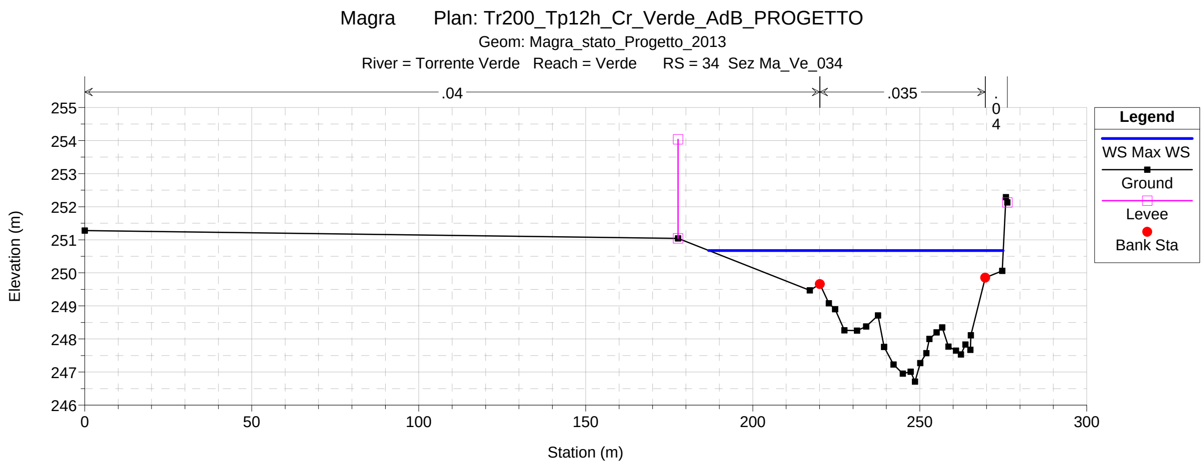


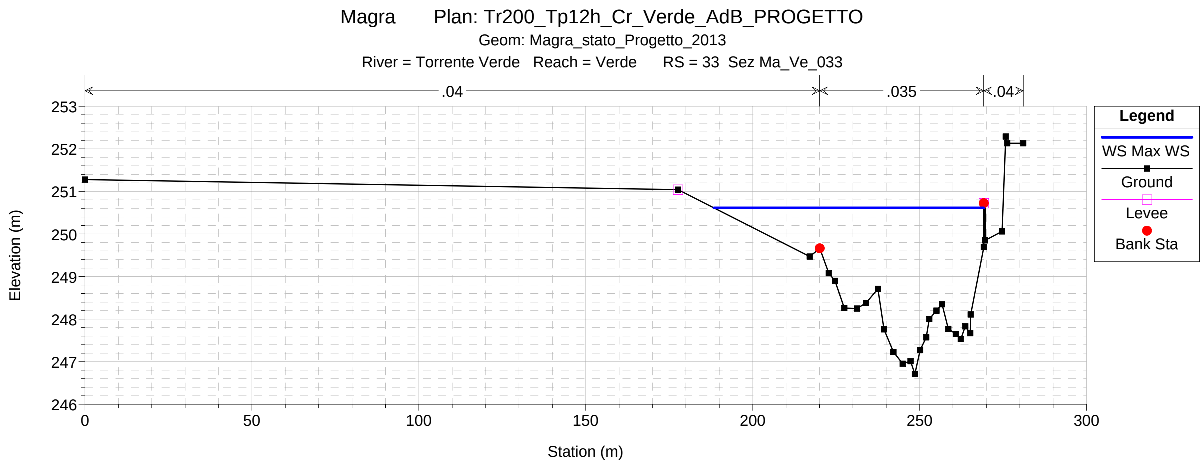


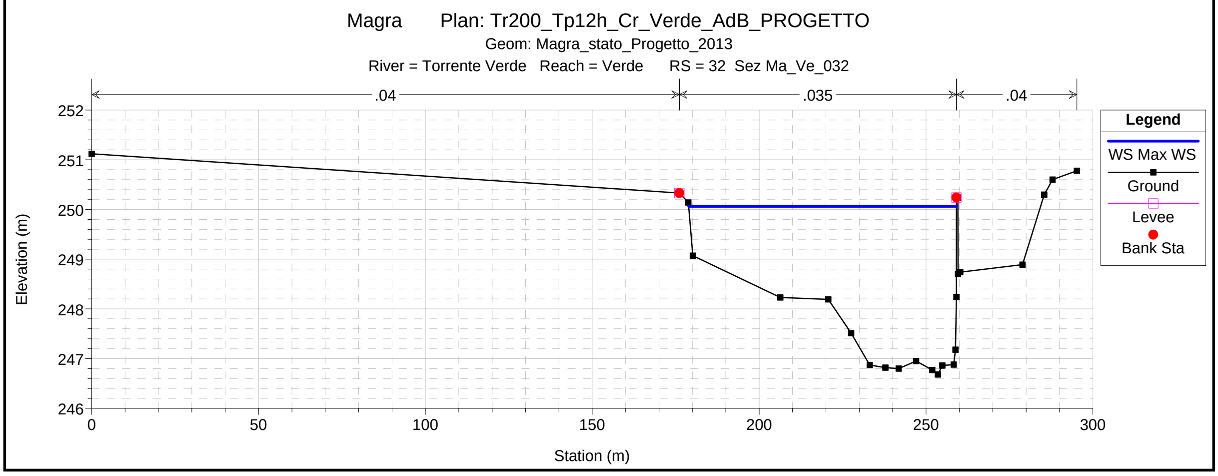


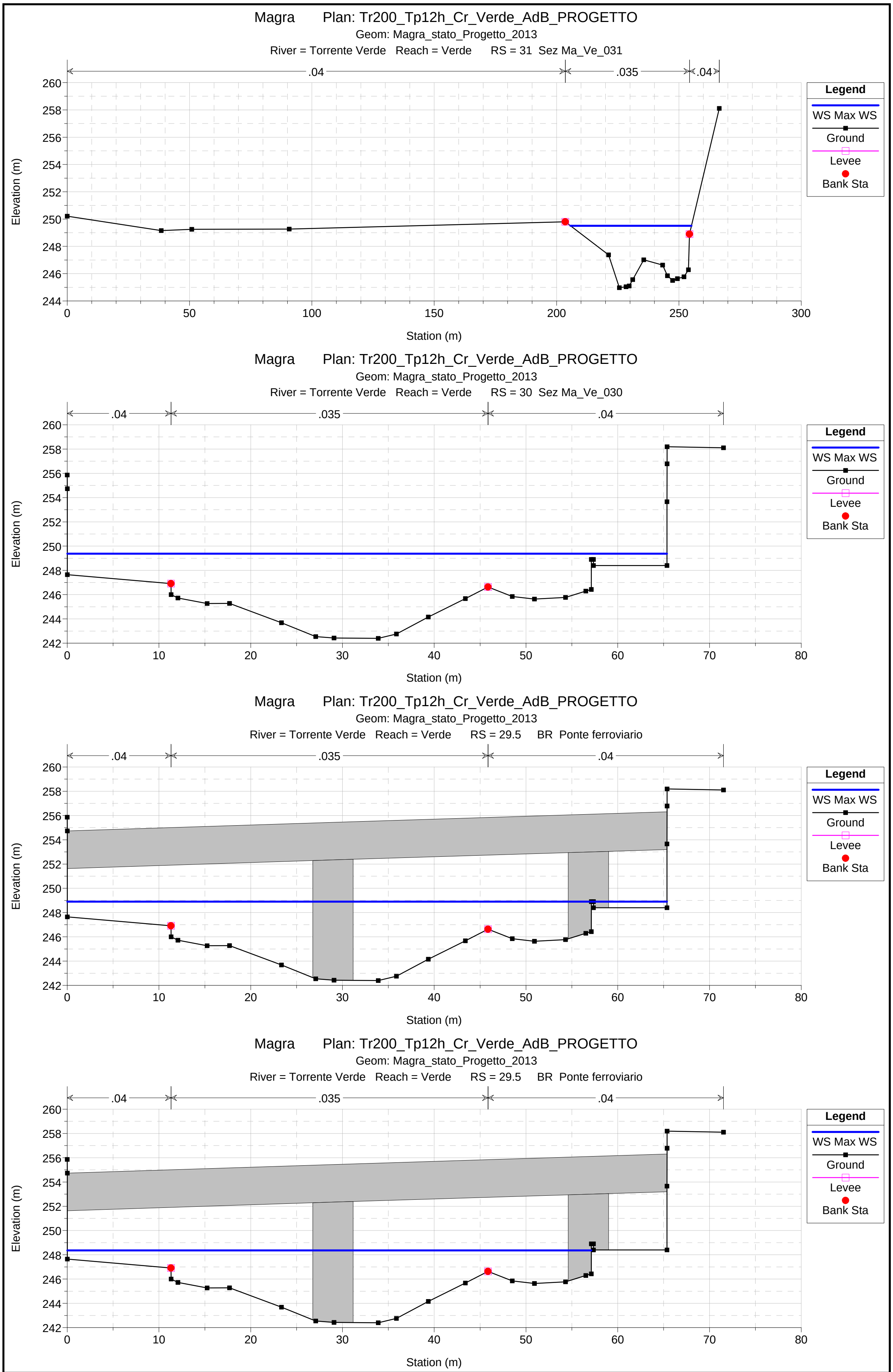
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-





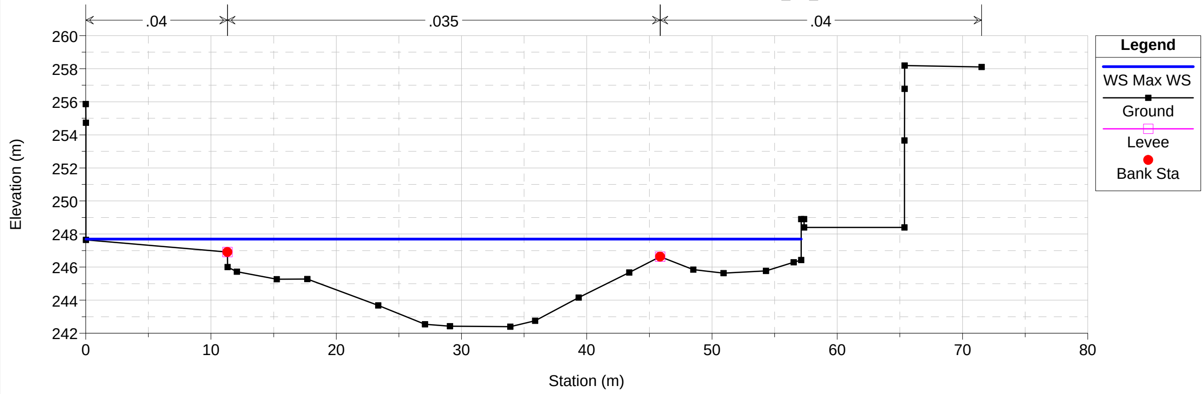




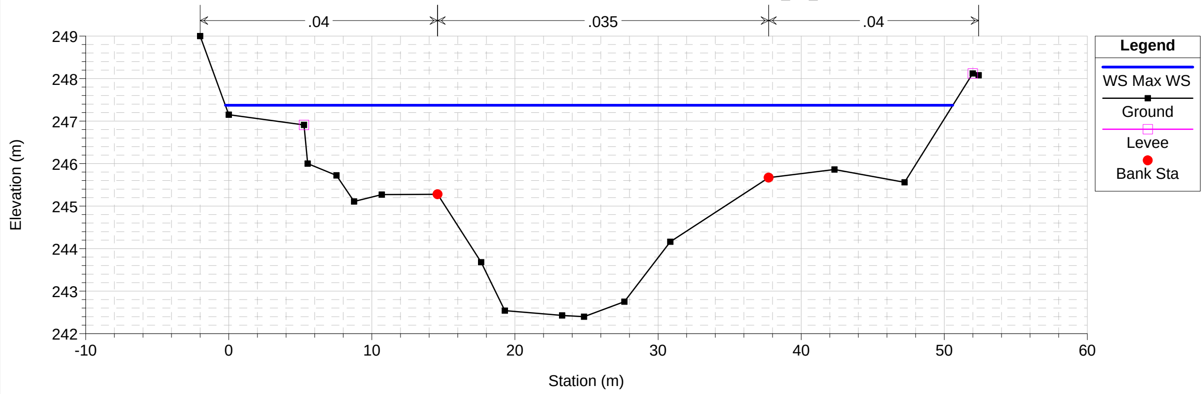

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 31 Sez Ma_Ve_031
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 30 Sez Ma_Ve_030
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 29.5 BR Ponte ferroviario
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 29.5 BR Ponte ferroviario
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

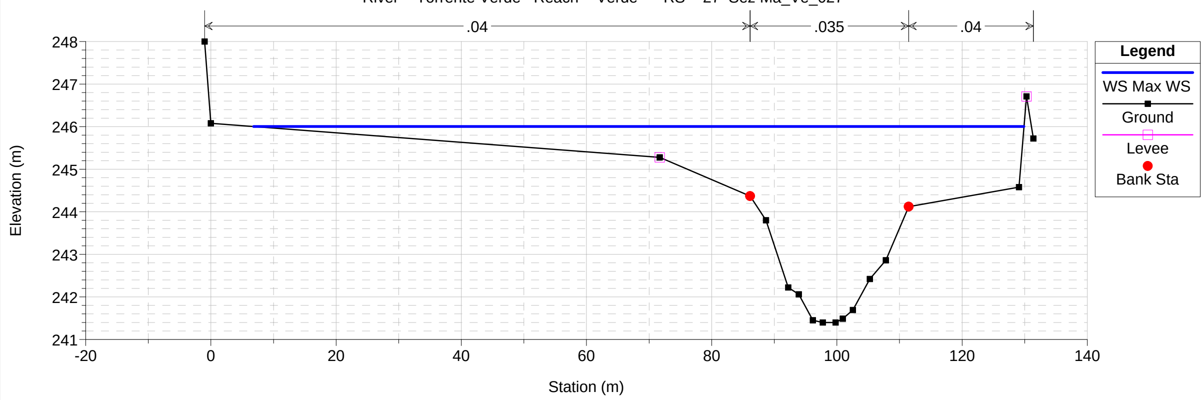
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 29 Sez Ma_Ve_029



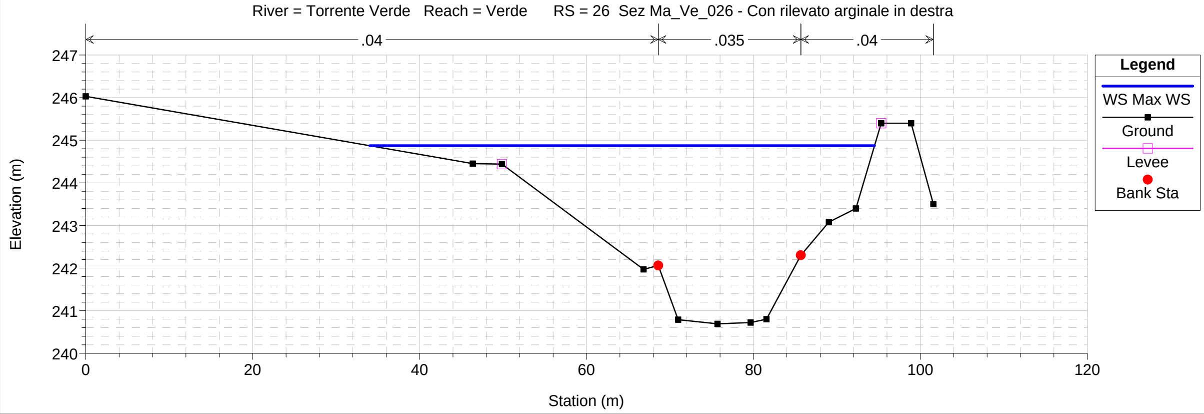
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 28 Sez Ma_Ve_028



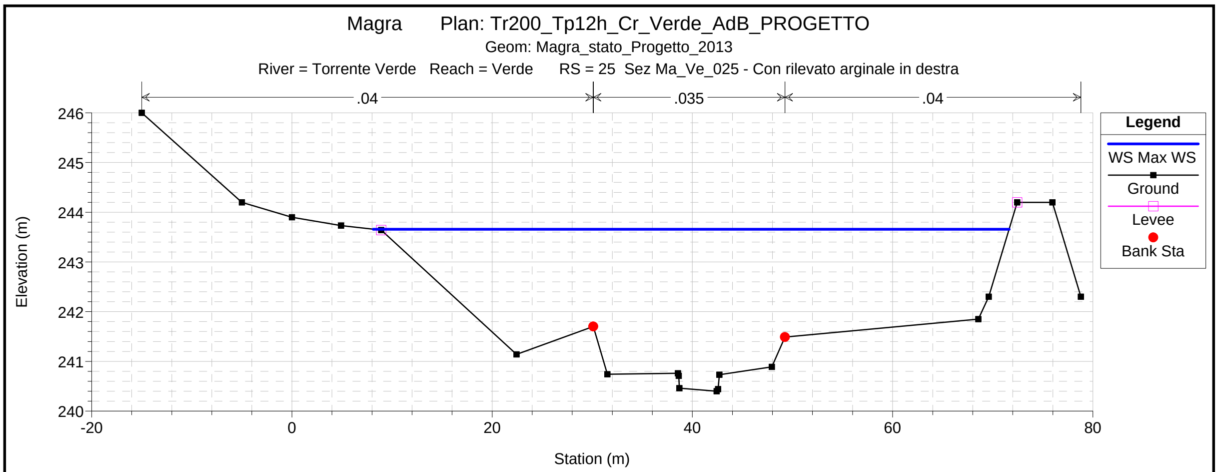
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 27 Sez Ma_Ve_027

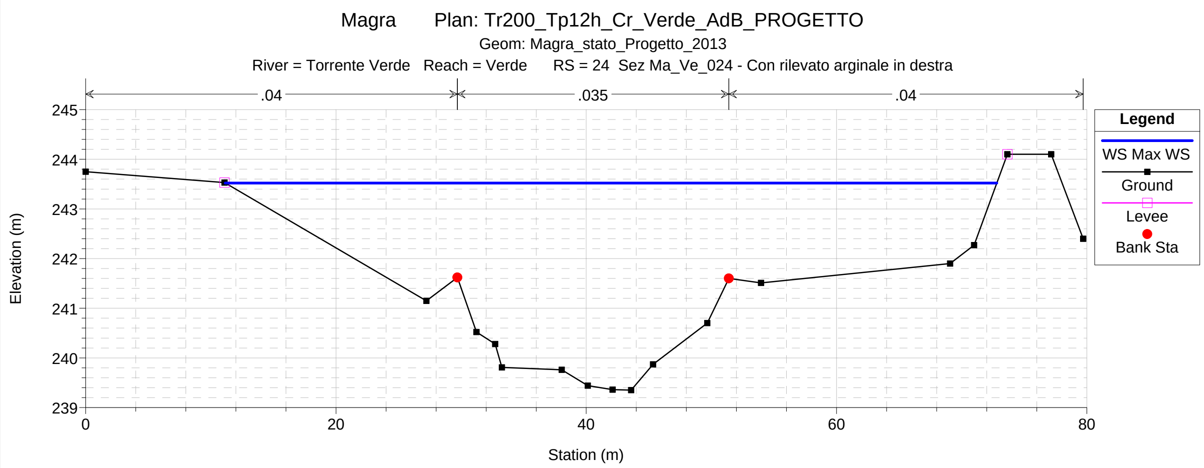


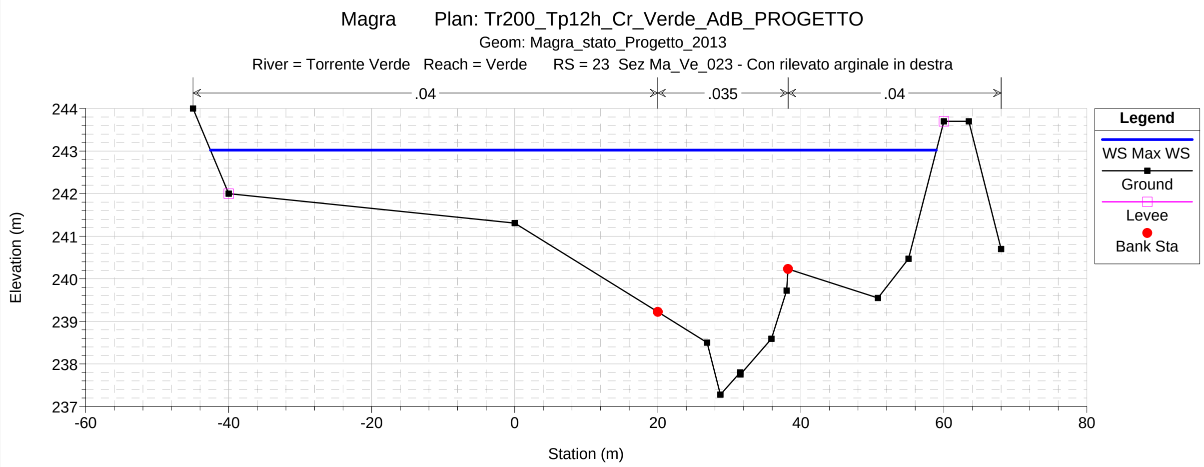
Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 26 Sez Ma_Ve_026 - Con rilevato arginale in destra

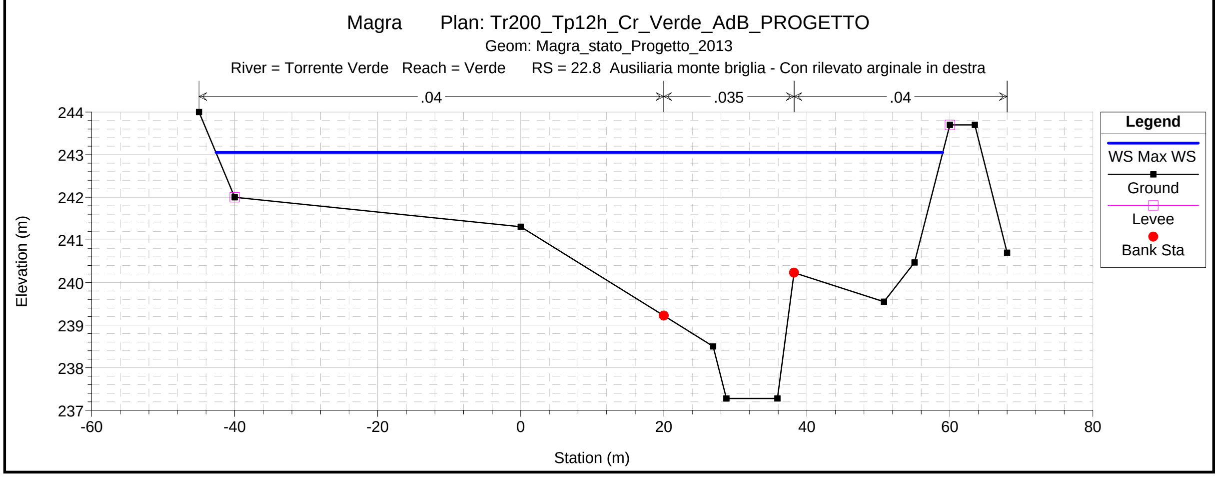


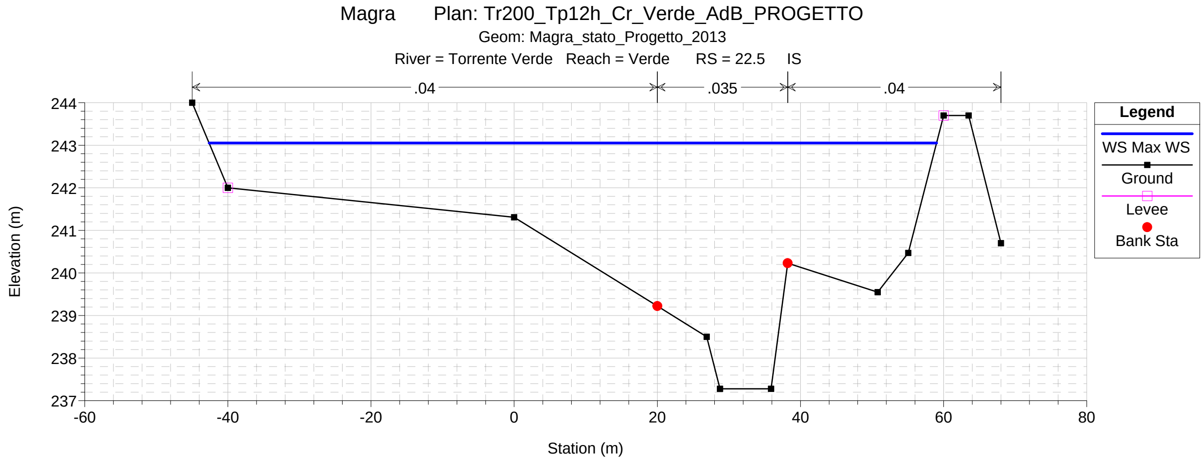
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

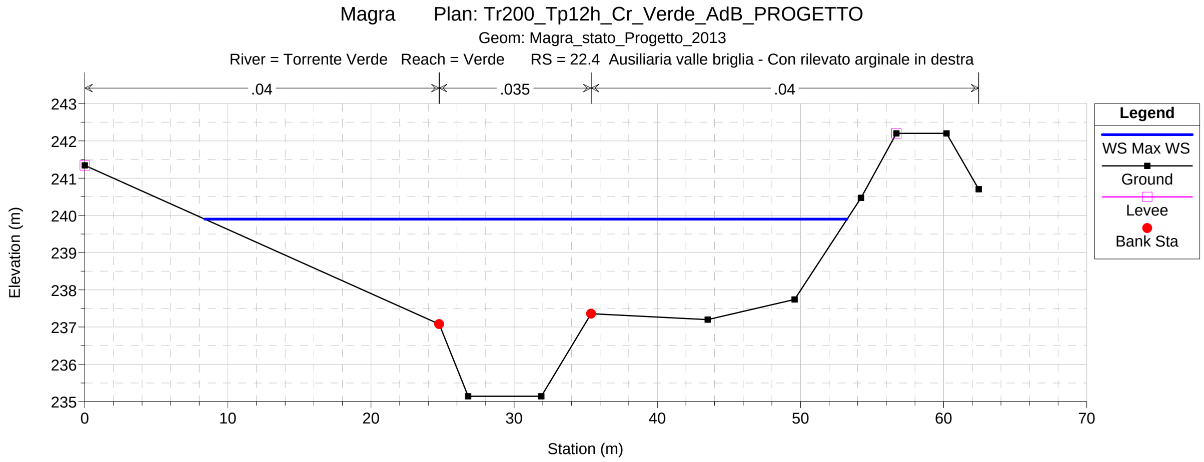


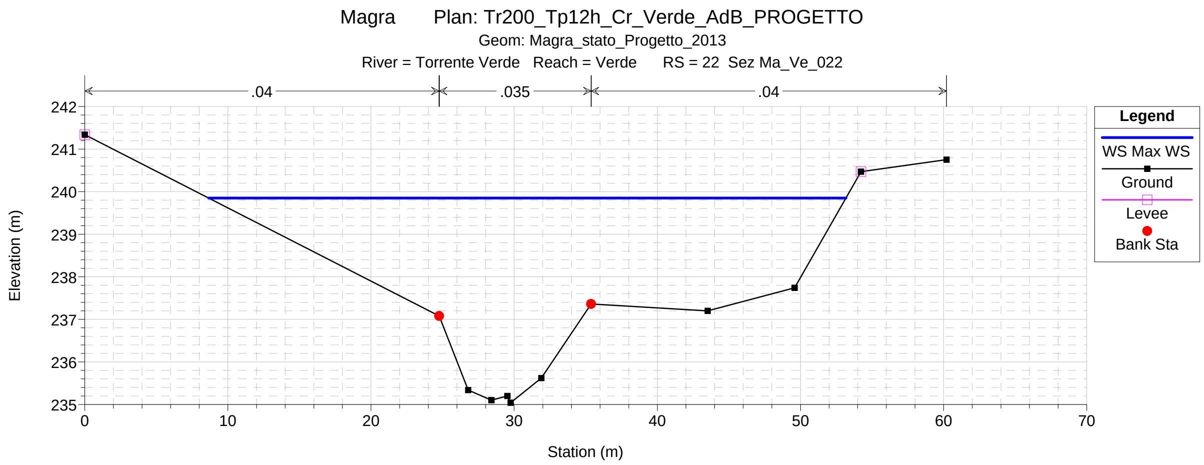


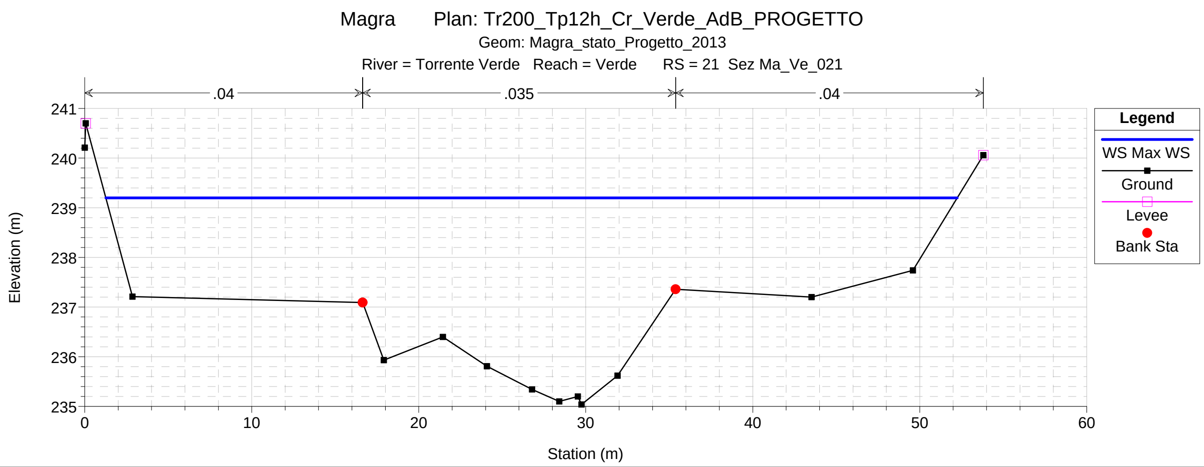




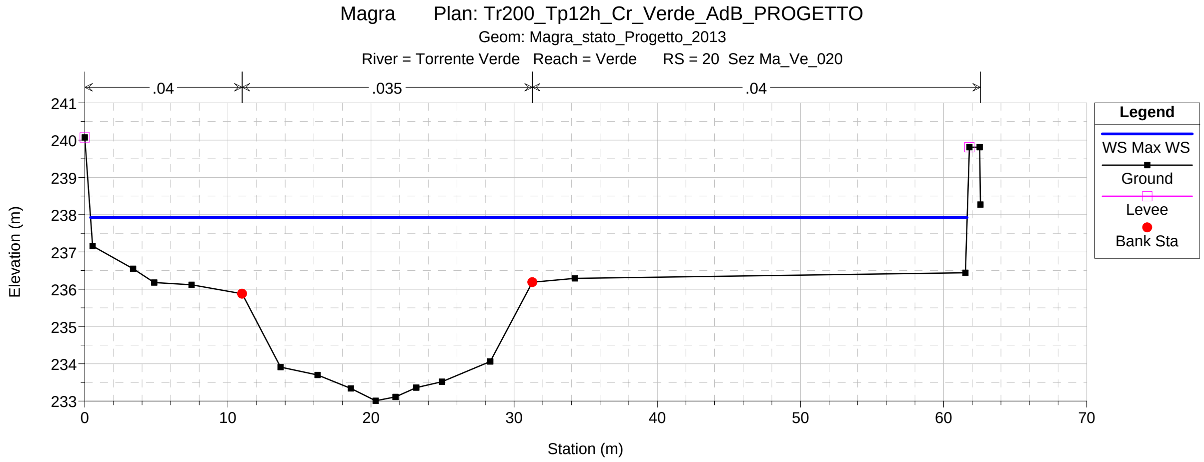

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 22.5 IS
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

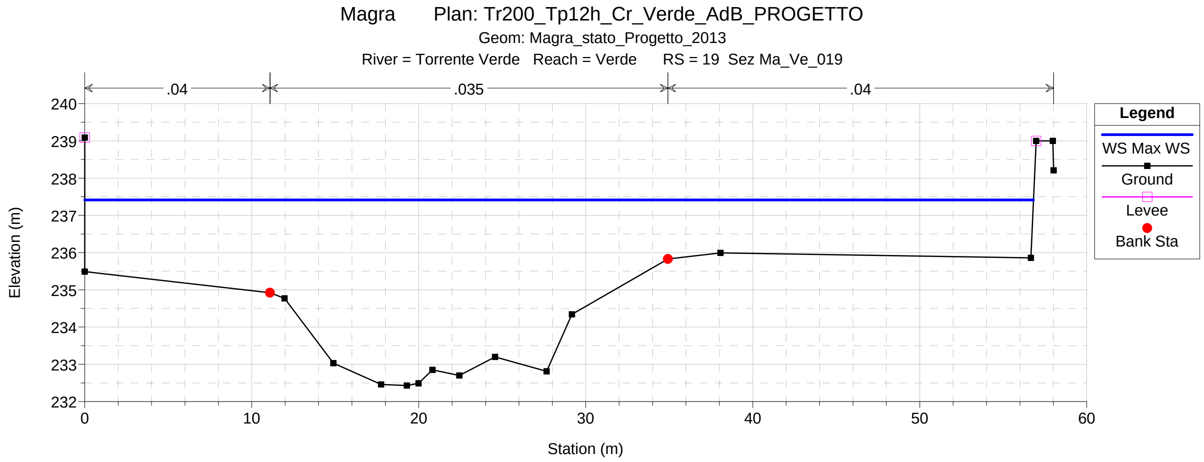

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 22.4 Ausiliaria valle briglia - Con rilevato arginale in destra
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

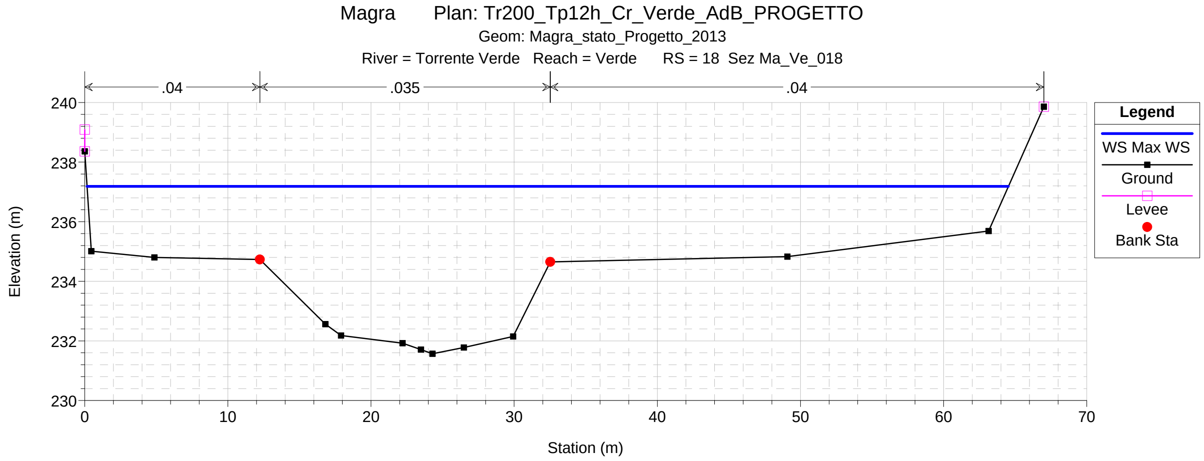

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 22 Sez Ma_Ve_022
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

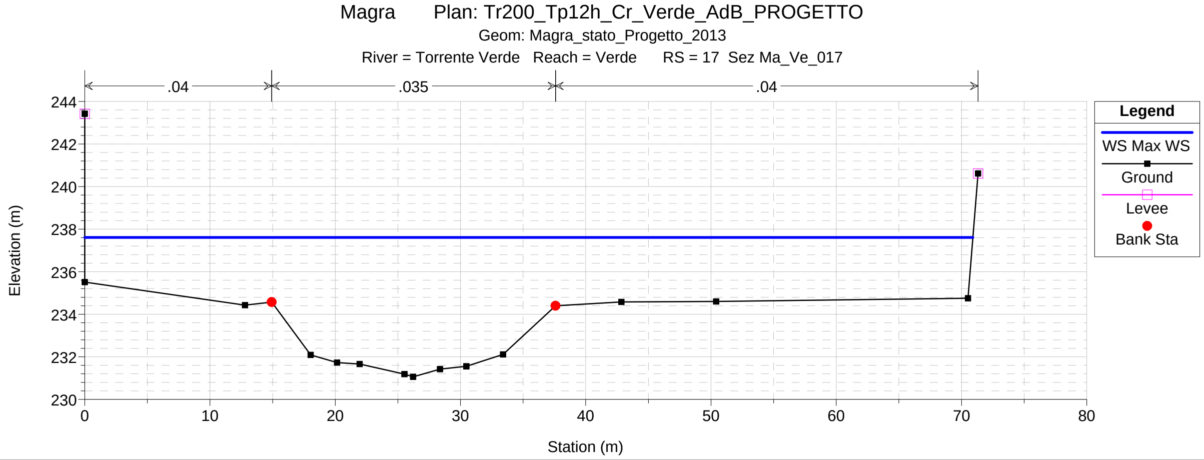

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 21 Sez Ma_Ve_021
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

