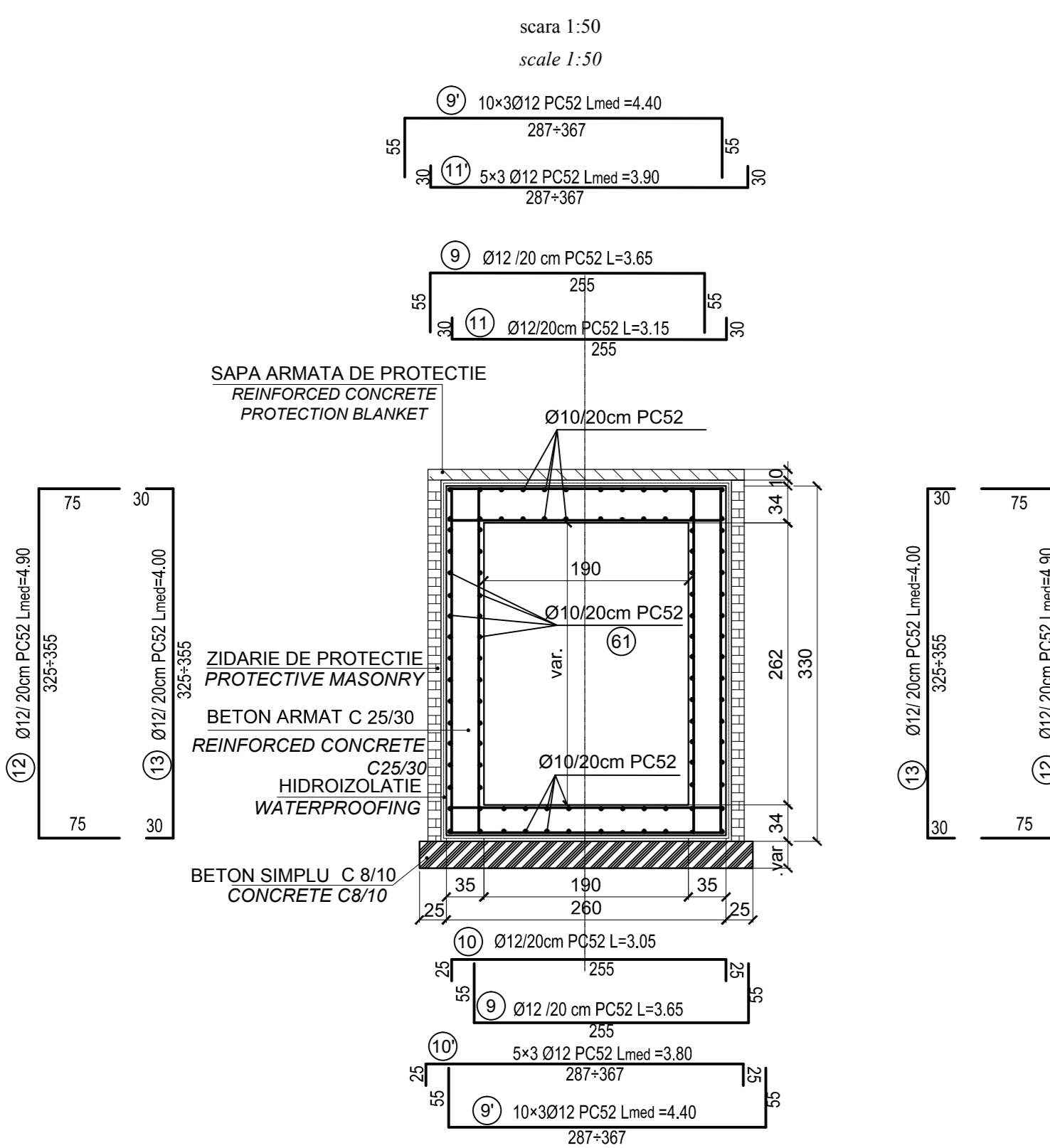
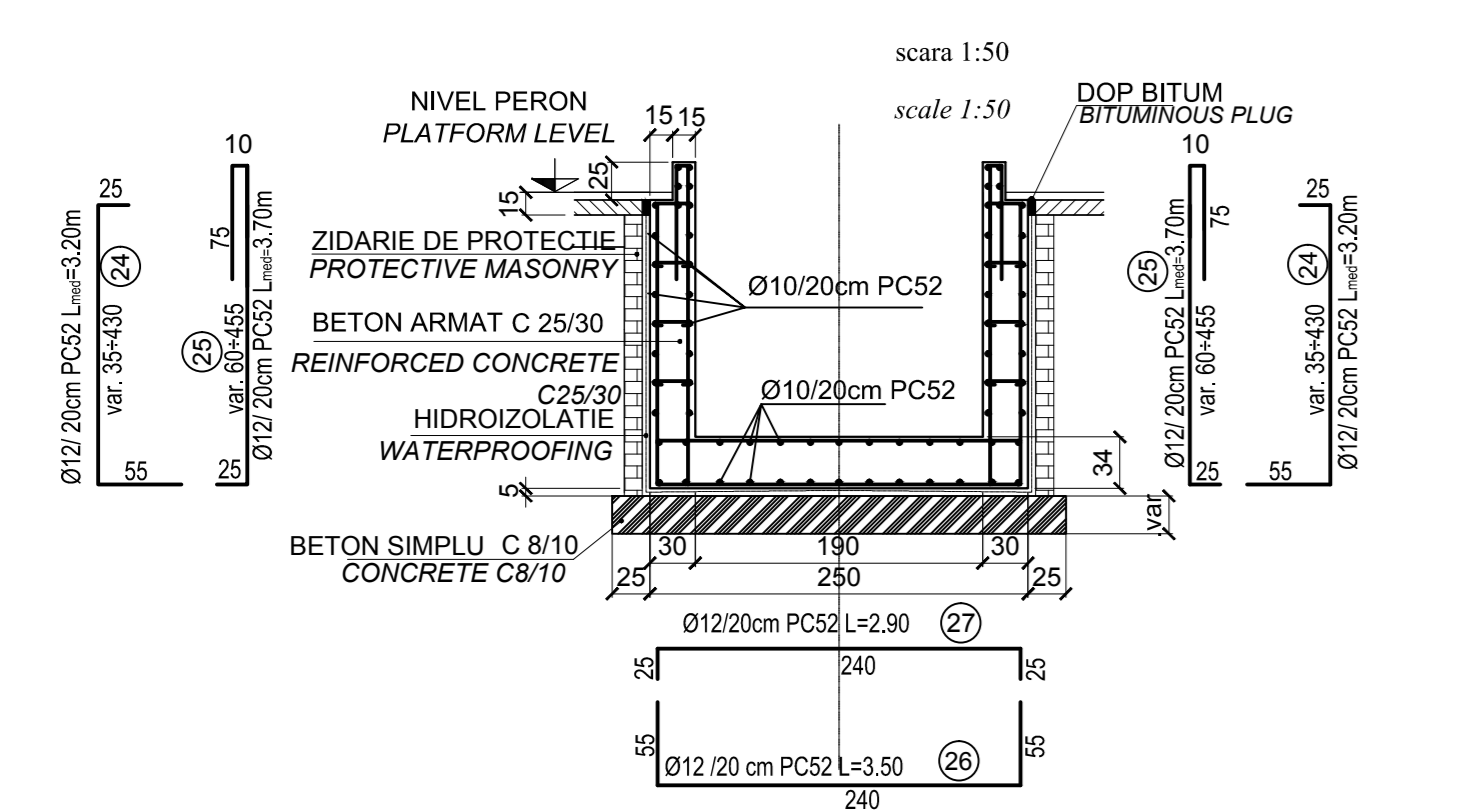


