



CONCESSIONI  
AUTOSTRADALI  
LOMBARDE

tangenziale  
esterna



# TANGENZIALE EST ESTERNA DI MILANO

CODICE C.U.P. I21B05000290007  
CODICE C.I.G. 017107578C

## PROGETTO ESECUTIVO

### LOTTO A

INTERVENTI DI INSERIMENTO PAESISTICO - AMBIENTALE, RIPRISTINO E COMPENSAZIONI

ASSE PRINCIPALE, SVINCOLI E OPERE CONNESSE  
STRADA PODERALE DI RICUCITURA C.na BRAGOSA  
SEZIONI TRASVERSALI

IL PROGETTISTA



Dott. Ing. Andrea Molteni  
Ordine Ingegneri di Como  
n. 1765

CONSORZIO NORTE



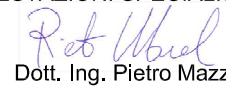
Dott. Ing. Maurizio Parisi

CONSORZIO COSTRUTTORI TEEM  
IL DIRETTORE TECNICO



Dott. Ing. Rocco Magri

RESPONSABILE INTEGRAZIONE  
PRESTAZIONI SPECIALISTICHE



Dott. Ing. Pietro Mazzoli  
Ordine Ingegneri di Parma  
n. 821

IL CONCEDENTE



CONCESSIONI  
AUTOSTRADALI  
LOMBARDE

IL CONCESSIONARIO

tangenziale  
esterna



IL DIRETTORE DEI LAVORI

|          |          |                                              |                          |            |            |
|----------|----------|----------------------------------------------|--------------------------|------------|------------|
|          |          |                                              |                          |            |            |
| A        | 31/04/14 | Emissione a seguito approvazione PD da MATTM | P. Asti                  | G. Salvini | P. Mazzoli |
| EM./REV. | DATA     | DESCRIZIONE                                  | ELABORAZIONE PROGETTUALE | CONTR.     | APPROV.    |

IDENTIFICAZIONE ELABORATO

NUM. PROGR. FASE LOTTO ZONA OPERA TRATTO OPERA AMBITO TIPO ELABORATO PROGRESSIVA REV.  
A 3 4 8 2 E A AAX MAXXX 0 IA SZ 001 A

DATA: 31/03/14

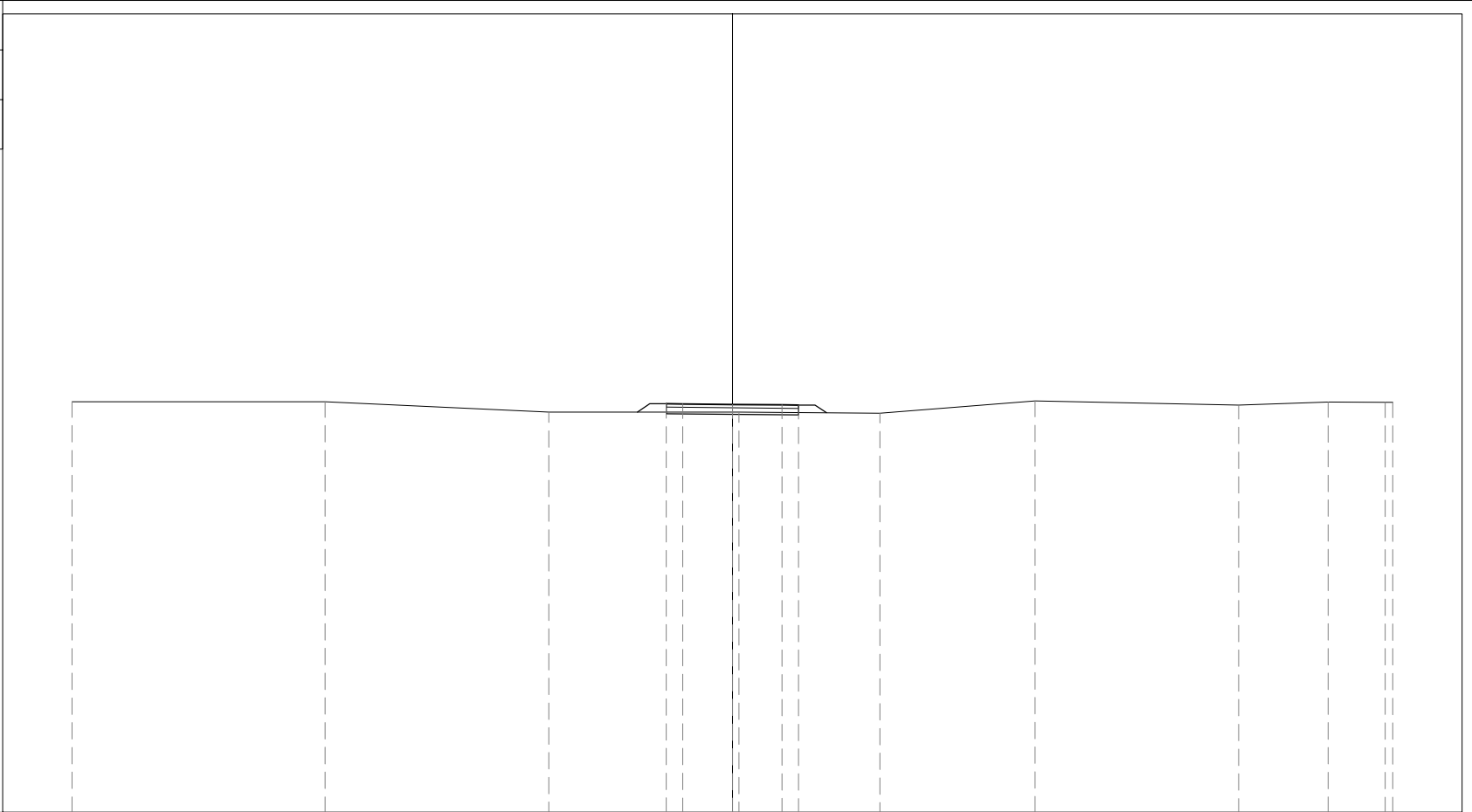
SCALA: 1:200

PROFILO Cucitura Bragosa

SEZIONE BRAG\_1

PROGRESSIVA 0.00

STERRO  
 A1 0.28 m<sup>2</sup>  
 RIPOORTO  
 B1 0.18 m<sup>2</sup>  
 B2 0.15 m<sup>2</sup>  
 Totale: 0.33 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>