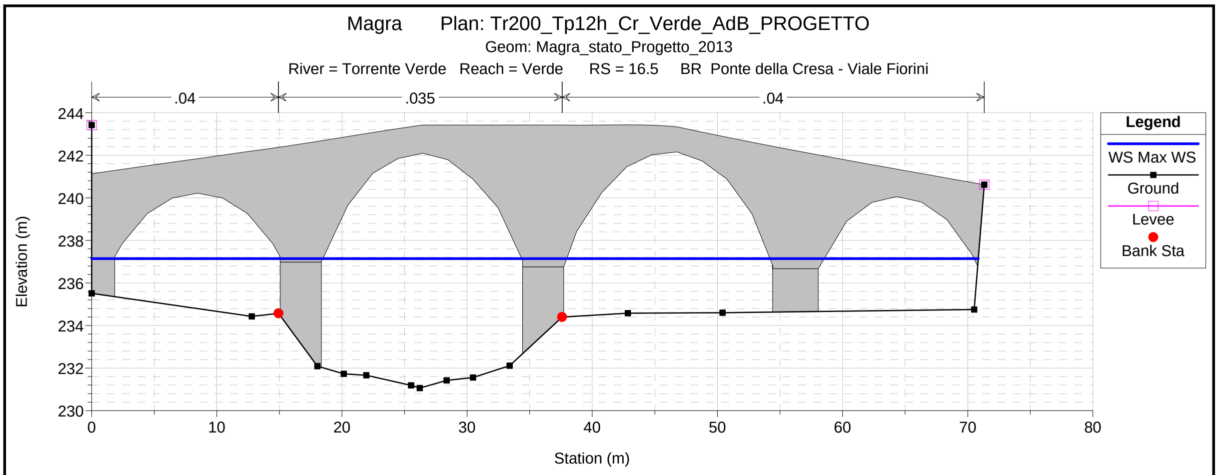


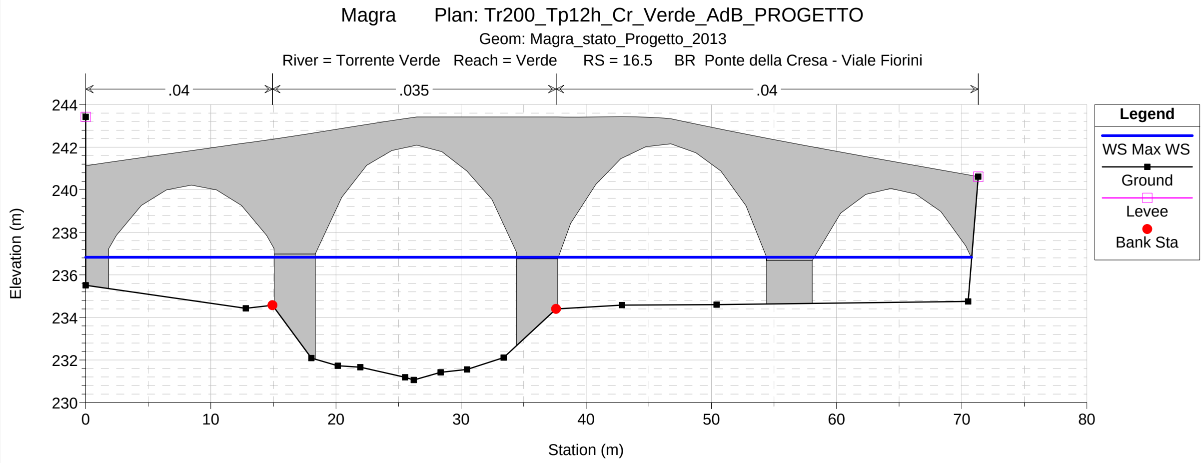


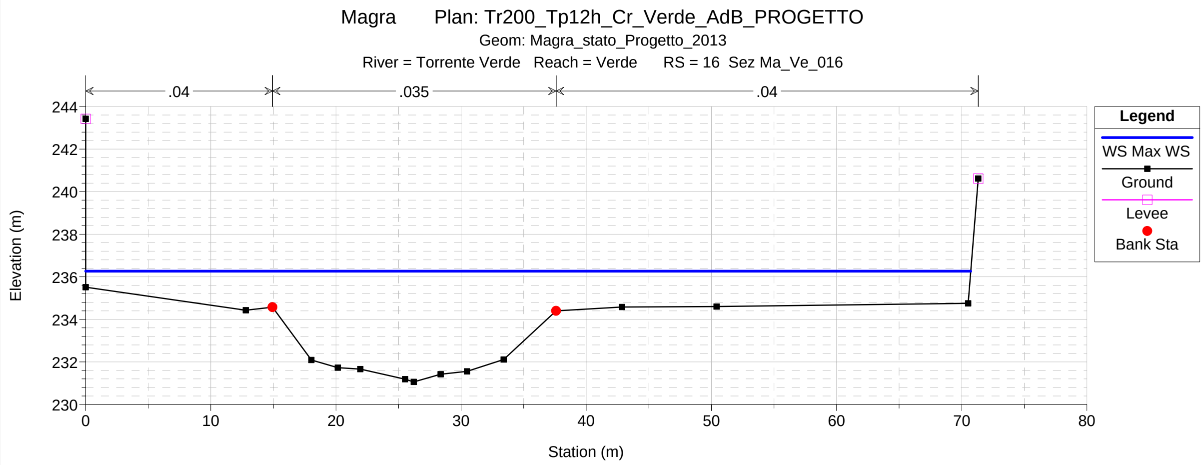


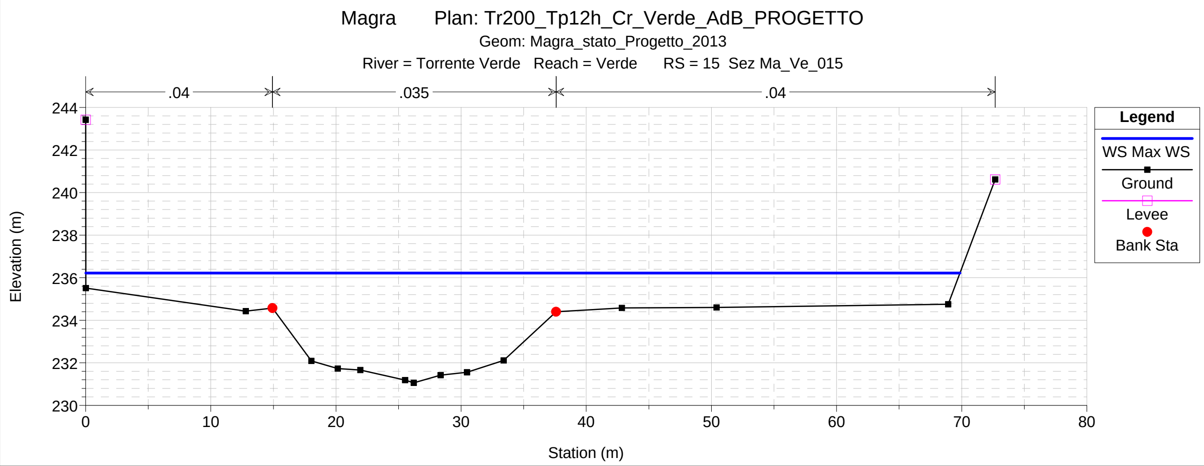


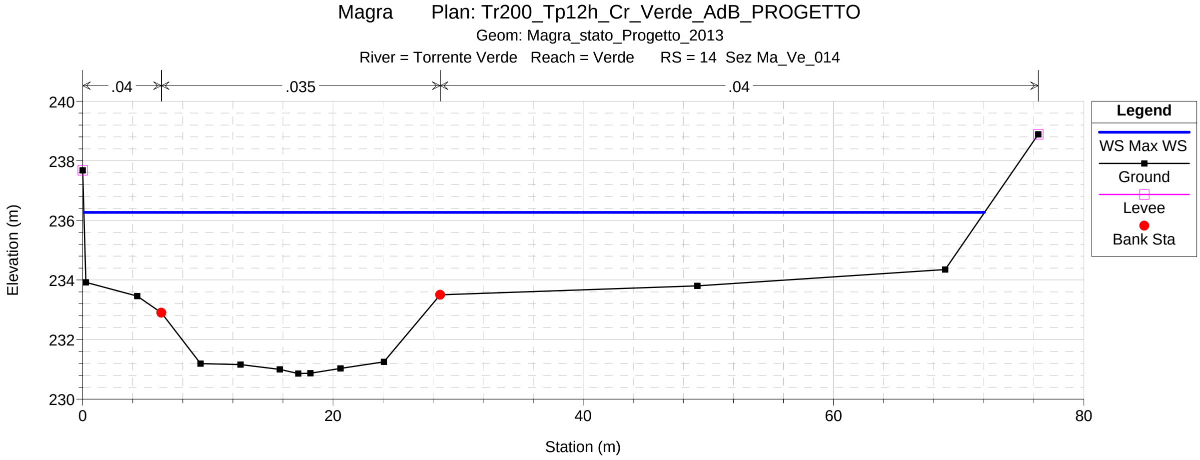
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

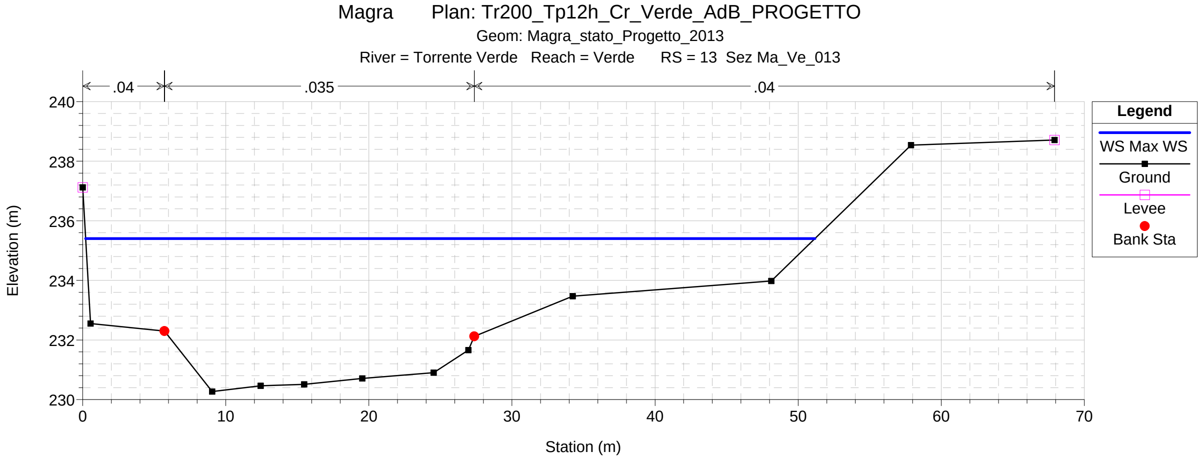









Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 14 Sez Ma_Ve_014
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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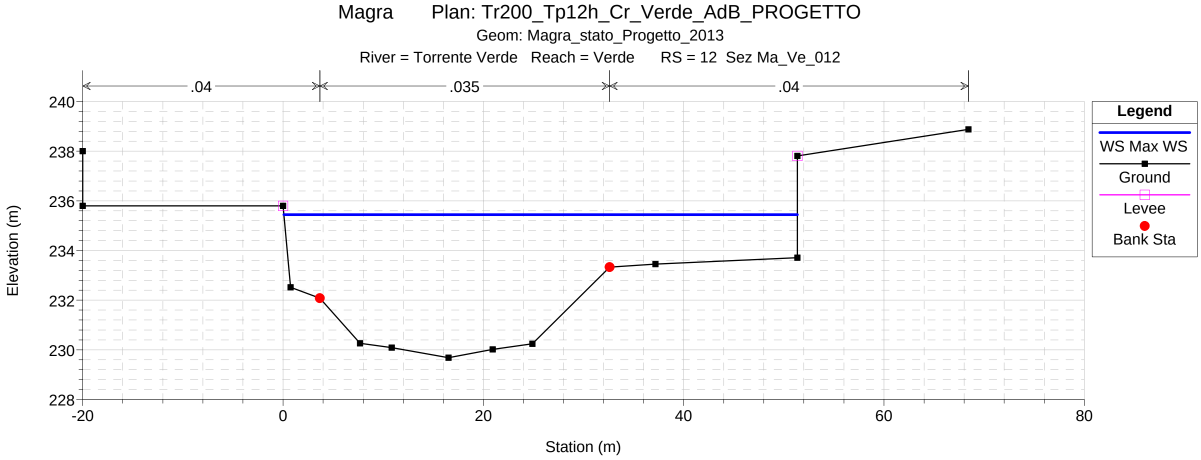
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 13 Sez Ma_Ve_013
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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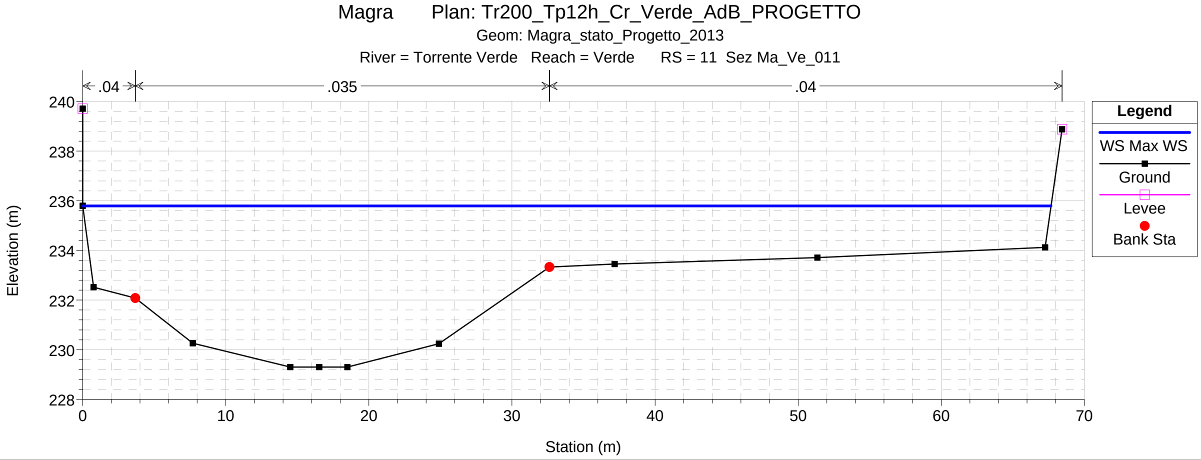
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 12 Sez Ma_Ve_012
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)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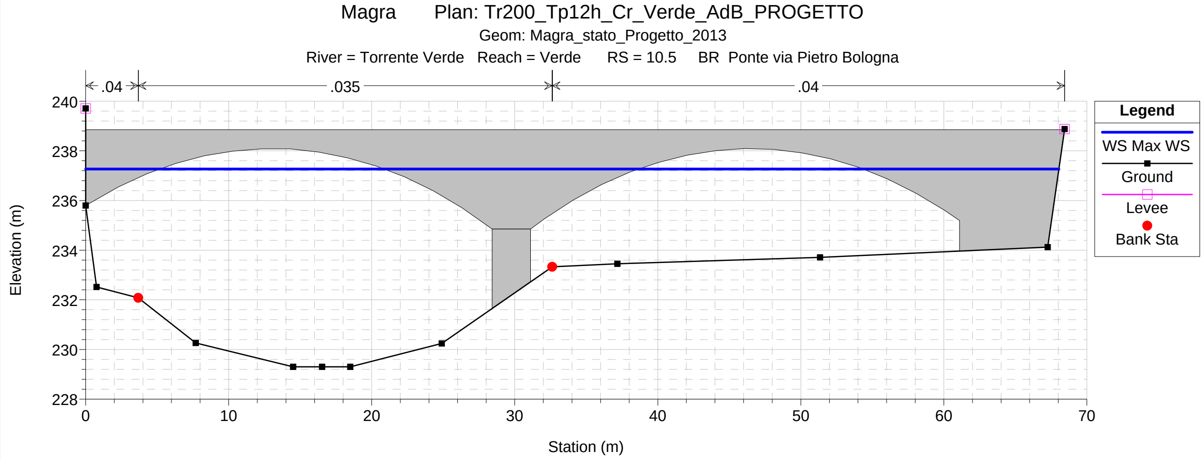
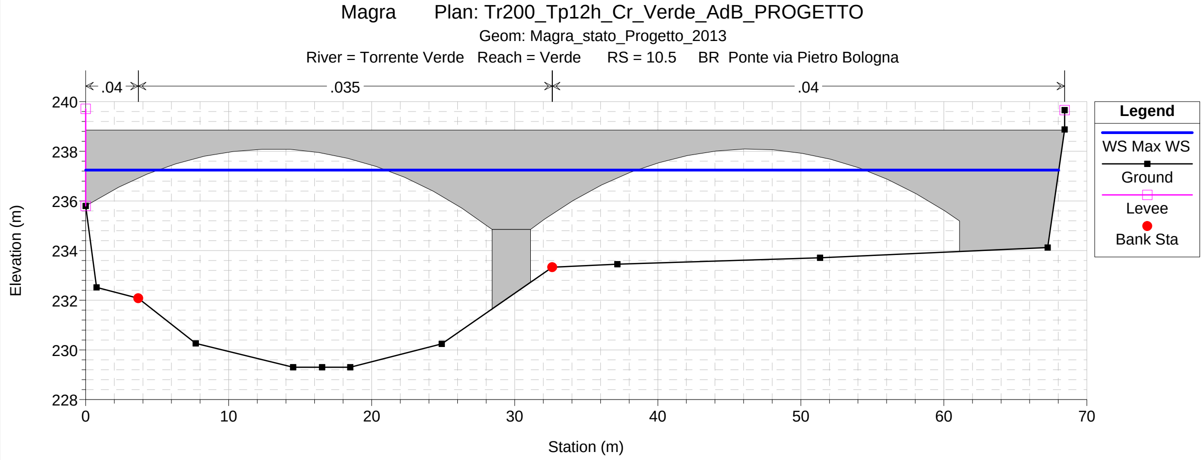
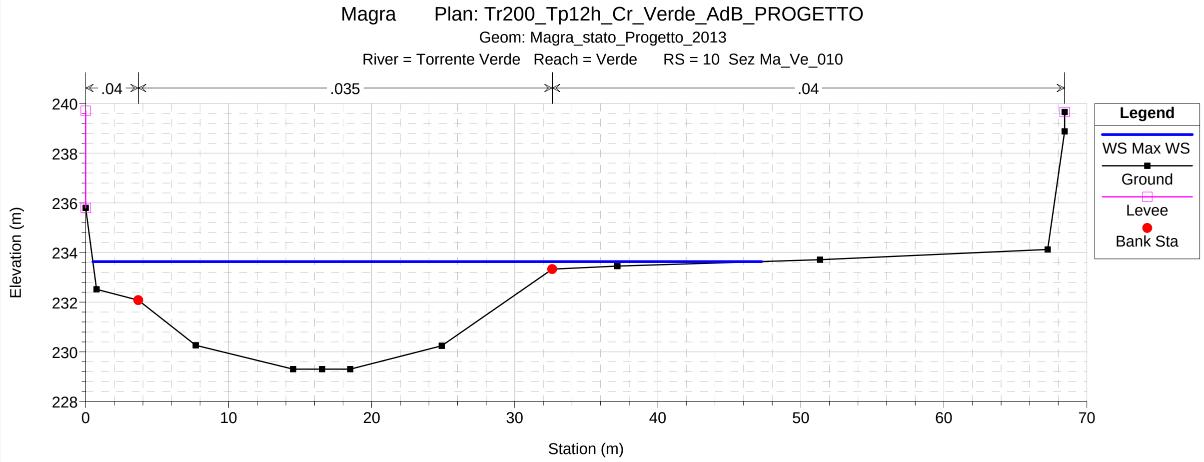
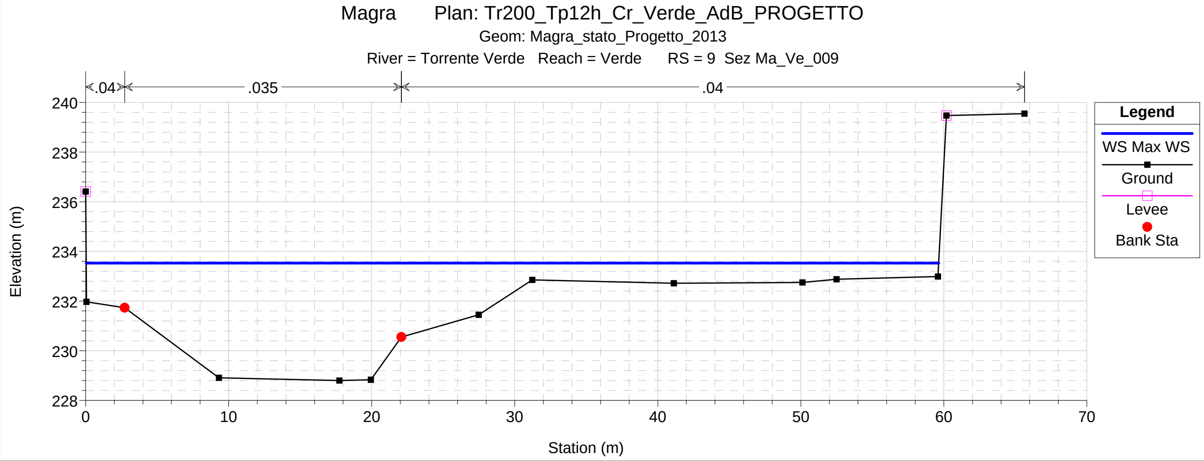
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 11 Sez Ma_Ve_011
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

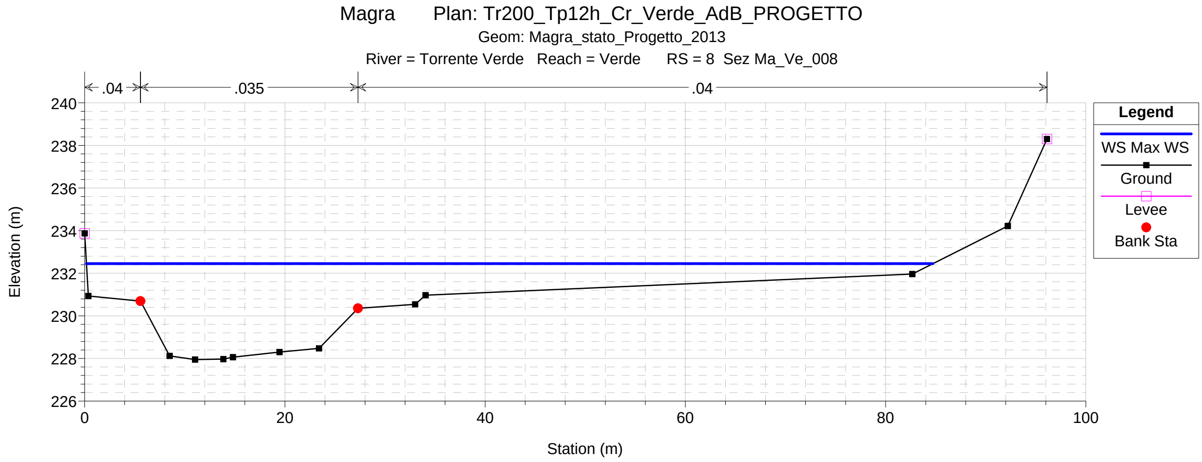
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

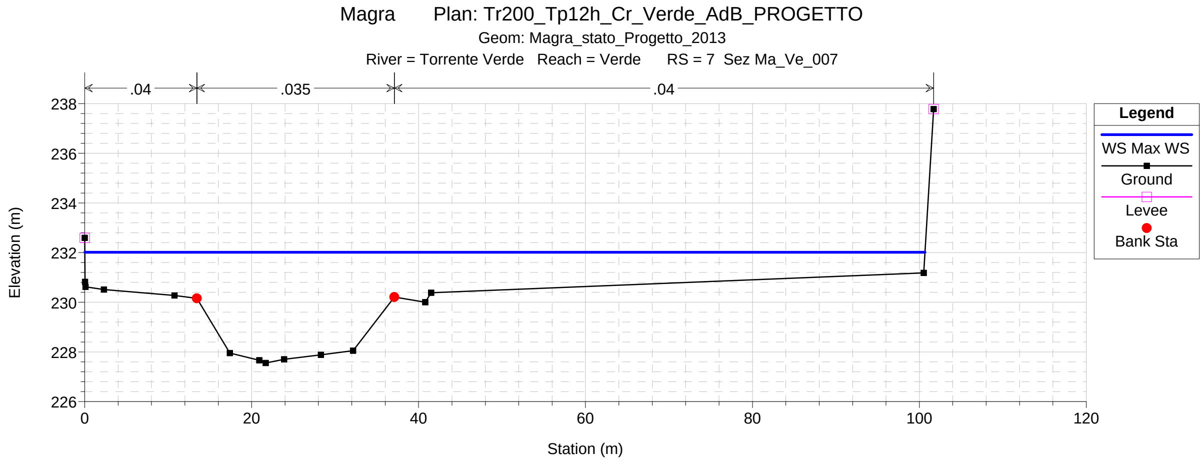


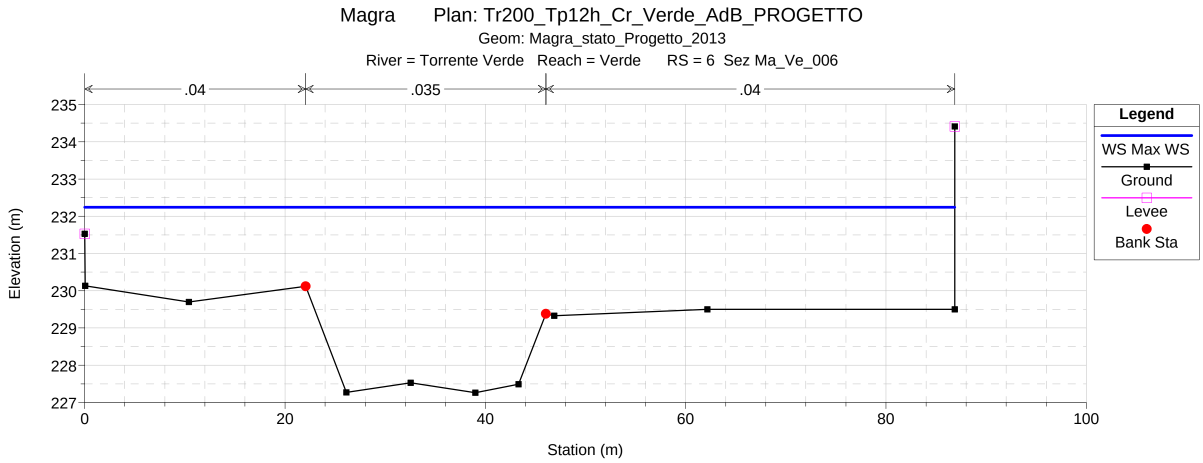







Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 8 Sez Ma_Ve_008
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 7 Sez Ma_Ve_007
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 6 Sez Ma_Ve_006
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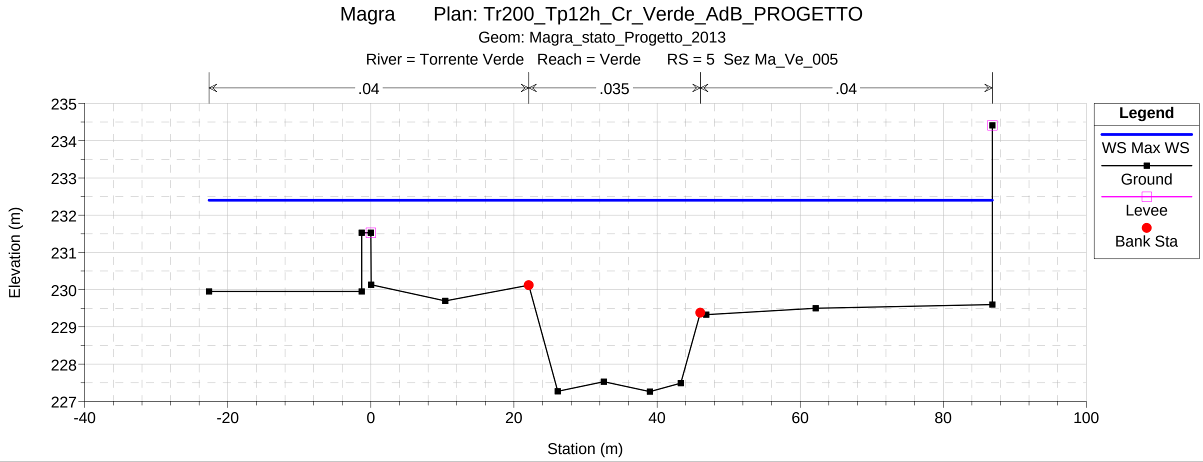
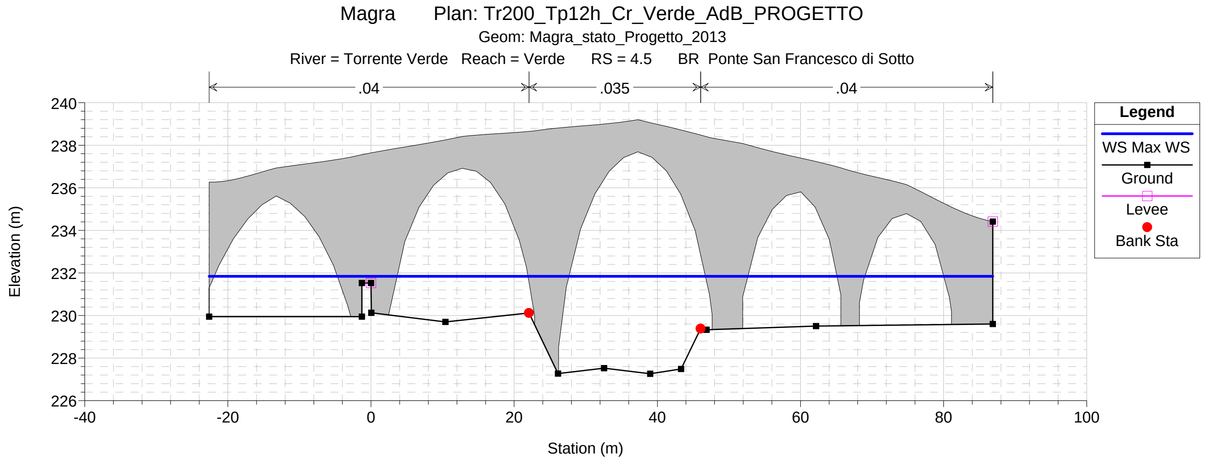
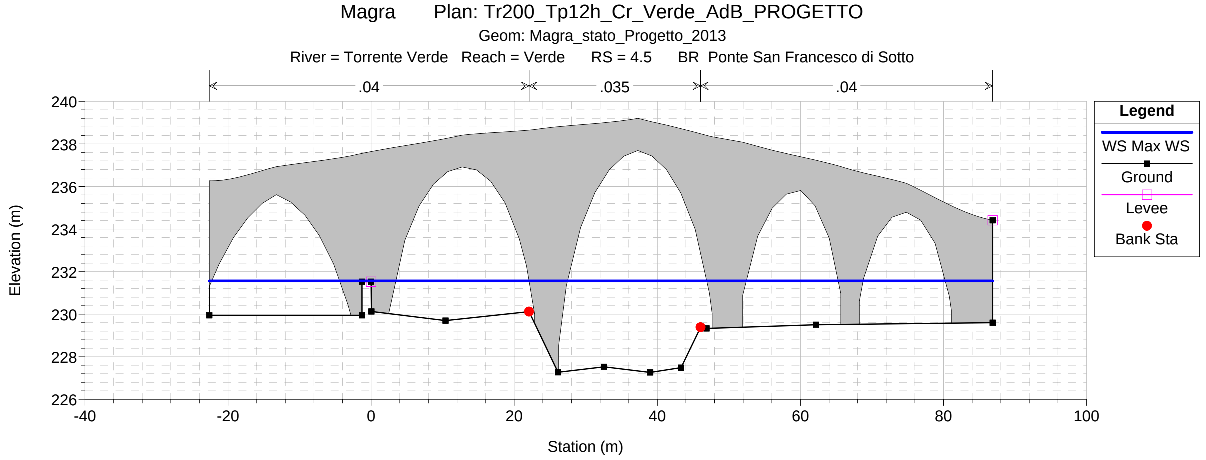
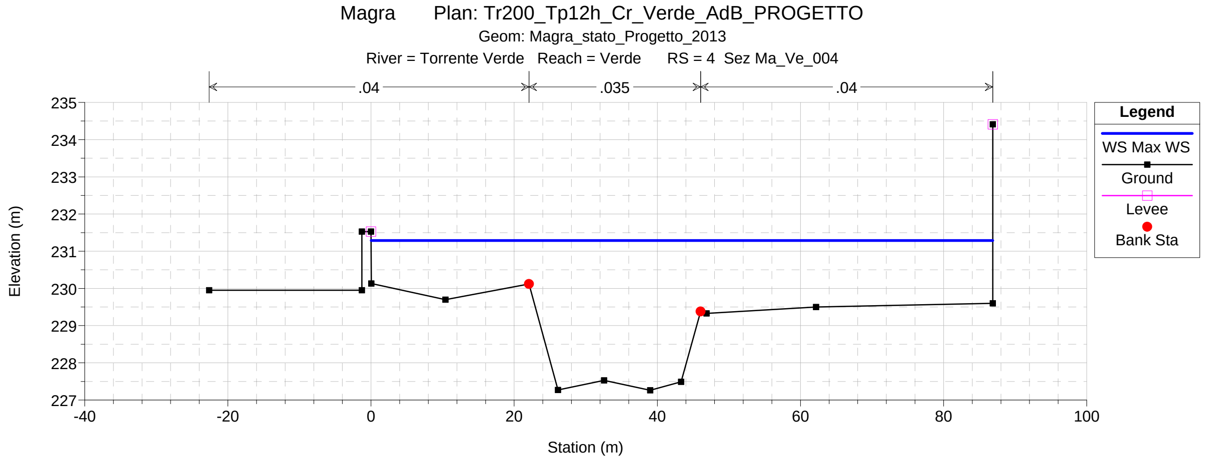
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

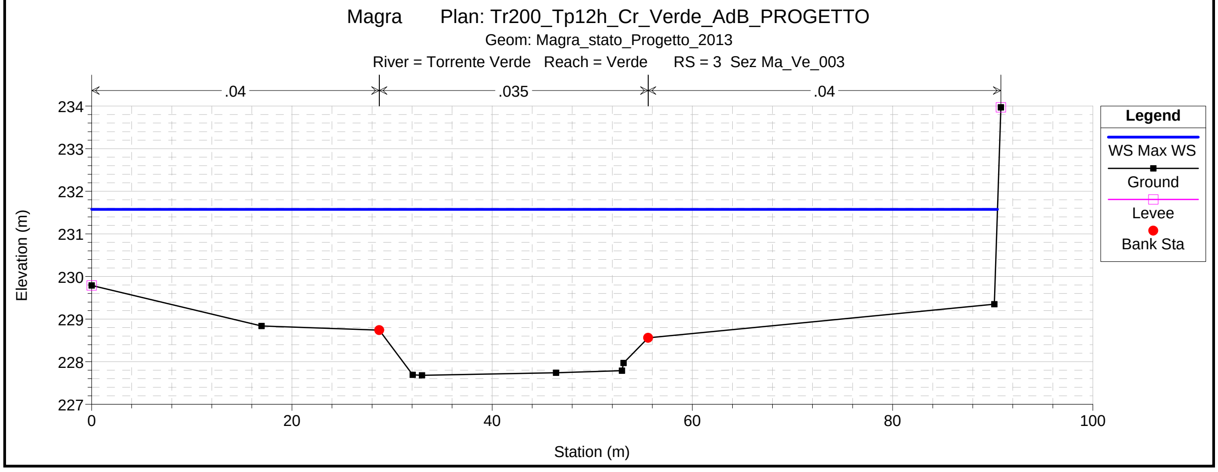

Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 5 Sez Ma_Ve_005
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

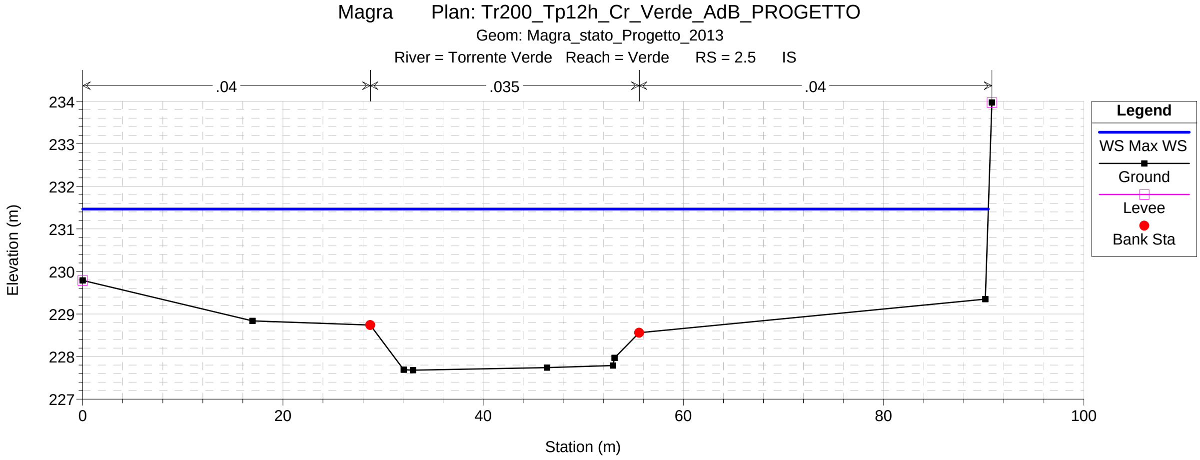
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Verde-

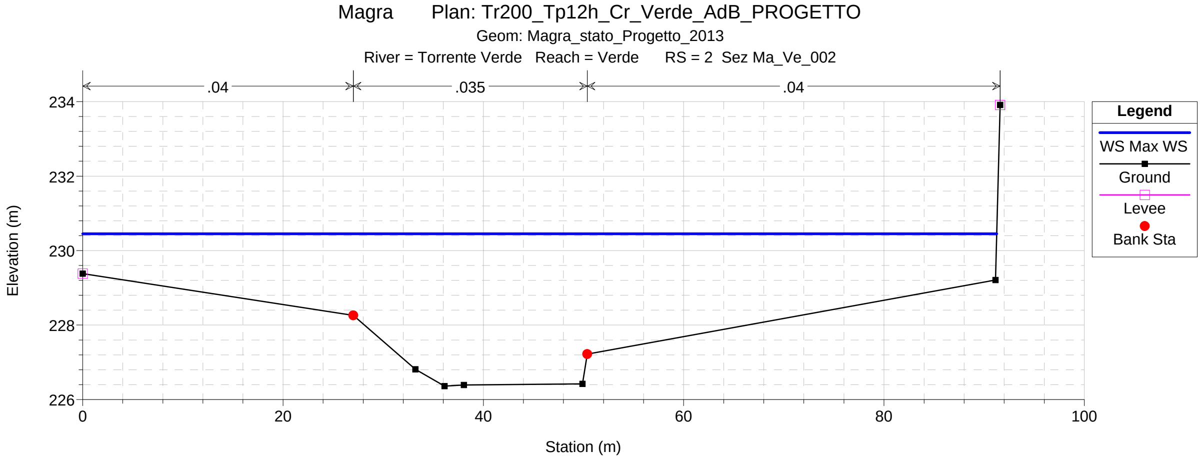


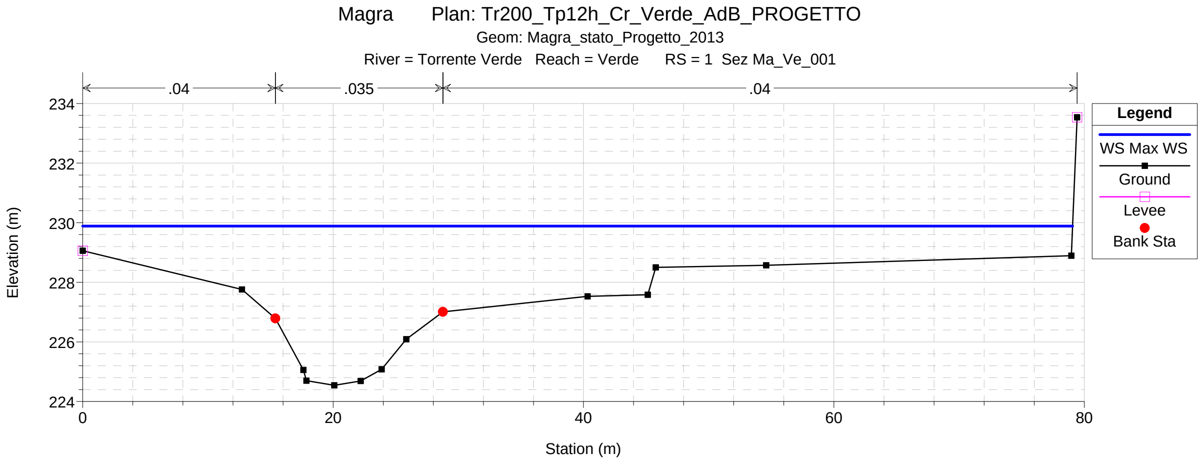


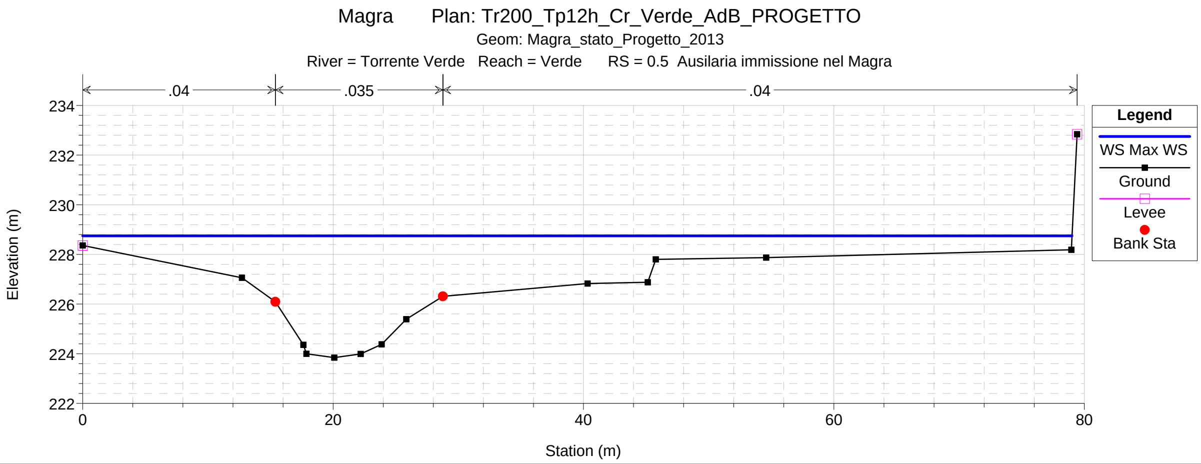





Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 2.5 IS
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 2 Sez Ma_Ve_002
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 1 Sez Ma_Ve_001
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Verde_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Verde Reach = Verde RS = 0.5 Ausilaria immissione nel Magra
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