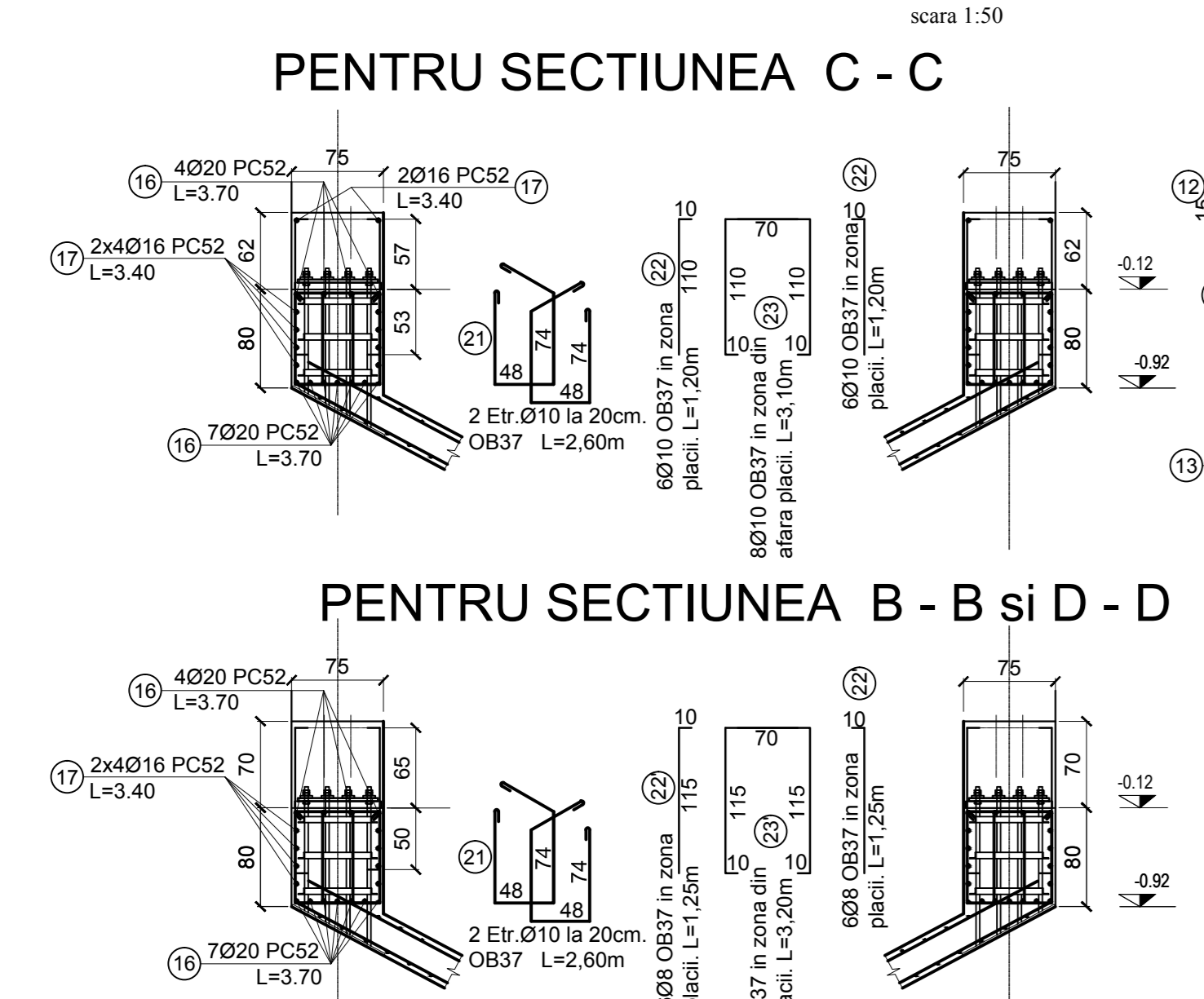
SECTIUNE : F-F  
SECTION : F-F



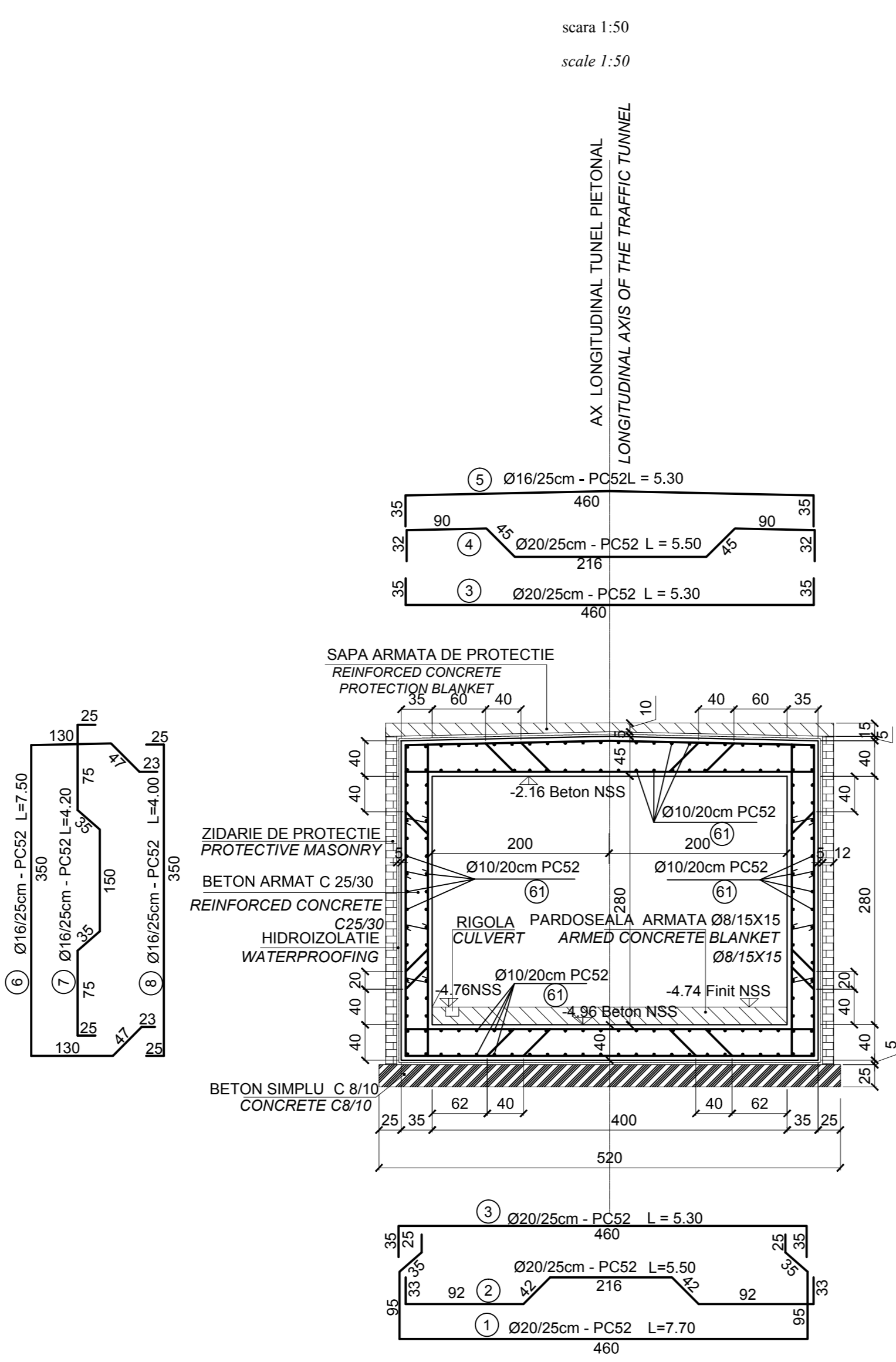