141

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200

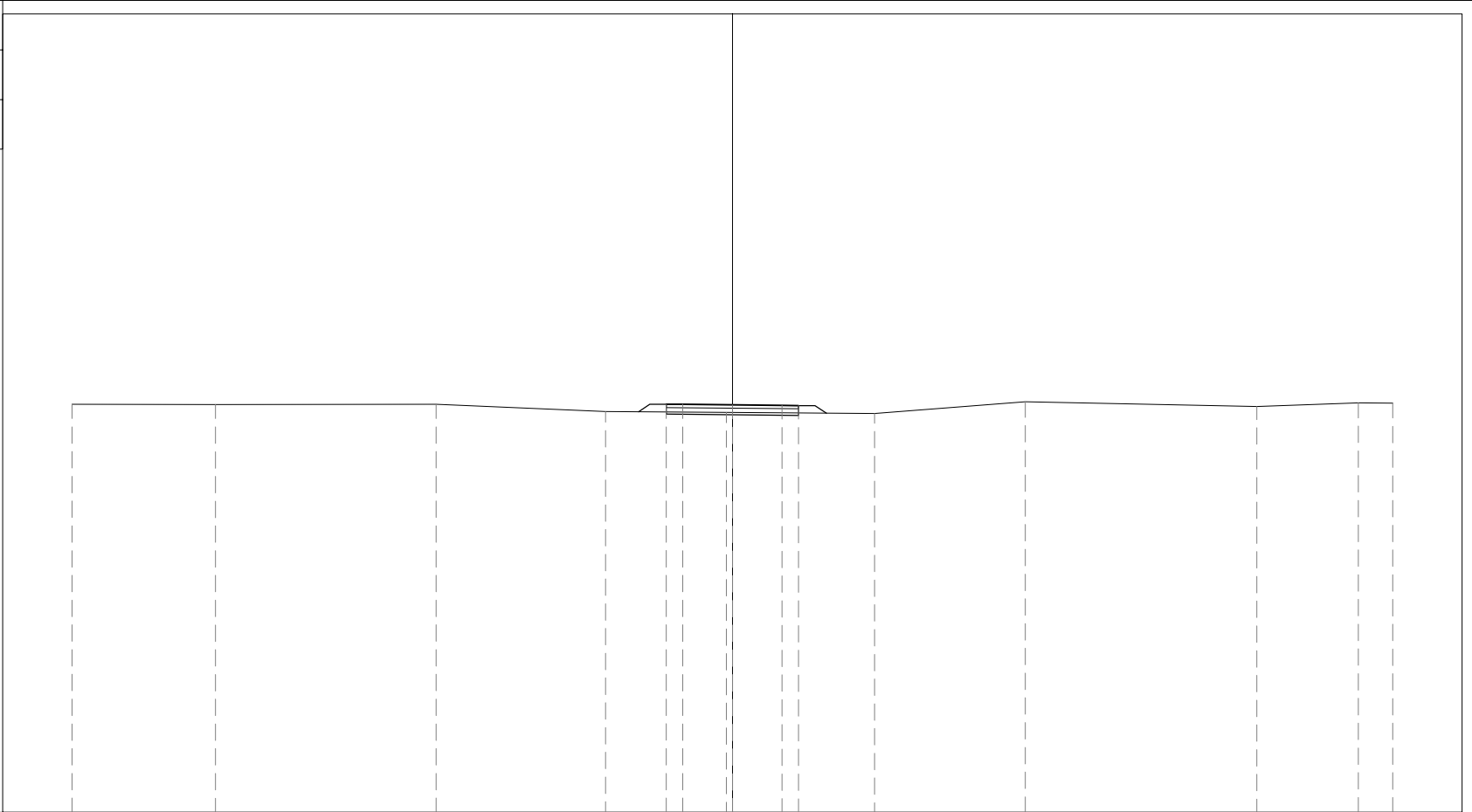
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|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -12.33 | -5.56  | 0.20   | 4.46   | 9.17   | 15.33  | 18.04  | 19.76  | 20.00  |
| PARZIALI TERRENO     | 7.67   | 6.77   | 5.76   | 4.26   | 4.71   | 6.16   | 2.71   | 1.72   | 0.24   |        |
| QUOTE TERRENO        | 153.44 | 153.44 | 153.13 | 153.13 | 153.09 | 153.47 | 153.34 | 153.43 | 153.43 | 153.42 |
| PROGRESSIVE PROGETTO |        |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |        |        |
| PARZIALI PROGETTO    |        |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |        |        |
| QUOTE PROGETTO       |        |        |        | 153.38 | 153.38 | 153.36 | 153.35 | 153.34 |        |        |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_1-a

PROGRESSIVA 1.35

STERRO  
 A1 0.27 m<sup>2</sup>  
 RIPOORTO  
 B1 0.17 m<sup>2</sup>  
 B2 0.16 m<sup>2</sup>  
 Totale: 0.33 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.39 m<sup>2</sup>  
 Totale: 1.19 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.39 m<sup>2</sup>  
 Totale: 1.19 m<sup>2</sup>



141

200  
200

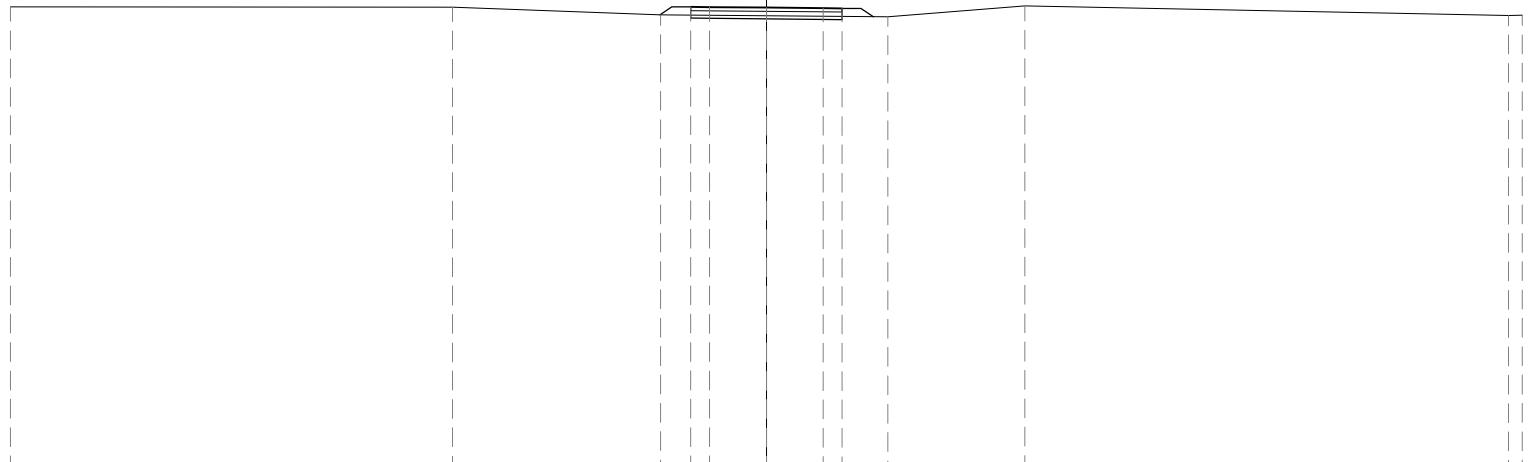
|                      |        |        |        |        |                  |        |                  |        |        |        |
|----------------------|--------|--------|--------|--------|------------------|--------|------------------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -15.65 | -8.97  | -3.84  | -0.18            | 4.30   | 8.87             | 15.88  | 18.95  | 20.00  |
| PARZIALI TERRENO     |        | 4.35   | 6.68   | 5.13   | 3.66             | 4.48   | 4.57             | 7.01   | 3.07   | 1.05   |
| QUOTE TERRENO        | 153.37 | 153.36 | 153.37 | 153.14 | 153.12           | 153.08 | 153.44           | 153.30 | 153.41 | 153.40 |
| PROGRESSIVE PROGETTO |        |        |        |        | -2.00<br>-1.50   | 0.00   | 1.50<br>2.00     |        |        |        |
| PARZIALI PROGETTO    |        |        |        |        | 0.50<br>1.50     | 1.50   | 0.50<br>2.00     |        |        |        |
| QUOTE PROGETTO       |        |        |        |        | 153.37<br>153.36 | 153.35 | 153.33<br>153.33 |        |        |        |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_1-b

