

# PROGETTO DI IMPIANTO IDROELETTRICO DI REGOLAZIONE SUL BACINO DI CAMPOLATTARO (BN)

MARZO 2011



COMMITTENTE



**R.E.C. S.r.l.**  
Via Uberti 37-20129 Milano

RAGGRUPPAMENTO TEMPORANEO DI IMPRESE

Mandataria :

**ETATEC** S.R.L.  
SOCIETA' DI INGEGNERIA

20133 MILANO - via Bassini, 23 - tel.(02) 26681264  
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AZIENDA CON SISTEMA DI QUALITA' CERTIFICATO UNI EN ISO 9001:2008  
**SINCERT** SICV - SC 06-647/EA 34

PROGETTISTA: Prof. Ing. Alessandro Paoletti

Mandante :

**CeAS**

SISTEMA QUALITA'  
UNI EN ISO 9001:2008  
CERTIFICATO K031 RILASCIATO  
DA

CENTRO DI ANALISI STRUTTURALE S.R.L.  
AZIENDA CON SISTEMA QUALITA'

SERVIZI DI INGEGNERIA CIVILE  
CIVIL ENGINEERING SERVICES

PROGETTISTA: Dott. Ing. Giovanni Canetta

TITOLO ELABORATO

SEZIONI RIO SECCO CON INDICAZIONE DEI LIVELLI IDRICI DI PIENA  
T=100 ANNI - CONFIGURAZIONE STATO DI PROGETTO

Revisione	Data	Descrizione	Redazione	Verifica	Approvazione				
A	30/07/2012	EMISSIONE PER RECEPIMENTO INTEGRAZIONI VIA	F. Salmistraro	F. Malingegno	A. Paoletti				
B									
C									
		CODICE COMMESSA	TIPOLOGIA COMMESSA	TIPOLOGIA ELABORATO	FASE PROGETTAZIONE	PARTE DI IMPIANTO	PROGRESSIVO ELABORATO	SCALA:	
		<b>483-01E</b>	<b>ET</b>	<b>D</b>	<b>D</b>	<b>A</b>	<b>031</b>	—	

## SEZIONI RIO SECCO CON INDICAZIONE DEI LIVELLI IDRICI DI PIENA

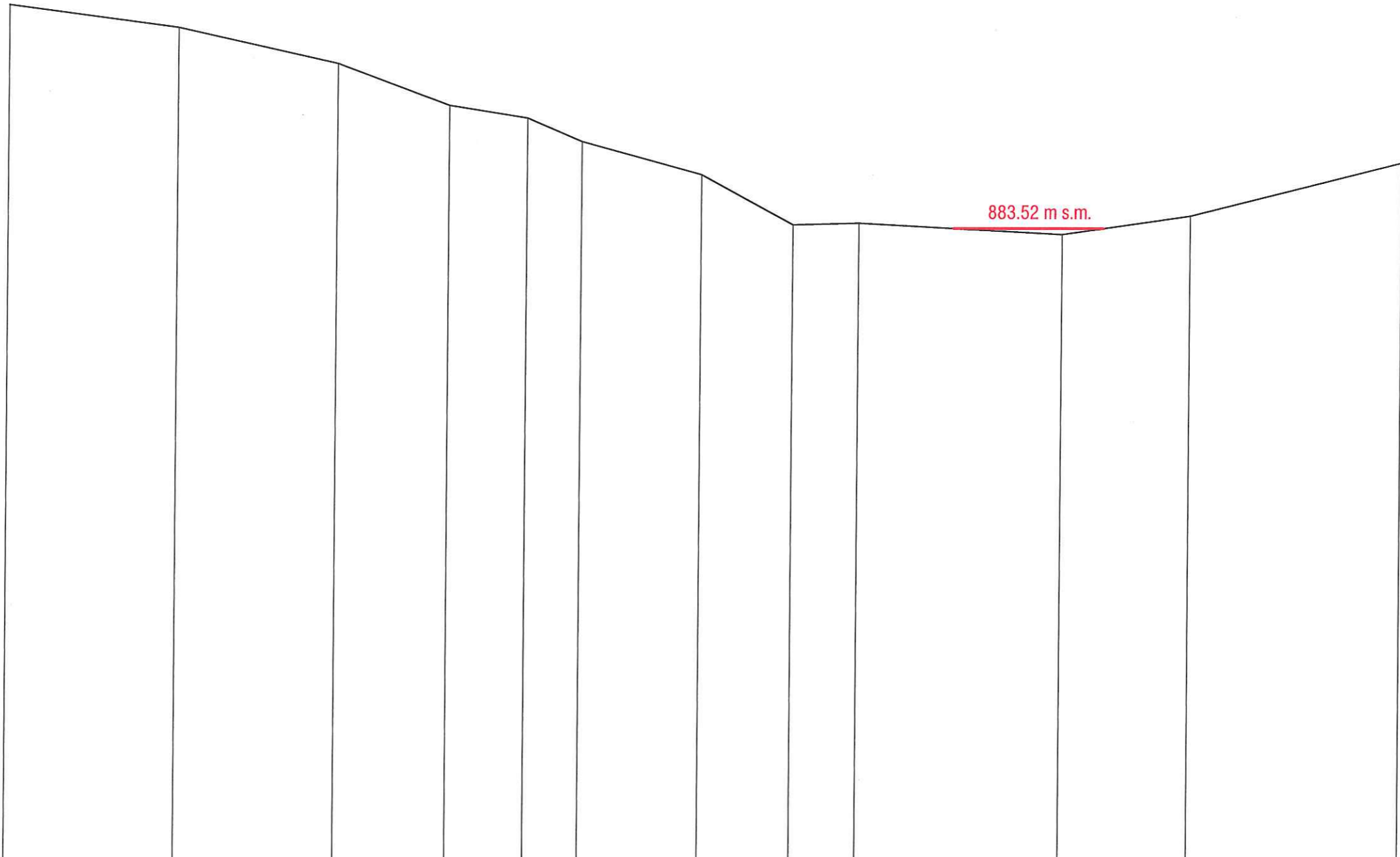
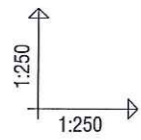
### T=100 ANNI NELLA CONFIGURAZIONE DI PROGETTO

#### 1. PREMESSA

Vengono di seguito riportati, in forma grafica, i livelli idrici di piena del Rio Secco, così come calcolati nella Relazione di Compatibilità Idraulica (elab. cod. 483-01E ET RDA 045), considerando le condizioni idrologiche di condizioni idrologiche di stato di fatto associate ad un evento di piena di T=100 anni, ipotizzando l'immissione del contributo in progetto proveniente dal canale di gronda di Monte Alto con  $Q_{max} \sim 5 \text{ m}^3/\text{s}$ .

In particolare, per la definizione delle caratteristiche geometriche dei manufatti (ponti) e delle sezioni trasversali dell'alveo del Rio Secco e del T. Lente interessati dalla modellazione idraulica, la cui localizzazione è riportata nell'elaborato grafico 483-01E ET DDA 020÷025, ci si è riferiti alla specifica campagna di indagine topografica del Giugno 2012.

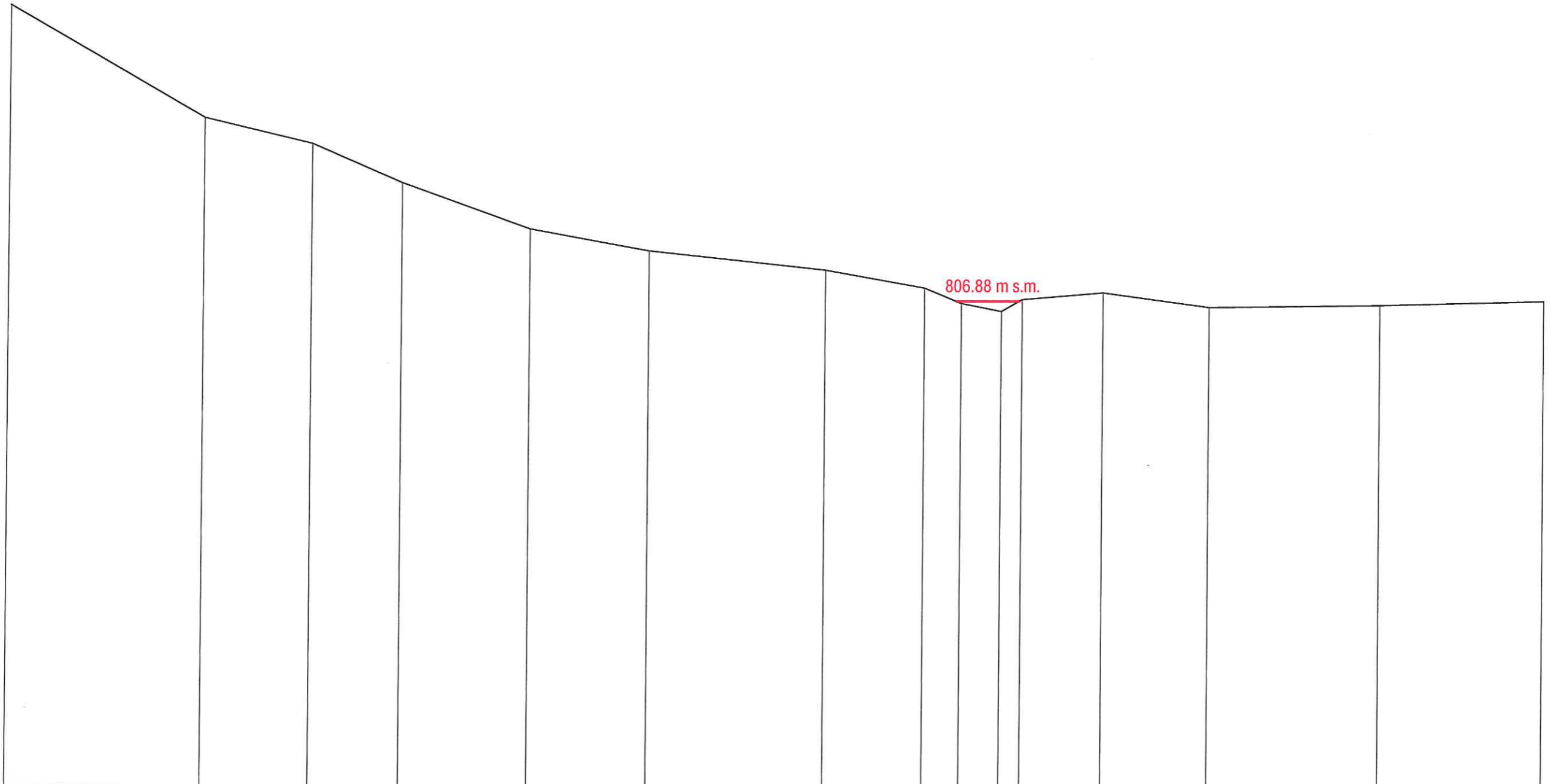
# Sez. M1



Quota di riferimento 850.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12
Quota attuale	894.78	893.62	891.82	889.71	889.07	887.88	886.22	883.69	883.78	883.22	884.15	886.84
Distanza parziale quota attuale		8.58	8.07	5.65	3.93	2.77	6.05	4.63	3.30	10.25	6.46	10.61
Distanza progressiva quota attuale	0.00	8.58	16.65	22.29	26.23	28.99	35.05	39.68	42.98	53.22	59.68	70.30
Pendenza grafica quota attuale		-0.13	-0.22	-0.38	-0.16	-0.43	-0.28	-0.55	0.03	-0.05	0.14	0.25

# Sez. M2

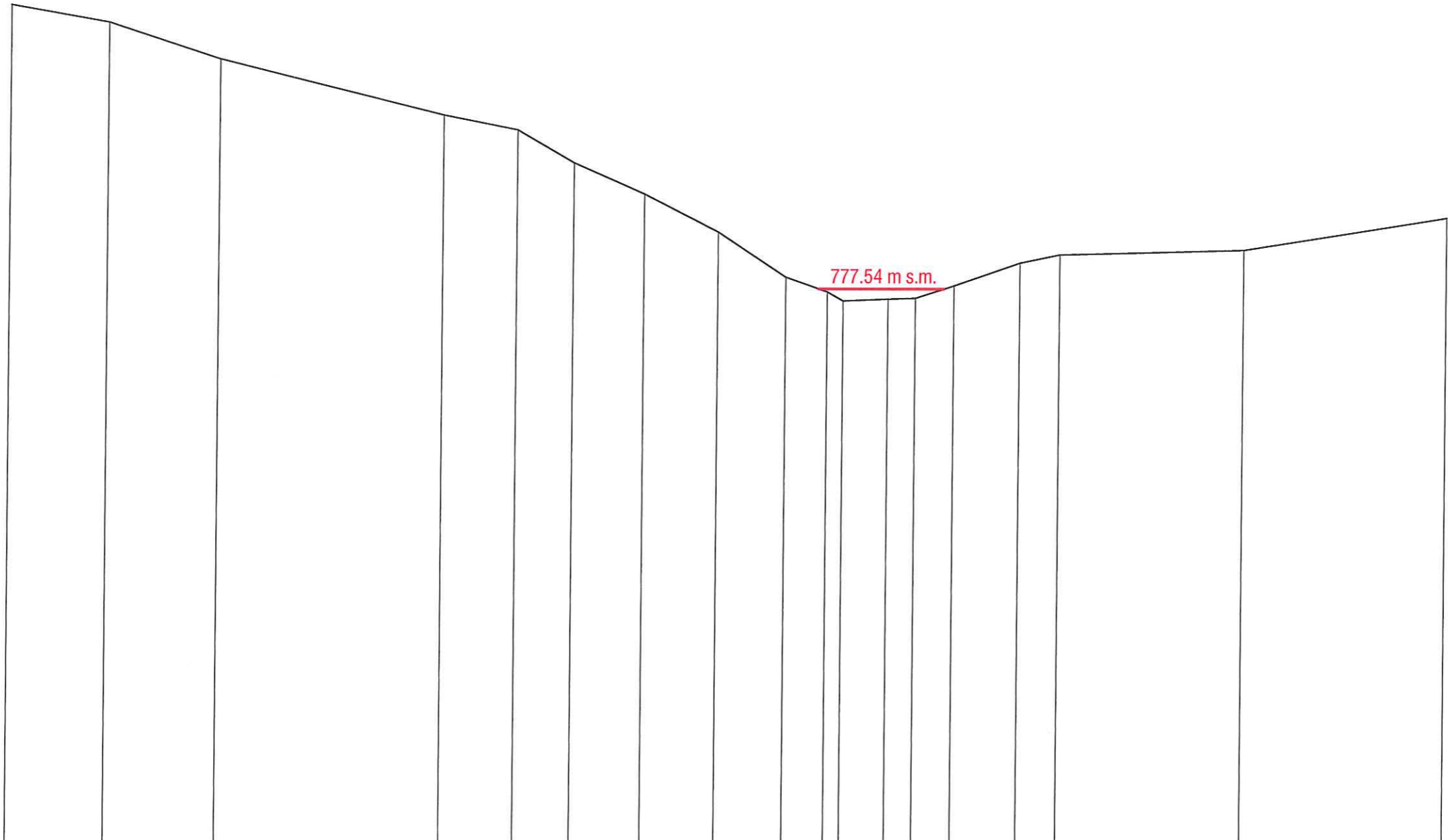


Quota di riferimento 780.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Quota attuale	823.24	817.02	815.59	813.42	810.87	809.67	808.61	807.63	806.78	806.88	807.36	806.55		806.66	806.88
Distanza parziale quota attuale		10.79	6.00	4.98	7.06	6.61	9.74	5.48	2.03	2.20	1.14	4.45	5.86	9.41	9.01
Distanza progressiva quota attuale	0.00	10.79	16.78	21.76	28.82	35.42	45.16	50.64	52.68	54.87	60.47	66.33		75.74	84.74
Pendenza grafica quota attuale		-0.58	-0.24	-0.44	-0.36	-0.18	-0.11	-0.18	-0.42	-0.20	0.57	0.08	-0.14	0.01	0.02

# Sez.M3

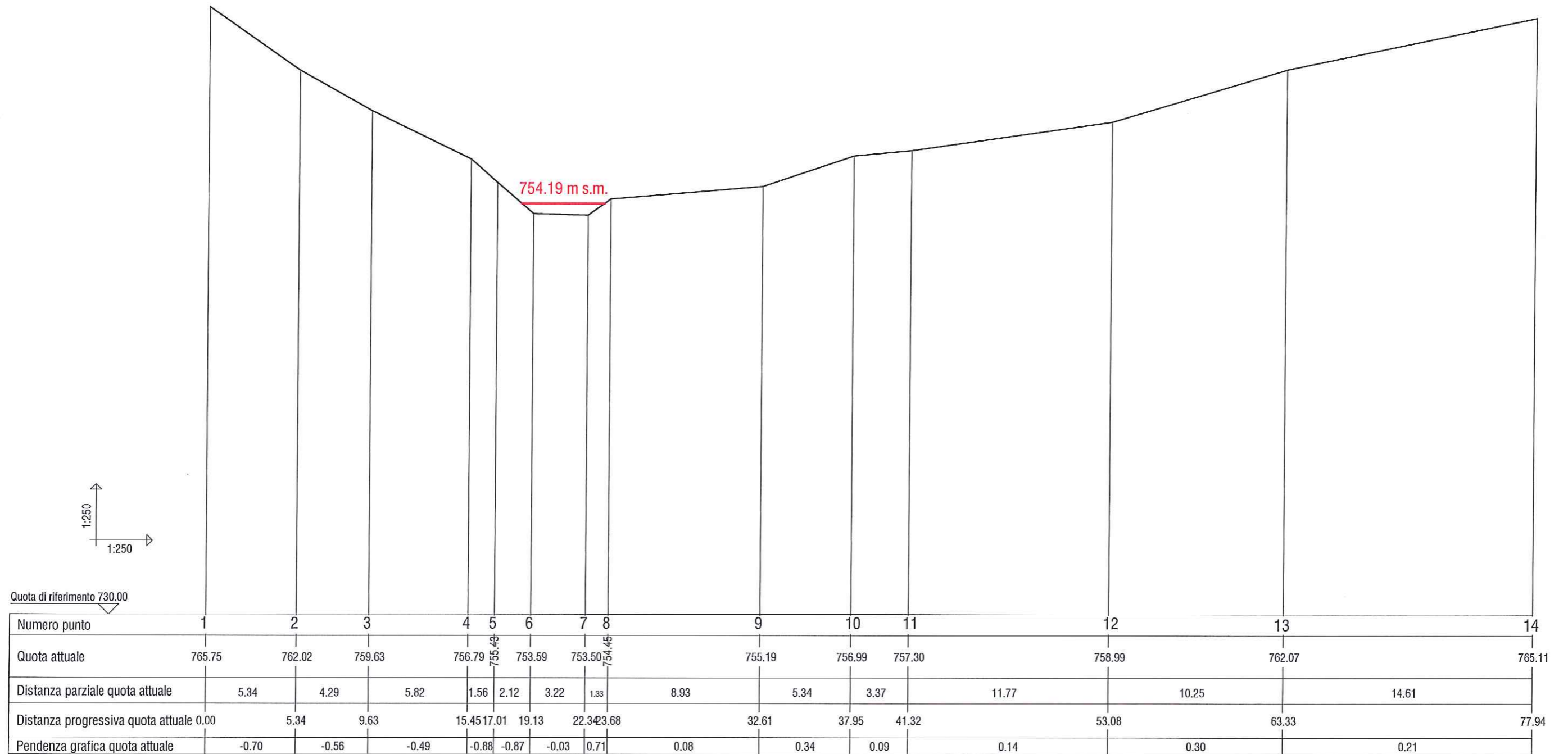
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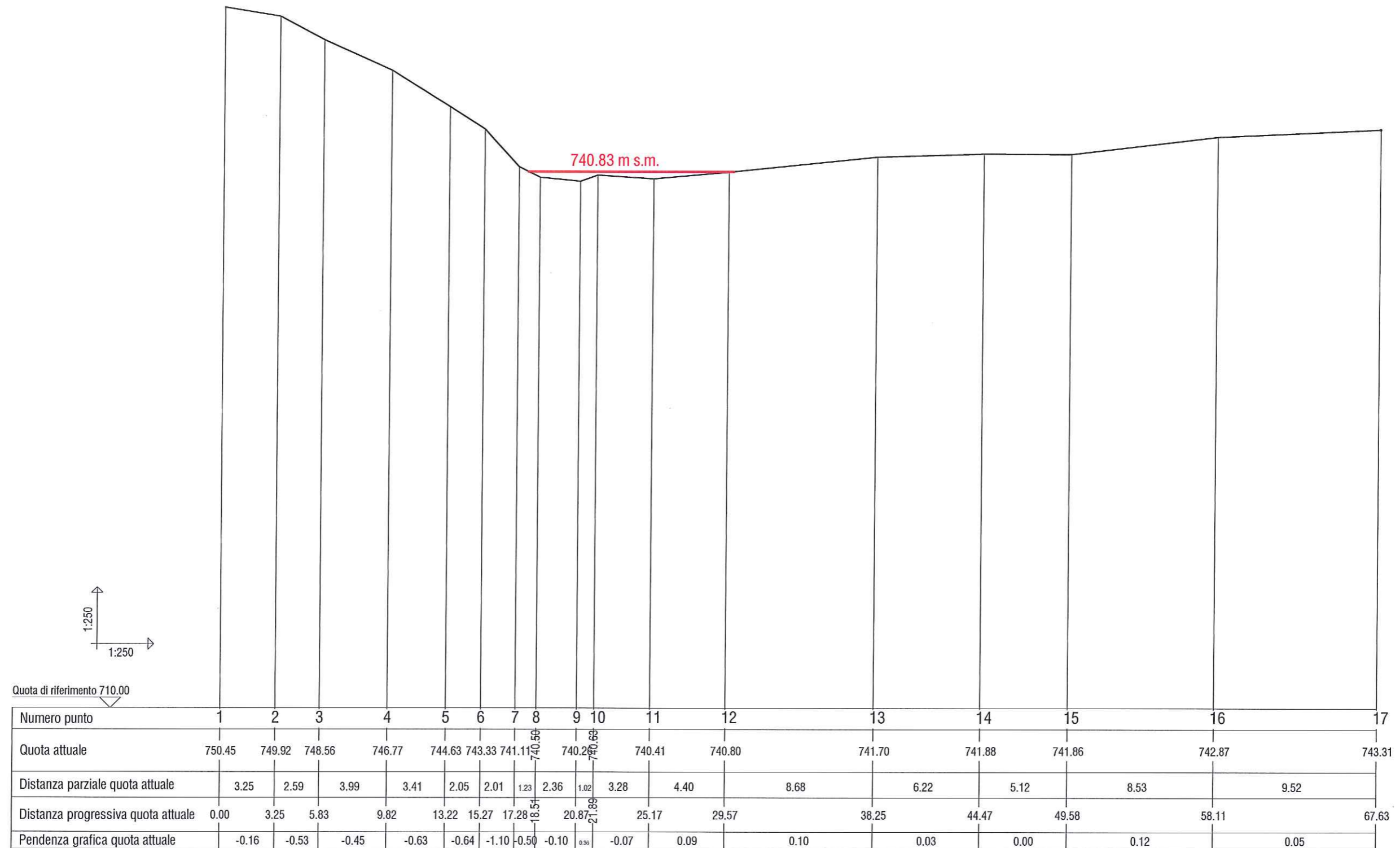
Quota di riferimento 750.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
Quota attuale	791.50	790.64	788.83	786.07	785.35	783.73	782.20	780.34	778.11	777.39	777.54	777.04	777.70	778.84	779.25		779.49		781.08
Distanza parziale quota attuale		4.83	5.51	11.02	3.65	2.80	3.47	3.67	3.35	2.04	0.77	2.22	1.35	1.89	3.25	1.95	9.05	9.98	
Distanza progressiva quota attuale	0.00	4.83	10.33	21.35	25.01	27.81	31.28	34.95	38.29	40.33	41.10	43.32	44.67	46.55	49.80	51.75	60.80		70.78
Pendenza grafica quota attuale		-0.18	-0.33	-0.25	-0.20	-0.58	-0.44	-0.51	-0.67	-0.35	-0.58	0.04	0.04	0.33	0.35	0.21	0.03		0.16

