

AUTORITA' DI BACINO
DI RILIEVO REGIONALE



PROVINCIA
DI SAVONA

PIANO DI BACINO MOLINERO

Piano stralcio per la tutela dal rischio idrogeologico
di cui all'art.1, comma 1 del D.L. 11/06/1998 n.180,
convertito in legge 03/08/1998 n.267 e s.m.

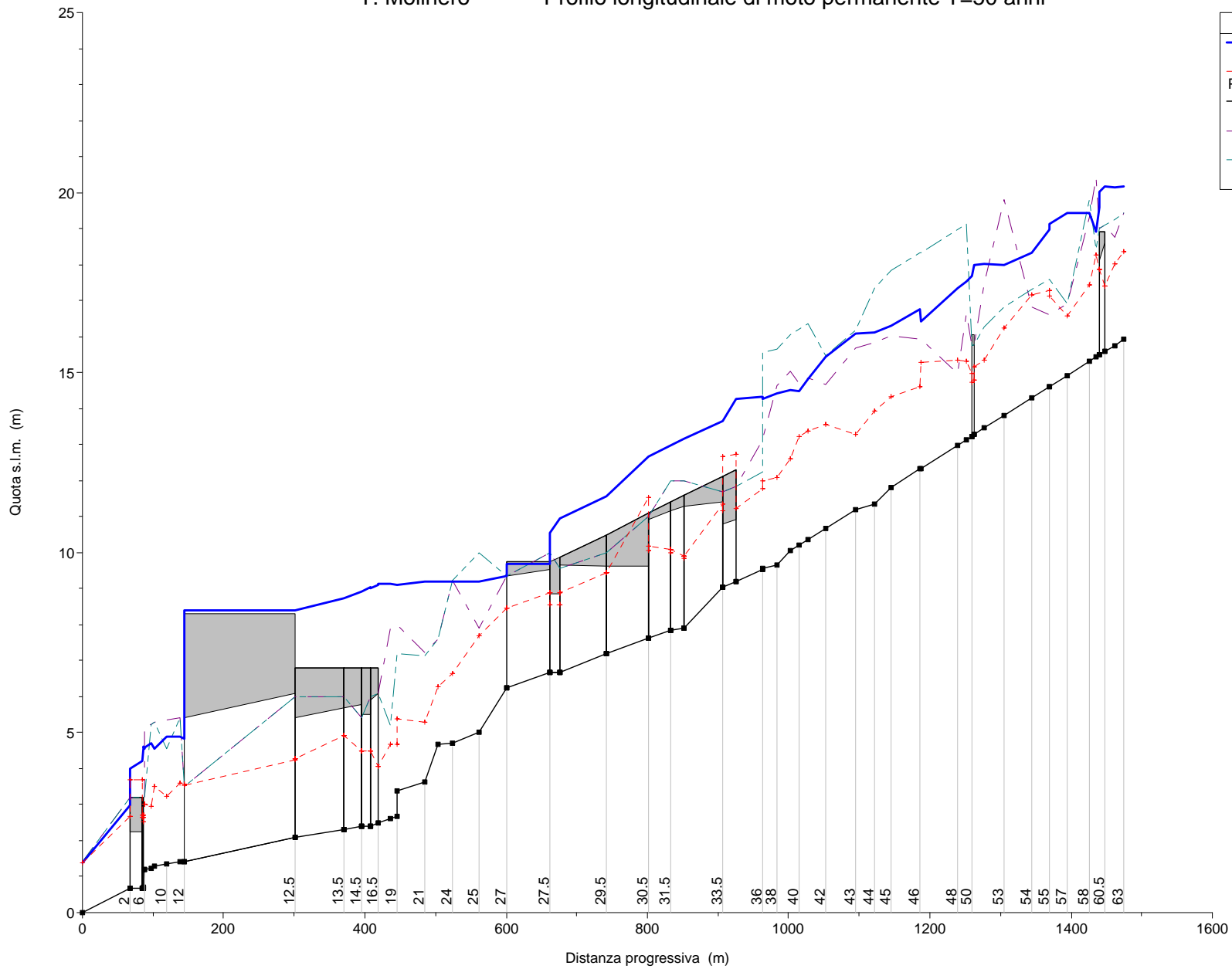
VERIFICHE IDRAULICHE

**PROFILI DI RIGURGITO IN CONDIZIONI DI MOTO
PERMANENTE PER LE PORTATE T=50, 200, 500 ANNI**

MOLINERO

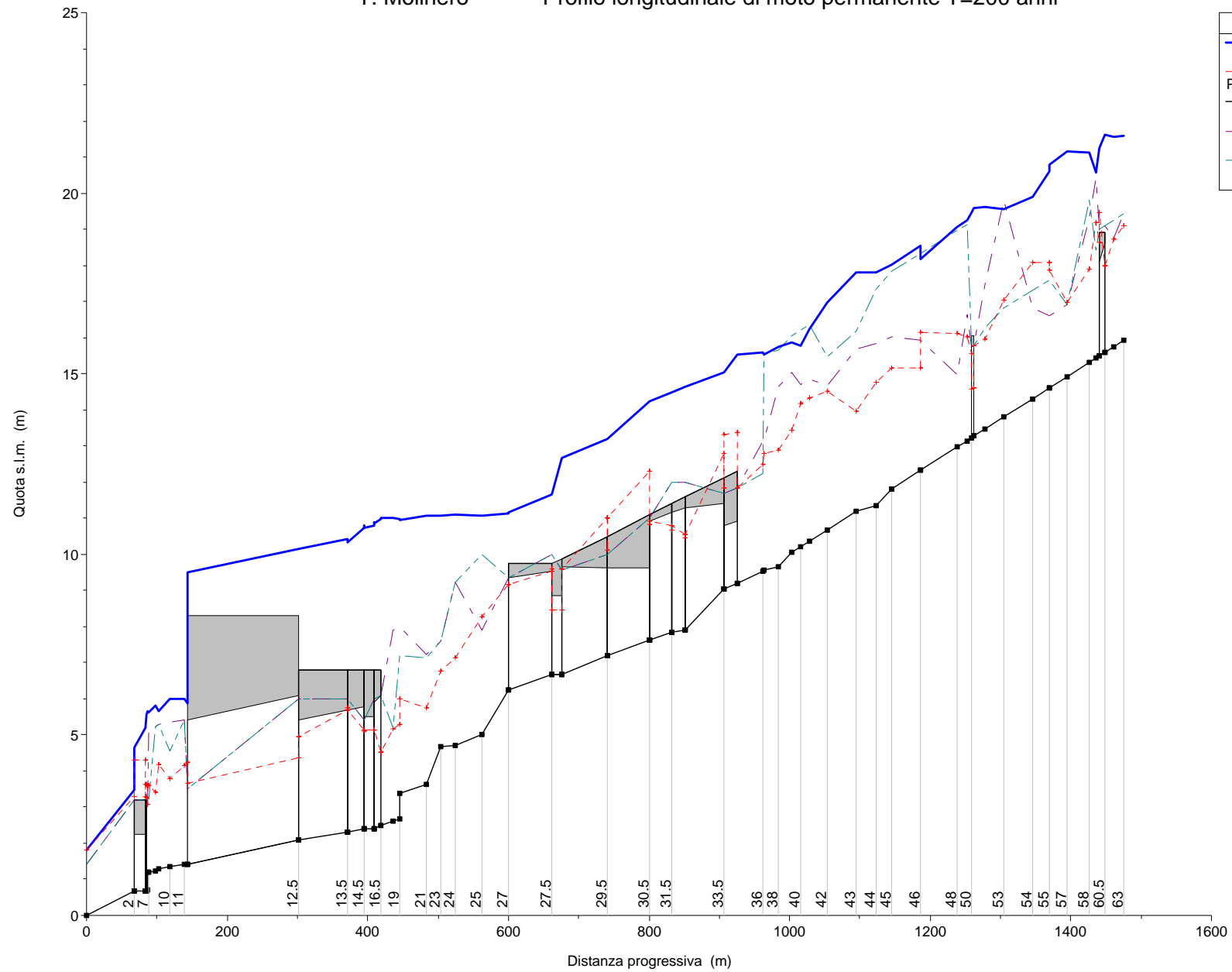
T. Molinero

Profilo longitudinale di moto permanente T=50 anni



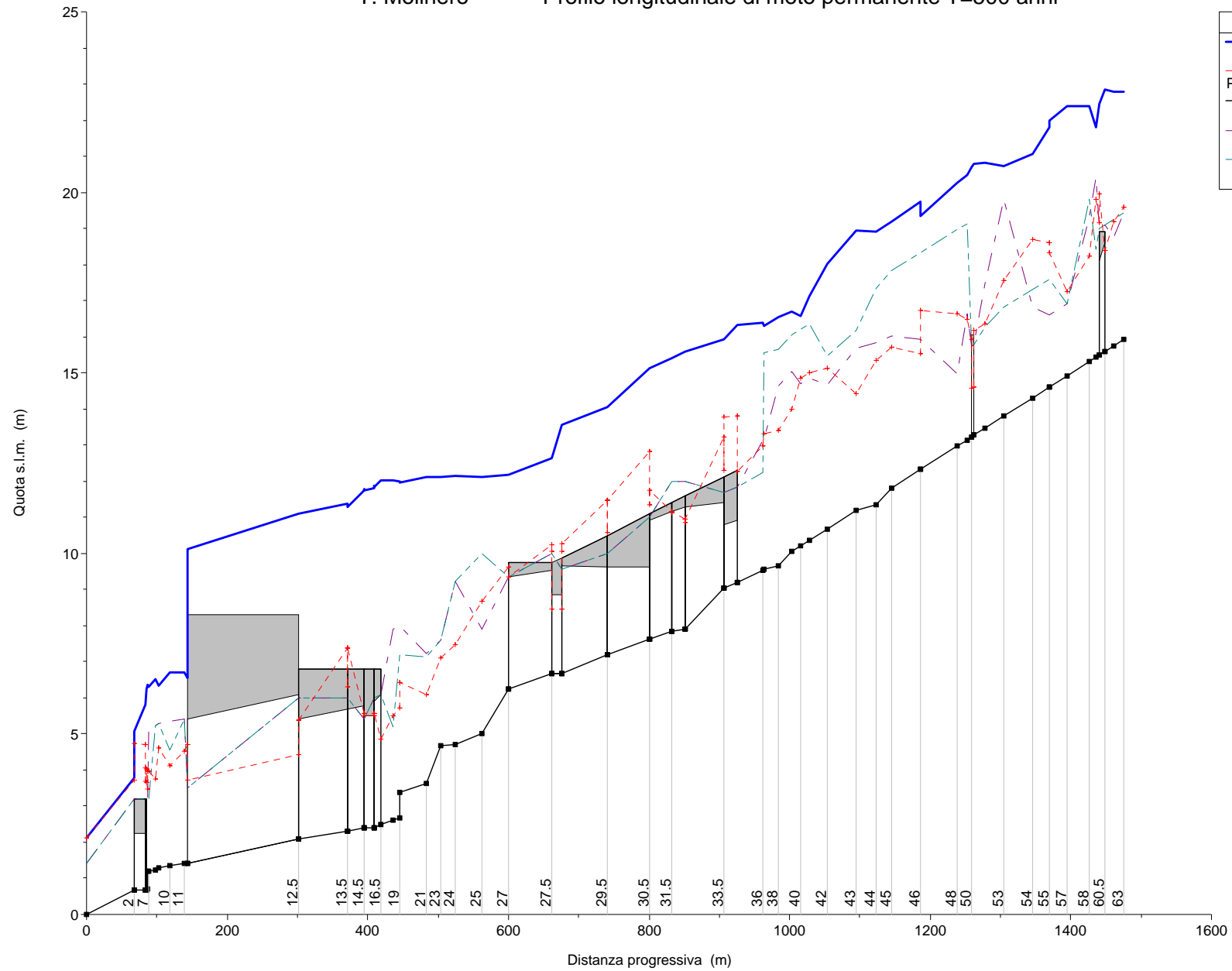
T. Molinero

Profilo longitudinale di moto permanente T=200 anni



T. Molinero

Profilo longitudinale di moto permanente T=500 anni



| Legend | |
|--------|---------------------------|
| | Pelo libero T= 500 |
| | Profondità critica T= 500 |
| | Fondo alveo |
| | Argine sinistro |
| | Argine destro |

**GEOMETRIA DELLE SEZIONI ED ALTEZZA DEL PELO
LIBERO IN CONDIZIONI DI MOTO PERMANENTE
PER LE PORTATE T=50, 200, 500 ANNI**