PROGRESSIVA 10.64

STERRO  
 A1 0.32 m<sup>2</sup>  
 RIPORTO  
 B1 0.15 m<sup>2</sup>  
 B2 0.14 m<sup>2</sup>  
 Totale: 0.29 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.38 m<sup>2</sup>  
 Totale: 1.18 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.38 m<sup>2</sup>  
 Totale: 1.18 m<sup>2</sup>



141

200

|                      |        |        |        |        |        |        |        |
|----------------------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -8.31  | -2.80  | 3.21   | 6.84   | 19.64  | 20.00  |
| PARZIALI TERRENO     |        | 11.69  | 5.51   | 6.01   | 3.63   | 12.80  | 0.36   |
| QUOTE TERRENO        | 153.26 | 153.25 | 153.05 | 153.00 | 153.29 | 153.03 | 153.04 |
| PROGRESSIVE PROGETTO |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |
| PARZIALI PROGETTO    |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        | 153.27 | 153.26 | 153.25 | 153.23 | 153.23 |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_2

PROGRESSIVA 50.00

STERRO  
 A1 0.59 m<sup>2</sup>  
 RIPORTO  
 B1 0.10 m<sup>2</sup>  
 B2 0.07 m<sup>2</sup>  
 Totale: 0.17 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>

140

200  
 200

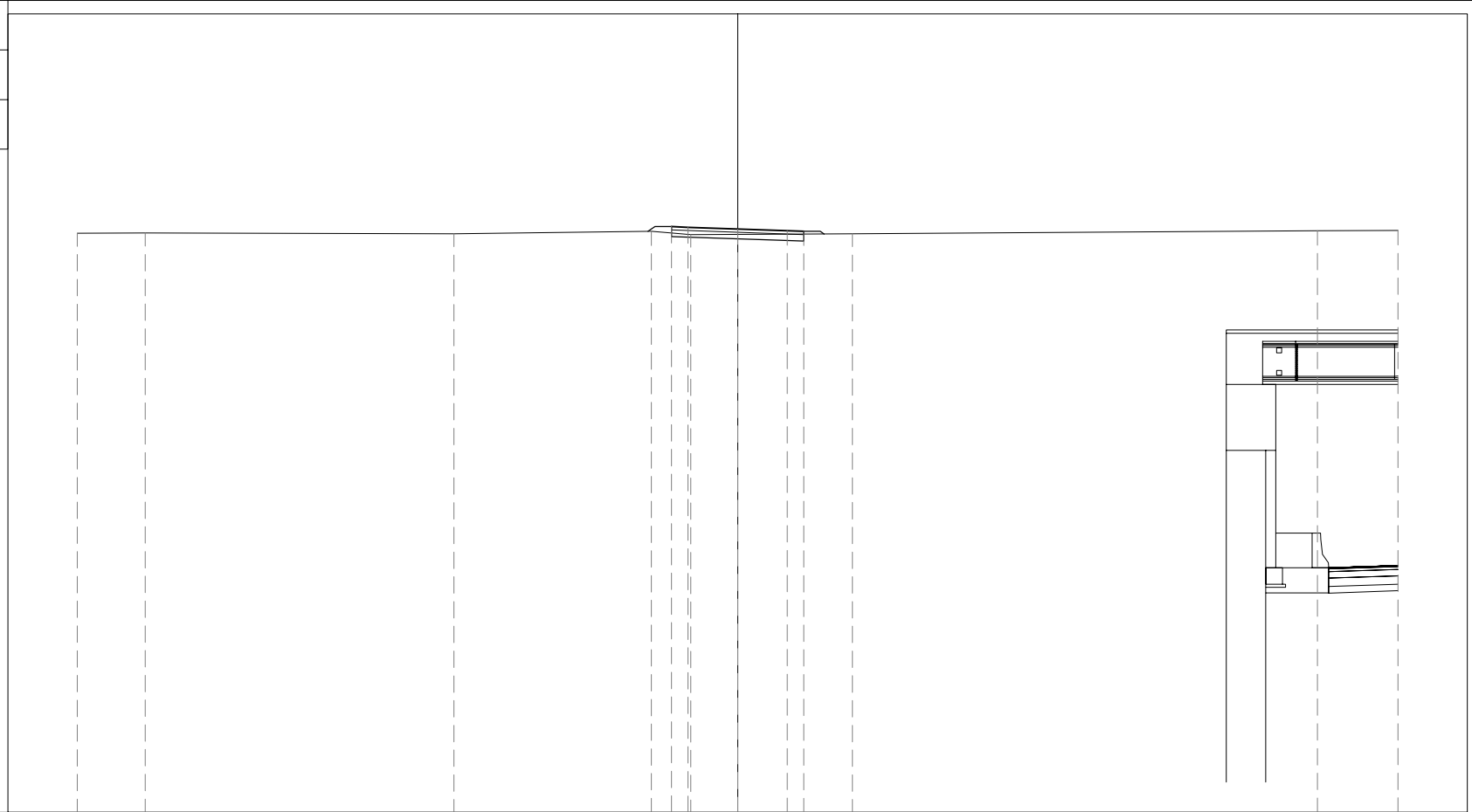
|                      |        |        |        |                  |        |                  |
|----------------------|--------|--------|--------|------------------|--------|------------------|
| PROGRESSIVE TERRENO  | -20.00 | -11.28 | -3.78  | -1.06            | 2.73   | 20.00            |
| PARZIALI TERRENO     | 8.72   | 7.50   | 2.72   | 3.79             | 17.27  |                  |
| QUOTE TERRENO        | 152.83 | 152.82 | 152.68 | 152.67           | 152.70 | 152.75           |
| PROGRESSIVE PROGETTO |        |        |        | -2.00<br>-1.50   | 0.00   | 1.50<br>2.00     |
| PARZIALI PROGETTO    |        |        |        | 0.50<br>1.50     | 1.50   | 0.50             |
| QUOTE PROGETTO       |        |        |        | 152.85<br>152.85 | 152.83 | 152.82<br>152.81 |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_3

PROGRESSIVA 105.83

STERRO  
 A1 0.55 m<sup>2</sup>  
 RIPOORTO  
 B1 0.11 m<sup>2</sup>  
 B2 0.05 m<sup>2</sup>  
 Totale: 0.16 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.40 m<sup>2</sup>  
 Totale: 1.20 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.40 m<sup>2</sup>  
 Totale: 1.20 m<sup>2</sup>