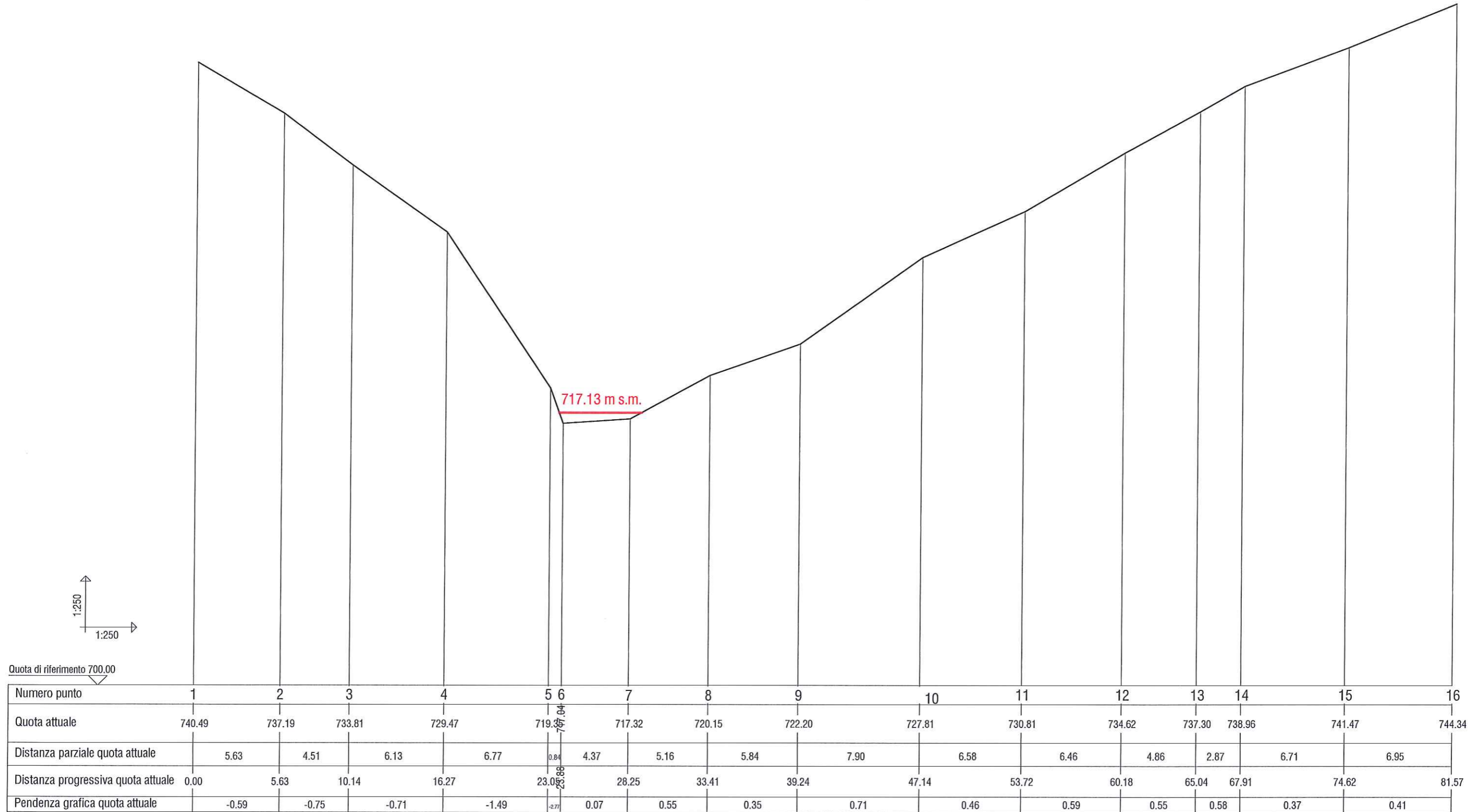
# Sez. M4



# Sez. M5

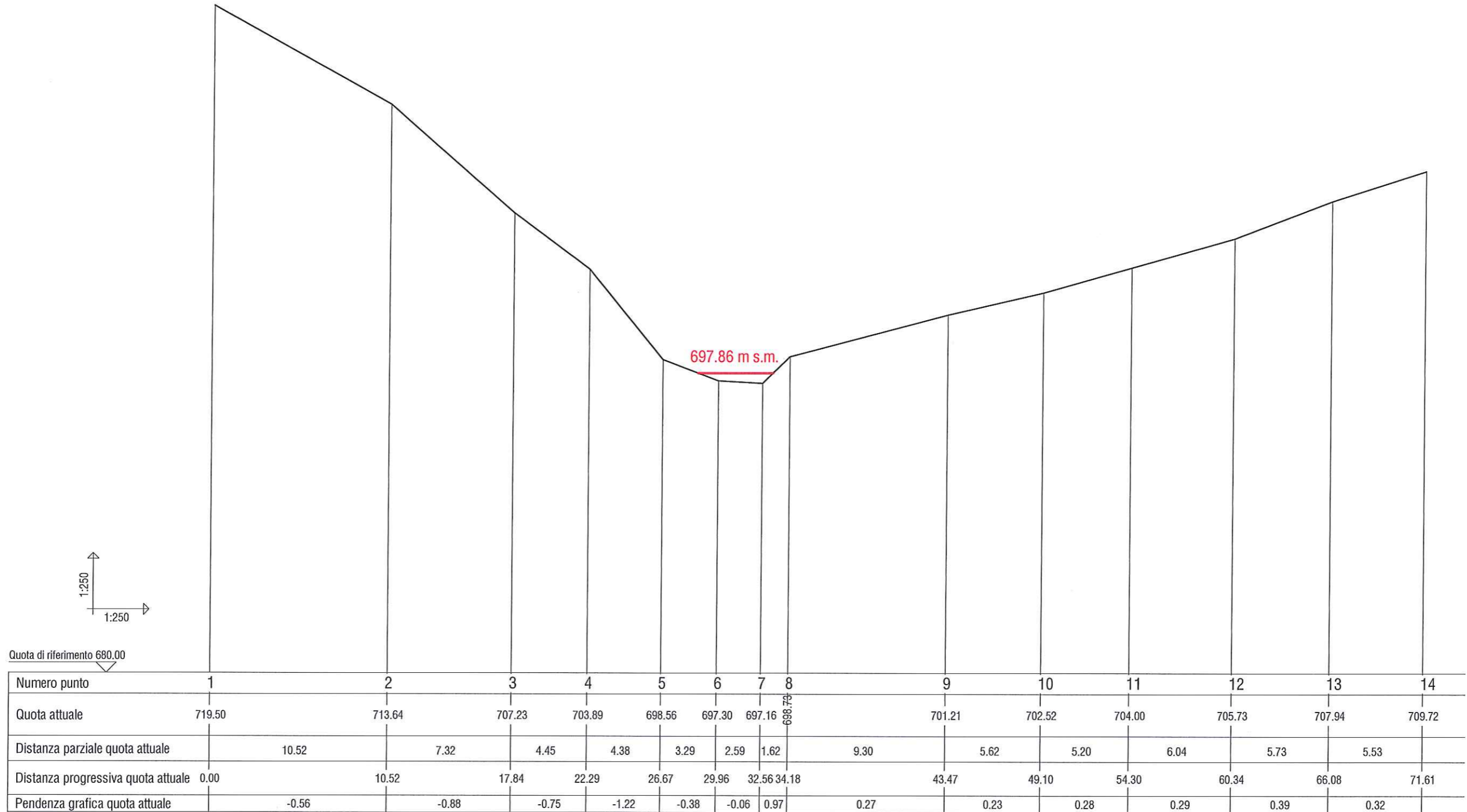


# Sez. M6

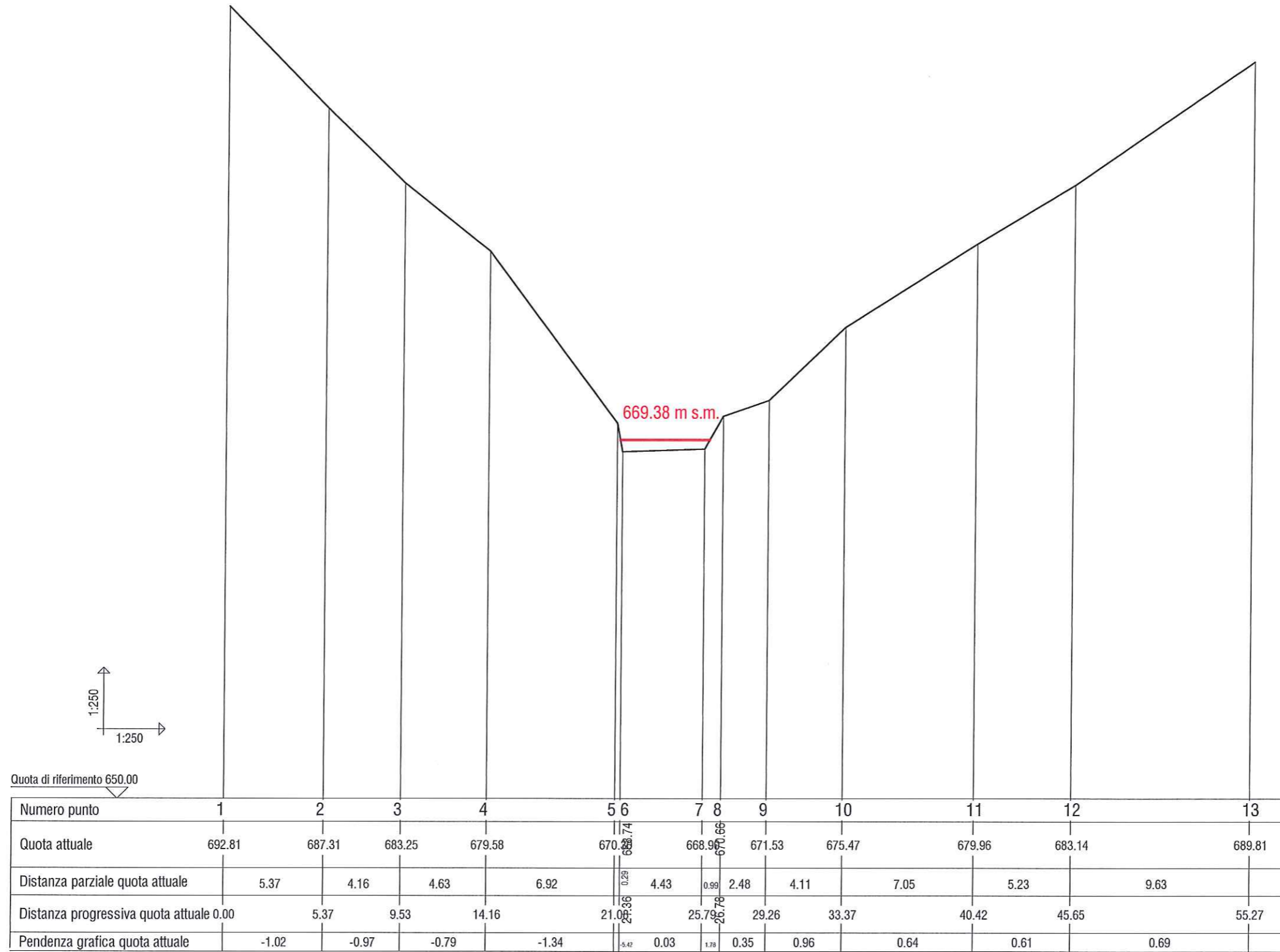




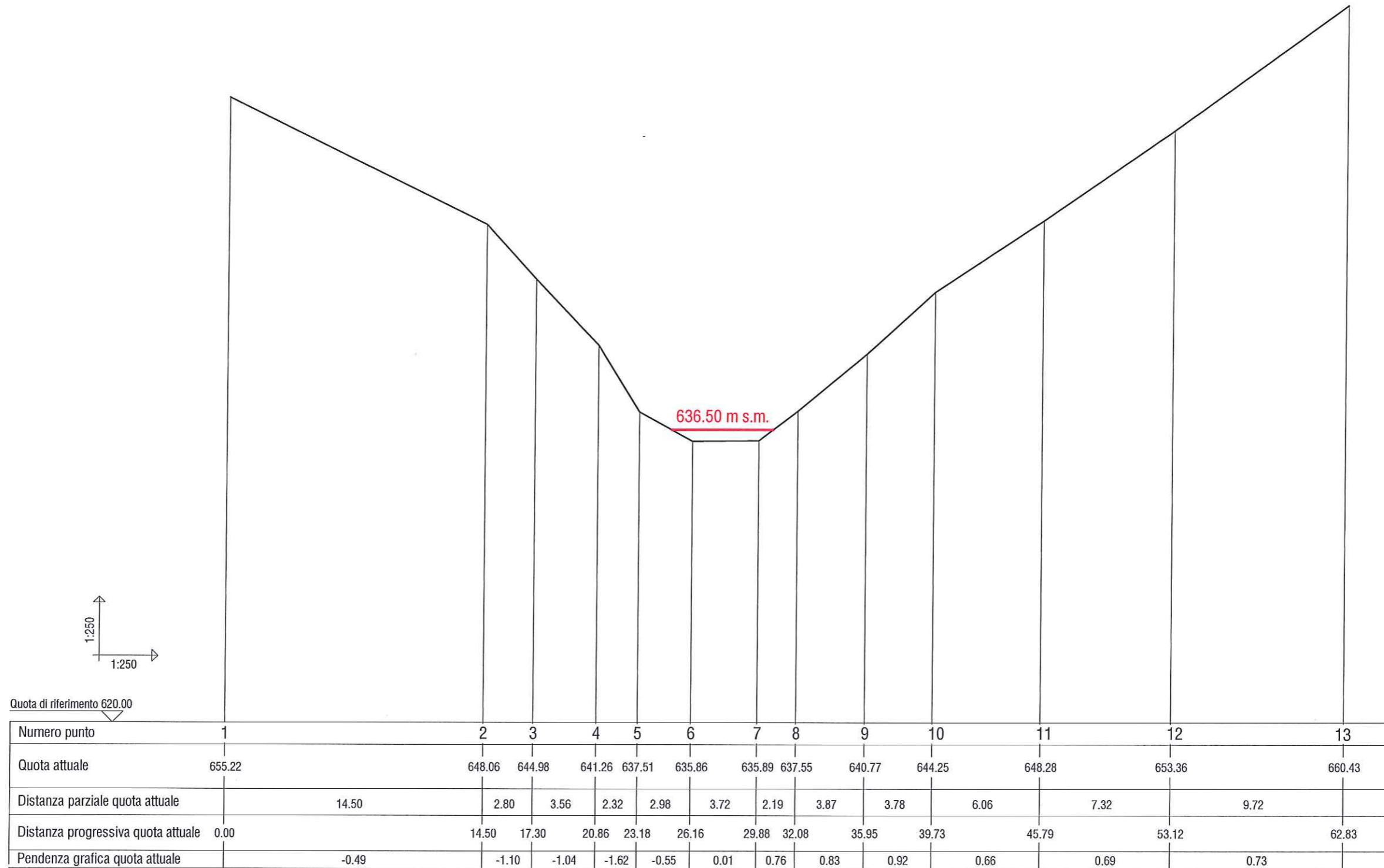
# Sez. M7



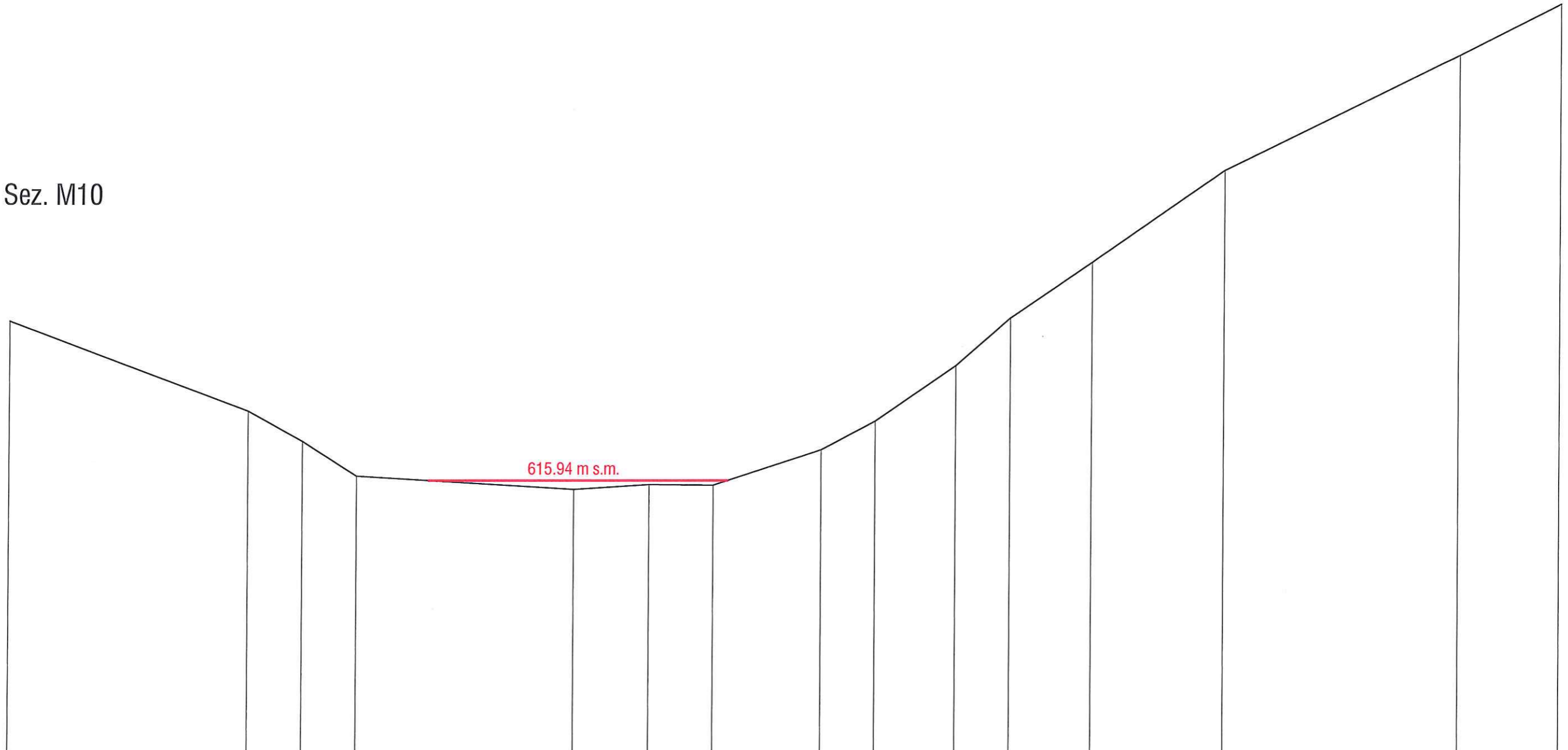
# Sez. M8



# Sez. M9



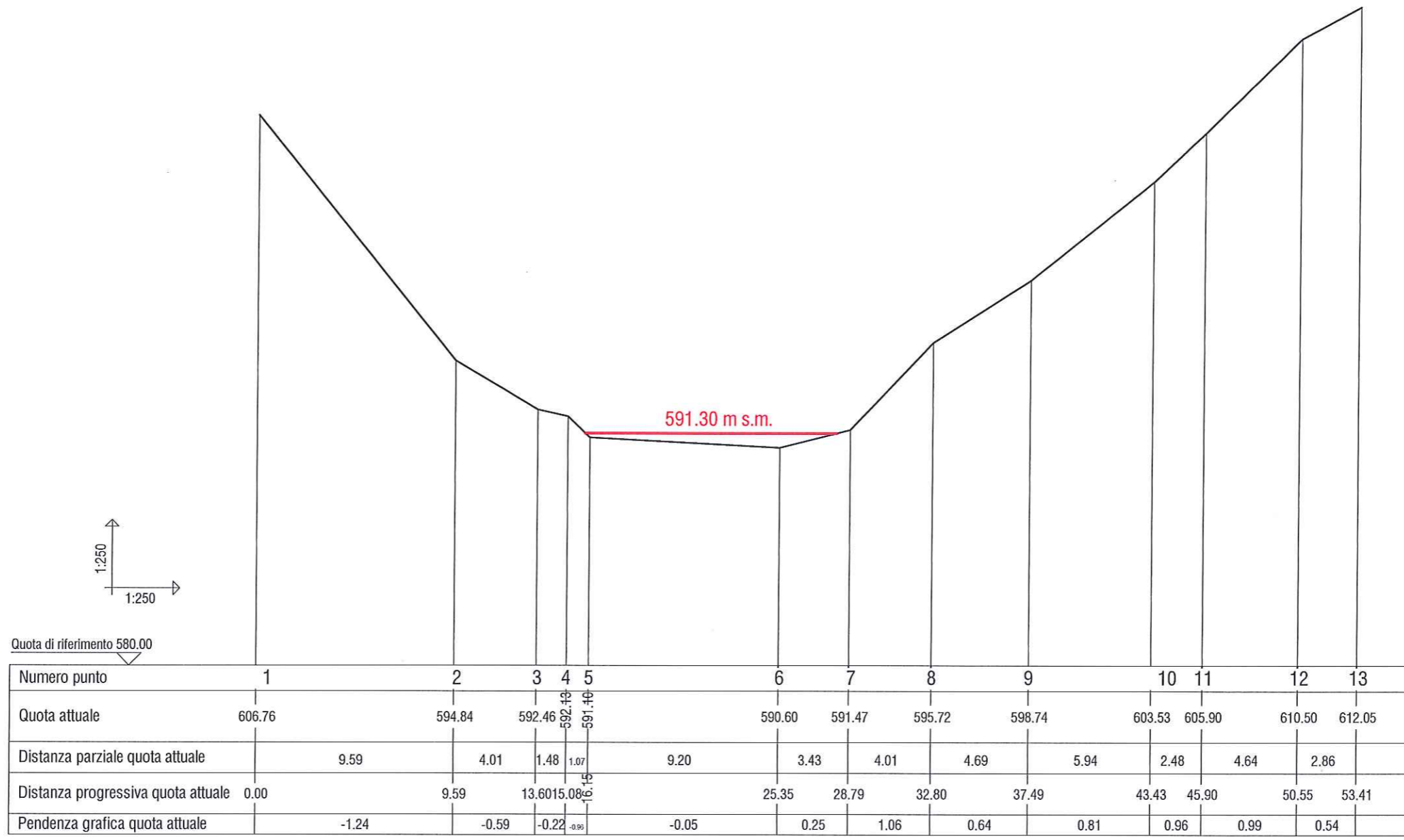
Sez. M10



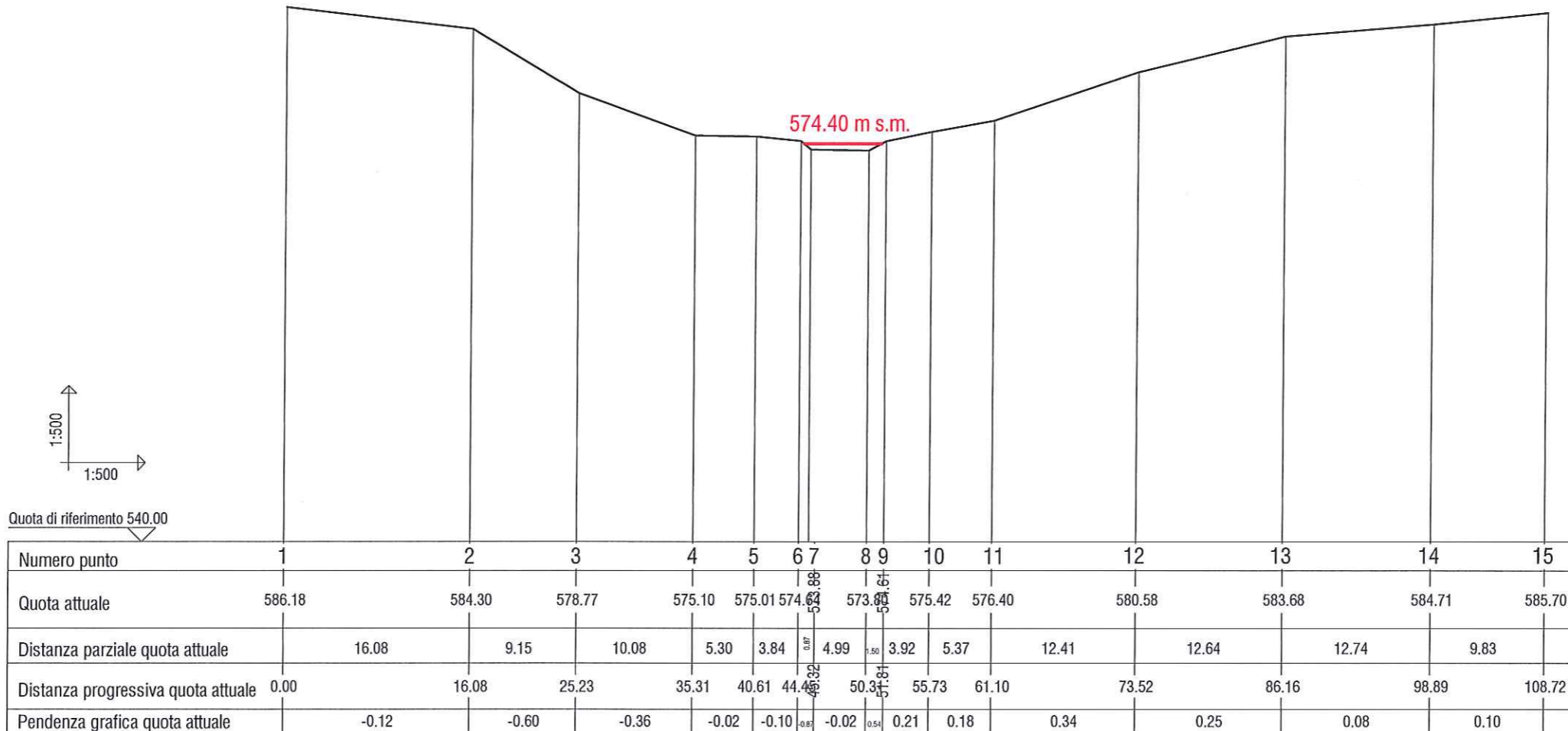
Quota di riferimento 600.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Quota attuale	625.02	619.89	618.17	616.20	615.43	615.71	615.68	617.69	619.31	622.47	625.18	628.34	633.57	640.11	643.03
Distanza parziale quota attuale		13.62	3.11	3.10	12.33	4.28	3.63	6.15	3.06	4.55	3.09	4.63	7.49	13.30	5.72
Distanza progressiva quota attuale	0.00	13.62	16.73	19.83	32.16	36.44	40.07	46.22	49.27	53.82	56.91	61.54	69.04	82.33	88.05
Pendenza grafica quota attuale		-0.38	-0.55	-0.64	-0.06	0.06	-0.01	0.33	0.53	0.69	0.88	0.68	0.70	0.49	0.51

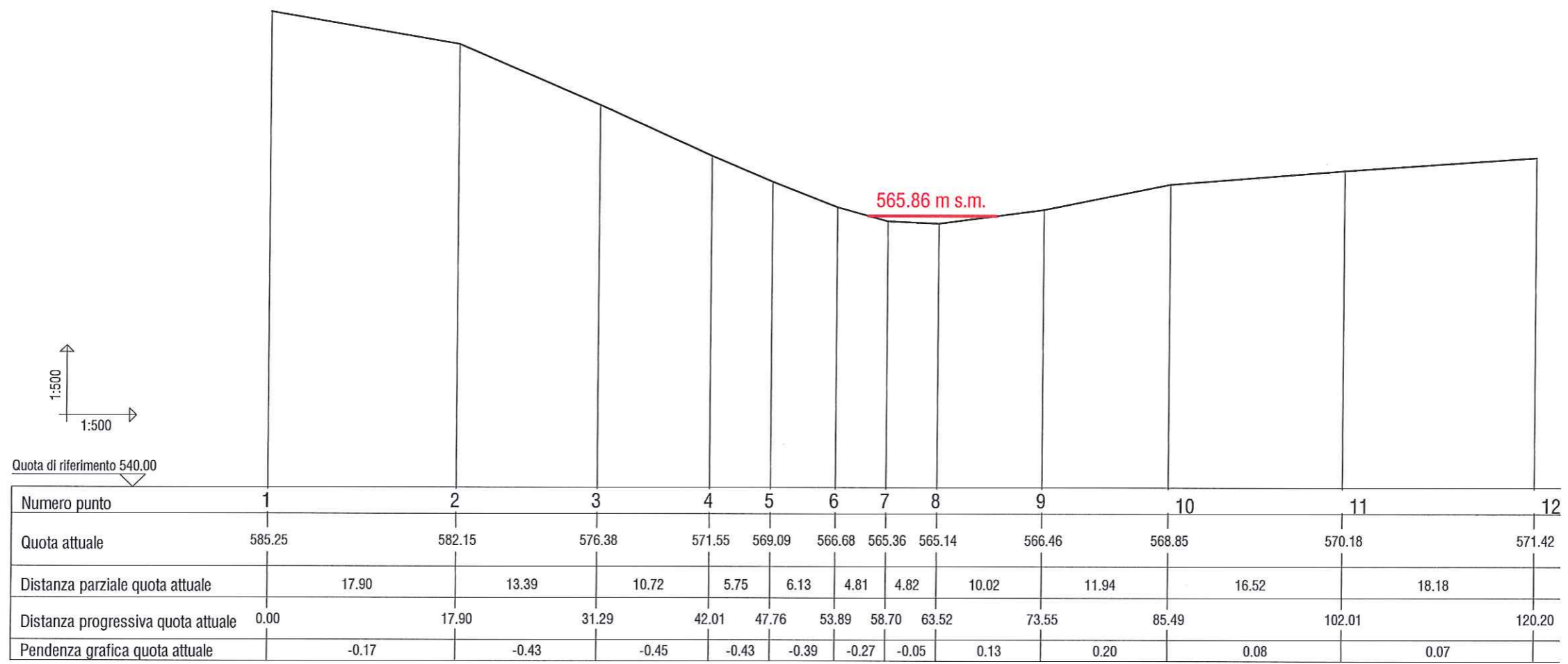
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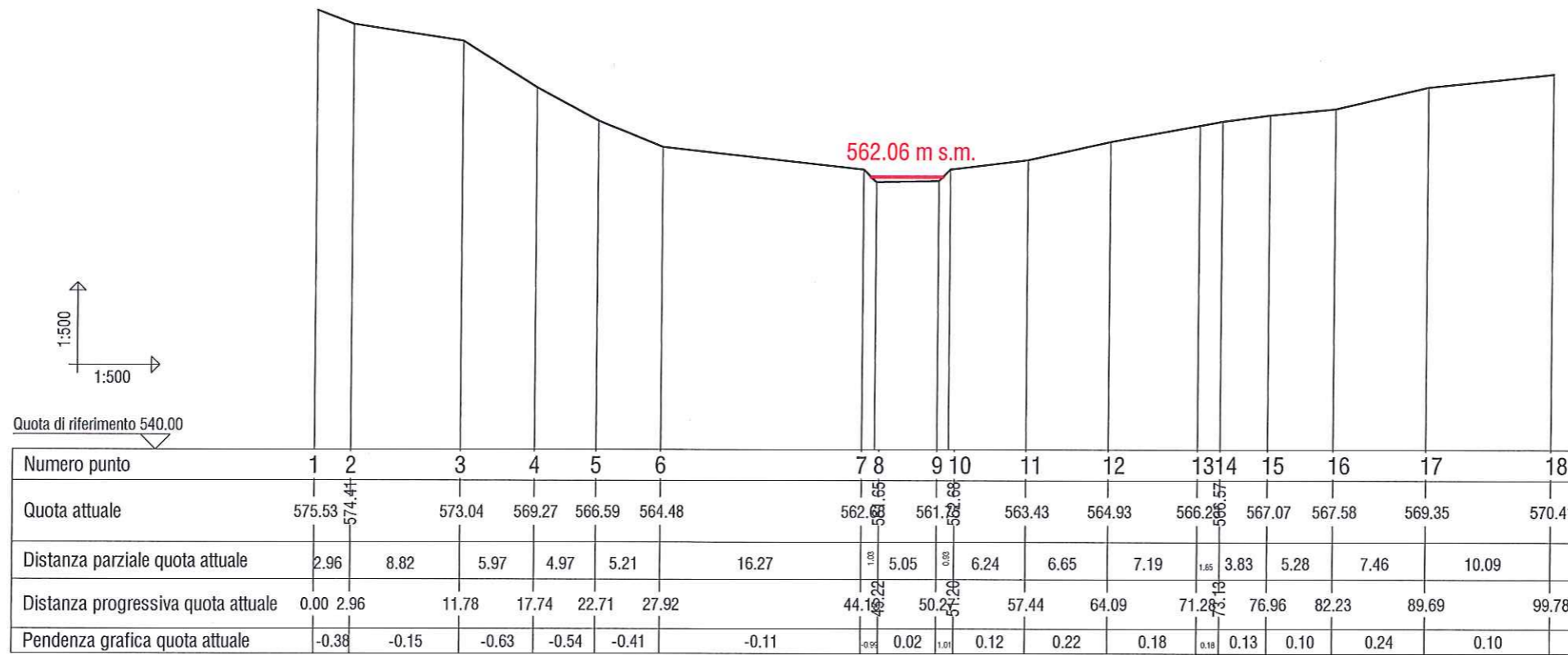
# Sez. V1