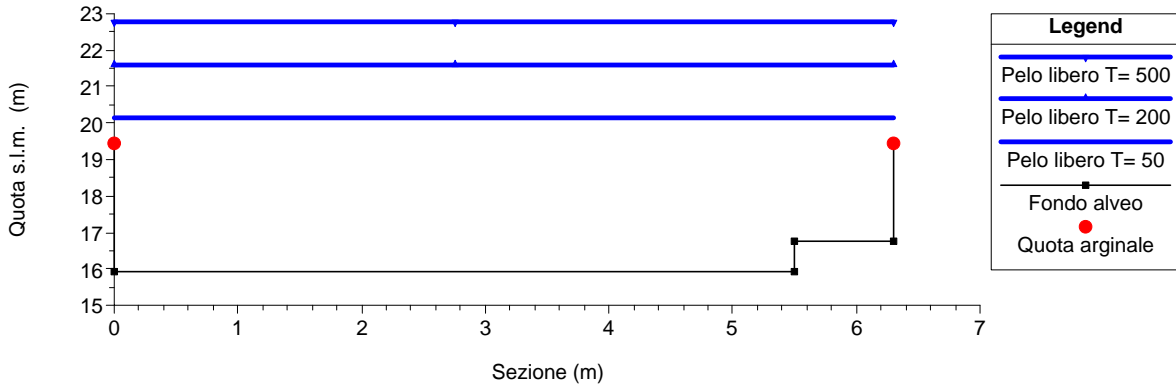
MOLINERO

DALLA SEZ. 1
ALLA SEZ. 63

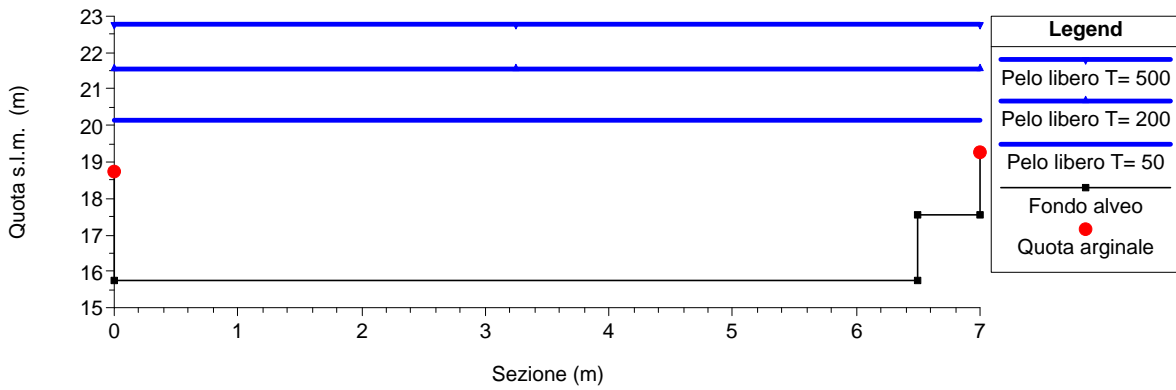
RIO MOLINERO

Sezioni trasversali

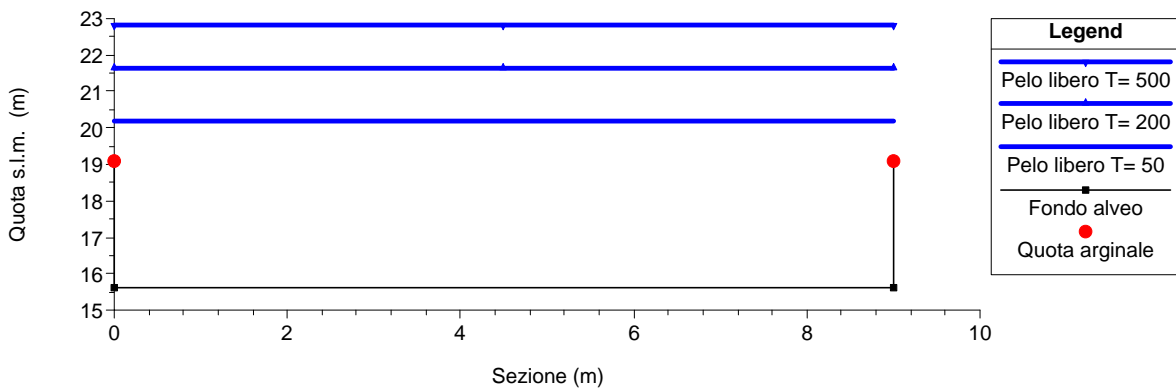
RS = 63



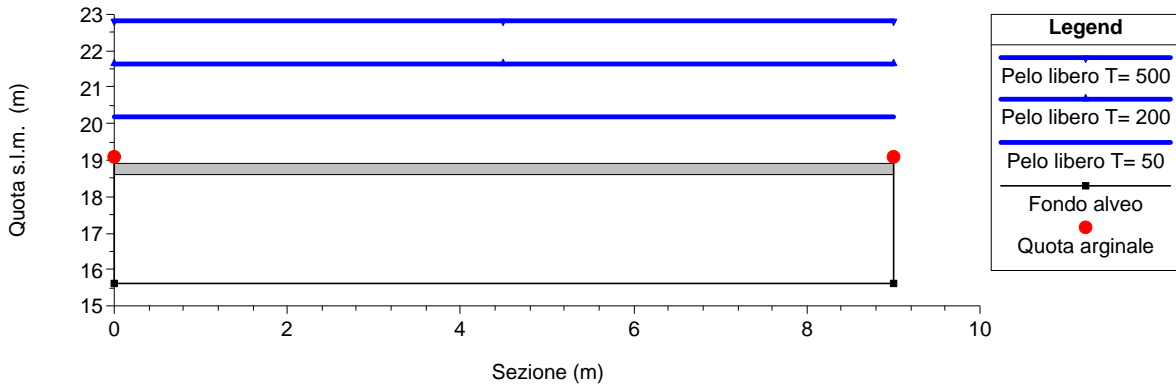
RS = 62



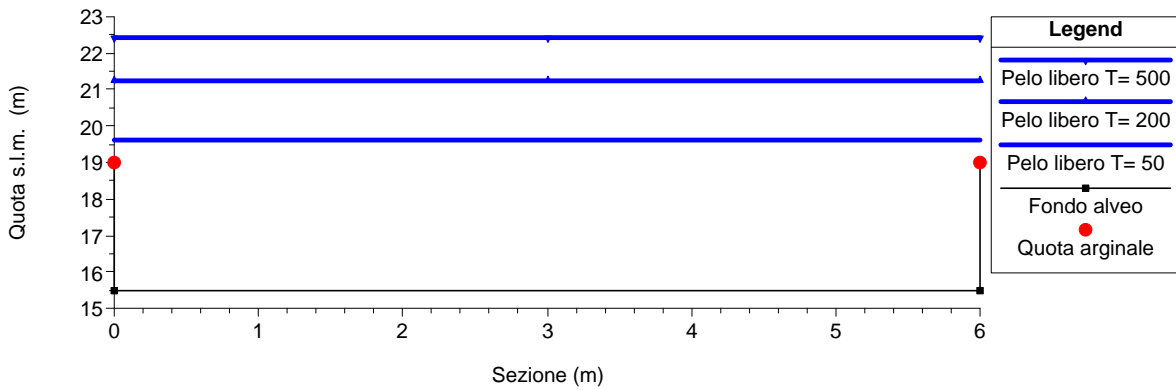
RS = 61



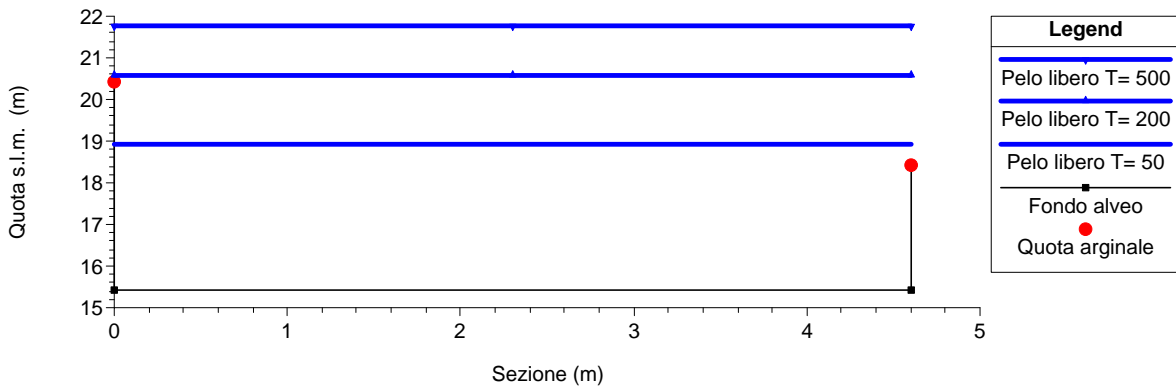
RS = 60.5 BR



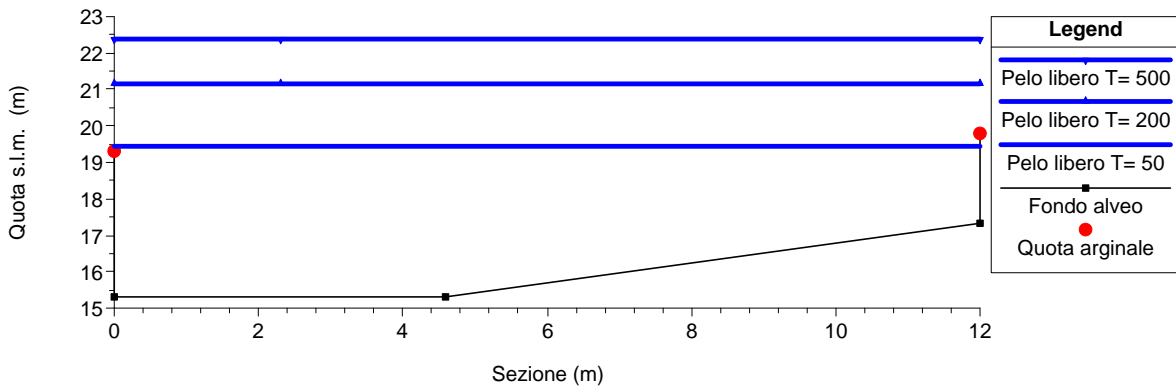
RS = 60



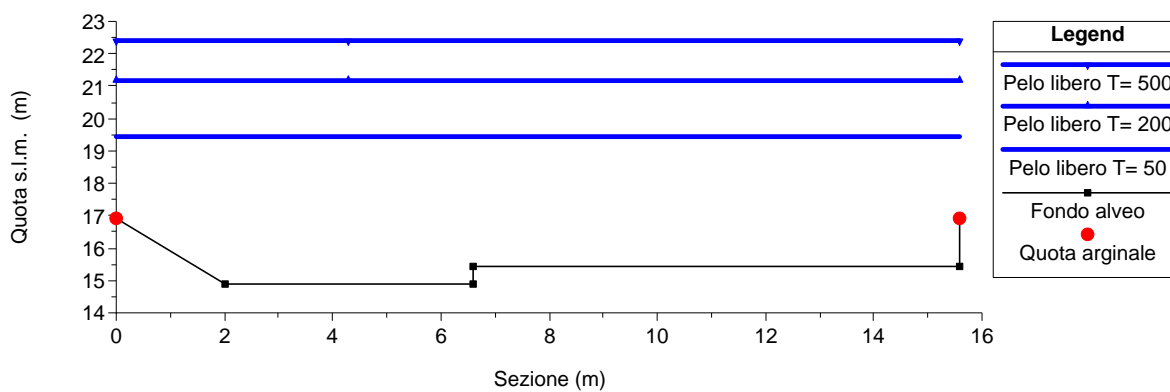
RS = 59



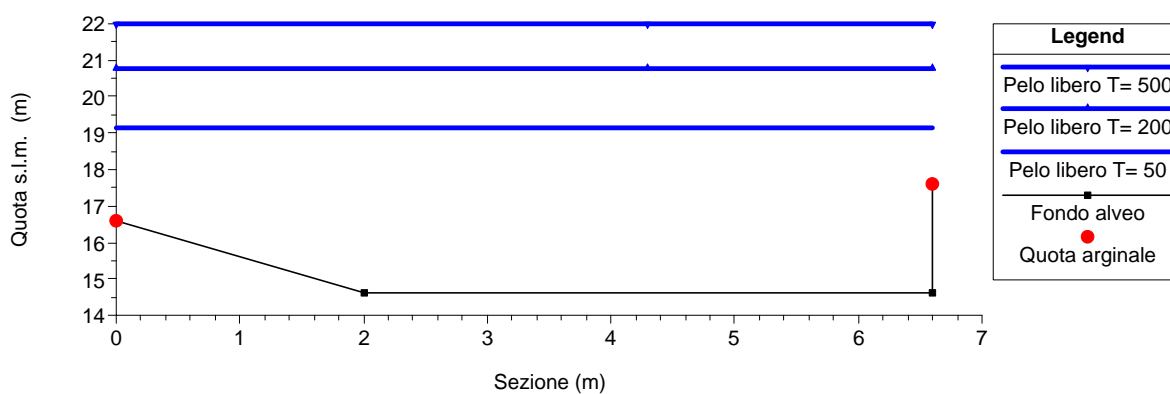
RS = 58



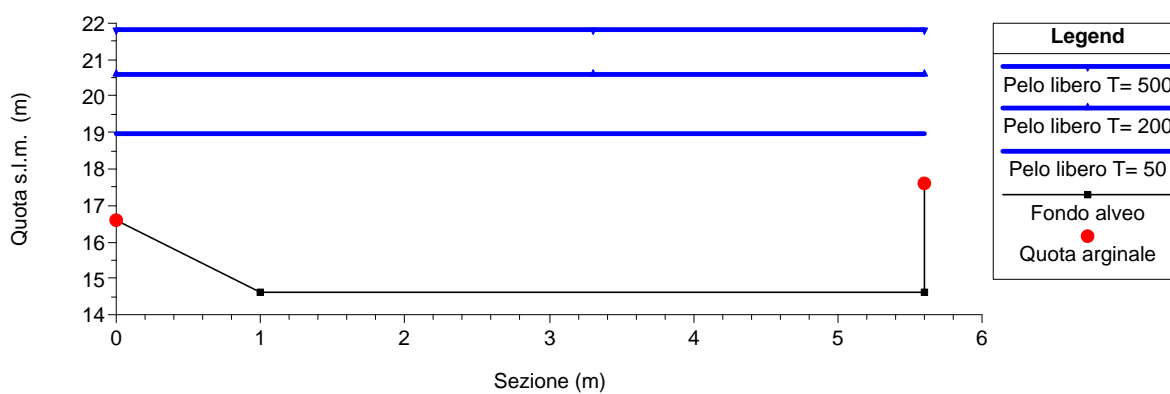
RS = 57



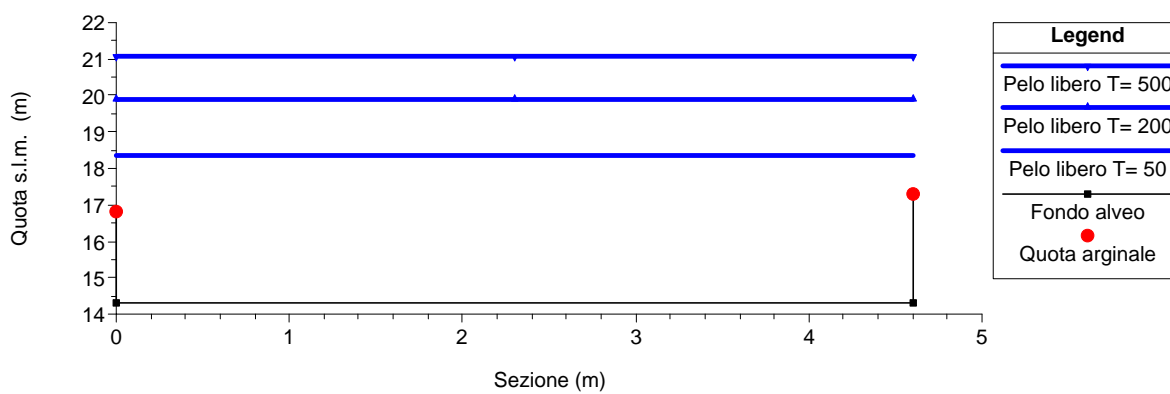
RS = 56



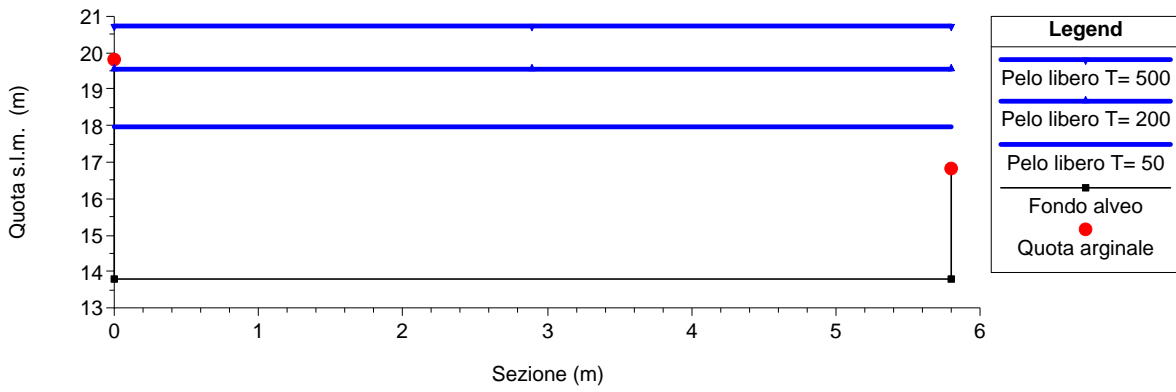
RS = 55



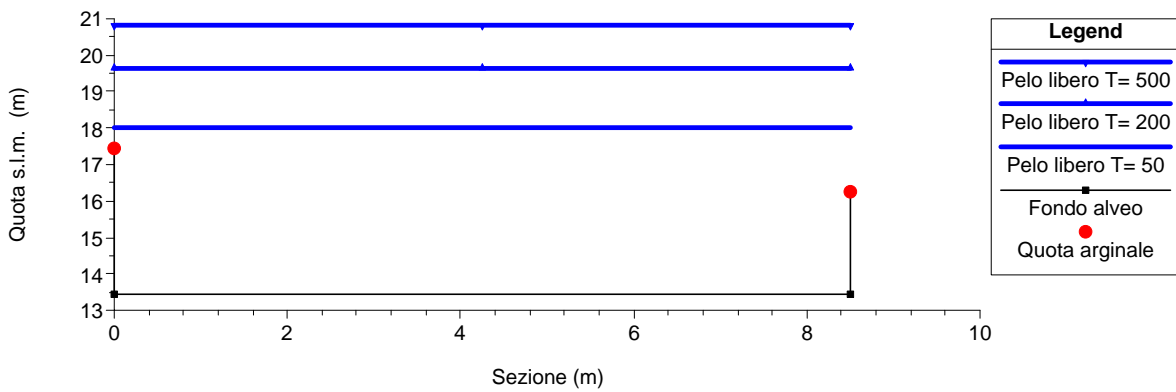
RS = 54



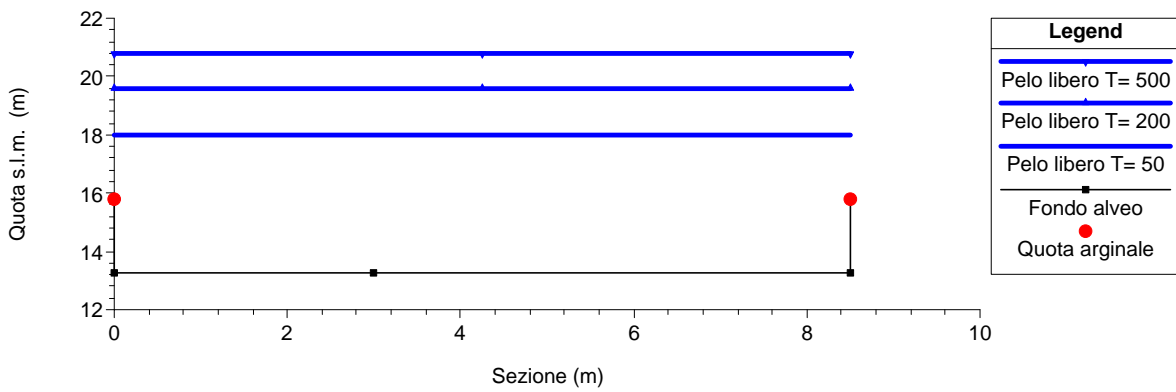
RS = 53



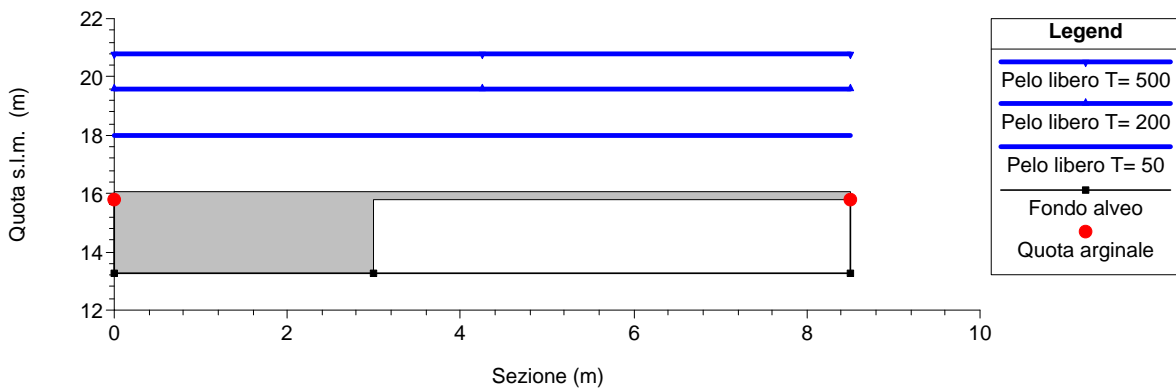
RS = 52



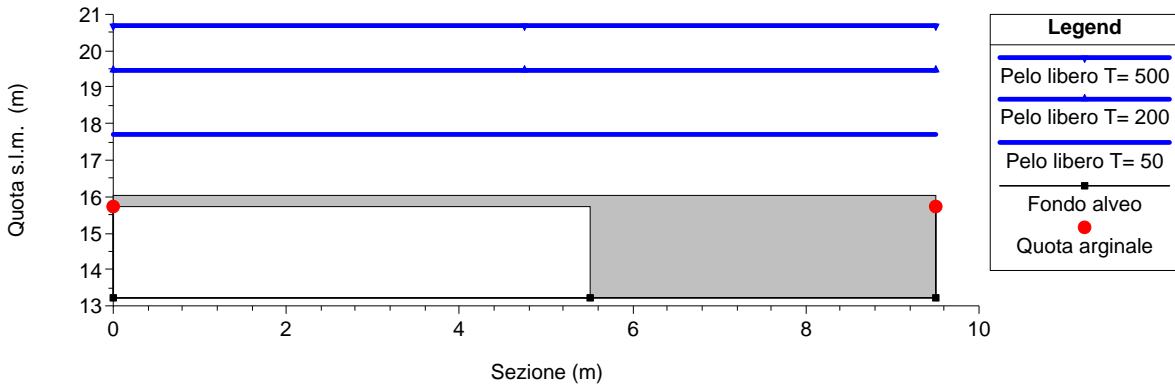
RS = 51



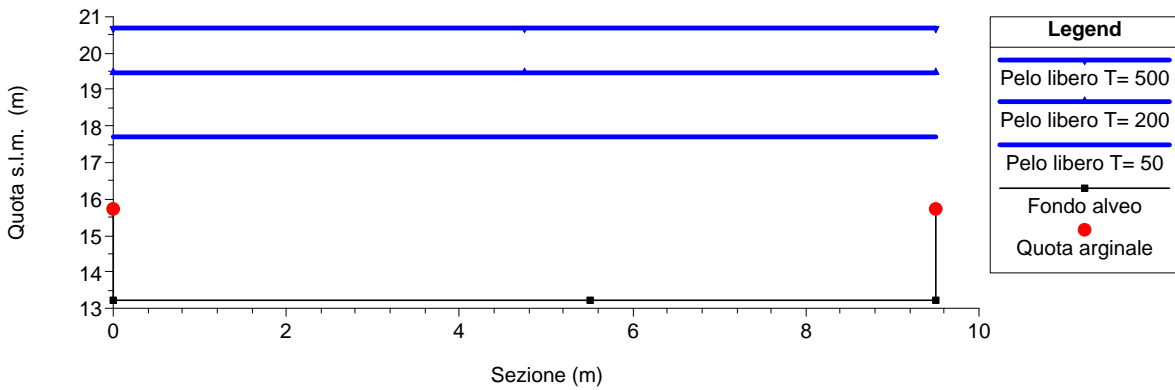
RS = 50.5 Culv



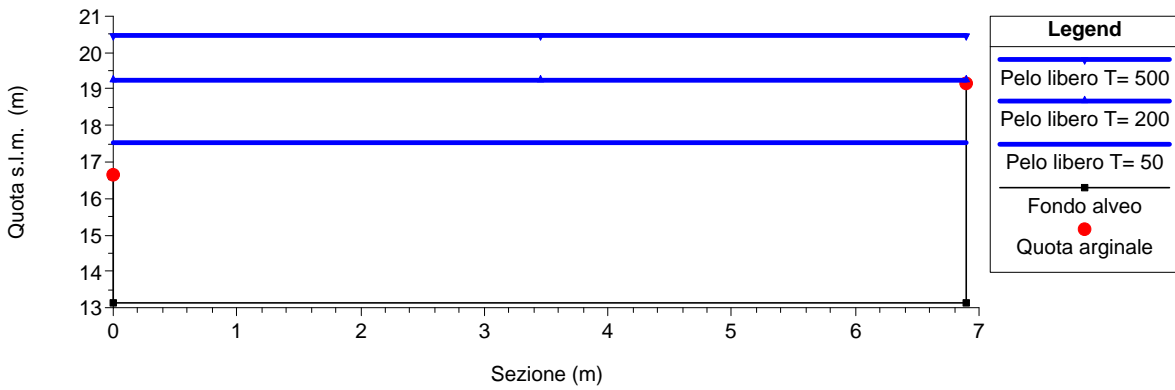
RS = 50.5 Culv



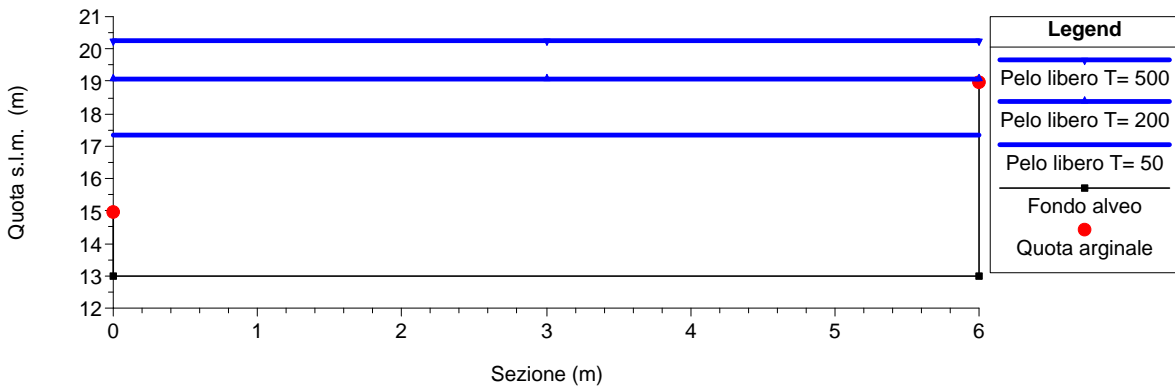
RS = 50



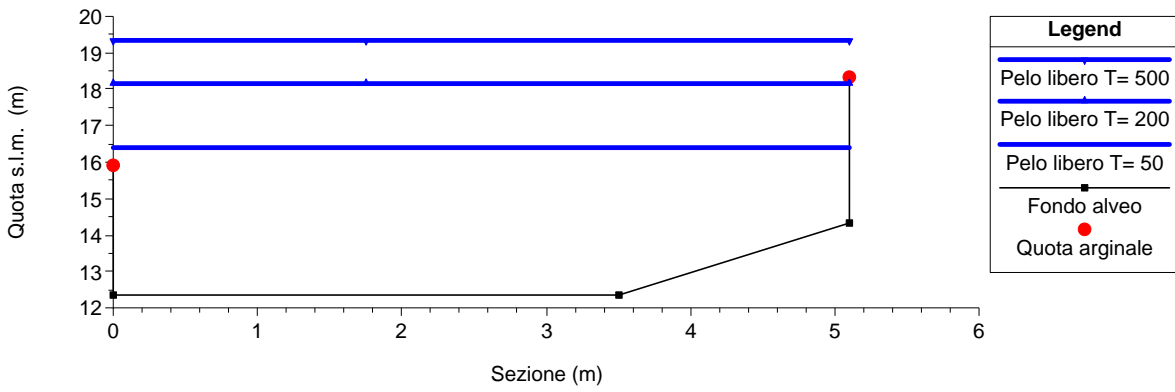
RS = 49



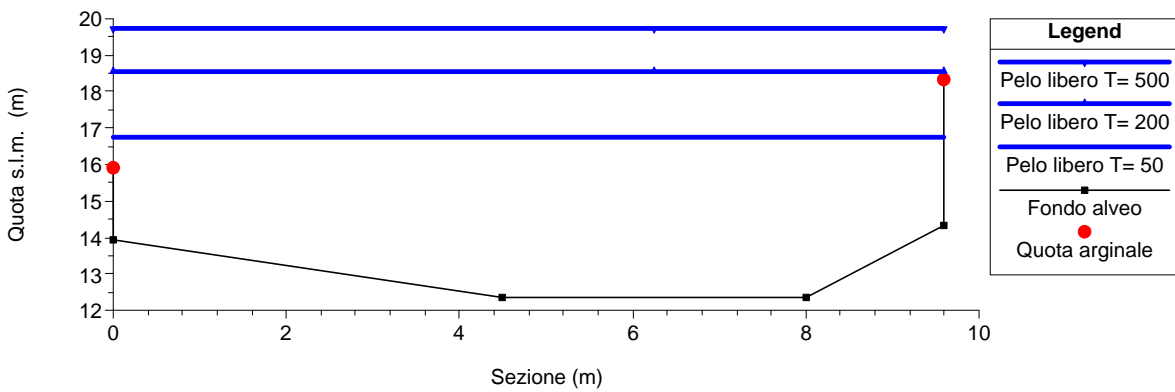
RS = 48



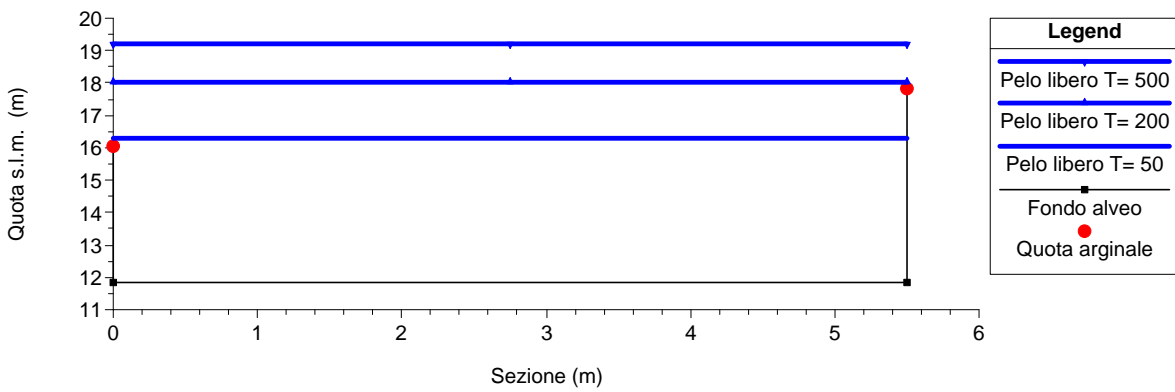
RS = 47



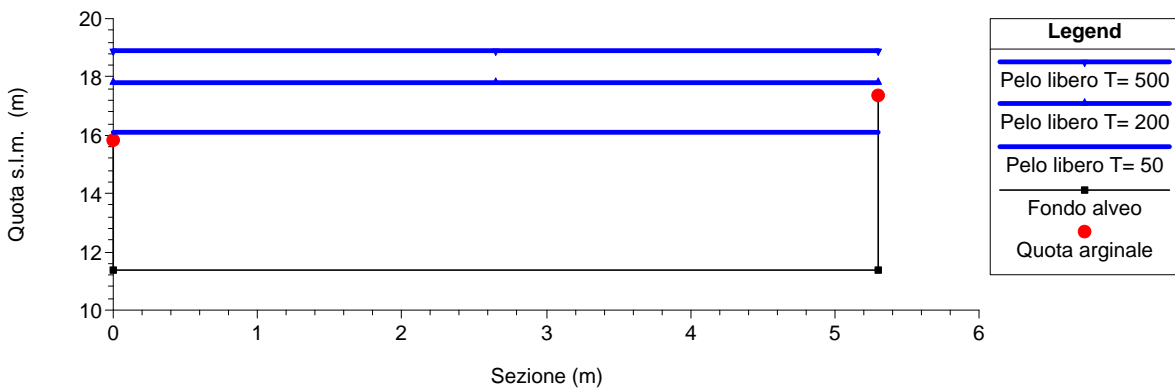
RS = 46



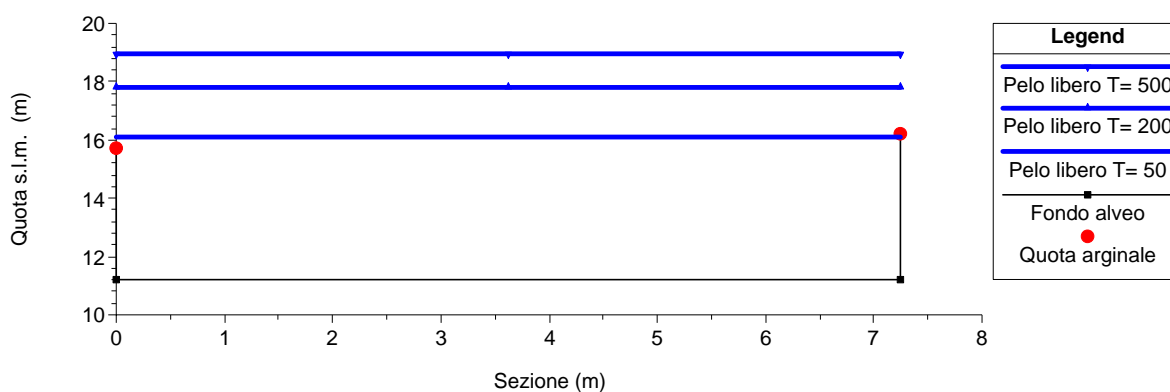
RS = 45



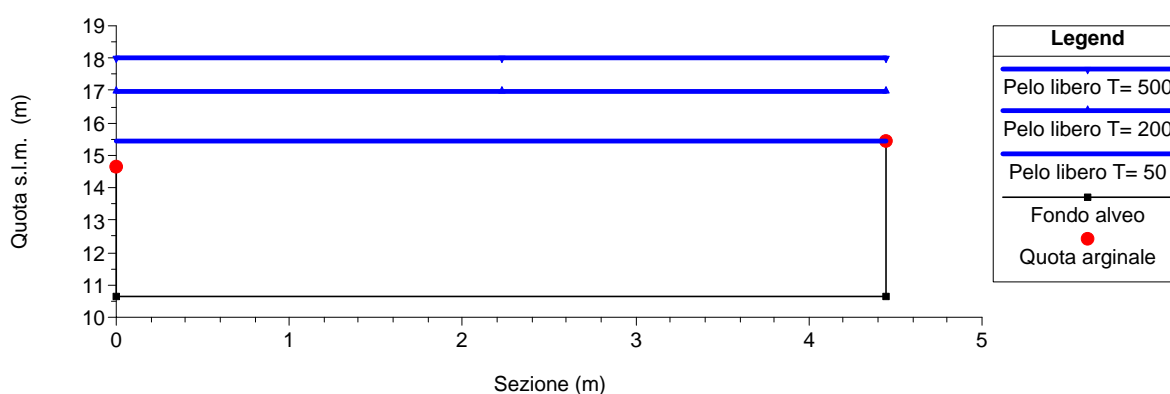
RS = 44



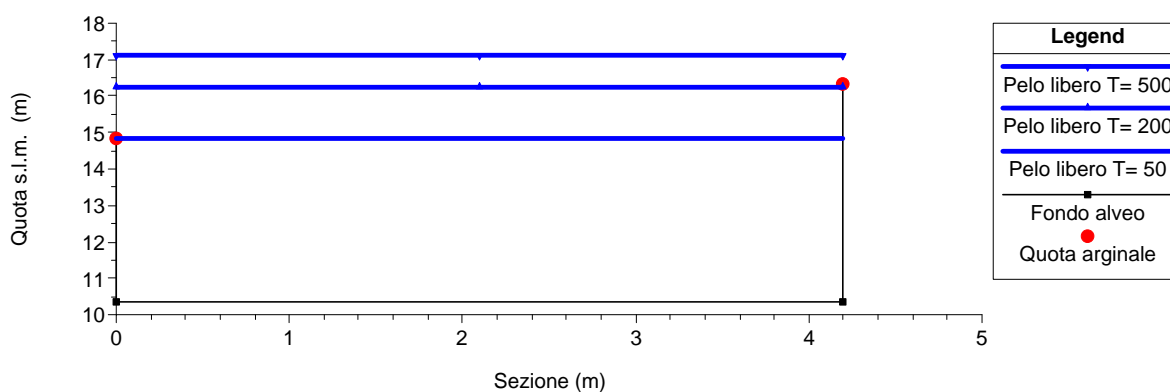
RS = 43



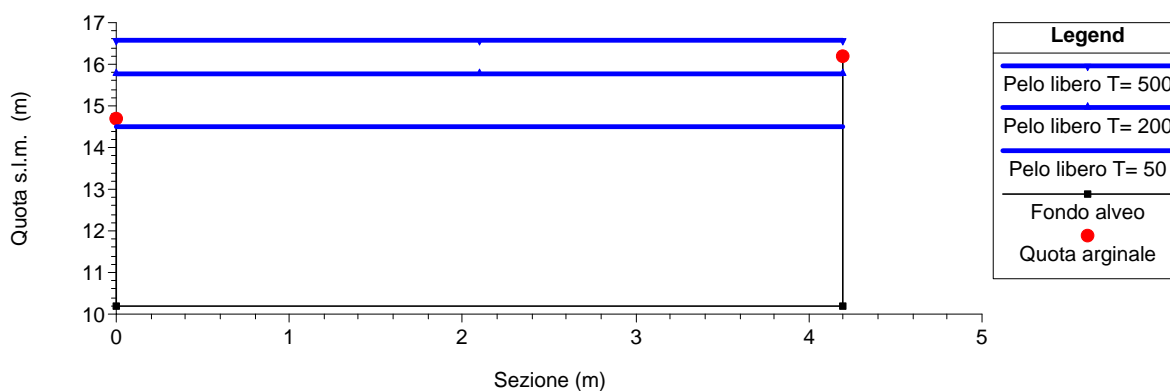
RS = 42



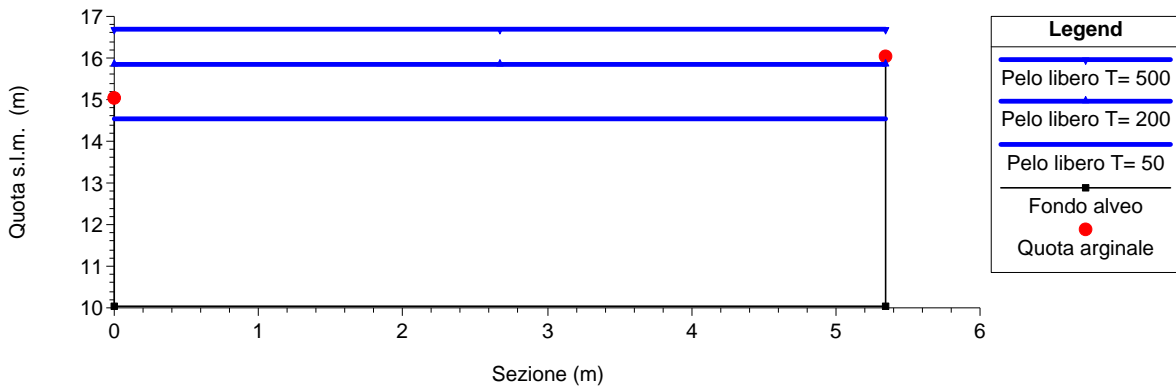
RS = 41



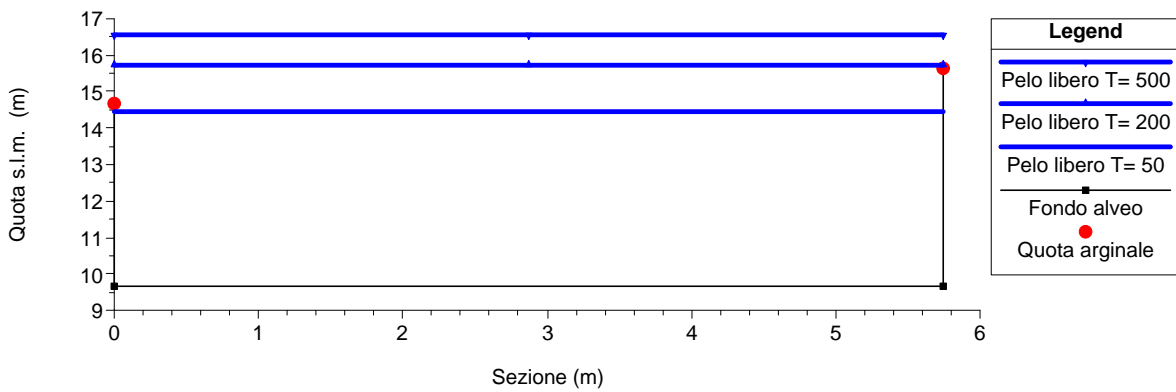
RS = 40



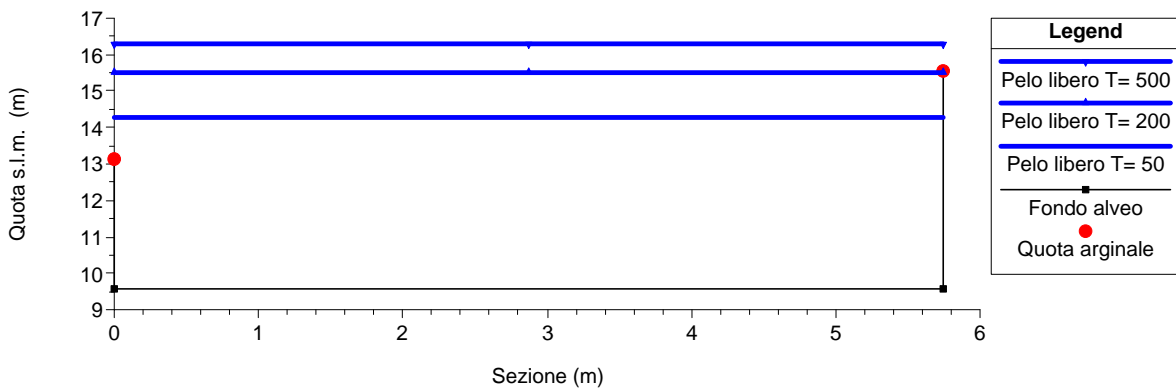
RS = 39



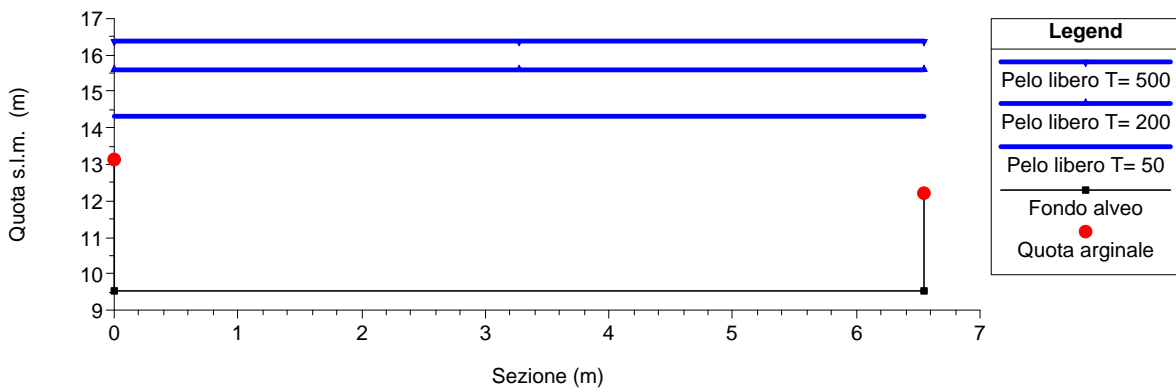
RS = 38



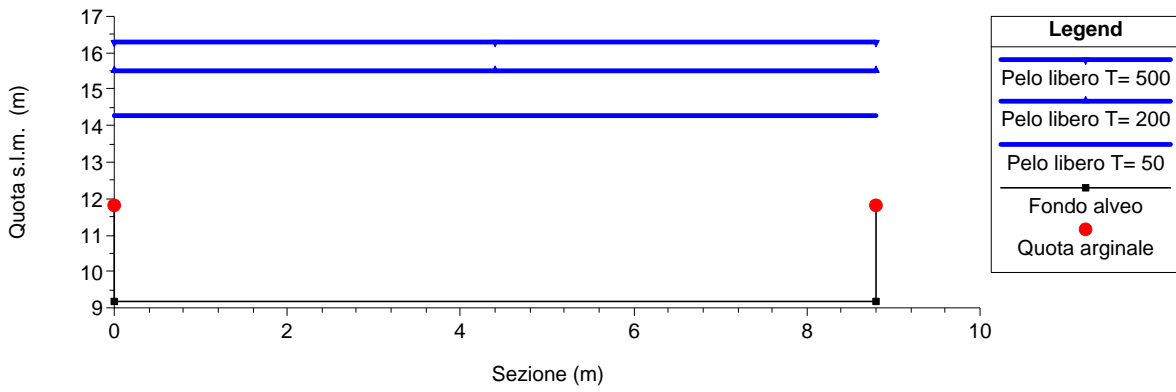
RS = 37



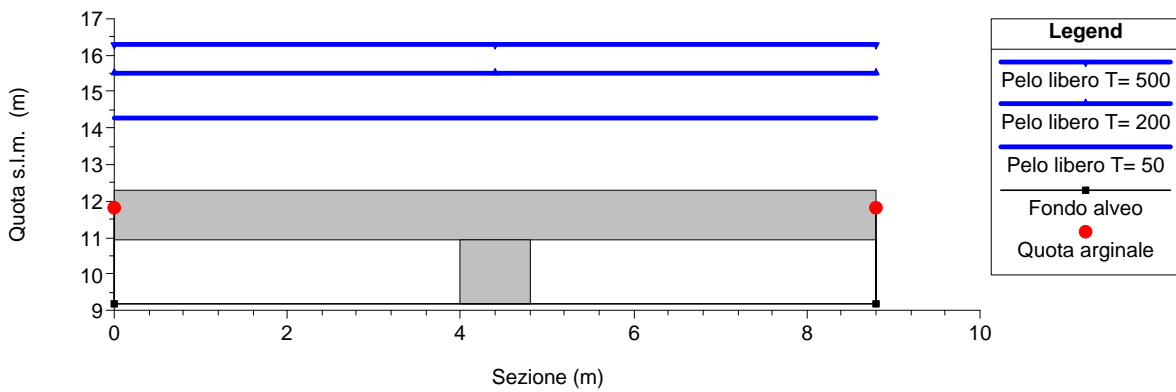
RS = 36



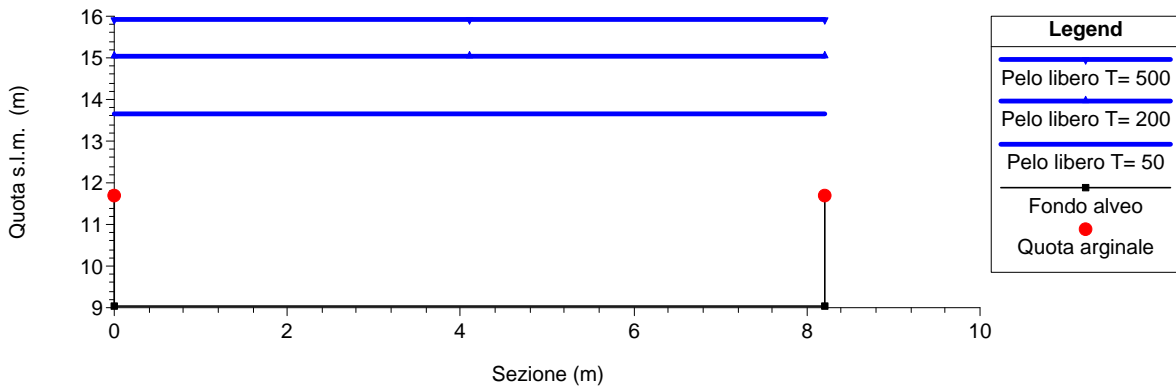
RS = 35



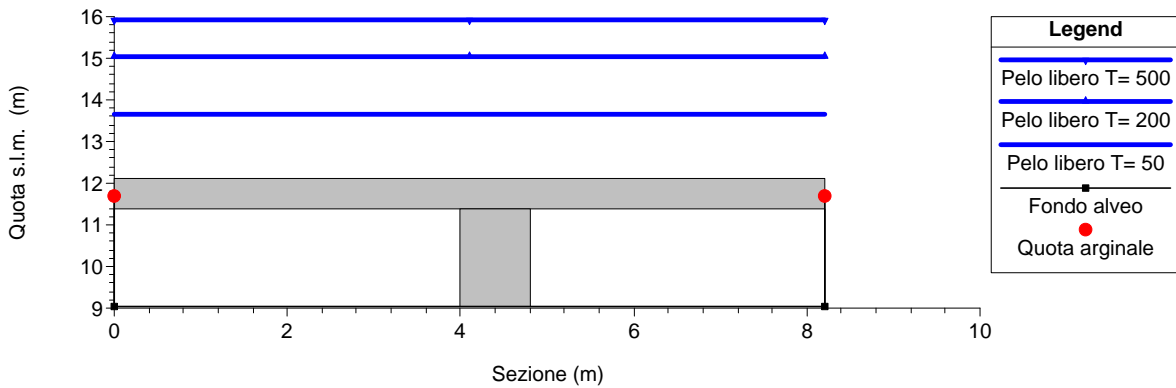
RS = 34.5 BR



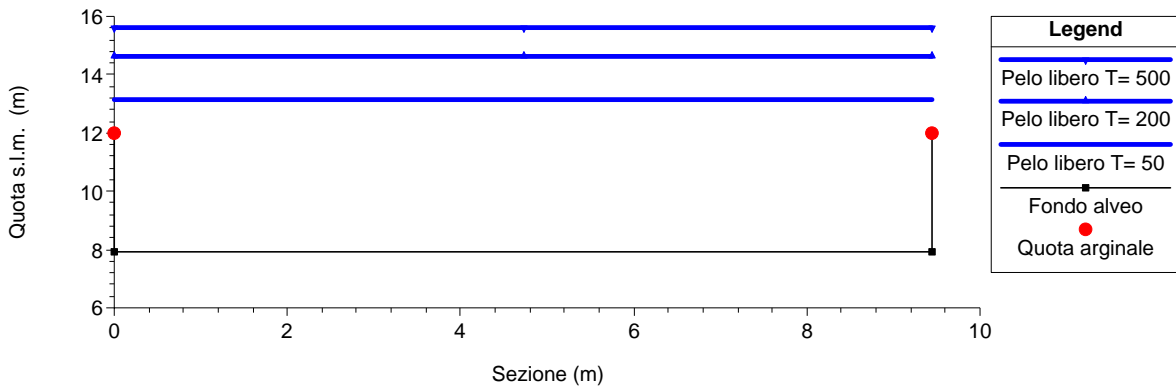
RS = 34



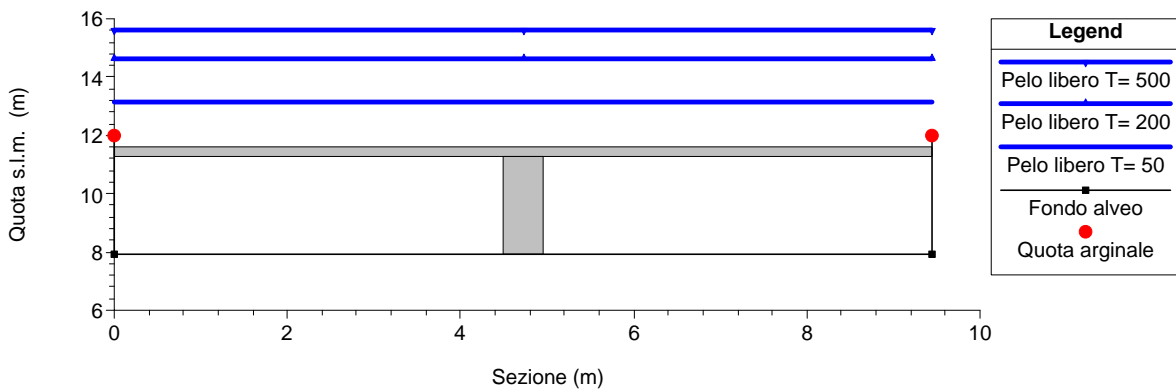
RS = 33.5 BR



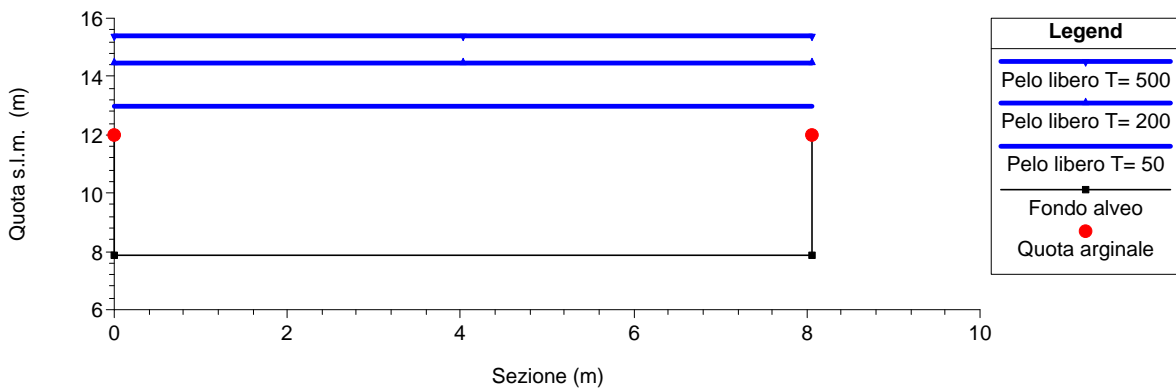
RS = 33



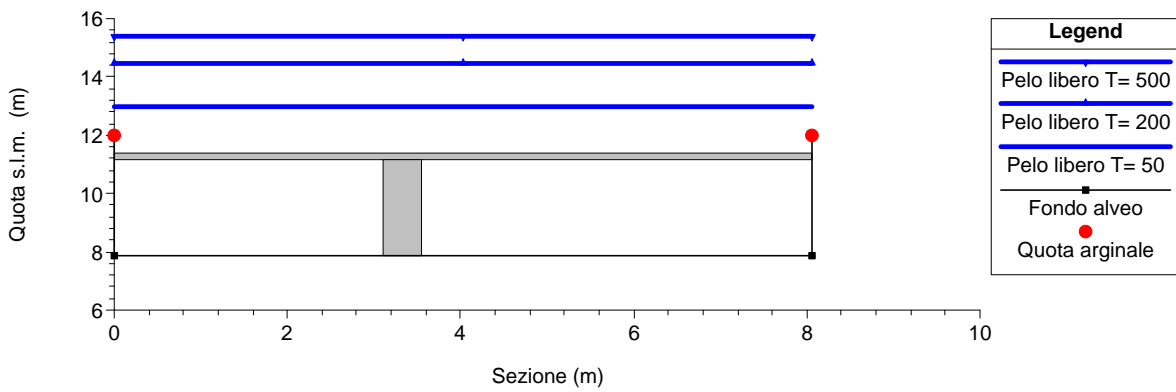
RS = 32.5 BR