SECTIUNE : G-G  
SECTION : G-G



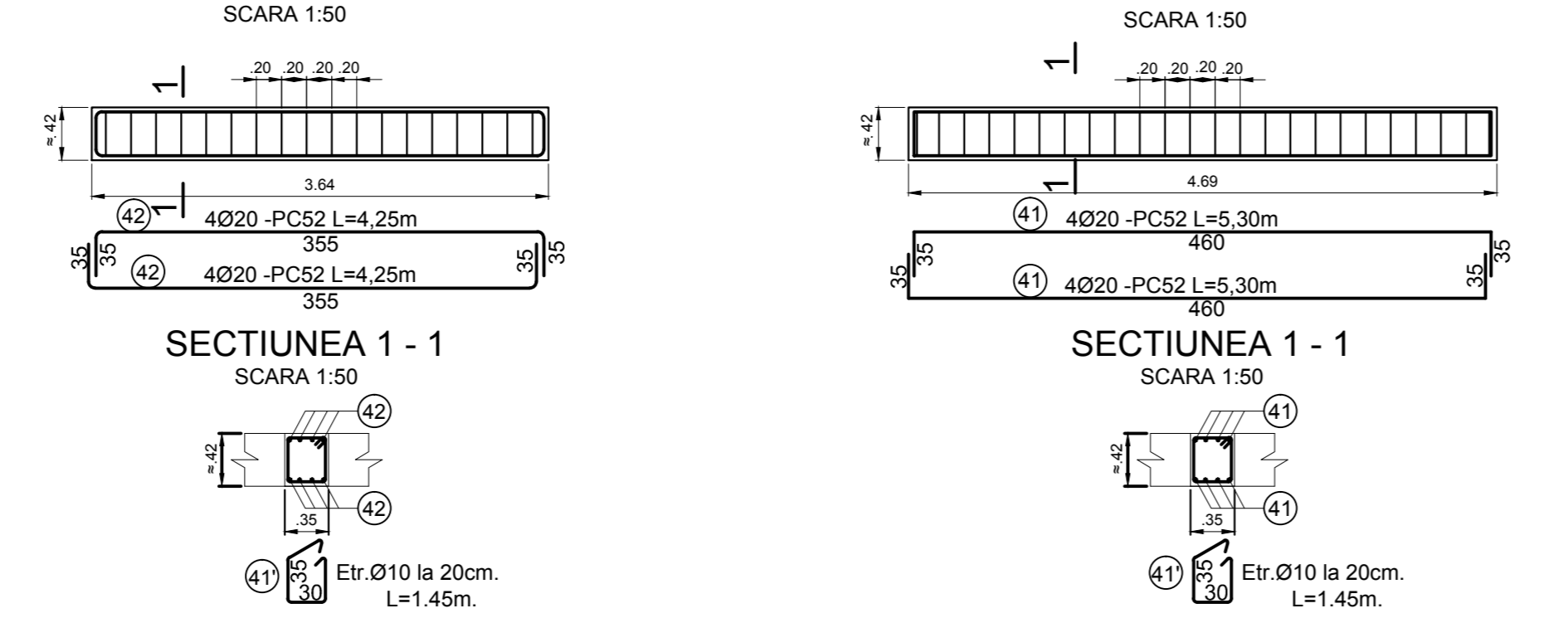