135

200  
 200

|                      |        |        |        |        |        |        |        |        |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -17.94 | -8.59  | -2.62  | -1.42  | 3.48   | 17.56  | 20.00  |
| PARZIALI TERRENO     | 2.06   | 9.35   | 5.97   | 1.20   | 4.90   | 14.08  | 2.44   |        |
| QUOTE TERRENO        | 152.55 | 152.56 | 152.53 | 152.61 | 152.51 | 152.53 | 152.63 | 152.63 |
| PROGRESSIVE PROGETTO |        |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |
| PARZIALI PROGETTO    |        |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        |        | 152.75 | 152.73 | 152.68 | 152.63 | 152.61 |

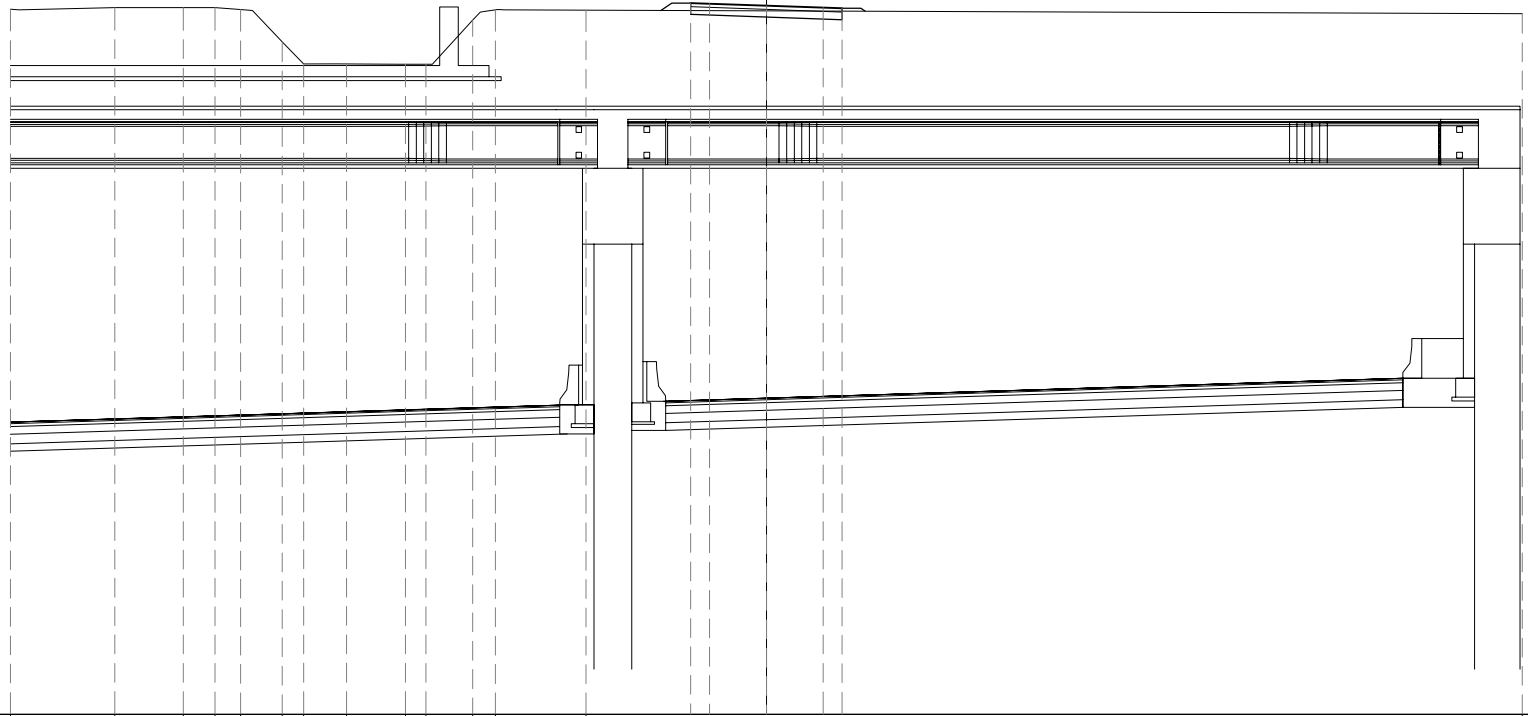


PROFILO Cucitura Bragosa

SEZIONE BRAG\_5

PROGRESSIVA 122.28

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 0.66 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.13 m <sup>2</sup> |
| B2           | 0.04 m <sup>2</sup> |
| Totale:      | 0.17 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |



134

200  
200

|                      |        |        |        |        |        |        |        |        |        |        |        |        |        |       |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| PROGRESSIVE TERRENO  | -20.00 | -17.24 | -15.43 | -14.58 | -13.91 | -12.81 | -12.24 | -11.10 | -9.55  | -9.01  | -7.77  | -7.16  | -4.77  | 20.00 |
| PARZIALI TERRENO     | 2.76   | 1.81   | 0.85   | 0.67   | 1.10   | 0.57   | 1.14   | 1.55   | 0.54   | 1.24   | 0.61   | 2.39   | 24.77  |       |
| QUOTE TERRENO        | 152.66 | 152.70 | 152.70 | 152.70 | 152.65 | 151.80 | 151.21 | 151.21 | 151.21 | 152.37 | 152.64 | 152.63 | 152.54 |       |
| PROGRESSIVE PROGETTO |        |        |        |        |        |        |        |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00  |
| PARZIALI PROGETTO    |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |        |        |        |        |        |        |       |
| QUOTE PROGETTO       |        |        | 152.82 | 152.80 | 152.75 | 152.70 | 152.68 |        |        |        |        |        |        |       |