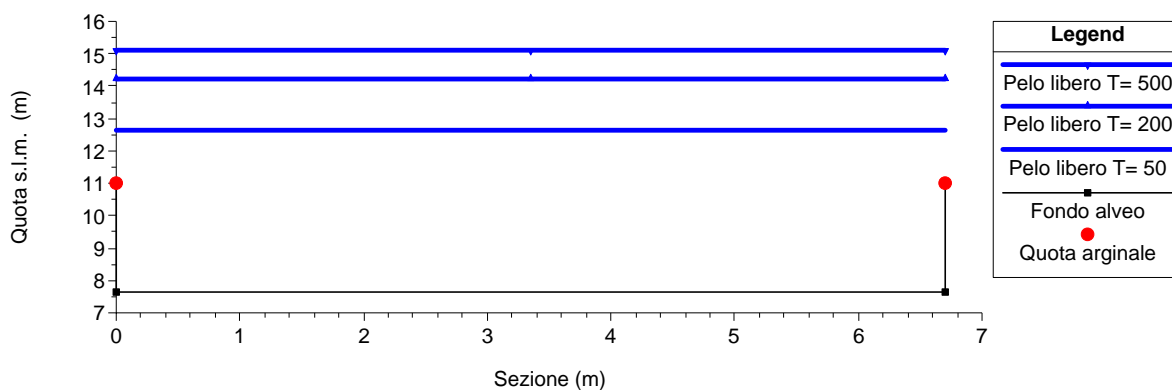
RS = 32



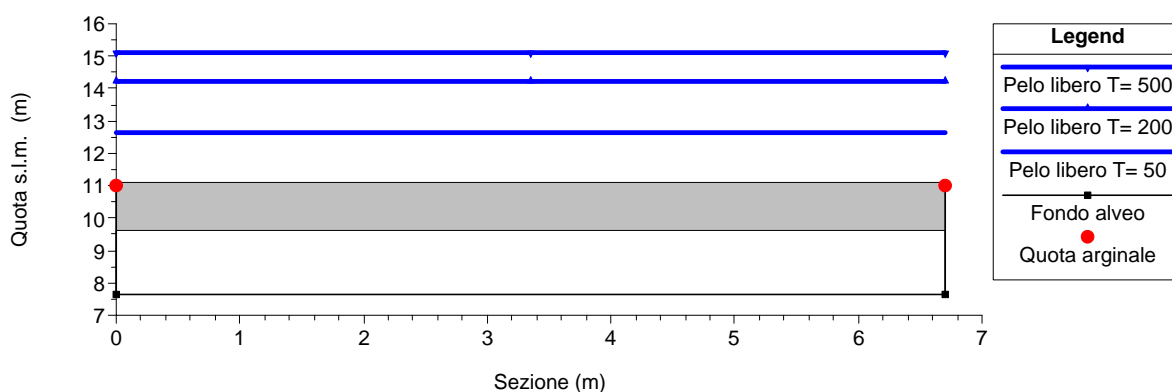
RS = 31.5 BR



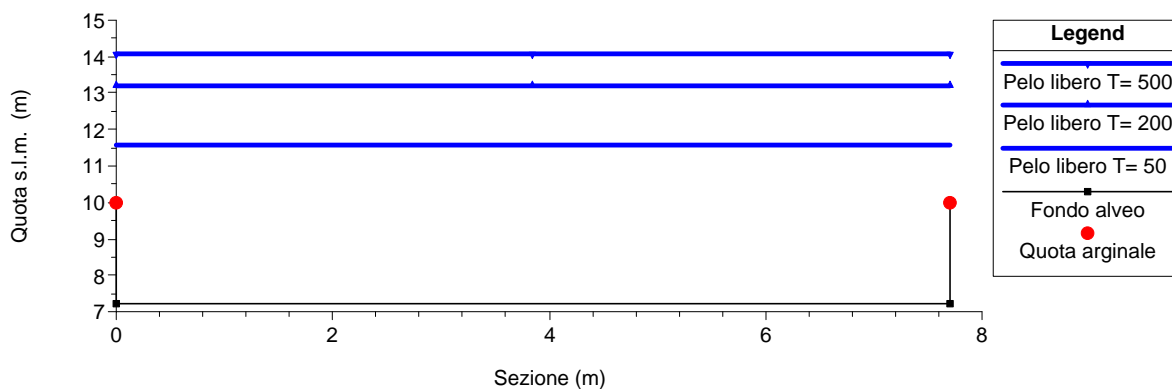
RS = 31



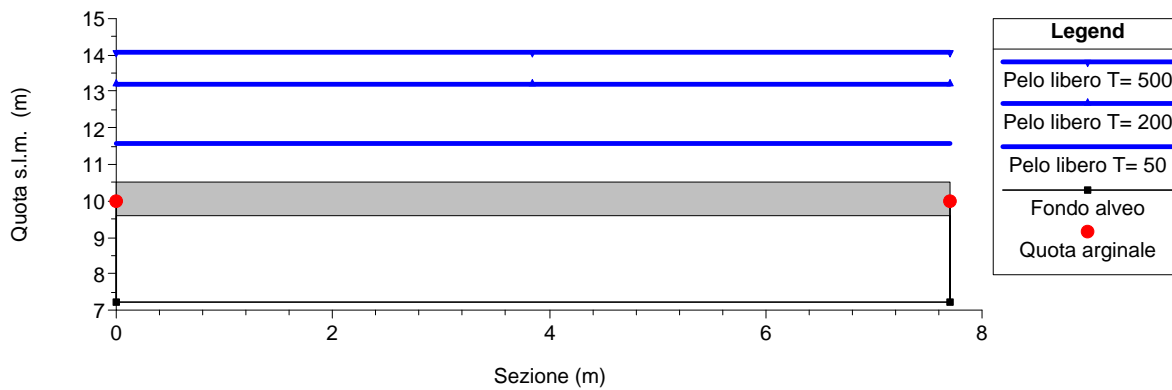
RS = 30.5 BR



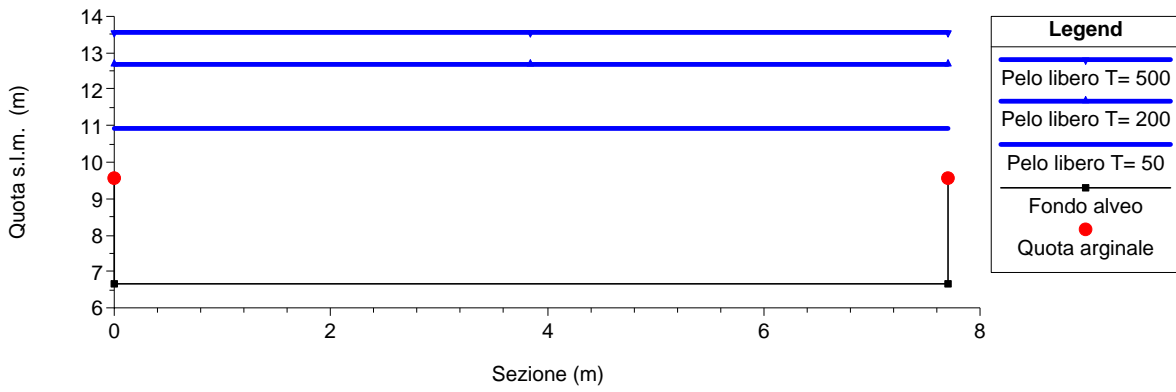
RS = 30



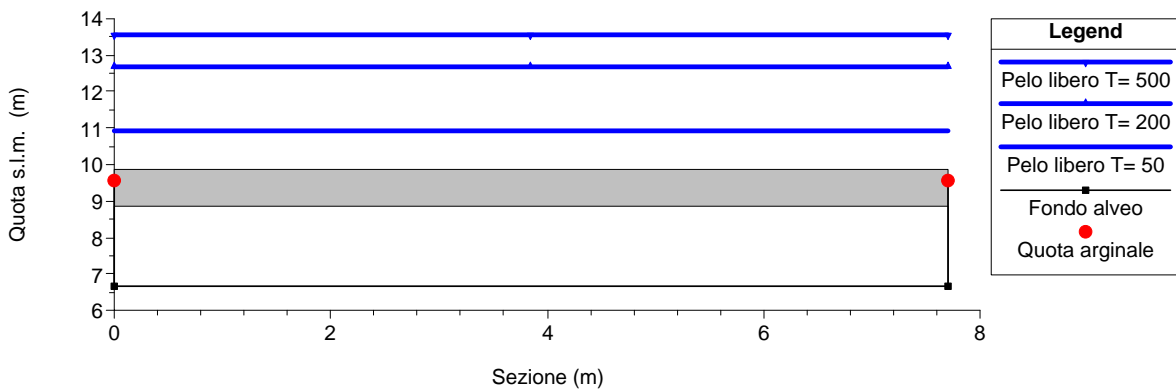
RS = 29.5 BR



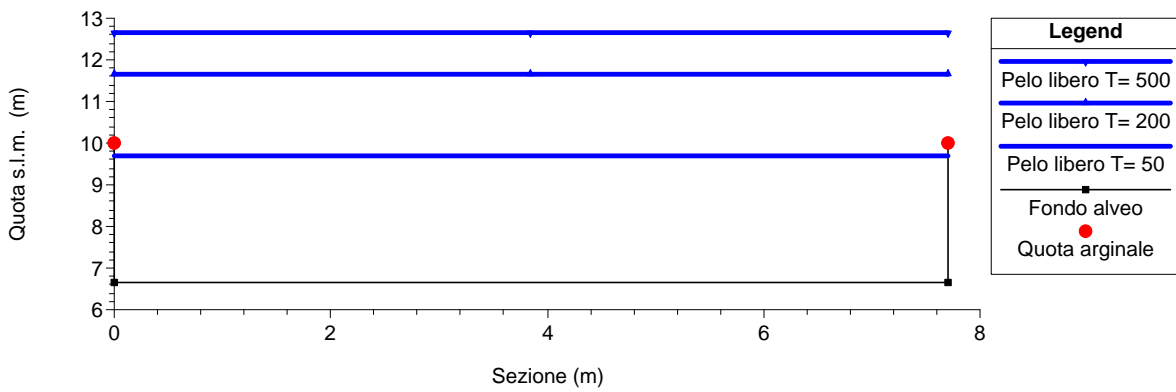
RS = 29



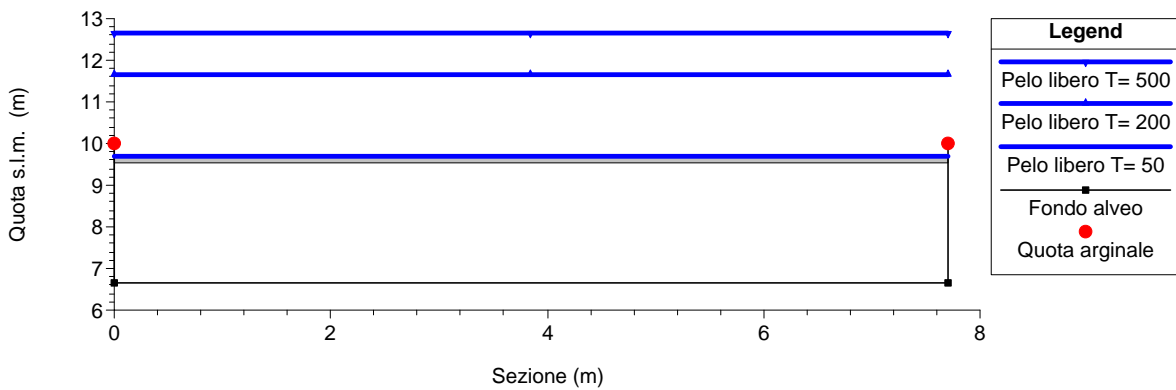
RS = 28.5 Culv



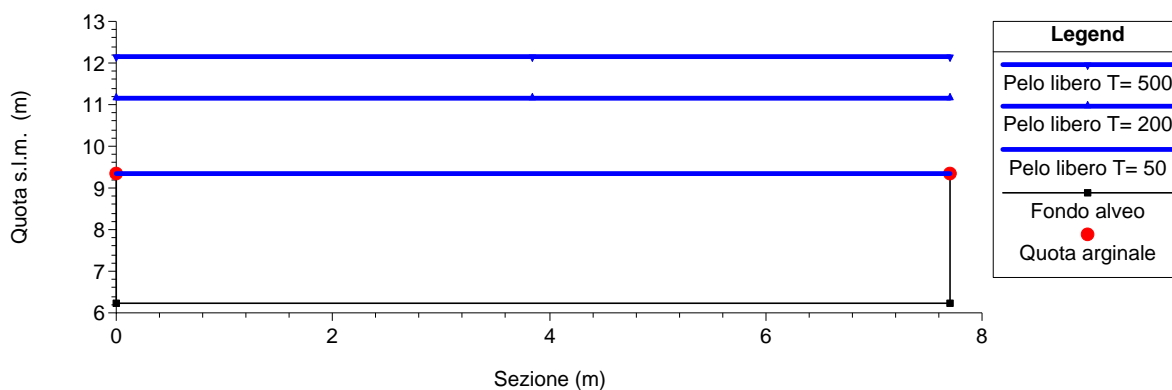
RS = 28



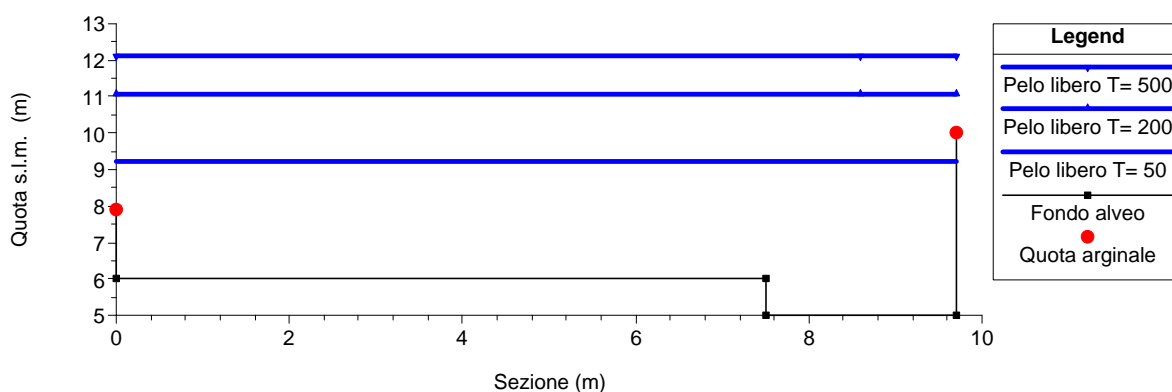
RS = 27.5 BR



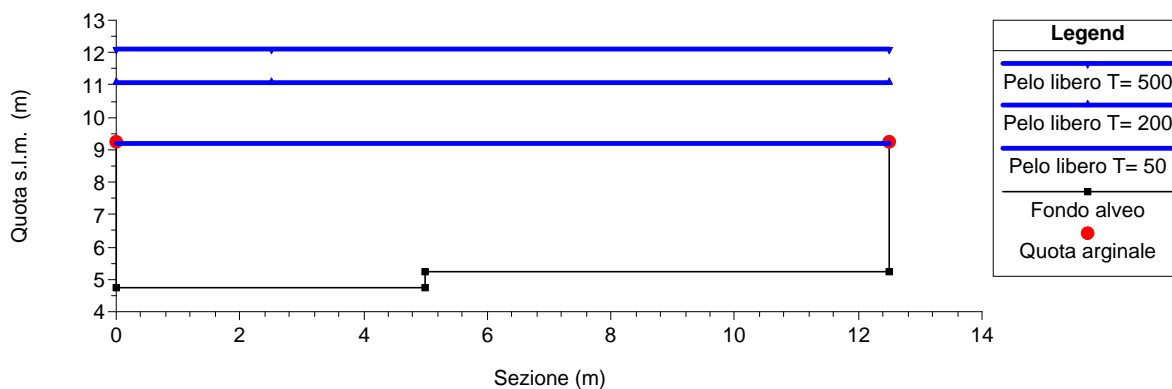
RS = 27



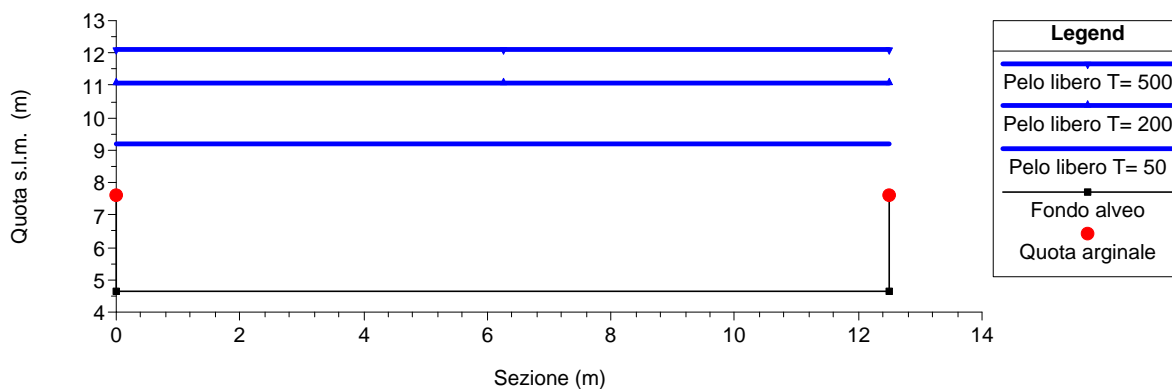
RS = 25



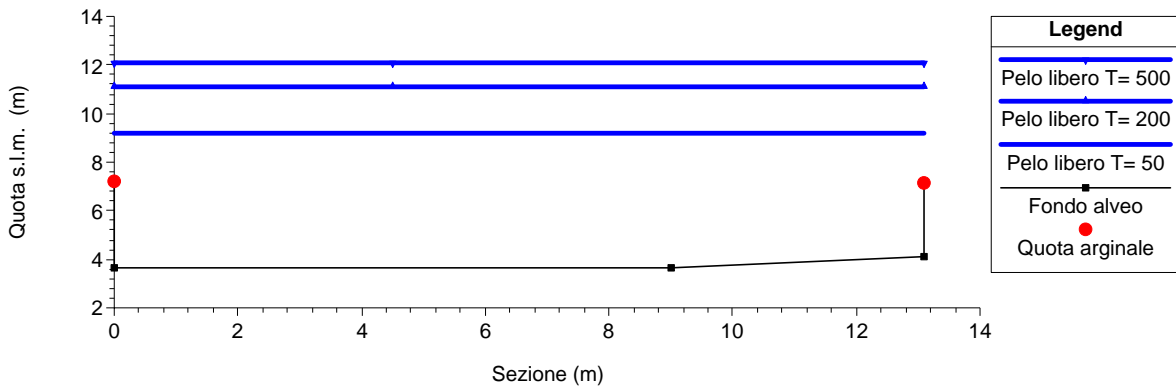
RS = 24



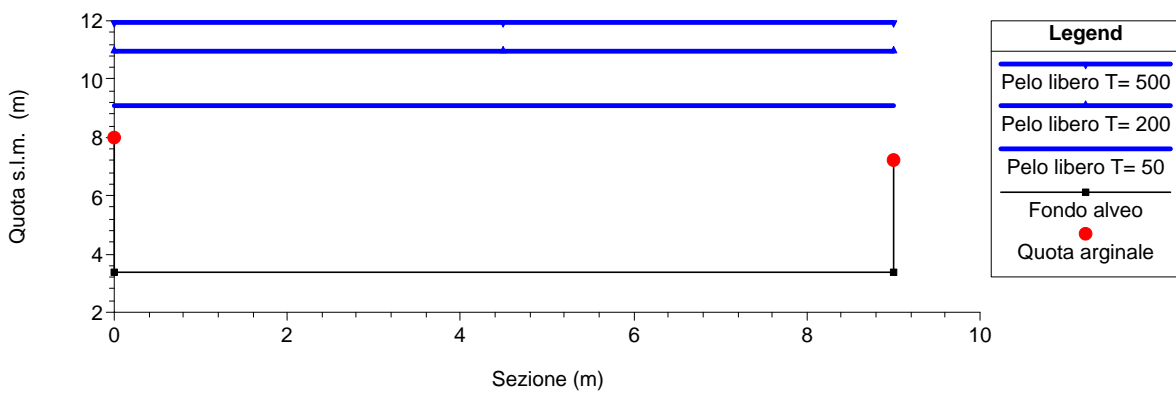
RS = 23



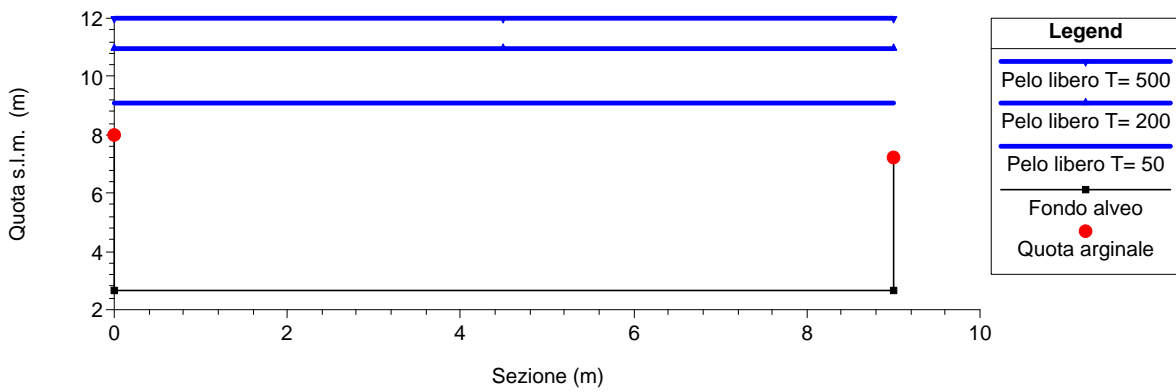
RS = 21



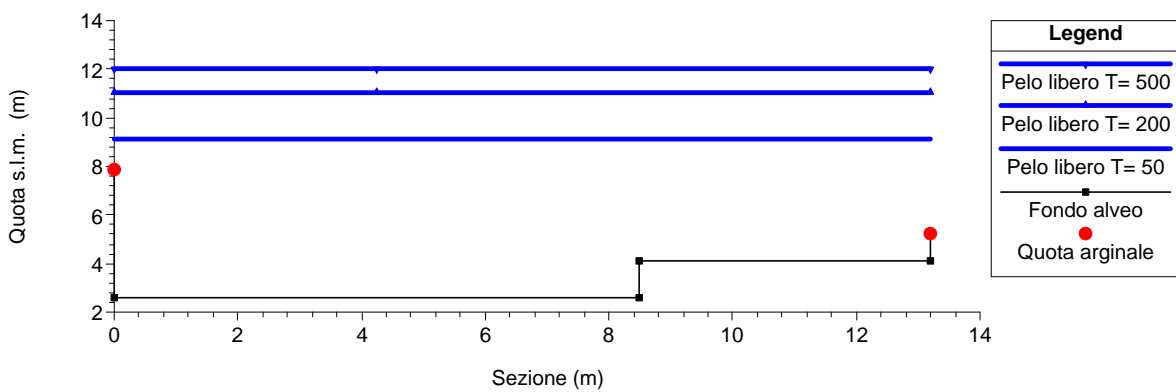
RS = 20



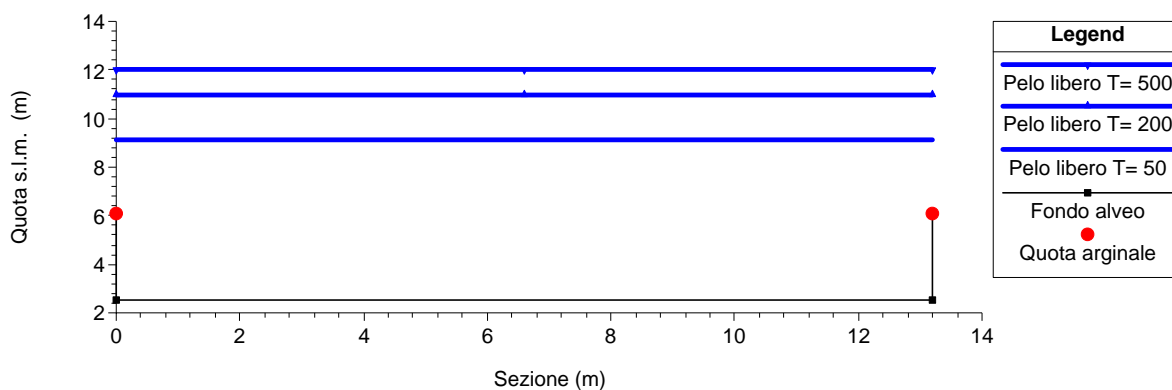
RS = 19



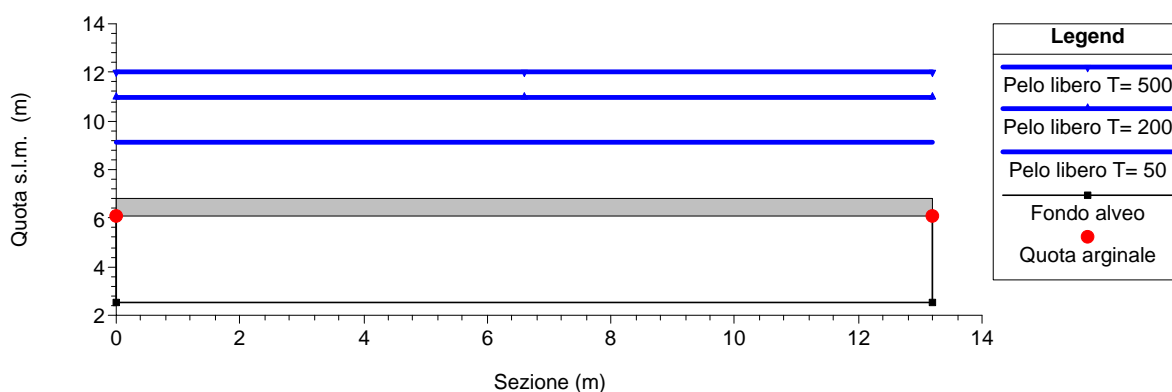
RS = 18



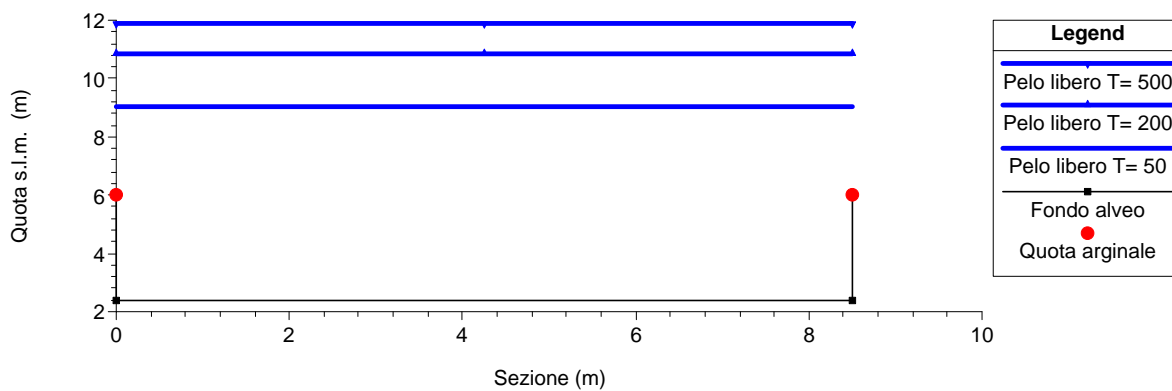
RS = 17



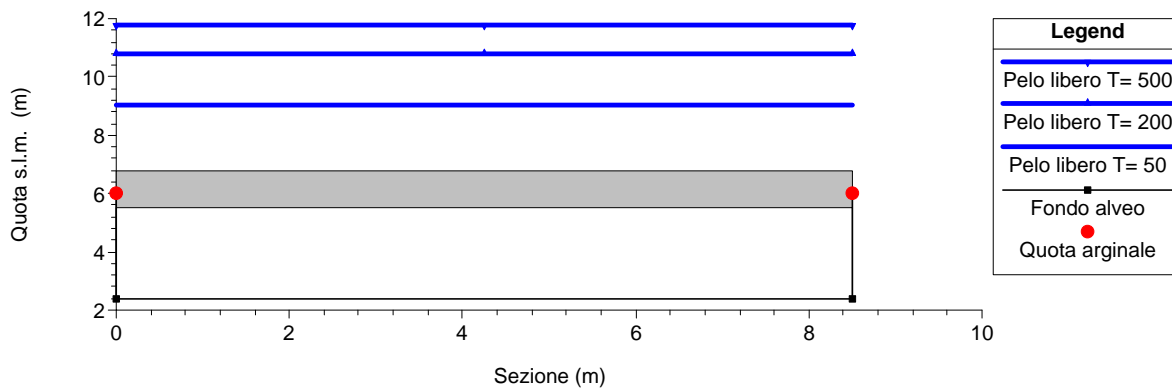
RS = 16.5 BR



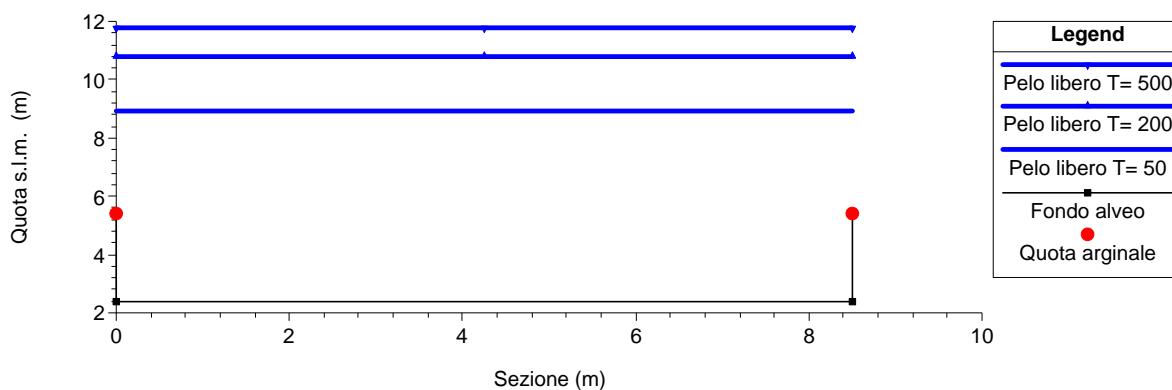
RS = 16



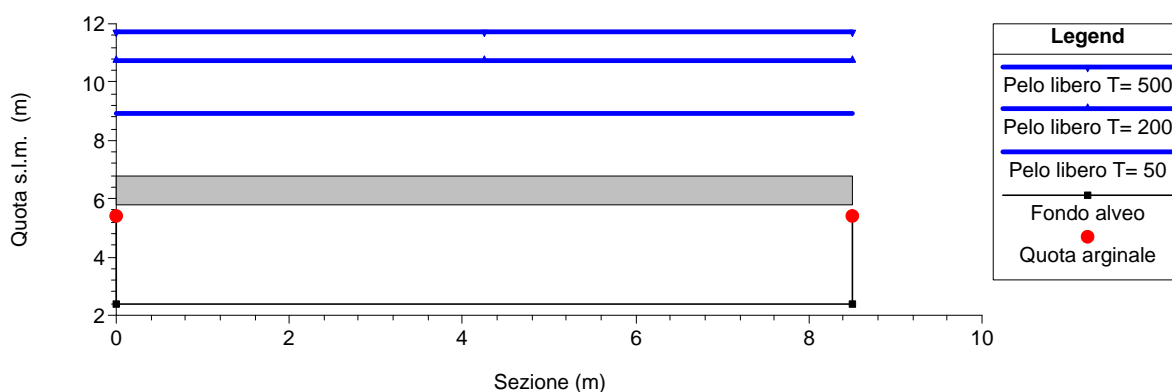
RS = 15.5 BR



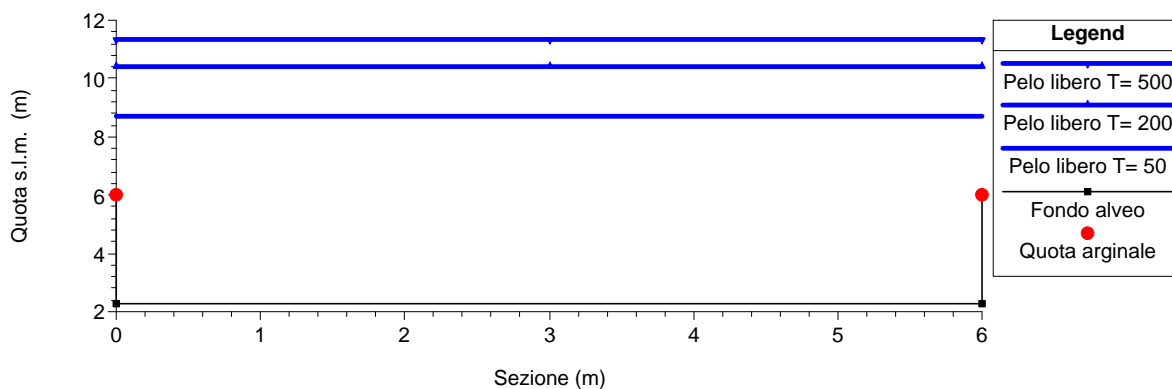
RS = 15



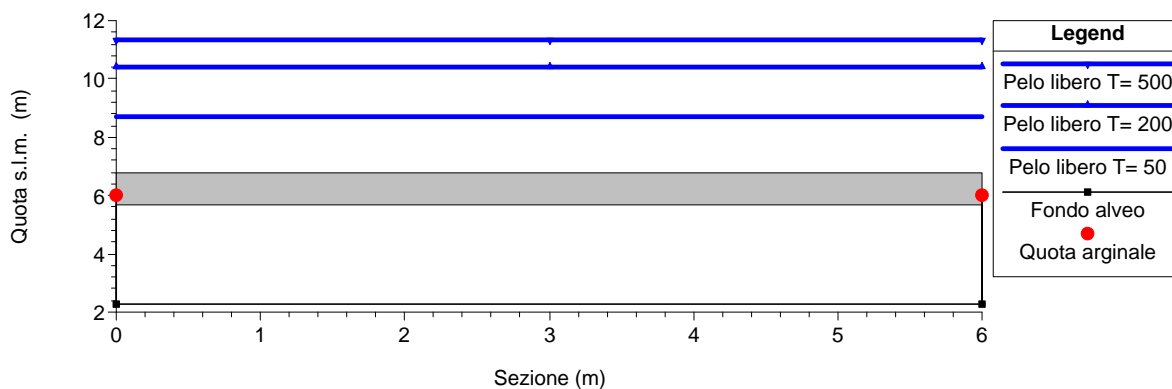
RS = 14.5 BR



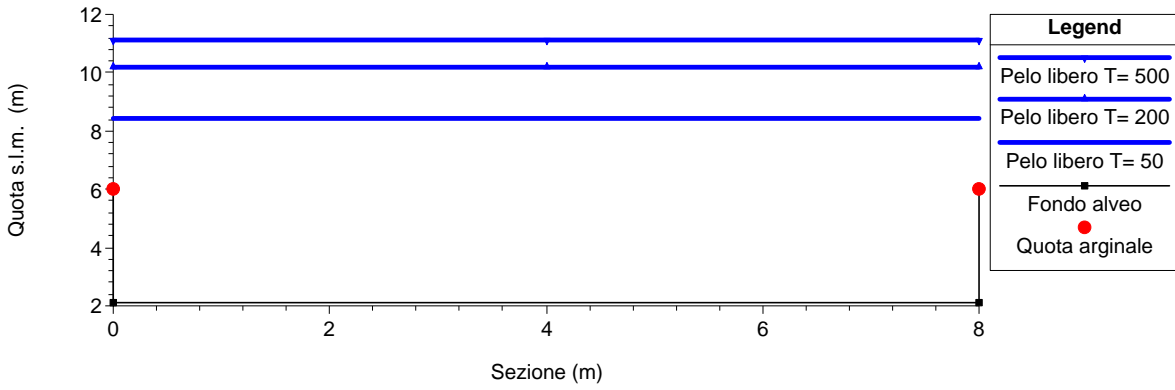
RS = 14



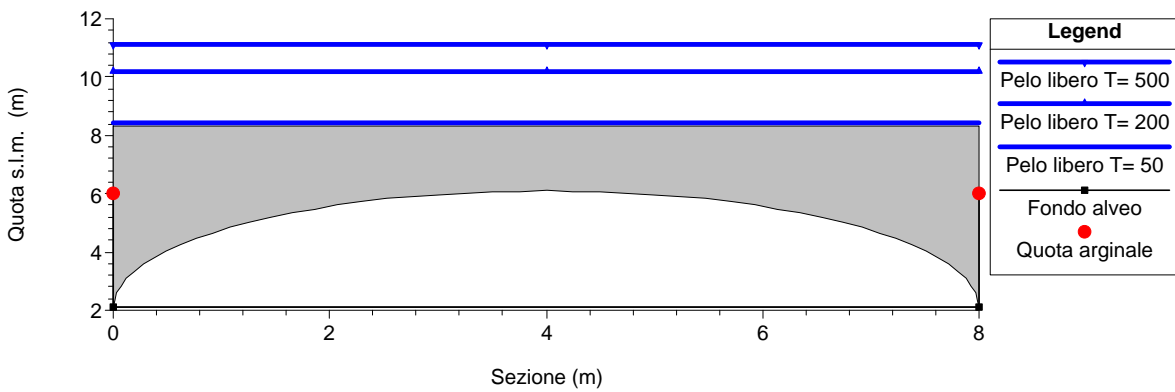
RS = 13.5 BR



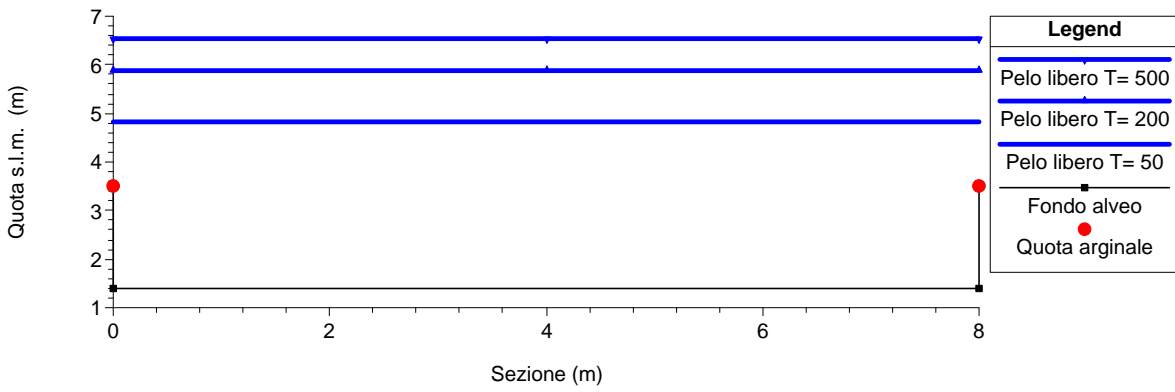
RS = 13



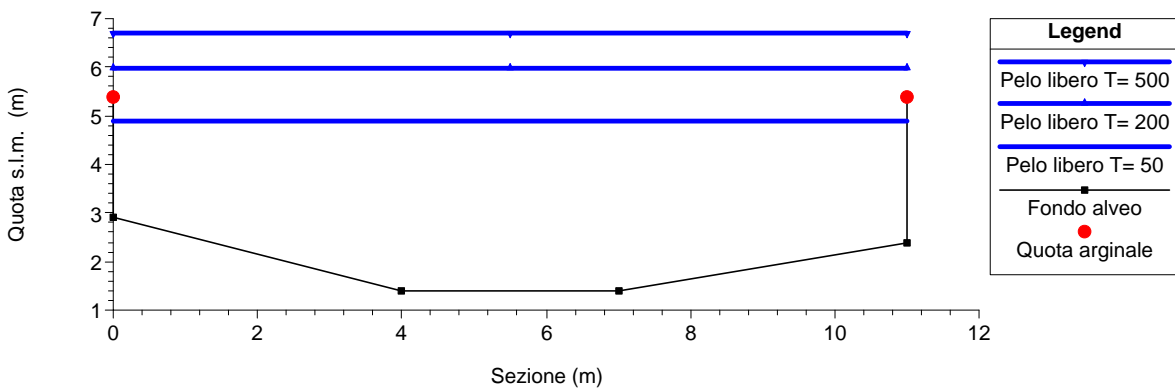
RS = 12.5 Culv



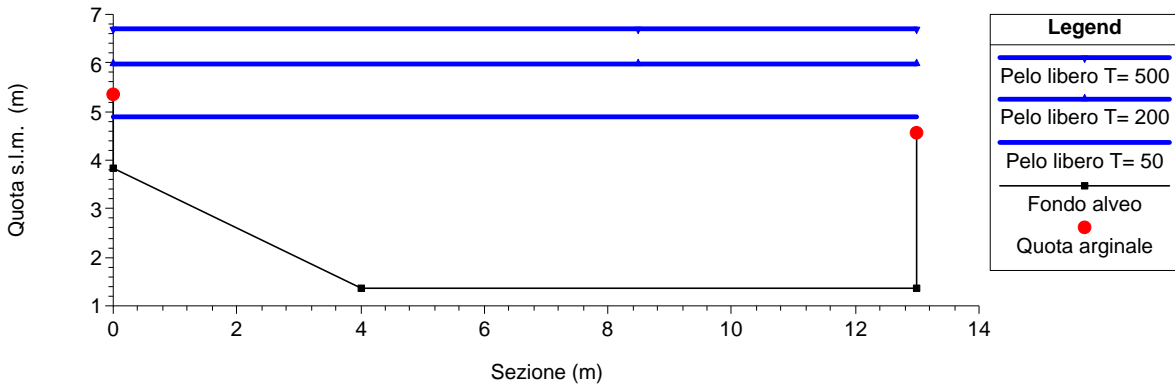
RS = 12



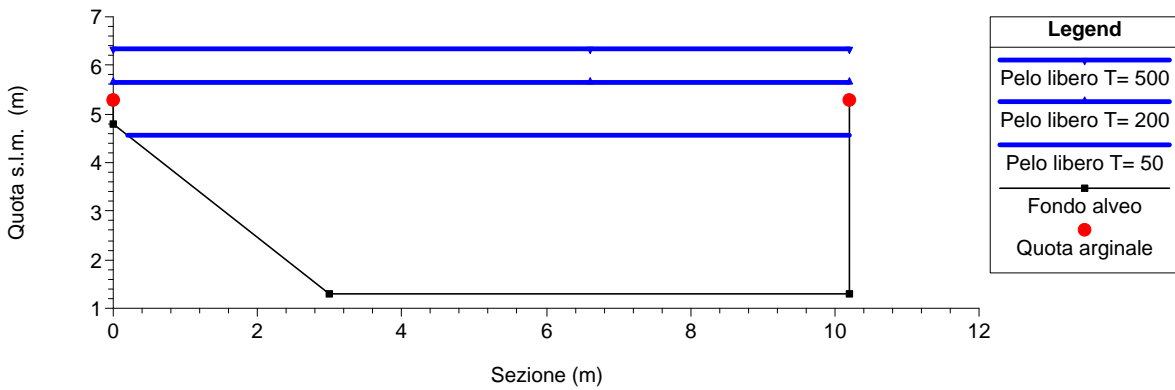
RS = 11



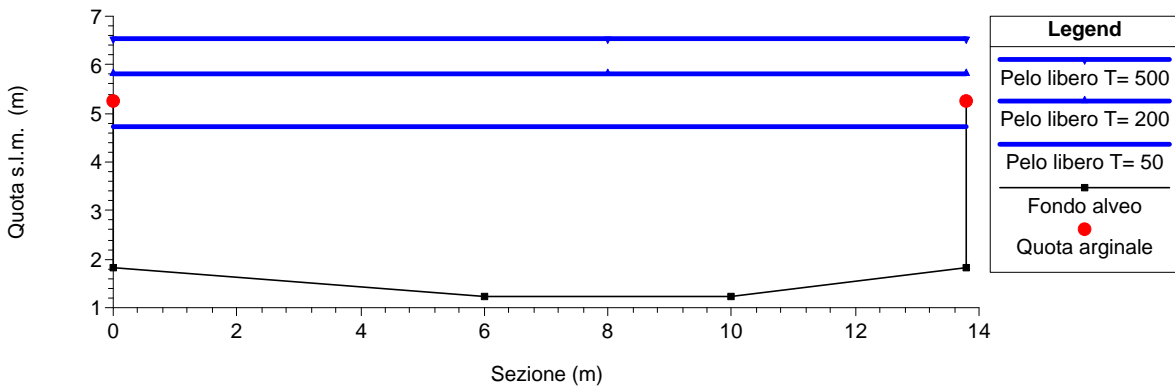
RS = 10



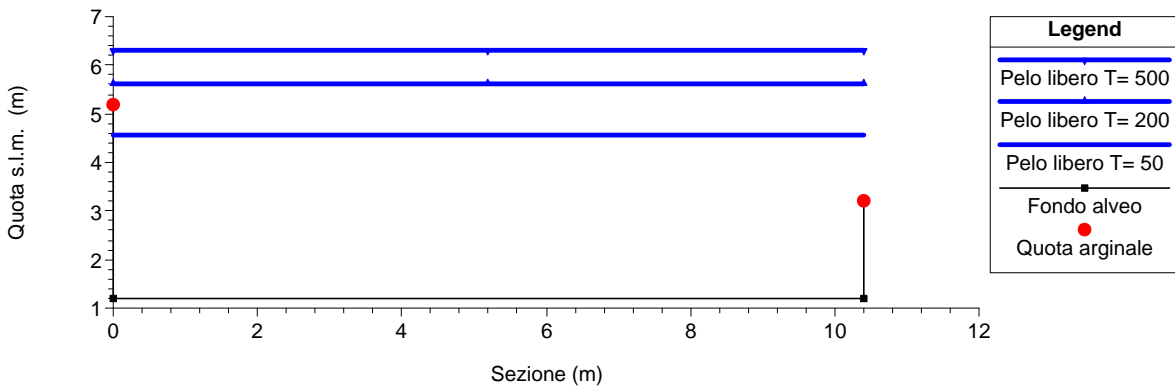
RS = 9



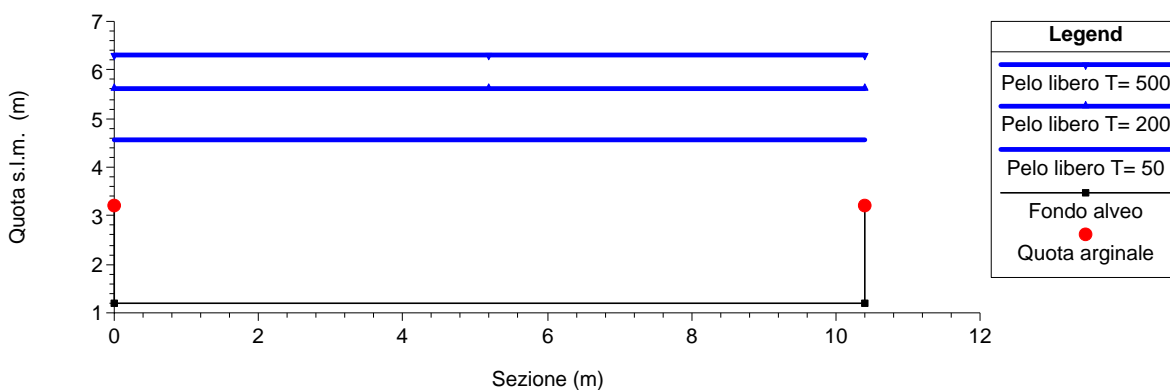
RS = 8



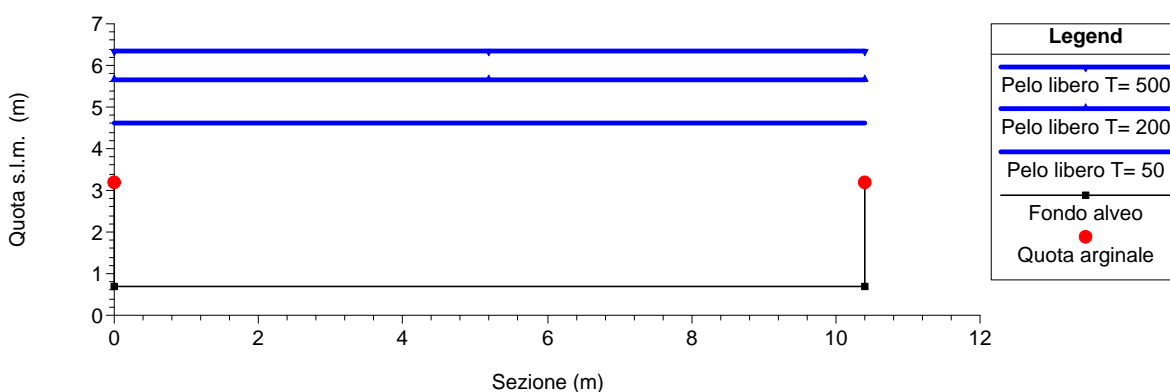
RS = 7



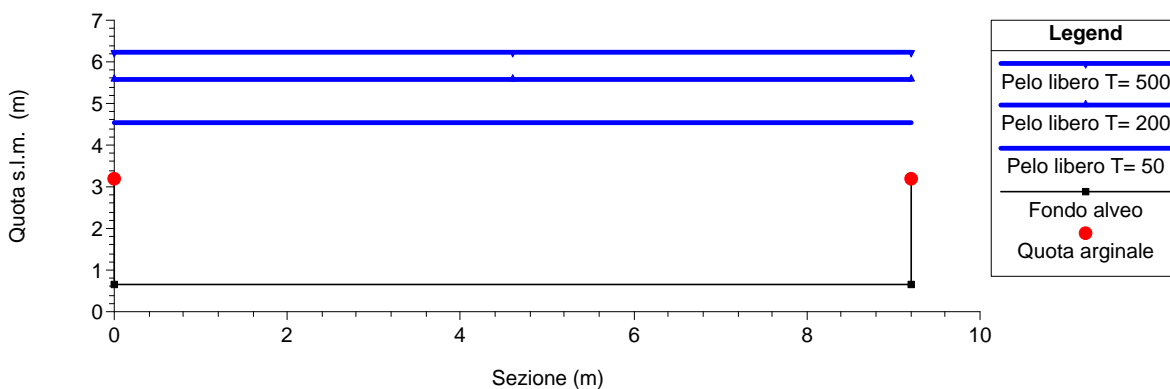
RS = 6



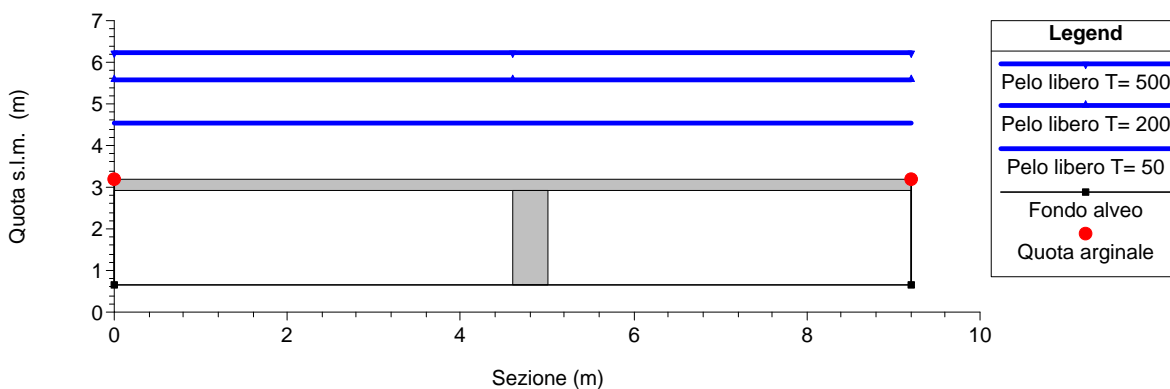
RS = 5



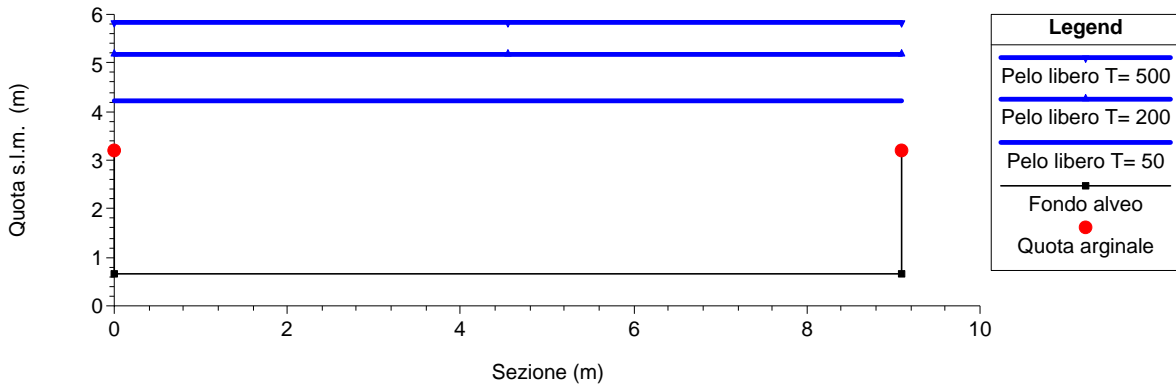
RS = 4



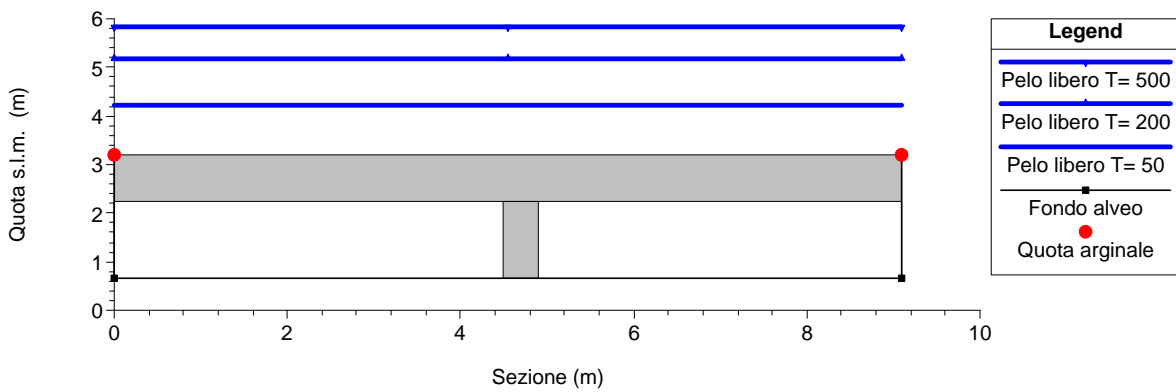
RS = 3.5 BR



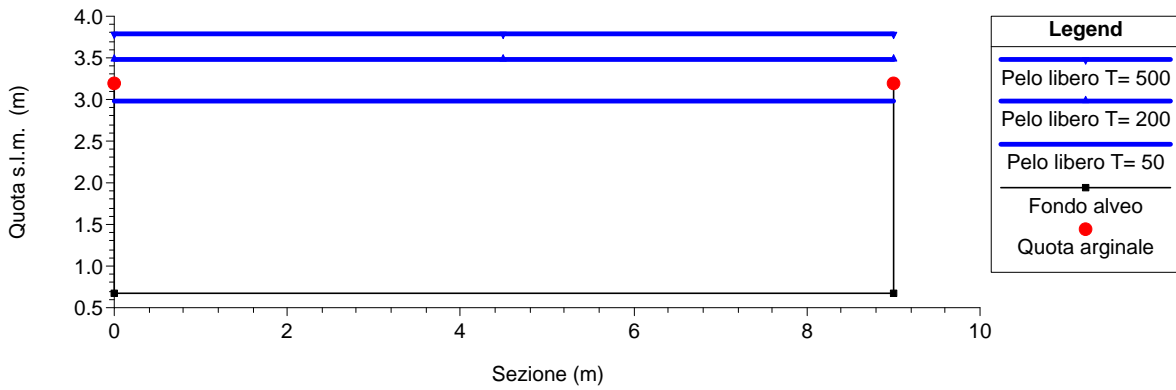
RS = 3



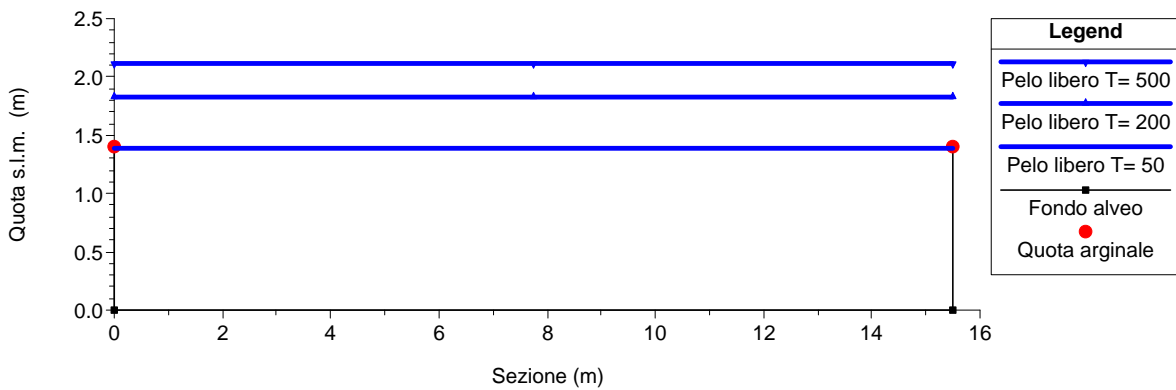