# Sez. V2

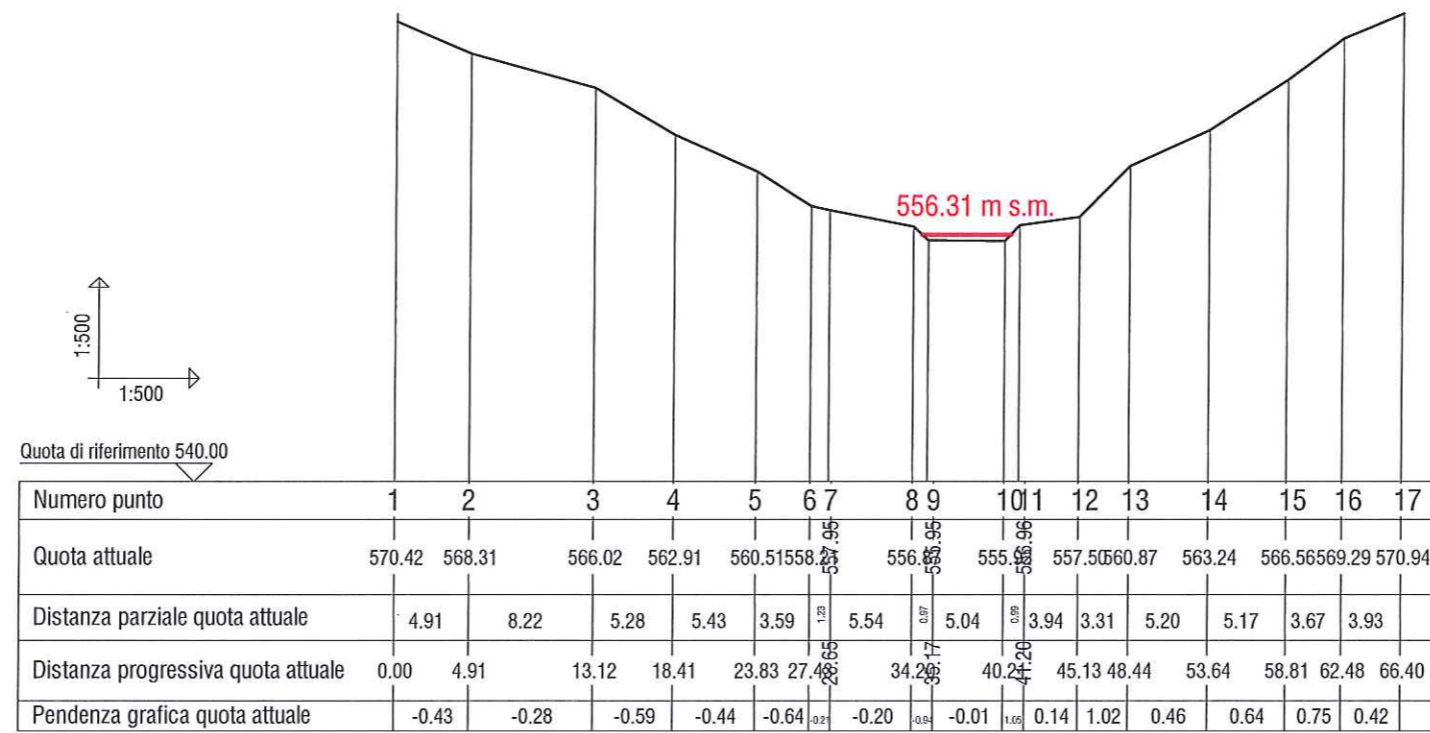


# Sez. V3

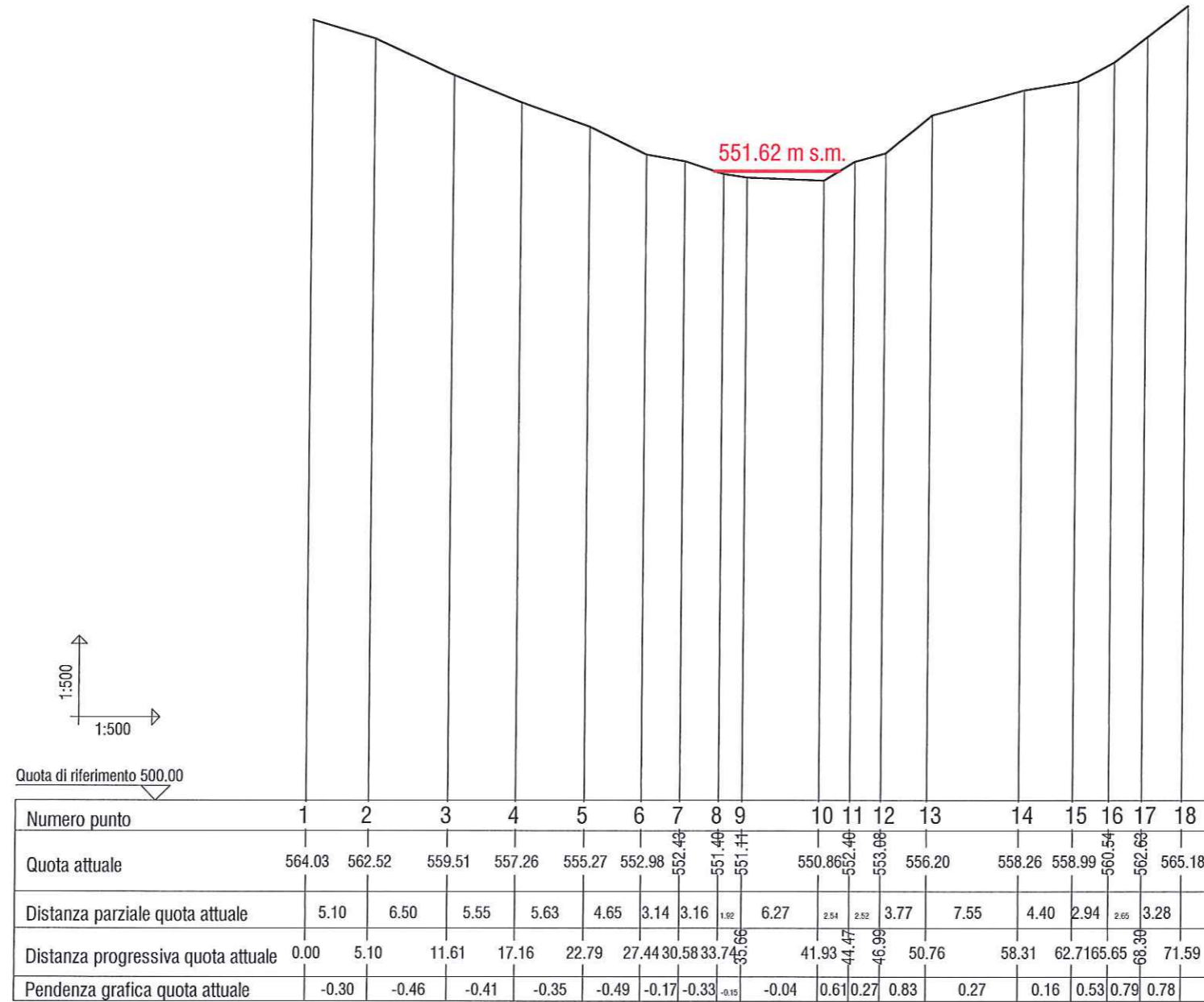




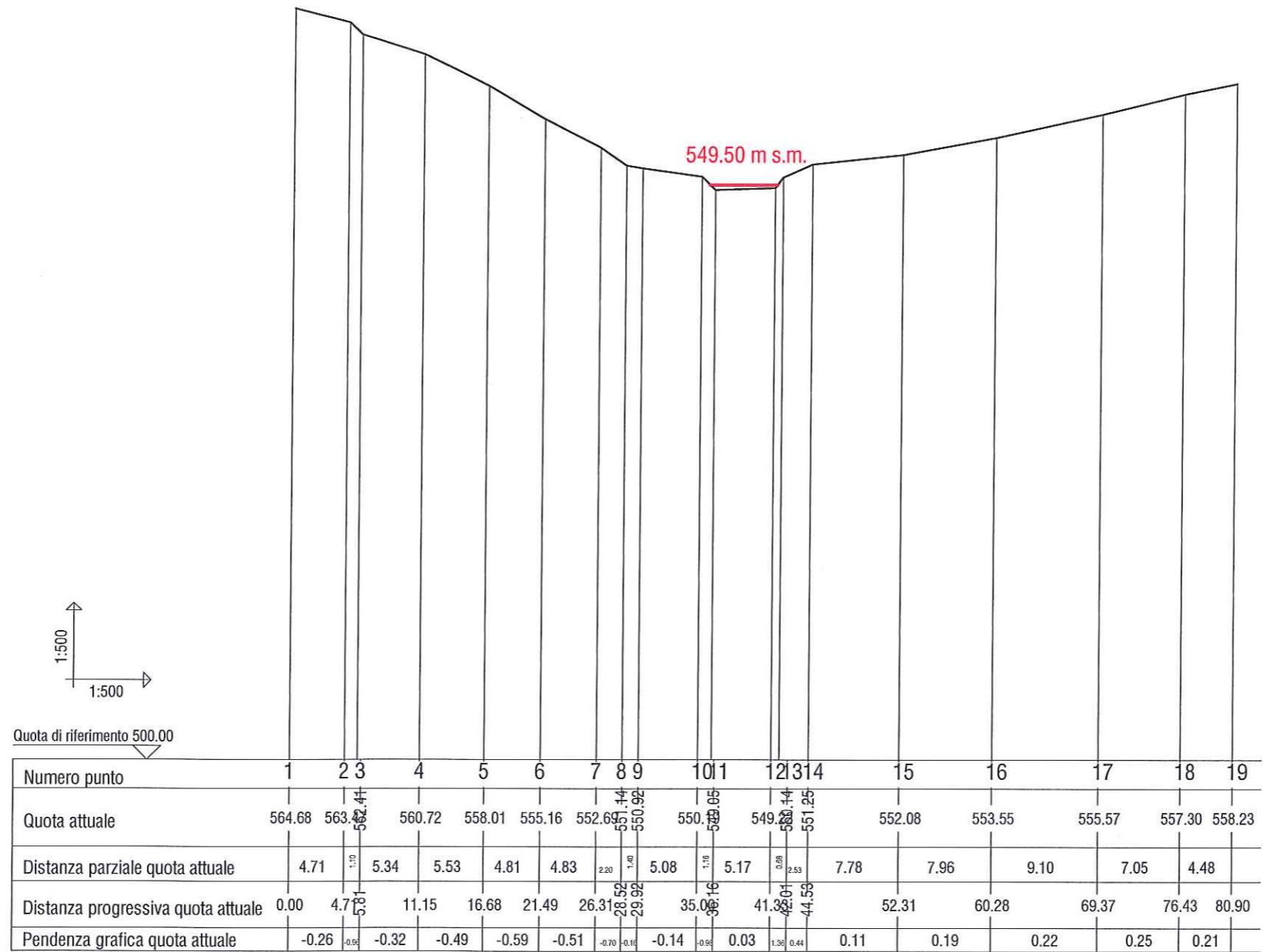
# Sez. V4



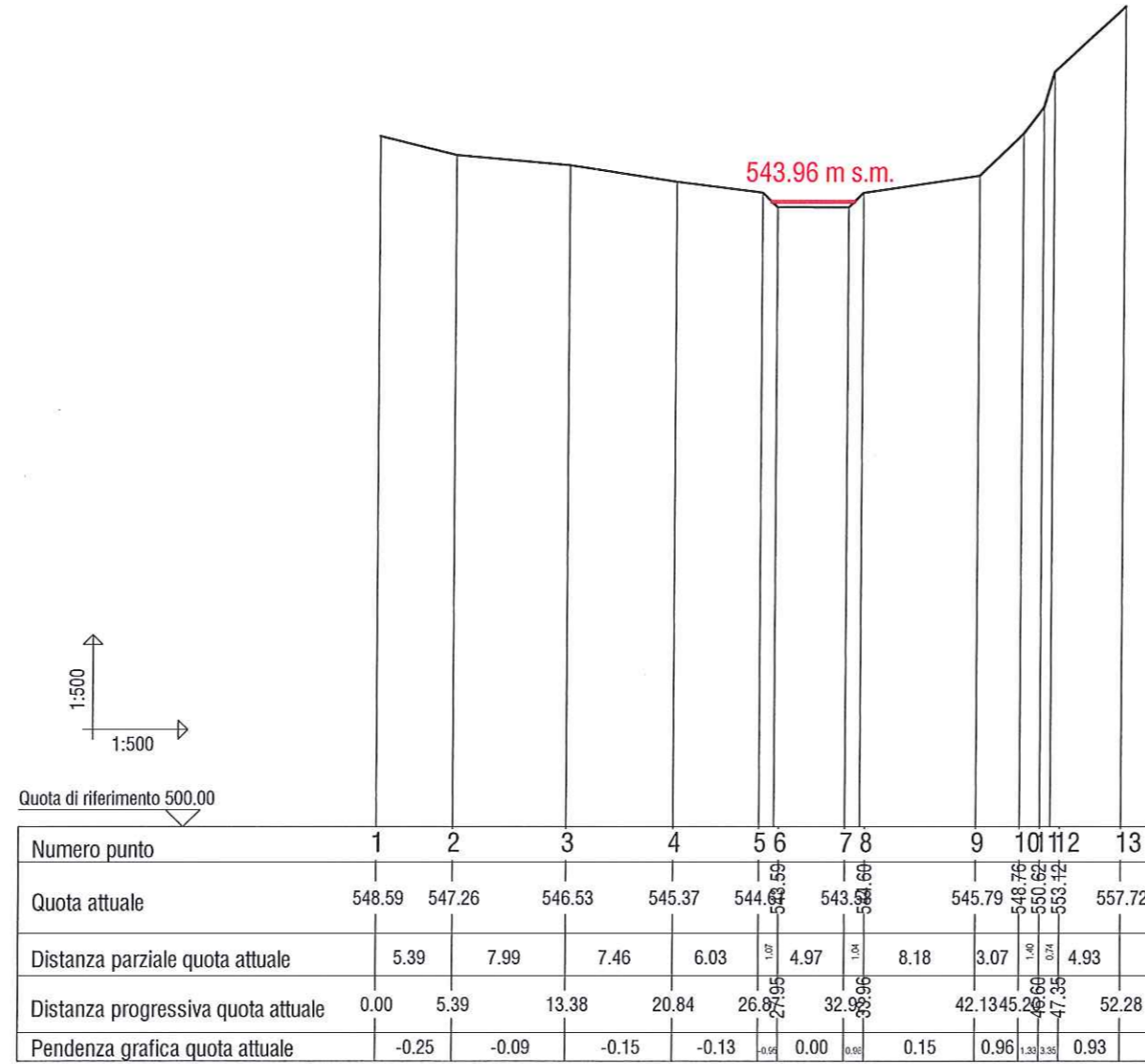
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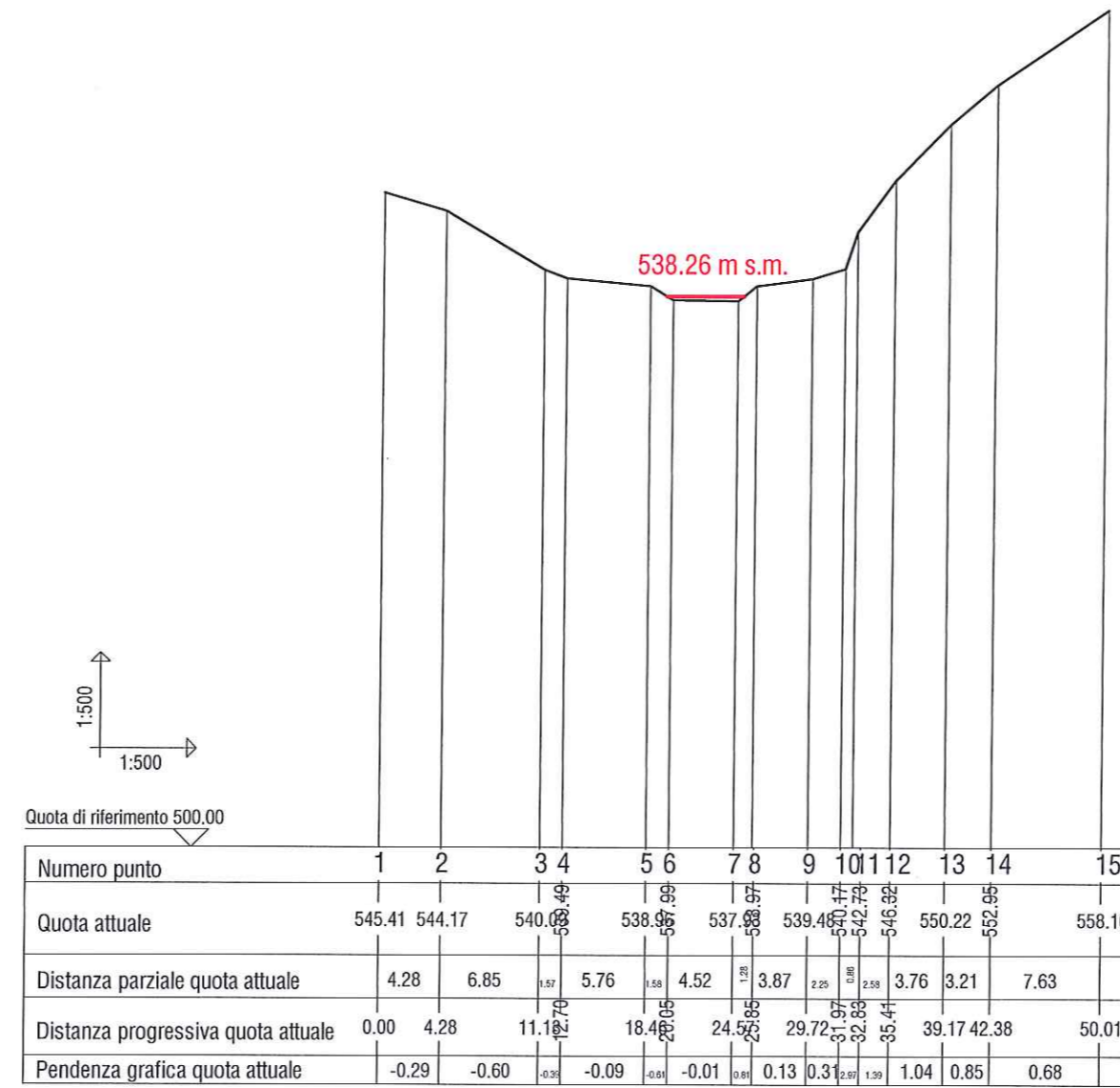
# Sez. V6



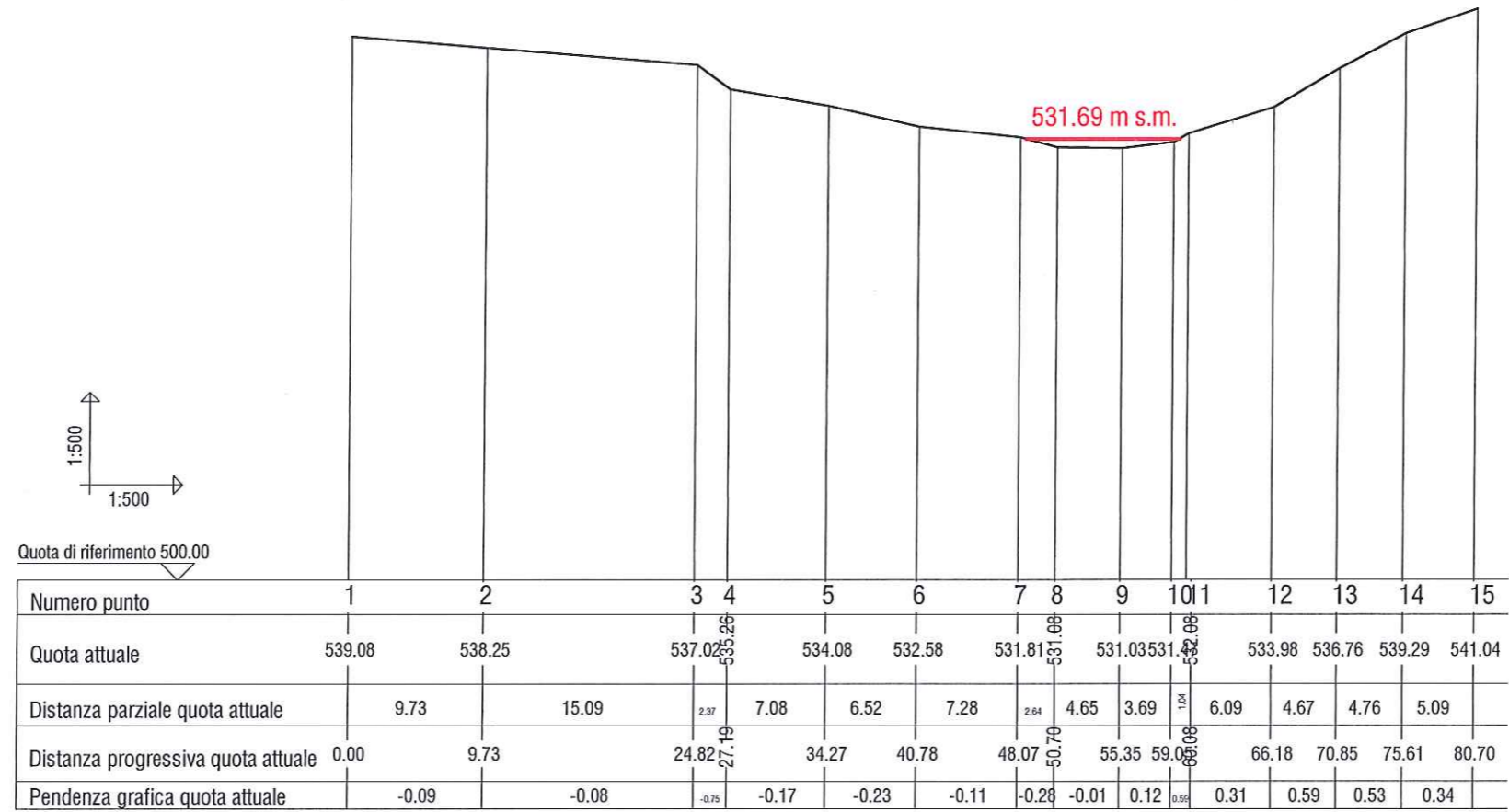
# Sez. V7



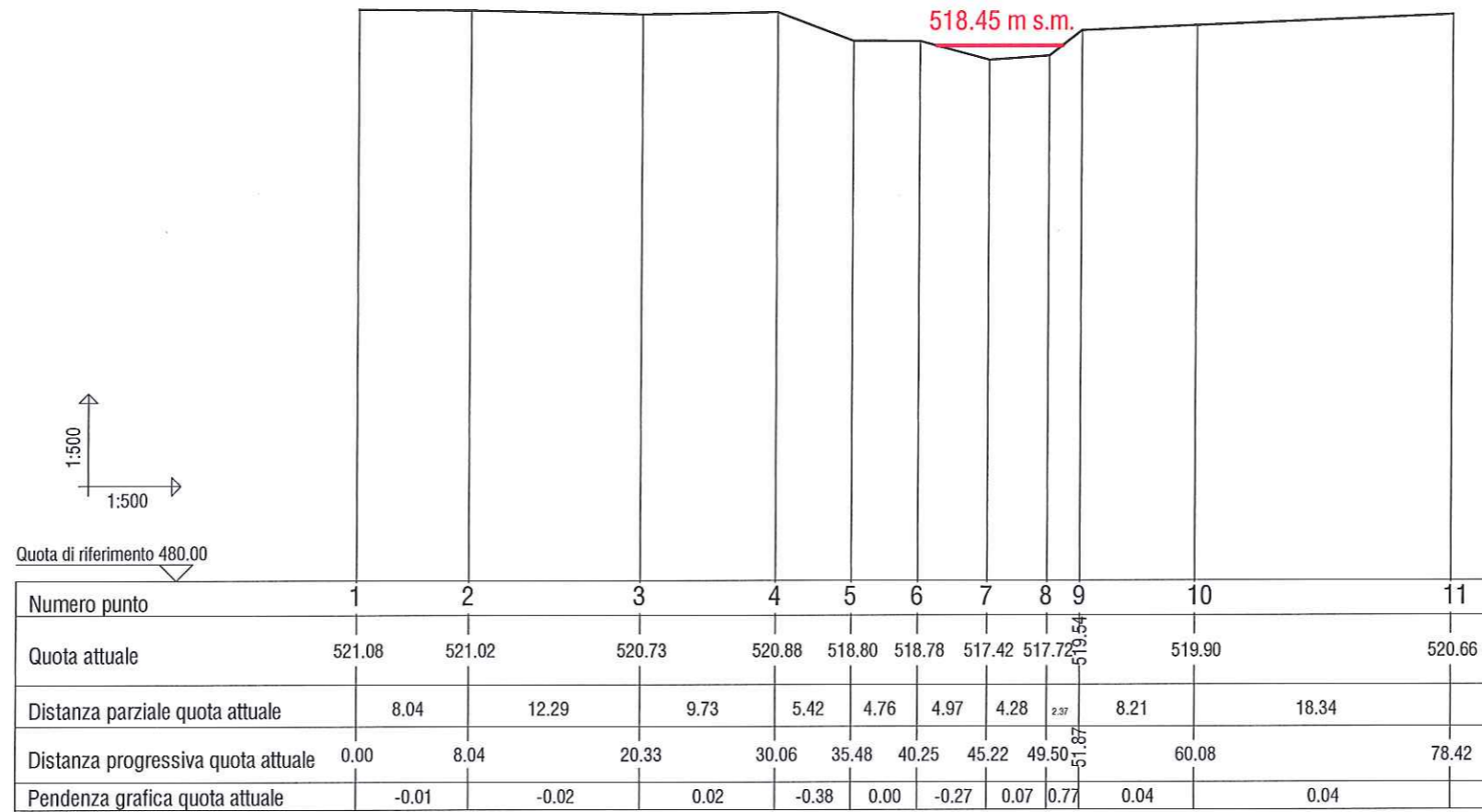
# Sez. V8



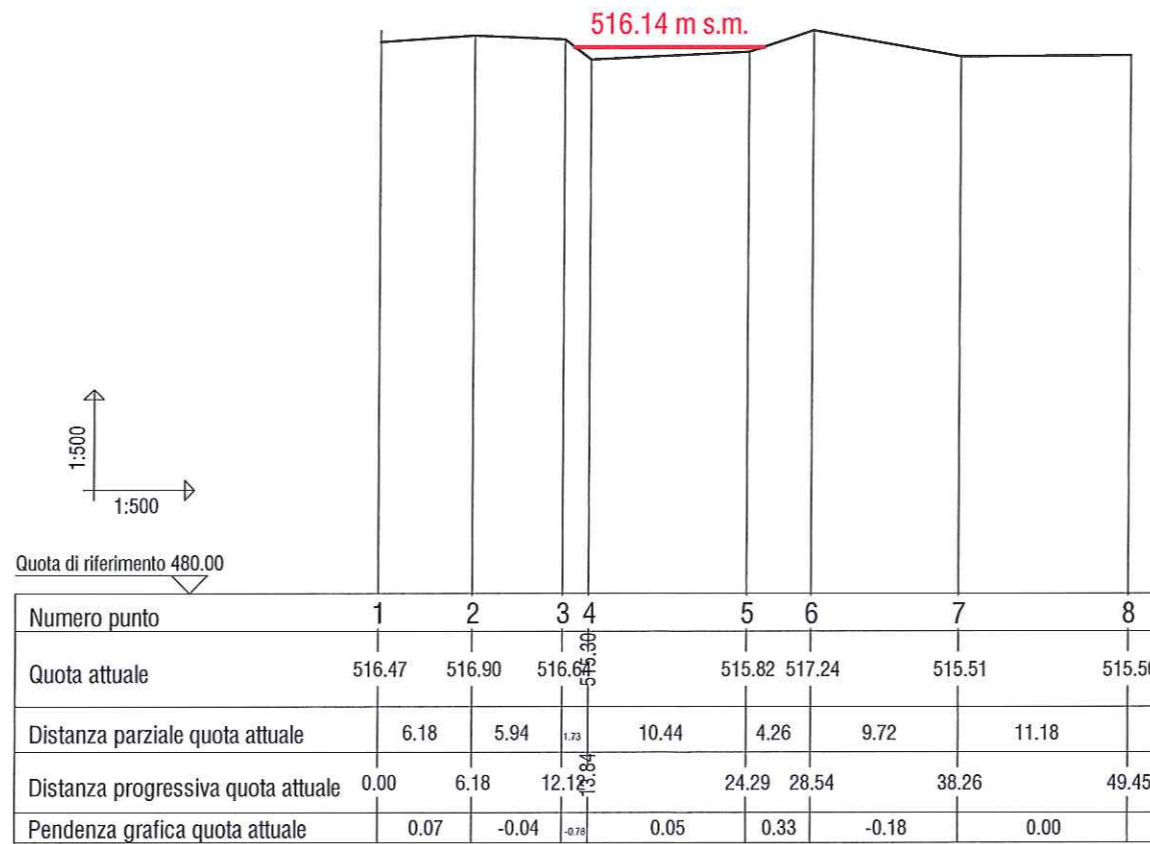
# Sez. V9



# Sez. V10

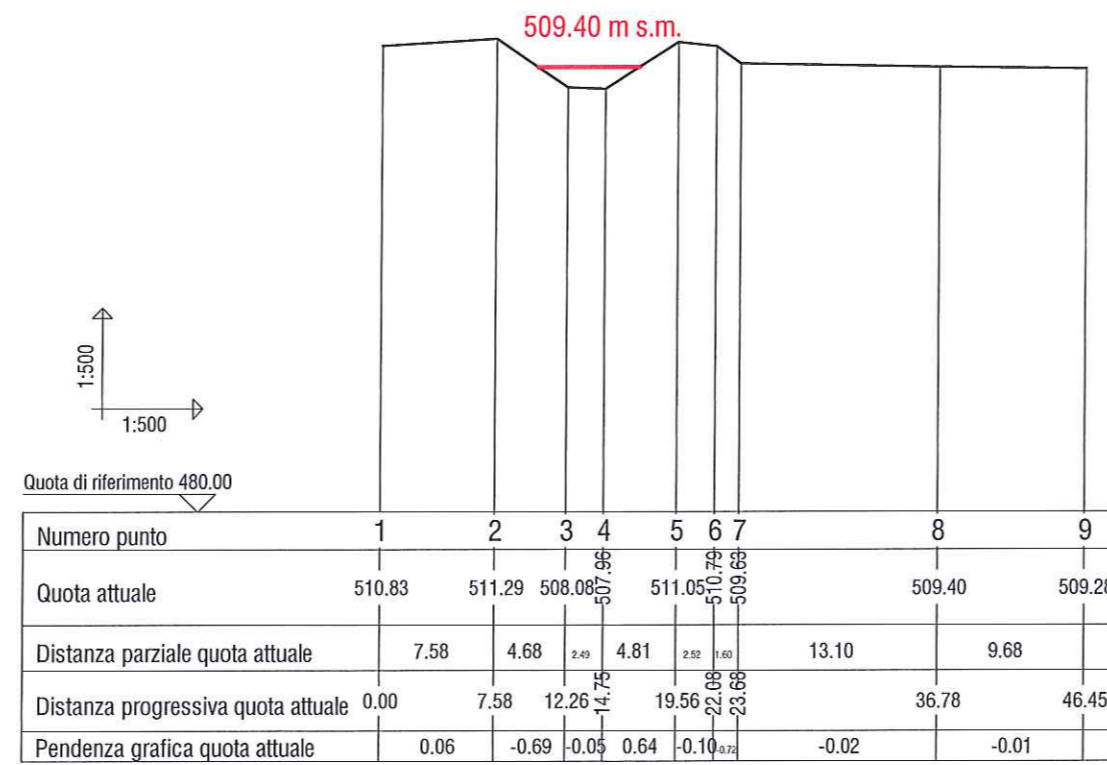


# Sez. V11

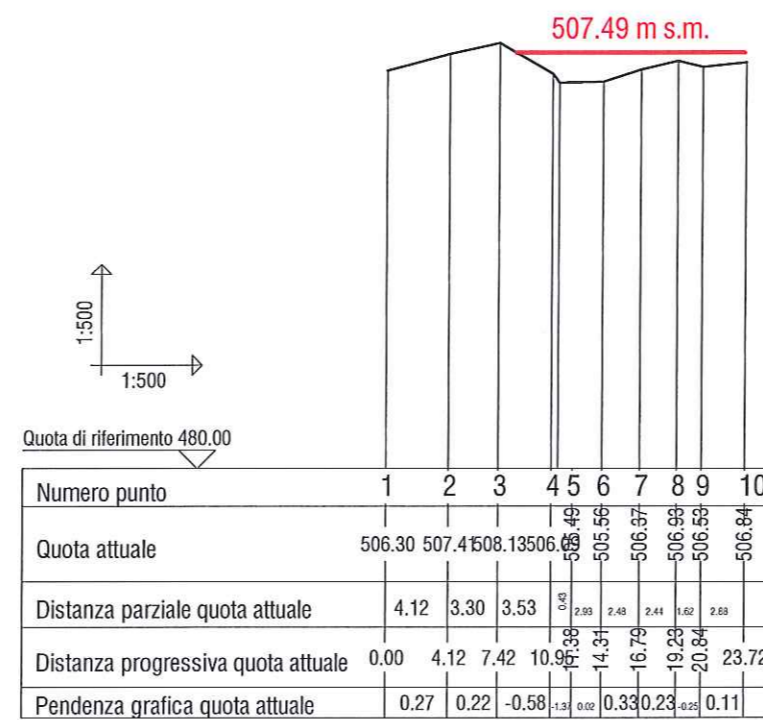




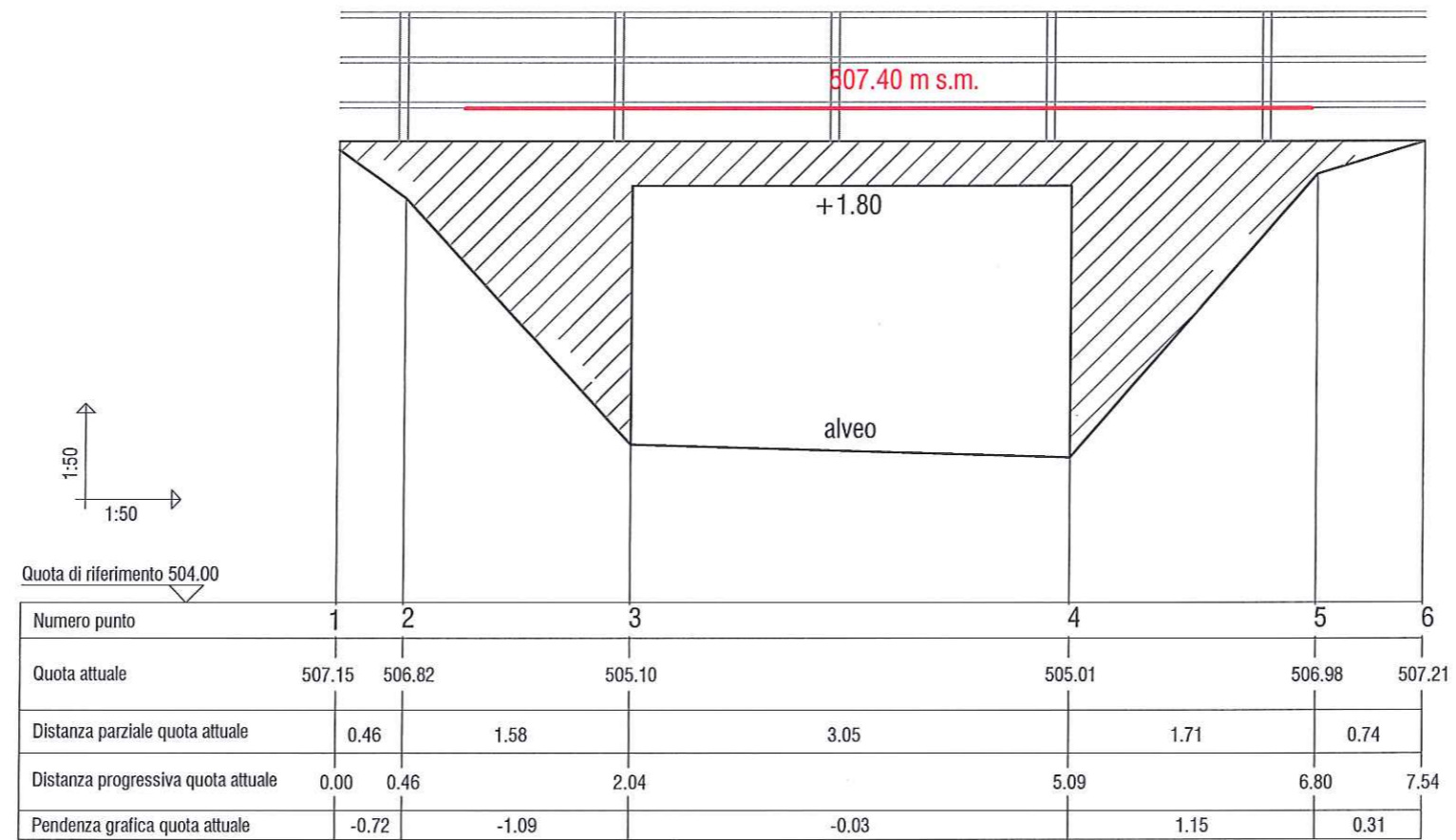
# Sez. V12



# Sez. V13

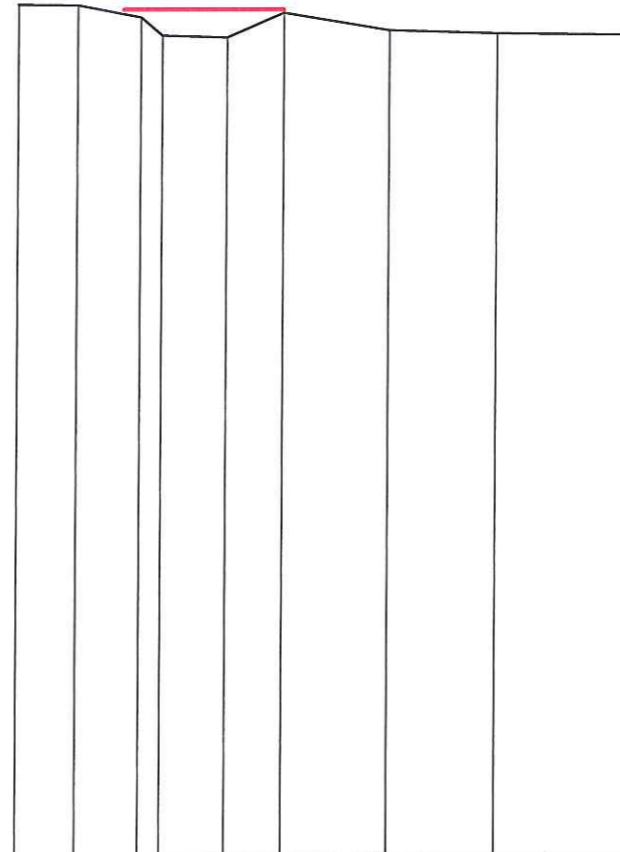


# Sez. P1A



# Sez. V14

506.17 m s.m.