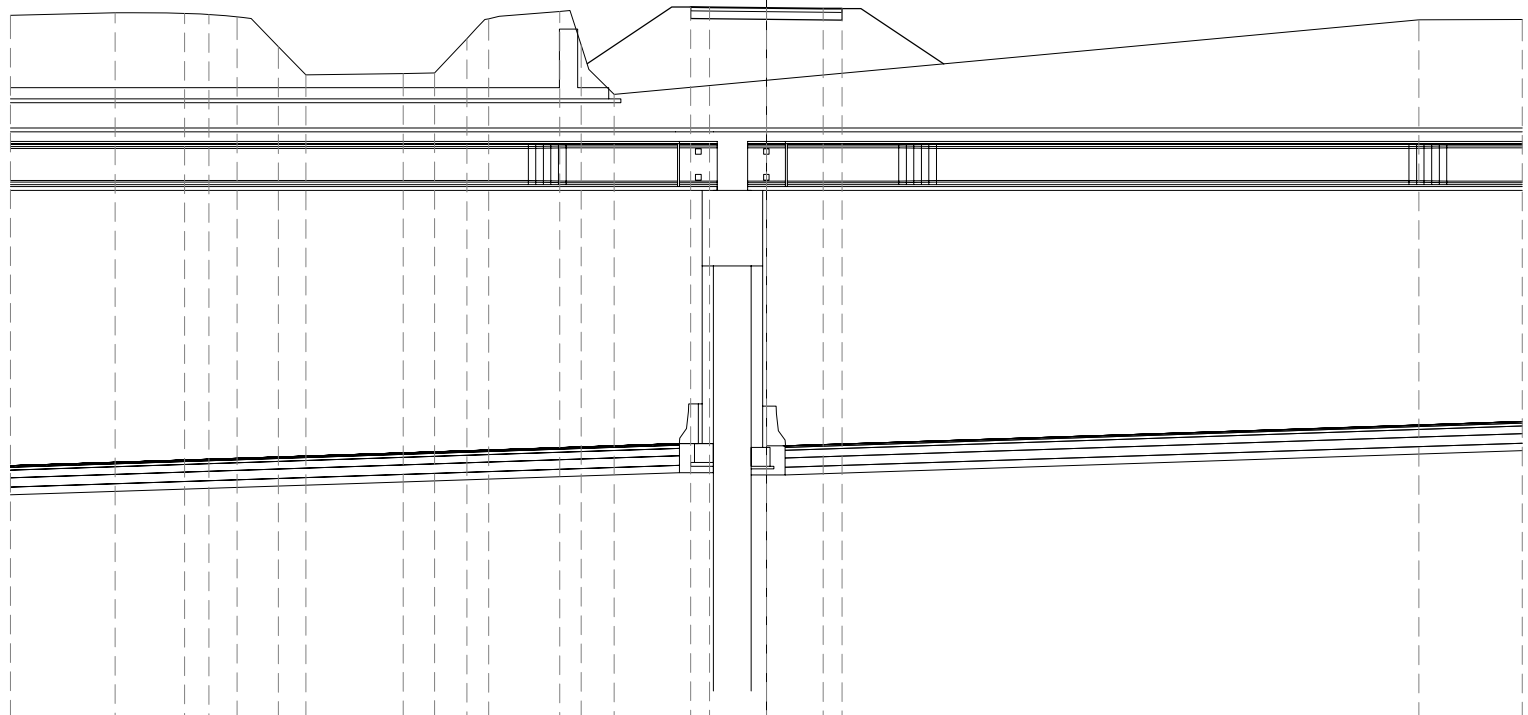


PROFILO Cucitura Bragosa

SEZIONE BRAG\_6

PROGRESSIVA 150.00

RIPORTO  
 B1 13.33 m<sup>2</sup>  
 BASE  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>  
 STABILIZZATO  
 C1 0.80 m<sup>2</sup>  
 C1 0.41 m<sup>2</sup>  
 Totale: 1.21 m<sup>2</sup>



134

200  
 200

|                      |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -17.23 | -15.39 | -14.75 | -14.00 | -12.91 | -12.18 | -9.61  | -8.77  | -7.92  | -7.35  | -5.47  | -4.90  | -4.03  | 17.26  | 20.00  |
| PARZIALI TERRENO     | 2.77   | 1.84   | 0.64   | 0.75   | 1.09   | 0.73   | 2.57   | 0.84   | 0.85   | 0.57   | 1.88   | 0.57   | 0.87   | 21.29  | 2.74   |        |
| QUOTE TERRENO        | 152.73 | 152.80 | 152.79 | 152.76 | 152.69 | 151.90 | 151.16 | 151.19 | 151.21 | 152.12 | 152.64 | 152.84 | 151.95 | 150.64 | 152.61 | 152.62 |
| PROGRESSIVE PROGETTO |        |        |        |        |        |        |        |        |        |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |
| PARZIALI PROGETTO    |        |        |        |        |        |        |        |        |        |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        |        |        |        |        |        |        |        |        |        | 152.95 | 152.95 | 152.93 | 152.92 | 152.91 |





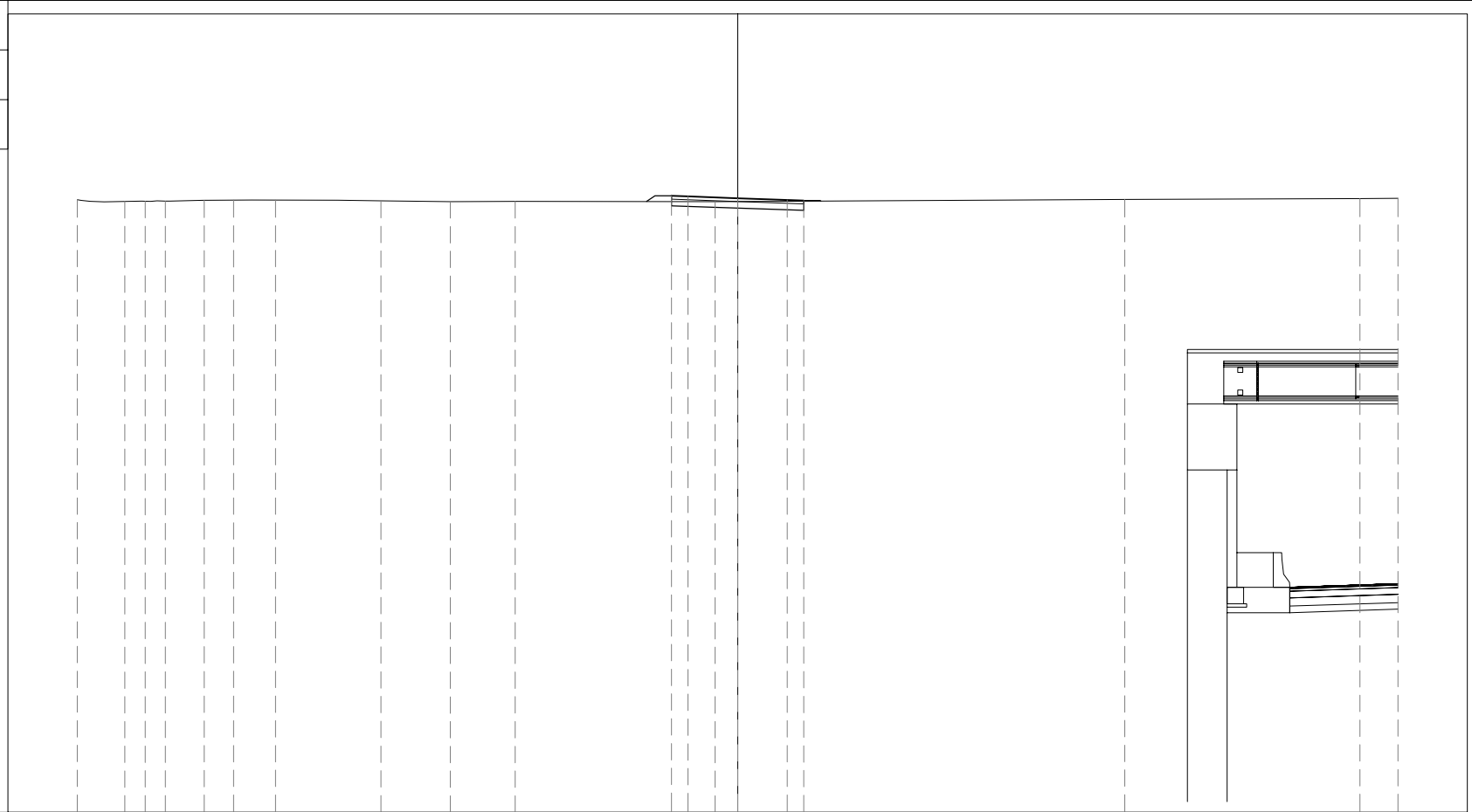


PROFILO Cucitura Bragosa

SEZIONE BRAG\_10

PROGRESSIVA 217.88

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 0.81 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.10 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.41 m <sup>2</sup> |
| Totale:      | 1.21 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.41 m <sup>2</sup> |
| Totale:      | 1.21 m <sup>2</sup> |