RS = 2.5 BR



RS = 2



RS = 1



**MODELLAZIONE IDRAULICA IN CONDIZIONI DI MOTO
PERMANENTE:
TABELLE DELLE GRANDEZZE IDRAULICHE SIGNIFICATIVE
PER LE PORTATE T=50, 200, 500 ANNI**

MOLINERO

Torrente Molinero T=50 anni

| Sezioni | Portata totale (m3/s) | Fondo alveo (m) | Argine sinistro (m) | Argine destro (m) | Pelo libero (m) | Profondità critica (m) | Energia (m2) | Velocità (m/s) | Area bagnata (m2) | N° Froude |
|---------|-----------------------|-----------------|---------------------|-------------------|-----------------|------------------------|--------------|----------------|-------------------|-----------|
| 63 | 69 | 15.94 | 19.44 | 19.44 | 20.16 | 18.34 | 20.52 | 2.66 | 25.93 | 0.42 |
| 62 | 69 | 15.75 | 18.75 | 19.25 | 20.13 | 18.02 | 20.4 | 2.32 | 29.74 | 0.36 |
| 61 | 69 | 15.6 | 19.1 | 19.1 | 20.17 | 17.42 | 20.32 | 1.68 | 41.16 | 0.25 |
| 60.5 | Bridge | | | | | | | | | |
| 60 | 69 | 15.5 | 19 | 19 | 19.59 | 17.88 | 20 | 2.81 | 24.56 | 0.44 |
| 59 | 69 | 15.43 | 20.43 | 18.43 | 18.91 | 18.27 | 19.86 | 4.31 | 16 | 0.74 |
| 58 | 69 | 15.31 | 19.31 | 19.81 | 19.42 | 17.43 | 19.56 | 1.64 | 41.98 | 0.28 |
| 57 | 69 | 14.91 | 16.91 | 16.91 | 19.44 | 16.57 | 19.5 | 1.08 | 64.18 | 0.17 |
| 56 | 69 | 14.6 | 16.6 | 17.6 | 19.12 | 17.13 | 19.43 | 2.48 | 27.84 | 0.39 |
| 55 | 69 | 14.6 | 16.6 | 17.6 | 18.97 | 17.27 | 19.41 | 2.94 | 23.5 | 0.46 |
| 54 | 69 | 14.31 | 16.81 | 17.31 | 18.34 | 17.15 | 19.04 | 3.73 | 18.52 | 0.59 |
| 53 | 69 | 13.81 | 19.81 | 16.81 | 17.99 | 16.24 | 18.4 | 2.85 | 24.23 | 0.44 |
| 52 | 69 | 13.46 | 17.46 | 16.26 | 18.03 | 15.35 | 18.19 | 1.78 | 38.85 | 0.27 |
| 51 | 69 | 13.28 | 15.78 | 15.78 | 18 | 15.17 | 18.15 | 1.72 | 40.12 | 0.25 |
| 50.5 | Culvert | | | | | | | | | |
| 50 | 69 | 13.23 | 15.73 | 15.73 | 17.69 | 14.98 | 17.83 | 1.63 | 42.38 | 0.25 |
| 49 | 69 | 13.14 | 16.64 | 19.14 | 17.52 | 15.31 | 17.79 | 2.28 | 30.25 | 0.35 |
| 48 | 69 | 12.98 | 14.98 | 18.98 | 17.34 | 15.36 | 17.69 | 2.64 | 26.16 | 0.4 |
| 47 | 69 | 12.33 | 15.93 | 18.33 | 16.41 | 15.29 | 17.07 | 3.59 | 19.22 | 0.59 |
| 46 | 69 | 12.33 | 15.93 | 18.33 | 16.75 | 14.61 | 16.92 | 1.85 | 37.2 | 0.3 |