HEC-RAS Plan: 200_12h_CrVe_PRO River: Torrente Verde Reach: Verde Profile: Max WS

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)	
Verde	44	Max WS	811.17	256.06	260.75	262.95	267.73	0.041423	11.75	70.79	28.20	2.11
Verde	43	Max WS	810.97	254.88	259.49	260.28	262.14	0.019265	7.22	112.39	44.37	1.45
Verde	42	Max WS	811.52	253.05	258.05	260.38	262.67	0.026802	9.64	88.78	30.47	1.55
Verde	41.3	Max WS	812.34	251.20	256.33	257.53	259.07	0.091531	7.34	110.93	32.73	1.19
Verde	41	Max WS	812.53	250.81	255.96	256.48	258.11	0.013198	6.52	127.33	51.38	1.22
Verde	40	Max WS	813.17	250.64	254.73	255.54	257.62	0.016050	7.74	116.53	50.12	1.33
Verde	39.99		Lat Struct									
Verde	39	Max WS	801.60	249.77	253.72	254.66	256.23	0.013674	7.42	130.21	70.53	1.28
Verde	38	Max WS	769.95	249.30	253.01	253.48	254.65	0.010431	6.25	162.53	98.21	1.11
Verde	37	Max WS	785.30	248.63	252.89		253.47	0.003123	3.95	262.32	105.09	0.64
Verde	36	Max WS	776.78	247.88	252.95		253.35	0.001564	3.11	318.14	115.59	0.46
Verde	35	Max WS	750.50	246.71	253.08	251.06	253.30	0.000760	2.26	391.52	100.22	0.32
Verde	34.5		Bridge									
Verde	34	Max WS	749.41	246.71	250.67	251.06	252.10	0.010547	5.44	154.16	88.19	1.08
Verde	33.99		Lat Struct									
Verde	33	Max WS	755.20	246.71	250.61	251.01	252.20	0.012208	5.71	144.96	80.85	1.14
Verde	32	Max WS	790.43	246.68	250.06	249.98	251.06	0.008627	4.42	178.99	80.24	0.94
Verde	31	Max WS	798.72	244.97	249.51	250.18	251.42	0.013583	6.13	130.55	49.49	1.20
Verde	30	Max WS	815.92	242.40	249.37	247.90	250.01	0.002050	3.78	253.57	65.35	0.52
Verde	29.5		Bridge									
Verde	29	Max WS	815.28	242.40	247.70	247.90	249.40	0.008454	5.96	149.99	57.10	1.00
Verde	28	Max WS	815.54	242.40	247.37	248.20	250.11	0.014148	7.88	124.50	50.84	1.30
Verde	27.98		Lat Struct									
Verde	27	Max WS	817.07	241.40	246.00	246.72	248.13	0.012202	7.14	159.30	123.08	1.22
Verde	26	Max WS	818.02	240.69	244.87	244.44	248.48	0.018855	9.42	117.32	60.48	1.53
Verde	25	Max WS	818.67	240.40	243.66	244.32	245.98	0.019876	7.95	131.13	63.52	1.49
Verde	24	Max WS	818.75	239.35	243.52	244.28	245.87	0.014393	7.66	136.30	61.66	1.31
Verde	23.98		Lat Struct									
Verde	23	Max WS	819.56	237.28	243.02		243.75	0.003914	4.73	251.76	101.52	0.70
Verde	22.8	Max WS	819.56	237.28	243.05	242.69	243.74	0.003475	4.57	260.44	101.64	0.66
Verde	22.5		Inl Struct									
Verde	22.4	Max WS	819.56	235.14	239.90	241.12	243.69	0.022600	10.29	107.78	44.87	1.60
Verde	22	Max WS	819.58	235.04	239.85	241.29	243.90	0.025158	10.65	104.07	44.52	1.70
Verde	21.98		Lat Struct									
Verde	21	Max WS	819.89	235.04	239.20	240.04	242.06	0.019756	8.54	119.56	50.98	1.50

HEC-RAS Plan: 200_12h_CrVe_PRO River: Torrente Verde Reach: Verde Profile: Max WS (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)	
Verde	20	Max WS	820.73	233.01	237.92	238.50	240.09	0.011453	7.35	145.45	61.24	1.17
Verde	19	Max WS	821.27	232.43	237.41	237.83	239.38	0.010490	6.85	147.83	56.81	1.12
Verde	18	Max WS	821.87	231.57	237.18		238.38	0.005466	5.61	191.47	64.36	0.83
Verde	17	Max WS	821.97	231.06	237.61	236.60	238.23	0.002285	4.06	263.44	70.91	0.55
Verde	16.5		Bridge									
Verde	16	Max WS	821.89	231.06	236.26	236.60	237.91	0.008313	6.41	168.01	70.73	1.01
Verde	15	Max WS	821.94	231.06	236.22	236.61	237.97	0.008840	6.57	163.18	69.85	1.04
Verde	14	Max WS	822.09	230.86	236.27		237.14	0.003741	4.83	223.92	71.97	0.70
Verde	13	Max WS	822.96	230.27	235.41	235.55	237.13	0.006920	6.40	158.99	50.97	0.95
Verde	12.98		Lat Struct									
Verde	12	Max WS	823.54	229.68	235.45		236.65	0.004165	5.14	185.39	51.27	0.75
Verde	11	Max WS	823.66	229.30	235.79	234.95	236.57	0.002499	4.26	238.62	67.67	0.59
Verde	10.5		Bridge									
Verde	10	Max WS	823.65	229.30	233.64	234.95	237.45	0.020851	8.73	98.59	46.76	1.56
Verde	9	Max WS	823.72	228.80	233.53	232.85	236.81	0.015274	8.68	122.84	59.60	1.37
Verde	8.99		Lat Struct									
Verde	8	Max WS	824.67	227.95	232.45	233.12	234.63	0.011724	7.35	154.97	84.55	1.19
Verde	7	Max WS	825.14	227.55	232.01	232.34	233.41	0.008529	6.15	190.89	100.66	1.02
Verde	6	Max WS	818.14	227.26	232.24		232.79	0.002754	3.93	272.94	86.87	0.59
Verde	5	Max WS	812.67	227.26	232.40	231.45	232.76	0.001854	3.30	338.76	109.48	0.49
Verde	4.5		Bridge									
Verde	4	Max WS	812.67	227.26	231.29	231.45	232.52	0.008198	5.79	188.64	86.86	0.98
Verde	3.99		Lat Struct									
Verde	3	Max WS	790.90	227.68	231.57	230.83	232.10	0.003138	3.82	262.30	90.47	0.63
Verde	2.5		Inl Struct									
Verde	2	Max WS	790.70	226.36	230.45		231.25	0.005032	4.77	222.04	91.25	0.79
Verde	1.99		Lat Struct									
Verde	1	Max WS	795.20	224.54	229.89	230.32	231.58	0.009806	7.22	167.91	79.06	1.09
Verde	0.5	Max WS	768.77	223.84	228.75	229.58	231.51	0.017157	8.91	133.16	79.02	1.42

Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

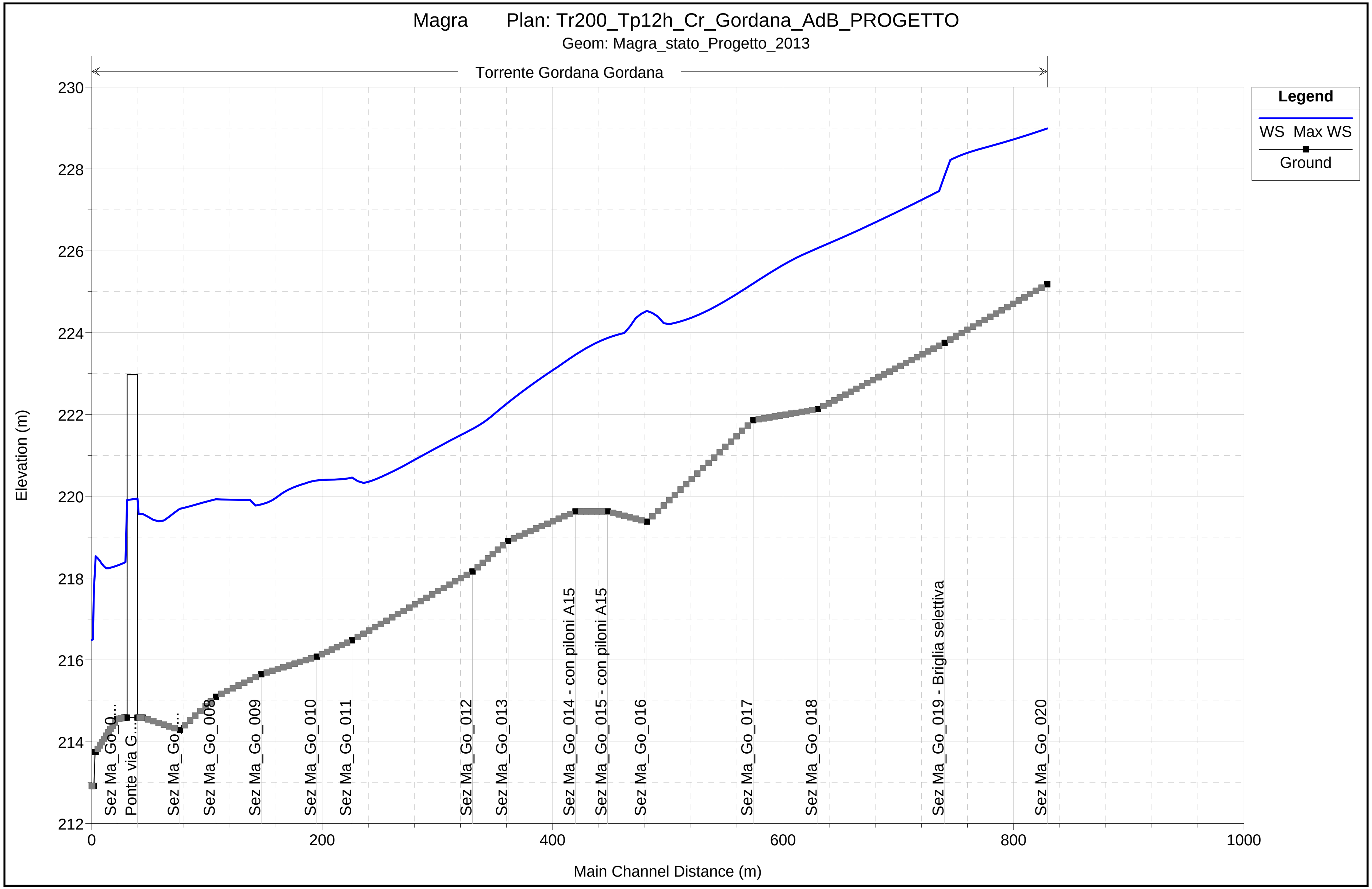
Scenario C - Evento critico sul torrente Gordana

TORRENTE GORDANA

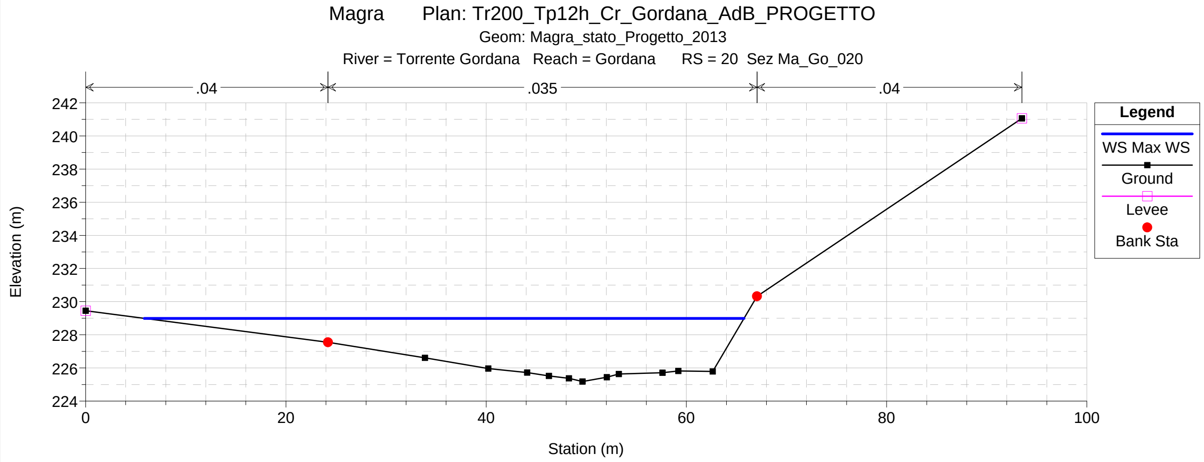
Tr = 200 anni

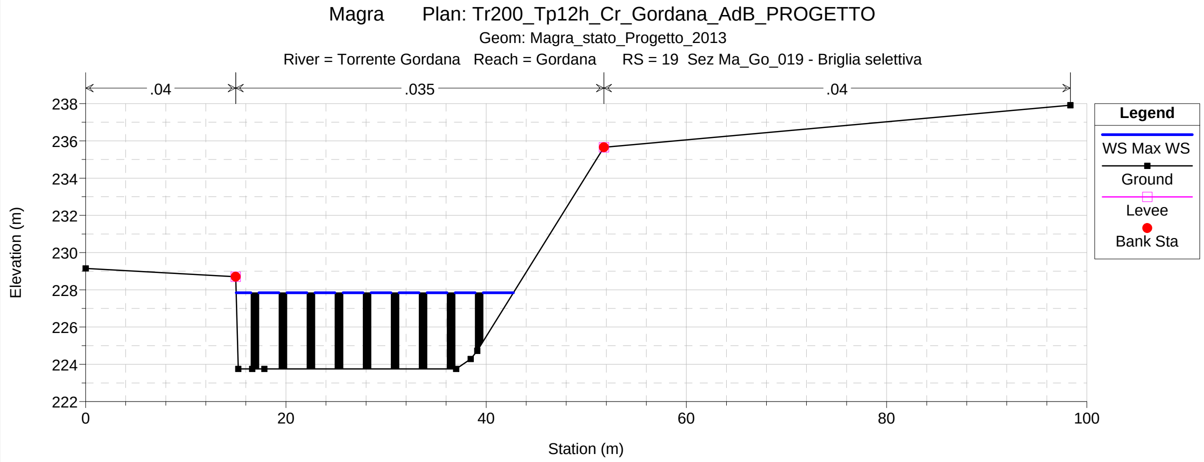
- Profili
- Sezioni
- Tabella di output

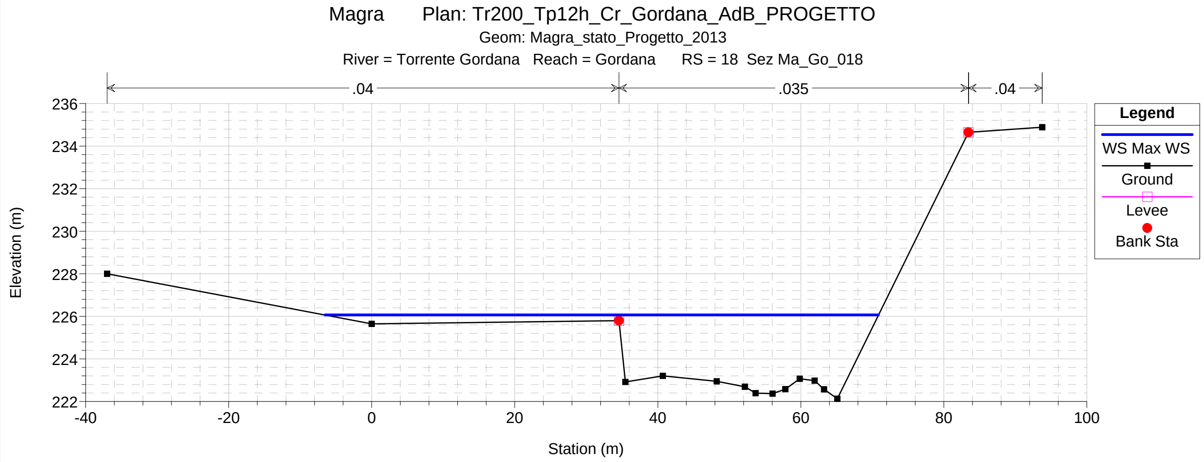
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Gordana-

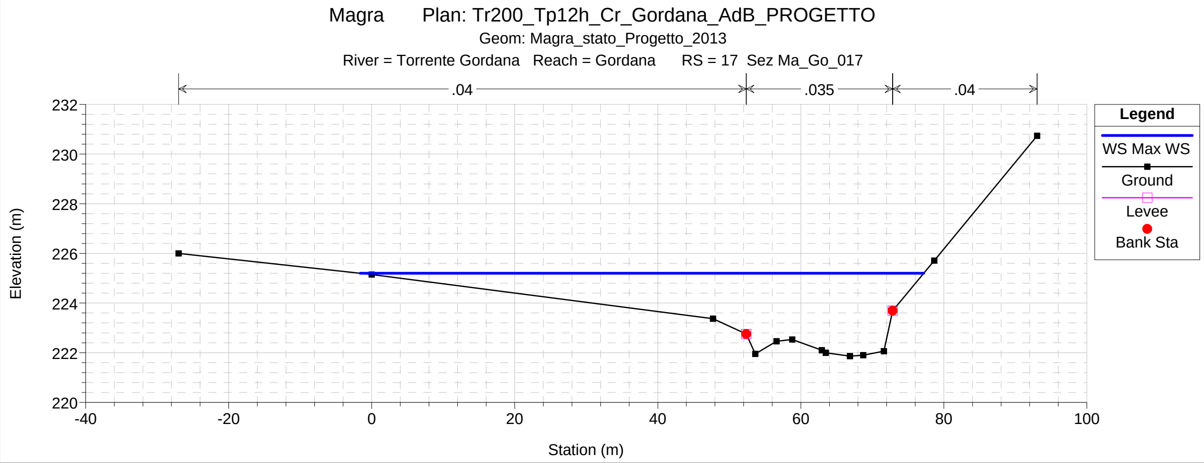


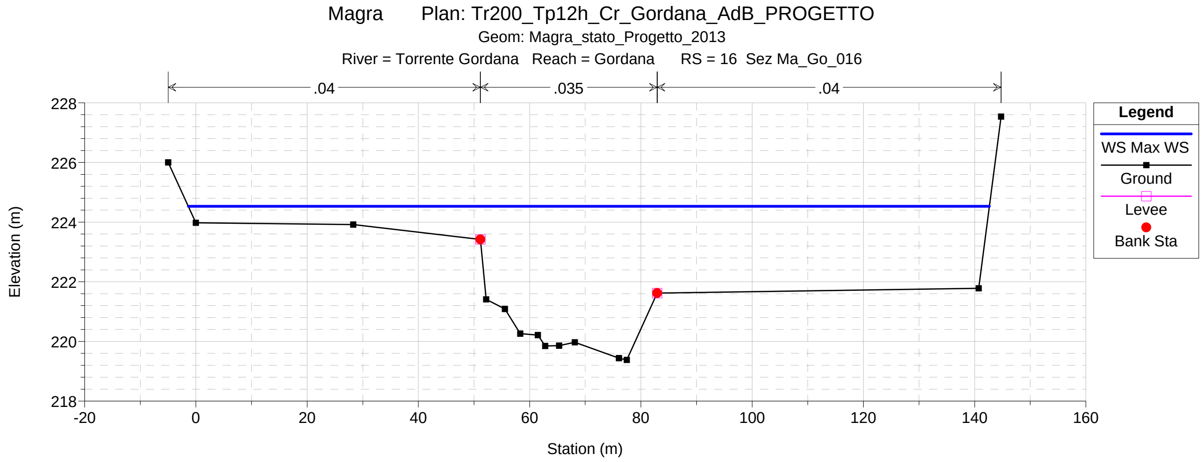
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Gordana-

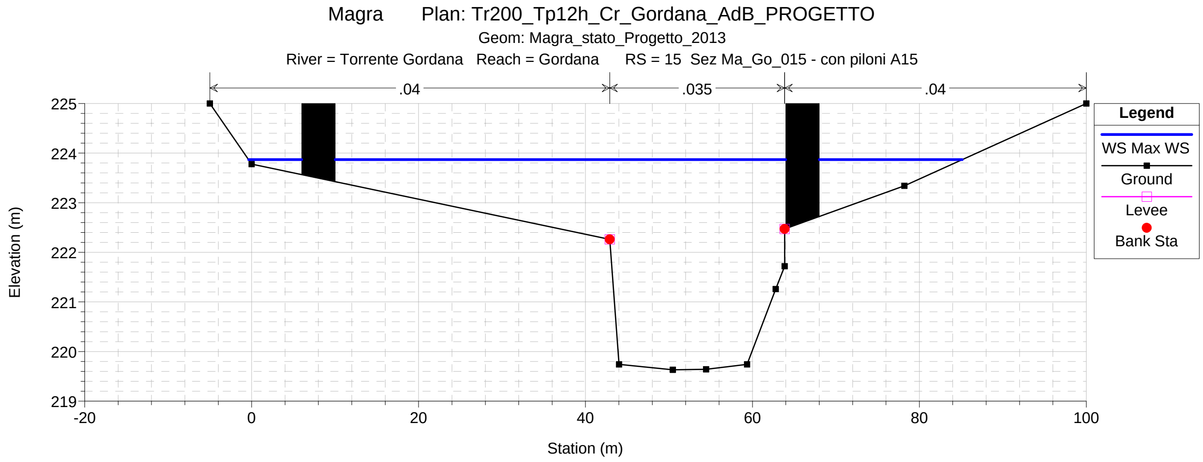









Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 16 Sez Ma_Go_016
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta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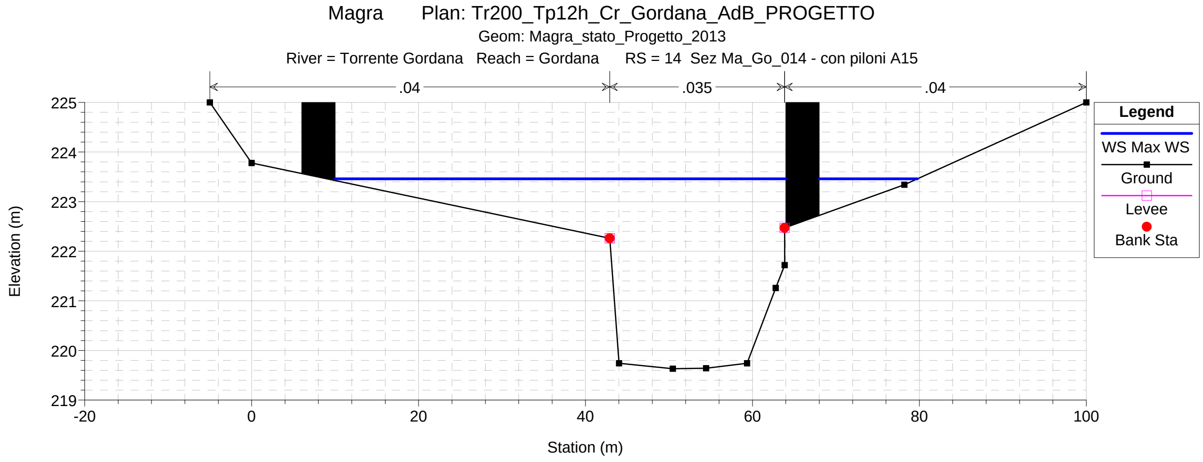
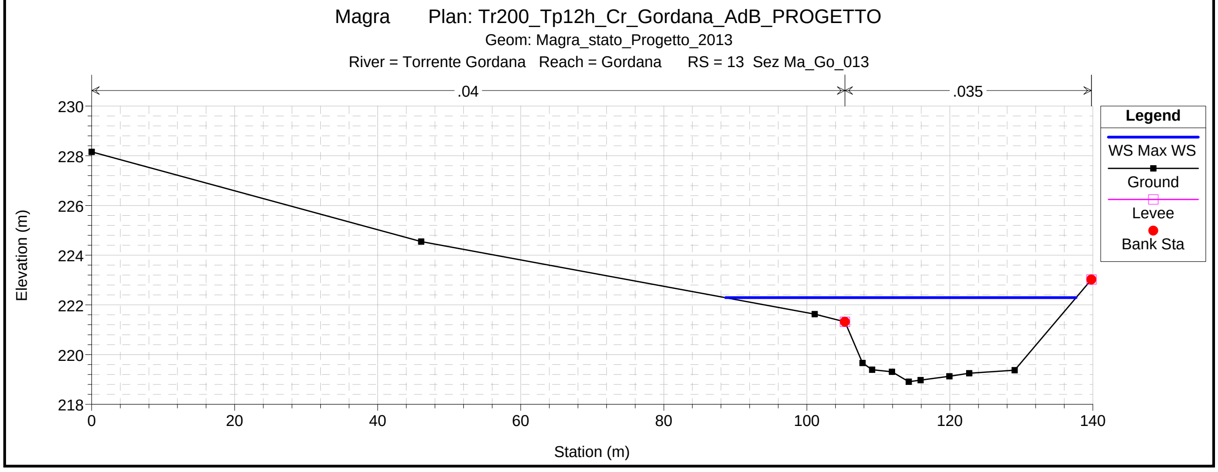
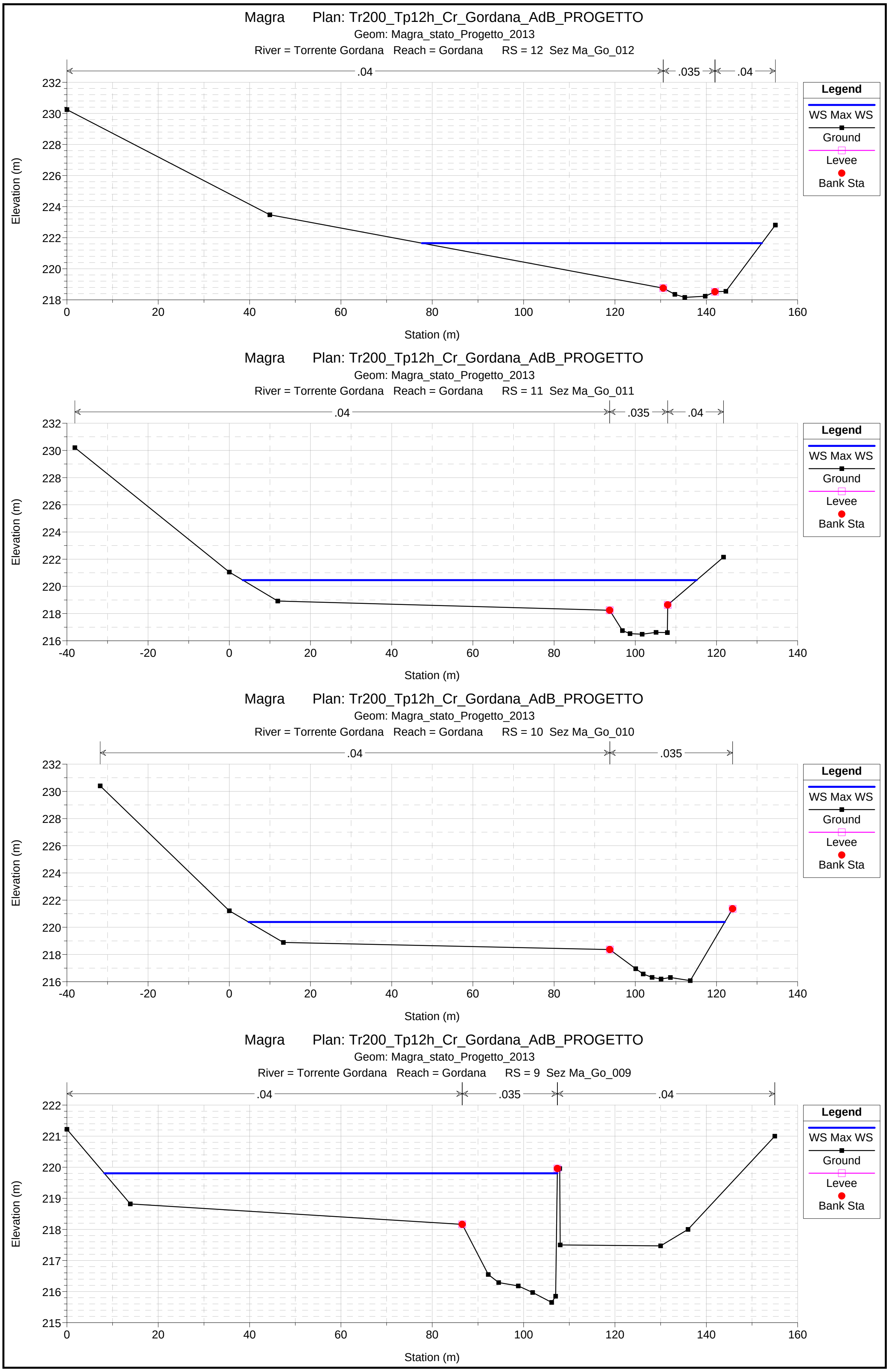
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 15 Sez Ma_Go_015 - con piloni A15
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

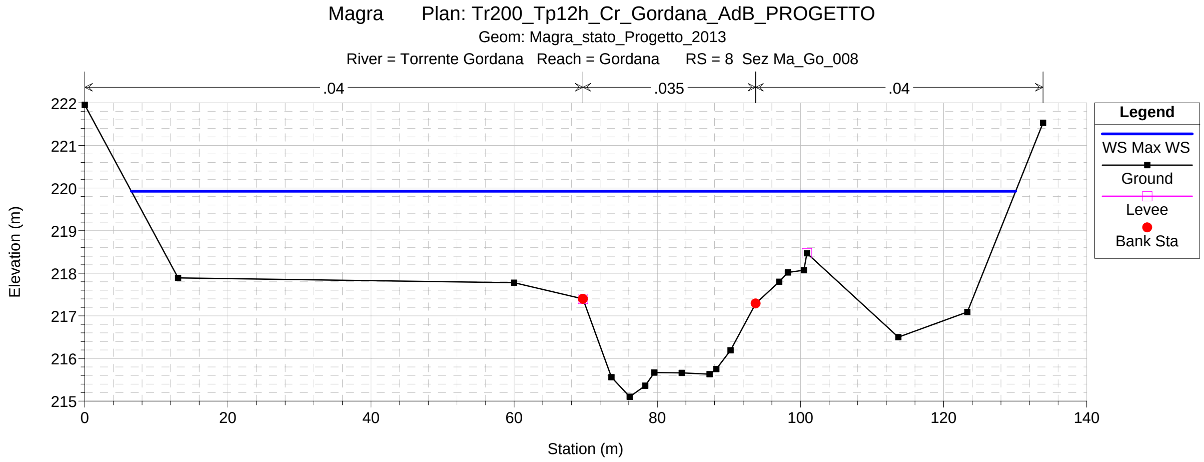

Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 14 Sez Ma_Go_014 - con piloni A15
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

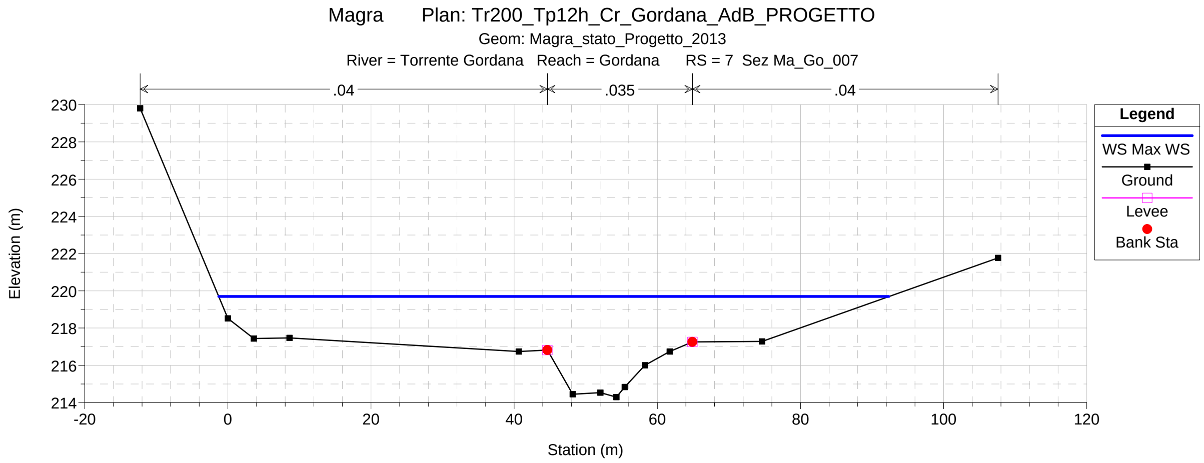

Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 13 Sez Ma_Go_013
.04
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

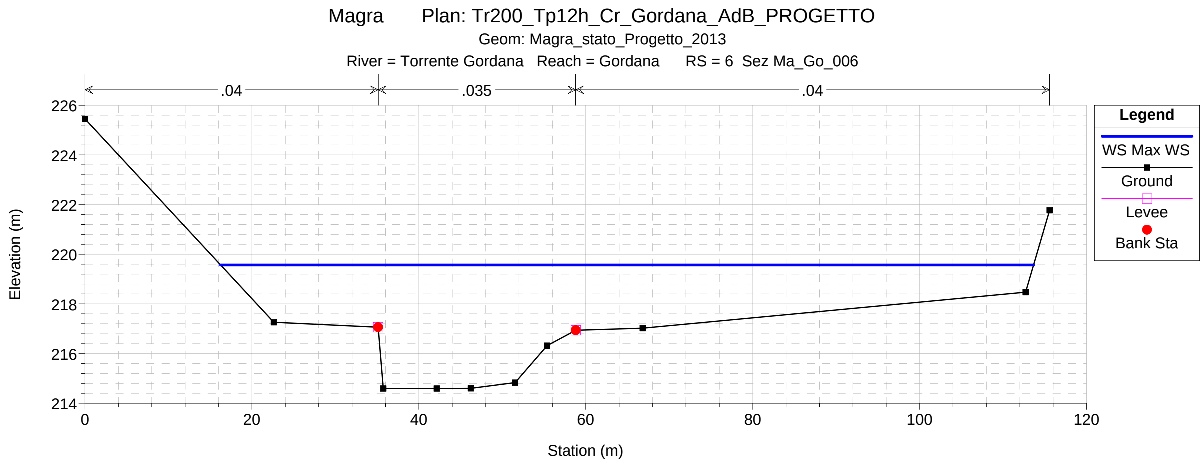
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Gordana-