134

200

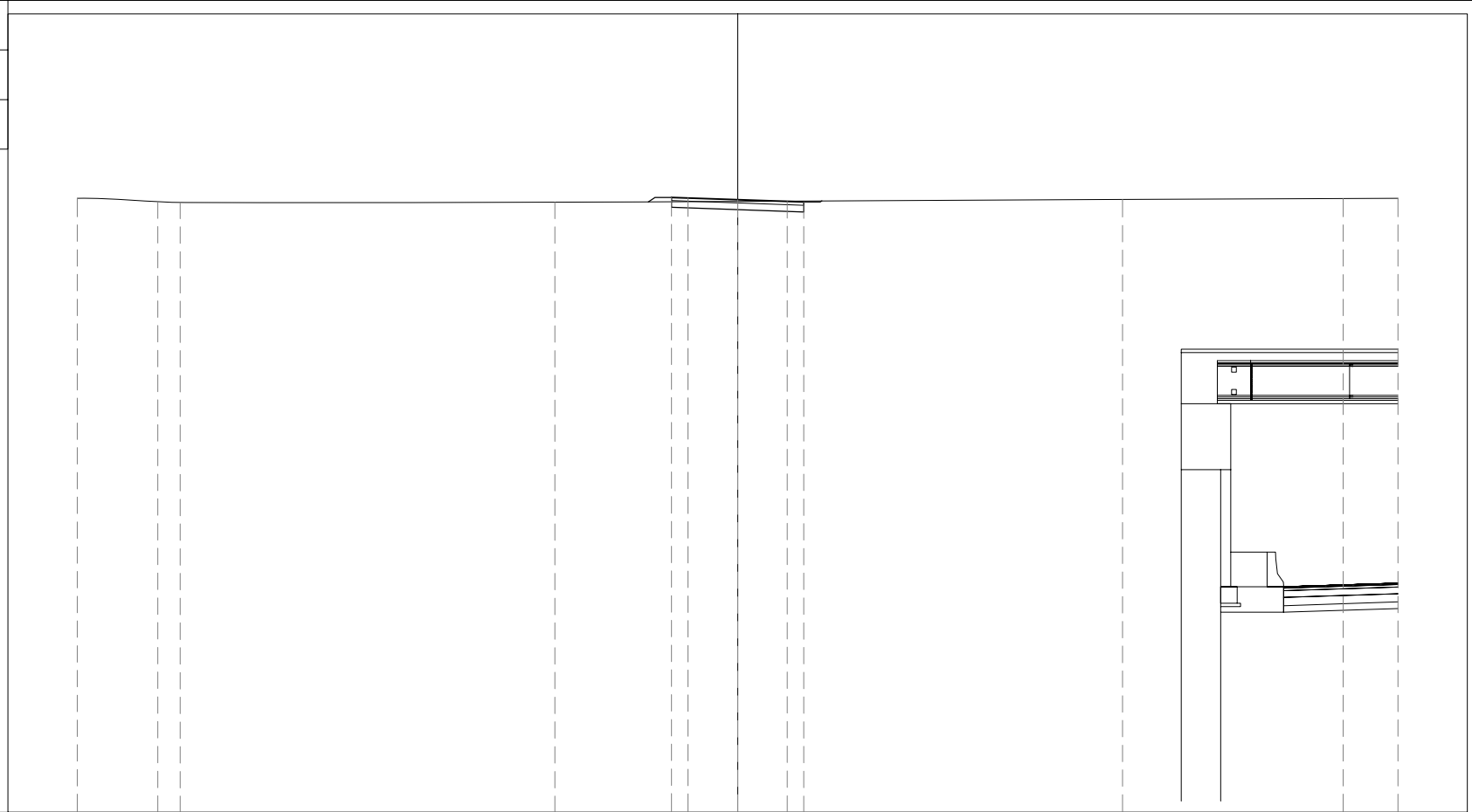
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|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -18.56 | -17.94 | -17.33 | -16.16 | -15.26 | -13.99 | -10.80 | -8.70  | -6.74  | -0.68  | 11.72  | 18.85  | 20.00  |        |
| PARZIALI TERRENO     | 1.44   | 0.62   | 0.61   | 1.17   | 0.90   | 1.27   | 3.19   | 2.10   | 1.96   | 6.06   | 12.40  | 7.13   | 1.15   |        |        |
| QUOTE TERRENO        | 152.56 | 152.51 | 152.52 | 152.52 | 152.55 | 152.56 | 152.56 | 152.53 | 152.51 | 152.51 | 152.51 | 152.57 | 152.60 | 152.60 |        |
| PROGRESSIVE PROGETTO |        |        |        |        |        |        |        |        |        |        | -2.00  |        |        |        |        |
| PARZIALI PROGETTO    |        |        |        |        |        |        |        |        |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        |        |        |        |        |        |        |        |        | 152.68 | 152.66 | 152.61 | 152.56 | 152.54 |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_11

PROGRESSIVA 223.10

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 0.98 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.08 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.38 m <sup>2</sup> |
| Totale:      | 1.18 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.38 m <sup>2</sup> |
| Totale:      | 1.18 m <sup>2</sup> |



134

200  
200

|                      |        |        |        |        |        |        |        |
|----------------------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -17.56 | -16.88 | -5.53  | 11.66  | 18.34  | 20.00  |
| PARZIALI TERRENO     | 2.44   | 0.68   | 11.35  | 17.19  | 6.68   | 1.66   |        |
| QUOTE TERRENO        | 152.60 | 152.50 | 152.48 | 152.49 | 152.58 | 152.60 | 152.61 |
| PROGRESSIVE PROGETTO |        |        |        |        |        |        |        |
| PARZIALI PROGETTO    |        |        |        |        |        |        |        |
| QUOTE PROGETTO       |        |        |        |        |        |        |        |