| 45 | 69 | 11.82 | 16.02 | 17.82 | 16.31 | 14.33 | 16.71 | 2.8 | 24.68 | 0.42 |
| 44 | 69 | 11.35 | 15.85 | 17.35 | 16.1 | 13.93 | 16.48 | 2.74 | 25.18 | 0.4 |
| 43 | 69 | 11.19 | 15.69 | 16.19 | 16.09 | 13.28 | 16.28 | 1.94 | 35.51 | 0.28 |
| 42 | 69 | 10.66 | 14.66 | 15.46 | 15.43 | 13.56 | 15.97 | 3.25 | 21.25 | 0.47 |
| 41 | 69 | 10.35 | 14.85 | 16.35 | 14.83 | 13.37 | 15.52 | 3.67 | 18.82 | 0.55 |
| 40 | 69 | 10.2 | 14.7 | 16.2 | 14.49 | 13.22 | 15.23 | 3.83 | 18 | 0.59 |
| 39 | 69 | 10.04 | 15.04 | 16.04 | 14.53 | 12.61 | 14.95 | 2.87 | 24.02 | 0.43 |
| 38 | 69 | 9.65 | 14.65 | 15.65 | 14.43 | 12.09 | 14.75 | 2.51 | 27.51 | 0.37 |
| 37 | 69 | 9.55 | 13.15 | 15.55 | 14.28 | 11.99 | 14.61 | 2.54 | 27.19 | 0.37 |
| 36 | 69 | 9.53 | 13.13 | 12.23 | 14.33 | 11.77 | 14.58 | 2.19 | 31.45 | 0.32 |
| 35 | 80 | 9.18 | 11.83 | 11.83 | 14.26 | 11.21 | 14.43 | 1.79 | 44.74 | 0.25 |
| 34.5 | Bridge | | | | | | | | | |
| 34 | 80 | 9.05 | 11.7 | 11.7 | 13.65 | 11.18 | 13.88 | 2.12 | 37.71 | 0.32 |
| 33.5 | Bridge | | | | | | | | | |
| 33 | 80 | 7.91 | 12 | 12 | 13.16 | 9.85 | 13.29 | 1.61 | 49.62 | 0.22 |
| 32.5 | Bridge | | | | | | | | | |
| 32 | 80 | 7.85 | 12 | 12 | 12.98 | 10.01 | 13.17 | 1.94 | 41.31 | 0.27 |
| 31.5 | Bridge | | | | | | | | | |
| 31 | 80 | 7.63 | 11 | 11 | 12.66 | 10.07 | 12.94 | 2.38 | 33.68 | 0.34 |
| 30.5 | Bridge | | | | | | | | | |
| 30 | 80 | 7.21 | 10 | 10 | 11.56 | 9.43 | 11.85 | 2.39 | 33.51 | 0.37 |
| 29.5 | Bridge | | | | | | | | | |
| 29 | 80 | 6.67 | 9.57 | 9.57 | 10.94 | 8.89 | 11.24 | 2.43 | 32.88 | 0.38 |
| 28.5 | Culvert | | | | | | | | | |
| 28 | 80 | 6.67 | 10 | 10 | 9.67 | 8.89 | 10.28 | 3.46 | 23.12 | 0.64 |
| 27.5 | Bridge | | | | | | | | | |
| 27 | 80 | 6.24 | 9.34 | 9.34 | 9.36 | 8.46 | 9.92 | 3.34 | 23.99 | 0.6 |
| 25 | 80 | 5 | 7.9 | 10 | 9.2 | 7.68 | 9.5 | 2.41 | 33.24 | 0.41 |
| 24 | 80 | 4.72 | 9.22 | 9.22 | 9.21 | 6.63 | 9.33 | 1.53 | 52.34 | 0.24 |
| 23 | 80 | 4.66 | 7.6 | 7.6 | 9.19 | 6.27 | 9.29 | 1.41 | 56.6 | 0.21 |
| 21 | 80 | 3.64 | 7.24 | 7.14 | 9.2 | 5.28 | 9.26 | 1.11 | 71.76 | 0.15 |