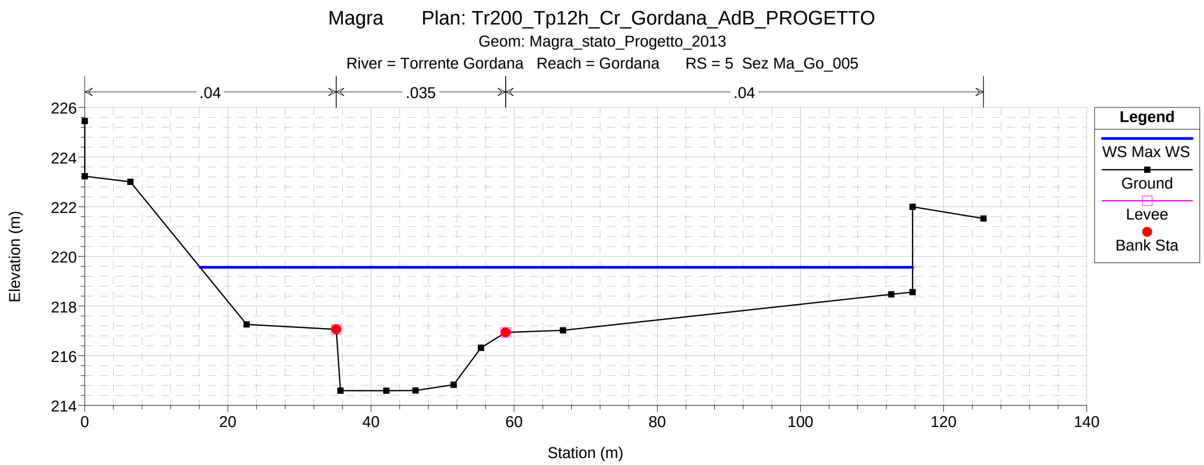


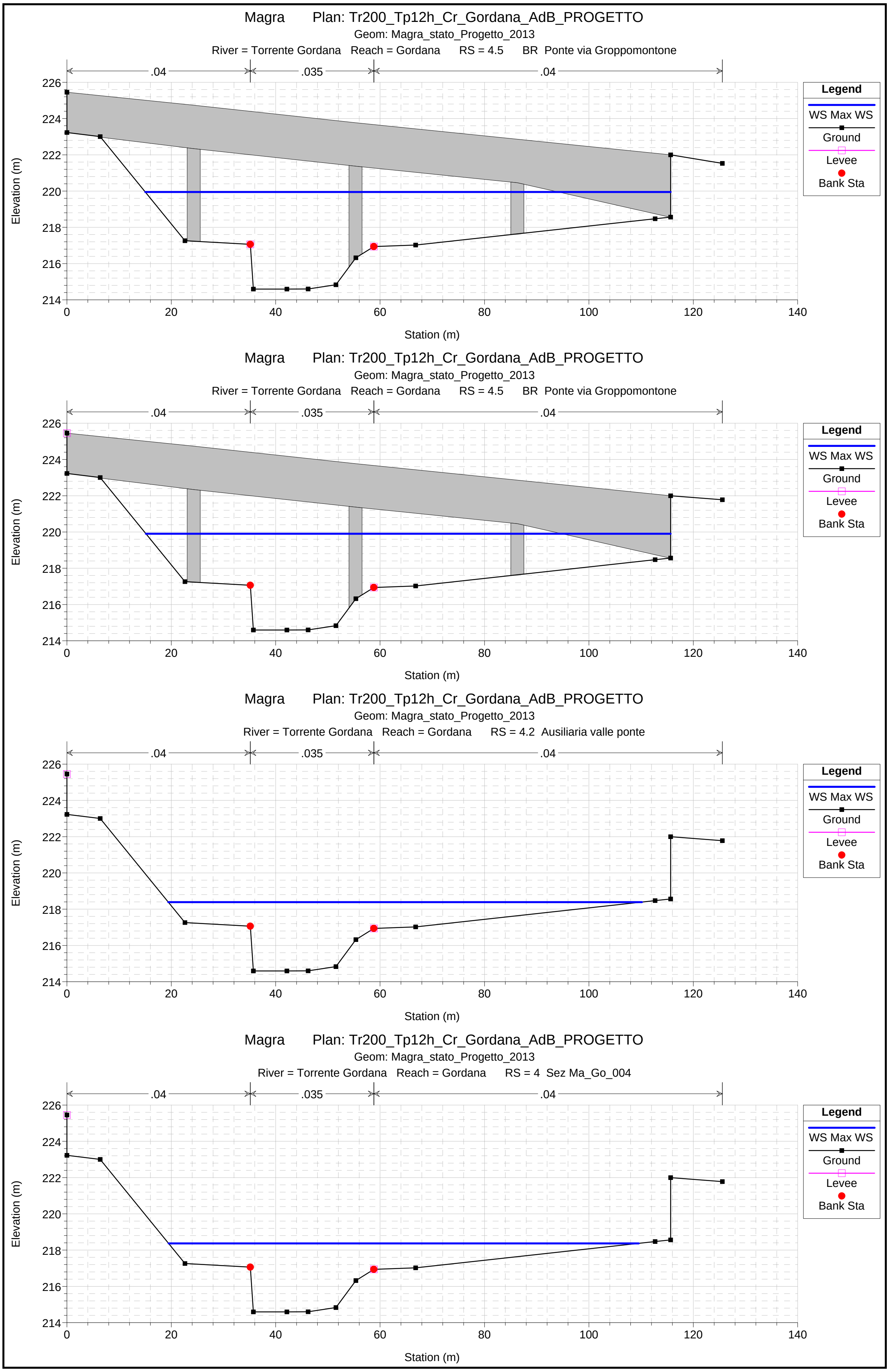
Allegato 2 - Verifiche idrauliche stato di progetto
-torrente Gordana-

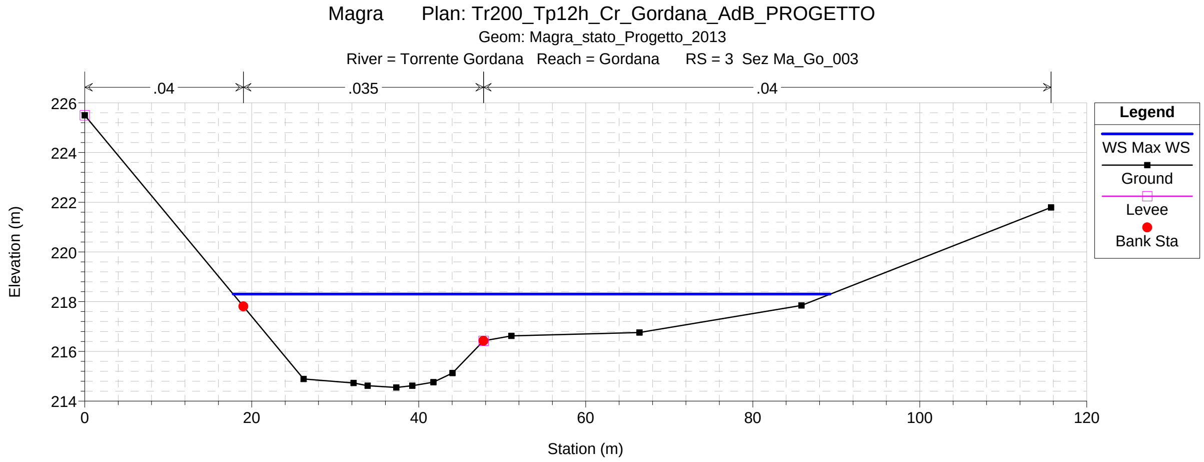


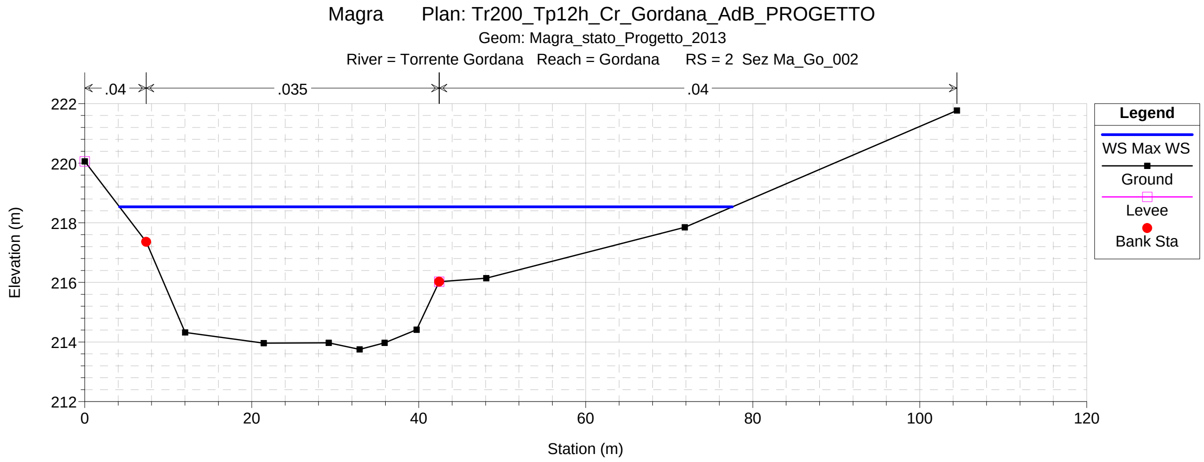


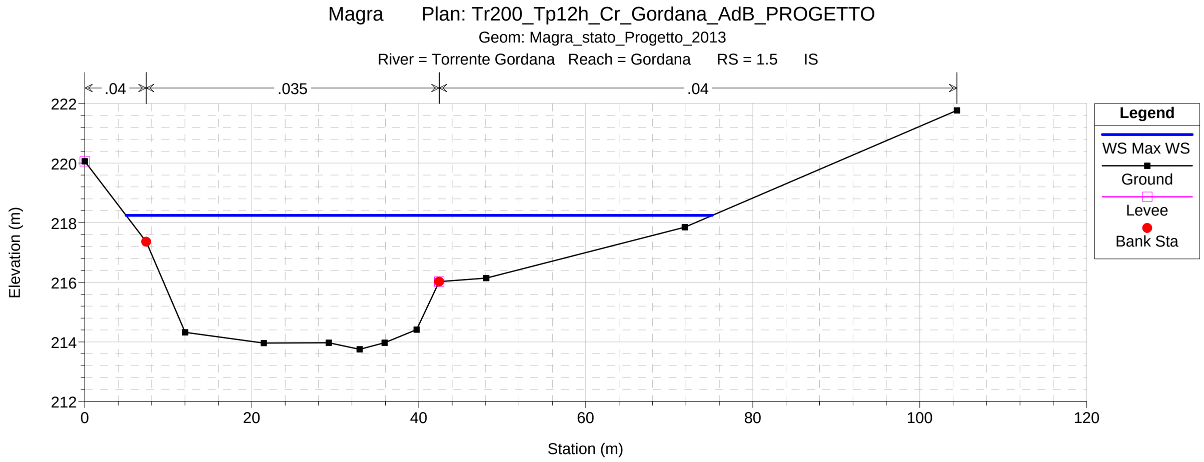


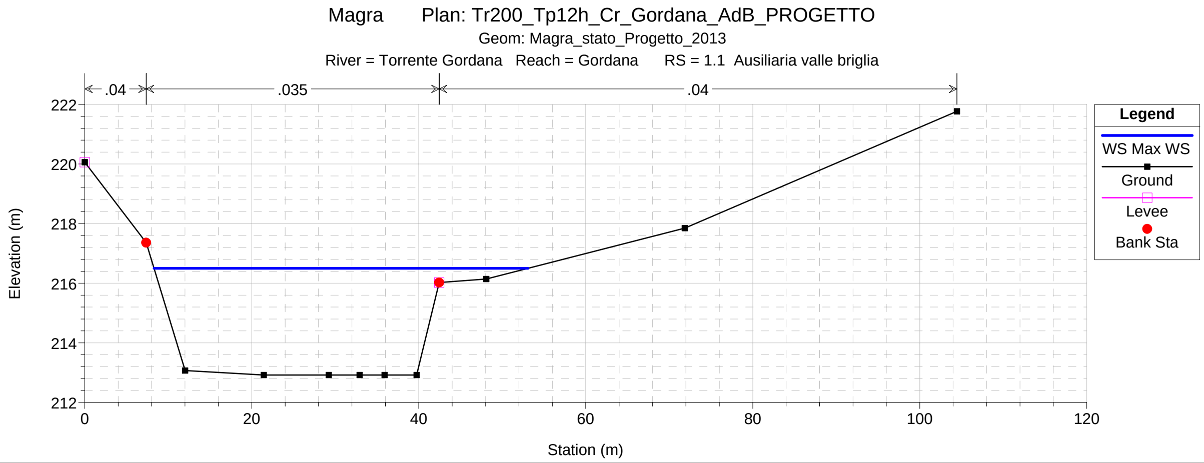


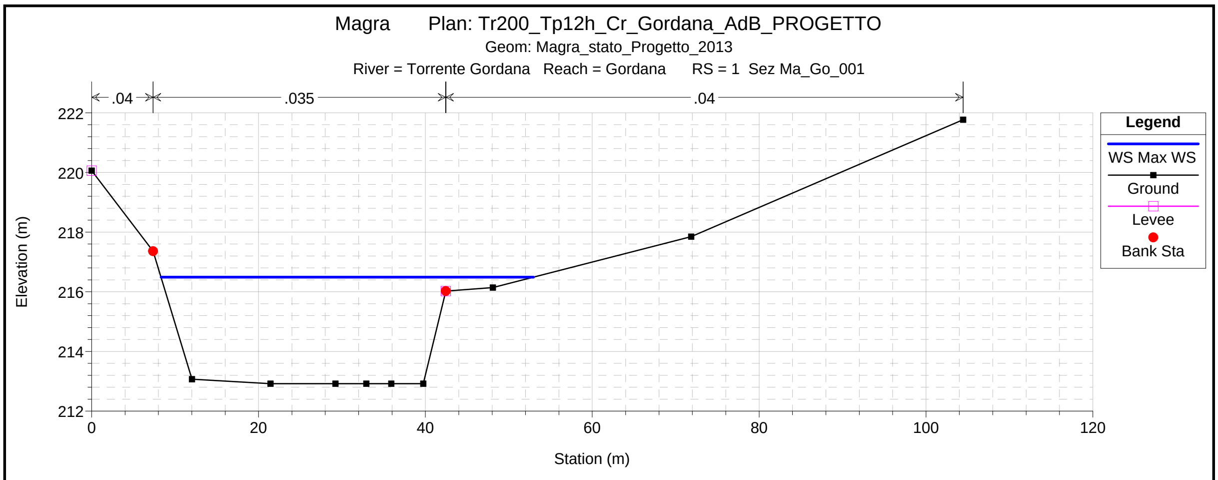

Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 4.5 BR Ponte via Groppomontone
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)
Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 4.5 BR Ponte via Groppomontone
Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 4.2 Ausiliaria valle ponte
Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 4 Sez Ma_Go_004


Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 3 Sez Ma_Go_003
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 2 Sez Ma_Go_002
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 1.5 IS
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 1.1 Ausiliaria valle briglia
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Gordana_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Torrente Gordana Reach = Gordana RS = 1 Sez Ma_Go_001
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
222
220
218
216
214
212
0
20
40
60
80
100
120
Station (m)

HEC-RAS Plan: 200_12h_CrGo_PRO River: Torrente Gordana Reach: Gordana Profile: Max WS

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)	
Gordana	20	Max WS	666.56	225.18	228.99	229.23	230.49	0.009966	5.52	129.16	59.91	1.06
Gordana	19	Max WS	666.49	223.75	227.84	229.46	231.87	0.147123	8.90	74.91	27.69	1.73
Gordana	18	Max WS	666.43	222.13	226.07	226.62	227.85	0.011586	5.99	121.58	77.42	1.11
Gordana	17	Max WS	664.96	221.86	225.20	226.09	227.49	0.017843	7.67	119.63	78.79	1.41
Gordana	16	Max WS	671.52	219.38	224.53		224.78	0.001298	2.61	338.51	144.02	0.40
Gordana	15	Max WS	667.43	219.63	223.87	224.52	225.90	0.011452	6.82	127.11	77.50	1.10
Gordana	14	Max WS	666.29	219.63	223.46	224.52	226.69	0.019726	8.31	97.91	65.77	1.42
Gordana	13	Max WS	666.28	218.91	222.29	223.35	225.38	0.022771	7.88	90.01	49.01	1.57
Gordana	12	Max WS	666.27	218.16	221.64	222.16	223.37	0.014372	7.60	133.71	74.43	1.33
Gordana	11	Max WS	666.24	216.48	220.46		221.04	0.005191	4.44	219.23	111.79	0.74
Gordana	10	Max WS	658.78	216.08	220.39		220.87	0.003844	3.73	238.45	117.30	0.67
Gordana	9	Max WS	622.84	215.65	219.80		220.76	0.008342	5.21	167.83	99.19	0.91
Gordana	8	Max WS	666.12	215.10	219.93		220.22	0.001793	3.00	310.76	123.58	0.48
Gordana	7	Max WS	666.12	214.29	219.69		220.17	0.002778	3.75	242.01	93.63	0.59
Gordana	6	Max WS	666.12	214.59	219.57		220.05	0.002558	3.68	248.06	97.41	0.56
Gordana	5	Max WS	666.12	214.59	219.56	218.98	220.04	0.002550	3.68	250.46	99.57	0.56
Gordana	4.5		Bridge									
Gordana	4.2	Max WS	666.12	214.59	218.39	218.98	220.21	0.012535	6.65	135.92	90.73	1.17
Gordana	4	Max WS	666.12	214.59	218.37	218.98	220.24	0.012895	6.72	134.21	90.08	1.19
Gordana	3	Max WS	666.12	214.55	218.30	218.64	219.80	0.010255	5.95	138.35	71.49	1.09
Gordana	2	Max WS	666.11	213.75	218.54	217.75	219.23	0.002930	3.91	200.70	73.39	0.61
Gordana	1.5		Inl Struct									
Gordana	1.1	Max WS	661.98	212.92	216.50	216.77	218.30	0.010097	5.96	113.68	44.78	1.06
Gordana	1	Max WS	661.98	212.92	216.49	216.77	218.30	0.010202	5.98	113.23	44.63	1.06

Allegato 2

VERIFICHE IDRAULICHE STATO DI PROGETTO

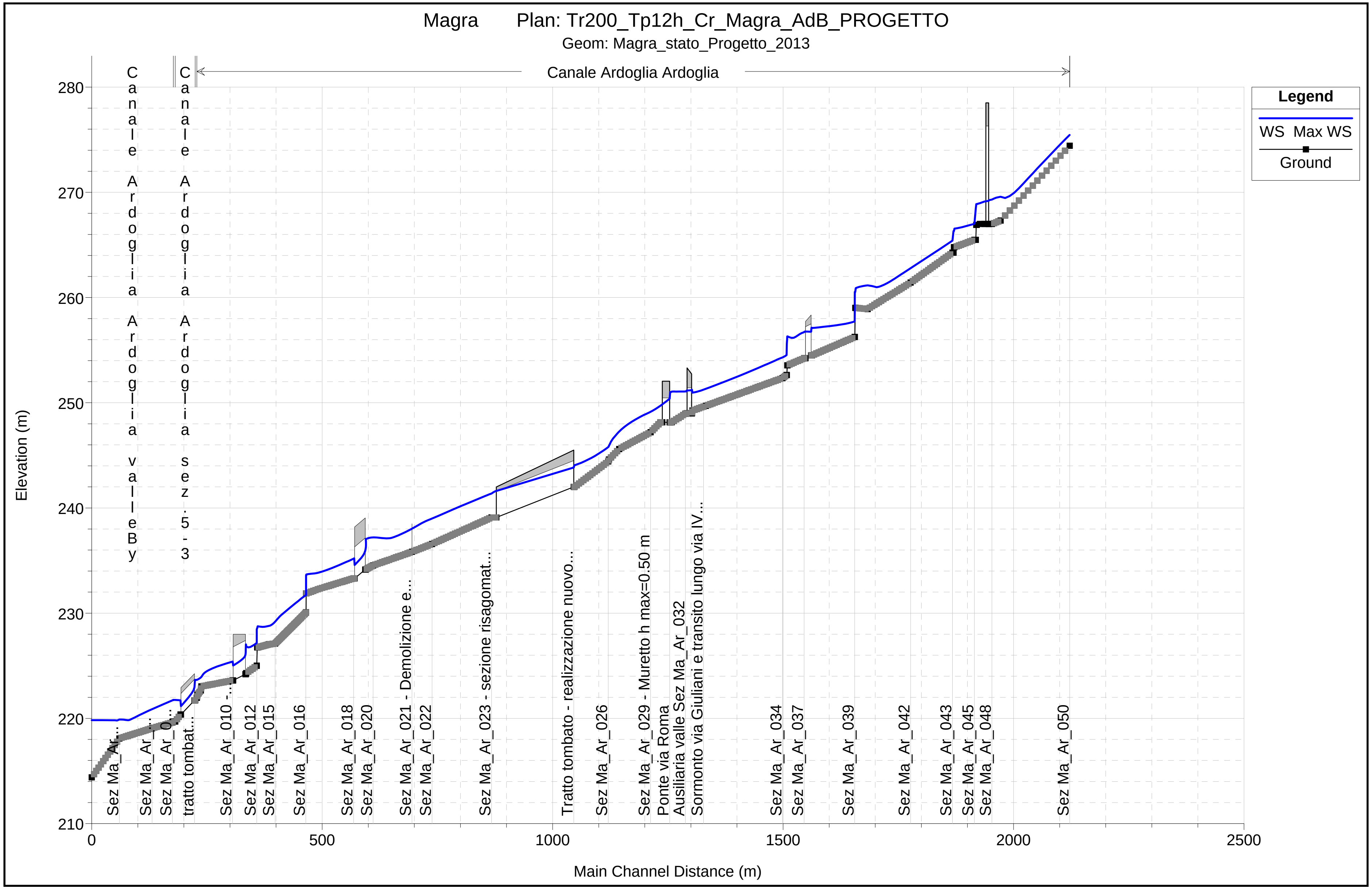
Evento critico sul canale dell’Ardoglia

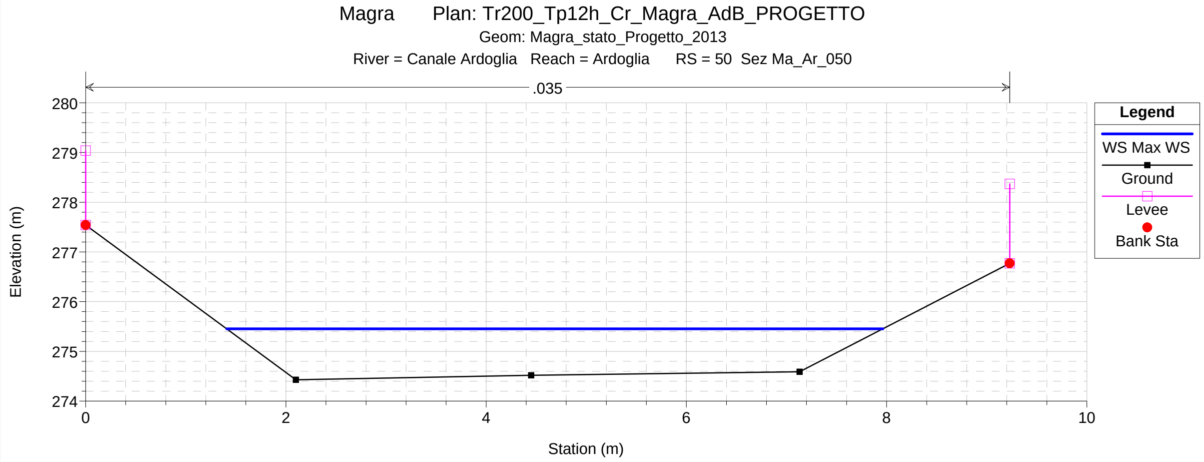
CANALE DELL’ARDOGLIA

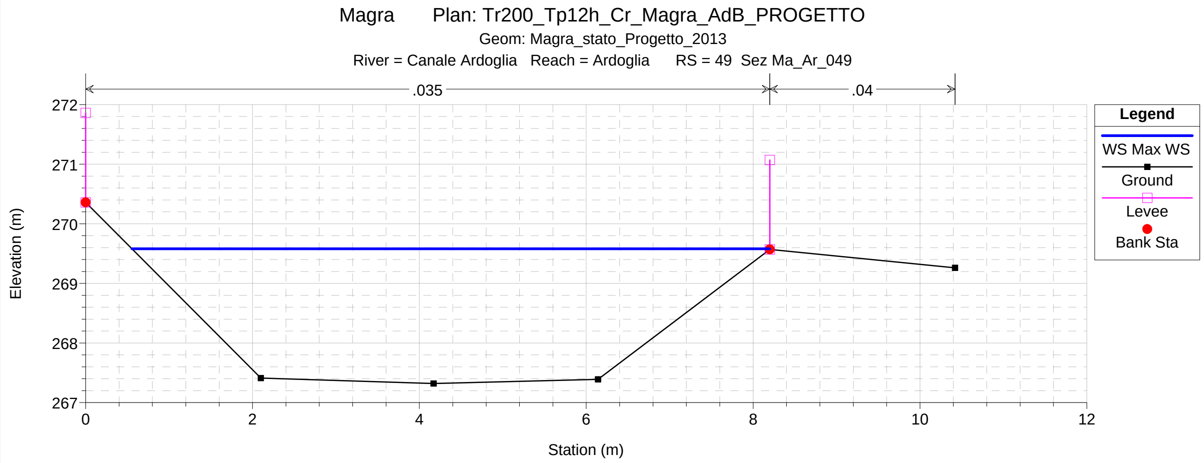
Tr = 200 anni

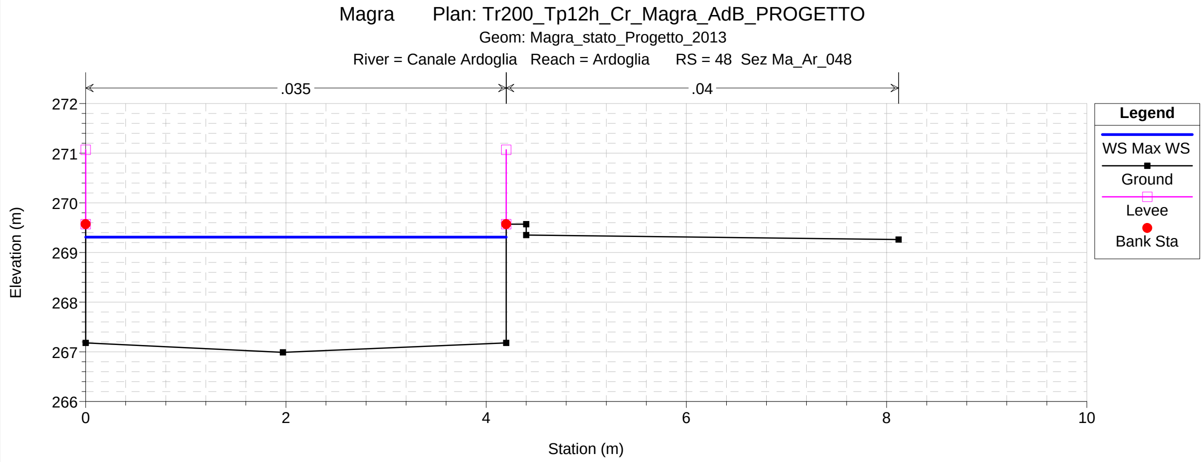
- Profili
- Sezioni
- Tabella di output

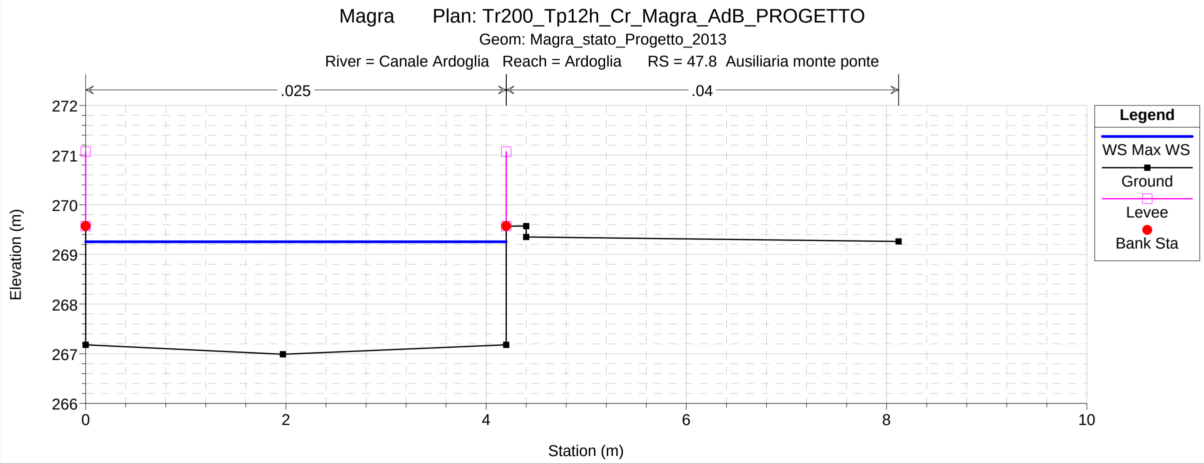
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

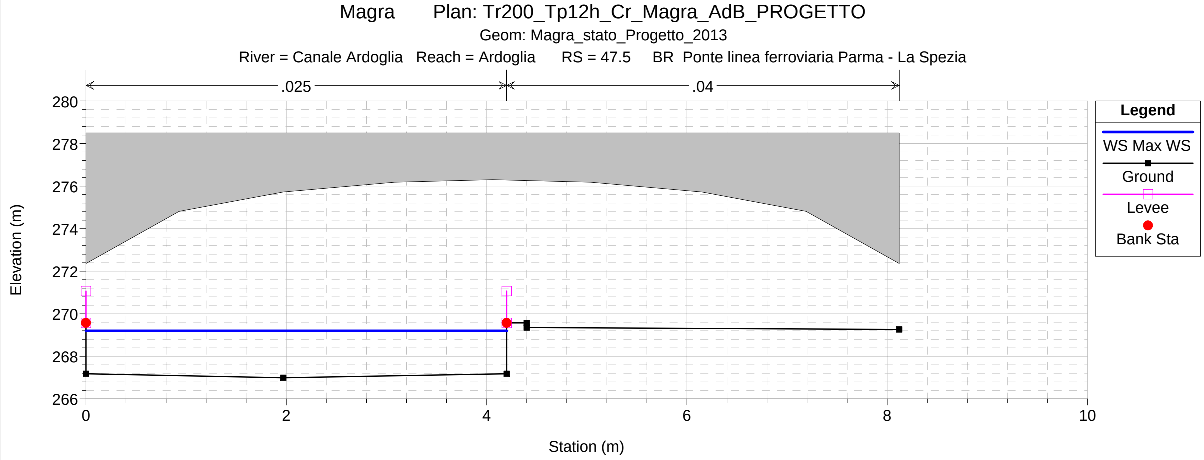


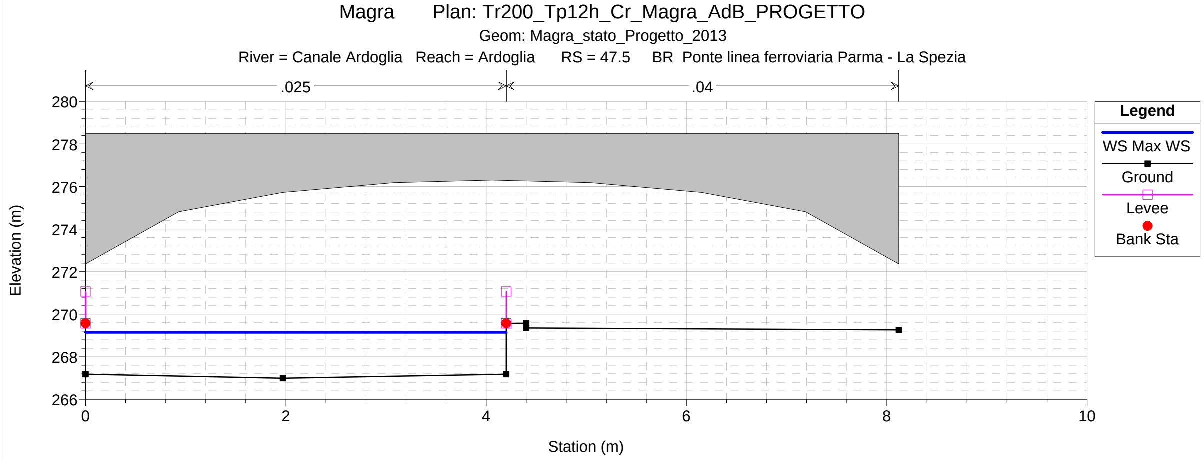

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 50 Sez Ma_Ar_050
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

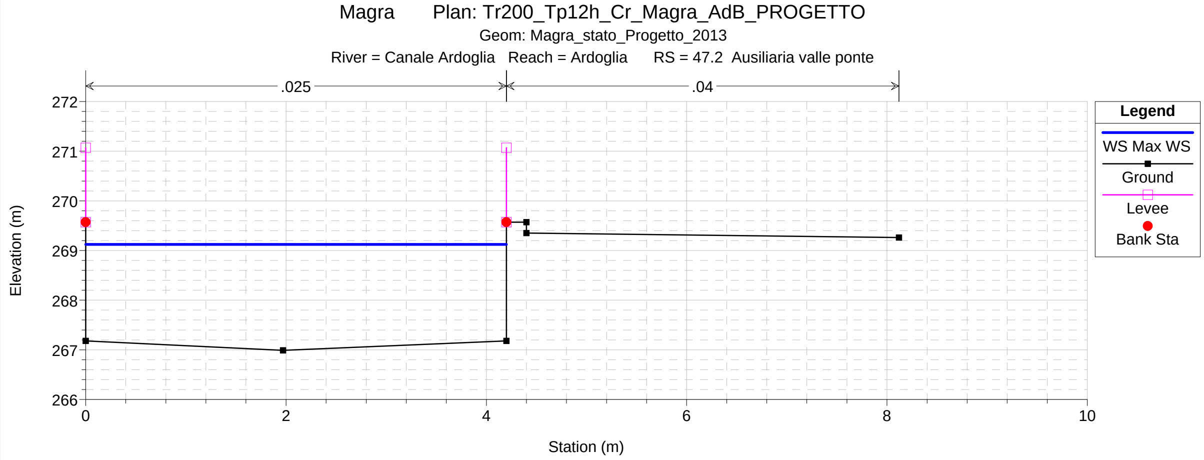

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 49 Sez Ma_Ar_049
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

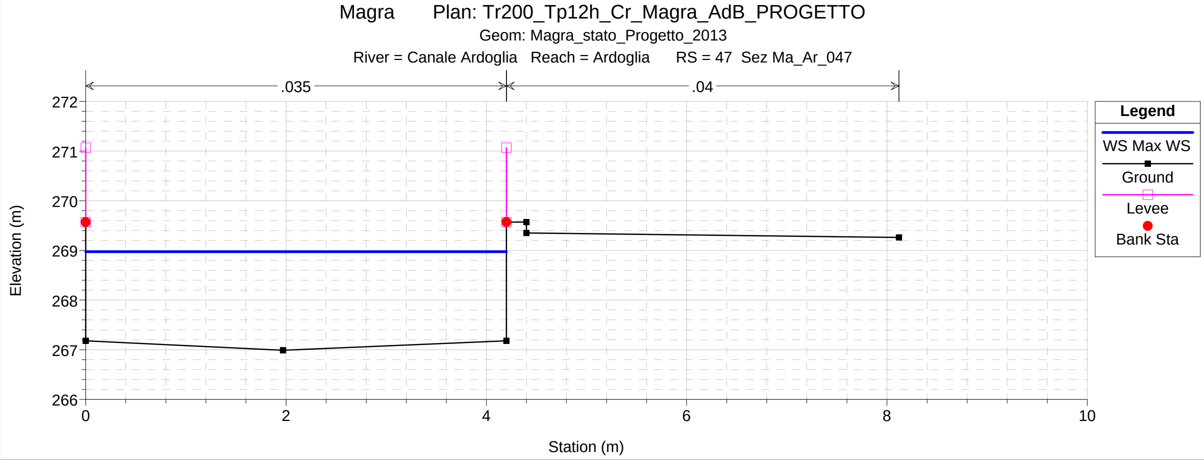

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 48 Sez Ma_Ar_048
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

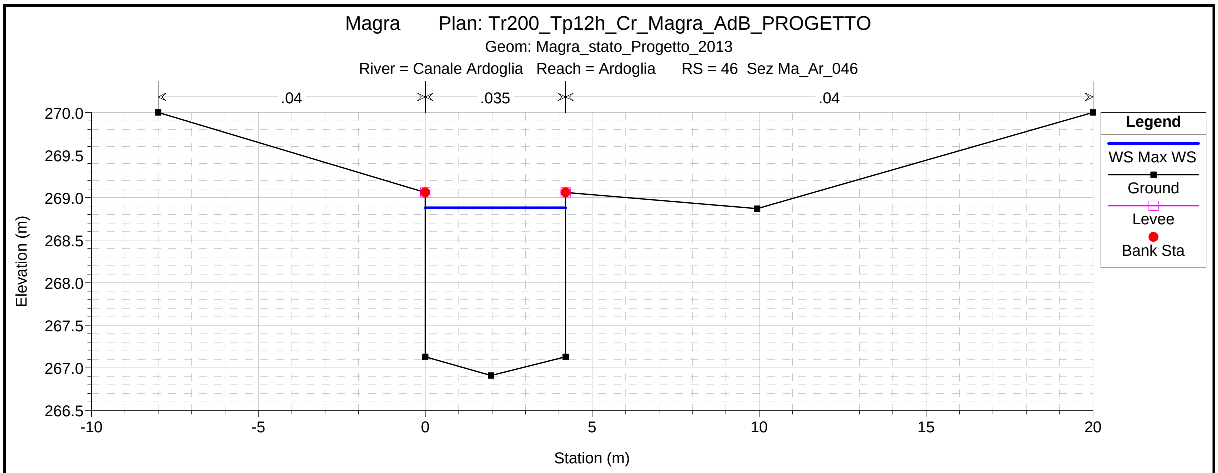

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 47.8 Ausiliaria monte ponte
.025
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

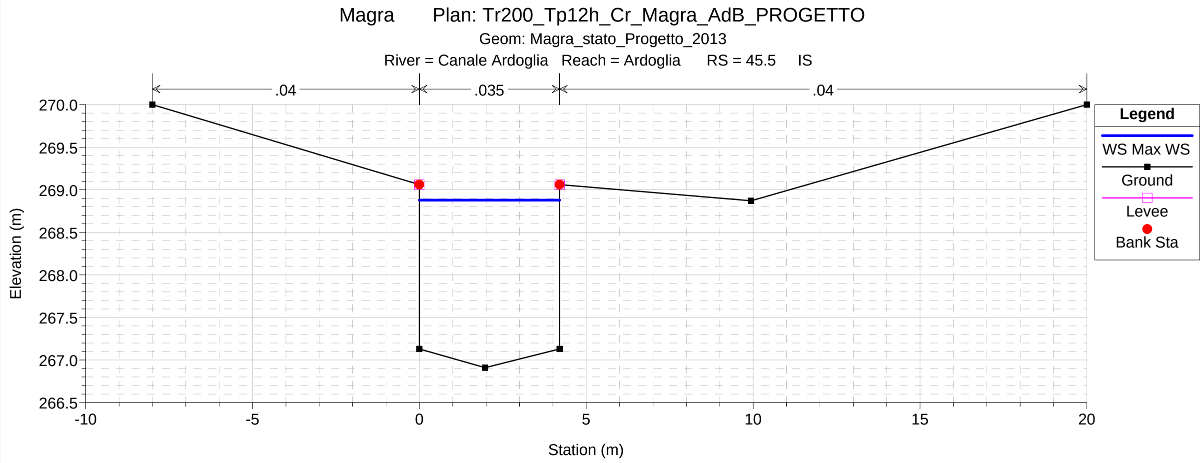

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 47.5 BR Ponte linea ferroviaria Parma - La Spezia
.025
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

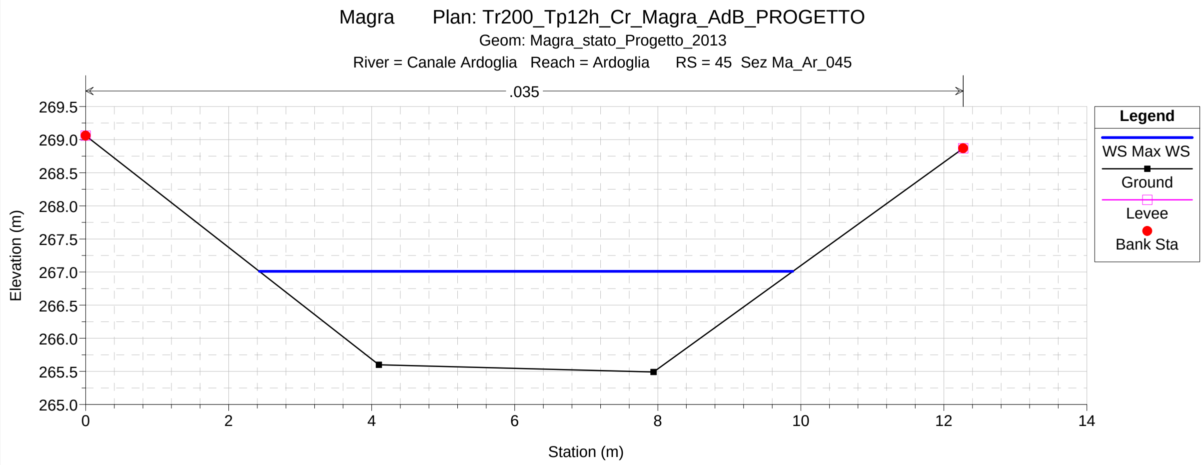

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 47.5 BR Ponte linea ferroviaria Parma - La Spezia
.025
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