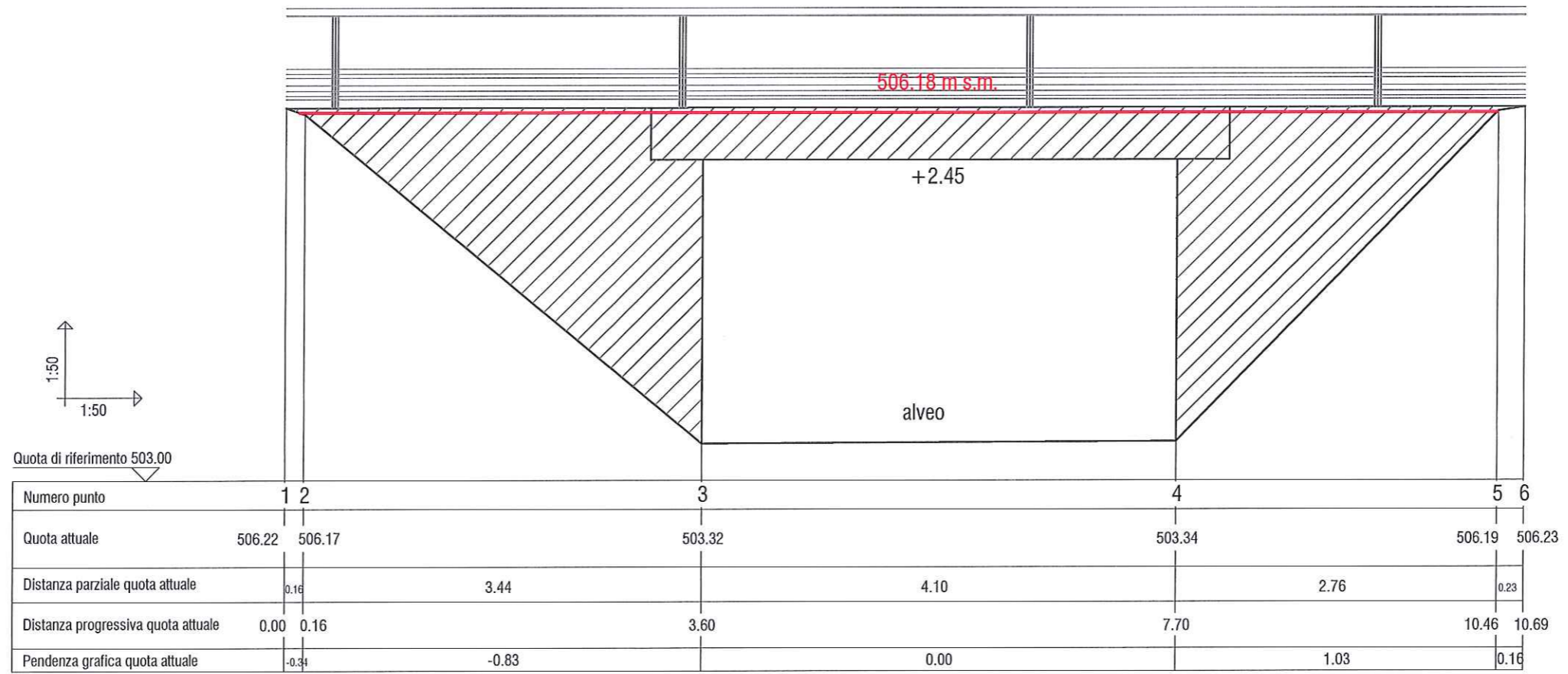


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Quota di riferimento 450.00

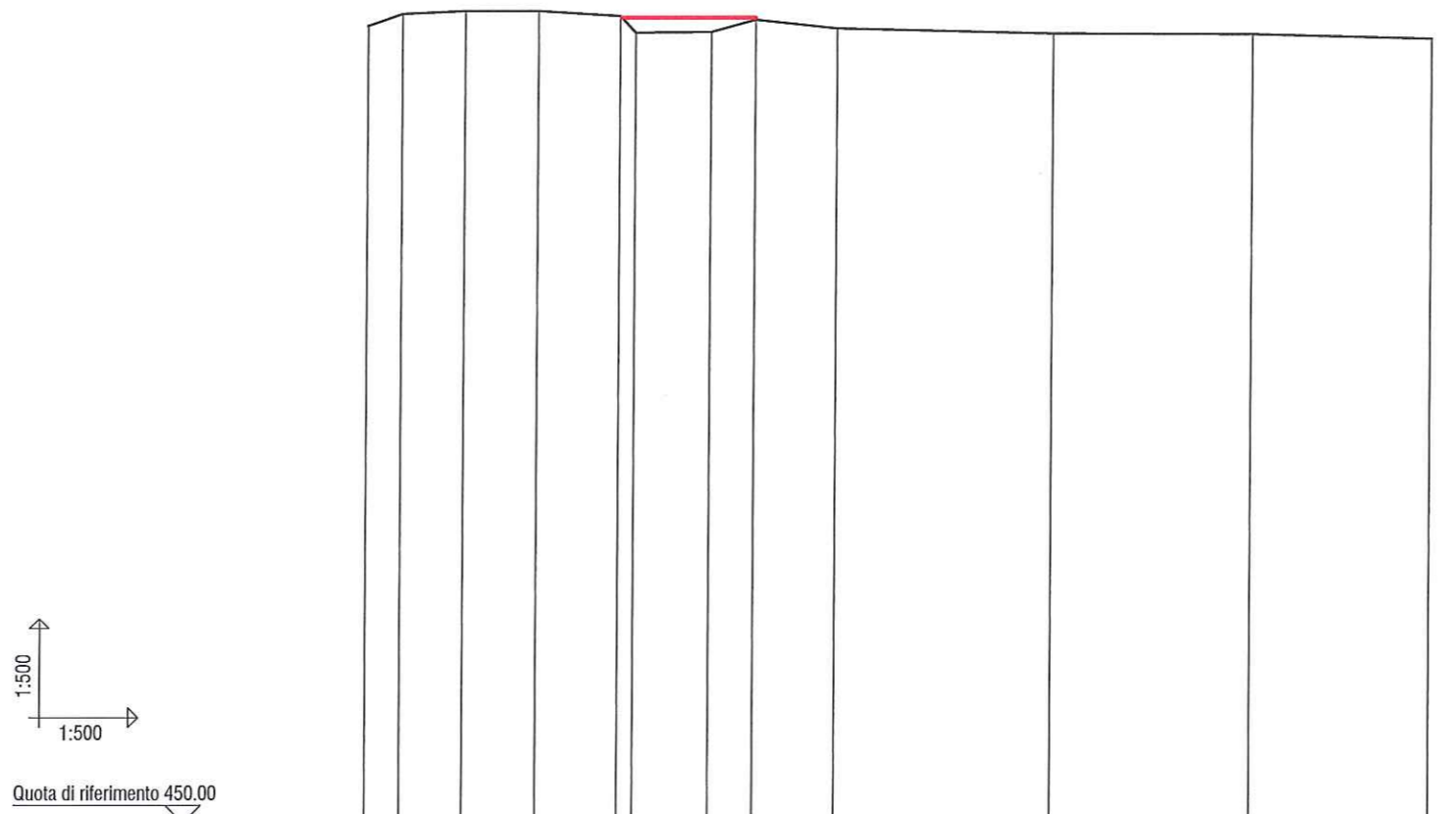
Numero punto	1	2	3	4	5	6	7	8	9
Quota attuale	506.49	506.45	505.65	505.65	504.30	505.92	504.77	504.56	504.45
Distanza parziale quota attuale		3.92	4.19	8.14	4.27	3.75	6.95	7.09	9.17
Distanza progressiva quota attuale	0.00	3.92	8.11	13.80	17.55	24.50	31.59	40.76	
Pendenza grafica quota attuale		-0.01	-0.19	-0.03	0.43	-0.17	-0.03	-0.01	

# Sez. P2A



# Sez. V15

504.28 m s.m.

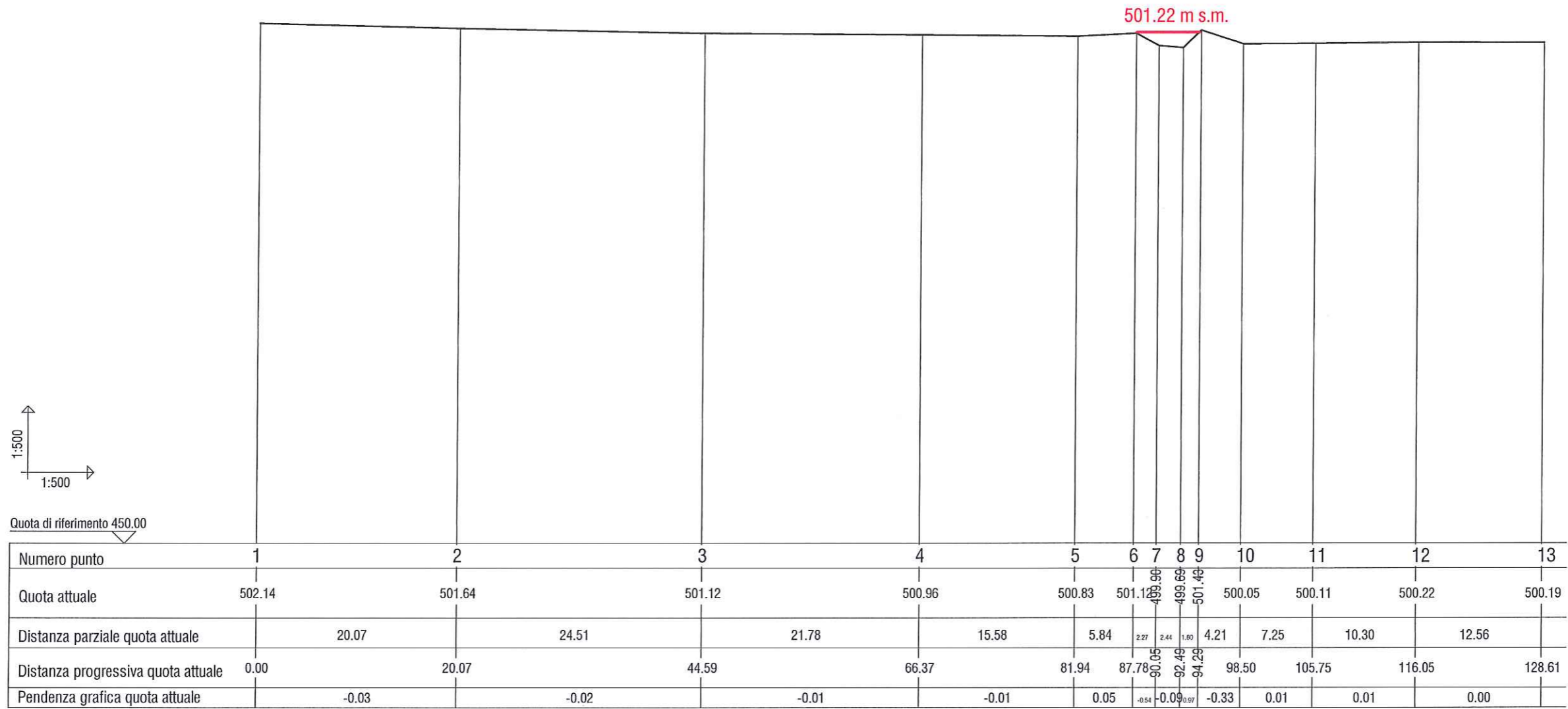


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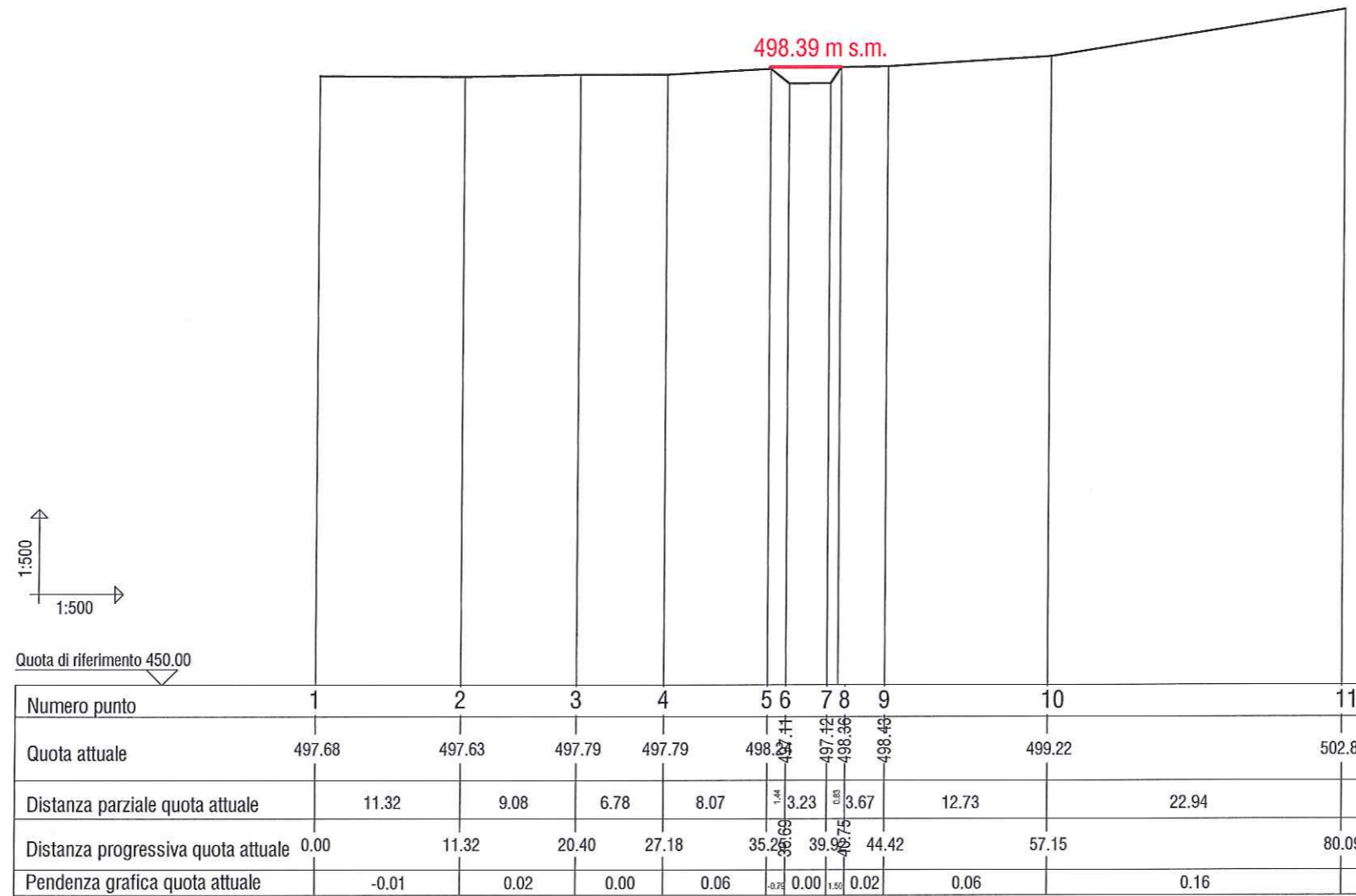
Quota di riferimento 450.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12
Quota attuale	503.76	504.55	504.73	504.74	504.88	504.28	503.32	504.15	503.56	503.19	503.12	502.82
Distanza parziale quota attuale	2.32	4.20	4.91	5.51	6.94	5.12	2.97	5.50	14.52	13.37	12.04	
Distanza progressiva quota attuale	0.00	2.32	6.52	11.43	16.94	23.10	26.06	31.56	46.08	59.45	71.49	
Pendenza grafica quota attuale	0.34	0.04	0.00	-0.06	-1.08	0.01	0.28	-0.11	-0.03	0.00	-0.03	

# Sez. V16

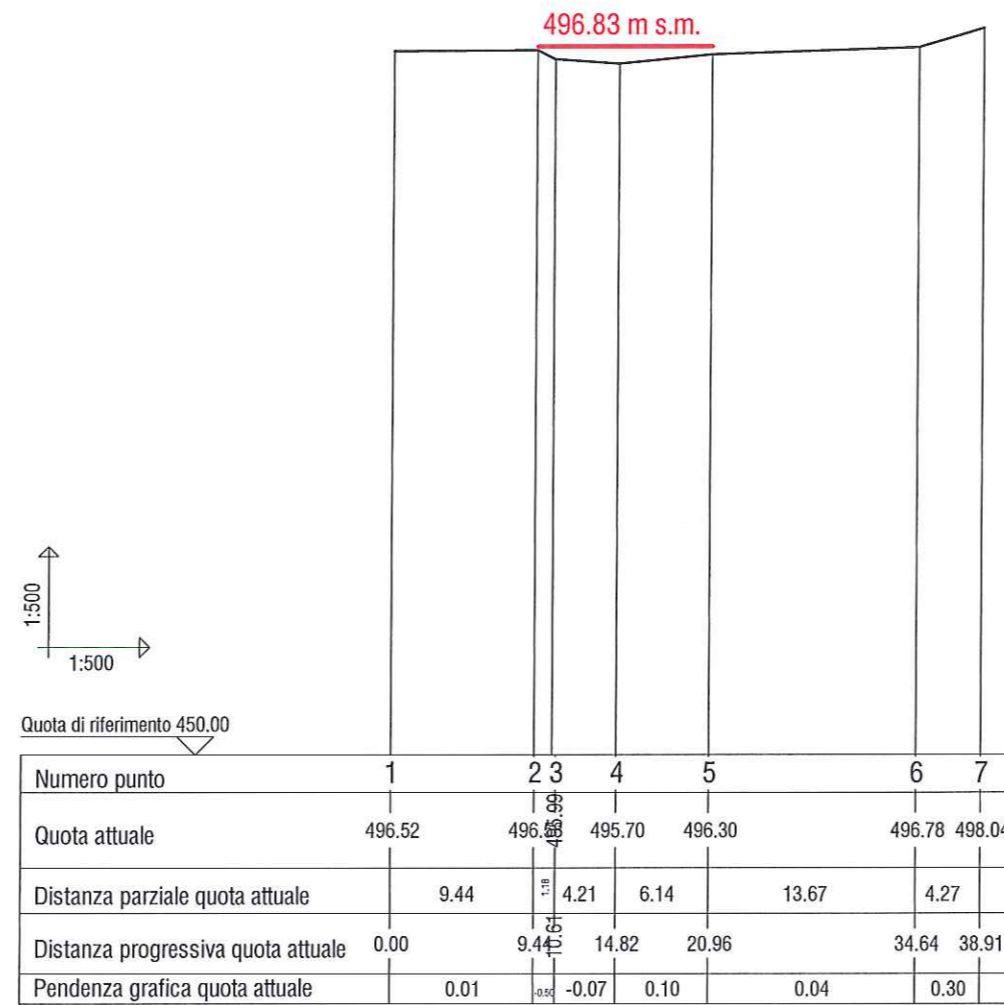


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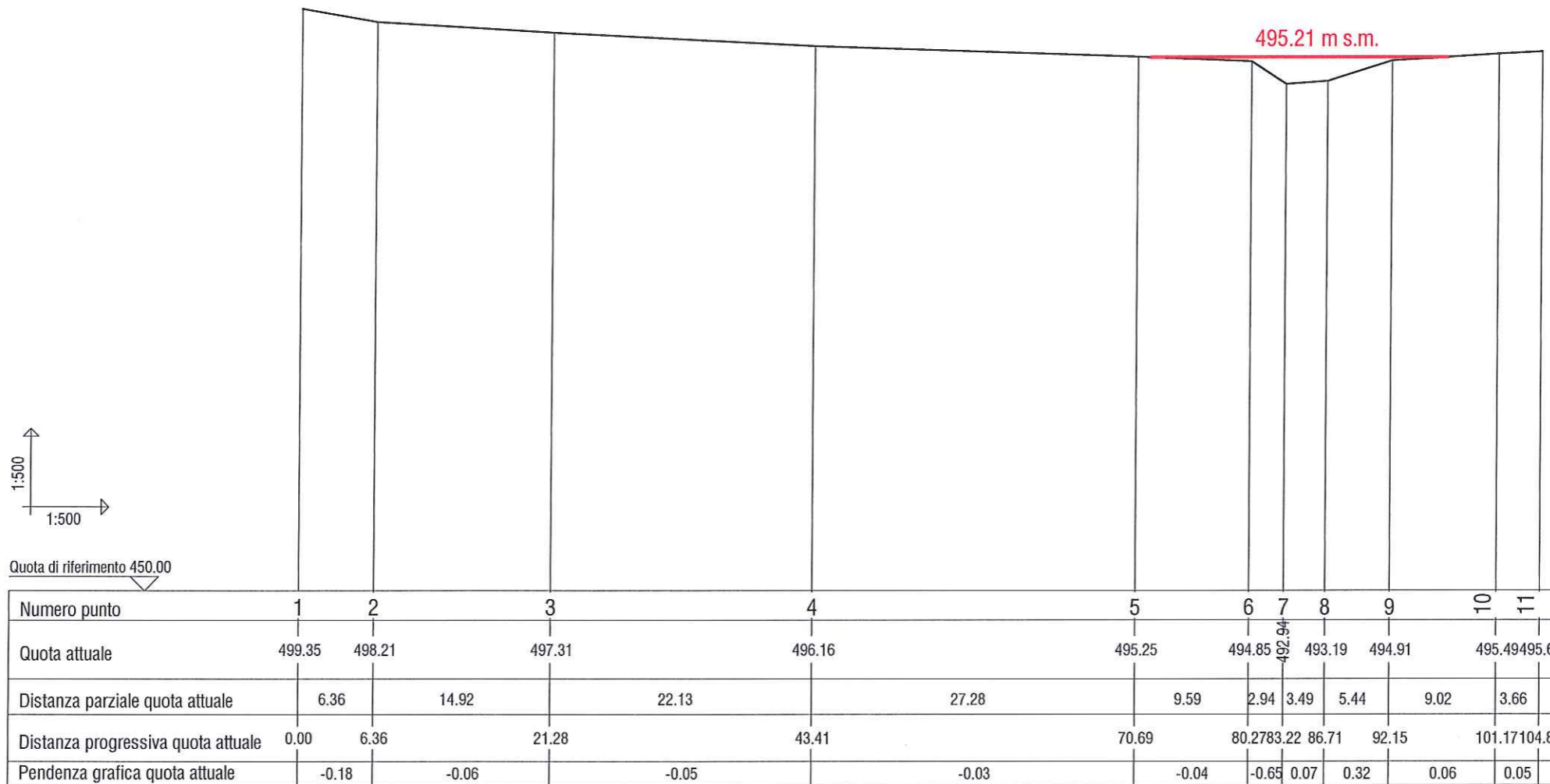




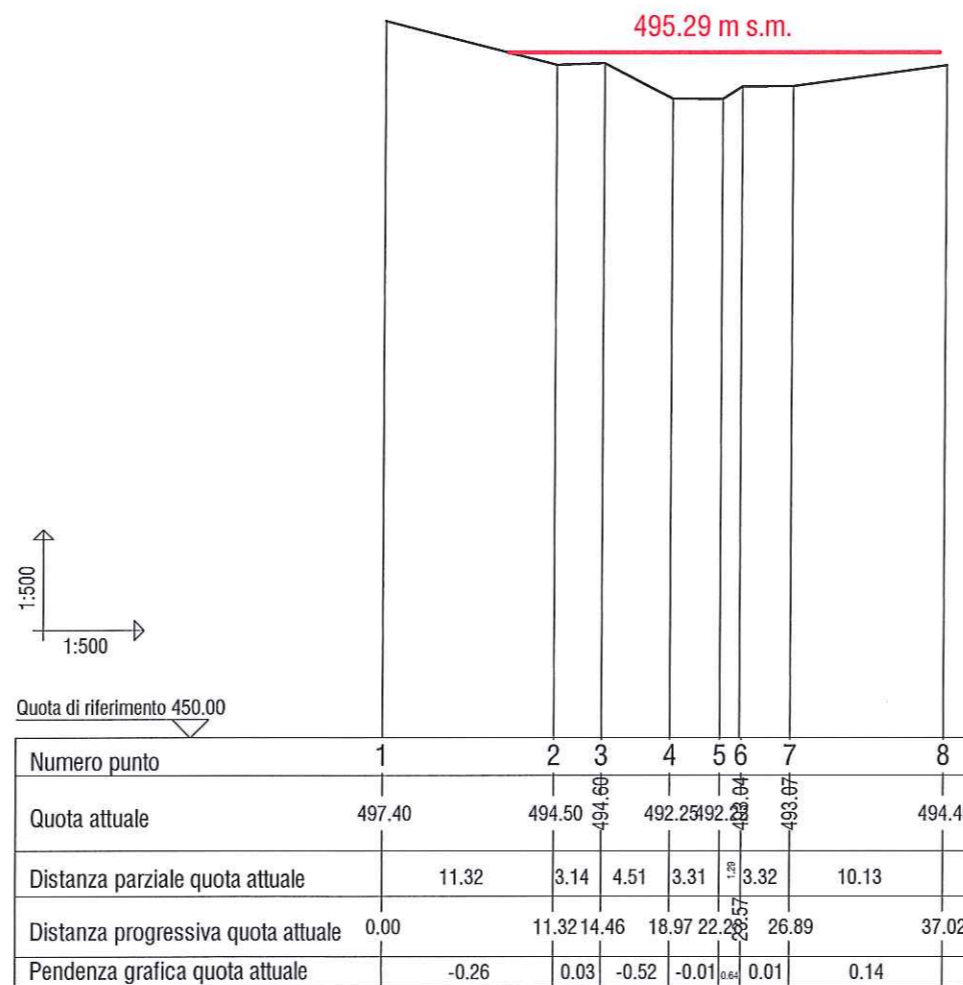
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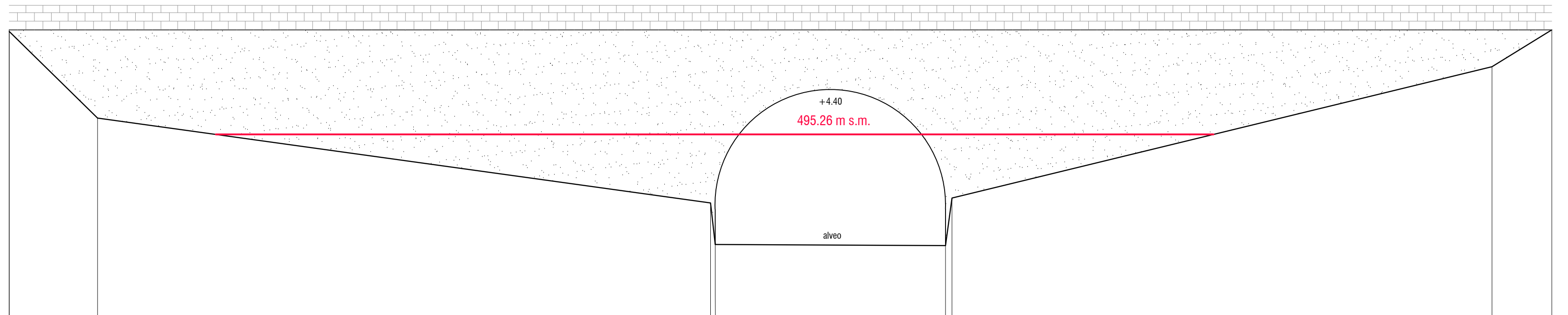
# Sez. V19