| | | | | | | | | | | |
|------|---------|------|------|------|------|------|------|------|-------|------|
| 20 | 80 | 3.37 | 8 | 7.2 | 9.09 | 5.37 | 9.21 | 1.55 | 51.47 | 0.21 |
| 19 | 80 | 2.67 | 8 | 7.2 | 9.11 | 4.67 | 9.2 | 1.38 | 57.93 | 0.17 |
| 18 | 80 | 2.6 | 7.9 | 5.2 | 9.13 | 4.69 | 9.18 | 1.01 | 79.15 | 0.13 |
| 17 | 80 | 2.5 | 6.1 | 6.1 | 9.13 | 4.05 | 9.17 | 0.91 | 87.49 | 0.11 |
| 16.5 | Bridge | | | | | | | | | |
| 16 | 80 | 2.4 | 6 | 6 | 9.03 | 4.48 | 9.13 | 1.42 | 56.32 | 0.18 |
| 15.5 | Bridge | | | | | | | | | |
| 15 | 80 | 2.4 | 5.4 | 5.4 | 8.93 | 4.48 | 9.04 | 1.44 | 55.49 | 0.18 |
| 14.5 | Bridge | | | | | | | | | |
| 14 | 80 | 2.3 | 6 | 6 | 8.72 | 4.92 | 8.94 | 2.08 | 38.53 | 0.26 |
| 13.5 | Bridge | | | | | | | | | |
| 13 | 80 | 2.1 | 6 | 6 | 8.4 | 4.26 | 8.53 | 1.59 | 50.43 | 0.2 |
| 12.5 | Culvert | | | | | | | | | |
| 12 | 80 | 1.4 | 3.5 | 3.5 | 4.84 | 3.56 | 5.27 | 2.91 | 27.49 | 0.5 |
| 11 | 80 | 1.4 | 5.4 | 5.4 | 4.9 | 3.61 | 5.19 | 2.39 | 33.47 | 0.44 |
| 10 | 80 | 1.35 | 5.35 | 4.55 | 4.88 | 3.23 | 5.08 | 1.95 | 40.93 | 0.35 |
| 9 | 80 | 1.3 | 5.3 | 5.3 | 4.56 | 3.52 | 4.98 | 2.85 | 28.03 | 0.54 |
| 8 | 80 | 1.24 | 5.24 | 5.24 | 4.72 | 2.96 | 4.88 | 1.78 | 45.03 | 0.31 |
| 7 | 80 | 1.2 | 5.2 | 3.2 | 4.57 | 3.01 | 4.83 | 2.28 | 35.03 | 0.4 |
| 6 | 80 | 1.2 | 3.2 | 3.2 | 4.56 | 3.01 | 4.83 | 2.29 | 34.97 | 0.4 |
| 5 | 80 | 0.7 | 3.2 | 3.2 | 4.61 | 2.51 | 4.8 | 1.97 | 40.64 | 0.32 |
| 4 | 80 | 0.67 | 3.2 | 3.2 | 4.54 | 2.64 | 4.8 | 2.25 | 35.6 | 0.36 |
| 3.5 | Bridge | | | | | | | | | |
| 3 | 80 | 0.67 | 3.2 | 3.2 | 4.22 | 2.65 | 4.53 | 2.48 | 32.27 | 0.42 |
| 2.5 | Bridge | | | | | | | | | |
| 2 | 80 | 0.67 | 3.2 | 3.2 | 2.98 | 2.67 | 3.73 | 3.85 | 20.78 | 0.81 |
| 1 | 80 | 0 | 1.4 | 1.4 | 1.39 | 1.39 | 2.09 | 3.71 | 21.57 | 1 |

Torrente Molinero T=200 anni

| Sezioni | Portata totale (m3/s) | Fondo alveo (m) | Argine sinistro (m) | Argine destro (m) | Pelo libero (m) | Profondità critica (m) | Energia (m2) | Velocità (m/s) | Area bagnata (m2) | N° Froude |
|---------|-----------------------|-----------------|---------------------|-------------------|-----------------|------------------------|--------------|----------------|-------------------|-----------|
| 63 | 105 | 15.94 | 19.44 | 19.44 | 21.58 | 19.09 | 22.04 | 3.01 | 34.91 | 0.41 |
| 62 | 105 | 15.75 | 18.75 | 19.25 | 21.56 | 18.72 | 21.91 | 2.64 | 39.75 | 0.35 |
| 61 | 105 | 15.6 | 19.1 | 19.1 | 21.62 | 18 | 21.81 | 1.94 | 54.18 | 0.25 |
| 60.5 | Bridge | | | | | | | | | |
| 60 | 105 | 15.5 | 19 | 19 | 21.24 | 18.65 | 21.71 | 3.05 | 34.41 | 0.41 |
| 59 | 105 | 15.43 | 20.43 | 18.43 | 20.57 | 19.18 | 21.58 | 4.44 | 23.65 | 0.63 |
| 58 | 105 | 15.31 | 19.31 | 19.81 | 21.13 | 17.91 | 21.28 | 1.68 | 62.48 | 0.24 |
| 57 | 105 | 14.91 | 16.91 | 16.91 | 21.15 | 16.99 | 21.22 | 1.16 | 90.91 | 0.15 |
| 56 | 105 | 14.6 | 16.6 | 17.6 | 20.78 | 17.86 | 21.16 | 2.71 | 38.8 | 0.36 |
| 55 | 105 | 14.6 | 16.6 | 17.6 | 20.6 | 18.08 | 21.13 | 3.22 | 32.62 | 0.43 |
| 54 | 105 | 14.31 | 16.81 | 17.31 | 19.89 | 18.07 | 20.74 | 4.09 | 25.67 | 0.55 |
| 53 | 105 | 13.81 | 19.81 | 16.81 | 19.55 | 17.03 | 20.06 | 3.15 | 33.3 | 0.42 |
| 52 | 105 | 13.46 | 17.46 | 16.26 | 19.62 | 15.95 | 19.83 | 2 | 52.38 | 0.26 |
| 51 | 105 | 13.28 | 15.78 | 15.78 | 19.59 | 15.77 | 19.78 | 1.96 | 53.62 | 0.25 |
| 50.5 | Culvert | | | | | | | | | |
| 50 | 105 | 13.23 | 15.73 | 15.73 | 19.46 | 15.55 | 19.62 | 1.78 | 59.14 | 0.23 |
| 49 | 105 | 13.14 | 16.64 | 19.14 | 19.26 | 16.01 | 19.58 | 2.49 | 42.24 | 0.32 |
| 48 | 105 | 12.98 | 14.98 | 18.98 | 19.06 | 16.13 | 19.48 | 2.88 | 36.47 | 0.37 |
| 47 | 105 | 12.33 | 15.93 | 18.33 | 18.17 | 16.14 | 18.88 | 3.73 | 28.18 | 0.51 |
| 46 | 105 | 12.33 | 15.93 | 18.33 | 18.53 | 15.16 | 18.72 | 1.93 | 54.3 | 0.26 |
| 45 | 105 | 11.82 | 16.02 | 17.82 | 18.03 | 15.15 | 18.51 | 3.07 | 34.16 | 0.39 |
| 44 | 105 | 11.35 | 15.85 | 17.35 | 17.8 | 14.77 | 18.28 | 3.07 | 34.17 | 0.39 |
| 43 | 105 | 11.19 | 15.69 | 16.19 | 17.8 | 13.96 | 18.05 | 2.19 | 47.95 | 0.27 |
| 42 | 105 | 10.66 | 14.66 | 15.46 | 16.99 | 14.5 | 17.69 | 3.73 | 28.15 | 0.47 |
| 41 | 105 | 10.35 | 14.85 | 16.35 | 16.22 | 14.34 | 17.14 | 4.26 | 24.66 | 0.56 |
| 40 | 105 | 10.2 | 14.7 | 16.2 | 15.77 | 14.19 | 16.8 | 4.49 | 23.4 | 0.61 |
| 39 | 105 | 10.04 | 15.04 | 16.04 | 15.85 | 13.44 | 16.43 | 3.38 | 31.1 | 0.45 |
| 38 | 105 | 9.65 | 14.65 | 15.65 | 15.73 | 12.88 | 16.19 | 3 | 34.97 | 0.39 |
| 37 | 105 | 9.55 | 13.15 | 15.55 | 15.52 | 12.78 | 16 | 3.06 | 34.35 | 0.4 |
| 36 | 105 | 9.53 | 13.13 | 12.23 | 15.6 | 12.49 | 15.96 | 2.64 | 39.77 | 0.34 |
| 35 | 120 | 9.18 | 11.83 | 11.83 | 15.53 | 11.85 | 15.76 | 2.15 | 55.85 | 0.27 |
| 34.5 | Bridge | | | | | | | | | |
| 34 | 120 | 9.05 | 11.7 | 11.7 | 15.04 | 11.84 | 15.35 | 2.44 | 49.15 | 0.32 |
| 33.5 | Bridge | | | | | | | | | |
| 33 | 120 | 7.91 | 12 | 12 | 14.65 | 10.45 | 14.83 | 1.88 | 63.68 | 0.23 |
| 32.5 | Bridge | | | | | | | | | |
| 32 | 120 | 7.85 | 12 | 12 | 14.48 | 10.68 | 14.74 | 2.25 | 53.4 | 0.28 |
| 31.5 | Bridge | | | | | | | | | |
| 31 | 120 | 7.63 | 11 | 11 | 14.24 | 10.82 | 14.61 | 2.71 | 44.28 | 0.34 |
| 30.5 | Bridge | | | | | | | | | |
| 30 | 120 | 7.21 | 10 | 10 | 13.2 | 10.12 | 13.54 | 2.6 | 46.12 | 0.34 |
| 29.5 | Bridge | | | | | | | | | |
| 29 | 120 | 6.67 | 9.57 | 9.57 | 12.67 | 9.58 | 13.02 | 2.6 | 46.22 | 0.34 |
| 28.5 | Culvert | | | | | | | | | |
| 28 | 120 | 6.67 | 10 | 10 | 11.65 | 9.58 | 12.15 | 3.13 | 38.32 | 0.45 |
| 27.5 | Bridge | | | | | | | | | |
| 27 | 120 | 6.24 | 9.34 | 9.34 | 11.14 | 9.15 | 11.65 | 3.18 | 37.71 | 0.46 |
| 25 | 120 | 5 | 7.9 | 10 | 11.07 | 8.26 | 11.35 | 2.33 | 51.39 | 0.32 |
| 24 | 120 | 4.72 | 9.22 | 9.22 | 11.09 | 7.12 | 11.22 | 1.58 | 75.85 | 0.21 |
| 23 | 120 | 4.66 | 7.6 | 7.6 | 11.07 | 6.76 | 11.19 | 1.5 | 80.14 | 0.19 |
| 21 | 120 | 3.64 | 7.24 | 7.14 | 11.08 | 5.76 | 11.16 | 1.24 | 96.41 | 0.15 |

| | | | | | | | | | | |
|------|---------|------|------|------|-------|------|-------|------|--------|------|
| 20 | 120 | 3.37 | 8 | 7.2 | 10.95 | 5.99 | 11.11 | 1.76 | 68.2 | 0.2 |
| 19 | 120 | 2.67 | 8 | 7.2 | 10.97 | 5.29 | 11.1 | 1.61 | 74.66 | 0.18 |
| 18 | 120 | 2.6 | 7.9 | 5.2 | 11 | 5.17 | 11.07 | 1.16 | 103.84 | 0.13 |
| 17 | 120 | 2.5 | 6.1 | 6.1 | 11 | 4.53 | 11.06 | 1.07 | 112.17 | 0.12 |
| 16.5 | Bridge | | | | | | | | | |
| 16 | 120 | 2.4 | 6 | 6 | 10.87 | 5.12 | 11.01 | 1.67 | 72.02 | 0.18 |
| 15.5 | Bridge | | | | | | | | | |
| 15 | 120 | 2.4 | 5.4 | 5.4 | 10.79 | 5.12 | 10.93 | 1.68 | 71.29 | 0.19 |
| 14.5 | Bridge | | | | | | | | | |
| 14 | 120 | 2.3 | 6 | 6 | 10.42 | 5.74 | 10.73 | 2.46 | 48.7 | 0.28 |
| 13.5 | Bridge | | | | | | | | | |
| 13 | 120 | 2.1 | 6 | 6 | 10.16 | 4.94 | 10.34 | 1.86 | 64.49 | 0.21 |
| 12.5 | Culvert | | | | | | | | | |
| 12 | 120 | 1.4 | 3.5 | 3.5 | 5.87 | 4.24 | 6.44 | 3.36 | 35.74 | 0.51 |
| 11 | 120 | 1.4 | 5.4 | 5.4 | 5.98 | 4.14 | 6.34 | 2.64 | 45.41 | 0.42 |
| 10 | 120 | 1.35 | 5.35 | 4.55 | 5.98 | 3.78 | 6.22 | 2.17 | 55.25 | 0.34 |
| 9 | 120 | 1.3 | 5.3 | 5.3 | 5.64 | 4.17 | 6.13 | 3.07 | 39.07 | 0.5 |
| 8 | 120 | 1.24 | 5.24 | 5.24 | 5.82 | 3.43 | 6.02 | 1.99 | 60.25 | 0.3 |
| 7 | 120 | 1.2 | 5.2 | 3.2 | 5.63 | 3.58 | 5.97 | 2.61 | 46.04 | 0.4 |
| 6 | 120 | 1.2 | 3.2 | 3.2 | 5.62 | 3.58 | 5.97 | 2.61 | 45.98 | 0.4 |
| 5 | 120 | 0.7 | 3.2 | 3.2 | 5.67 | 3.08 | 5.94 | 2.32 | 51.67 | 0.33 |
| 4 | 120 | 0.67 | 3.2 | 3.2 | 5.57 | 3.26 | 5.93 | 2.66 | 45.09 | 0.38 |
| 3.5 | Bridge | | | | | | | | | |
| 3 | 120 | 0.67 | 3.2 | 3.2 | 5.19 | 3.28 | 5.63 | 2.92 | 41.15 | 0.44 |
| 2.5 | Bridge | | | | | | | | | |
| 2 | 120 | 0.67 | 3.2 | 3.2 | 3.49 | 3.29 | 4.63 | 4.73 | 25.36 | 0.9 |
| 1 | 120 | 0 | 1.4 | 1.4 | 1.82 | 1.82 | 2.74 | 4.25 | 28.24 | 1 |

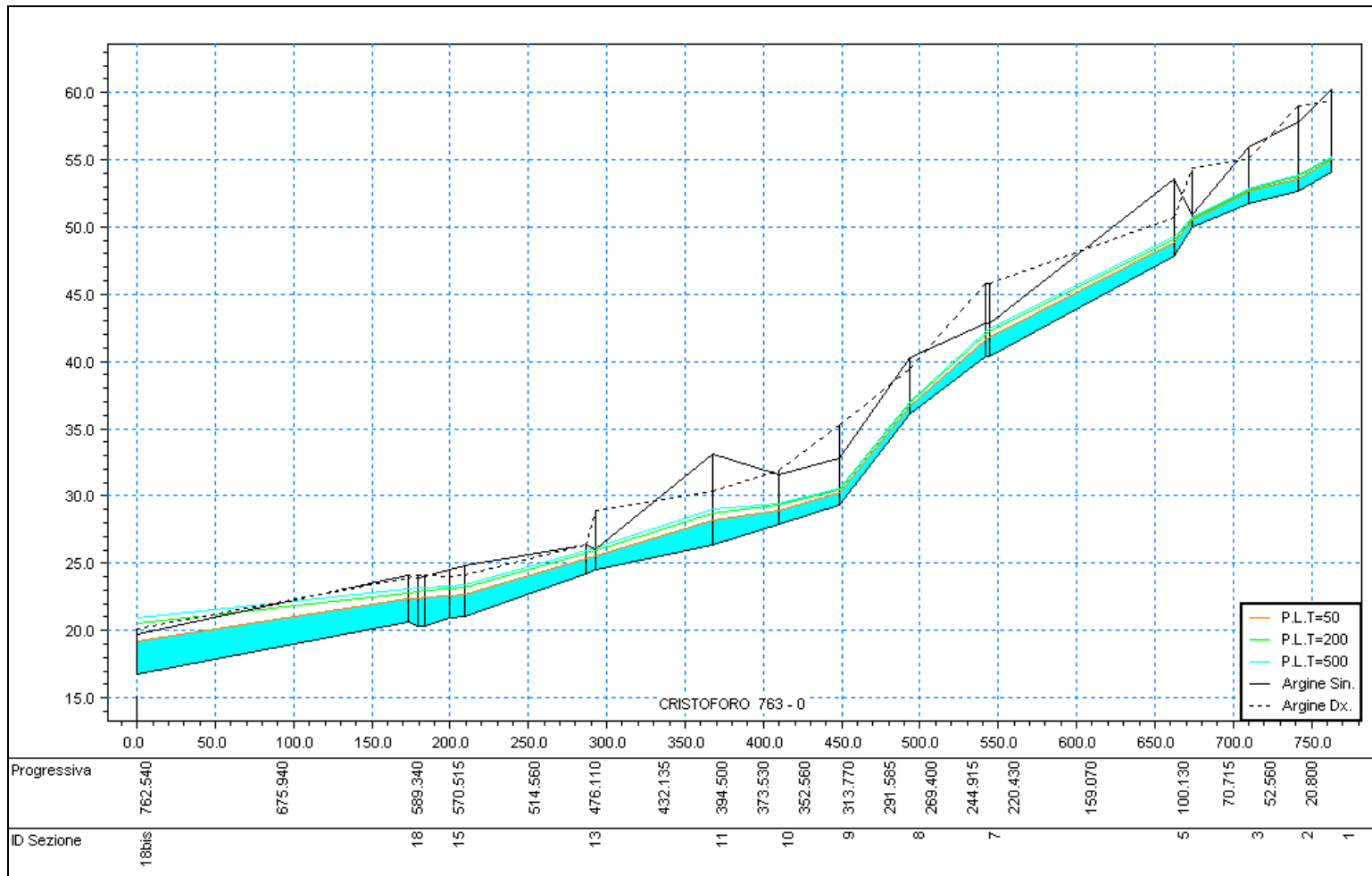
Torrente Molinero T=500 anni

| Sezioni | Portata totale (m3/s) | Fondo alveo (m) | Argine sinistro (m) | Argine destro (m) | Pelo libero (m) | Profondità critica (m) | Energia (m2) | Velocità (m/s) | Area bagnata (m2) | N° Froude |
|---------|-----------------------|-----------------|---------------------|-------------------|-----------------|------------------------|--------------|----------------|-------------------|-----------|
| 63 | 132 | 15.94 | 19.44 | 19.44 | 22.79 | 19.59 | 23.28 | 3.1 | 42.52 | 0.38 |
| 62 | 132 | 15.75 | 18.75 | 19.25 | 22.77 | 19.19 | 23.15 | 2.74 | 48.25 | 0.33 |
| 61 | 132 | 15.6 | 19.1 | 19.1 | 22.84 | 18.4 | 23.05 | 2.03 | 65.16 | 0.24 |
| 60.5 | Bridge | | | | | | | | | |
| 60 | 132 | 15.5 | 19 | 19 | 22.45 | 19.16 | 22.96 | 3.17 | 41.68 | 0.38 |
| 59 | 132 | 15.43 | 20.43 | 18.43 | 21.79 | 19.8 | 22.83 | 4.51 | 29.25 | 0.57 |
| 58 | 132 | 15.31 | 19.31 | 19.81 | 22.37 | 18.24 | 22.52 | 1.71 | 77.37 | 0.21 |
| 57 | 132 | 14.91 | 16.91 | 16.91 | 22.4 | 17.26 | 22.47 | 1.2 | 110.3 | 0.14 |
| 56 | 132 | 14.6 | 16.6 | 17.6 | 22 | 18.34 | 22.4 | 2.82 | 46.83 | 0.34 |
| 55 | 132 | 14.6 | 16.6 | 17.6 | 21.8 | 18.62 | 22.38 | 3.35 | 39.34 | 0.4 |
| 54 | 132 | 14.31 | 16.81 | 17.31 | 21.06 | 18.69 | 21.98 | 4.25 | 31.07 | 0.52 |
| 53 | 132 | 13.81 | 19.81 | 16.81 | 20.74 | 17.55 | 21.29 | 3.28 | 40.19 | 0.4 |
| 52 | 132 | 13.46 | 17.46 | 16.26 | 20.82 | 16.37 | 21.05 | 2.11 | 62.6 | 0.25 |
| 51 | 132 | 13.28 | 15.78 | 15.78 | 20.79 | 16.19 | 21.01 | 2.07 | 63.82 | 0.24 |
| 50.5 | Culvert | | | | | | | | | |
| 50 | 132 | 13.23 | 15.73 | 15.73 | 20.68 | 15.93 | 20.86 | 1.86 | 70.79 | 0.22 |
| 49 | 132 | 13.14 | 16.64 | 19.14 | 20.47 | 16.48 | 20.82 | 2.61 | 50.59 | 0.31 |
| 48 | 132 | 12.98 | 14.98 | 18.98 | 20.25 | 16.64 | 20.72 | 3.02 | 43.64 | 0.36 |
| 47 | 132 | 12.33 | 15.93 | 18.33 | 19.35 | 16.72 | 20.11 | 3.86 | 34.18 | 0.48 |
| 46 | 132 | 12.33 | 15.93 | 18.33 | 19.73 | 15.54 | 19.94 | 2 | 65.86 | 0.24 |
| 45 | 132 | 11.82 | 16.02 | 17.82 | 19.19 | 15.7 | 19.73 | 3.26 | 40.51 | 0.38 |
| 44 | 132 | 11.35 | 15.85 | 17.35 | 18.93 | 15.33 | 19.48 | 3.29 | 40.15 | 0.38 |
| 43 | 132 | 11.19 | 15.69 | 16.19 | 18.94 | 14.42 | 19.22 | 2.35 | 56.21 | 0.27 |
| 42 | 132 | 10.66 | 14.66 | 15.46 | 18.01 | 15.13 | 18.84 | 4.04 | 32.69 | 0.48 |
| 41 | 132 | 10.35 | 14.85 | 16.35 | 17.12 | 14.99 | 18.22 | 4.64 | 28.43 | 0.57 |
| 40 | 132 | 10.2 | 14.7 | 16.2 | 16.58 | 14.85 | 17.82 | 4.92 | 26.82 | 0.62 |
| 39 | 132 | 10.04 | 15.04 | 16.04 | 16.7 | 13.99 | 17.4 | 3.71 | 35.61 | 0.46 |
| 38 | 132 | 9.65 | 14.65 | 15.65 | 16.55 | 13.42 | 17.12 | 3.33 | 39.69 | 0.4 |
| 37 | 132 | 9.55 | 13.15 | 15.55 | 16.3 | 13.32 | 16.89 | 3.4 | 38.83 | 0.42 |
| 36 | 132 | 9.53 | 13.13 | 12.23 | 16.4 | 12.98 | 16.84 | 2.93 | 45 | 0.36 |
| 35 | 150 | 9.18 | 11.83 | 11.83 | 16.32 | 12.27 | 16.61 | 2.39 | 62.81 | 0.29 |
| 34.5 | Bridge | | | | | | | | | |
| 34 | 150 | 9.05 | 11.7 | 11.7 | 15.91 | 12.29 | 16.28 | 2.66 | 56.29 | 0.32 |
| 33.5 | Bridge | | | | | | | | | |
| 33 | 150 | 7.91 | 12 | 12 | 15.59 | 10.86 | 15.81 | 2.07 | 72.6 | 0.24 |
| 32.5 | Bridge | | | | | | | | | |
| 32 | 150 | 7.85 | 12 | 12 | 15.4 | 11.12 | 15.71 | 2.47 | 60.75 | 0.29 |
| 31.5 | Bridge | | | | | | | | | |
| 31 | 150 | 7.63 | 11 | 11 | 15.13 | 11.34 | 15.58 | 2.99 | 50.22 | 0.35 |
| 30.5 | Bridge | | | | | | | | | |
| 30 | 150 | 7.21 | 10 | 10 | 14.07 | 10.59 | 14.48 | 2.84 | 52.79 | 0.35 |
| 29.5 | Bridge | | | | | | | | | |
| 29 | 150 | 6.67 | 9.57 | 9.57 | 13.58 | 10.05 | 13.98 | 2.82 | 53.17 | 0.34 |
| 28.5 | Culvert | | | | | | | | | |
| 28 | 150 | 6.67 | 10 | 10 | 12.64 | 10.05 | 13.18 | 3.26 | 45.97 | 0.43 |
| 27.5 | Bridge | | | | | | | | | |
| 27 | 150 | 6.24 | 9.34 | 9.34 | 12.16 | 9.62 | 12.71 | 3.29 | 45.6 | 0.43 |
| 25 | 150 | 5 | 7.9 | 10 | 12.11 | 8.67 | 12.41 | 2.44 | 61.47 | 0.31 |
| 24 | 150 | 4.72 | 9.22 | 9.22 | 12.13 | 7.46 | 12.28 | 1.69 | 88.9 | 0.2 |
| 23 | 150 | 4.66 | 7.6 | 7.6 | 12.11 | 7.11 | 12.25 | 1.61 | 93.18 | 0.19 |
| 21 | 150 | 3.64 | 7.24 | 7.14 | 12.12 | 6.09 | 12.22 | 1.36 | 110.07 | 0.15 |