DETALII ARMARE GRINDA PE TUNEL



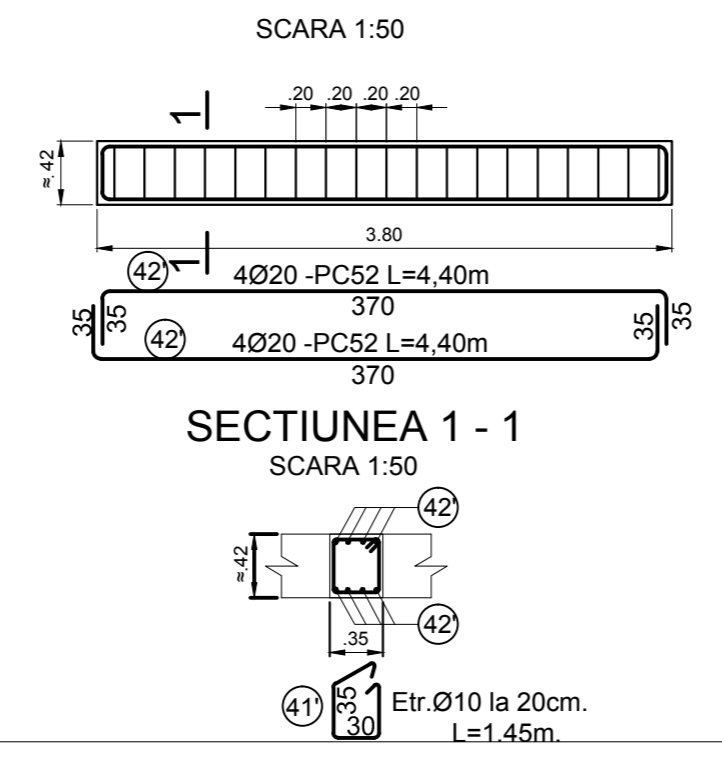
SECTIUNE : E-E  
SECTION : E-E