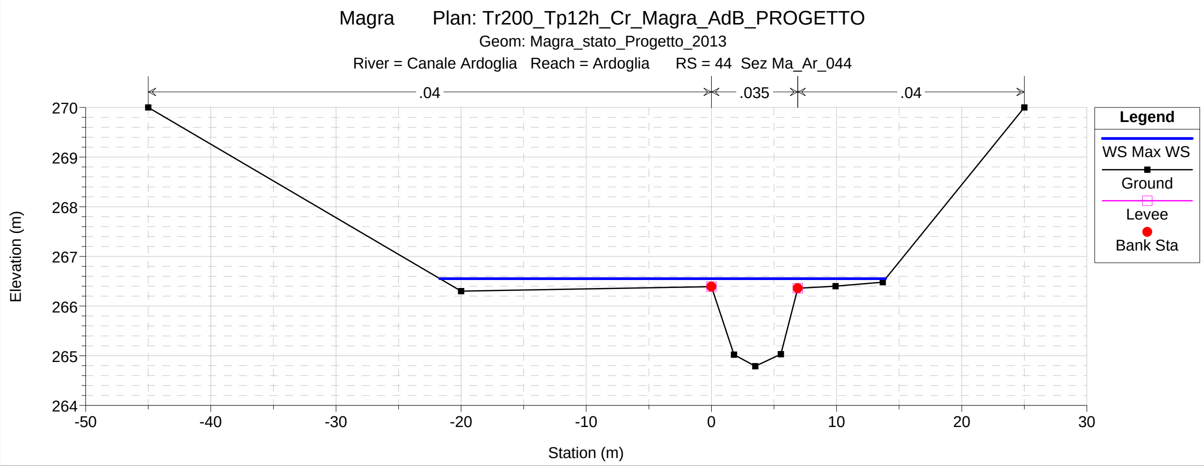

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 47.2 Ausiliaria valle ponte
.025
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

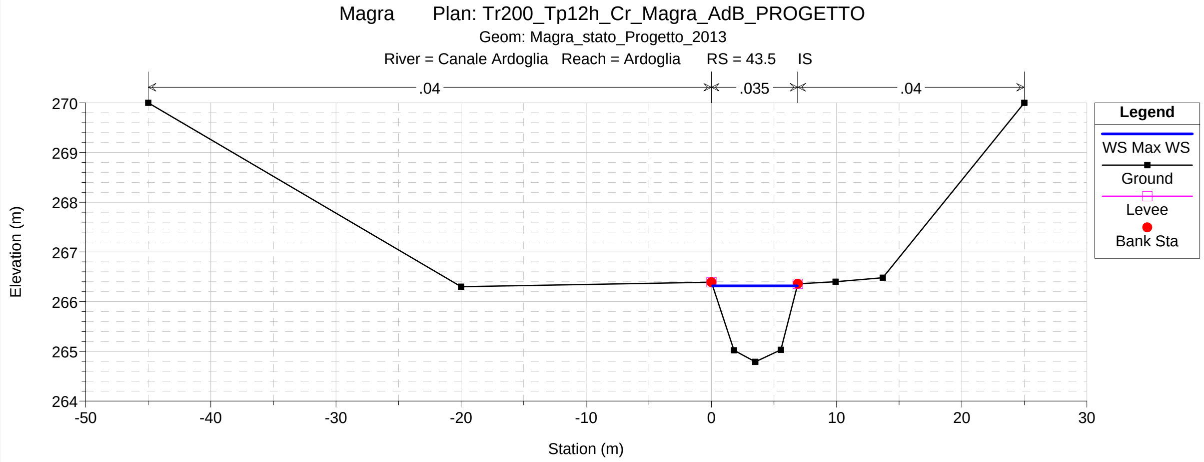

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 47 Sez Ma_Ar_047
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

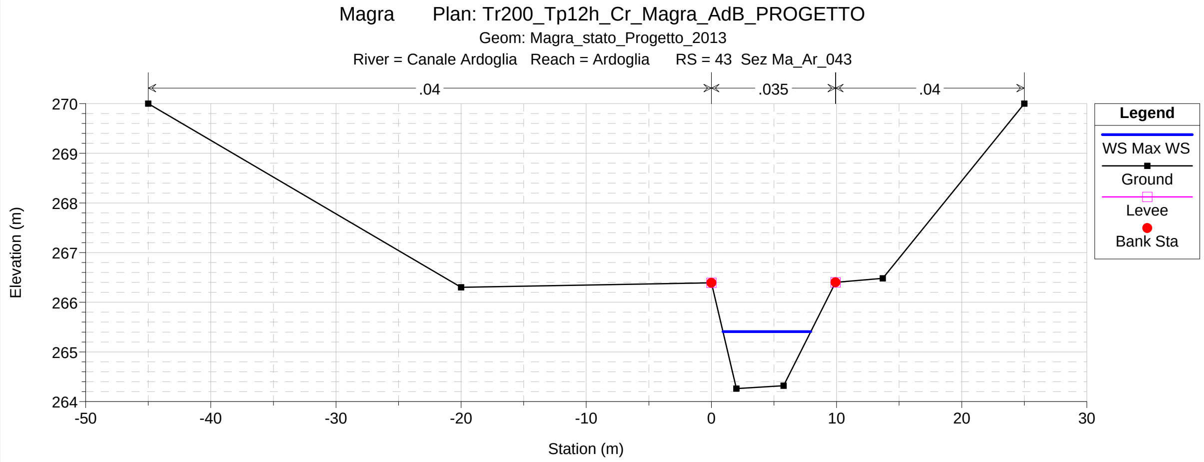

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 46 Sez Ma_Ar_046
.04
.035
.04
Elevation (m)
270.0
269.5
269.0
268.5
268.0
267.5
267.0
266.5
-10
-5
0
5
10
15
20
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

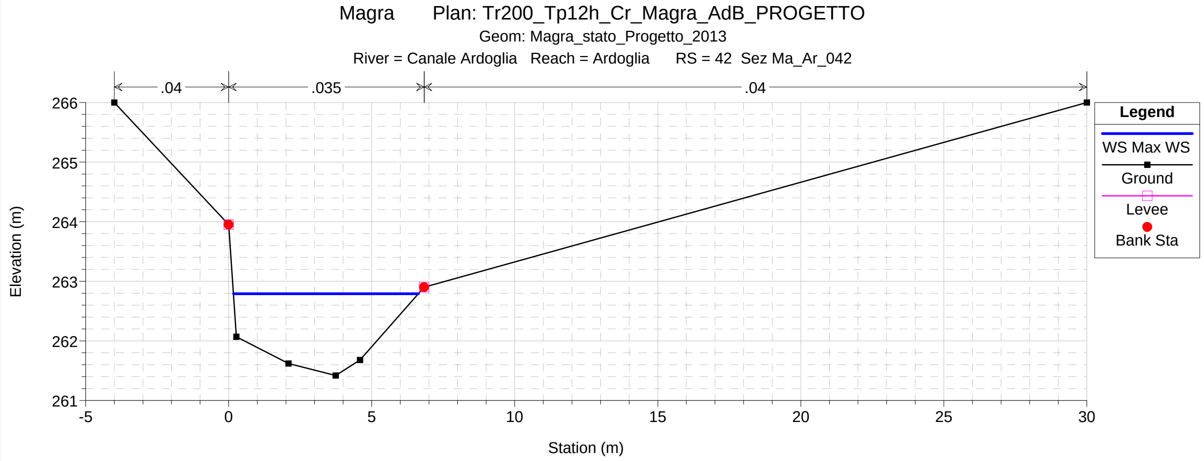

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 45.5 IS
.04
.035
.04
Elevation (m)
270.0
269.5
269.0
268.5
268.0
267.5
267.0
266.5
-10
-5
0
5
10
15
20
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

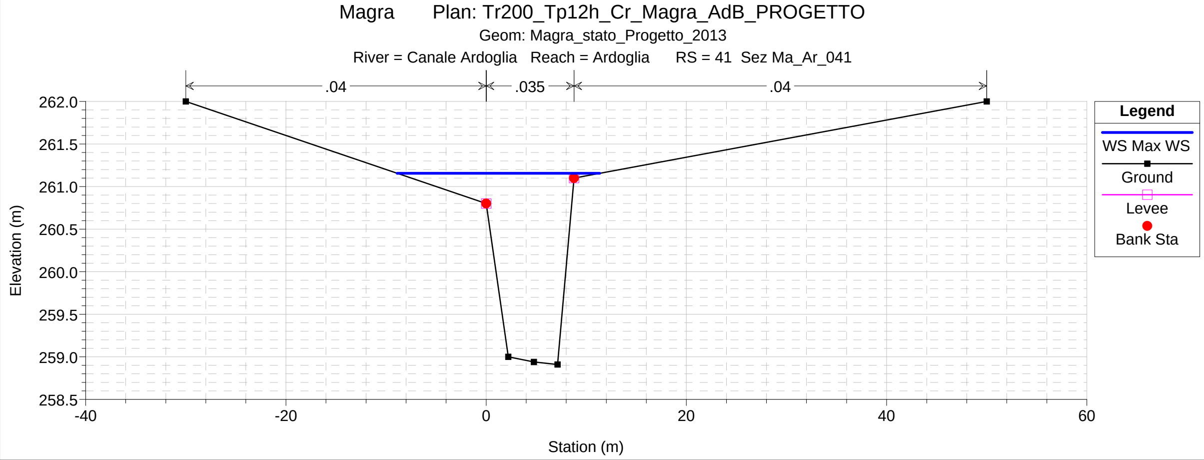

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 45 Sez Ma_Ar_045
.035
Elevation (m)
269.5
269.0
268.5
268.0
267.5
267.0
266.5
266.0
265.5
265.0
0
2
4
6
8
10
12
14
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 44 Sez Ma_Ar_044
.04
.035
.04
Elevation (m)
270
269
268
267
266
265
264
-50
-40
-30
-20
-10
0
10
20
30
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

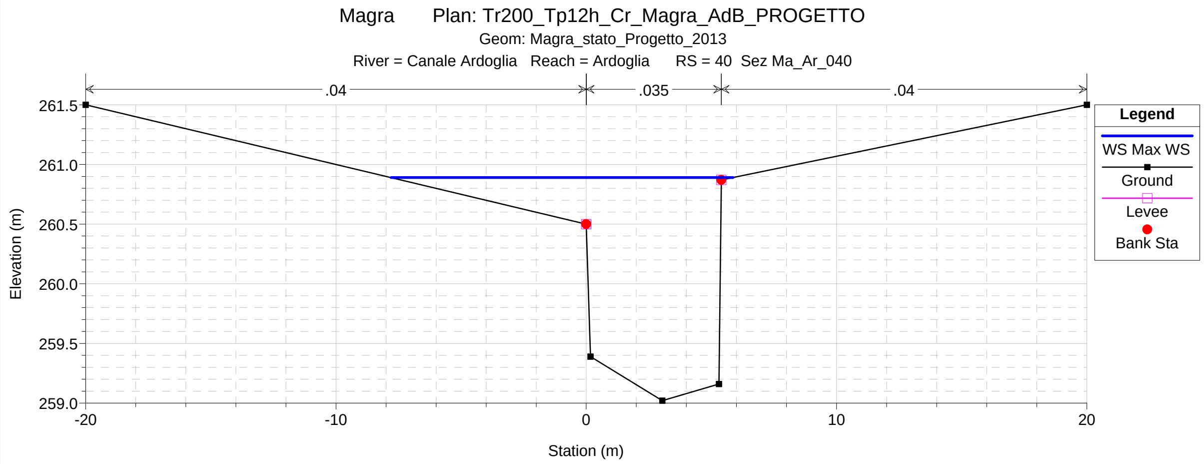

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 43.5 IS
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

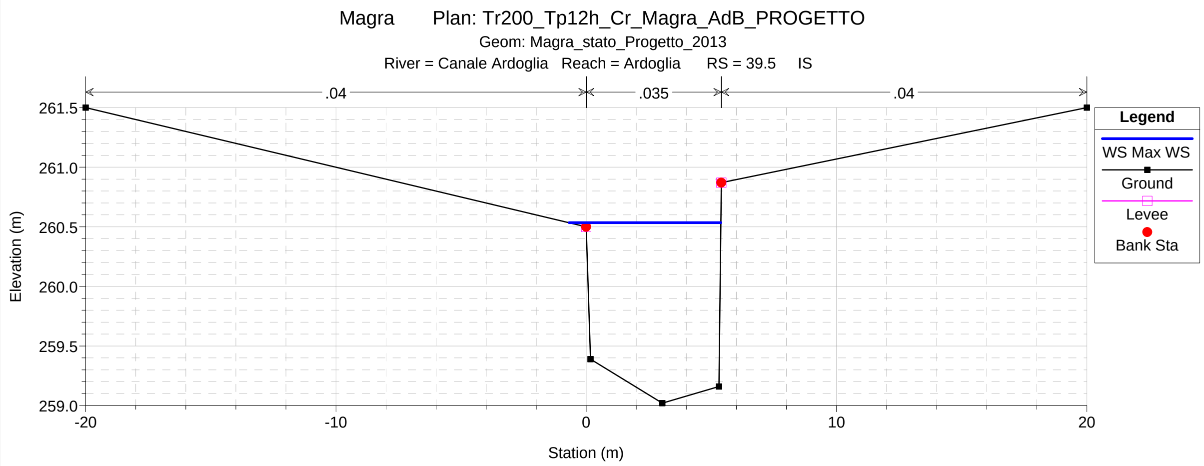

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 43 Sez Ma_Ar_043
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

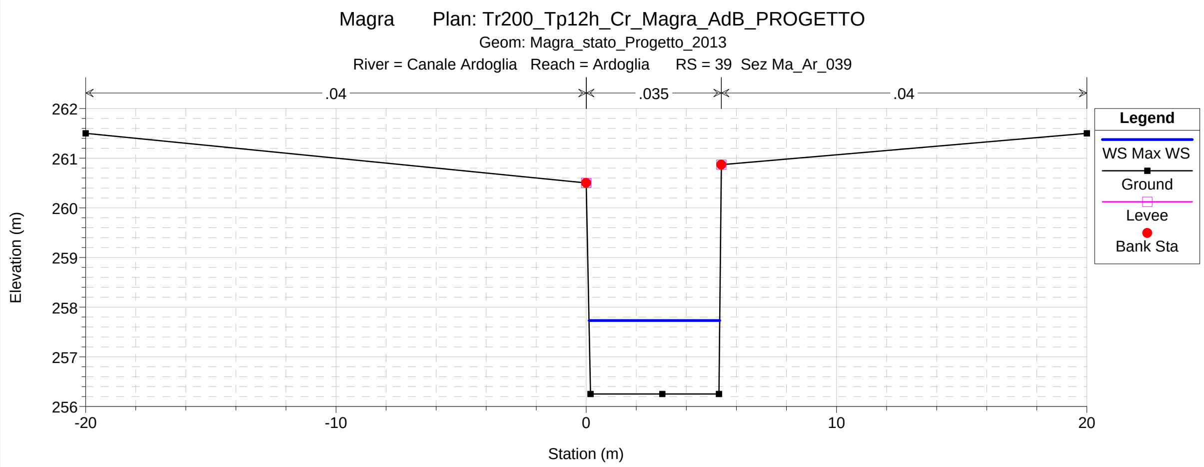

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 42 Sez Ma_Ar_042
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

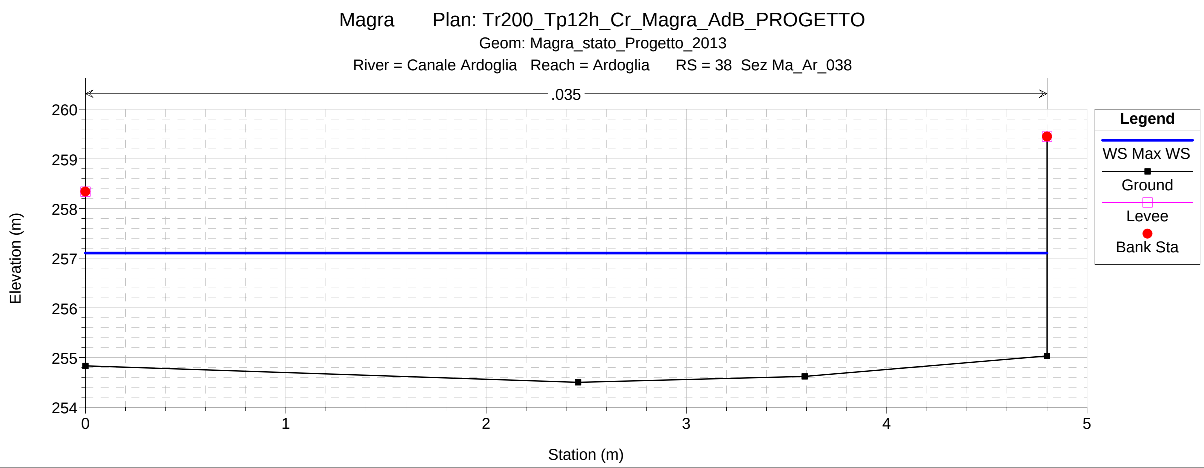

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 41 Sez Ma_Ar_041
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

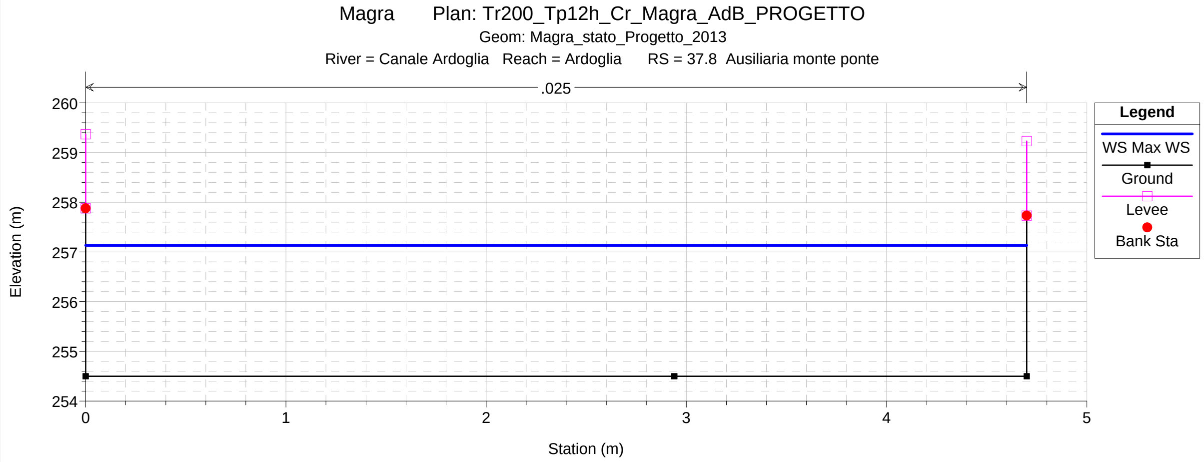


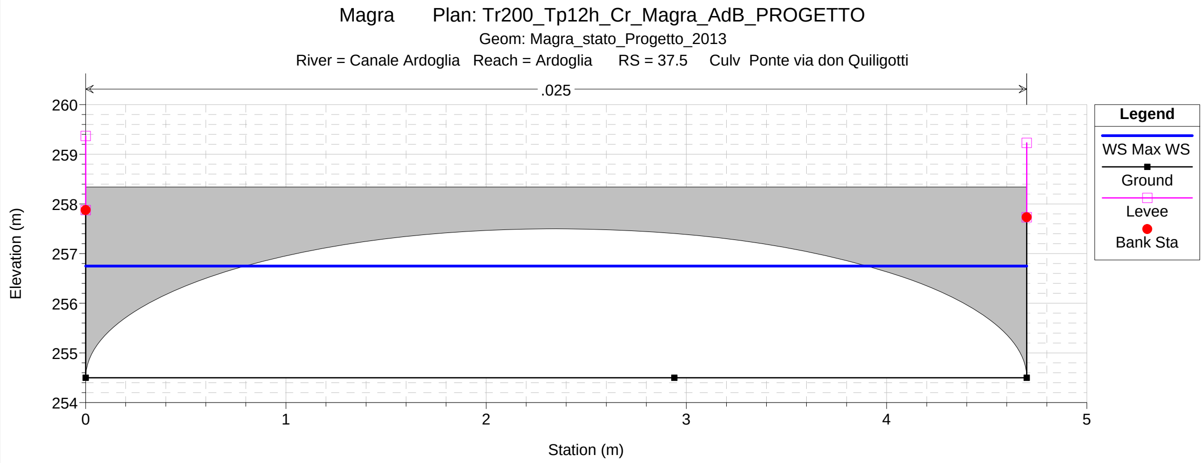


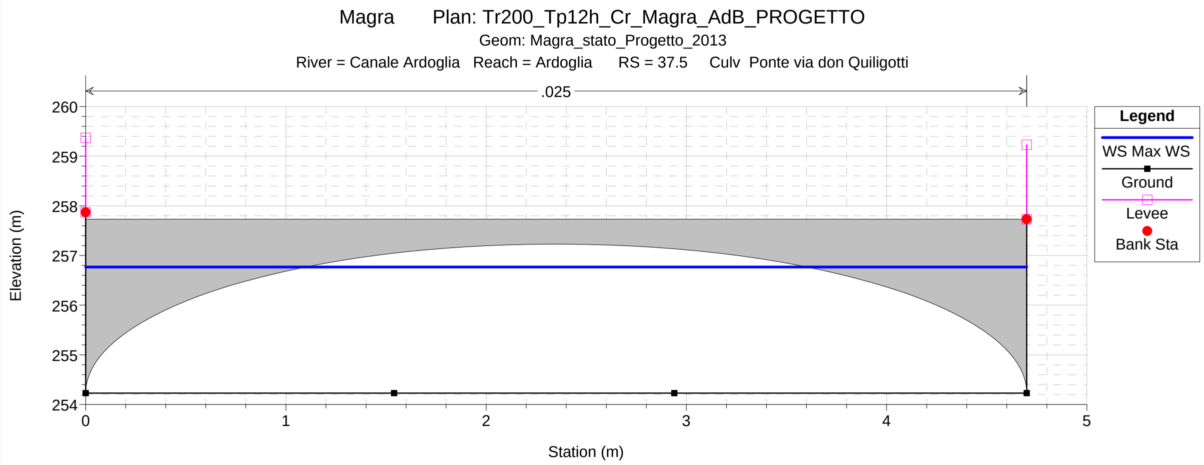


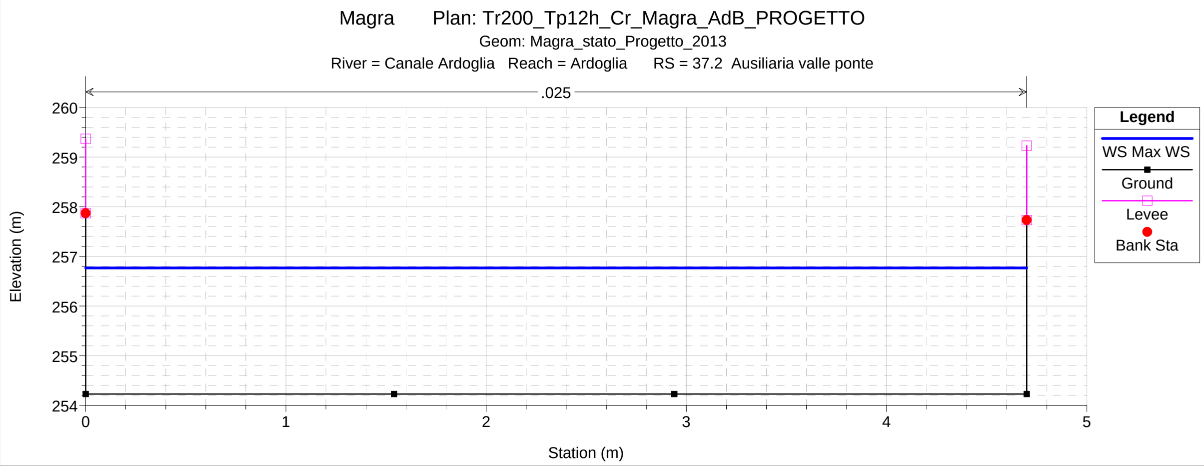


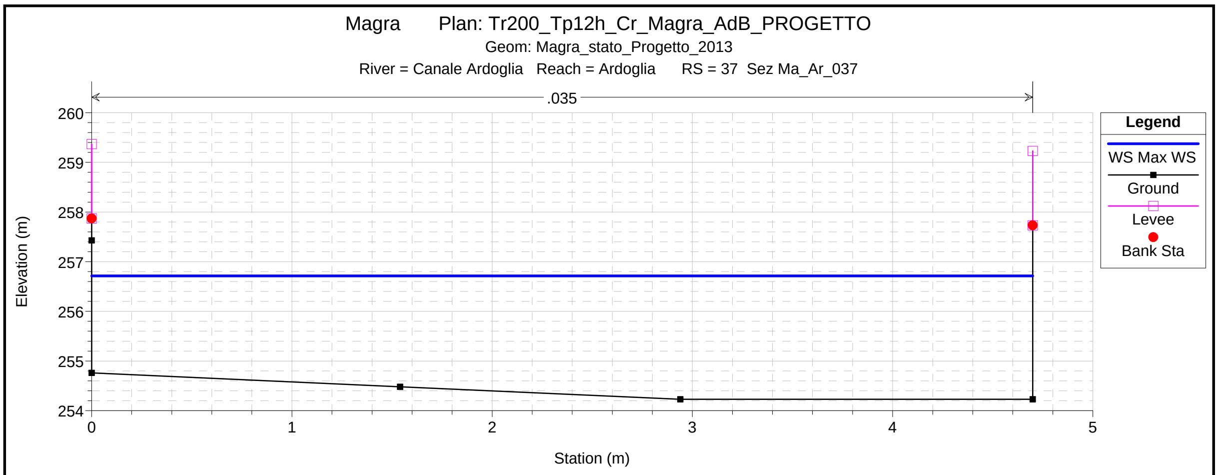
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

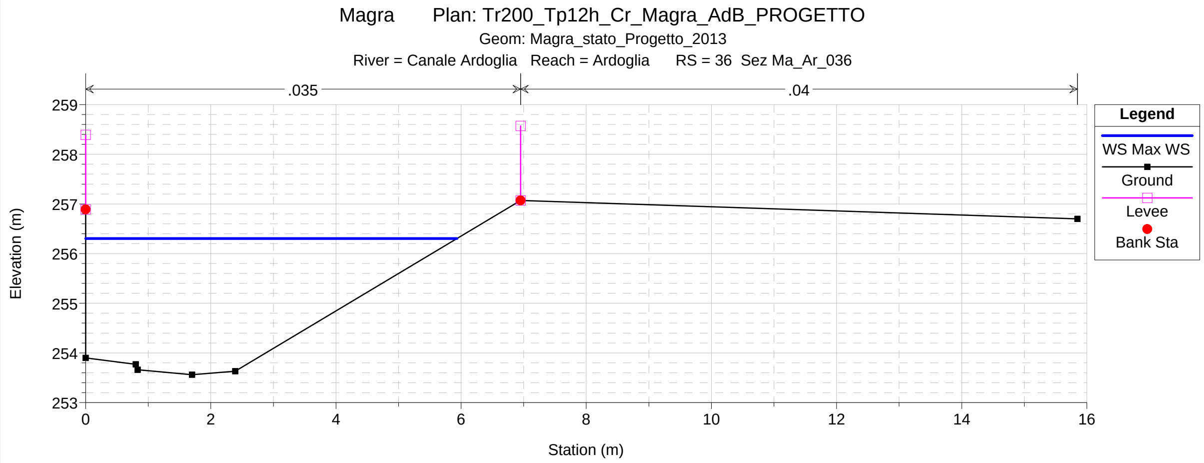


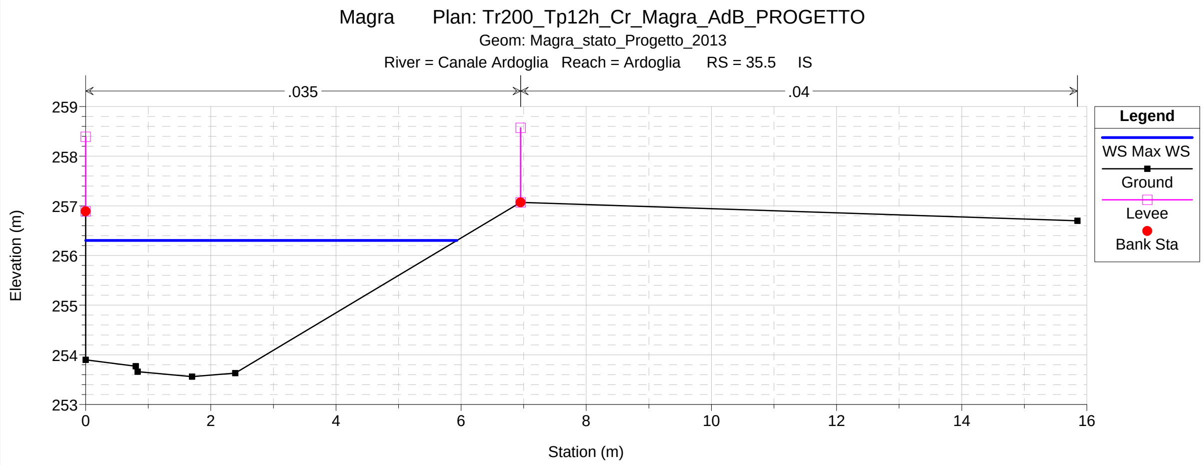


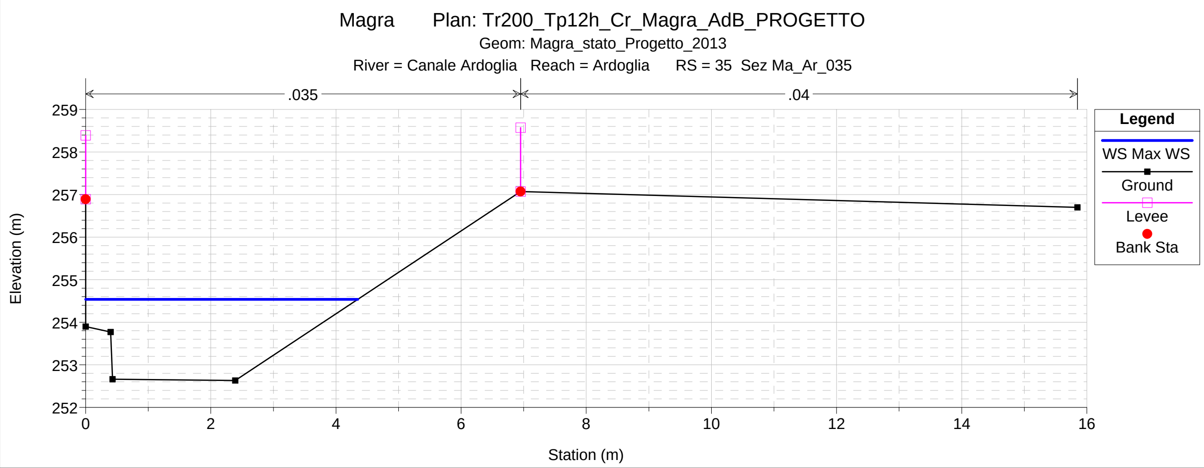





Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 37 Sez Ma_Ar_037
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

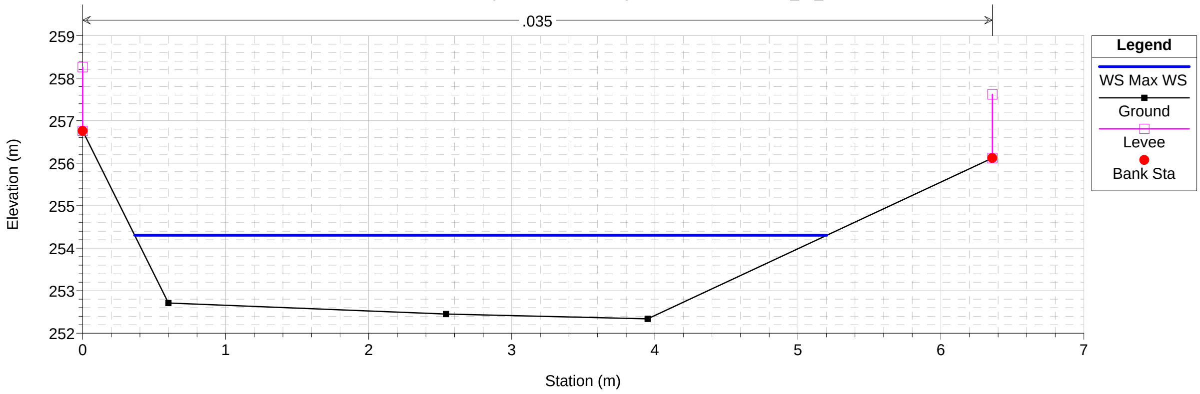

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 36 Sez Ma_Ar_036
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 35.5 IS
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

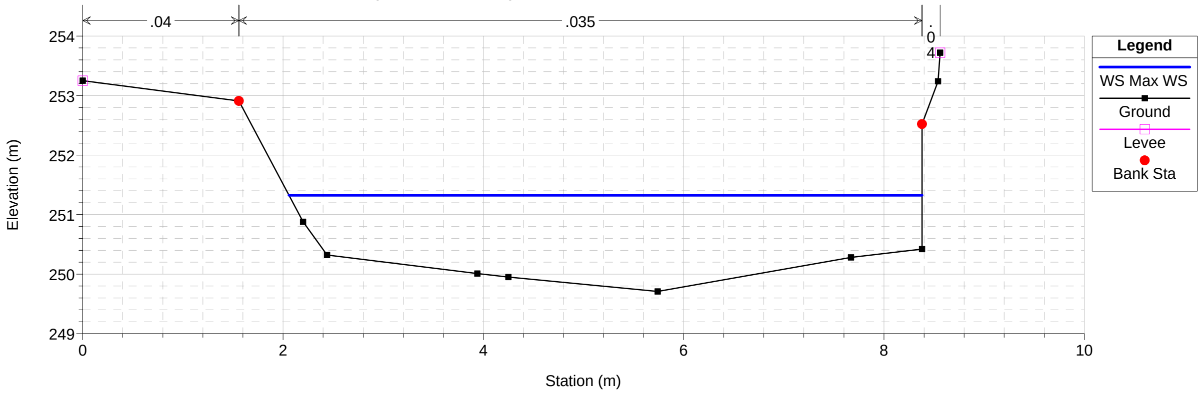

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 35 Sez Ma_Ar_035
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

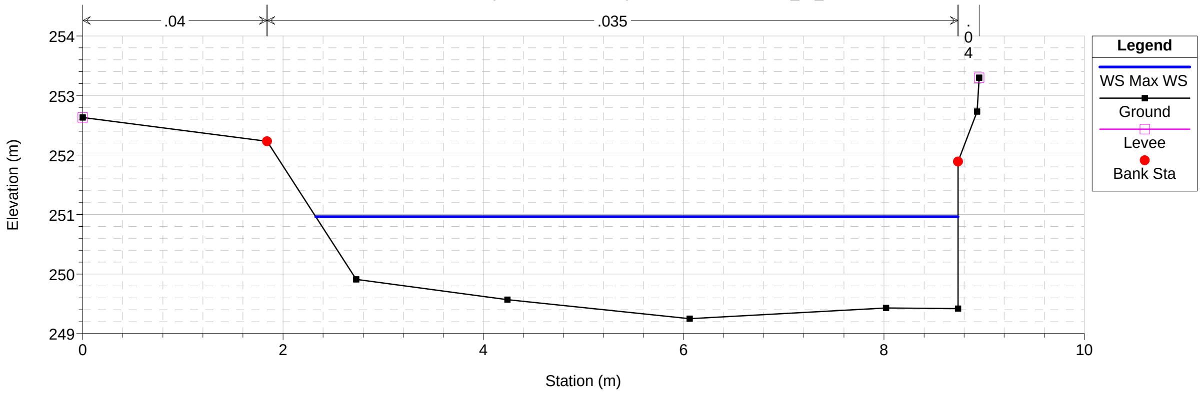
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 34 Sez Ma_Ar_034



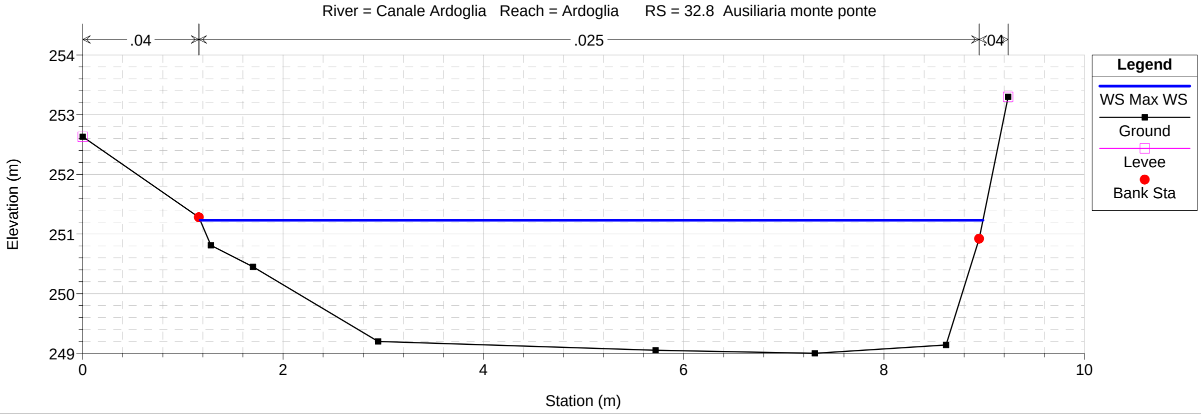
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 33.15 Ausiliaria inizio sormonto via Manfredo Giuliani



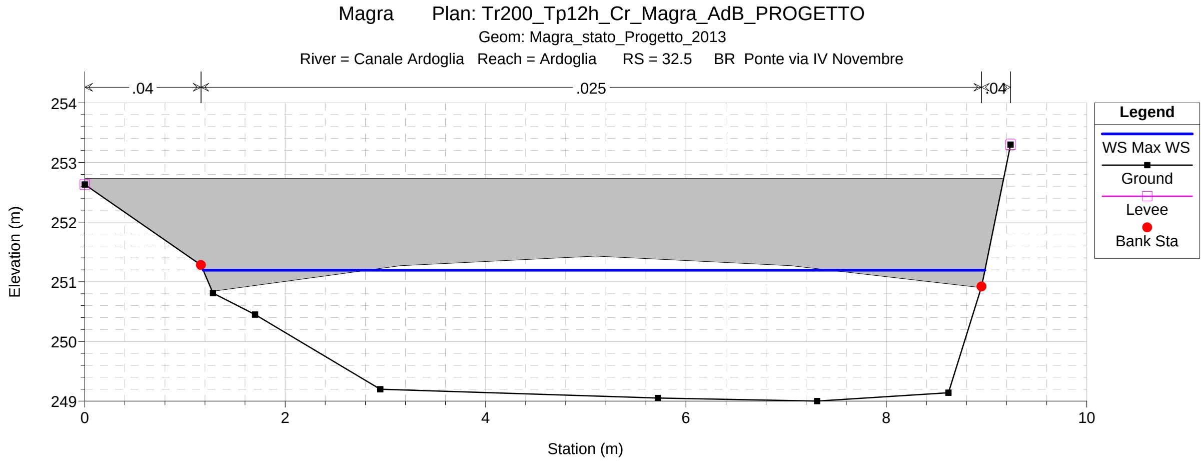
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 33 Sez Ma_Ar_033