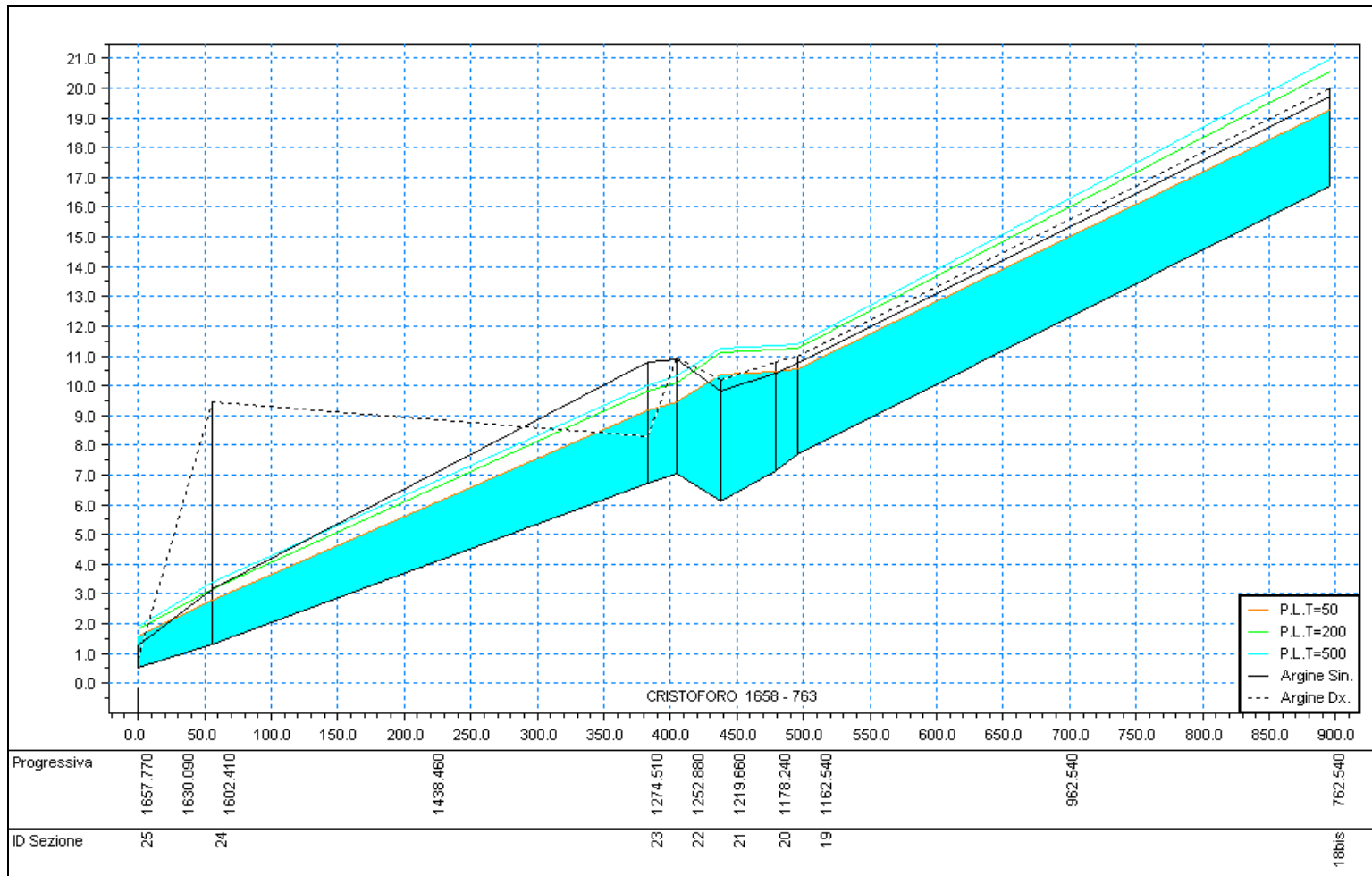
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|------|---------|------|------|------|-------|------|-------|------|--------|------|
| 20 | 150 | 3.37 | 8 | 7.2 | 11.97 | 6.42 | 12.16 | 1.94 | 77.36 | 0.21 |
| 19 | 150 | 2.67 | 8 | 7.2 | 11.99 | 5.72 | 12.15 | 1.79 | 83.84 | 0.19 |
| 18 | 150 | 2.6 | 7.9 | 5.2 | 12.03 | 5.49 | 12.11 | 1.28 | 117.43 | 0.14 |
| 17 | 150 | 2.5 | 6.1 | 6.1 | 12.03 | 4.85 | 12.1 | 1.19 | 125.75 | 0.12 |
| 16.5 | Bridge | | | | | | | | | |
| 16 | 150 | 2.4 | 6 | 6 | 11.88 | 5.56 | 12.05 | 1.86 | 80.55 | 0.19 |
| 15.5 | Bridge | | | | | | | | | |
| 15 | 150 | 2.4 | 5.4 | 5.4 | 11.79 | 5.57 | 11.97 | 1.88 | 79.8 | 0.2 |
| 14.5 | Bridge | | | | | | | | | |
| 14 | 150 | 2.3 | 6 | 6 | 11.36 | 6.29 | 11.75 | 2.76 | 54.38 | 0.29 |
| 13.5 | Bridge | | | | | | | | | |
| 13 | 150 | 2.1 | 6 | 6 | 11.11 | 5.39 | 11.33 | 2.08 | 72.06 | 0.22 |
| 12.5 | Culvert | | | | | | | | | |
| 12 | 150 | 1.4 | 3.5 | 3.5 | 6.55 | 4.69 | 7.22 | 3.64 | 41.17 | 0.51 |
| 11 | 150 | 1.4 | 5.4 | 5.4 | 6.7 | 4.51 | 7.1 | 2.82 | 53.26 | 0.41 |
| 10 | 150 | 1.35 | 5.35 | 4.55 | 6.71 | 4.12 | 6.98 | 2.32 | 64.64 | 0.33 |
| 9 | 150 | 1.3 | 5.3 | 5.3 | 6.34 | 4.6 | 6.88 | 3.25 | 46.18 | 0.49 |
| 8 | 150 | 1.24 | 5.24 | 5.24 | 6.53 | 3.74 | 6.77 | 2.14 | 70.11 | 0.3 |
| 7 | 150 | 1.2 | 5.2 | 3.2 | 6.31 | 3.97 | 6.72 | 2.82 | 53.13 | 0.4 |
| 6 | 150 | 1.2 | 3.2 | 3.2 | 6.3 | 3.97 | 6.71 | 2.83 | 53.07 | 0.4 |
| 5 | 150 | 0.7 | 3.2 | 3.2 | 6.35 | 3.46 | 6.68 | 2.55 | 58.77 | 0.34 |
| 4 | 150 | 0.67 | 3.2 | 3.2 | 6.23 | 3.67 | 6.67 | 2.93 | 51.16 | 0.4 |
| 3.5 | Bridge | | | | | | | | | |
| 3 | 150 | 0.67 | 3.2 | 3.2 | 5.82 | 3.69 | 6.34 | 3.2 | 46.89 | 0.45 |
| 2.5 | Bridge | | | | | | | | | |
| 2 | 150 | 0.67 | 3.2 | 3.2 | 3.8 | 3.71 | 5.24 | 5.33 | 28.13 | 0.96 |
| 1 | 150 | 0 | 1.4 | 1.4 | 2.12 | 2.12 | 3.18 | 4.56 | 32.87 | 1 |

**PROFILI DI RIGURGITO IN CONDIZIONI DI MOTO
PERMANENTE PER LE PORTATE T=50, 200, 500 ANNI**

RIO S.CRISTOFORO



Rio S.Cristoforo, tratto di monte/Profili idraulici per i tempi di ritorno di 50, 200, 500 anni



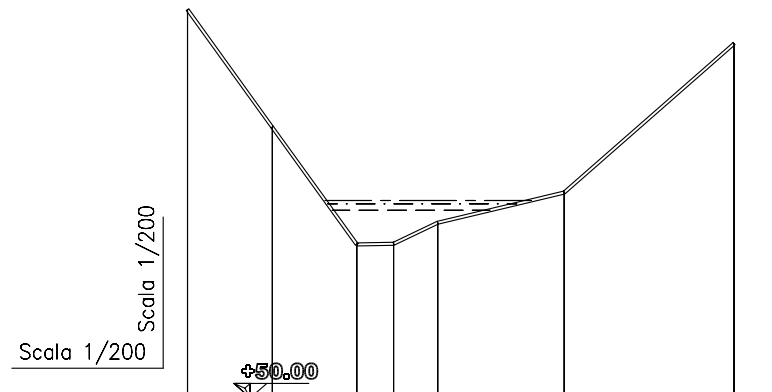
Rio S.Cristoforo, tratto di valle/Profili idraulici per i tempi di ritorno di 50, 200, 500 anni

**GEOMETRIA DELLE SEZIONI ED ALTEZZA DEL PELO
LIBERO IN CONDIZIONI DI MOTO PERMANENTE
PER LE PORTATE T=50, 200, 500 ANNI**

RIO S.CRISTOFORO

SEZIONE 1

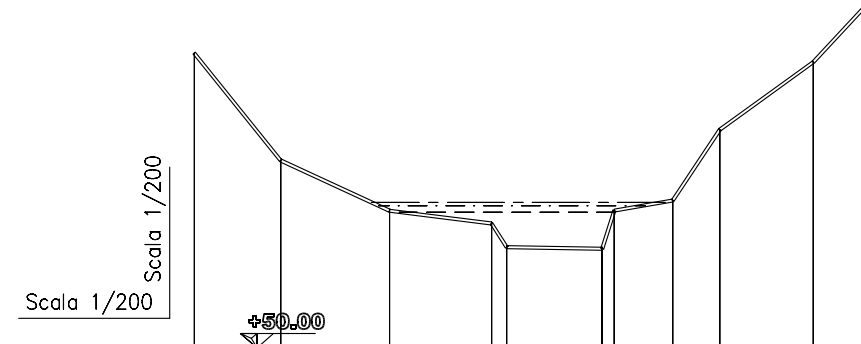
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 60.27 | 57.16 | 54.06 | 54.07 | 54.63 | 55.43 | 59.37 |
| Distanze parziali | 2.24 | 2.24 | 0.98 | 1.17 | 3.34 | 4.50 | |
| Distanze progressive | 0.00 | 2.24 | 4.48 | 5.46 | 6.62 | 9.96 | 14.46 |

SEZIONE 2

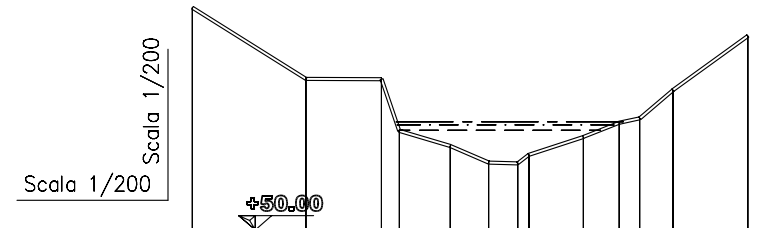
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 57.80 | 54.96 | 53.63 | 53.29 | 52.66 | 52.62 | 53.63 | 53.90 | 55.77 | 57.56 | 59.04 |
| Distanze parziali | 2.29 | 2.88 | 2.70 | 0.40 | 2.53 | 1.55 | 1.24 | 2.47 | 1.37 | | |
| Distanze progressive | 0.00 | 2.29 | 5.17 | 7.87 | 8.27 | 10.79 | 11.12 | 12.66 | 13.91 | 16.38 | 17.75 |

SEZIONE 3

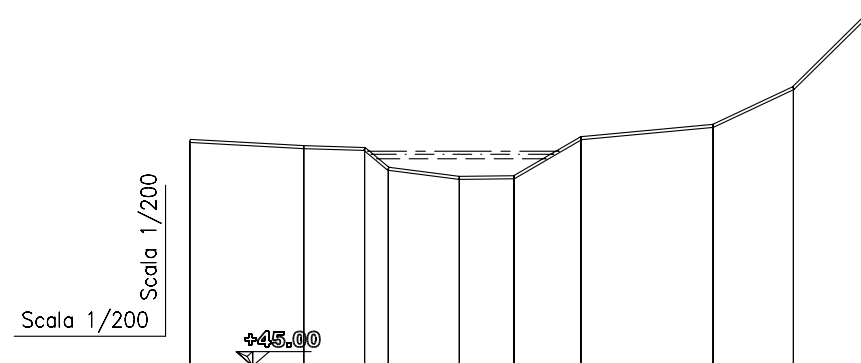
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 55.88 | 53.99 | 53.99 | 52.62 | 52.22 | 51.78 | 51.76 | 51.99 | 52.46 | 52.84 | 52.95 | 53.70 | 55.13 |
| Distanze parziali | 3.00 | 2.00 | 0.47 | 1.35 | 1.02 | 0.77 | 1.44 | 0.96 | 0.54 | 0.88 | 1.98 | | |
| Distanze progressive | 0.00 | 3.00 | 5.00 | 5.47 | 6.82 | 7.84 | 8.60 | 8.90 | 10.34 | 11.30 | 11.84 | 12.71 | 14.69 |

SEZIONE 4

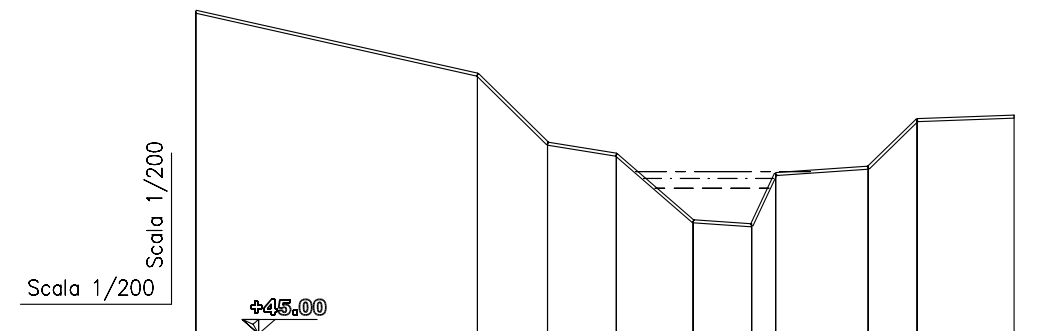
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 50.95 | 50.79 | 50.74 | 50.21 | 49.97 | 49.99 | 51.02 | 51.35 | 52.35 | 54.42 |
| Distanze parziali | 3.01 | 1.61 | 0.63 | 1.87 | 1.45 | 1.77 | 3.50 | 2.12 | 2.09 | |
| Distanze progressive | 0.00 | 3.01 | 4.62 | 5.25 | 7.13 | 8.58 | 10.35 | 13.84 | 15.97 | 18.06 |

SEZIONE 5

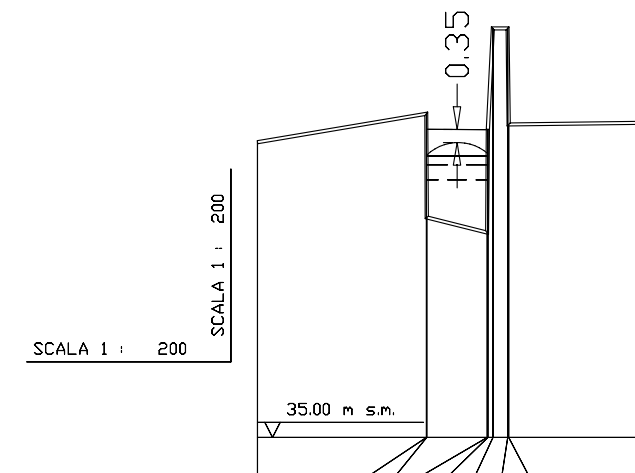
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 53.52 | 51.85 | 50.03 | 49.74 | 47.98 | 47.87 | 49.23 | 49.39 | 50.65 | 50.75 |
| Distanze parziali | 7.45 | 1.85 | 1.82 | 2.03 | 1.55 | 0.64 | 2.45 | 1.29 | 2.57 | |
| Distanze progressive | 0.00 | 7.45 | 9.31 | 11.12 | 13.16 | 14.70 | 15.34 | 17.79 | 19.08 | 21.65 |

SEZIONE 6

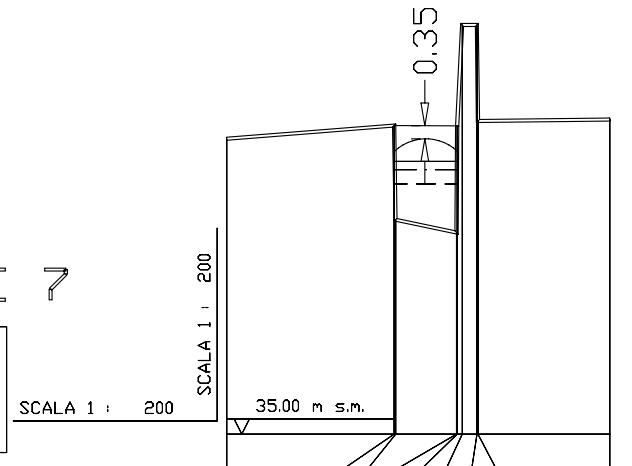
- - - - Tr=500
 - · - · Tr=200
 - - - - Tr=50



| | | | | | | | | | | |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|-------|--|-------|
| PICCHETTO | | | | | | | | | | |
| DISTANZA PARZIALE (m) | | 4.47 | | | | | | | | 3.49 |
| DISTANZA PROGRESSIVA (m) | 0.00 | 4.47 | 4.48 | 6.08 | 6.10 | 6.23 | 6.62 | 6.65 | | 10.14 |
| QUOTA TERRENO (m s.m.) | 42.81 | 43.56 | 40.82 | 40.42 | 43.15 | 45.82 | 45.82 | 43.28 | | 43.32 |

SEZIONE 7

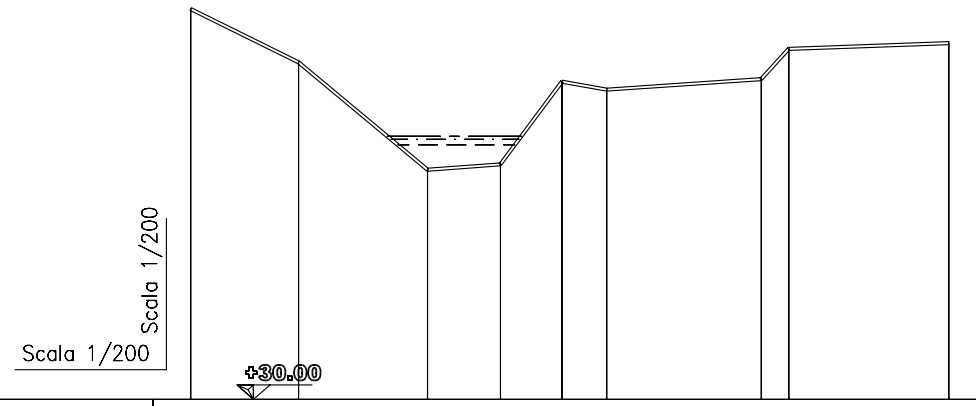
- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50



| | | | | | | | | | | |
|--------------------------|-------|-------|-------|-------|-------|-------|-------|--|--|-------|
| PICCHETTO | | | | | | | | | | |
| DISTANZA PARZIALE (m) | | 4.43 | | | | | | | | 3.49 |
| DISTANZA PROGRESSIVA (m) | 0.00 | 4.43 | 4.47 | 6.08 | 6.10 | 6.62 | 6.65 | | | 10.14 |
| QUOTA TERRENO (m s.m.) | 42.81 | 43.16 | 40.67 | 40.33 | 43.15 | 45.82 | 43.28 | | | 43.32 |

SEZIONE 8

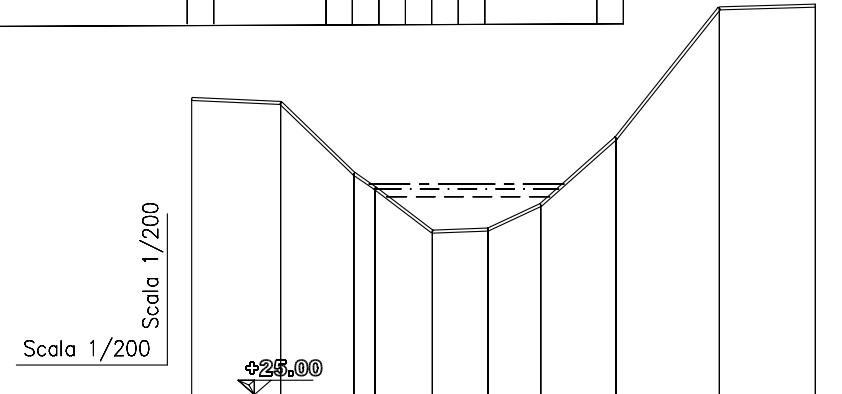
- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50



| | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 40.33 | 38.91 | 36.07 | 36.22 | 38.40 | 38.19 | 38.47 | 39.27 | 39.42 |
| Distanze parziali | | 2.85 | 3.41 | 1.93 | 1.63 | 1.18 | 4.09 | 0.73 | 4.24 |
| Distanze progressive | 0.00 | 2.85 | 6.27 | 8.19 | 9.82 | 11.01 | 15.09 | 15.82 | 20.06 |

SEZIONE 9

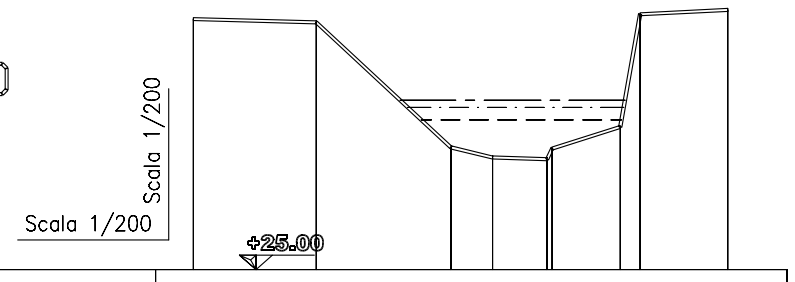
- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50



| | | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 32.82 | 32.71 | 30.85 | 30.46 | 29.31 | 29.36 | 30.02 | 31.79 | 35.22 | 35.29 |
| Distanze parziali | | 2.35 | 1.94 | 0.56 | 1.52 | 1.47 | 1.40 | 2.00 | 2.73 | 2.54 |
| Distanze progressive | 0.00 | 2.35 | 4.29 | 4.85 | 6.36 | 7.83 | 9.23 | 11.23 | 13.96 | 16.50 |

SEZIONE 10

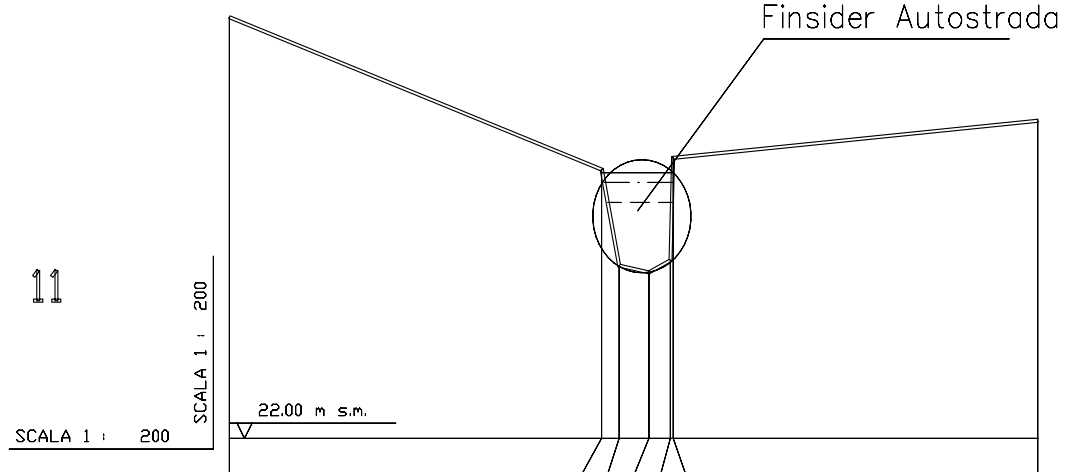
- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50



| | | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 31.63 | 31.54 | 28.23 | 27.96 | 27.92 | 28.20 | 28.77 | 31.75 | 31.87 |
| Distanze parziali | | 3.25 | 3.56 | 1.11 | 1.44 | 1.80 | 0.52 | 2.33 | |
| Distanze progressive | 0.00 | 3.25 | 6.82 | 7.92 | 9.36 | 9.50 | 11.30 | 11.82 | 14.15 |

SEZIONE 11

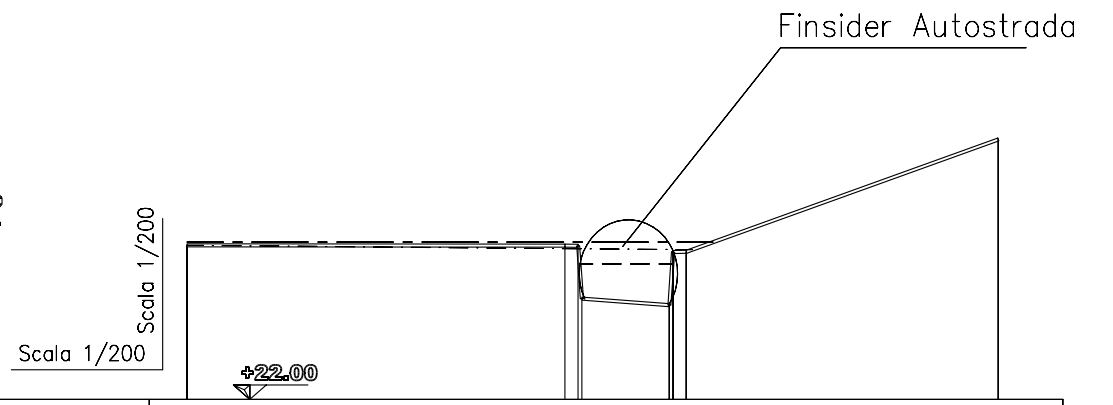
- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50



| | | | | | | | | | |
|--------------------------|-------|-------|-------|-------|-------|-------|--|--|-------|
| PICCHETTO | | | | | | | | | |
| DISTANZA PARZIALE (m) | | 9.85 | | | | | | | 9.65 |
| DISTANZA PROGRESSIVA (m) | 0.00 | 9.85 | 10.31 | 11.10 | 11.67 | 11.74 | | | 21.39 |
| QUOTA TERRENO (m s.m.) | 33.14 | 29.11 | 26.57 | 26.39 | 26.71 | 29.42 | | | 30.40 |

SEZIONE 12

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

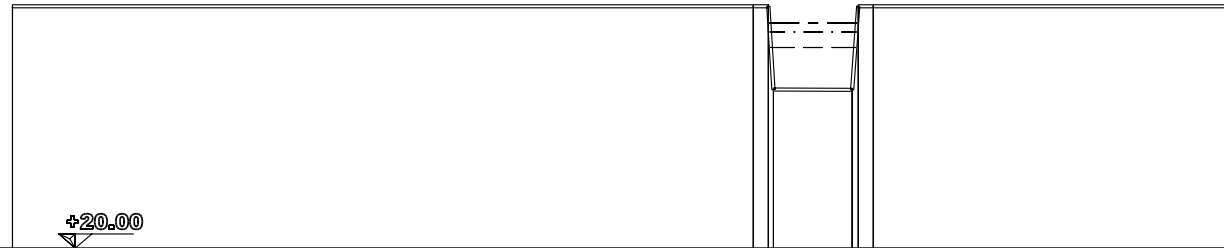


| | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 26.07 | 26.07 | 26.06 | 24.66 | 24.49 | 25.90 | 28.88 | |
| Distanze parziali | | 10.00 | 2.31 | 8.25 | | | | |
| Distanze progressive | 0.00 | 10.00 | 10.35 | 10.45 | 12.76 | 12.86 | 13.21 | 21.47 |