# Sez. V20



# Sez. P3A

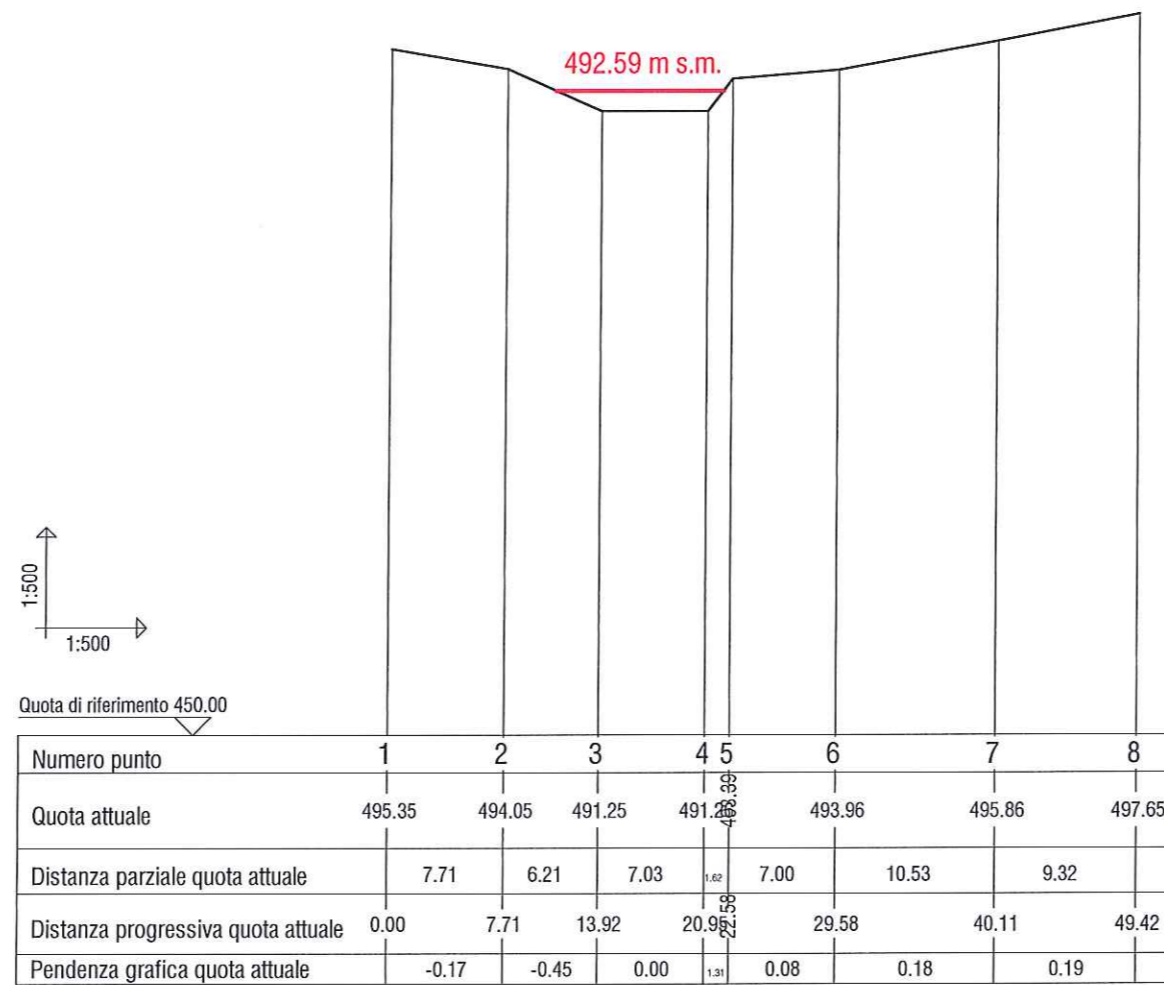


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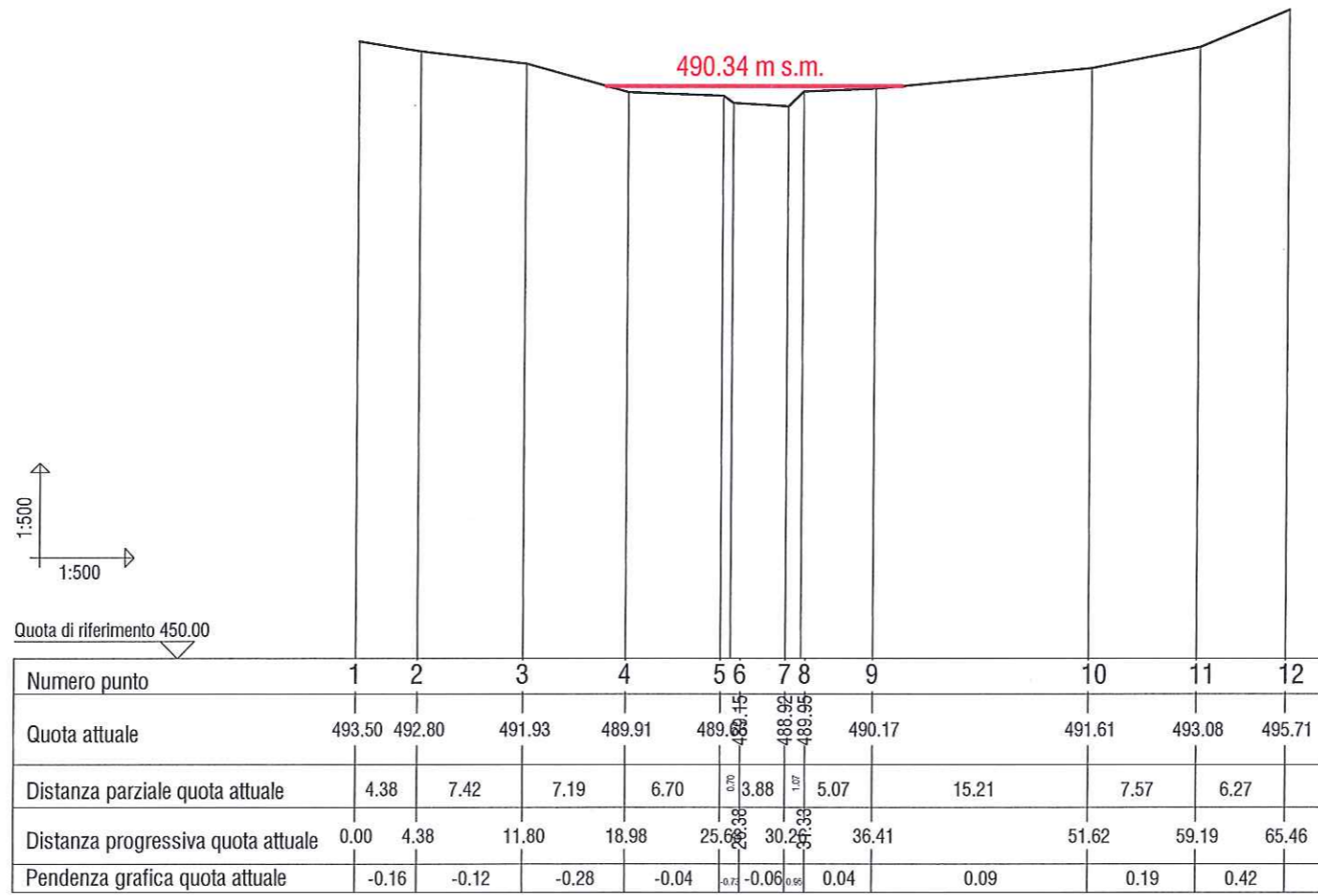
Quota di riferimento 490.00

Numero punto	1	2		3	4		5	6		7	8
Quota attuale	498.19	495.73		493.31	492.13		492.10	493.45		497.19	498.23
Distanza parziale quota attuale		2.52	17.45			6.55			15.37		
Distanza progressiva quota attuale	0.00	2.52		19.97	20.09		26.65	26.84		42.20	43.90
Pendenza grafica quota attuale		-0.98	-0.14		-9.23	0.00		7.18	0.24		0.62

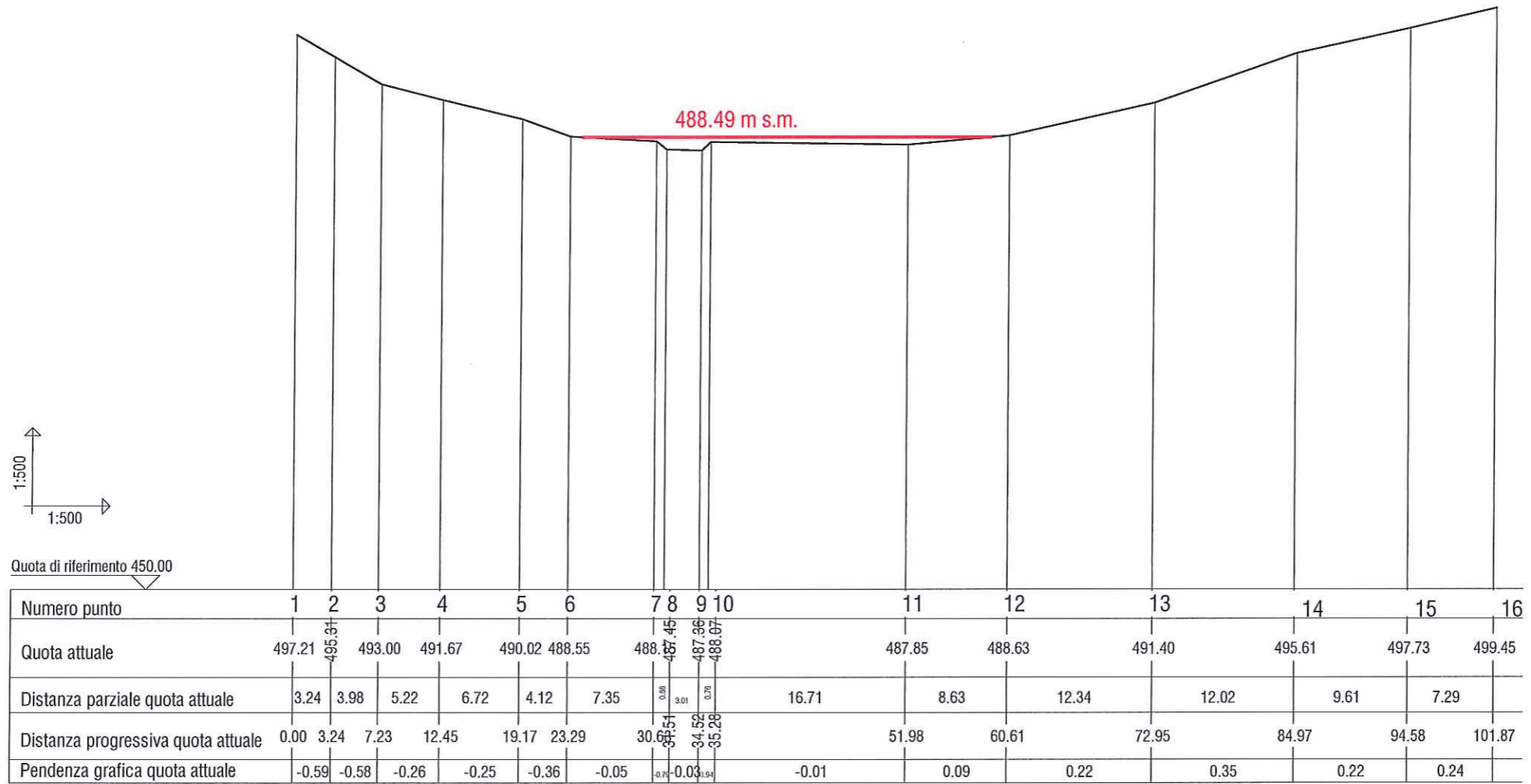
# Sez. V21



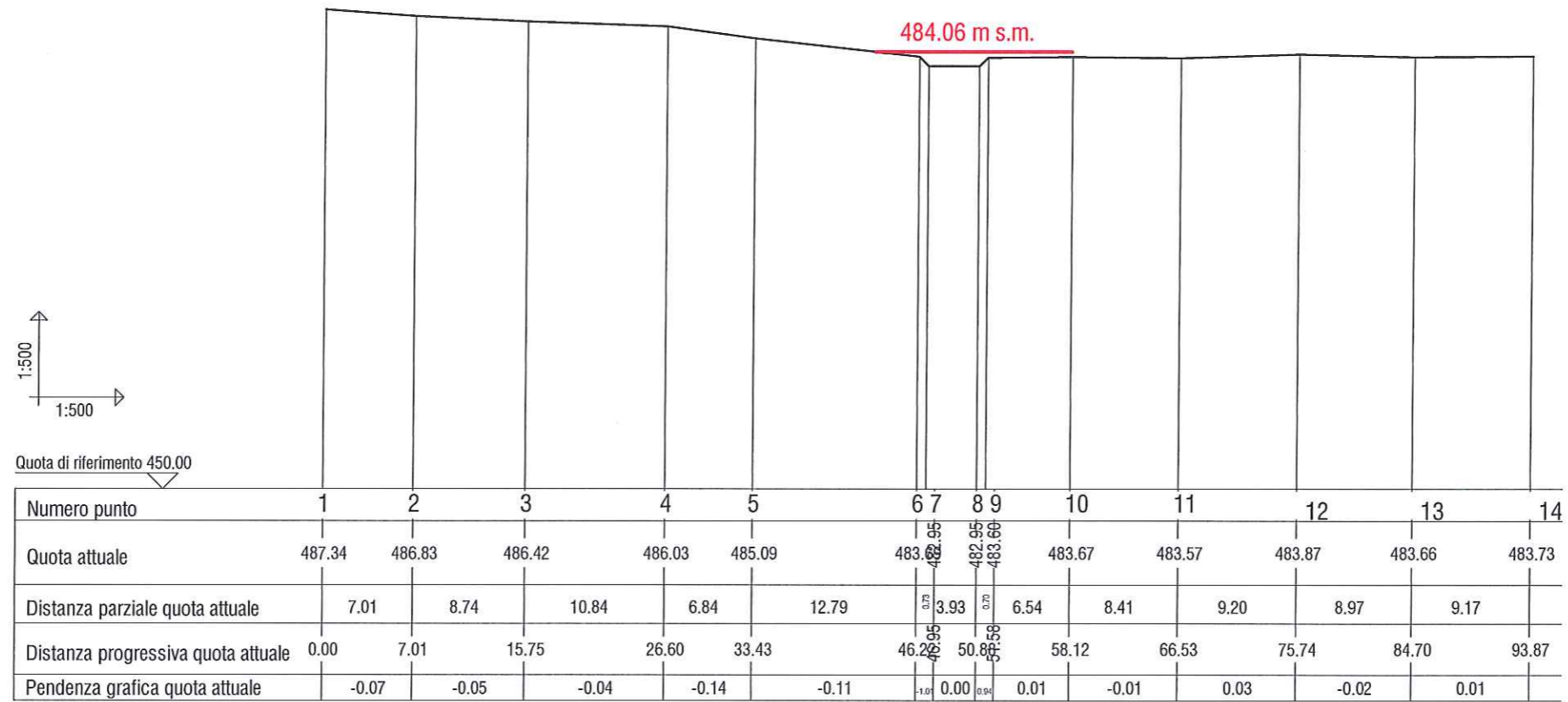
# Sez. V22



# Sez. V23

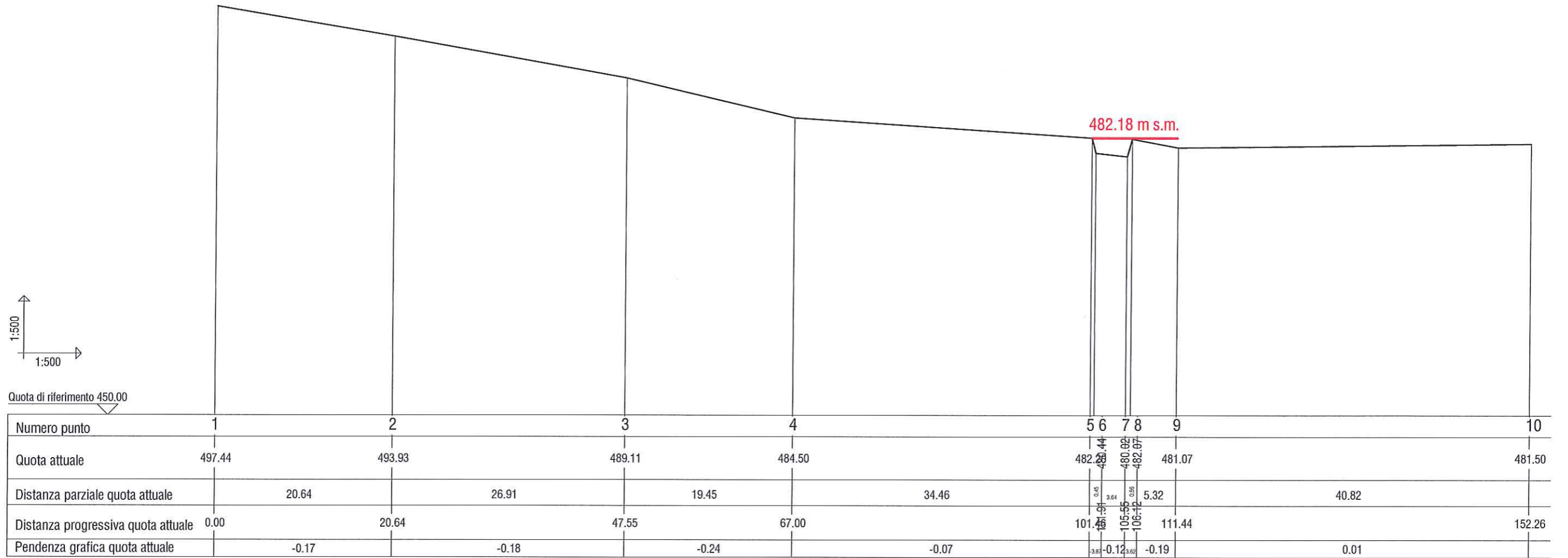


# Sez. V24

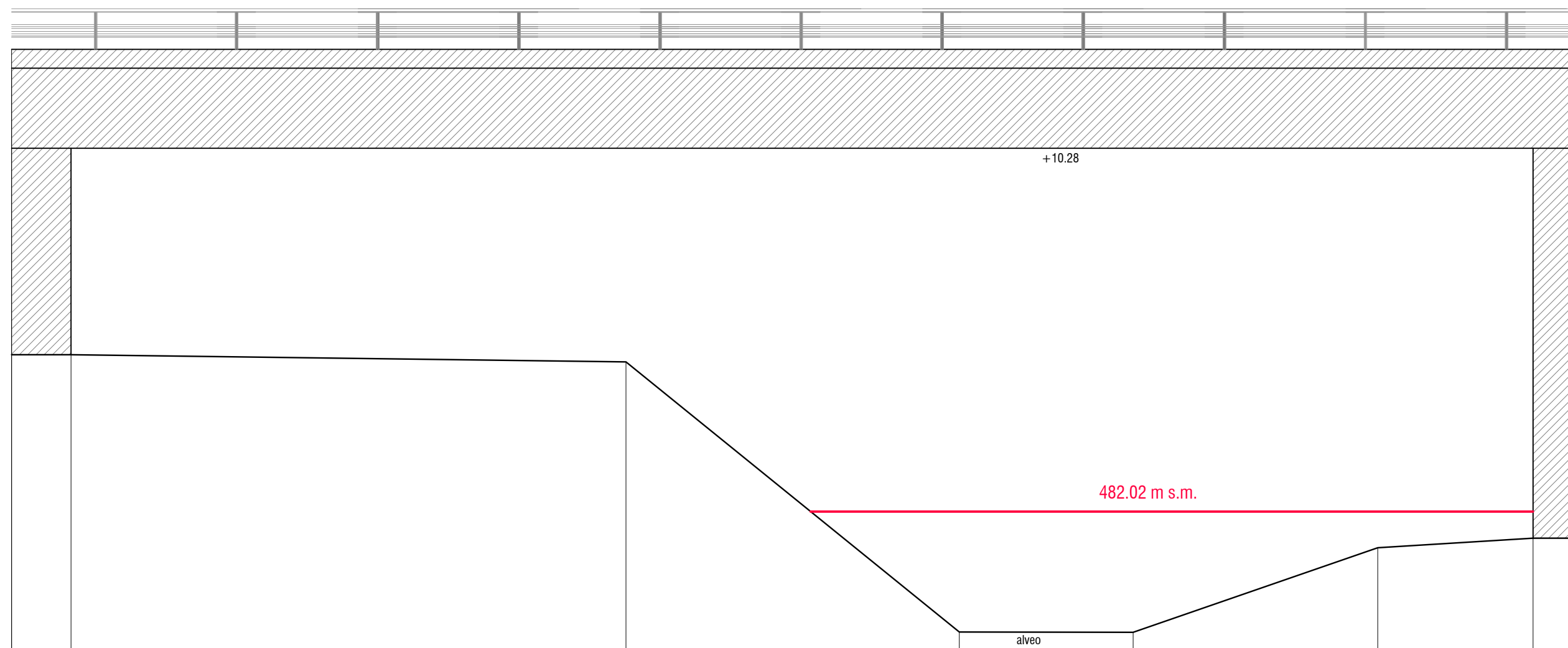




# Sez. V25



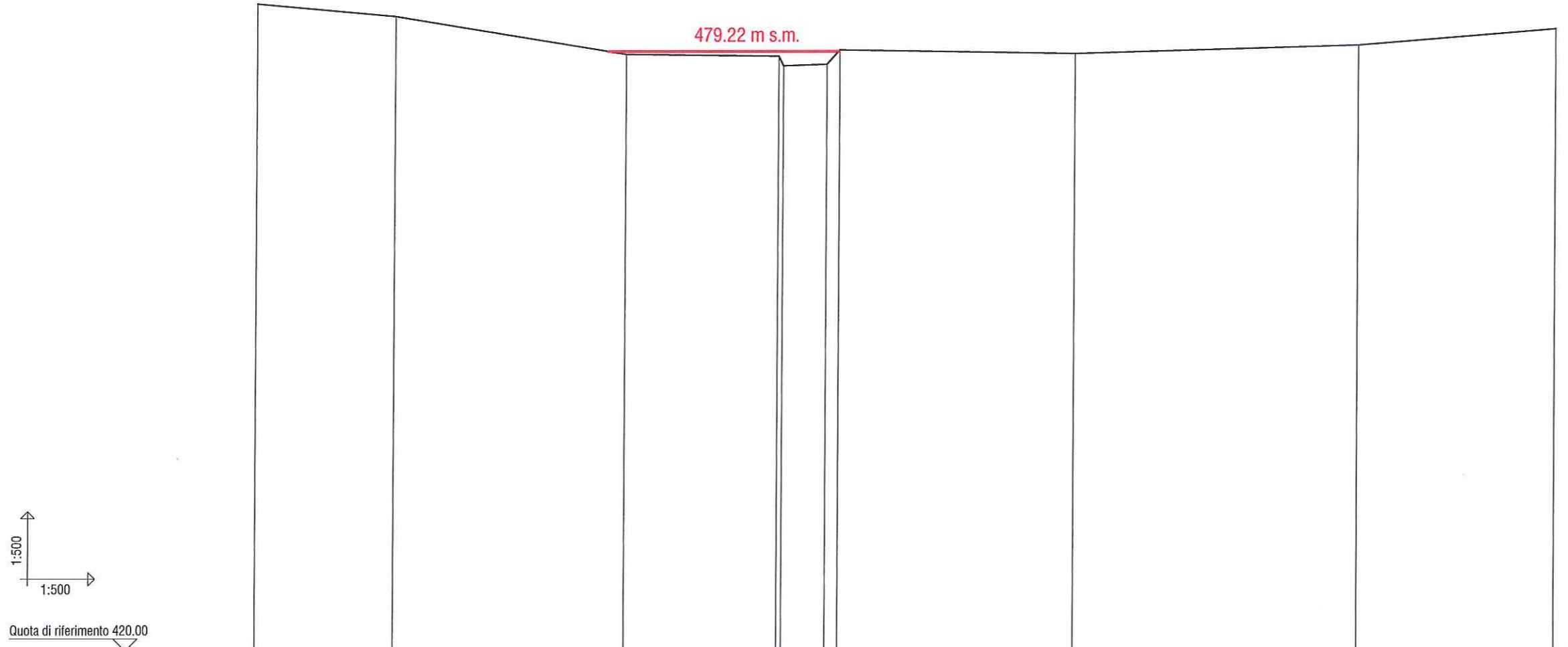
# Sez. P4A



Quota di riferimento 490.00

Numero punto	1	2	3	4	5	6	7	8
Quota attuale	491.38	485.35	485.20	479.46	479.45	481.25	481.45	491.84
Distanza parziale quota attuale	1.26	11.80	7.08	3.70	5.20	3.30	1.00	
Distanza progressiva quota attuale	0.00	1.26	13.07	20.15	23.85	29.05	32.35	33.35
Pendenza grafica quota attuale	-4.77	-0.01	-0.81	0.00	0.35	0.06	10.35	

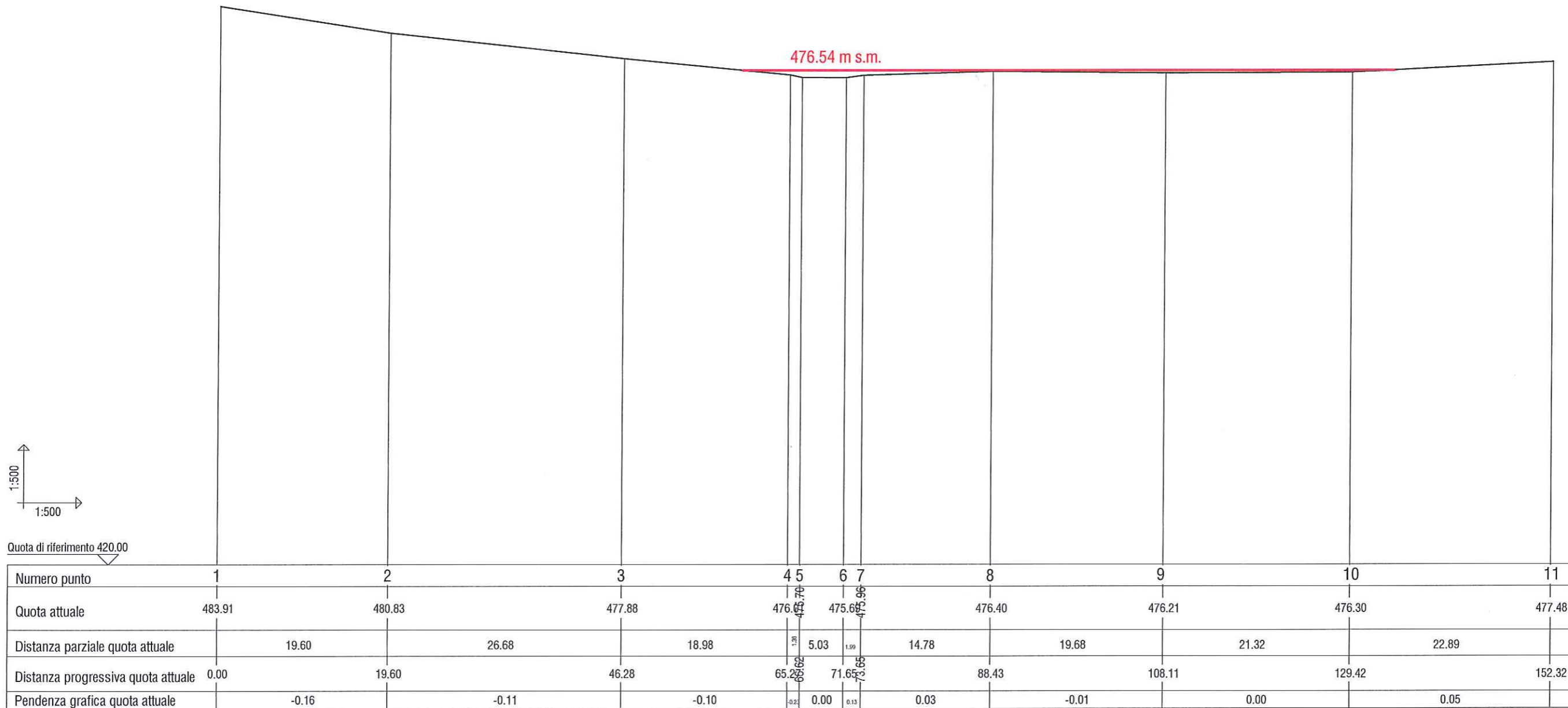
# Sez. V26



Quota di riferimento 420.00

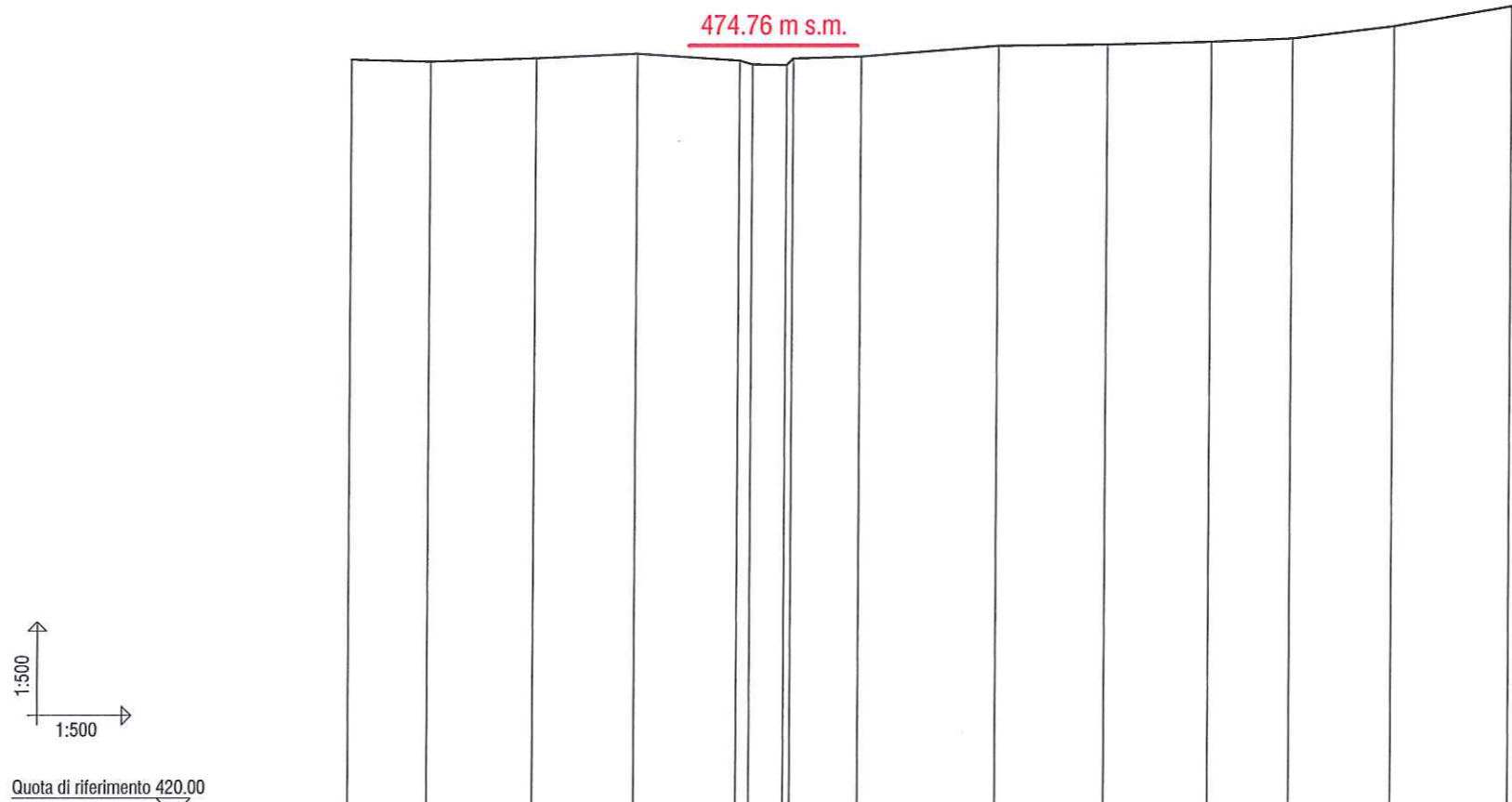
Numero punto	1	2	3	4	5	6	7	8	9	10
Quota attuale	483.97	482.72	478.93	478.73	478.73	477.92	477.92	478.95	479.70	481.27
Distanza parziale quota attuale		13.72	22.81	15.07	4.31	23.19	27.92	19.43		
Distanza progressiva quota attuale	0.00	13.72	36.54	51.61	56.37	80.83	108.75	128.18		
Pendenza grafica quota attuale		-0.09	-0.17	-0.01	0.04	-0.02	0.03	0.08		

# Sez. V27



# Sez. V28

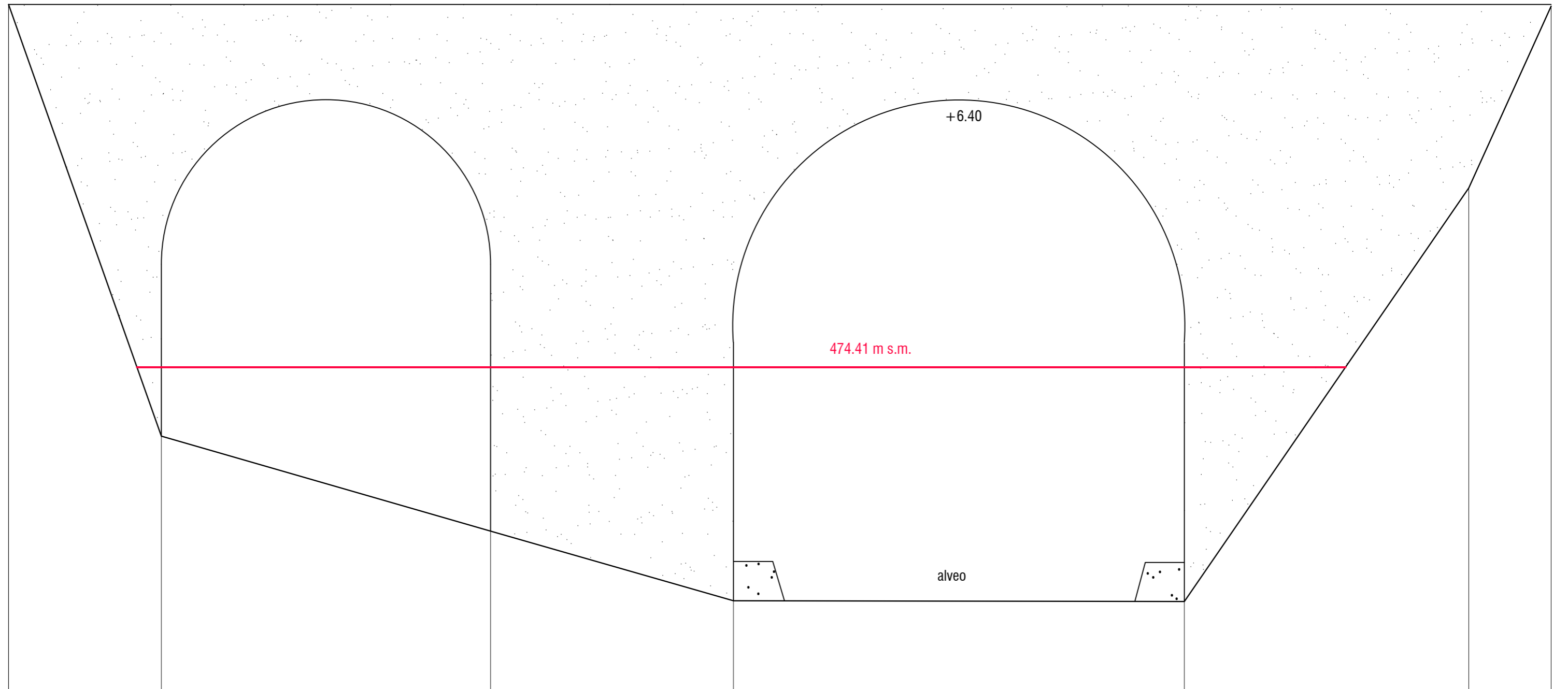
474.76 m.s.m.