152.64  
152.62  
152.57  
152.51  
152.50

-2.00  
-1.50  
0.00  
1.50  
2.00

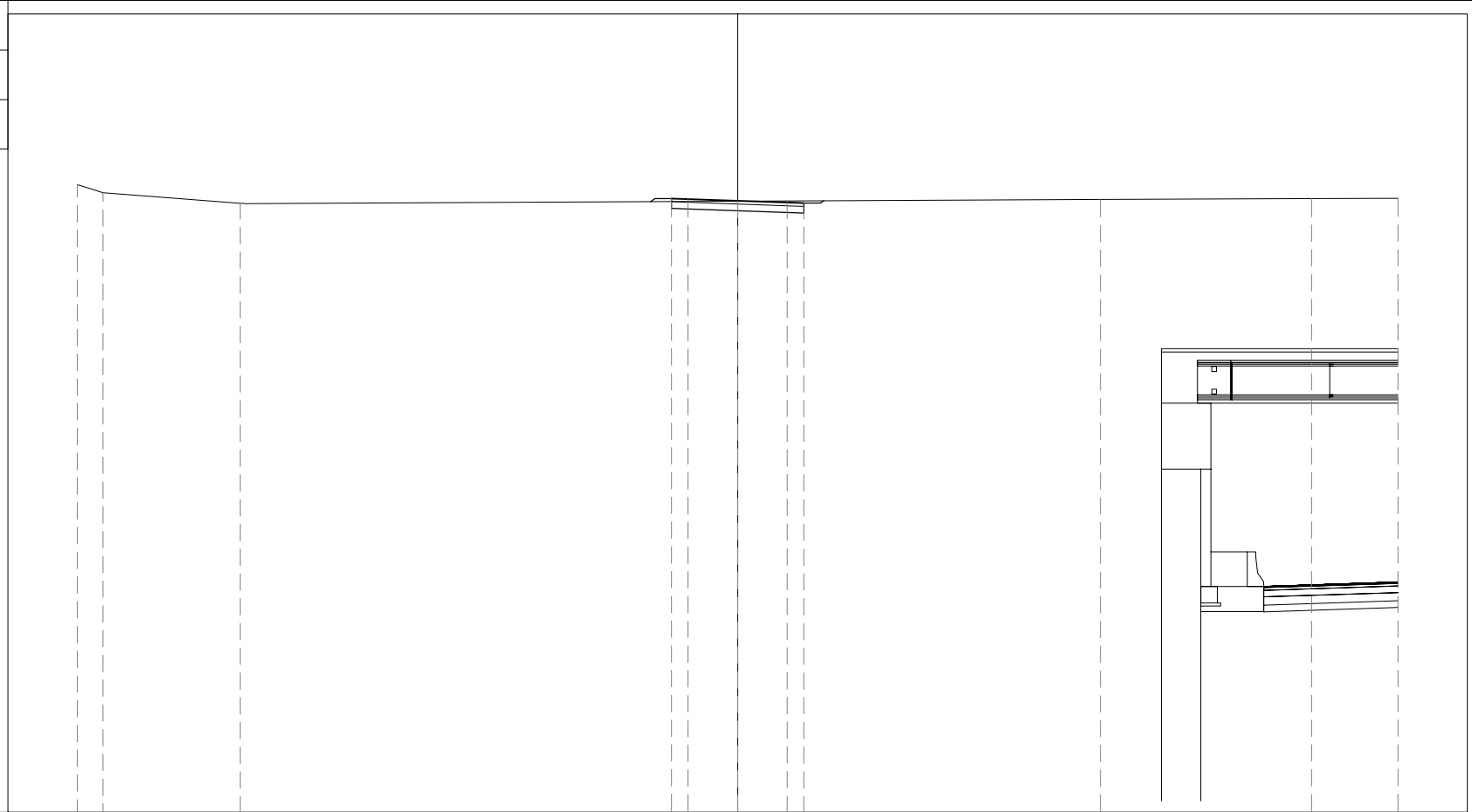
0.50  
1.50  
1.50  
0.50

PROFILO Cucitura Bragosa

SEZIONE BRAG\_12

PROGRESSIVA 228.32

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 1.22 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.05 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |



134

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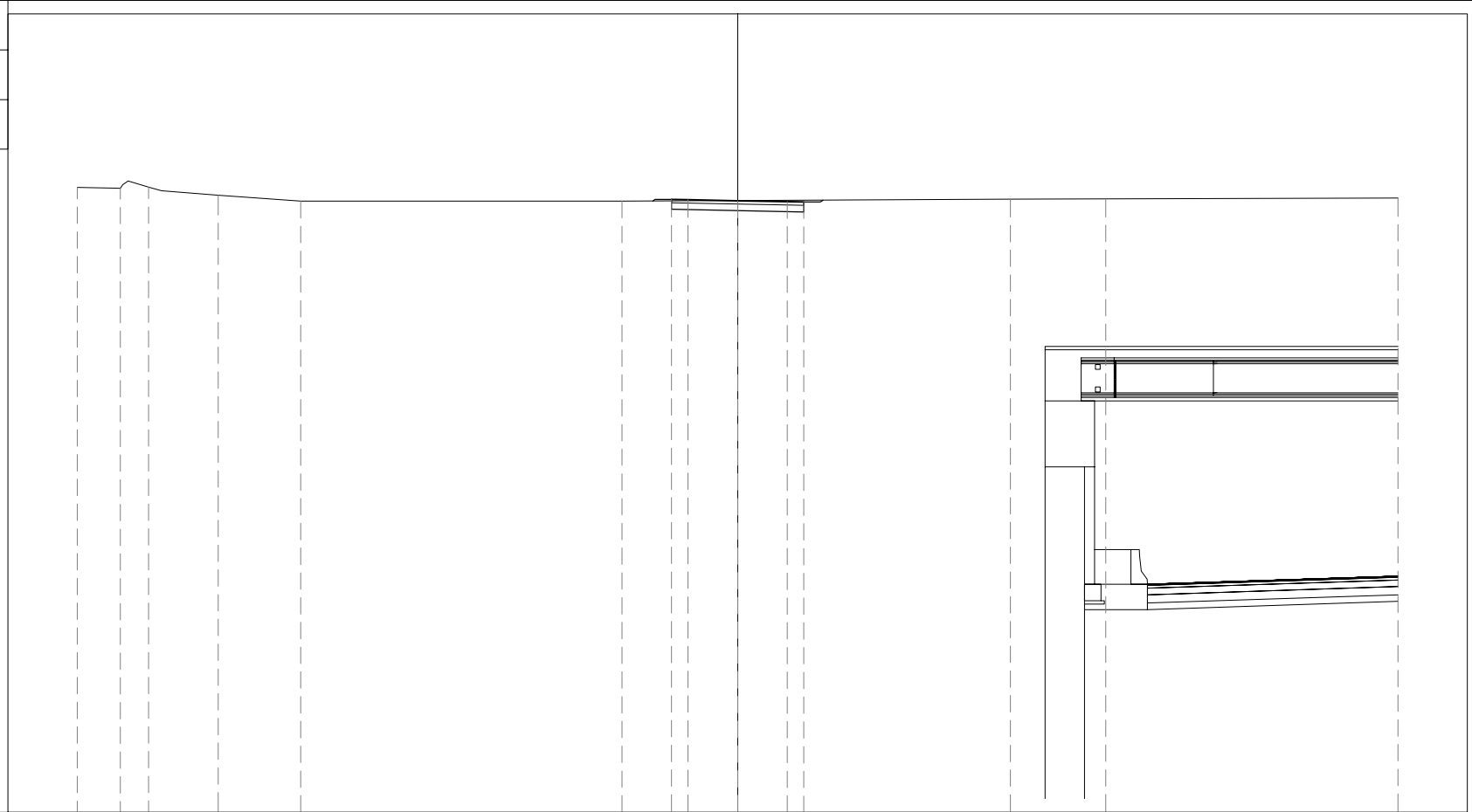
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|----------------------|--------|--------|--------|-------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -19.22 | -15.06 |       |        | 10.98  | 17.38  | 20.00  |        |
| PARZIALI TERRENO     | 0.78   | 4.16   |        | 26.04 |        | 6.40   | 2.62   |        |        |
| QUOTE TERRENO        | 153.03 | 152.78 | 152.46 |       |        | 152.58 | 152.60 | 152.61 |        |
| PROGRESSIVE PROGETTO |        |        |        |       | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |
| PARZIALI PROGETTO    |        |        |        |       | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        |        |       | 152.60 | 152.58 | 152.53 | 152.48 | 152.46 |