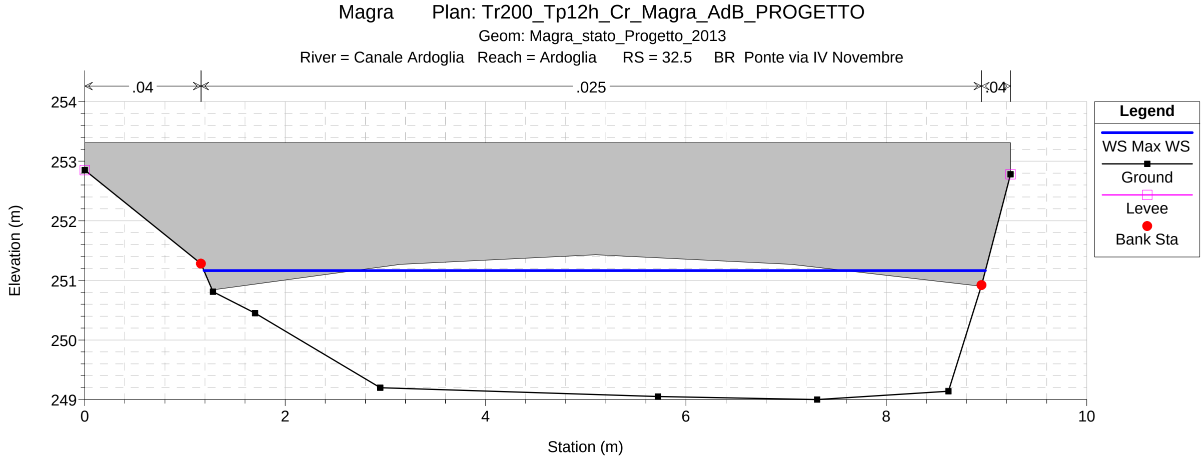


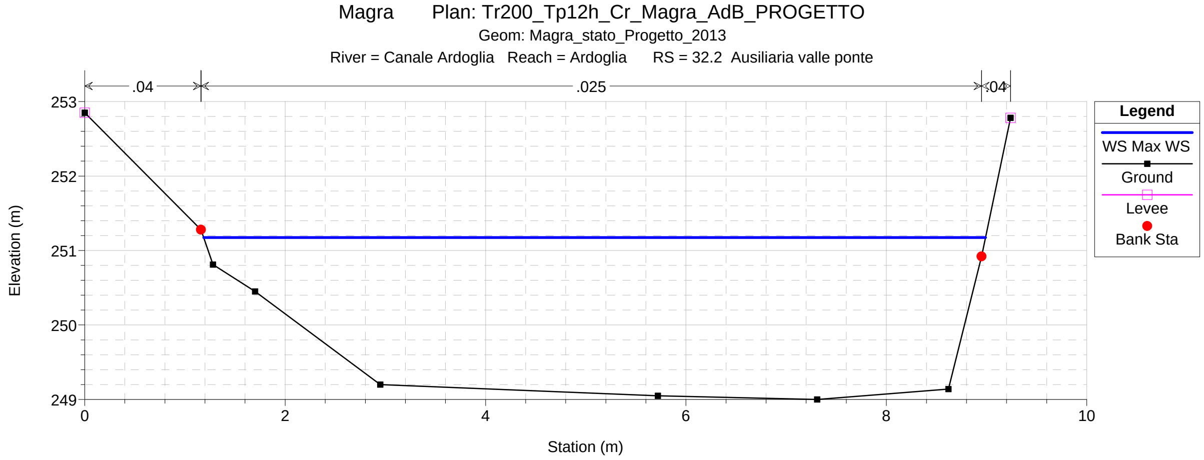
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 32.8 Ausiliaria monte ponte

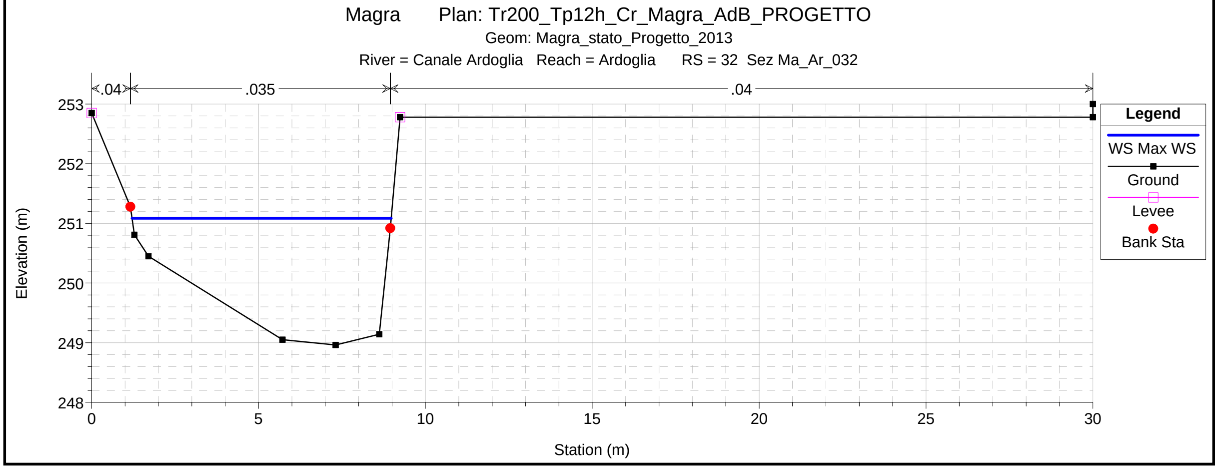


Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

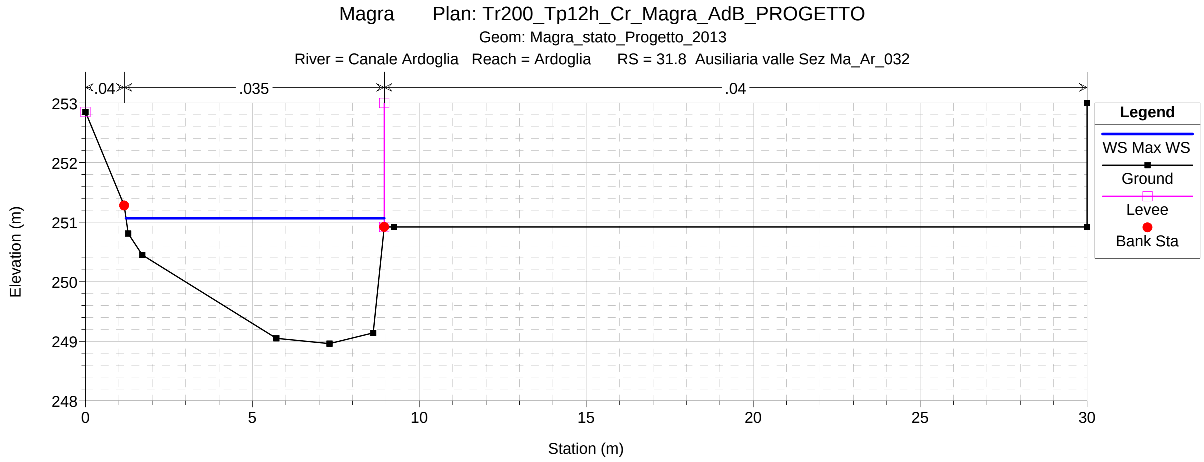


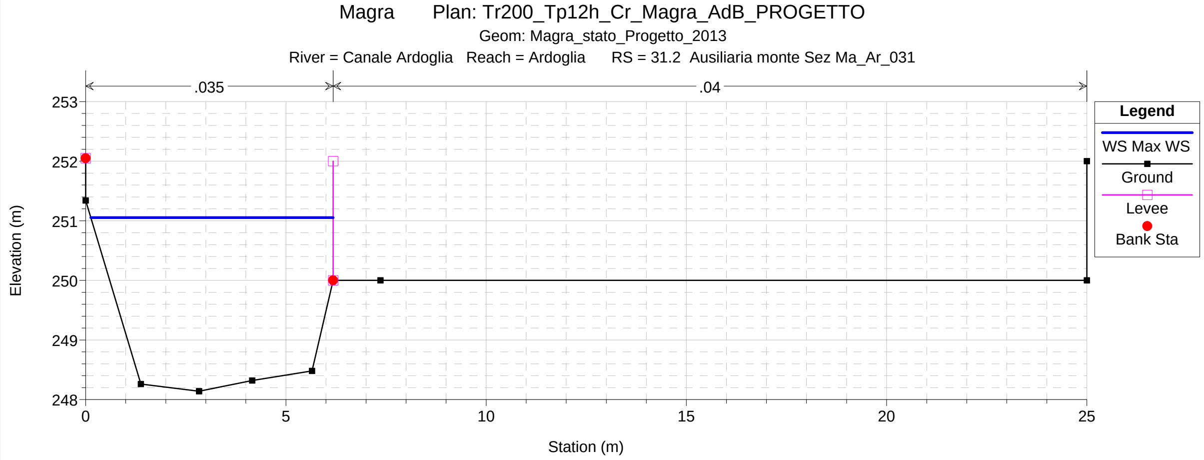


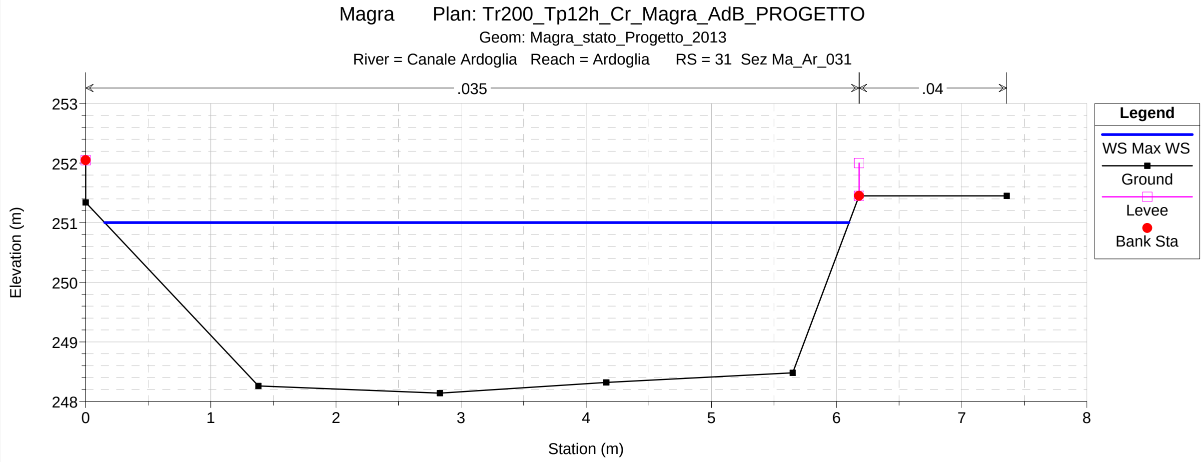


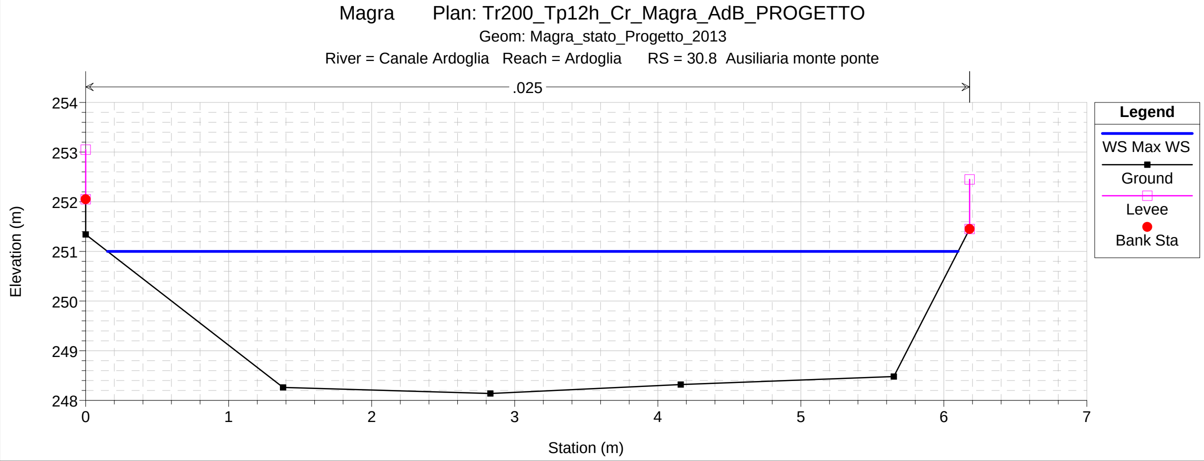


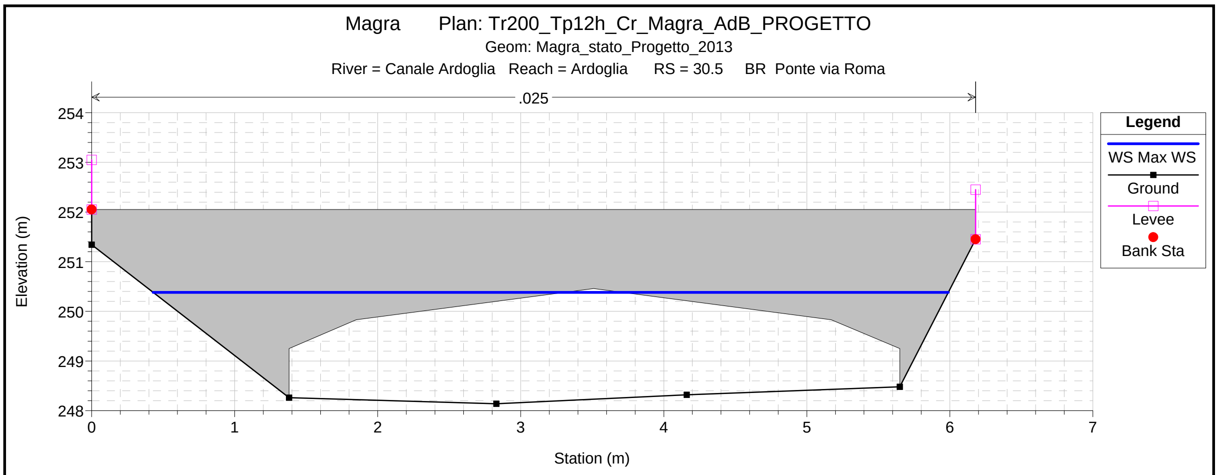
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

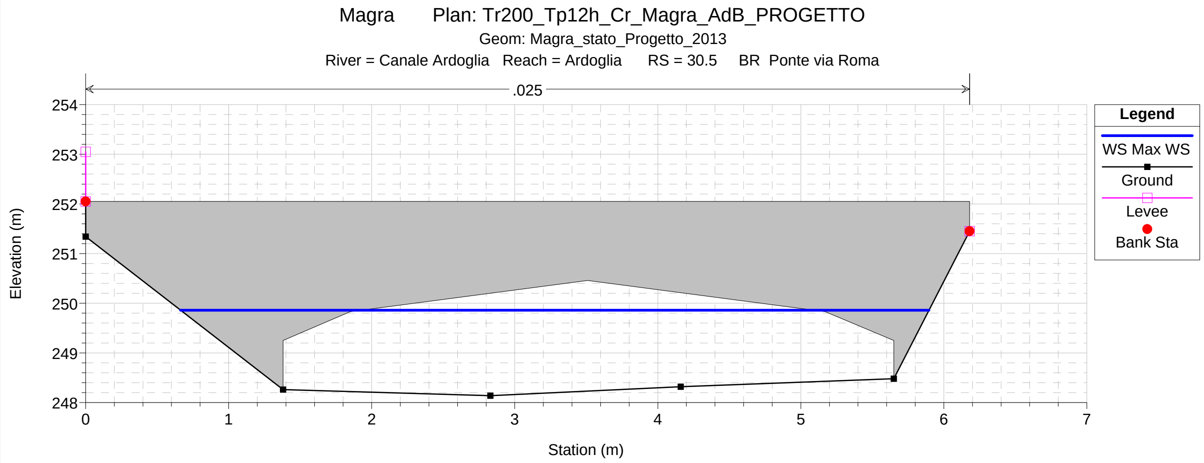


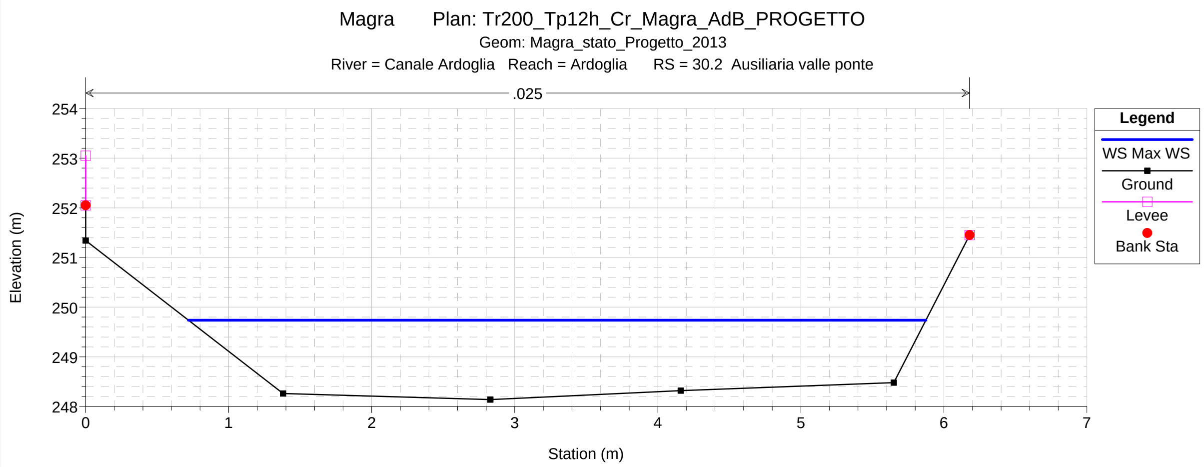


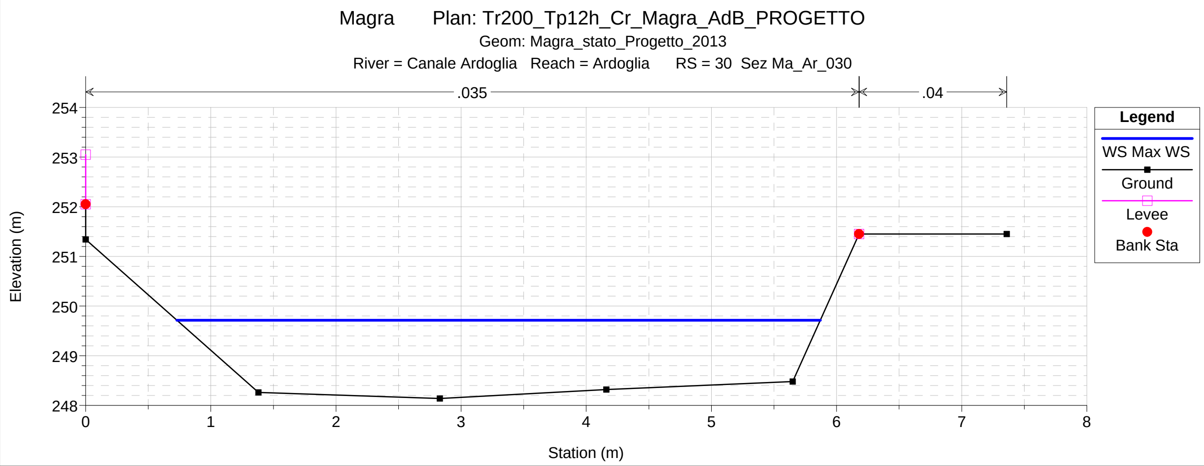


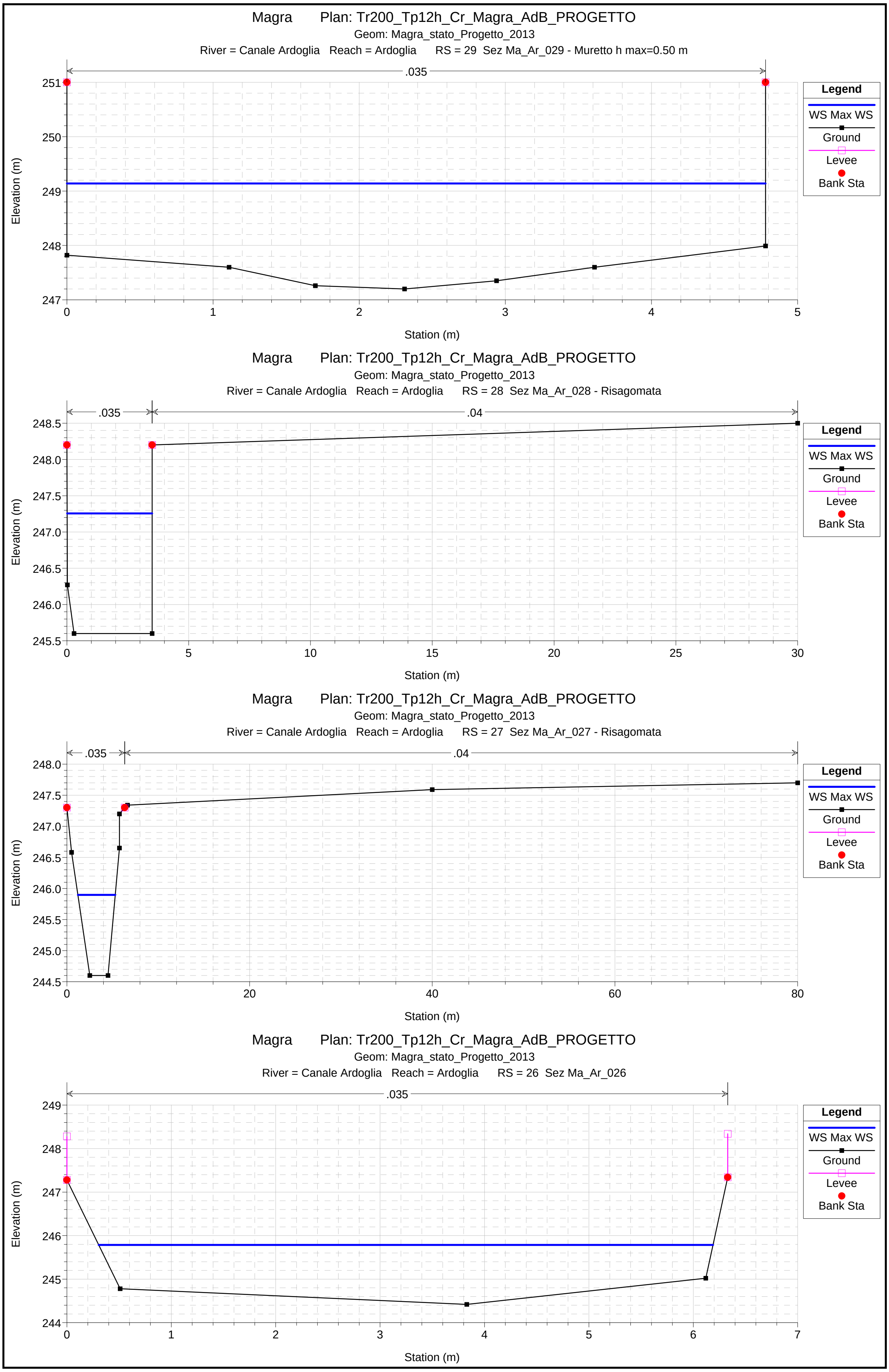


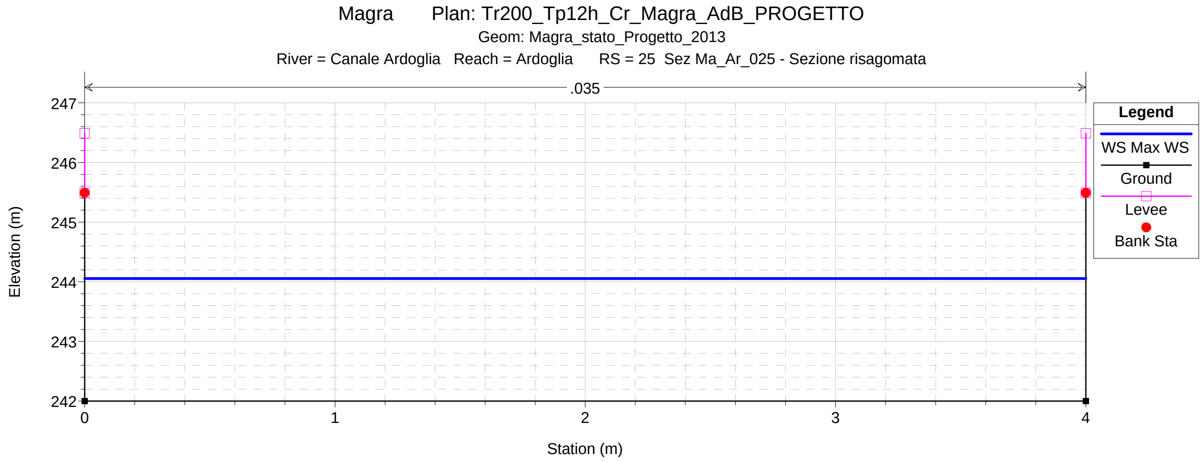

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 30.5 BR Ponte via Roma
.025
Elevation (m)
254
253
252
251
250
249
248
0 1 2 3 4 5 6 7
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

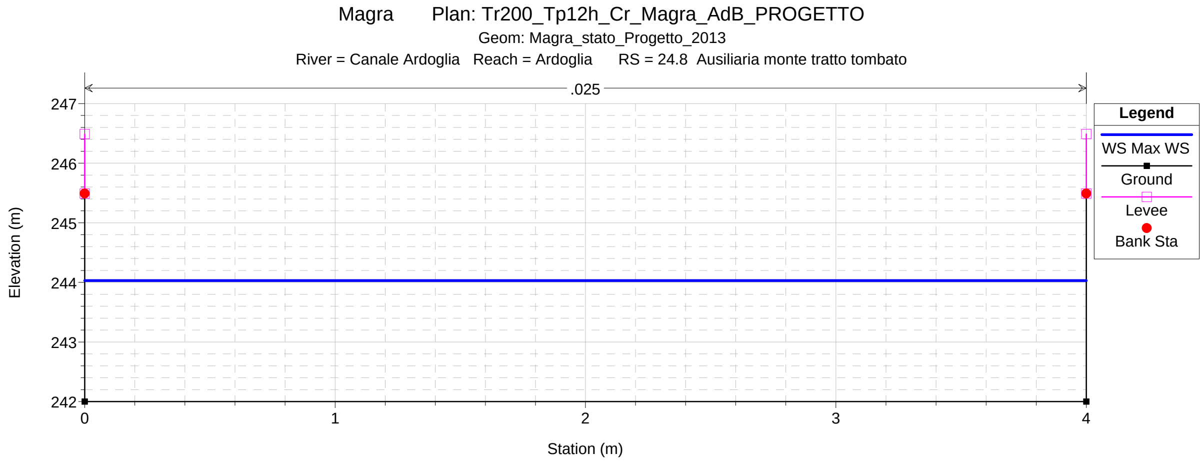

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 30.5 BR Ponte via Roma
.025
Elevation (m)
254
253
252
251
250
249
248
0 1 2 3 4 5 6 7
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

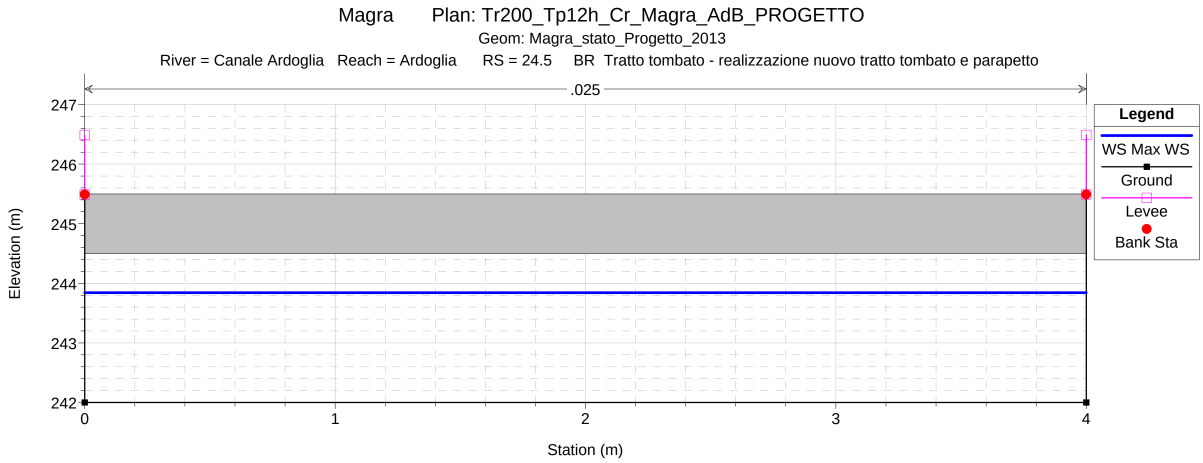

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 30.2 Ausiliaria valle ponte
.025
Elevation (m)
254
253
252
251
250
249
248
0 1 2 3 4 5 6 7
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

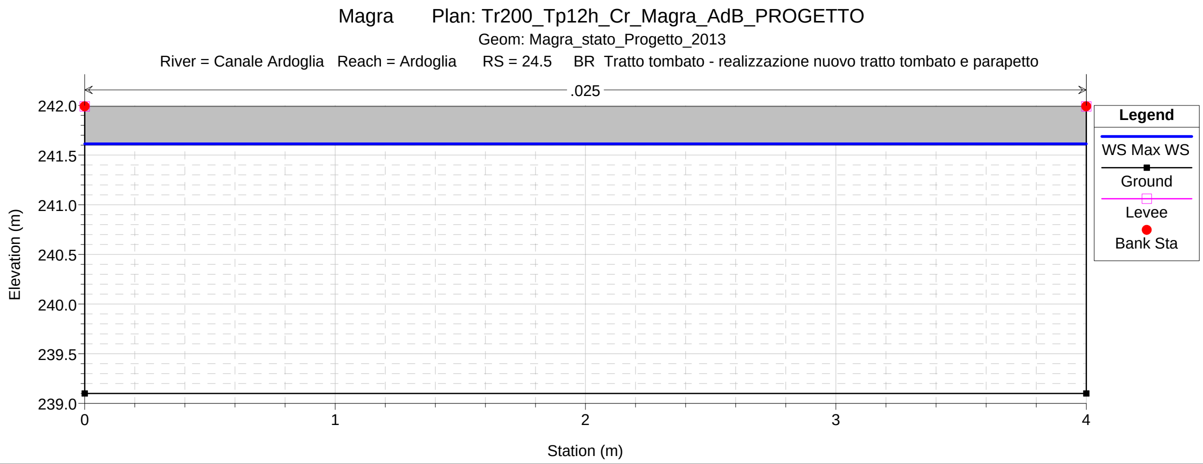

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 30 Sez Ma_Ar_030
.035
.04
Elevation (m)
254
253
252
251
250
249
248
0 1 2 3 4 5 6 7 8
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 29 Sez Ma_Ar_029 - Muretto h max=0.50 m
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 28 Sez Ma_Ar_028 - Risagomata
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 27 Sez Ma_Ar_027 - Risagomata
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 26 Sez Ma_Ar_026
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 25 Sez Ma_Ar_025 - Sezione risagomata
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

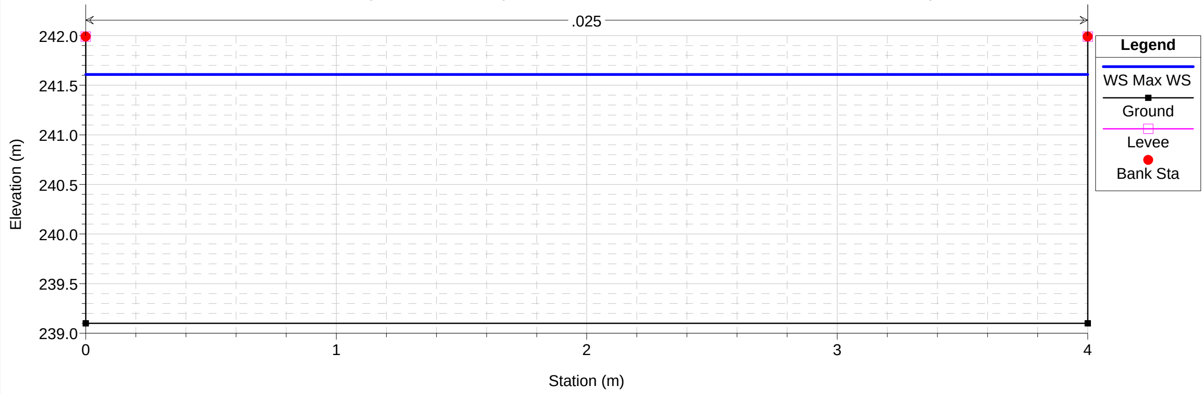

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 24.8 Ausiliaria monte tratto tombato
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 24.5 BR Tratto tombato - realizzazione nuovo tratto tombato e parapetto
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

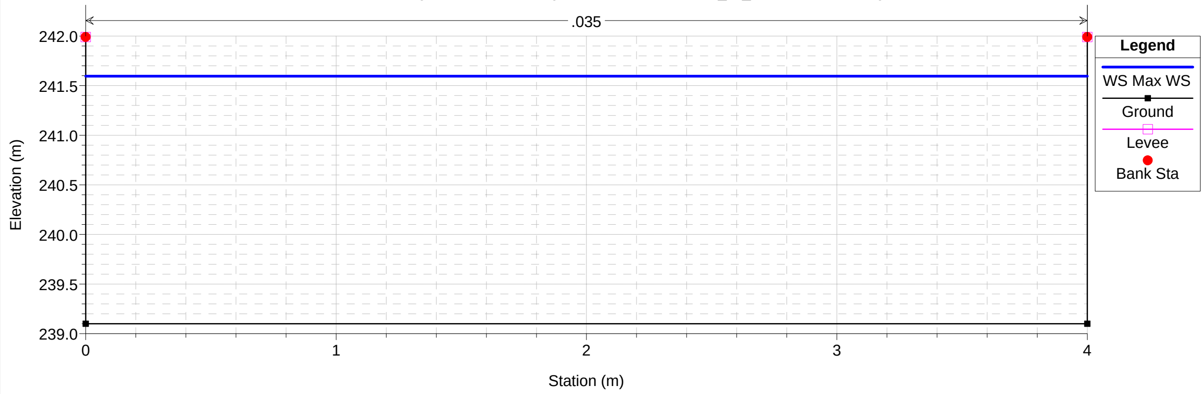

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 24.5 BR Tratto tombato - realizzazione nuovo tratto tombato e parapetto
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

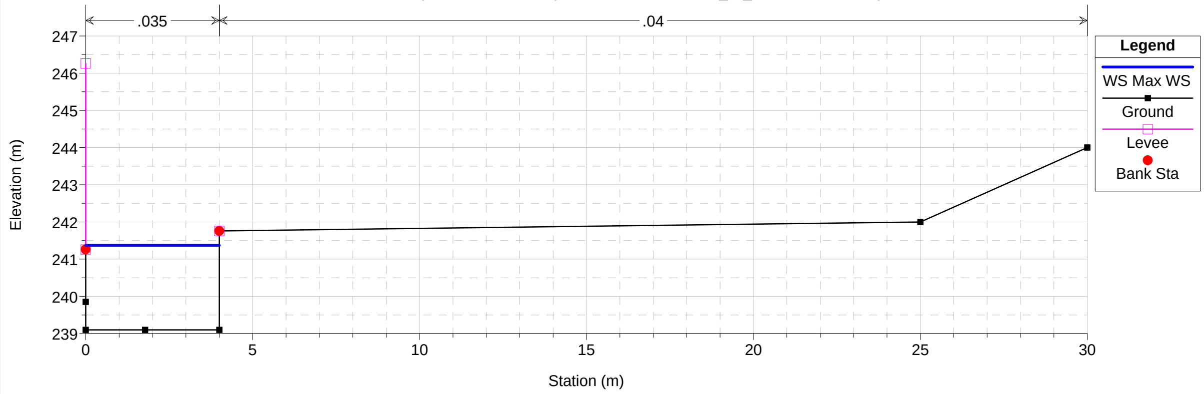
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 24.2 Ausiliaria valle tratto tombato - Sezione risagomata



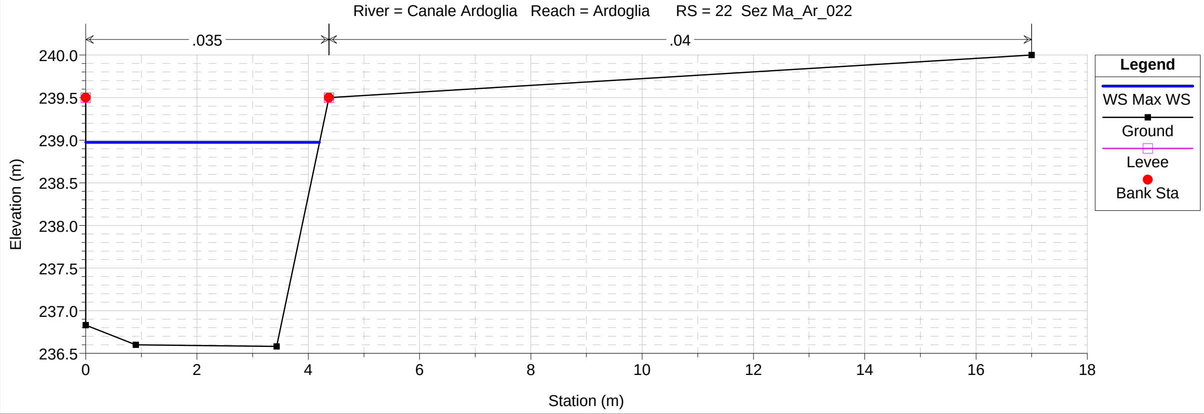
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 24 Sez Ma_Ar_024 - Sezione risagomata