Quota di riferimento 420.00

Numero punto	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Quota attuale	473.77	473.61	473.85	474.16	473.41	473.41	473.96	473.96	473.96	474.73	474.81	474.99	475.24	476.10	477.50
Distanza parziale quota attuale		5.59	7.46	7.22	7.29	0.04	2.43	4.83	9.73	7.73	7.35	5.78	7.20	8.33	
Distanza progressiva quota attuale	0.00	5.59	13.05	20.27	27.56	27.56	30.99	31.46	36.23	45.95	53.68	61.03	66.81	74.02	82.35
Pendenza grafica quota attuale		-0.03	0.03	0.04	-0.06	-0.01	0.03	0.03	0.08	0.01	0.02	0.04	0.12	0.17	

# Sez. P4C

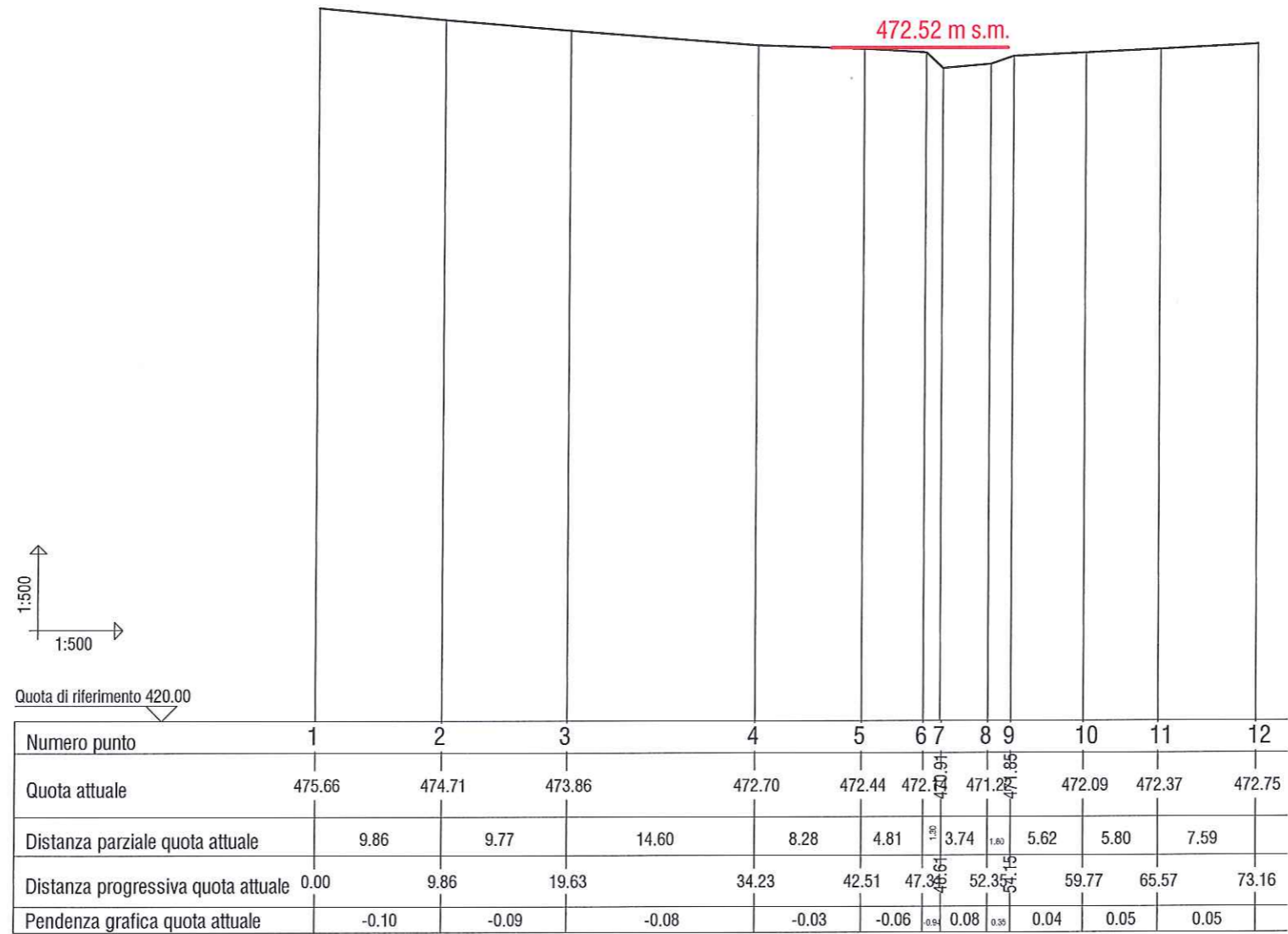


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1:50

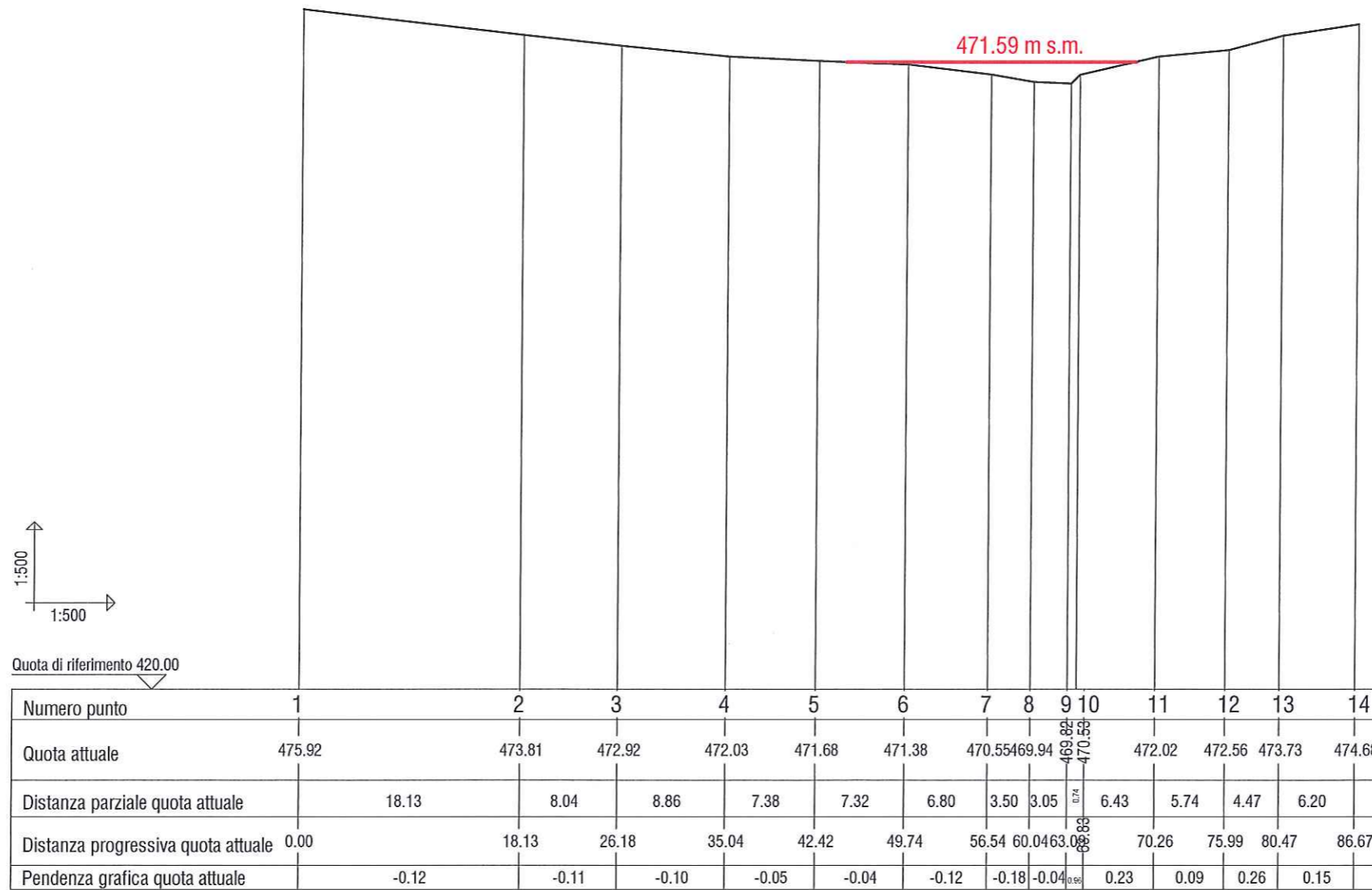
Quota di riferimento 470.00

Numero punto	1	2	3	4	5	6	7
Quota attuale	479.04	473.53	472.32	471.43	471.42	476.70	479.02
Distanza parziale quota attuale		1.95	4.20	3.10	5.75	3.63	1.05
Distanza progressiva quota attuale	0.00	1.95	6.15	9.25	15.00	18.63	19.68
Pendenza grafica quota attuale		-2.83	-0.29	-0.29	0.00	1.46	2.21

# Sez. V29

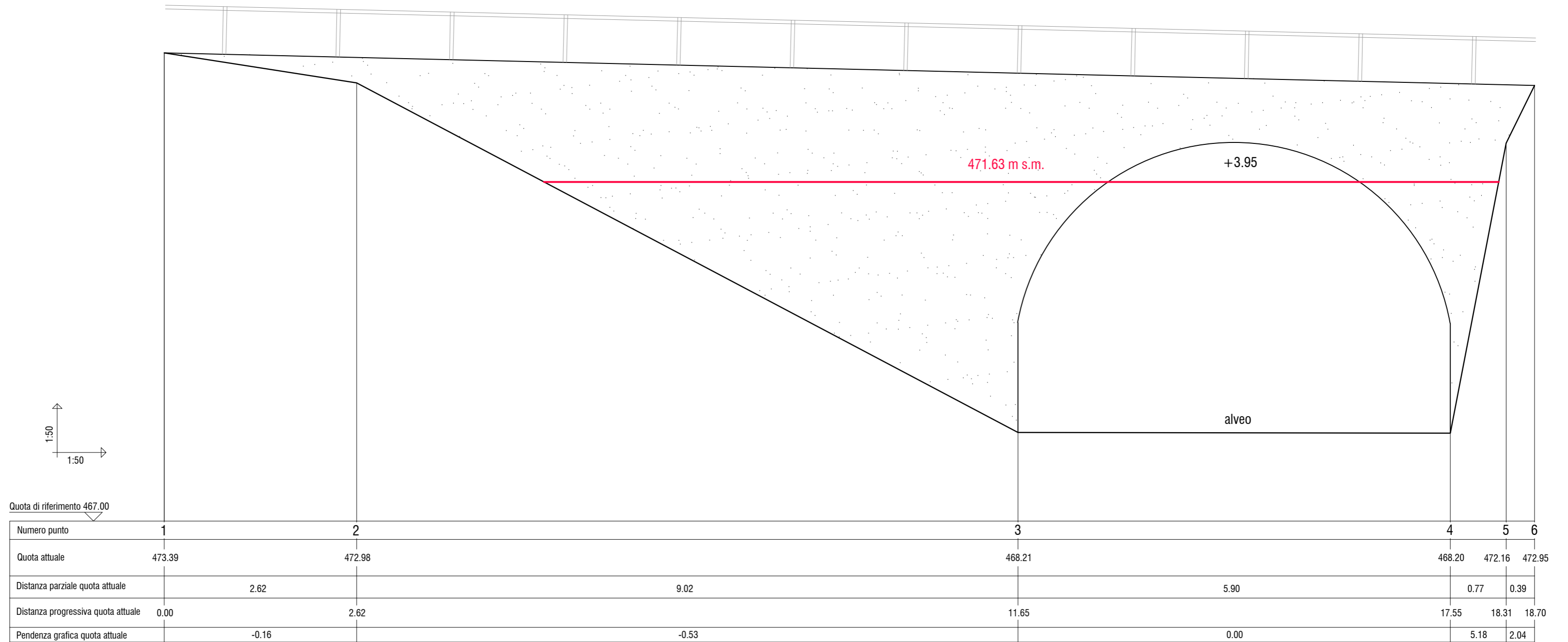


# Sez. V30

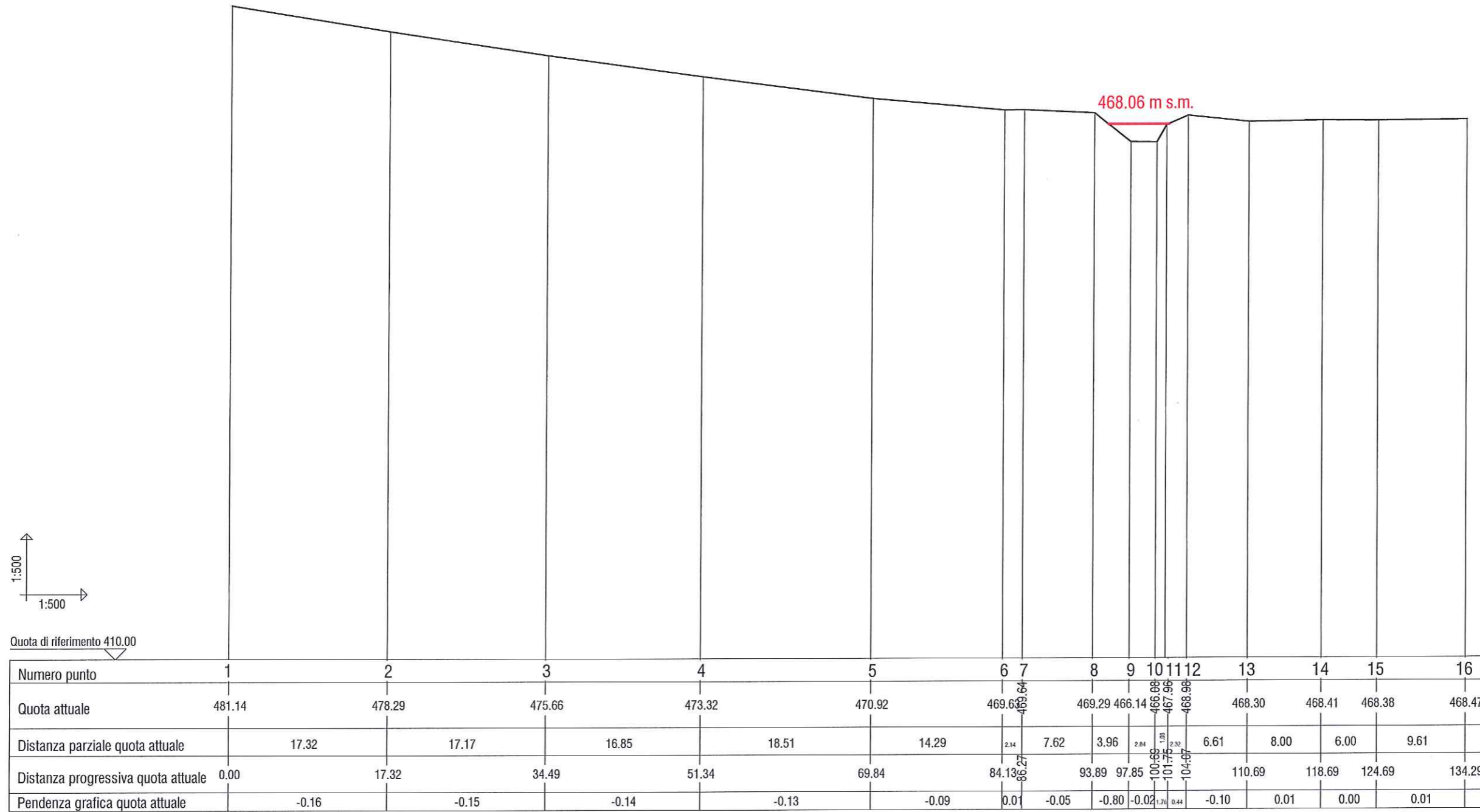




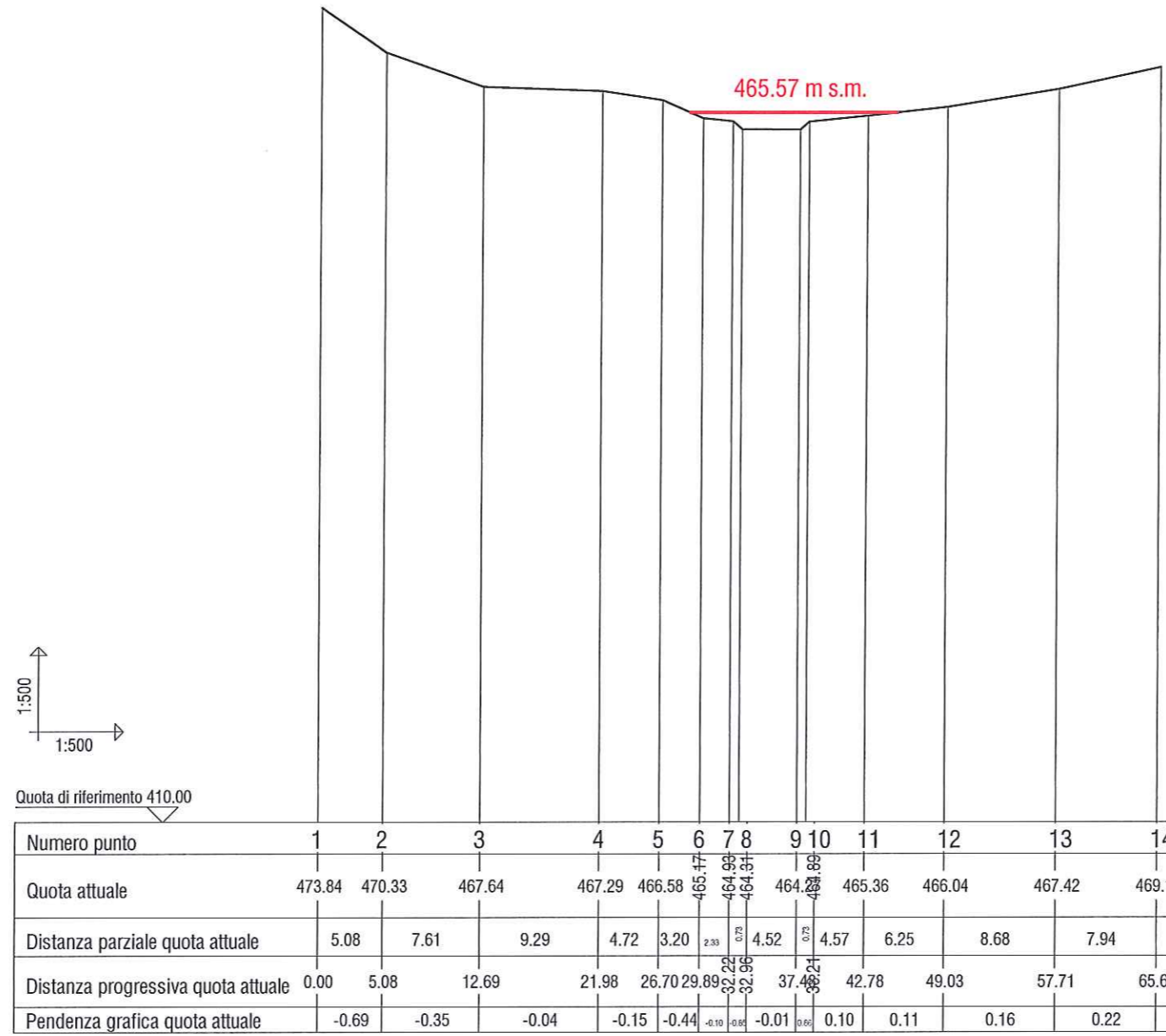
# Sez. P5A



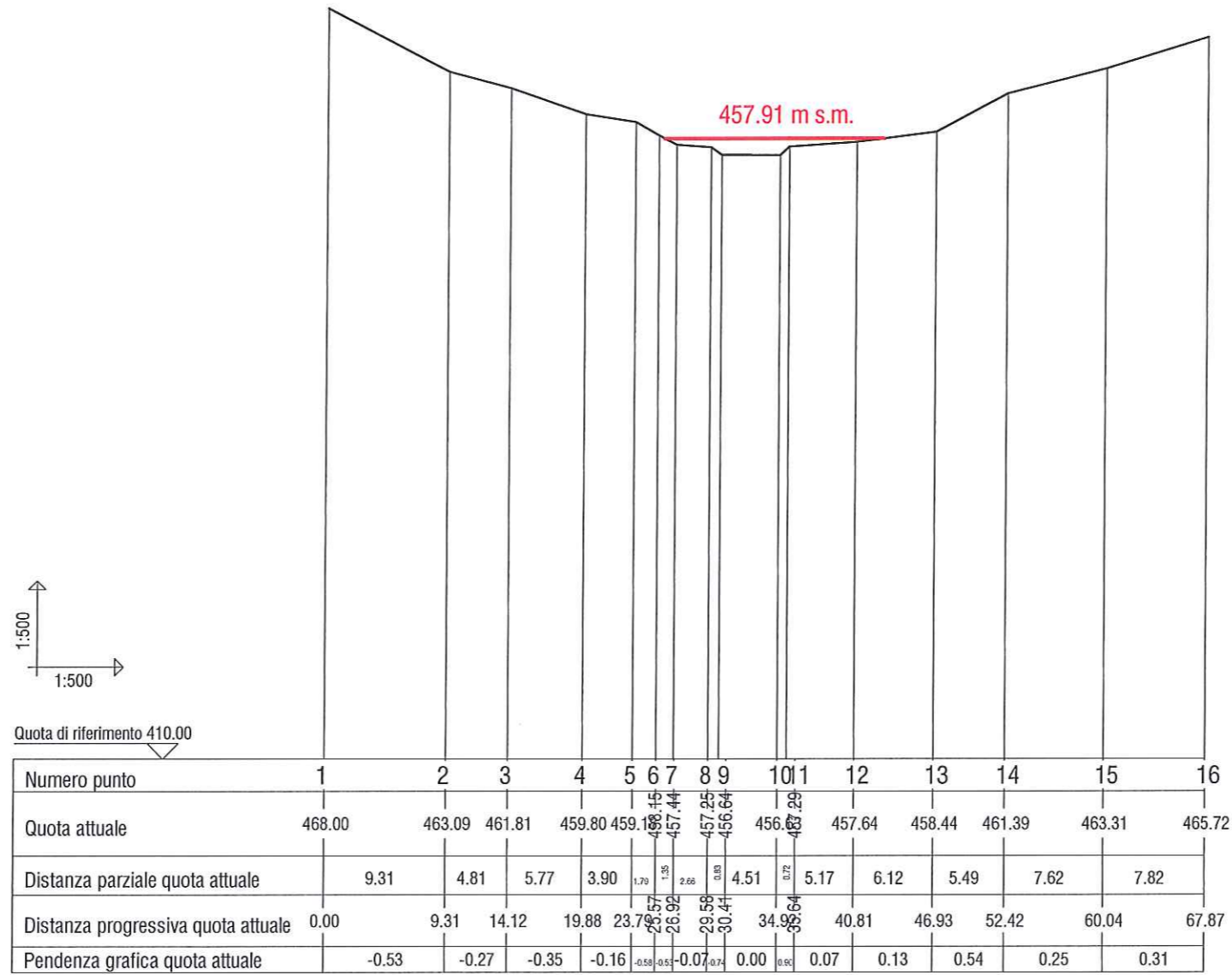
# Sez. V31



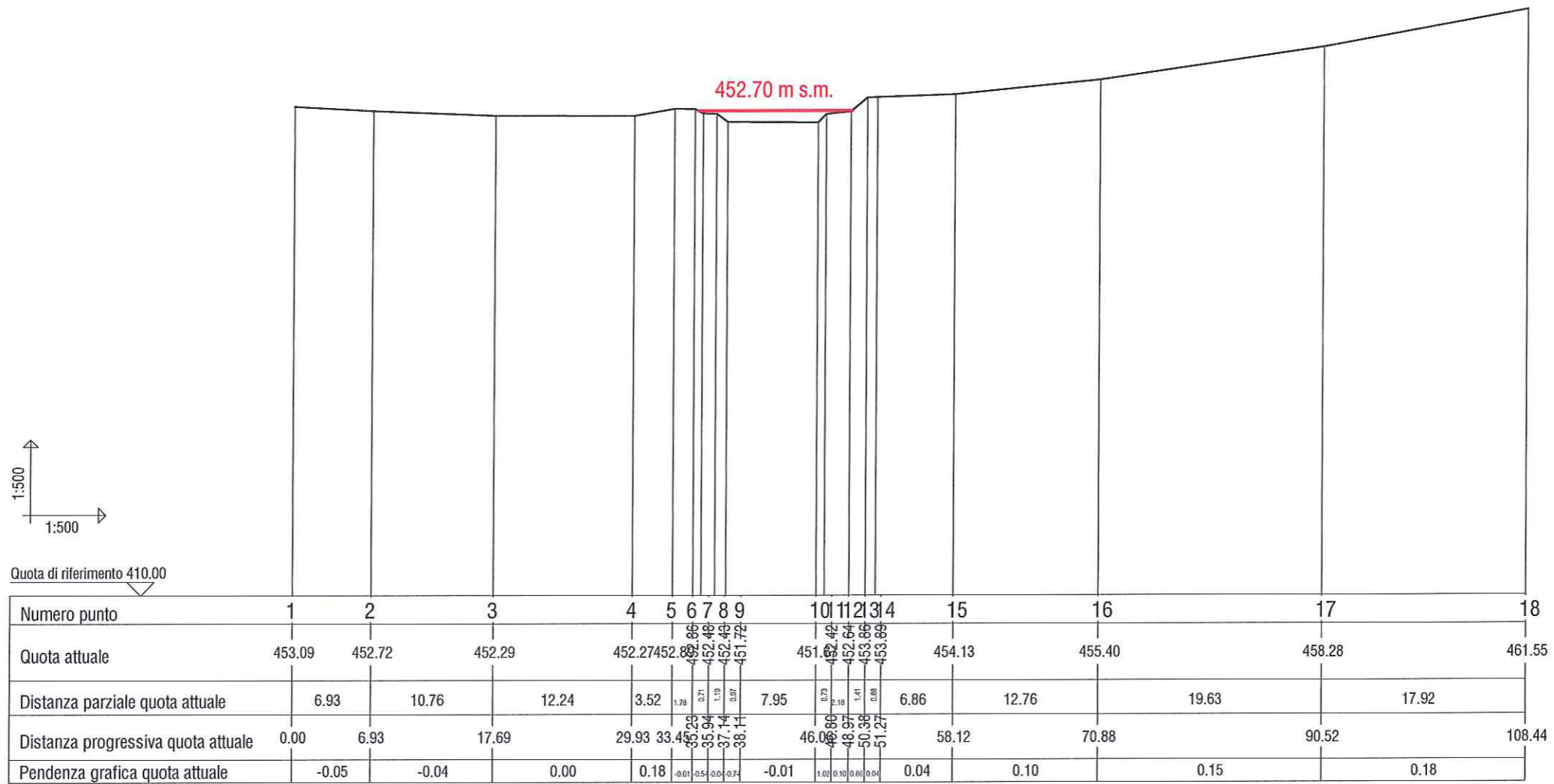
# Sez. V32



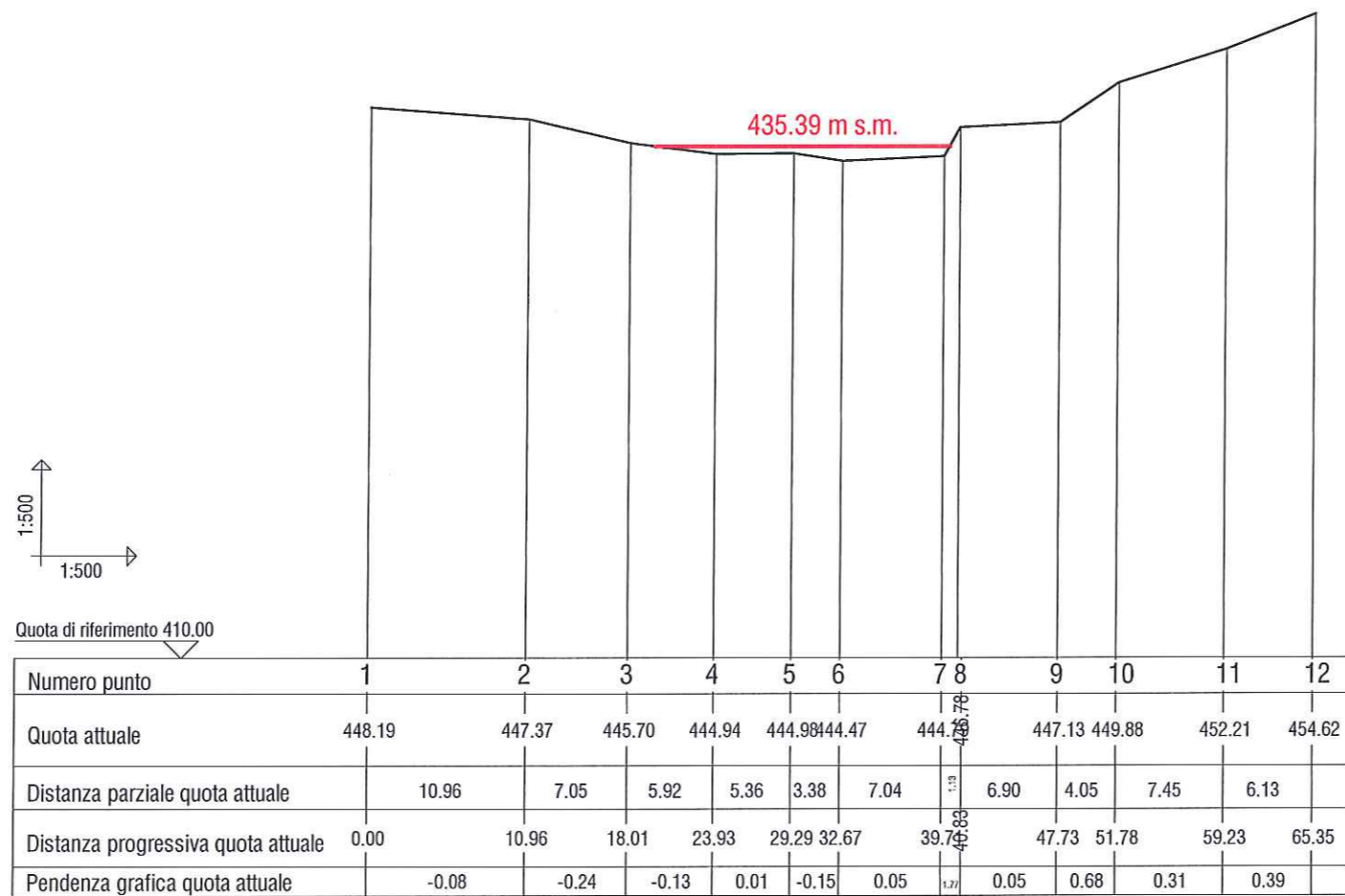
# Sez. V33



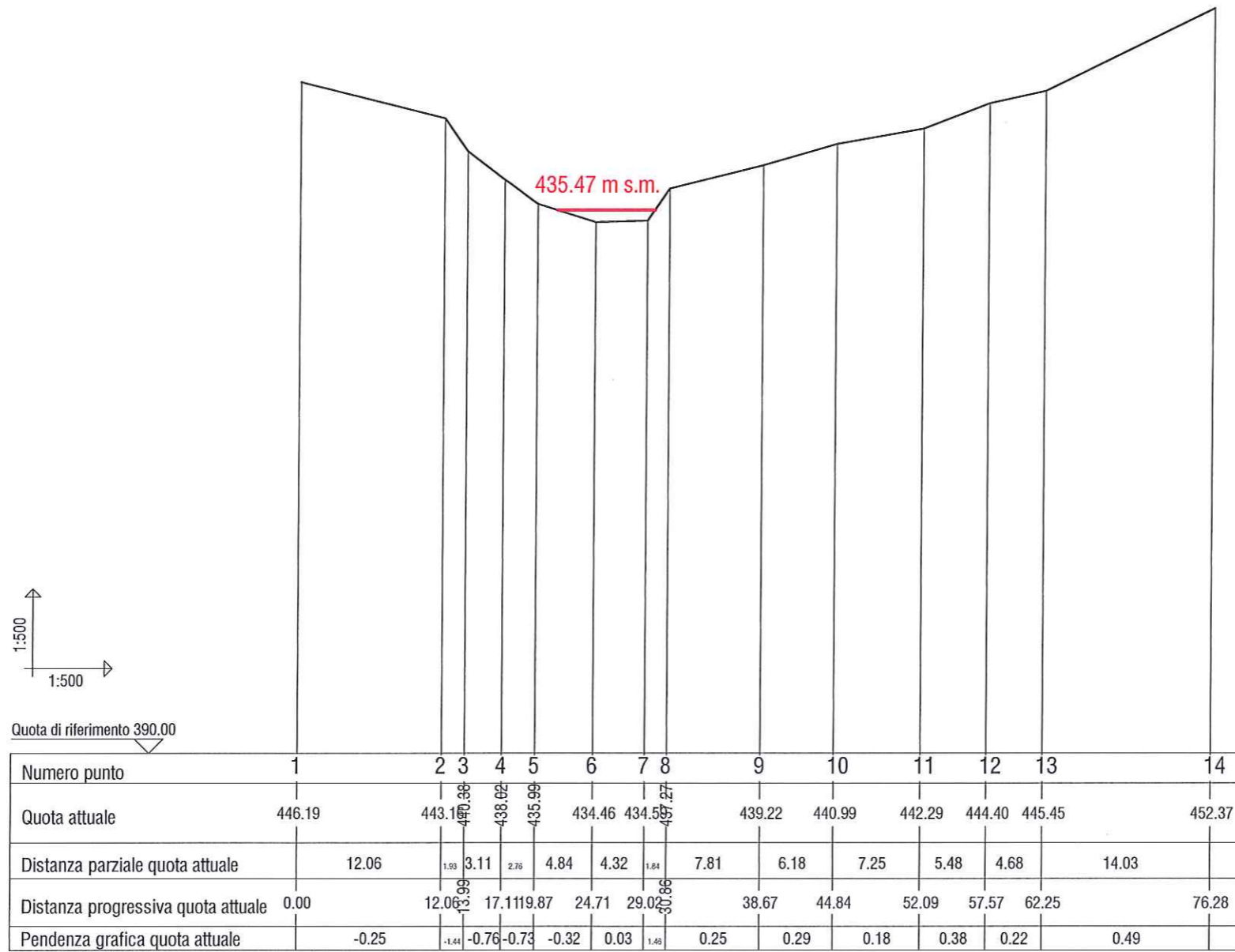
# Sez. V34



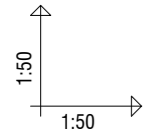
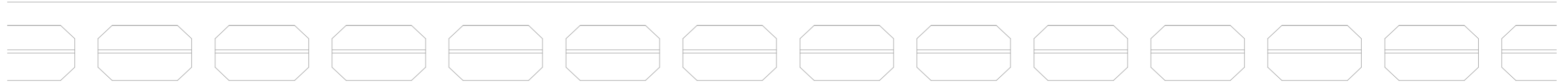
# Sez. V35