PROFILO Cucitura Bragosa

SEZIONE BRAG\_12-a

PROGRESSIVA 236.13

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 1.26 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.02 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.40 m <sup>2</sup> |
| Totale:      | 1.20 m <sup>2</sup> |



134

200  
200

|                      |        |        |        |        |        |        |        |        |        |        |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -18.69 | -17.84 | -15.73 | -13.23 | -3.50  | 8.26   | 11.15  | 20.00  |        |
| PARZIALI TERRENO     | 1.31   | 0.85   | 2.11   | 2.50   | 9.73   | 11.76  | 2.89   | 8.85   |        |        |
| QUOTE TERRENO        | 152.94 | 152.92 | 152.94 | 152.70 | 152.52 | 152.52 | 152.58 | 152.59 | 152.62 |        |
| PROGRESSIVE PROGETTO |        |        |        |        |        | -2.00  | -1.50  | 0.00   | 1.50   | 2.00   |
| PARZIALI PROGETTO    |        |        |        |        |        | 0.50   | 1.50   | 1.50   | 0.50   |        |
| QUOTE PROGETTO       |        |        |        |        |        | 152.57 | 152.56 | 152.53 | 152.50 | 152.49 |

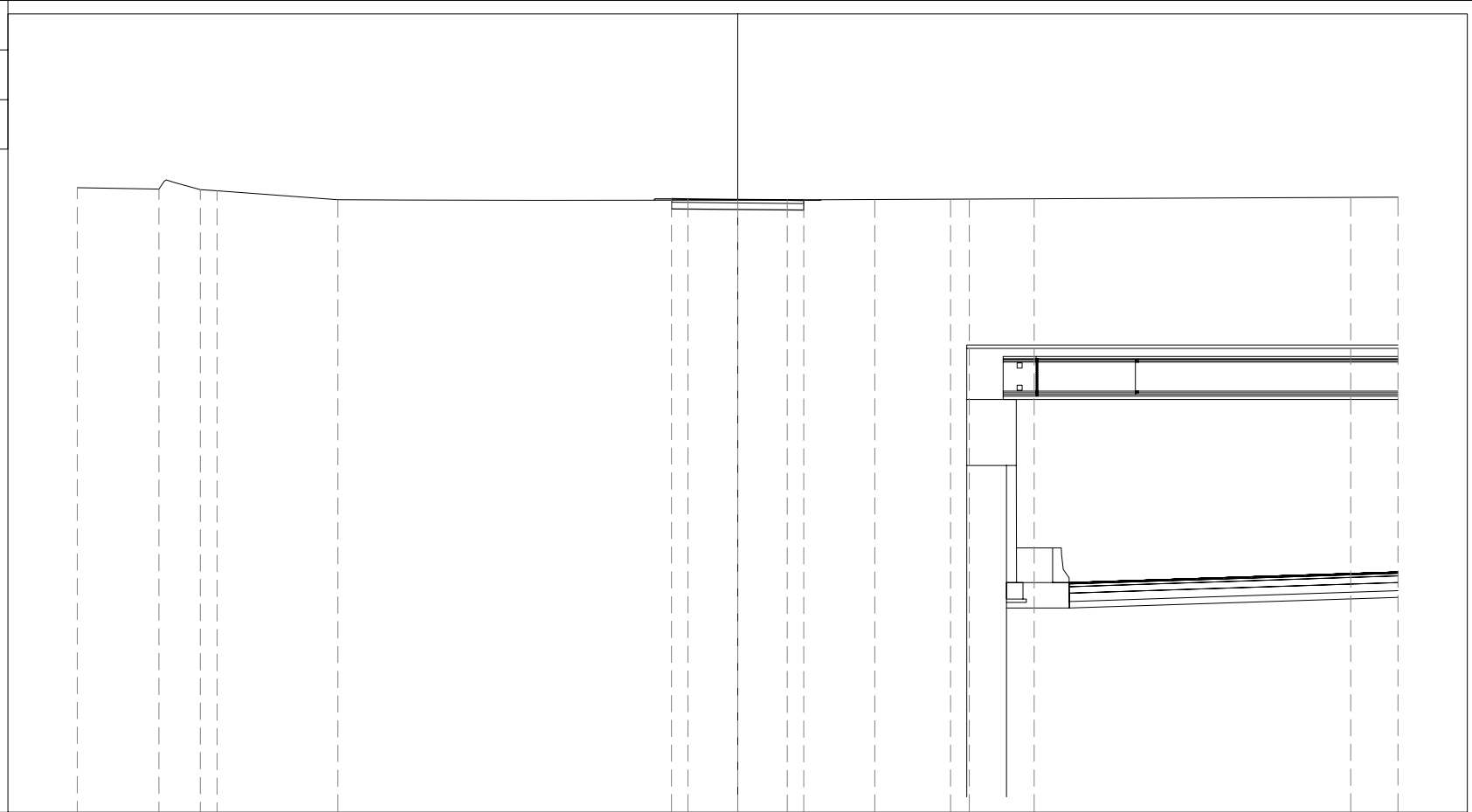


PROFILO Cucitura Bragosa

SEZIONE BRAG\_13

PROGRESSIVA 241.31

|              |                     |
|--------------|---------------------|
| STERRO       |                     |
| A1           | 1.20 m <sup>2</sup> |
| RIPORTO      |                     |
| B1           | 0.02 m <sup>2</sup> |
| BASE         |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.39 m <sup>2</sup> |
| Totale:      | 1.19 m <sup>2</sup> |
| STABILIZZATO |                     |
| C1           | 0.80 m <sup>2</sup> |
| C1           | 0.39 m <sup>2</sup> |
| Totale:      | 1.19 m <sup>2</sup> |



134

200  
200

|                      |        |        |        |        |        |       |        |        |        |        |      |        |        |
|----------------------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|------|--------|--------|
| PROGRESSIVE TERRENO  | -20.00 | -17.52 | -16.27 | -15.77 | -12.10 |       | 4.15   | 6.45   | 7.01   | 8.98   |      | 18.56  | 20.00  |
| PARZIALI TERRENO     | 2.48   | 1.25   | 0.50   | 3.67   |        | 16.25 | 2.30   | 0.56   | 1.97   | 9.58   |      | 1.44   |        |
| QUOTE TERRENO        | 152.93 | 152.89 | 152.87 | 152.83 | 152.57 |       | 152.57 | 152.58 | 152.58 | 152.59 |      | 152.63 | 152.64 |
| PROGRESSIVE PROGETTO |        |        |        |        |        |       | -2.00  | -1.50  | 0.00   | 1.50   | 2.00 |        |        |
| PARZIALI PROGETTO    |        |        | 0.50   | 1.50   | 1.50   |       | 0.50   | 1.50   | 0.50   |        |      |        |        |
| QUOTE PROGETTO       |        |        | 152.59 | 152.58 | 152.57 |       | 152.55 | 152.55 |        |        |      |        |        |