SEZIONE 13

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

Scala 1/200

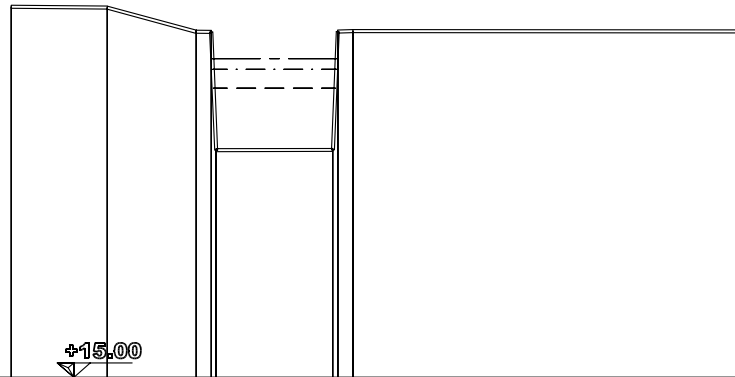


| | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 26.40 | 26.40 | 26.40 | 24.20 | 24.19 | 26.40 | 26.40 |
| Distanze parziali | | 19.60 | | 2.09 | | 9.44 | |
| Distanze progressive | 0.00 | 19.60 | 20.00 | 20.13 | 22.22 | 22.38 | 32.22 |

SEZIONE 14

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

Scala 1/200

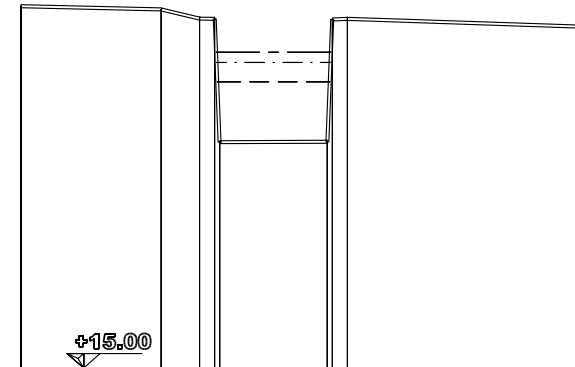


| | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 24.80 | 24.78 | 24.14 | 24.14 | 21.01 | 21.02 | 24.15 | 24.15 |
| Distanze parziali | | 2.54 | 2.35 | | 3.09 | | 10.21 | |
| Distanze progressive | 0.00 | 2.54 | 4.89 | 5.29 | 5.42 | 8.51 | 8.64 | 19.26 |

SEZIONE 15

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

Scala 1/200

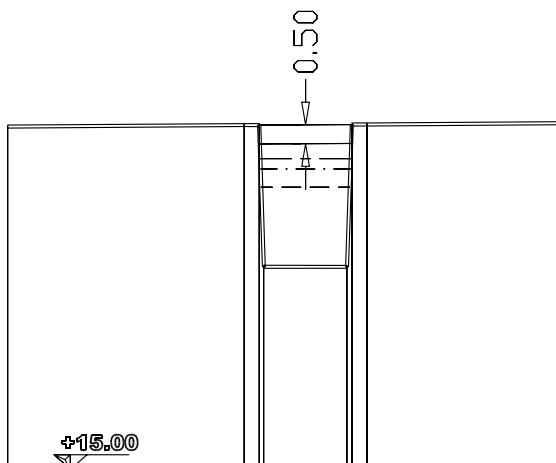


| | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 24.57 | 24.48 | 24.24 | 24.23 | 20.97 | 20.99 | 24.24 | 24.03 |
| Distanze parziali | | 3.72 | 1.01 | | 2.85 | | 6.21 | |
| Distanze progressive | 0.00 | 3.72 | 4.73 | 5.13 | 5.26 | 8.11 | 8.24 | 14.85 |

SEZIONE 16

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

Scala 1/200

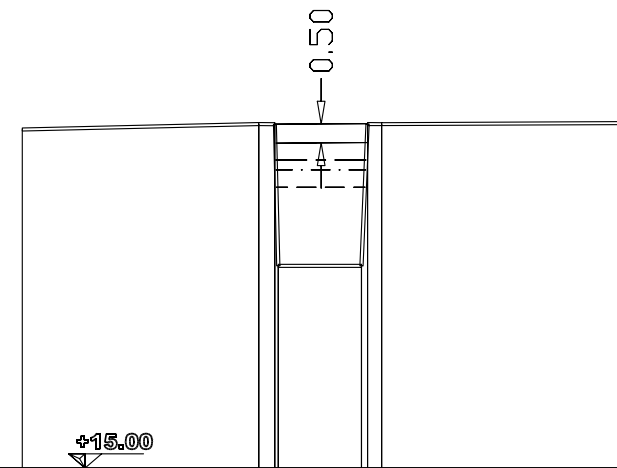


| | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 24.06 | 24.10 | 24.10 | 20.35 | 20.35 | 24.11 | 24.12 | 24.15 |
| Distanze parziali | | 6.25 | | 2.20 | | 5.12 | | |
| Distanze progressive | 0.00 | 6.25 | 6.65 | 6.77 | 8.98 | 9.11 | 9.51 | 14.63 |

SEZIONE 17

- - - - Tr=500
 - · - · - Tr=200
 - - - - Tr=50

Scala 1/200

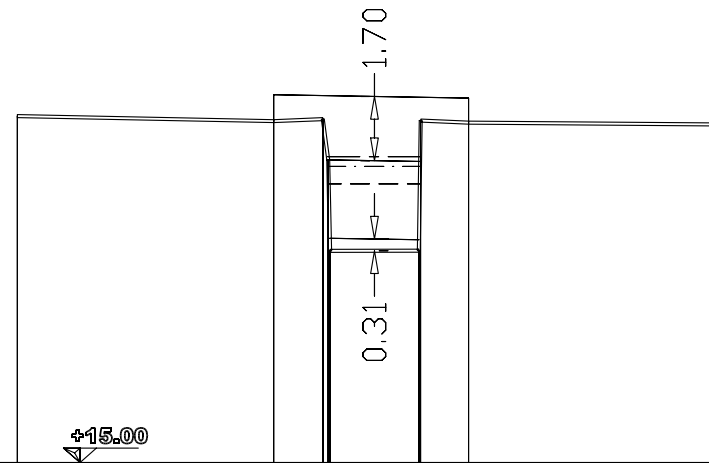


| | | | | | | | | |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 23.96 | 24.10 | 24.10 | 20.35 | 20.35 | 24.10 | 24.10 | 24.13 |
| Distanze parziali | | 6.25 | 0.43 | 2.20 | | 6.46 | | |
| Distanze progressive | 0.00 | 6.25 | 6.68 | 6.77 | 8.98 | 9.14 | 9.51 | 15.97 |

SEZIONE 18
Ingresso tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

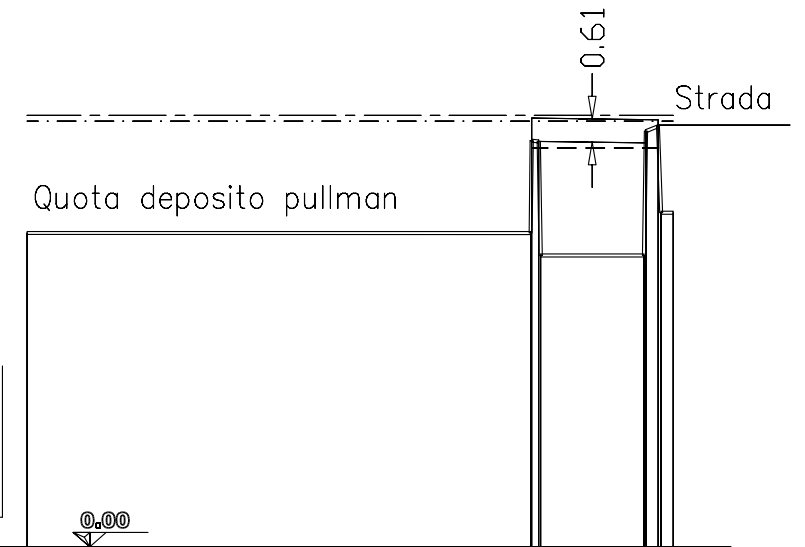


| | | | | | | | | | |
|----------------------|-------|------|-------|-------|-------|-------|-------|-------|-------|
| Quote terreno | 24.16 | | 24.03 | 24.08 | 20.60 | 20.60 | 24.04 | 23.99 | 23.94 |
| Distanze parziali | | 6.79 | 1.30 | 2.35 | 1.27 | | 6.50 | | |
| Distanze progressive | 0.00 | | 6.79 | 8.08 | 8.28 | 10.62 | 10.67 | 11.94 | 18.44 |

SEZIONE 19
Uscita tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

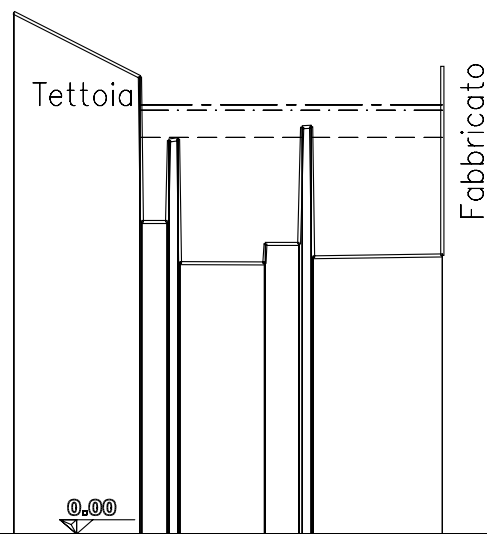


| | | | | | | |
|----------------------|------|-------|-------|-------|-------|-------|
| Quote terreno | 8.30 | | 8.30 | 7.71 | 7.71 | 8.84 |
| Distanze parziali | | 13.32 | | 2.74 | | |
| Distanze progressive | 0.00 | | 13.32 | 13.59 | 16.33 | 17.10 |

SEZIONE 20

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

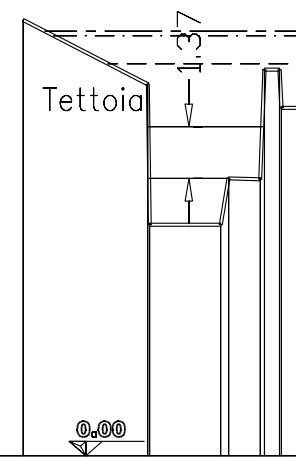


| | | | | | | | | |
|----------------------|-------|-------|------|------|------|------|------|------|
| Quote terreno | 13.79 | 12.09 | 8.25 | 7.17 | 7.16 | 7.67 | 7.32 | 7.37 |
| Distanze parziali | | 3.34 | 0.67 | 2.23 | 0.89 | | 3.42 | |
| Distanze progressive | 0.00 | 3.34 | 4.06 | 4.40 | 6.63 | 6.66 | 7.55 | 7.92 |

SEZIONE 21
Ingresso tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

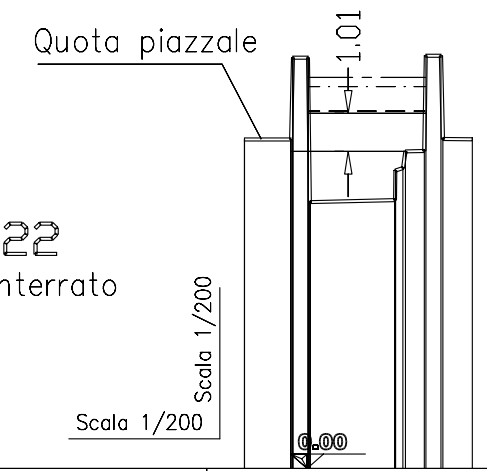


| | | | | | | | | |
|----------------------|-------|------|------|------|------|------|------|------|
| Quote terreno | 11.53 | 9.83 | 6.11 | 6.11 | 7.34 | 7.31 | 9.20 | 9.20 |
| Distanze parziali | | 3.30 | 1.88 | 0.84 | 0.67 | | | |
| Distanze progressive | 0.00 | 3.30 | 3.35 | 5.23 | 5.44 | 6.27 | 6.84 | 7.51 |

SEZIONE 22
Uscita tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

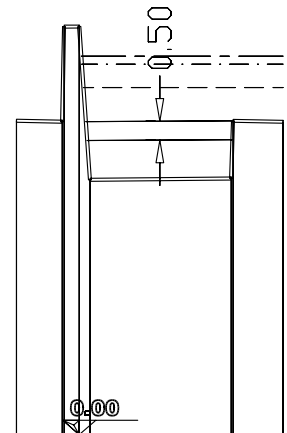


| | | | | | | | | |
|----------------------|------|------|------|------|------|------|------|------|
| Quote terreno | 8.70 | 8.70 | 7.04 | 7.10 | 8.39 | 8.40 | 8.71 | 8.71 |
| Distanze parziali | | 1.23 | 2.25 | 0.50 | 0.78 | | | |
| Distanze progressive | 0.00 | 1.23 | 1.73 | 3.98 | 4.26 | 4.76 | 5.25 | 6.03 |

SEZIONE 23
Ingresso tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200

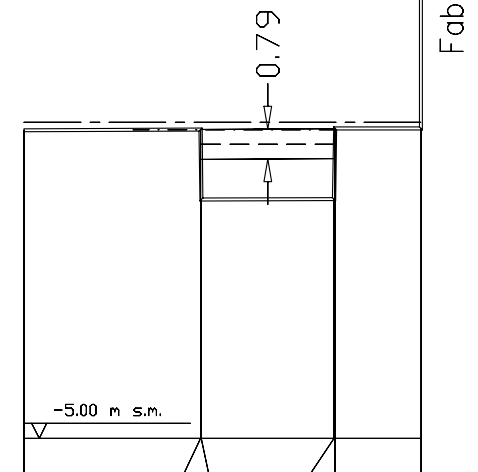


| | | | | | | |
|----------------------|------|------|-------|------|------|------|
| Quote terreno | 8.30 | 8.28 | 10.79 | 6.77 | 8.30 | 8.27 |
| Distanze parziali | 1.21 | | 3.74 | 1.32 | | |
| Distanze progressive | 0.00 | 1.21 | 1.66 | 5.68 | 5.73 | 7.05 |
| | | | 1.94 | | | |

SEZIONE 24
Uscita tratto interrato

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1 : 200
SCALA 1 : 200

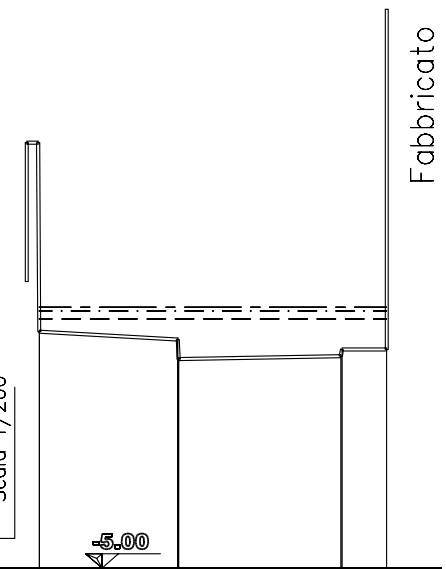


| | | | | | | |
|--------------------------|------|------|------|------|------|-------|
| PICCHETTO | | | | | | |
| DISTANZA PARZIALE (m) | | 4.67 | 3.51 | 2.27 | | |
| DISTANZA PROGRESSIVA (m) | 0.00 | 4.67 | 4.69 | 8.20 | 8.23 | 10.50 |
| QUOTA TERRENO (m s.m.) | 3.15 | 3.17 | 1.32 | 1.33 | 3.20 | 3.20 |
| | | | | | | 9.46 |

SEZIONE 25

--- Tr=500
- - - Tr=200
- - - Tr=50

Scala 1/200
Scala 1/200



| | | | | | |
|----------------------|------|------|------|------|------|
| Quote terreno | 1.25 | 1.04 | 0.60 | 0.78 | 0.78 |
| Distanze parziali | 3.66 | 4.29 | 1.18 | | |
| Distanze progressive | 0.00 | 3.66 | 3.69 | 7.98 | 8.01 |
| | | | | 9.19 | |

**MODELLAZIONE IDRAULICA IN CONDIZIONI DI MOTO
PERMANENTE:
TABELLE DELLE GRANDEZZE IDRAULICHE SIGNIFICATIVE
PER LE PORTATE T=50, 200, 500 ANNI**

RIO S.CRISTOFORO

| RIO S.CRISTOFORO – PROFILO DI CORRENTE PER T=50 ANNI | | | | | | | |
|--|------------|----------------------|---------------|---------------------|-------|---------|--------|
| ID Sez. | Progr. (m) | Quota fondo (m s.m.) | P.L. (m s.m.) | A (m ²) | b (m) | v (m/s) | Fr (-) |
| 1 | 0.00 | 54.05 | 54.96 | 2.15 | 4.17 | 4.65 | 2.07 |
| 2 | 20.80 | 52.62 | 53.60 | 3.23 | 5.67 | 3.10 | 1.31 |
| 3 | 52.56 | 51.76 | 52.64 | 2.48 | 5.34 | 4.04 | 1.89 |
| 4 | 88.87 | 49.97 | 50.48 | 1.69 | 4.48 | 5.93 | 3.09 |
| 5 | 100.13 | 47.87 | 48.85 | 2.12 | 3.02 | 4.72 | 1.80 |
| 6 | 218.01 | 40.82 | 41.82 | 1.92 | 1.61 | 5.20 | 1.52 |
| 7 | 220.43 | 40.33 | 41.62 | 1.80 | 1.63 | 5.55 | 1.69 |
| 8 | 269.40 | 36.07 | 36.73 | 1.47 | 3.09 | 6.79 | 3.14 |
| 9 | 313.77 | 29.31 | 30.23 | 2.66 | 4.31 | 3.77 | 1.53 |
| 10 | 352.56 | 27.91 | 28.96 | 3.67 | 5.30 | 2.73 | 1.05 |
| 11 | 394.50 | 26.39 | 28.24 | 2.63 | 1.70 | 3.80 | 0.97 |
| 12 | 469.77 | 24.49 | 25.58 | 2.39 | 2.45 | 4.18 | 1.35 |
| 13 | 476.11 | 24.19 | 25.31 | 2.41 | 2.24 | 4.14 | 1.27 |
| 14 | 553.01 | 21.01 | 22.65 | 5.16 | 3.23 | 1.94 | 0.49 |
| 15 | 562.59 | 20.97 | 22.57 | 4.64 | 2.98 | 2.15 | 0.55 |
| 16 | 578.44 | 20.35 | 22.46 | 4.82 | 2.35 | 2.07 | 0.46 |
| 17 | 583.44 | 20.35 | 22.43 | 4.73 | 2.35 | 2.11 | 0.48 |
| 18 | 589.34 | 20.59 | 22.37 | 4.20 | 2.40 | 2.38 | 0.58 |
| 18bis | 762.54 | 16.70 | 19.25 | 7.08 | 2.82 | 1.41 | 0.28 |
| 19 | 1162.54 | 7.70 | 10.55 | 7.92 | 2.83 | 2.52 | 0.48 |
| 20 | 1178.24 | 7.15 | 10.49 | 10.22 | 3.39 | 1.96 | 0.36 |
| 21 | 1219.66 | 6.11 | 10.37 | 11.61 | 3.09 | 1.72 | 0.28 |
| 22 | 1252.88 | 7.04 | 9.45 | 6.35 | 3.08 | 3.15 | 0.70 |
| 23 | 1274.51 | 6.74 | 9.18 | 10.54 | 5.28 | 1.90 | 0.43 |
| 24 | 1602.41 | 1.32 | 2.79 | 5.15 | 3.55 | 3.88 | 1.03 |
| 25 | 1657.77 | 0.52 | 1.59 | 7.05 | 9.19 | 2.84 | 1.03 |

Rio S.Cristoforo/Risultati delle simulazioni idrauliche - T = 50 anni

| RIO S.CRISTOFORO – PROFILO DI CORRENTE PER T=200 ANNI | | | | | | | |
|---|------------|----------------------|---------------|---------------------|-------|---------|--------|
| ID Sez. | Progr. (m) | Quota fondo (m s.m.) | P.L. (m s.m.) | A (m ²) | b (m) | v (m/s) | Fr (-) |
| 1 | 0.00 | 54.05 | 55.13 | 2.95 | 5.02 | 5.08 | 2.11 |
| 2 | 20.80 | 52.62 | 53.77 | 4.41 | 6.93 | 3.40 | 1.36 |
| 3 | 52.56 | 51.76 | 52.78 | 3.27 | 5.76 | 4.58 | 1.94 |
| 4 | 88.87 | 49.97 | 50.60 | 2.29 | 4.85 | 6.56 | 3.05 |
| 5 | 100.13 | 47.87 | 49.11 | 2.95 | 3.72 | 5.08 | 1.82 |
| 6 | 218.01 | 40.82 | 42.22 | 2.57 | 1.62 | 5.83 | 1.48 |
| 7 | 220.43 | 40.33 | 42.00 | 2.43 | 1.64 | 6.16 | 1.62 |
| 8 | 269.40 | 36.07 | 36.88 | 1.97 | 3.38 | 7.62 | 3.19 |
| 9 | 313.77 | 29.31 | 30.44 | 3.66 | 4.85 | 4.10 | 1.51 |
| 10 | 352.56 | 27.91 | 29.29 | 5.49 | 5.71 | 2.73 | 0.89 |
| 11 | 394.50 | 26.39 | 28.77 | 3.57 | 1.81 | 4.20 | 0.96 |
| 12 | 469.77 | 24.49 | 25.96 | 3.54 | 6.78 | 4.24 | 1.88 |
| 13 | 476.11 | 24.19 | 25.72 | 3.35 | 2.29 | 4.48 | 1.18 |
| 14 | 553.01 | 21.01 | 23.15 | 6.81 | 3.27 | 2.20 | 0.49 |
| 15 | 562.59 | 20.97 | 23.08 | 6.15 | 3.02 | 2.44 | 0.54 |
| 16 | 578.44 | 20.35 | 22.94 | 5.95 | 2.38 | 2.52 | 0.51 |
| 17 | 583.44 | 20.35 | 22.89 | 5.84 | 2.38 | 2.57 | 0.52 |
| 18 | 589.34 | 20.59 | 22.83 | 5.32 | 2.42 | 2.82 | 0.61 |
| 18bis | 762.54 | 16.70 | 20.57 | 11.14 | 3.35 | 1.35 | 0.24 |
| 19 | 1162.54 | 7.70 | 11.26 | 10.03 | 3.03 | 2.73 | 0.52 |
| 20 | 1178.24 | 7.15 | 11.21 | 12.87 | 3.76 | 2.99 | 0.40 |
| 21 | 1219.66 | 6.11 | 11.11 | 13.91 | 3.09 | 2.33 | 0.32 |
| 22 | 1252.88 | 7.04 | 10.10 | 8.35 | 3.10 | 2.16 | 0.70 |
| 23 | 1274.51 | 6.74 | 9.80 | 13.82 | 5.32 | 3.59 | 0.43 |
| 24 | 1602.41 | 1.32 | 3.17 | 7.15 | 5.76 | 2.17 | 1.20 |
| 25 | 1657.77 | 0.52 | 1.80 | 9.00 | 9.19 | 4.20 | 1.08 |

Rio S.Cristoforo/Risultati delle simulazioni idrauliche - T = 200 anni

| RIO S.CRISTOFORO – PROFILO DI CORRENTE PER T=500 ANNI | | | | | | | |
|---|------------|----------------------|---------------|---------------------|-------|---------|--------|
| ID Sez. | Progr. (m) | Quota fondo (m s.m.) | P.L. (m s.m.) | A (m ²) | b (m) | v (m/s) | Fr (-) |
| 1 | 0.00 | 54.05 | 55.22 | 3.40 | 5.43 | 5.29 | 2.13 |
| 2 | 20.80 | 52.62 | 53.86 | 5.04 | 7.52 | 3.57 | 1.39 |
| 3 | 52.56 | 51.76 | 52.86 | 3.71 | 5.99 | 4.85 | 1.97 |
| 4 | 88.87 | 49.97 | 50.68 | 2.67 | 5.17 | 6.75 | 3.00 |
| 5 | 100.13 | 47.87 | 49.29 | 3.70 | 5.20 | 4.86 | 1.84 |
| 6 | 218.01 | 40.82 | 42.45 | 2.94 | 1.62 | 6.13 | 1.45 |
| 7 | 220.43 | 40.33 | 42.22 | 2.79 | 1.65 | 6.45 | 1.58 |
| 8 | 269.40 | 36.07 | 36.96 | 2.24 | 3.54 | 8.03 | 3.22 |
| 9 | 313.77 | 29.31 | 30.57 | 4.24 | 5.15 | 4.24 | 1.49 |
| 10 | 352.56 | 27.91 | 29.48 | 6.59 | 5.95 | 2.73 | 0.83 |
| 11 | 394.50 | 26.39 | 29.03 | 4.05 | 1.98 | 4.44 | 0.99 |
| 12 | 469.77 | 24.49 | 26.16 | 4.97 | 13.92 | 3.62 | 1.94 |
| 13 | 476.11 | 24.19 | 25.96 | 3.89 | 2.32 | 4.62 | 1.14 |
| 14 | 553.01 | 21.01 | 23.43 | 7.71 | 3.29 | 2.34 | 0.49 |
| 15 | 562.59 | 20.97 | 23.35 | 6.97 | 3.04 | 2.58 | 0.54 |
| 16 | 578.44 | 20.35 | 23.21 | 6.59 | 2.40 | 2.73 | 0.53 |
| 17 | 583.44 | 20.35 | 23.15 | 6.46 | 2.40 | 2.79 | 0.54 |
| 18 | 589.34 | 20.59 | 23.09 | 5.93 | 2.44 | 3.03 | 0.62 |
| 18bis | 762.54 | 16.70 | 20.96 | 12.45 | 3.35 | 1.45 | 0.24 |
| 19 | 1162.54 | 7.70 | 11.41 | 10.50 | 3.03 | 3.33 | 0.57 |
| 20 | 1178.24 | 7.15 | 11.35 | 13.39 | 3.76 | 2.61 | 0.44 |
| 21 | 1219.66 | 6.11 | 11.23 | 14.28 | 3.09 | 2.45 | 0.36 |
| 22 | 1252.88 | 7.04 | 10.34 | 9.10 | 3.10 | 3.85 | 0.72 |
| 23 | 1274.51 | 6.74 | 10.01 | 14.94 | 5.34 | 2.34 | 0.45 |
| 24 | 1602.41 | 1.32 | 3.37 | 8.77 | 8.97 | 3.99 | 1.29 |
| 25 | 1657.77 | 0.52 | 1.90 | 9.87 | 9.19 | 3.55 | 1.09 |

Rio S.Cristoforo/Risultati delle simulazioni idrauliche - T = 500 anni