# Sez. V36



# Sez. P6A

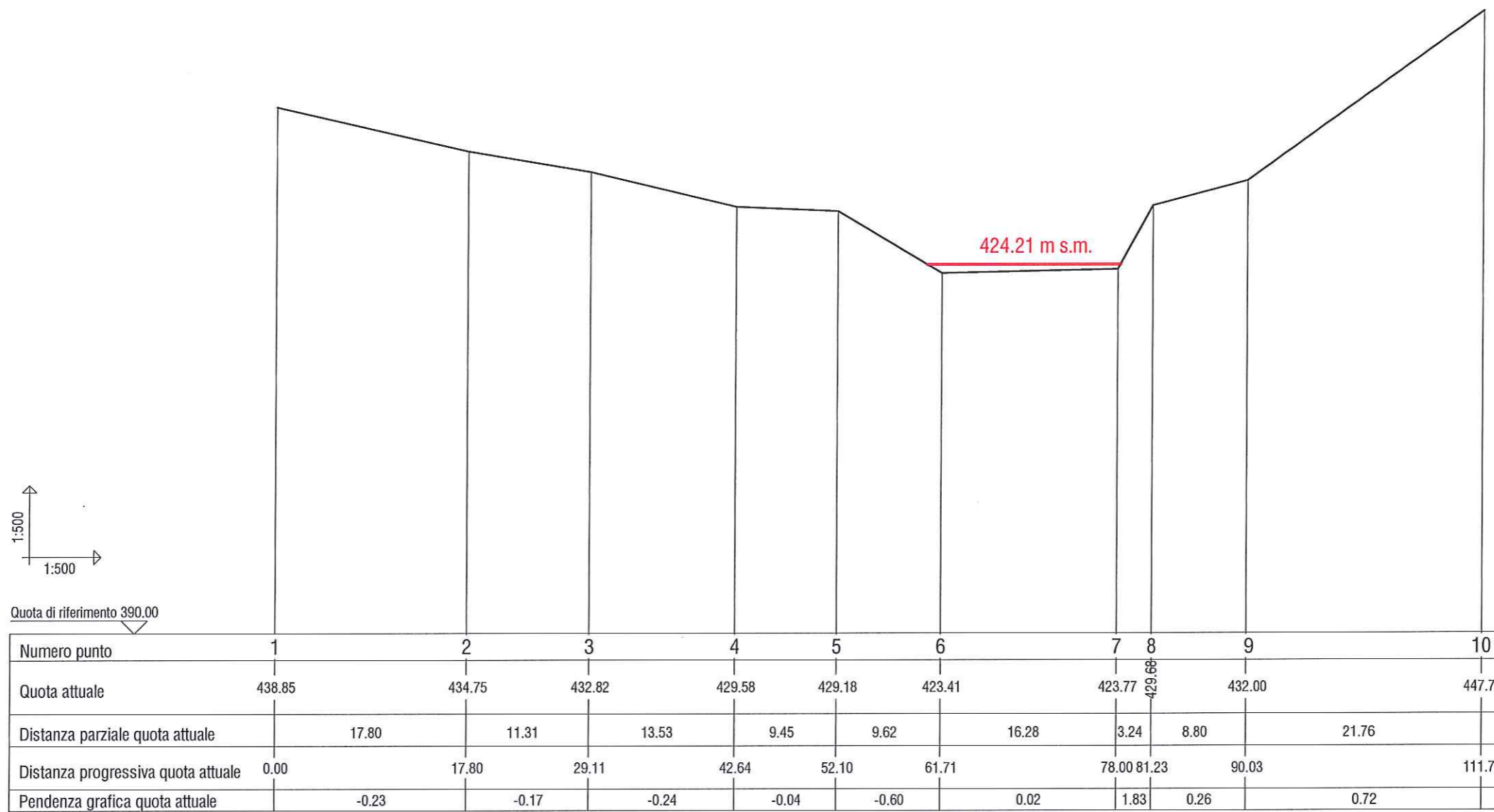


Quota di riferimento 421.00

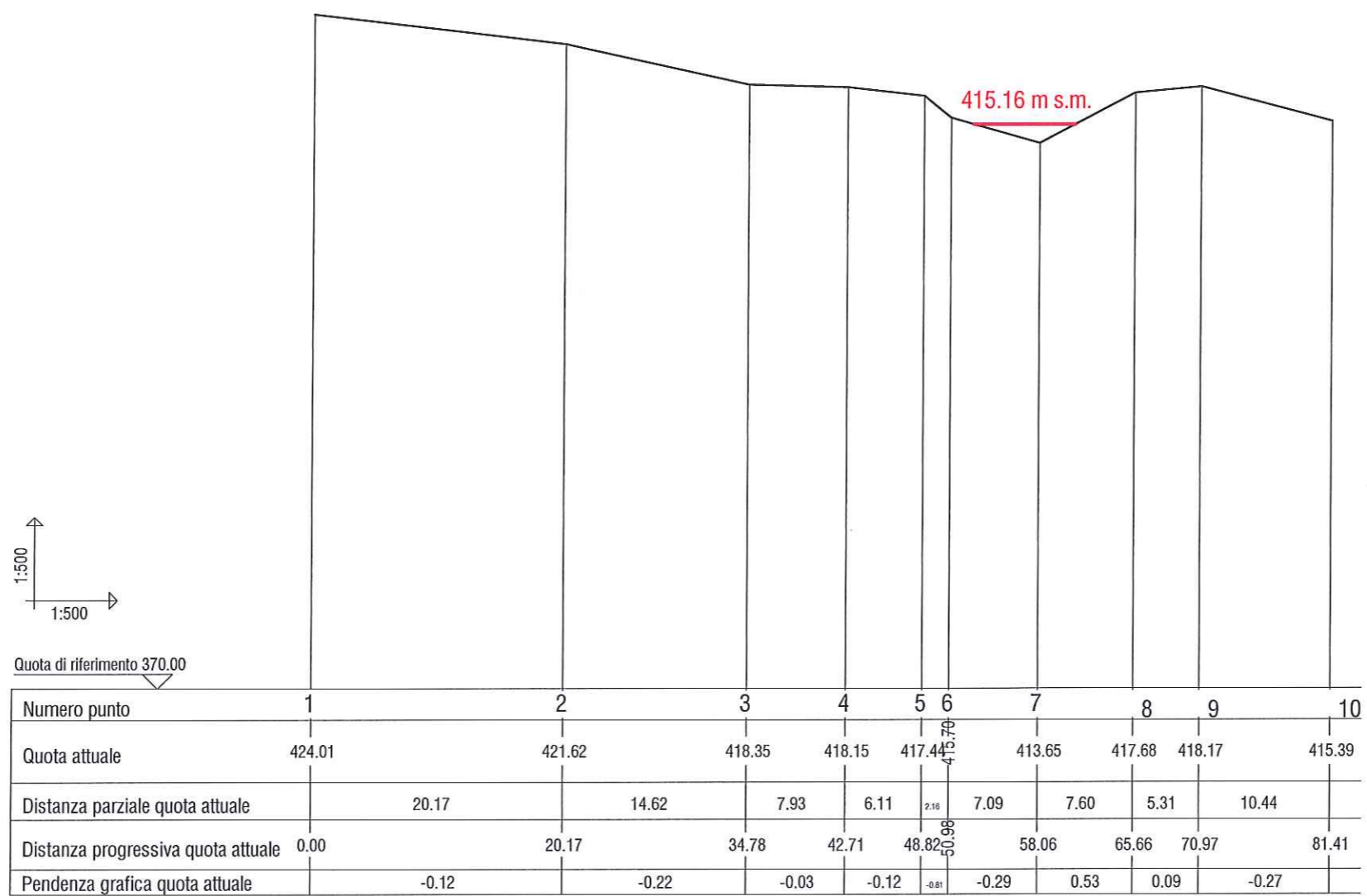
Numero punto	1	2	3	4	5	6
Quota attuale	429.25	429.20	422.65	422.65	429.55	429.66
Distanza parziale quota attuale		0.52	2.31	16.29	0.49	0.26
Distanza progressiva quota attuale	0.00	0.52	2.82	19.11	19.60	19.86
Pendenza grafica quota attuale		-0.09	-2.84	0.00	14.05	0.42