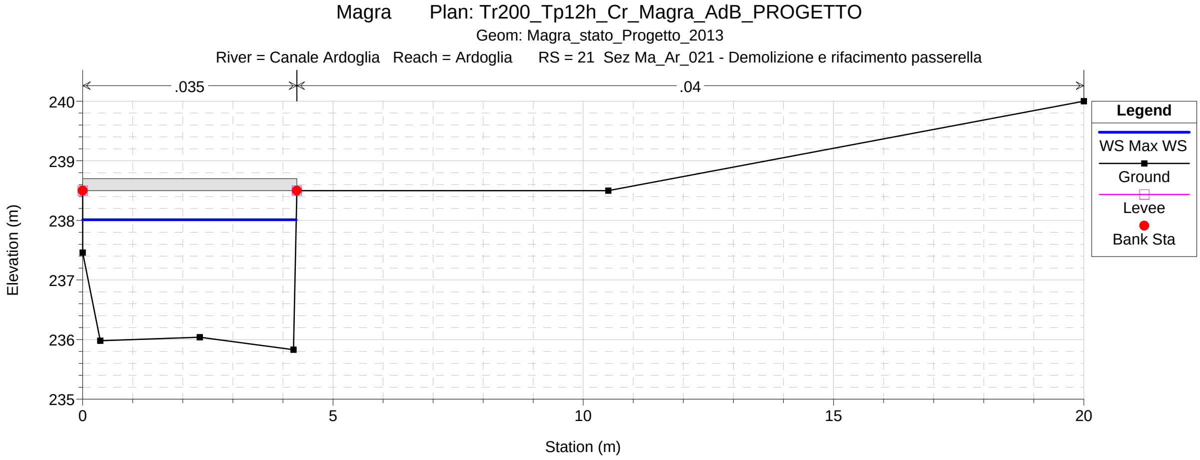


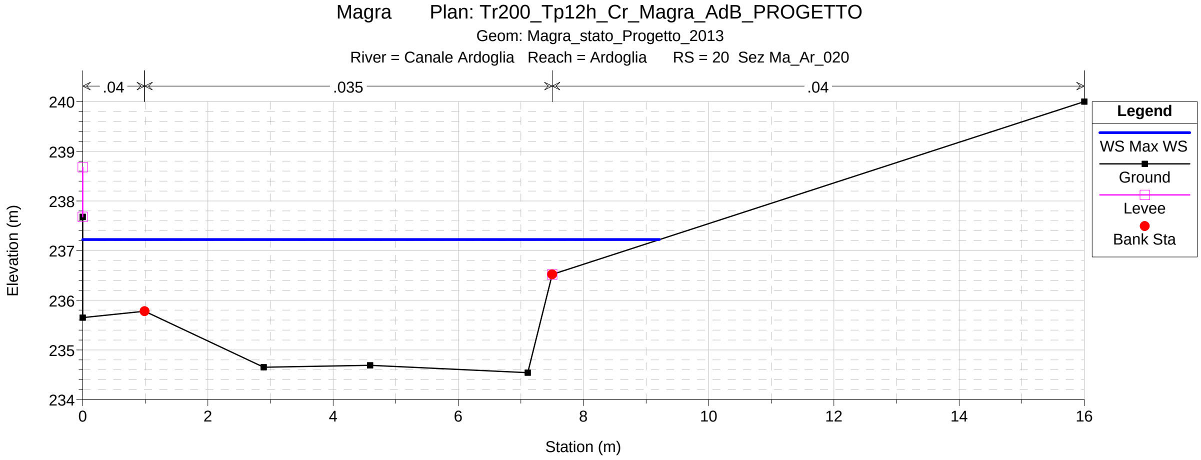
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 23 Sez Ma_Ar_023 - sezione risagomata

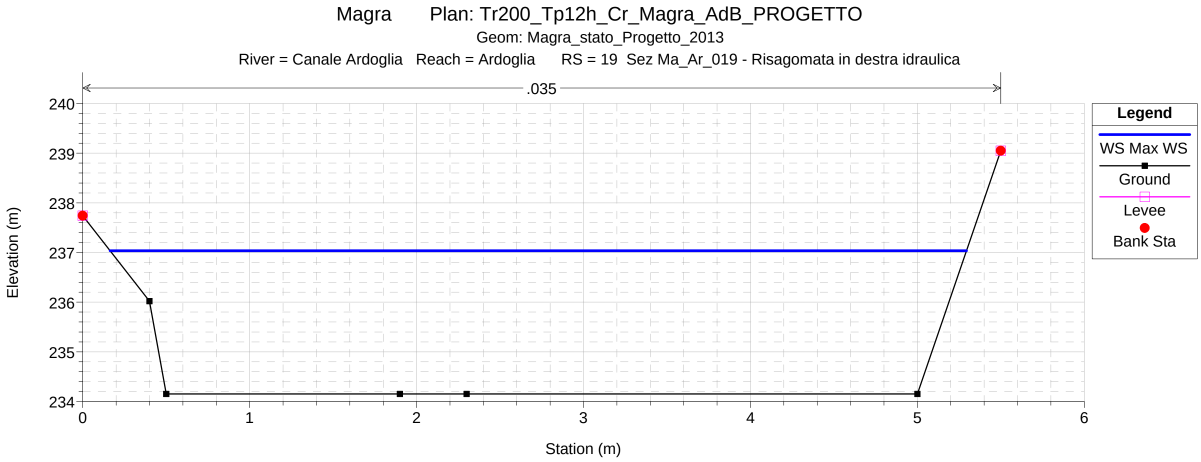


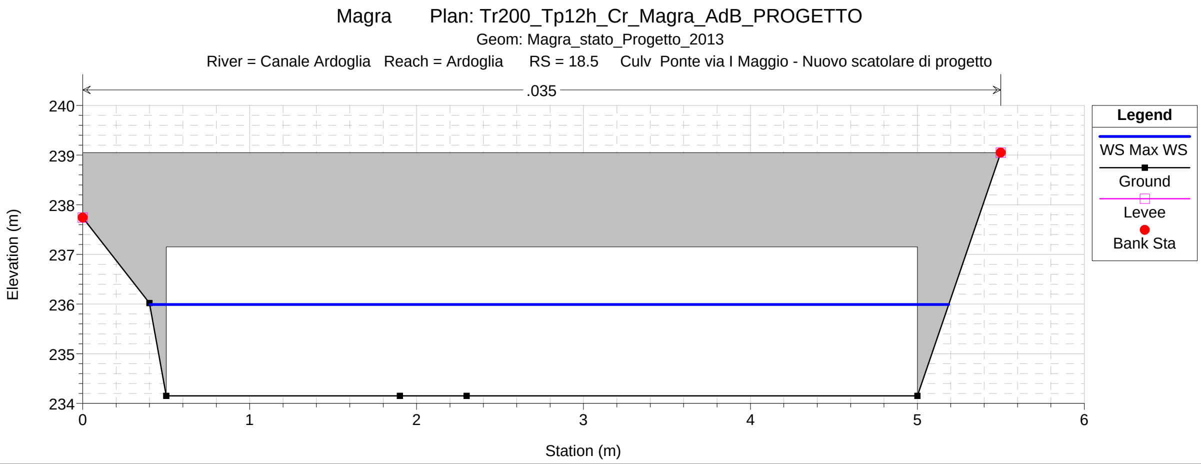
Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 22 Sez Ma_Ar_022



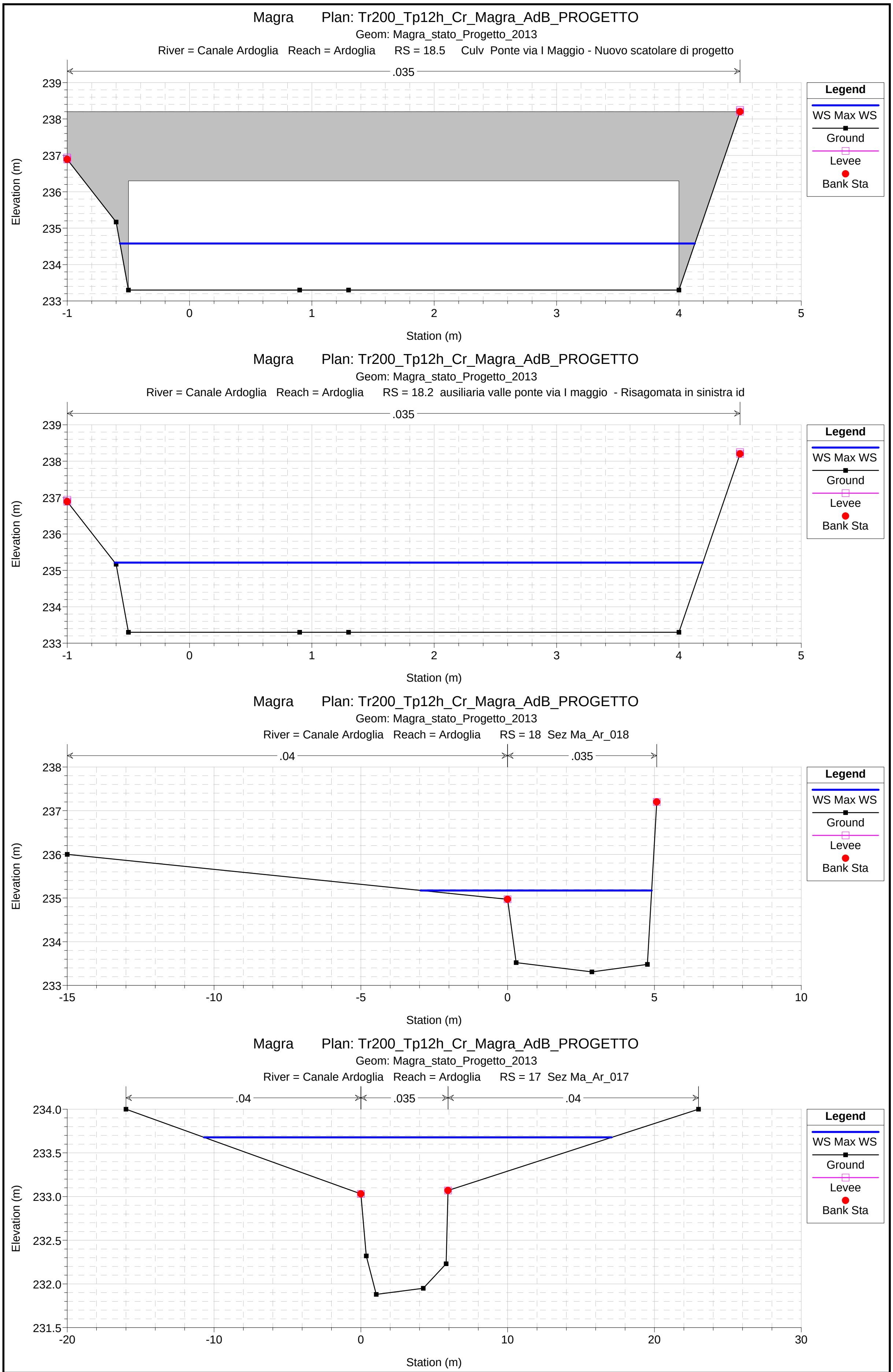

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 21 Sez Ma_Ar_021 - Demolizione e rifacimento passerella
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 20 Sez Ma_Ar_020
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

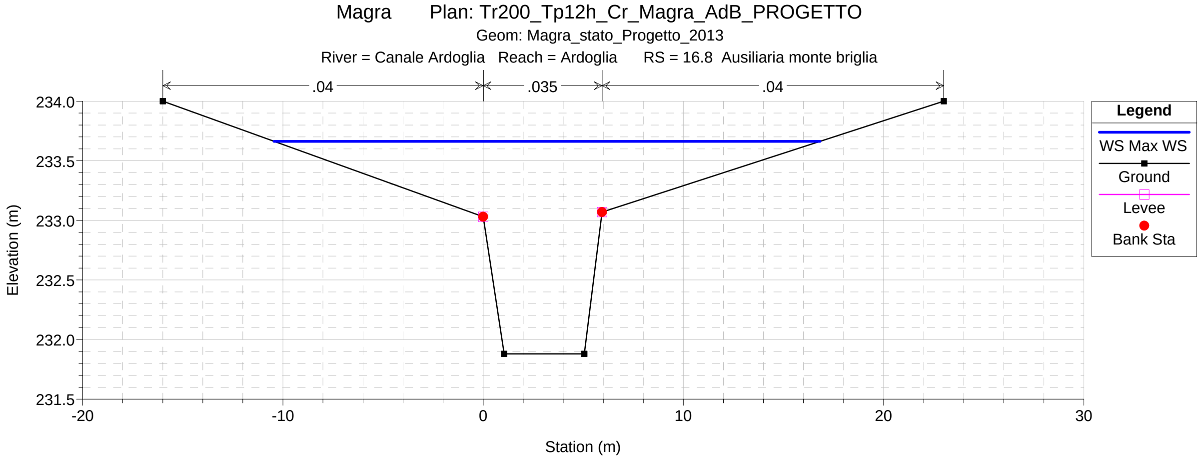

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 19 Sez Ma_Ar_019 - Risagomata in destra idraulica
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

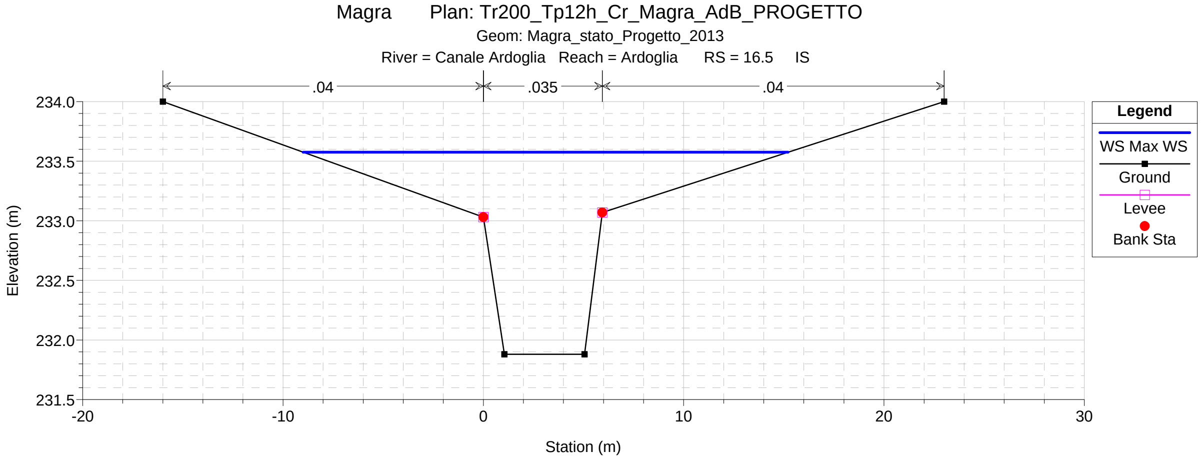

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 18.5 Culv Ponte via I Maggio - Nuovo scatolare di progetto
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

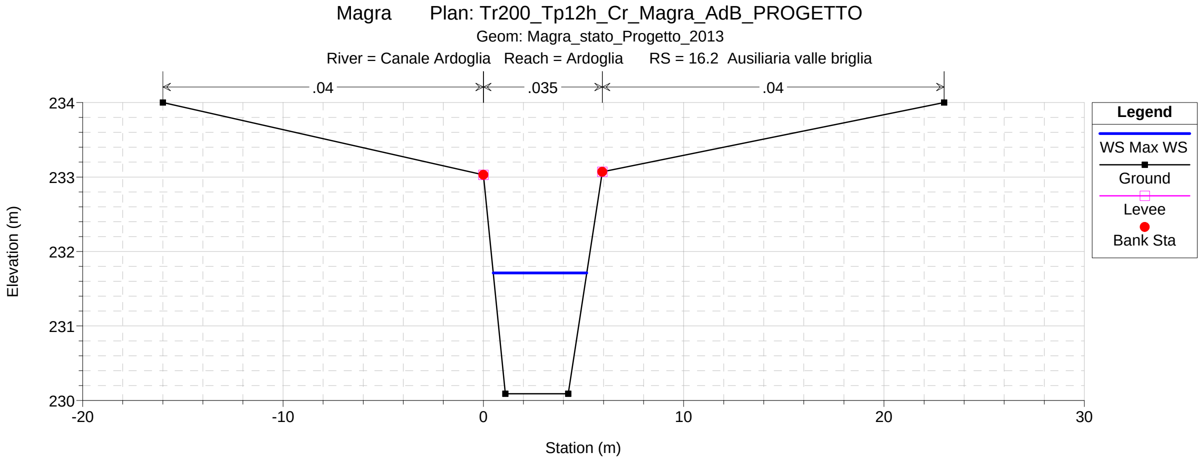
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

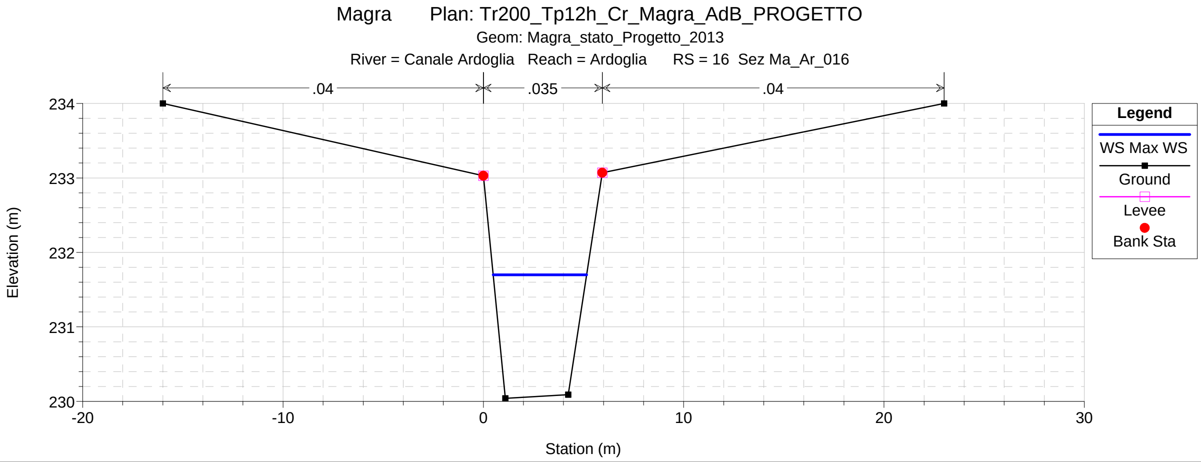


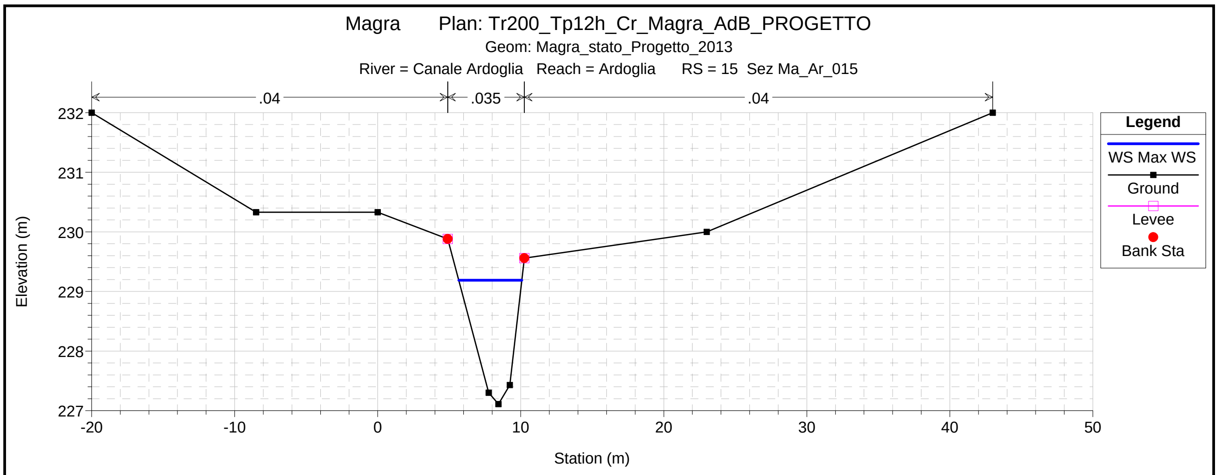
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

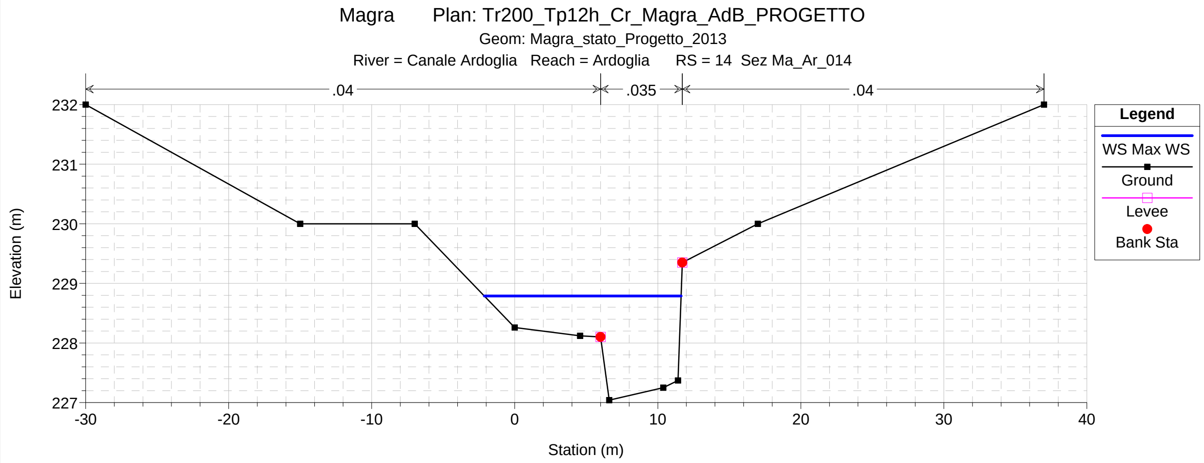


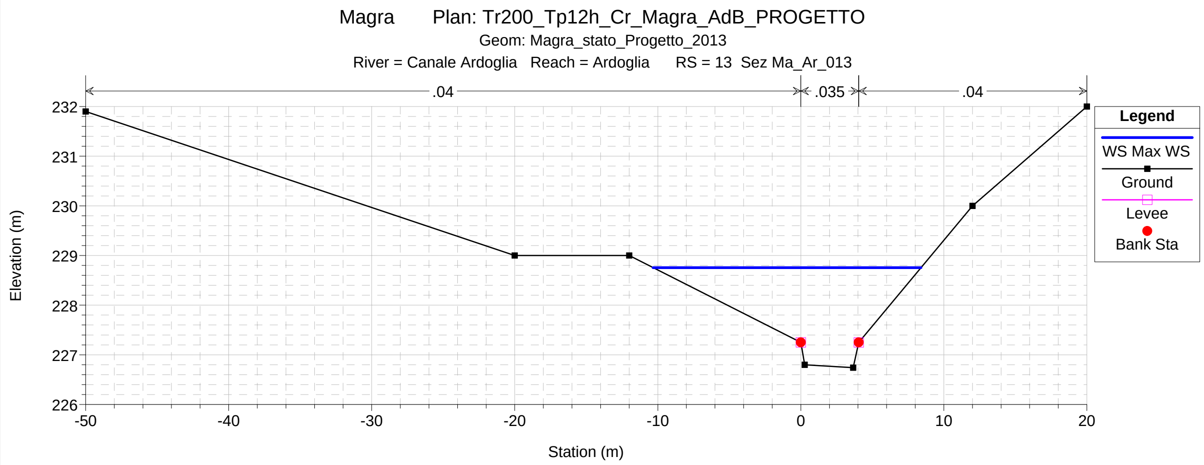


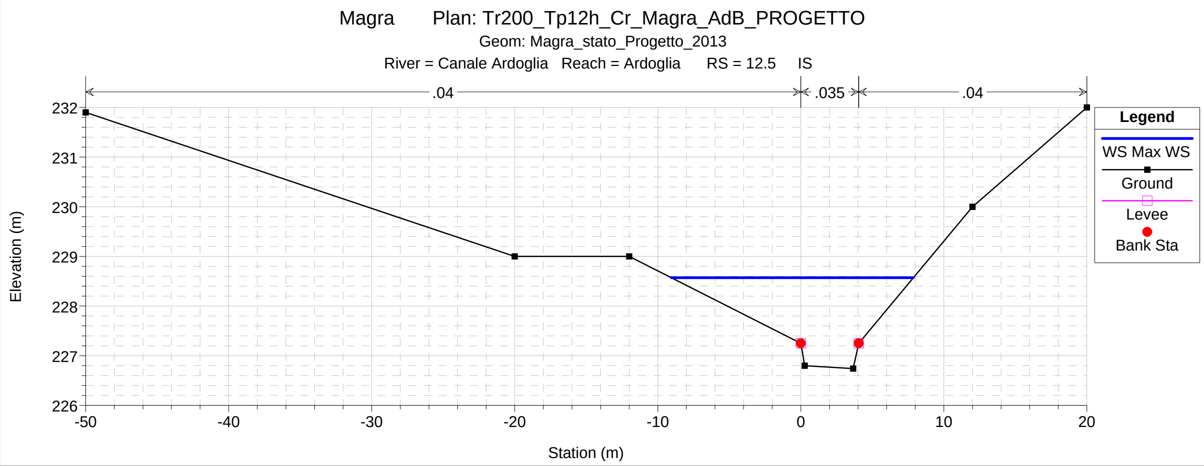


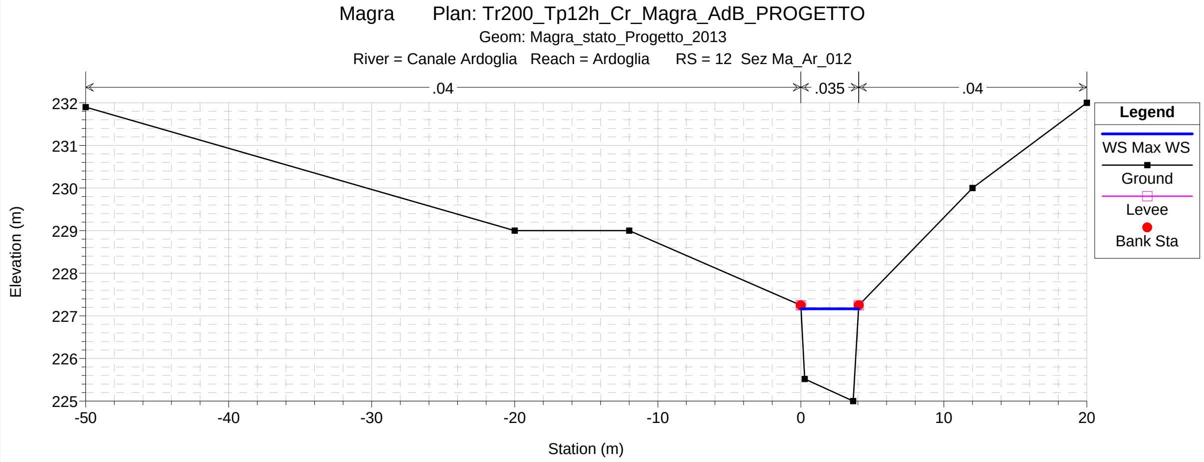


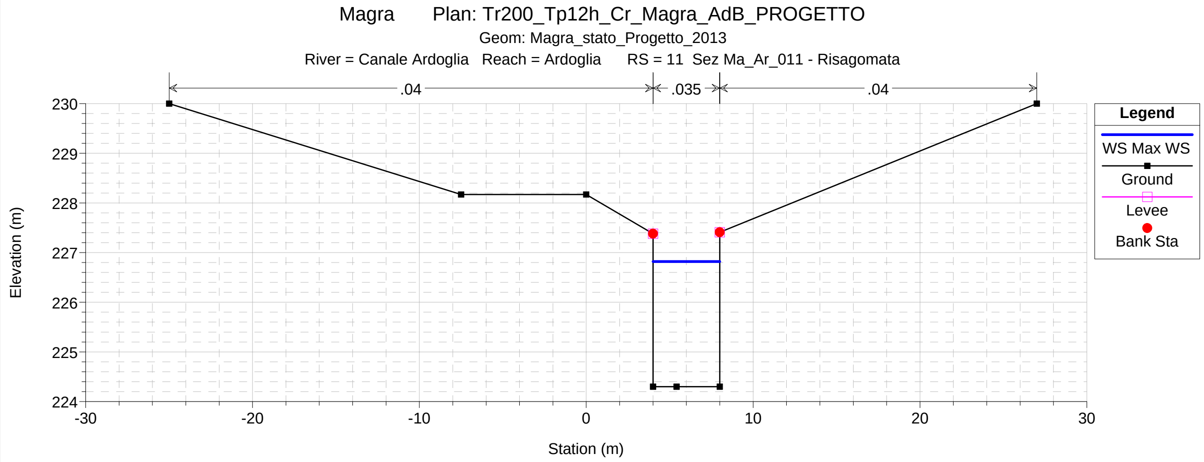

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 15 Sez Ma_Ar_015
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

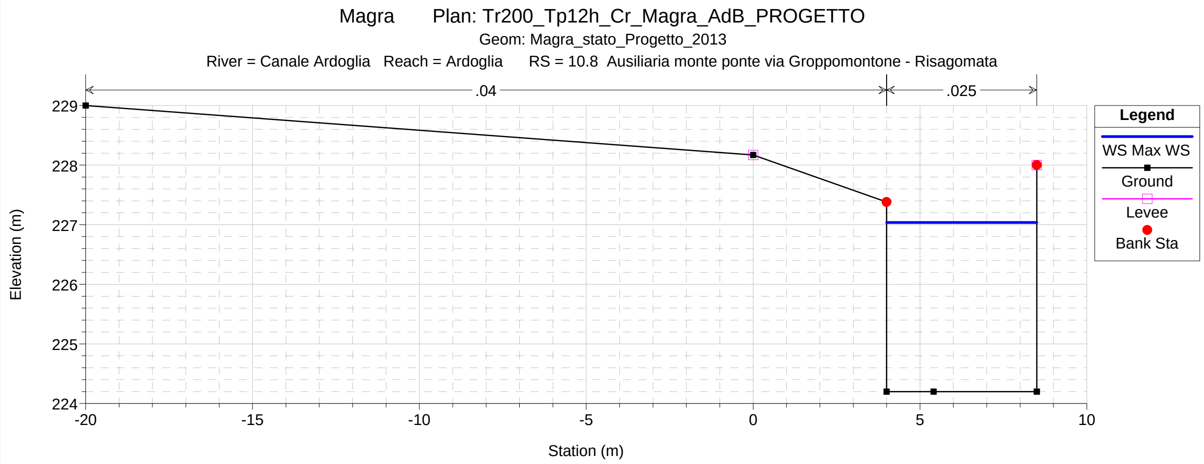

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 14 Sez Ma_Ar_014
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

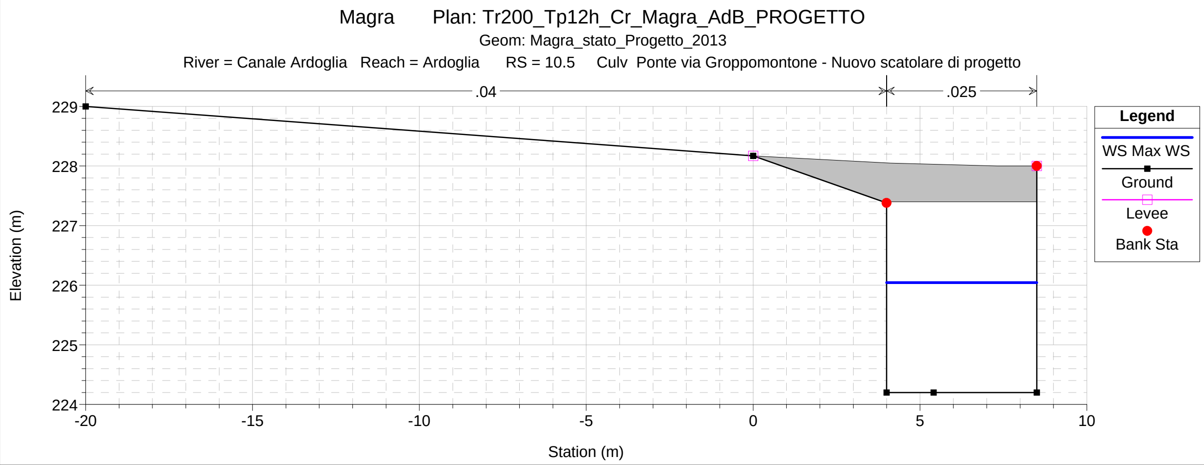

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 13 Sez Ma_Ar_013
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 12.5 IS
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

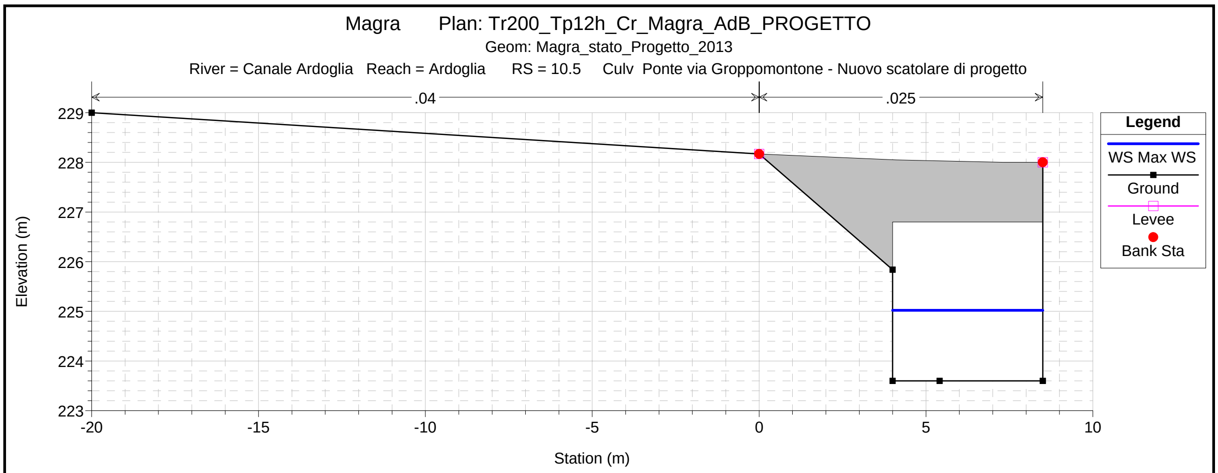

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 12 Sez Ma_Ar_012
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

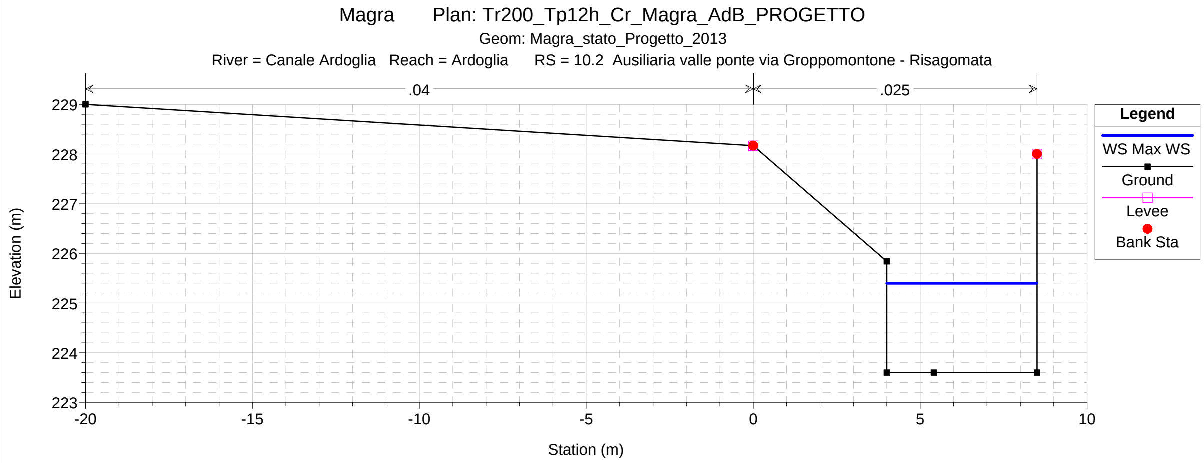

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 11 Sez Ma_Ar_011 - Risagomata
.04
.035
.04
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

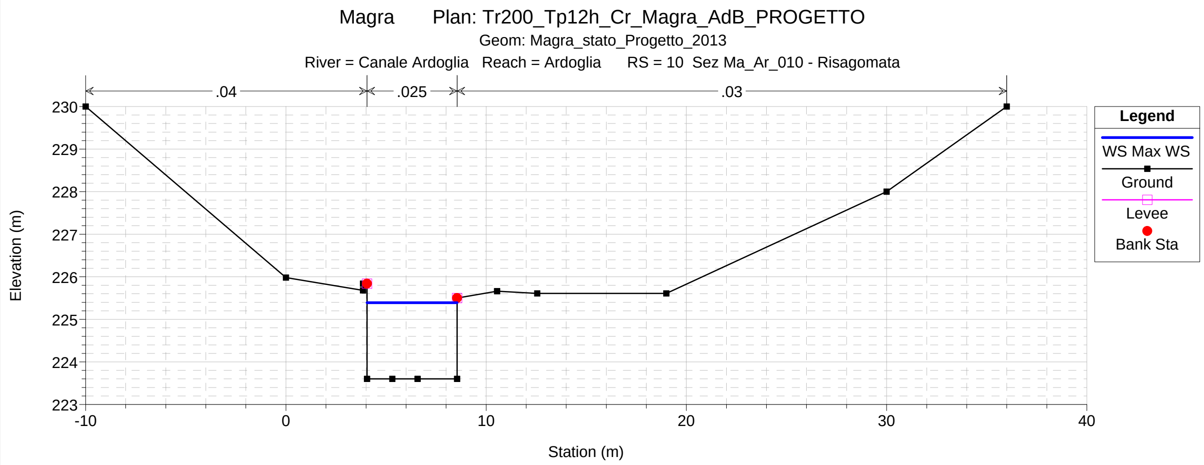

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 10.8 Ausiliaria monte ponte via Groppomontone - Risagomata
.04
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

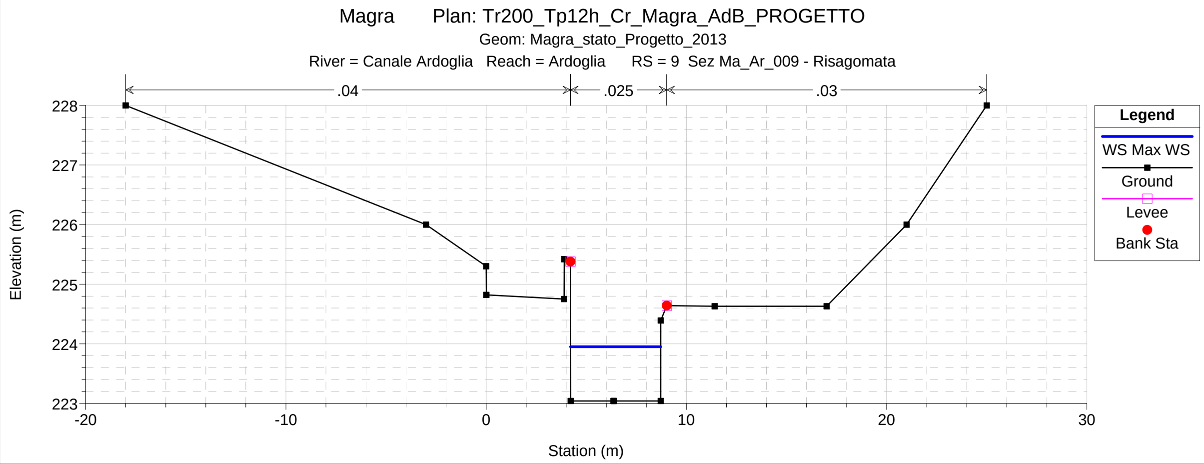

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 10.5 Culv Ponte via Groppomontone - Nuovo scatolare di progetto
.04
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

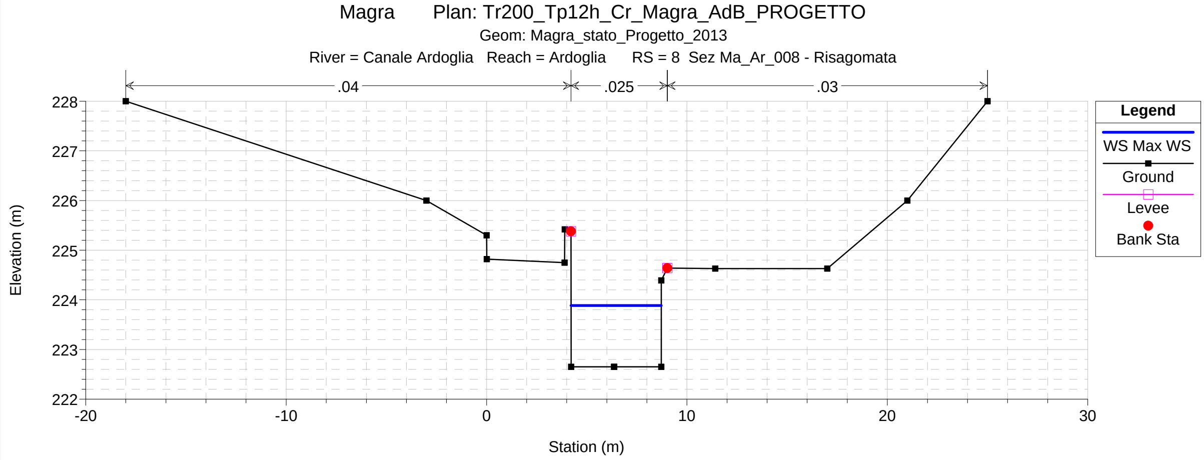
Allegato 2 - Verifiche idrauliche stato di progetto
-canale dell'Ardoglia-

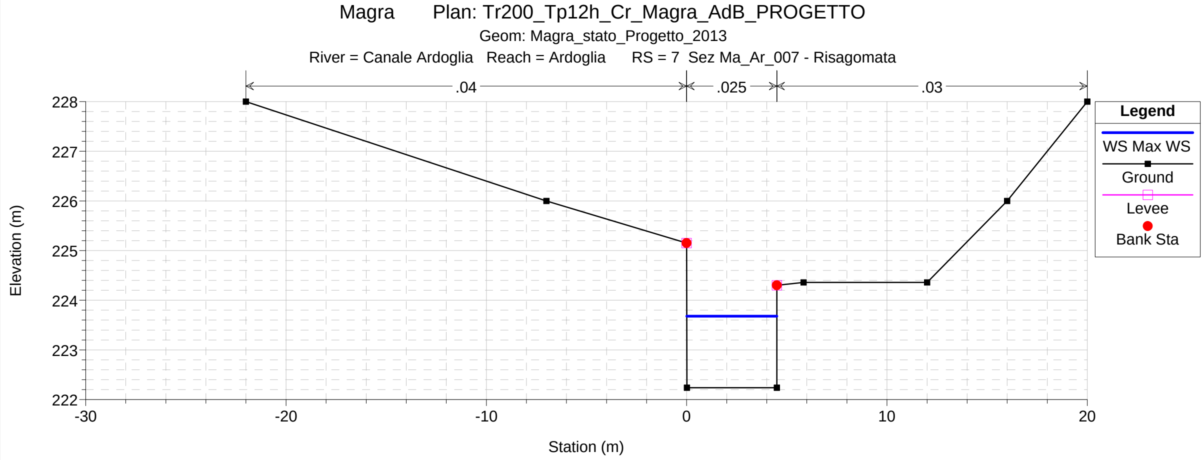


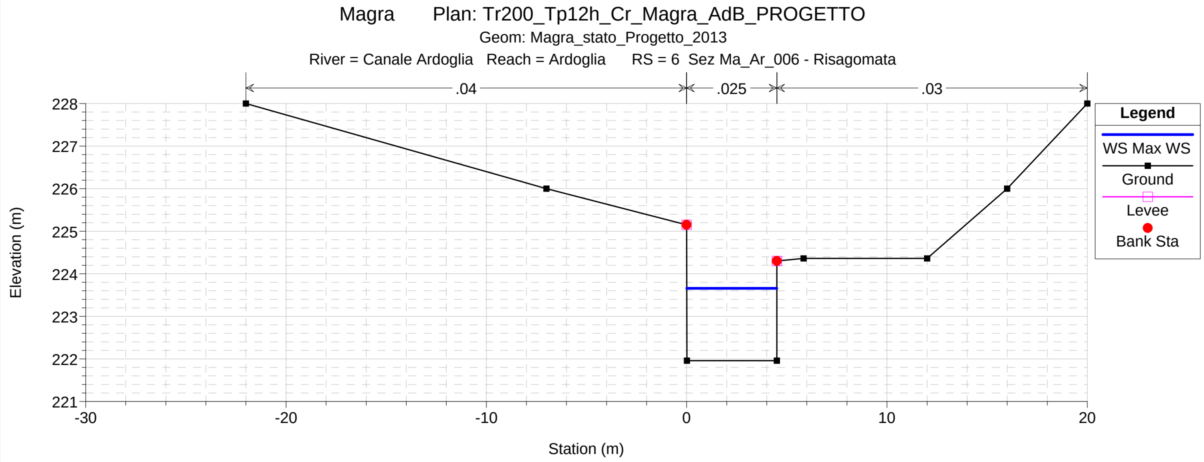


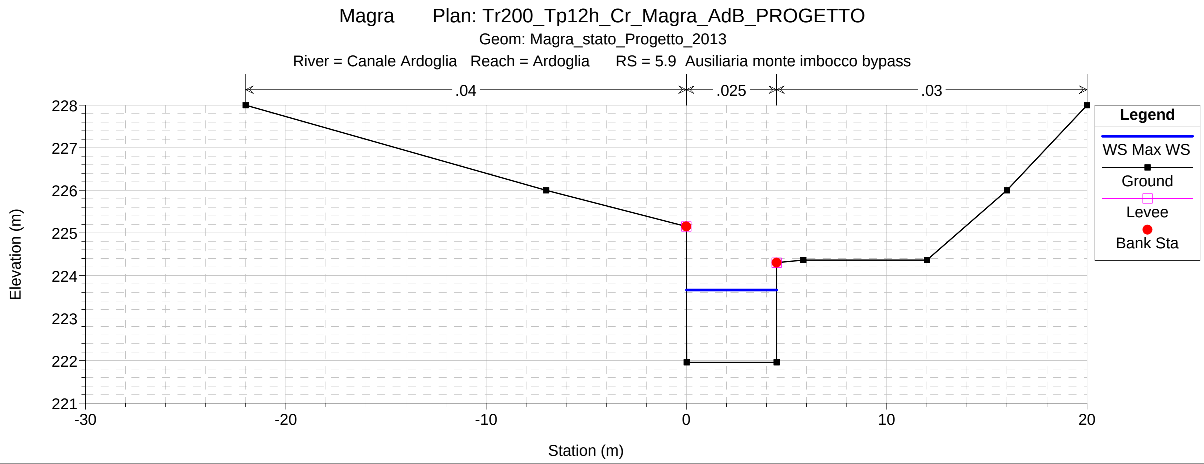


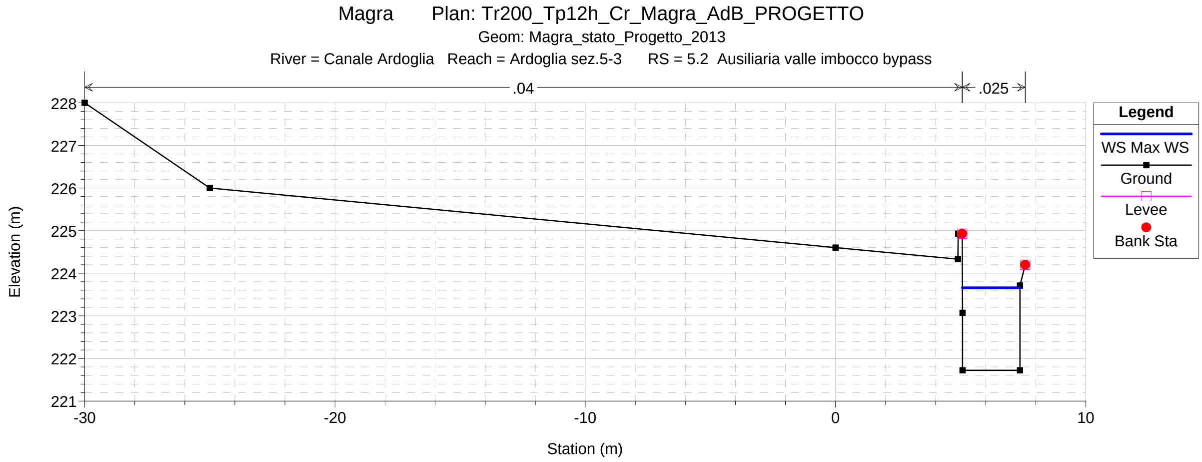


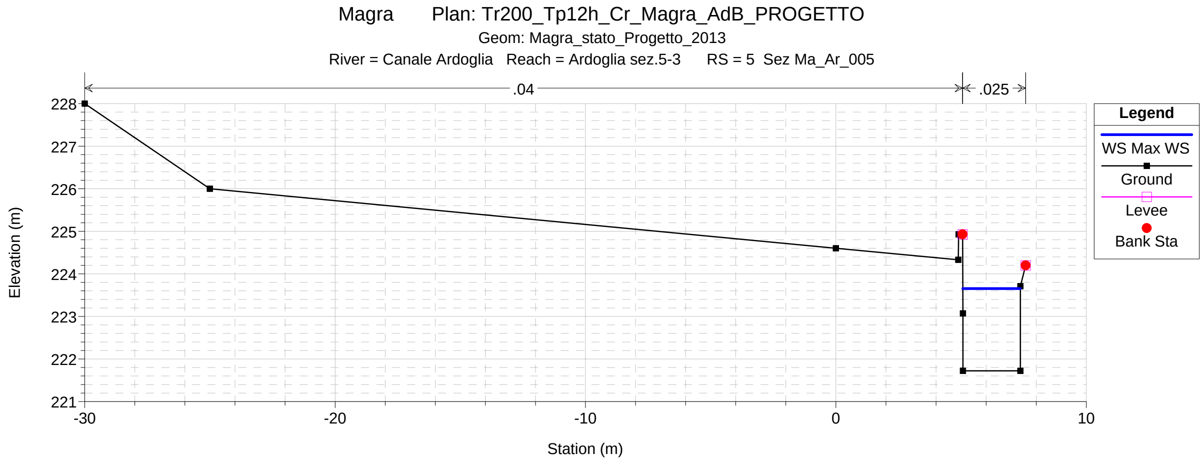

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 8 Sez Ma_Ar_008 - Risagomata
.04
.025
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

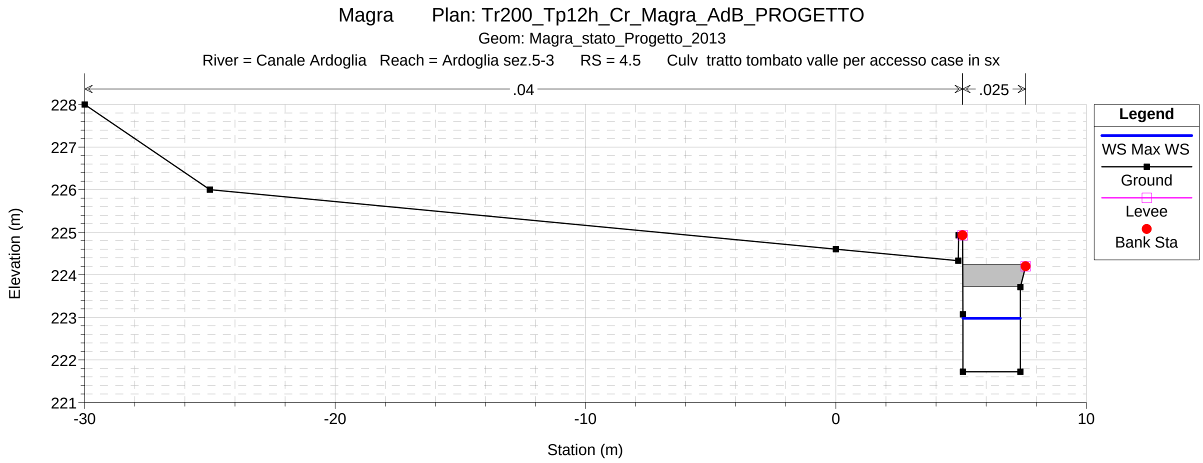

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 7 Sez Ma_Ar_007 - Risagomata
.04
.025
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

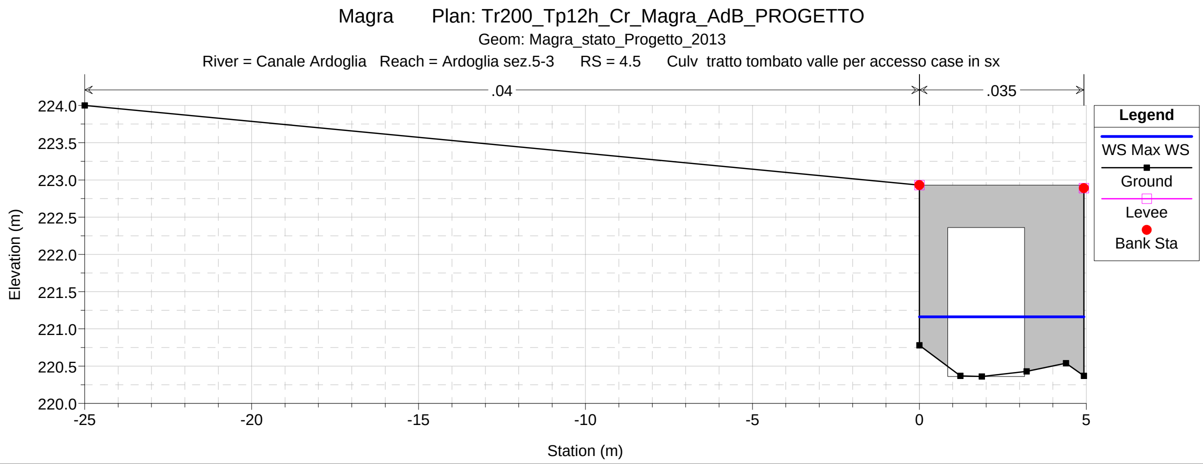

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 6 Sez Ma_Ar_006 - Risagomata
.04
.025
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

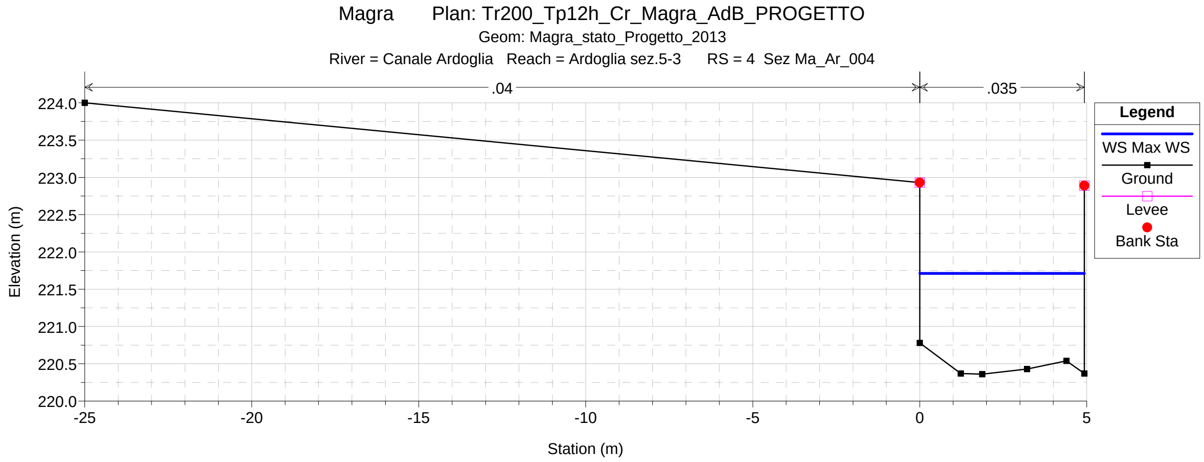

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia RS = 5.9 Ausiliaria monte imbocco bypass
.04
.025
.03
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

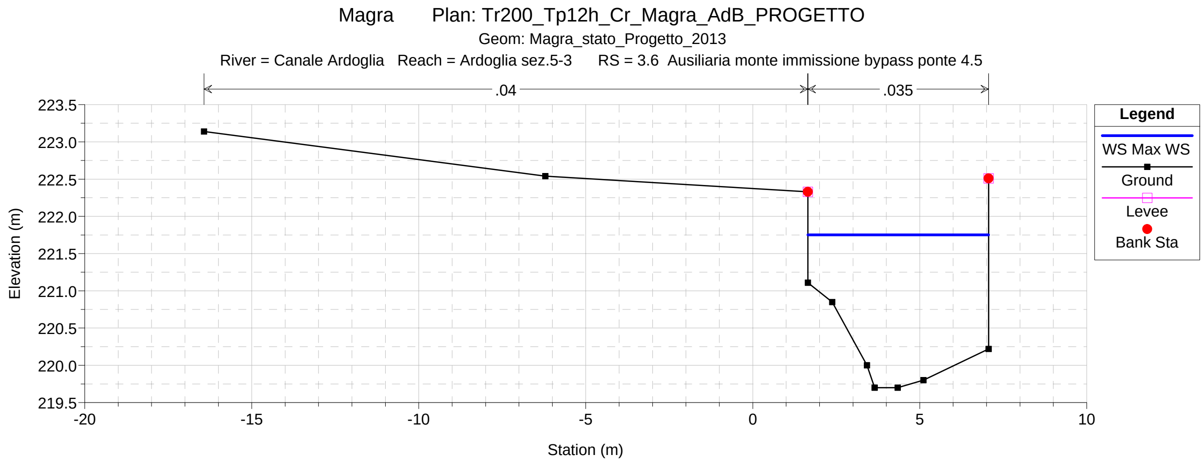

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 5.2 Ausiliaria valle imbocco bypass
.04
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

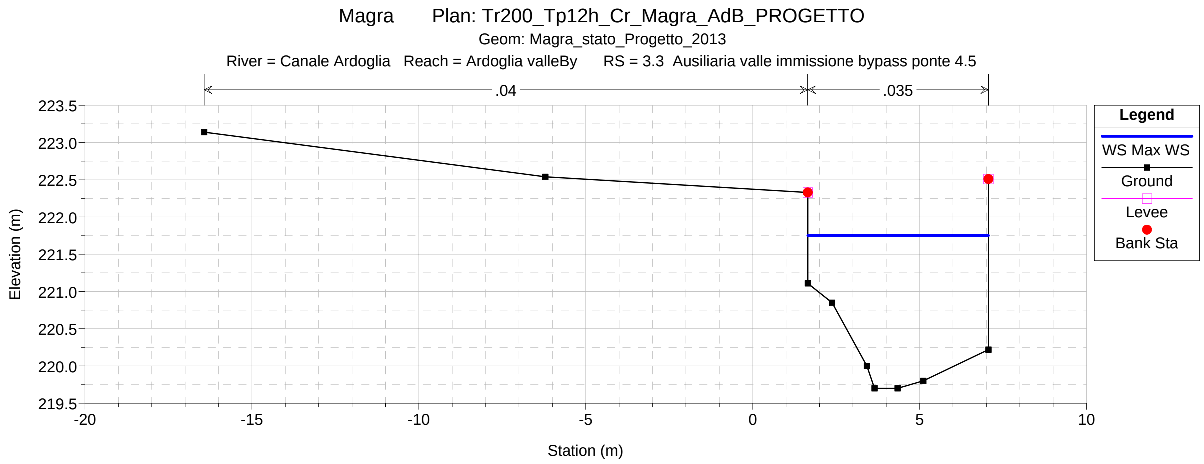

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 5 Sez Ma_Ar_005
.04
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

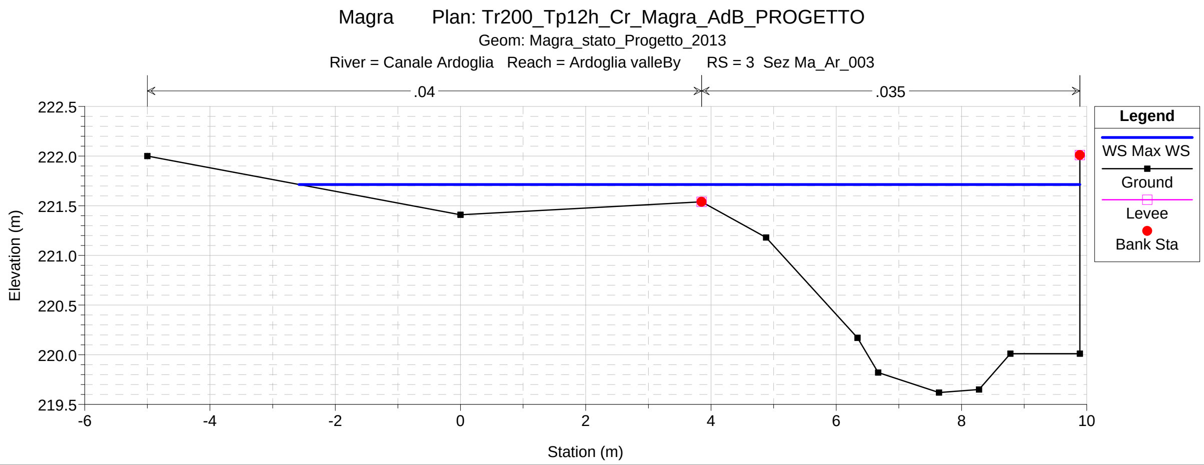

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 4.5 Culv tratto tombato valle per accesso case in sx
.04
.025
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

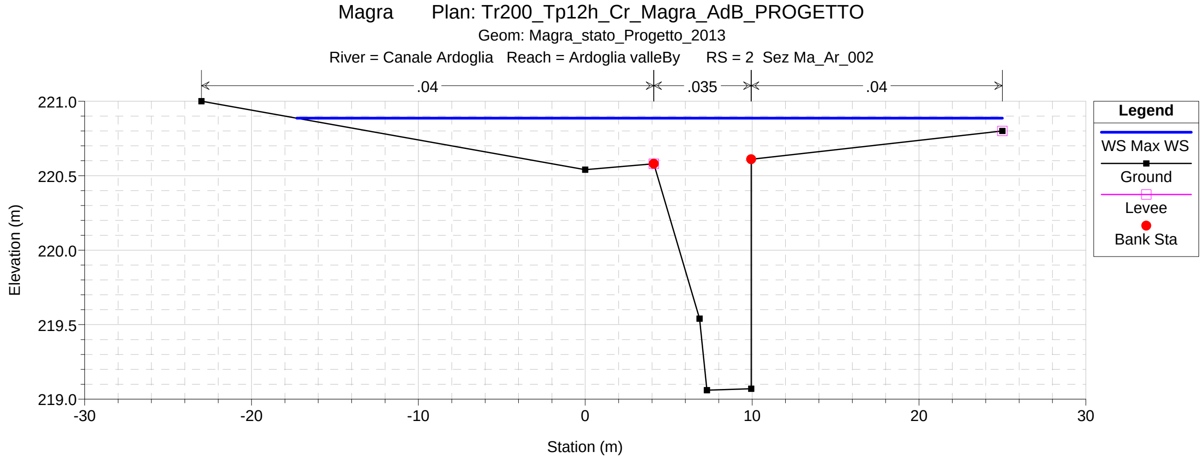

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 4.5 Culv tratto tombato valle per accesso case in sx
.04
.035
Elevation (m)
Station (m)
Legend
WS Max WS
Ground
Levee
Bank Sta

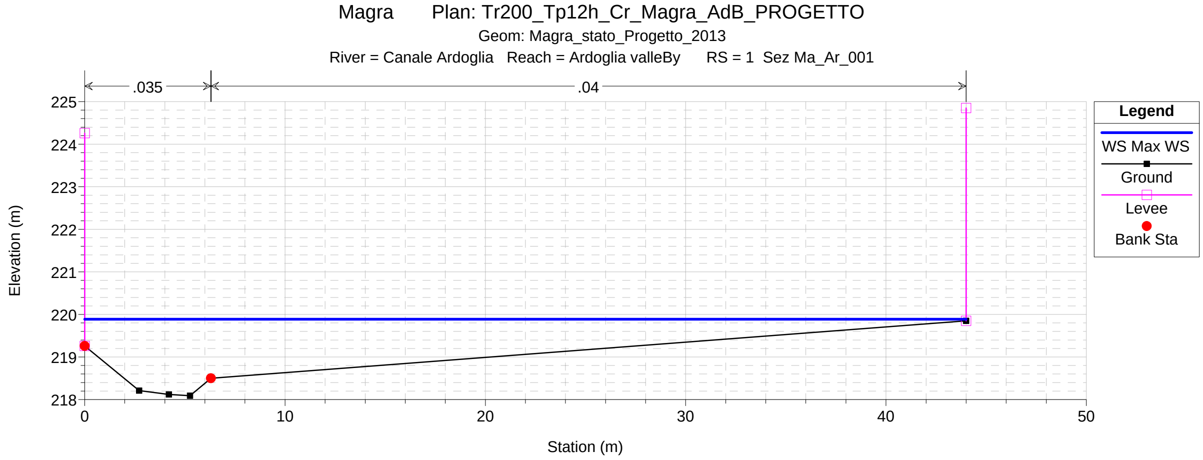

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 4 Sez Ma_Ar_004
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)

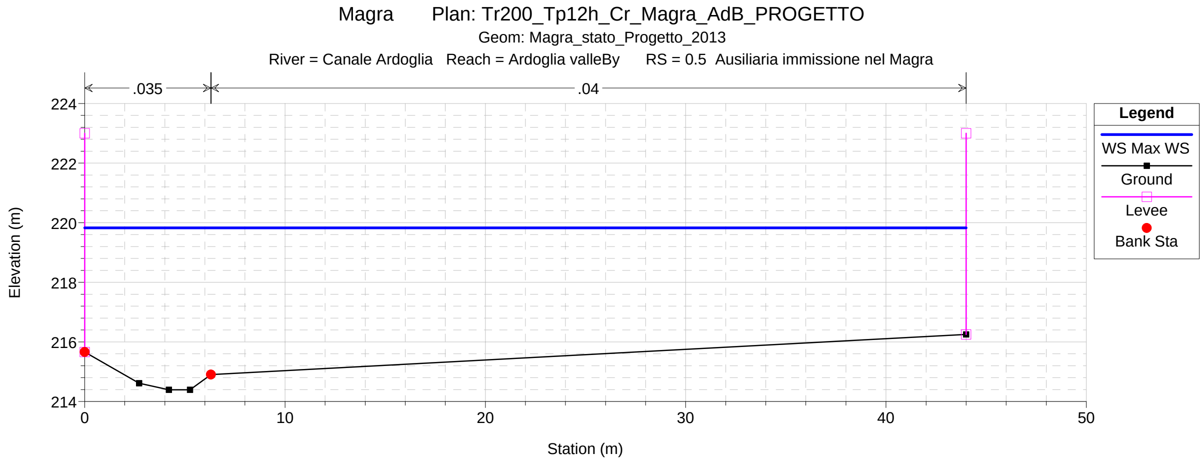

Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia sez.5-3 RS = 3.6 Ausiliaria monte immissione bypass ponte 4.5
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia valleBy RS = 3.3 Ausiliaria valle immissione bypass ponte 4.5
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia valleBy RS = 3 Sez Ma_Ar_003
.04
.035
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia valleBy RS = 2 Sez Ma_Ar_002
.04
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
221.0
220.5
220.0
219.5
219.0
-30
-20
-10
0
10
20
30
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia valleBy RS = 1 Sez Ma_Ar_001
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
225
224
223
222
221
220
219
218
0
10
20
30
40
50
Station (m)


Magra Plan: Tr200_Tp12h_Cr_Magra_AdB_PROGETTO
Geom: Magra_stato_Progetto_2013
River = Canale Ardoglia Reach = Ardoglia valleBy RS = 0.5 Ausiliaria immissione nel Magra
.035
.04
Legend
WS Max WS
Ground
Levee
Bank Sta
Elevation (m)
224
222
220
218
216
214
0
10
20
30
40
50
Station (m)

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS

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)	
Ardoglia	50	Max WS	24.75	274.43	275.45	275.78	276.51	0.039059	4.56	5.42	6.55	1.60
Ardoglia	49	Max WS	24.71	267.32	269.58		269.77	0.003066	1.91	12.92	7.65	0.47
Ardoglia	48	Max WS	24.70	266.99	269.31		269.66	0.007530	2.65	9.34	4.20	0.57
Ardoglia	47.8	Max WS	24.70	266.99	269.25	268.61	269.63	0.004096	2.71	9.11	4.20	0.59
Ardoglia	47.5		Bridge									
Ardoglia	47.2	Max WS	24.70	266.99	269.12		269.55	0.004839	2.89	8.56	4.20	0.65
Ardoglia	47	Max WS	24.68	266.99	268.97		269.47	0.011600	3.11	7.93	4.20	0.72
Ardoglia	46	Max WS	23.38	266.91	268.88	268.49	269.34	0.010806	2.99	7.81	4.20	0.70
Ardoglia	45.5		Inl Struct									
Ardoglia	45	Max WS	24.71	265.49	267.01		267.46	0.011282	2.98	8.28	7.46	0.90
Ardoglia	44	Max WS	23.52	264.79	266.55	266.32	266.78	0.005528	2.29	14.20	35.63	0.64
Ardoglia	43.5		Inl Struct									
Ardoglia	43	Max WS	25.10	264.26	265.41	265.67	266.29	0.030059	4.17	6.01	7.02	1.44
Ardoglia	42	Max WS	25.47	261.42	262.79	263.04	263.69	0.028815	4.21	6.05	6.46	1.39
Ardoglia	41	Max WS	25.93	258.91	261.16		261.29	0.001941	1.63	17.19	20.25	0.39
Ardoglia	40	Max WS	26.05	259.02	260.89	260.53	261.25	0.007596	2.73	10.68	13.66	0.67
Ardoglia	39.5		Inl Struct									
Ardoglia	39	Max WS	26.05	256.25	257.73		258.32	0.015280	3.40	7.65	5.22	0.90
Ardoglia	38	Max WS	26.56	254.50	257.10		257.37	0.004706	2.28	11.63	4.80	0.47
Ardoglia	37.8	Max WS	26.57	254.50	257.13		257.37	0.002163	2.15	12.36	4.70	0.42
Ardoglia	37.5		Culvert									
Ardoglia	37.2	Max WS	26.57	254.23	256.77		257.02	0.002381	2.23	11.92	4.70	0.45
Ardoglia	37	Max WS	26.57	254.23	256.71		257.02	0.005807	2.44	10.89	4.70	0.51
Ardoglia	36	Max WS	26.78	253.56	256.30	255.60	256.60	0.005838	2.44	11.00	5.93	0.57
Ardoglia	35.5		Inl Struct									
Ardoglia	35	Max WS	26.78	252.63	254.54	254.77	255.59	0.030884	4.54	5.90	4.35	1.24
Ardoglia	34	Max WS	26.83	252.34	254.31		254.96	0.015444	3.60	7.46	4.84	0.92
Ardoglia	33.15	Max WS	28.08	249.71	251.32	251.35	251.98	0.016302	3.58	7.85	6.32	1.03
Ardoglia	33.149		Lat Struct									
Ardoglia	33	Max WS	28.43	249.25	250.96		251.45	0.011025	3.10	9.18	6.41	0.83
Ardoglia	32.8	Max WS	28.45	249.00	251.23	250.41	251.43	0.001477	1.95	14.62	7.82	0.45
Ardoglia	32.5		Bridge									
Ardoglia	32.2	Max WS	28.45	249.00	251.17		251.38	0.001630	2.01	14.16	7.80	0.48
Ardoglia	32	Max WS	28.45	248.96	251.08		251.38	0.005444	2.39	11.89	7.77	0.62
Ardoglia	31.98		Lat Struct									

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS (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)	
Ardoglia	31.8	Max WS	28.47	248.96	251.07		251.37	0.005751	2.42	11.76	7.74	0.63
Ardoglia	31.2	Max WS	28.12	248.14	251.05		251.24	0.002777	1.93	14.56	6.05	0.40
Ardoglia	31	Max WS	28.91	248.14	251.00		251.22	0.003373	2.08	13.87	5.95	0.44
Ardoglia	30.8	Max WS	28.91	248.14	251.00	249.89	251.22	0.001724	2.08	13.87	5.95	0.44
Ardoglia	30.5		Bridge									
Ardoglia	30.2	Max WS	28.91	248.14	249.74	249.89	250.64	0.011827	4.21	6.86	5.16	1.17
Ardoglia	30	Max WS	28.92	248.14	249.71	249.89	250.65	0.024441	4.30	6.73	5.14	1.20
Ardoglia	29.9		Lat Struct									
Ardoglia	29	Max WS	29.21	247.20	249.14	249.11	249.89	0.017576	3.83	7.62	4.78	0.97
Ardoglia	28	Max WS	30.12	245.60	247.26	247.59	248.69	0.041931	5.31	5.68	3.49	1.33
Ardoglia	27.98		Lat Struct									
Ardoglia	27	Max WS	30.42	244.60	245.90	246.74	248.92	0.108903	7.70	3.95	4.09	2.50
Ardoglia	26	Max WS	30.44	244.42	245.79	246.08	246.90	0.032321	4.67	6.51	5.88	1.42
Ardoglia	25.99		Lat Struct									
Ardoglia	25.98		Lat Struct									
Ardoglia	25	Max WS	31.42	242.00	244.05		244.80	0.017601	3.82	8.22	4.00	0.85
Ardoglia	24.8	Max WS	31.43	242.00	244.03	243.84	244.79	0.009279	3.87	8.12	4.00	0.87
Ardoglia	24.5		Bridge									
Ardoglia	24.2	Max WS	31.43	239.10	241.61		242.11	0.005316	3.13	10.04	4.00	0.63
Ardoglia	24	Max WS	31.45	239.10	241.59		242.10	0.010585	3.15	9.98	4.00	0.64
Ardoglia	23.99		Lat Struct									
Ardoglia	23	Max WS	31.56	239.10	241.37		241.99	0.013641	3.48	9.08	4.00	0.74
Ardoglia	22.99		Lat Struct									
Ardoglia	22	Max WS	33.29	236.58	238.97		239.67	0.014662	3.70	8.99	4.20	0.81
Ardoglia	21.9		Lat Struct									
Ardoglia	21	Max WS	33.88	235.83	238.01	237.91	238.84	0.019227	4.04	8.38	4.27	0.92
Ardoglia	20	Max WS	35.01	234.54	237.22		237.45	0.002591	2.17	17.47	9.21	0.45
Ardoglia	19	Max WS	35.22	234.15	237.04		237.37	0.005509	2.57	13.73	5.13	0.50
Ardoglia	18.5		Culvert									
Ardoglia	18.2	Max WS	35.21	233.30	235.21		236.01	0.017583	3.96	8.90	4.81	0.93
Ardoglia	18	Max WS	35.22	233.31	235.17	235.45	236.08	0.019649	4.22	8.59	7.87	1.04
Ardoglia	17.99		Lat Struct									
Ardoglia	17	Max WS	28.89	231.88	233.68		233.92	0.004844	2.41	16.53	27.76	0.60
Ardoglia	16.8	Max WS	28.89	231.88	233.66	233.58	233.93	0.005131	2.49	16.00	27.27	0.63
Ardoglia	16.5		Inl Struct									

HEC-RAS Plan: 200_12h_CrMa_PRO Profile: Max WS (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)	
Ardoglia	16.2	Max WS	28.92	230.09	231.71	231.95	232.77	0.027750	4.57	6.33	4.67	1.25
Ardoglia	16	Max WS	28.91	230.04	231.70	231.92	232.75	0.027175	4.53	6.38	4.67	1.24
Ardoglia	15.99		Lat Struct									
Ardoglia	15	Max WS	35.48	227.11	229.19	230.14	231.25	0.058546	6.36	5.58	4.41	1.80
Ardoglia	14	Max WS	35.45	227.04	228.79		229.25	0.010843	3.27	12.90	13.76	0.84
Ardoglia	13	Max WS	35.33	226.74	228.76	228.47	229.00	0.004125	2.65	18.95	18.73	0.61
Ardoglia	12.5		Inl Struct									
Ardoglia	12	Max WS	35.33	225.00	227.17	227.54	228.44	0.031791	4.99	7.08	4.02	1.20
Ardoglia	11	Max WS	35.31	224.30	226.82		227.44	0.013020	3.51	10.07	4.00	0.71
Ardoglia	10.8	Max WS	35.31	224.20	227.04		227.43	0.003532	2.77	12.77	4.50	0.52
Ardoglia	10.5		Culvert									
Ardoglia	10.2	Max WS	35.25	223.60	225.40	225.45	226.36	0.011886	4.36	8.09	4.50	1.04
Ardoglia	10	Max WS	35.25	223.60	225.39	225.44	226.37	0.012003	4.37	8.06	4.50	1.04
Ardoglia	9	Max WS	35.27	223.04	223.95	225.09	227.72	0.082515	8.61	4.10	4.50	2.88
Ardoglia	8	Max WS	35.27	222.65	223.88	224.51	225.94	0.034048	6.35	5.56	4.50	1.82
Ardoglia	7	Max WS	35.26	222.24	223.68	224.08	225.19	0.022103	5.45	6.47	4.49	1.45
Ardoglia	6	Max WS	35.26	221.96	223.66	223.81	224.75	0.013945	4.62	7.63	4.50	1.13
Ardoglia	5.9	Max WS	35.26	221.96	223.66	223.80	224.75	0.013994	4.63	7.62	4.50	1.13
Ardoglia sez.5-3	5.2	Max WS	10.15	221.72	223.66		223.92	0.005010	2.28	4.45	2.30	0.52
Ardoglia sez.5-3	5	Max WS	10.15	221.72	223.65		223.92	0.005032	2.28	4.45	2.30	0.52
Ardoglia sez.5-3	4.5		Culvert									
Ardoglia sez.5-3	4	Max WS	10.15	220.36	221.71		221.85	0.004191	1.65	6.15	4.93	0.47
Ardoglia sez.5-3	3.6	Max WS	10.14	219.70	221.75		221.82	0.001502	1.16	8.73	5.41	0.29
Ardoglia valleBy	3.3	Max WS	35.26	219.70	221.75	221.77	222.58	0.018147	4.04	8.73	5.41	1.01
Ardoglia valleBy	3	Max WS	35.26	219.62	221.71	221.93	222.47	0.018631	3.94	9.86	12.47	1.06
Ardoglia valleBy	2	Max WS	35.22	219.06	220.89	221.07	221.41	0.015566	3.57	14.85	42.29	0.99
Ardoglia valleBy	1	Max WS	30.34	218.09	219.89		219.93	0.001281	1.21	36.13	44.00	0.32
Ardoglia valleBy	0.5	Max WS	44.92	214.39	219.83		219.83	0.000015	0.22	192.16	44.00	0.03