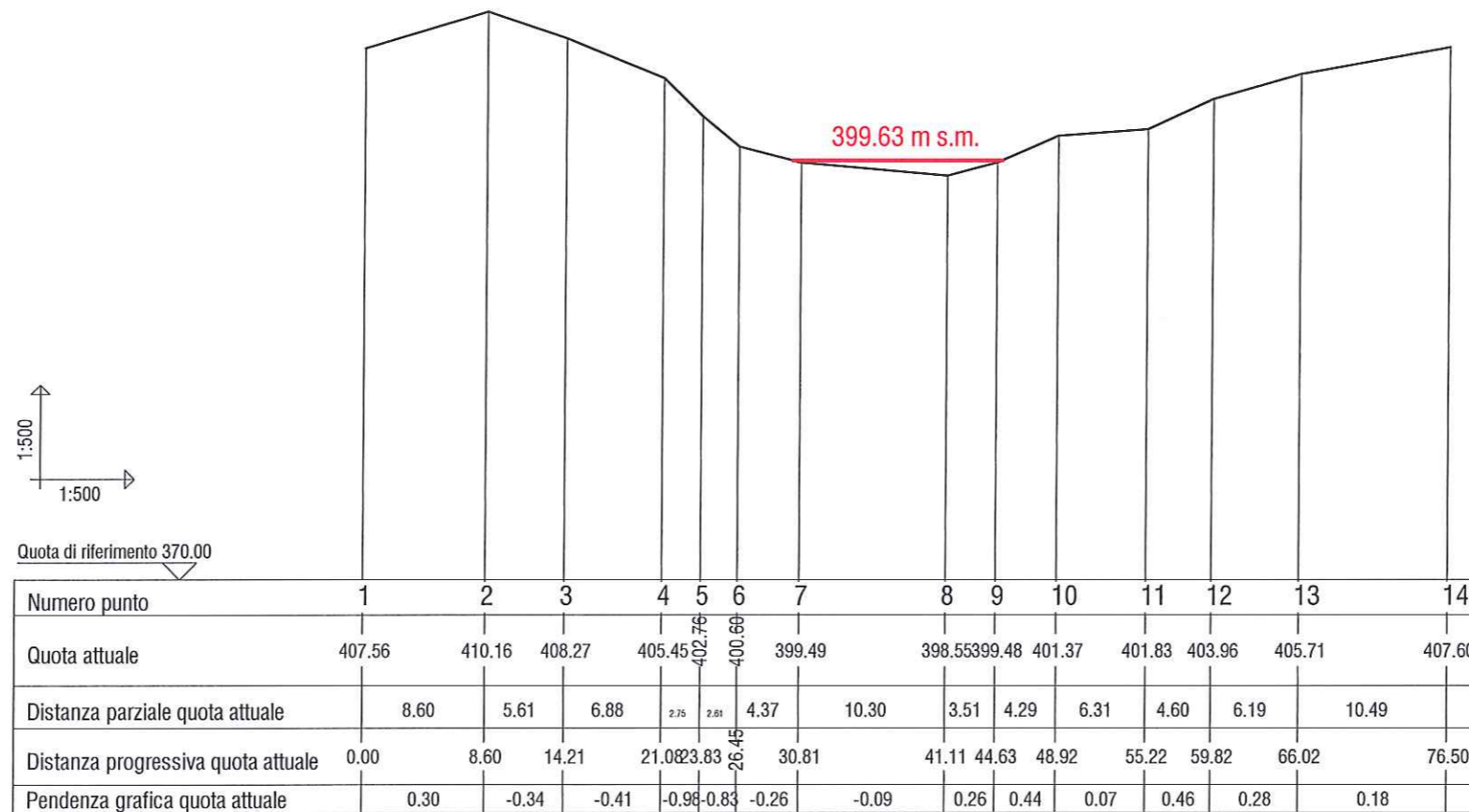
# Sez. V37



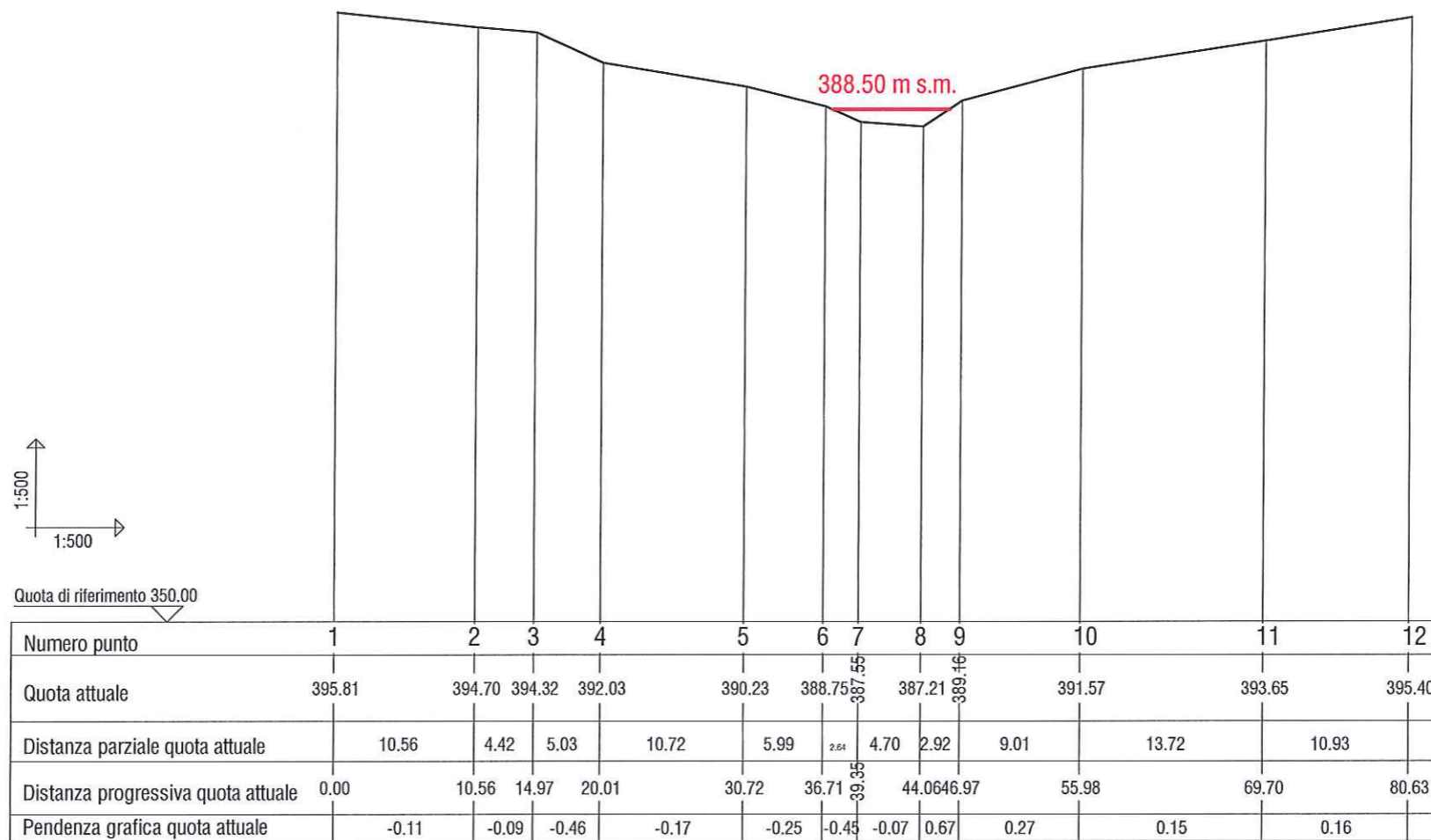
# Sez. V38



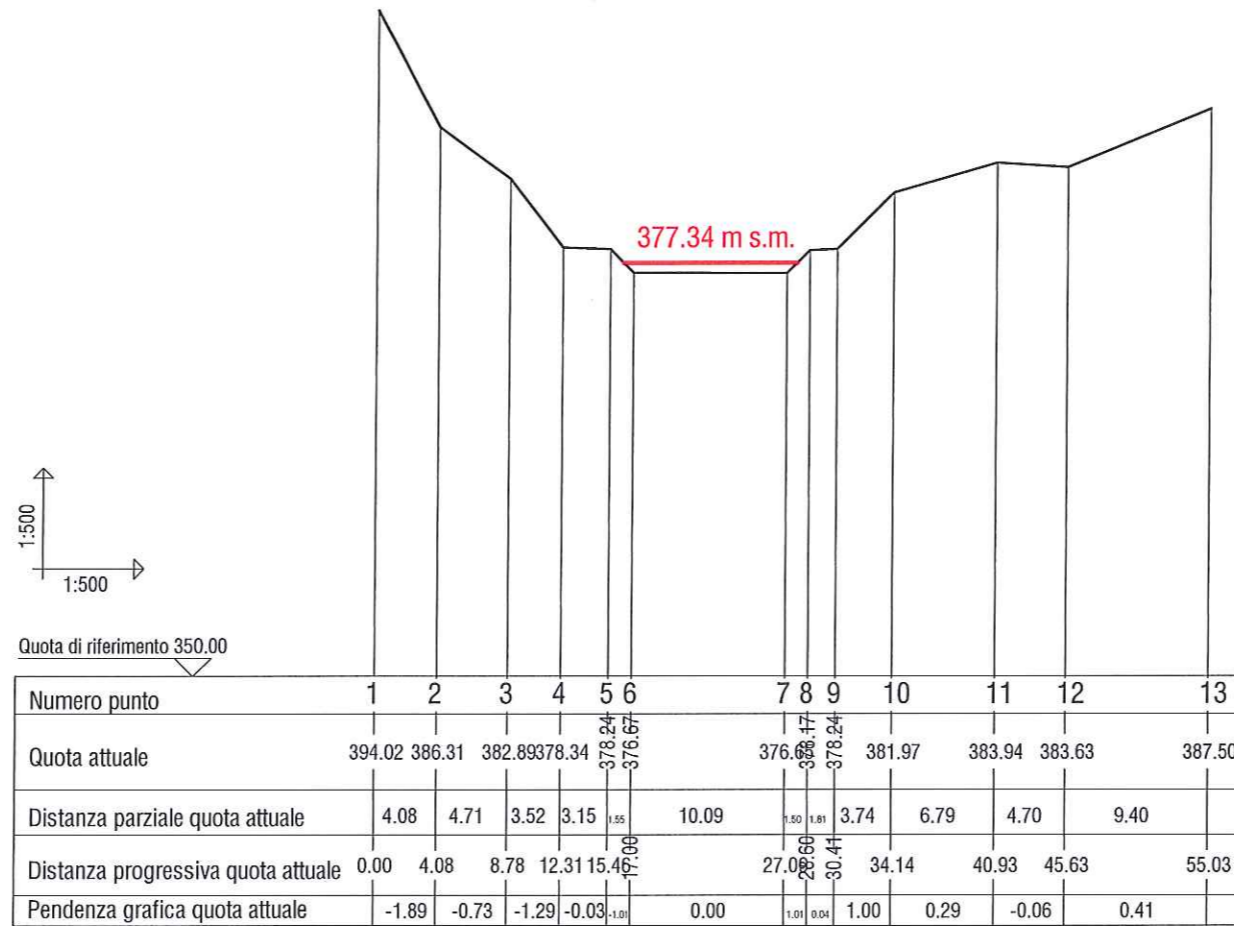
# Sez. V39



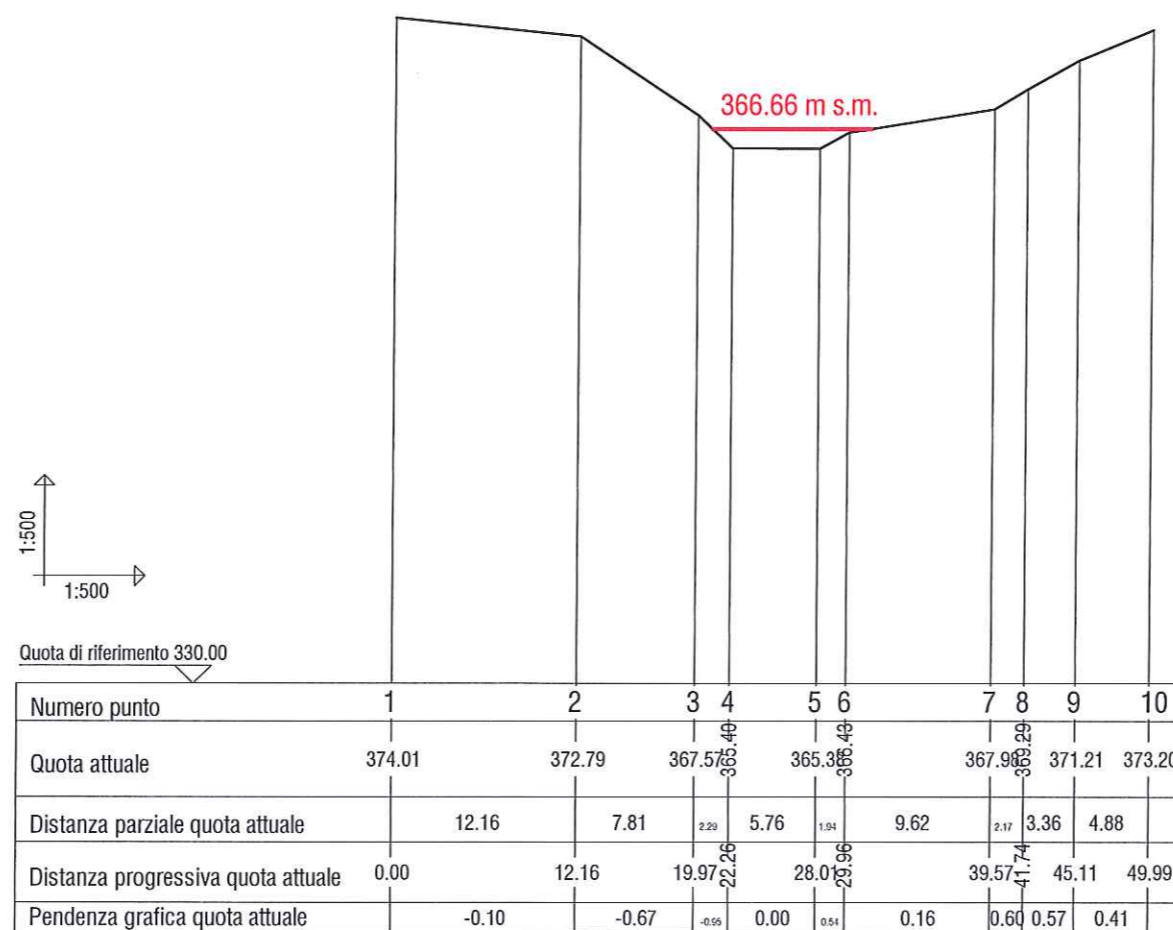
# Sez. V40



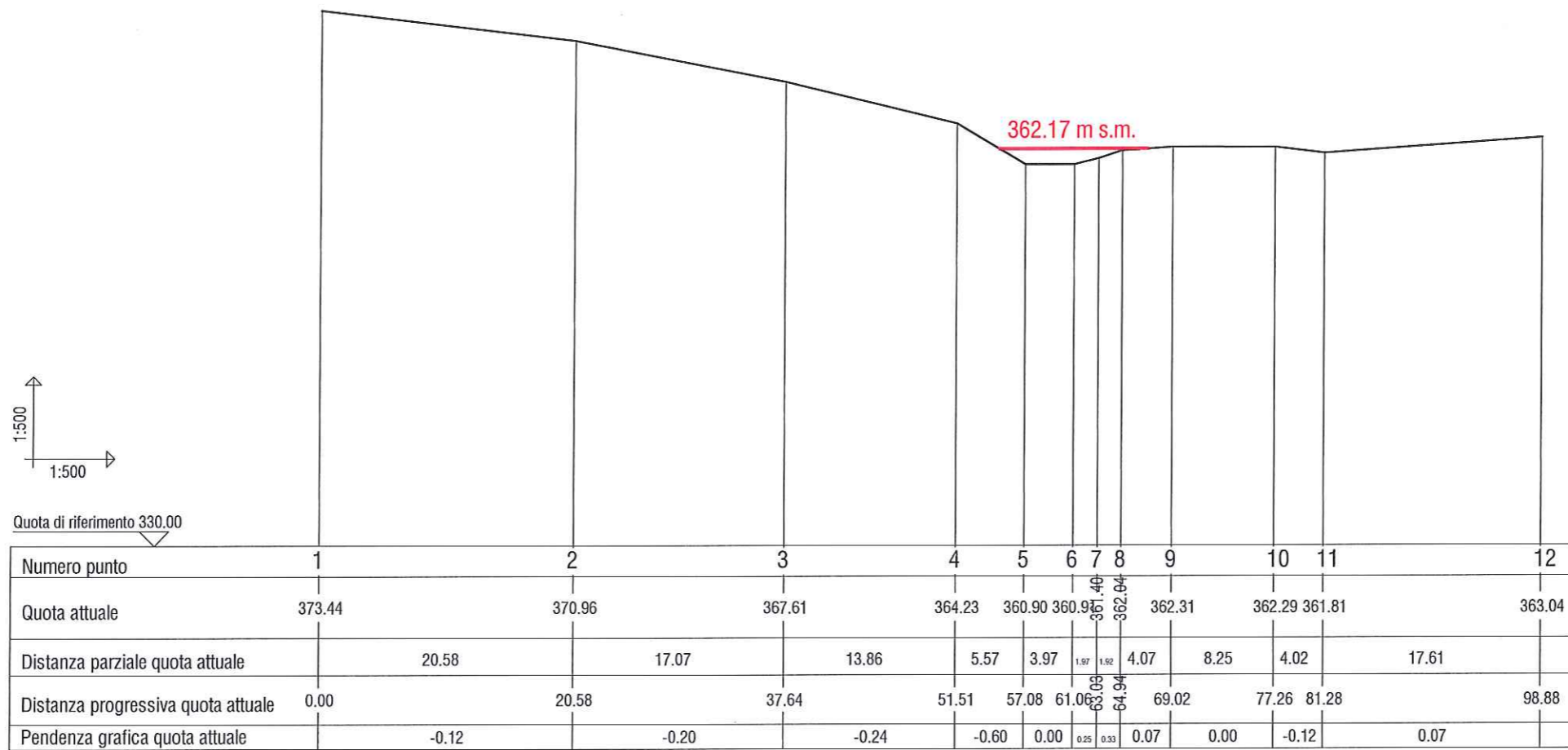
# Sez. V41



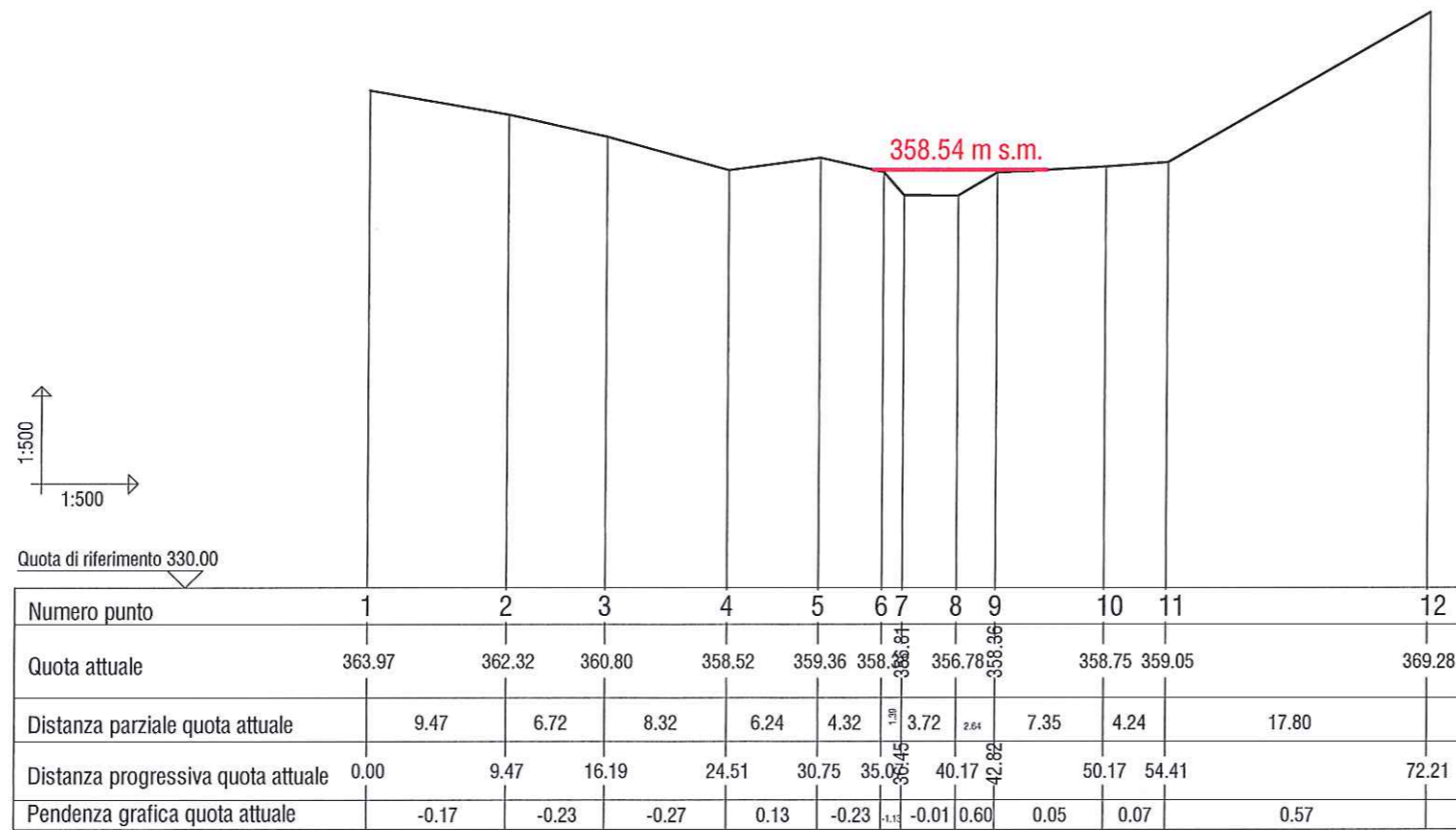
# Sez. V42



# Sez. V43

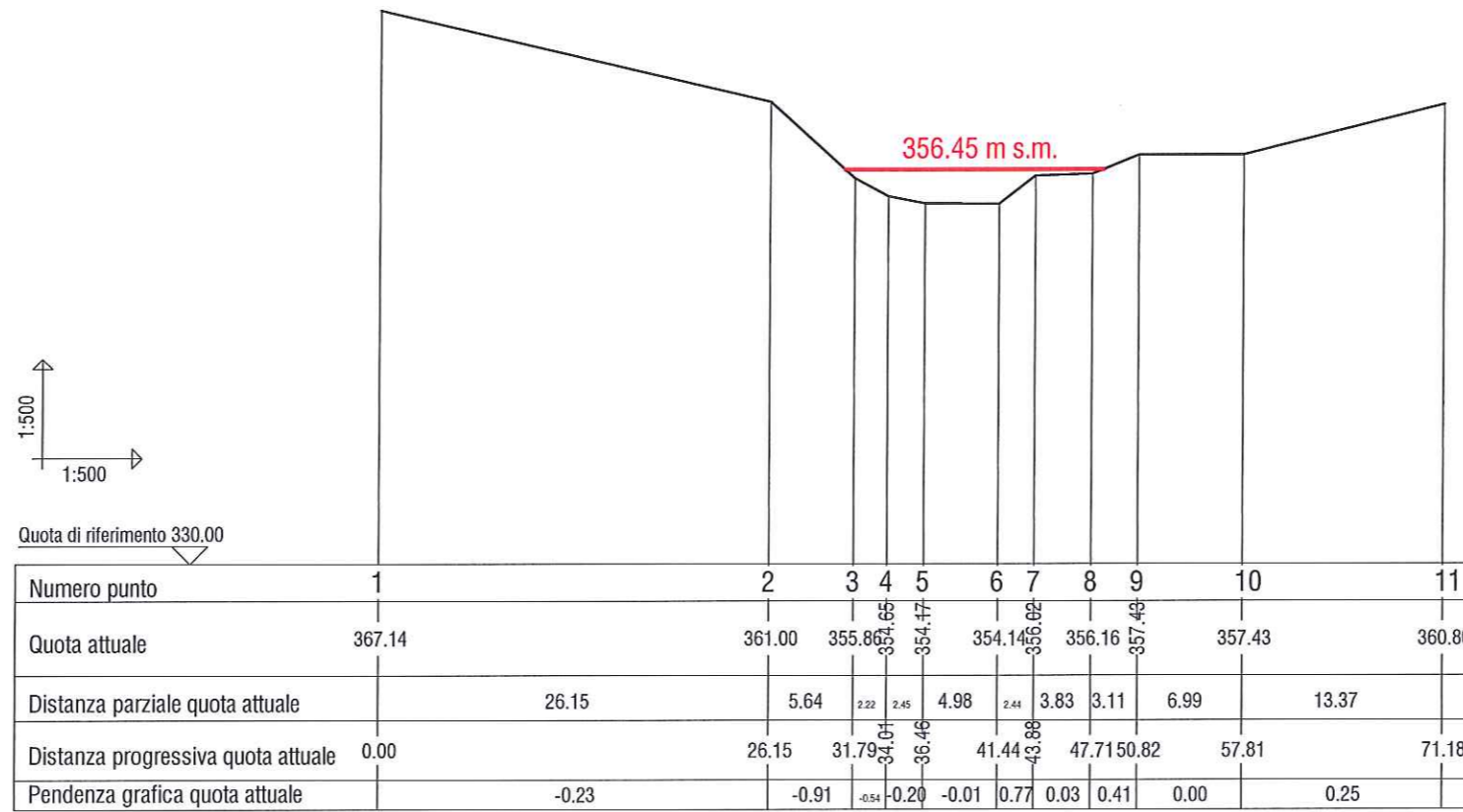


# Sez. V44

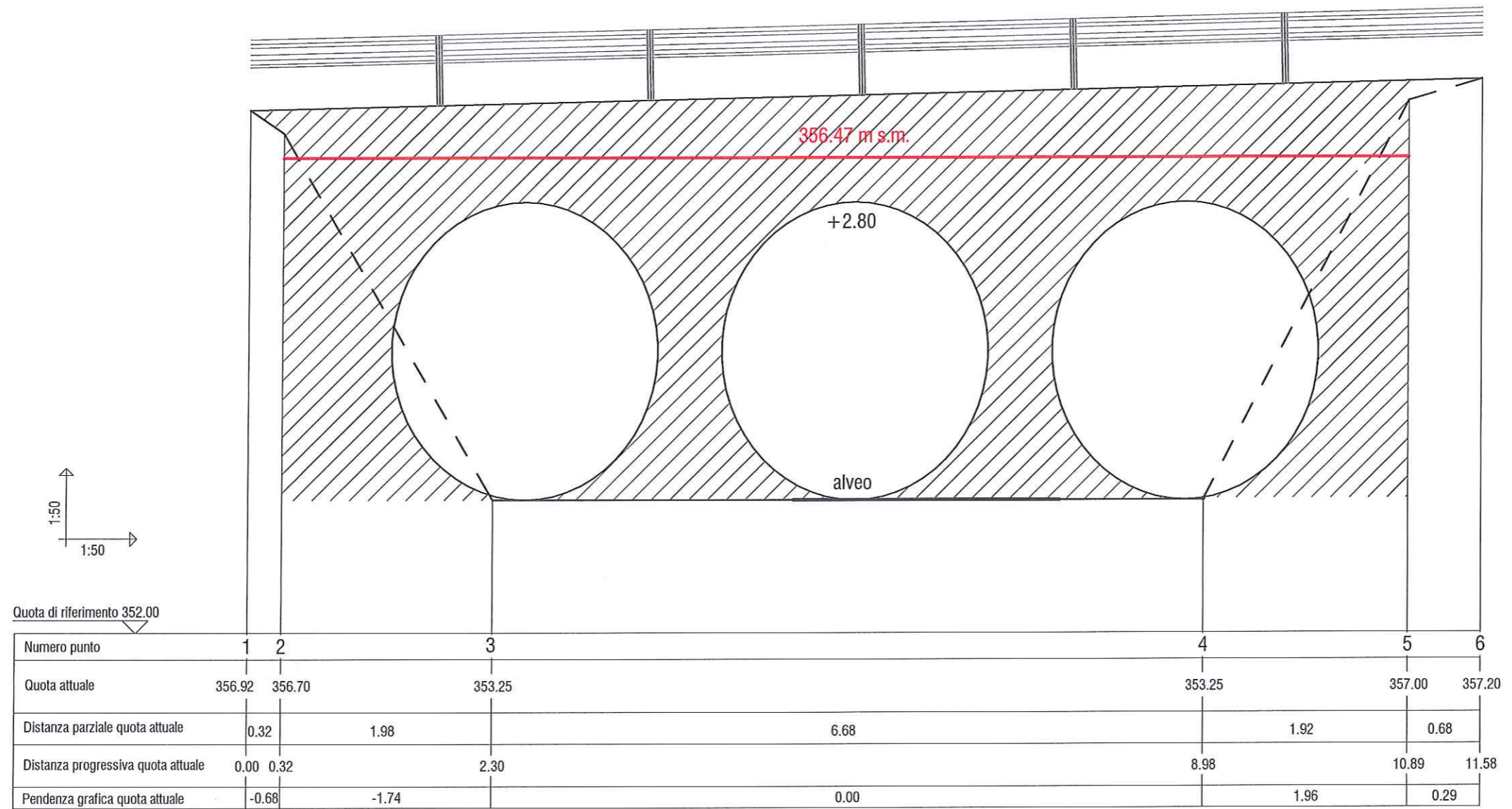




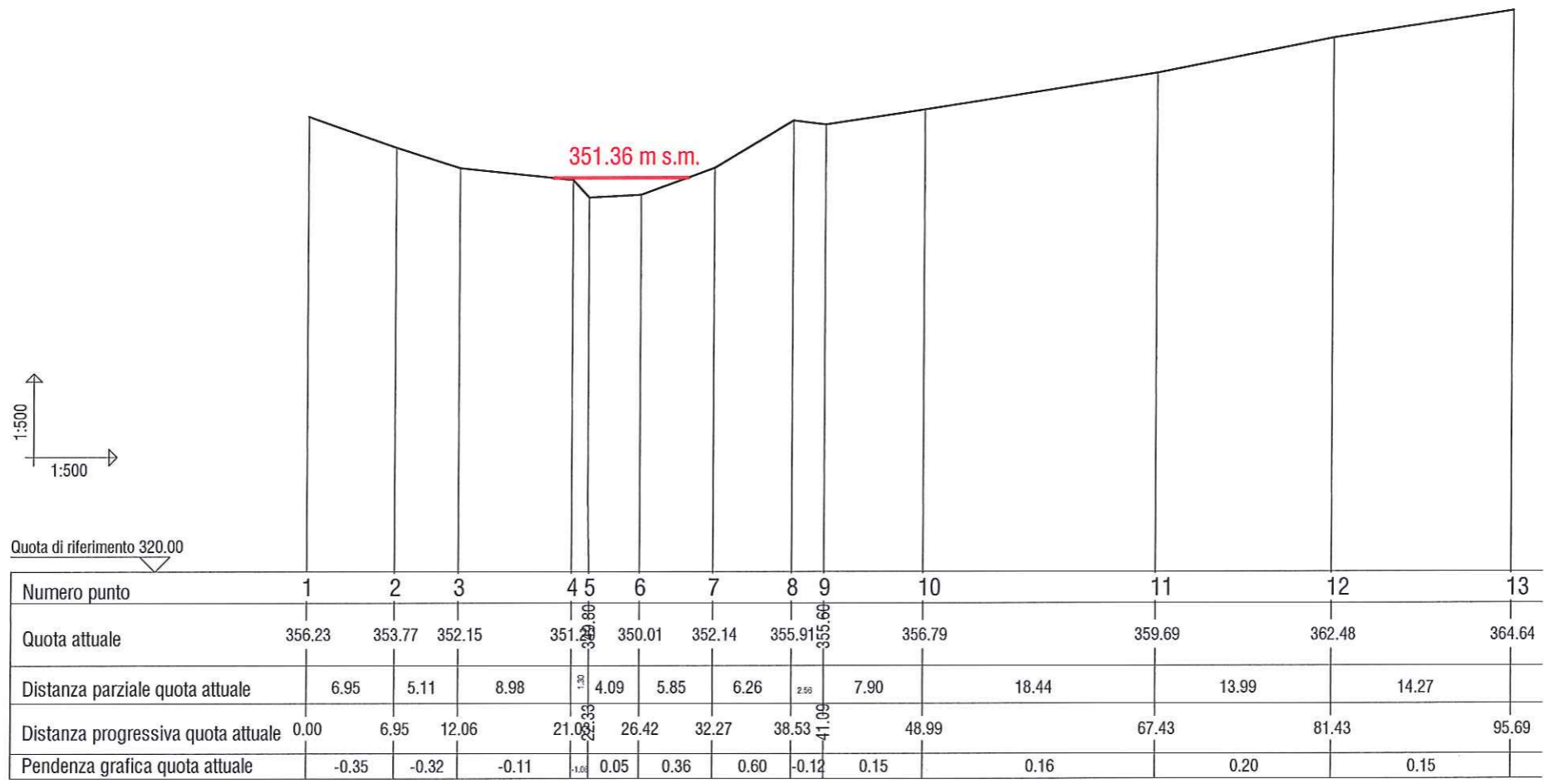
# Sez. V45



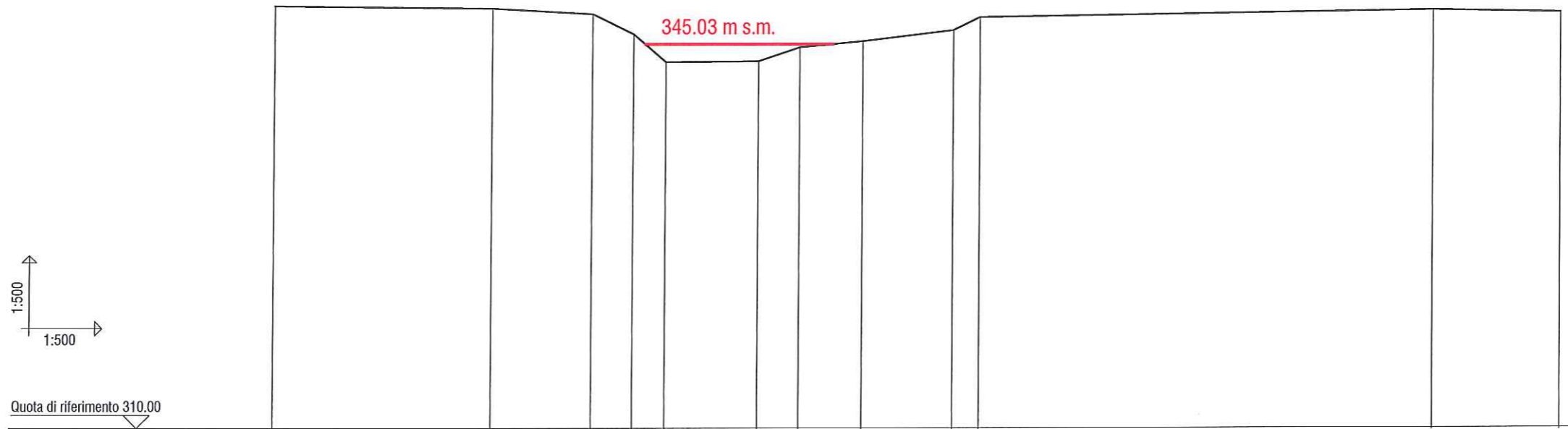
# Sez. P7A



# Sez. V46

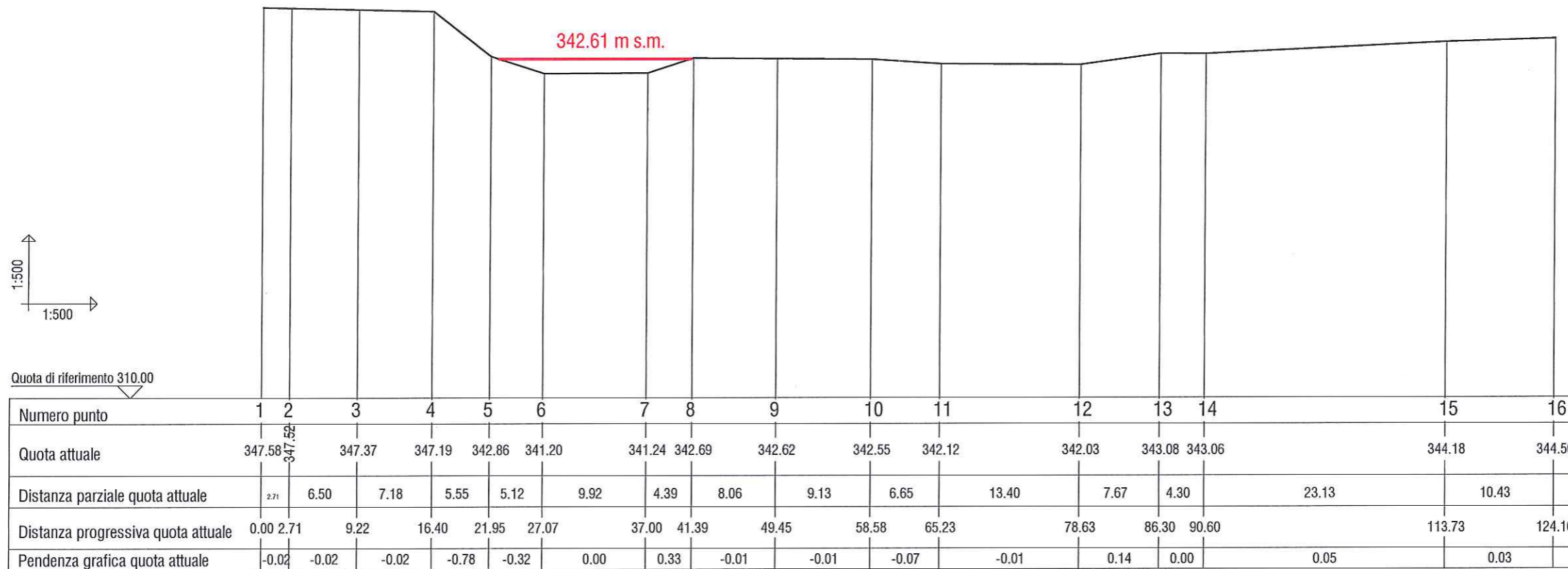


# Sez. V47

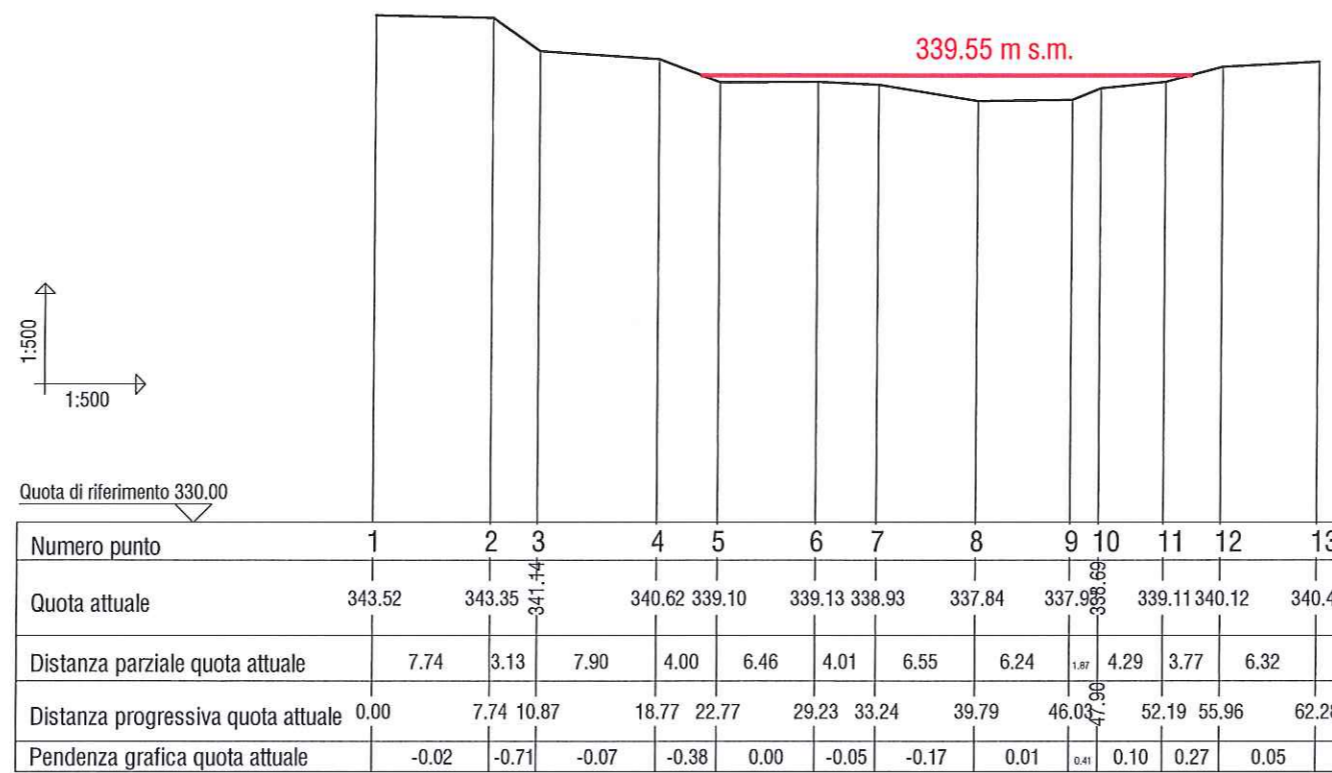


Numero punto	1	2	3	4	5	6	7	8	9	10	11	12
Quota attuale	348.60	348.36	347.86	346.01	343.48	343.53	344.80	345.37	346.35	347.55	348.18	347.96
Distanza parziale quota attuale		19.88	9.15	3.75	2.98	8.46	3.76	5.74	8.26	2.43	41.31	11.60
Distanza progressiva quota attuale	0.00	19.88	29.03	32.79	35.77	44.23	47.99	53.73	61.99	64.42	105.73	117.33
Pendenza grafica quota attuale		-0.01	-0.06	-0.49	-0.85	0.01	0.34	0.10	0.12	0.49	0.02	-0.02

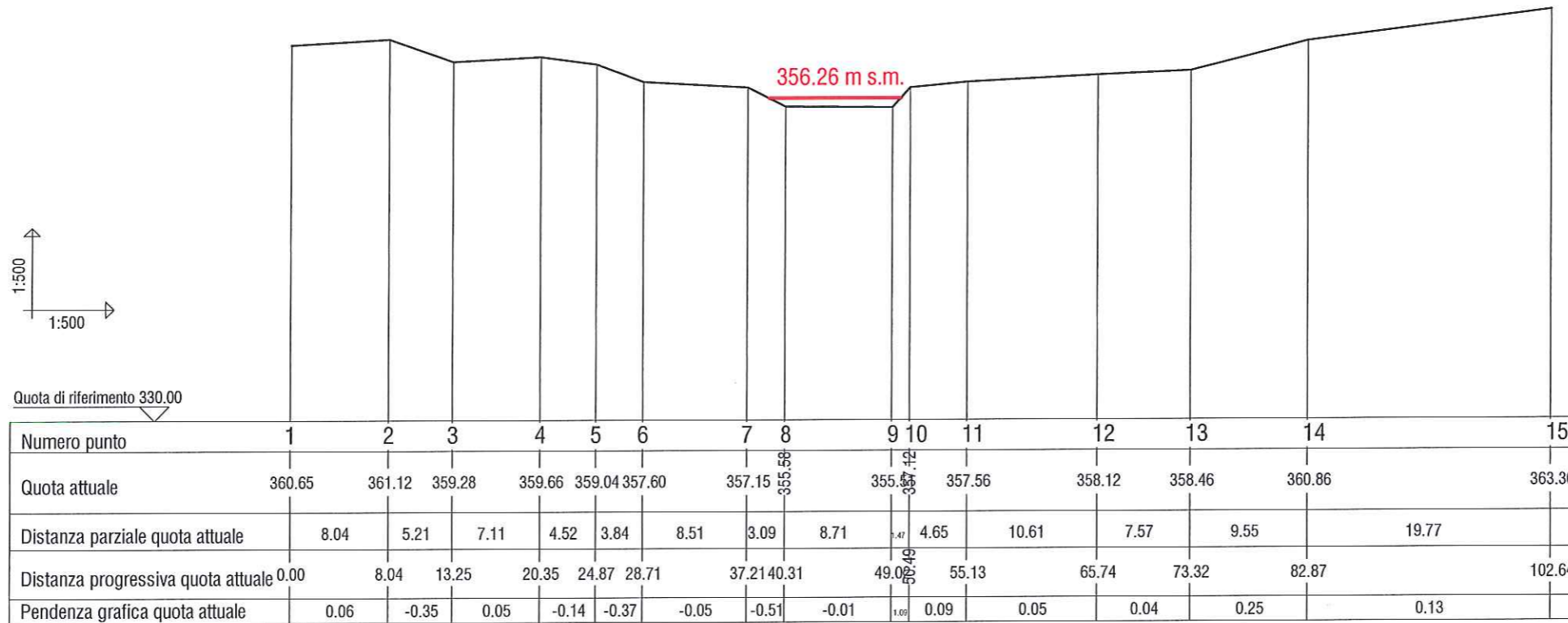
# Sez. V48



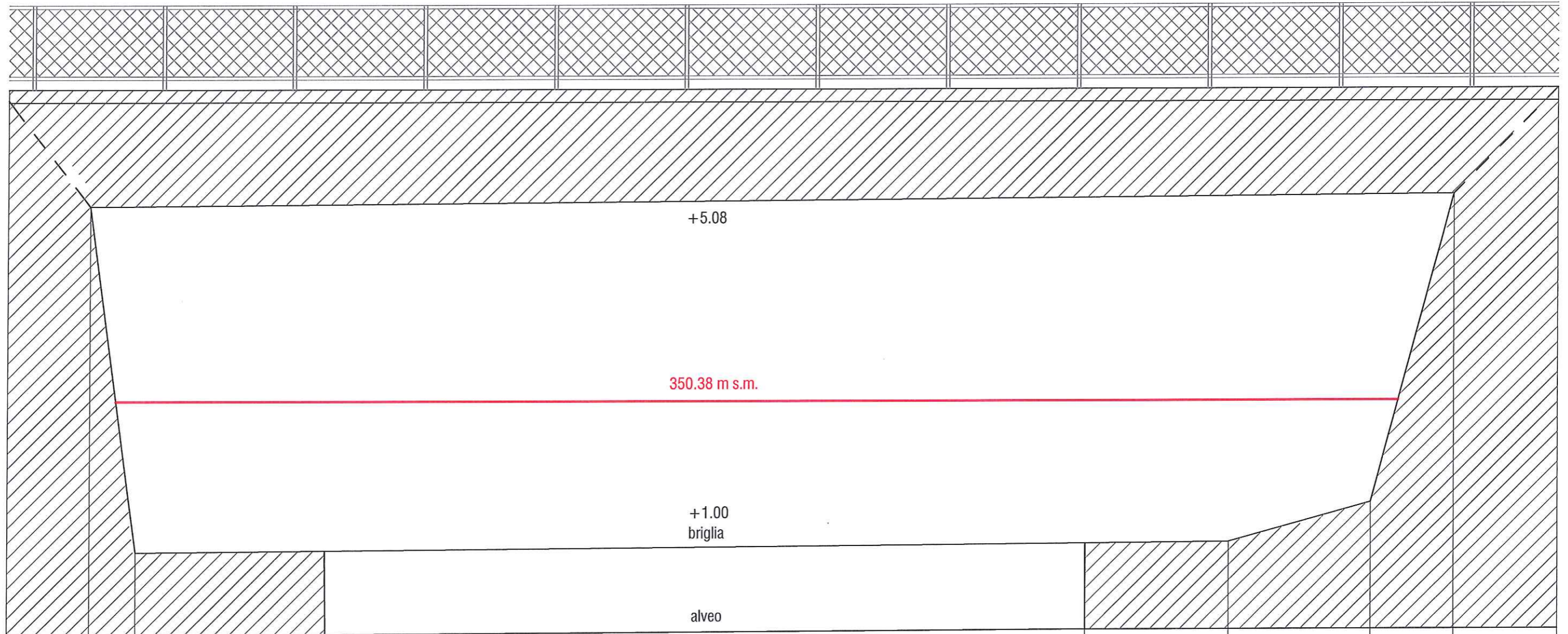
# Sez. V49



# Sez. V50



# Sez. P8B



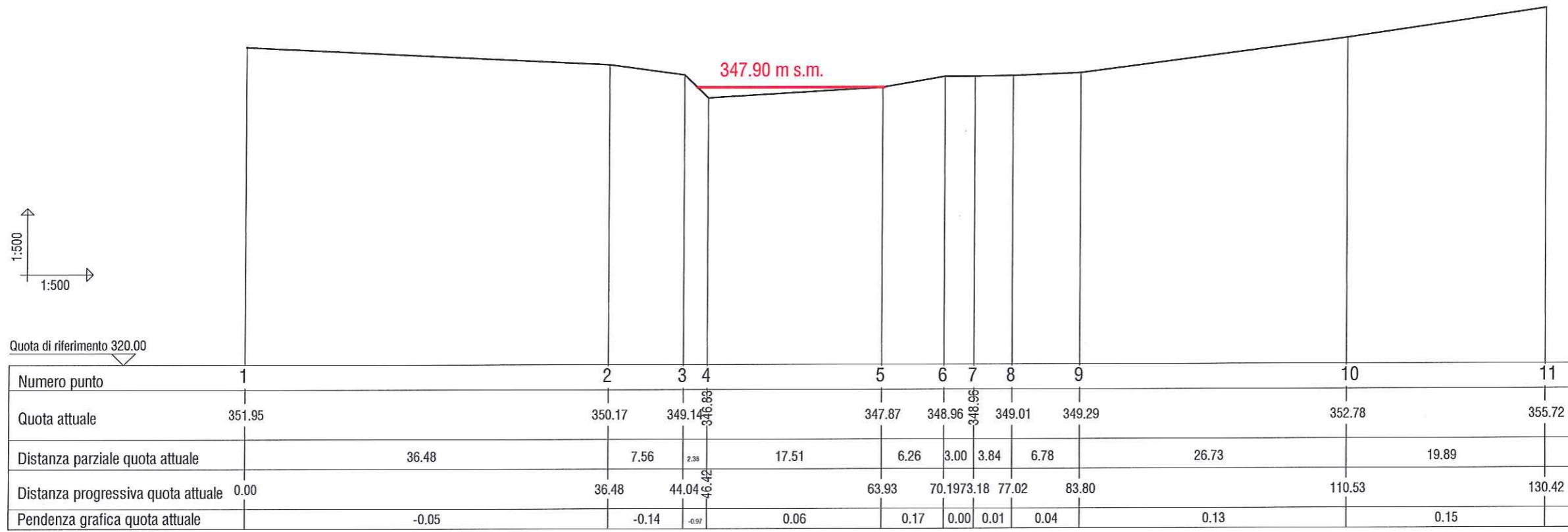
1:50  
1:50

Quota di riferimento 346.00

Numero punto	1	2	3	4	5	6	7	8	9	10
Quota attuale	353.93	352.68	348.60	347.63	347.68	348.72	349.18	352.81	352.81	354.0
Distanza parziale quota attuale		0.97	0.55	2.25	8.94	1.69	1.67	0.97	0.00	1.22
Distanza progressiva quota attuale	0.00	0.97	1.51	3.76	12.71	14.39	16.06	17.03	17.03	18.21
Pendenza grafica quota attuale		-1.29	-7.49	-0.43	0.01	0.61	0.28	3.73	-	1.02



# Sez. V51



# Sez. V52