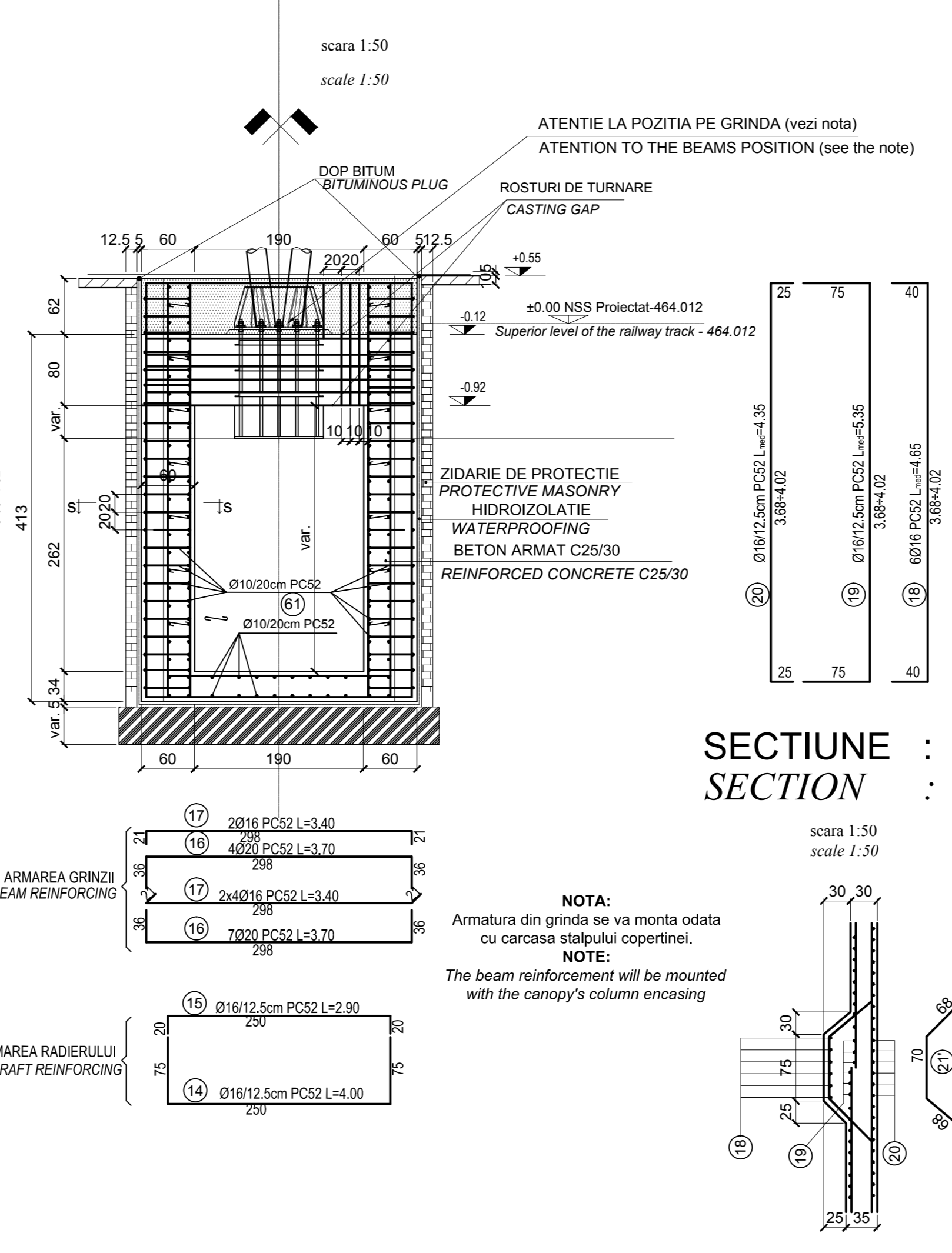
ARMARE GRINDA G1 - 35x42 - 2buc. ARMARE GRINDA G2 - 35x42 - 2buc.



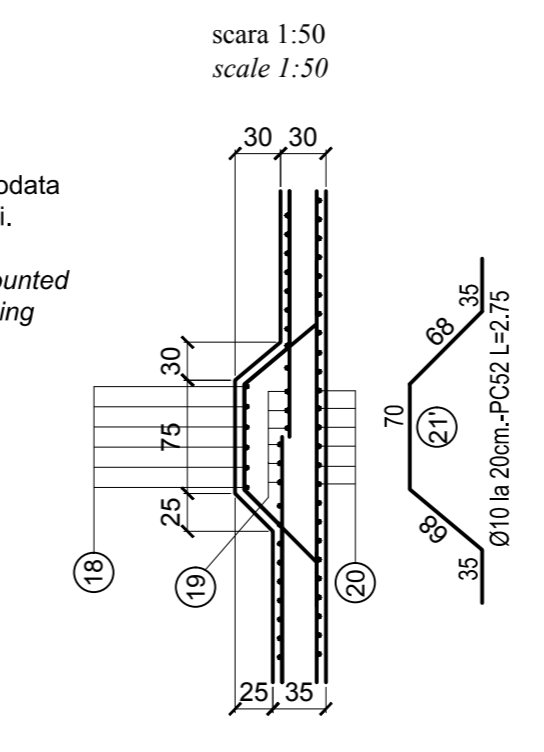
ARMARE GRINDA G3 - 35x42 - 1buc.



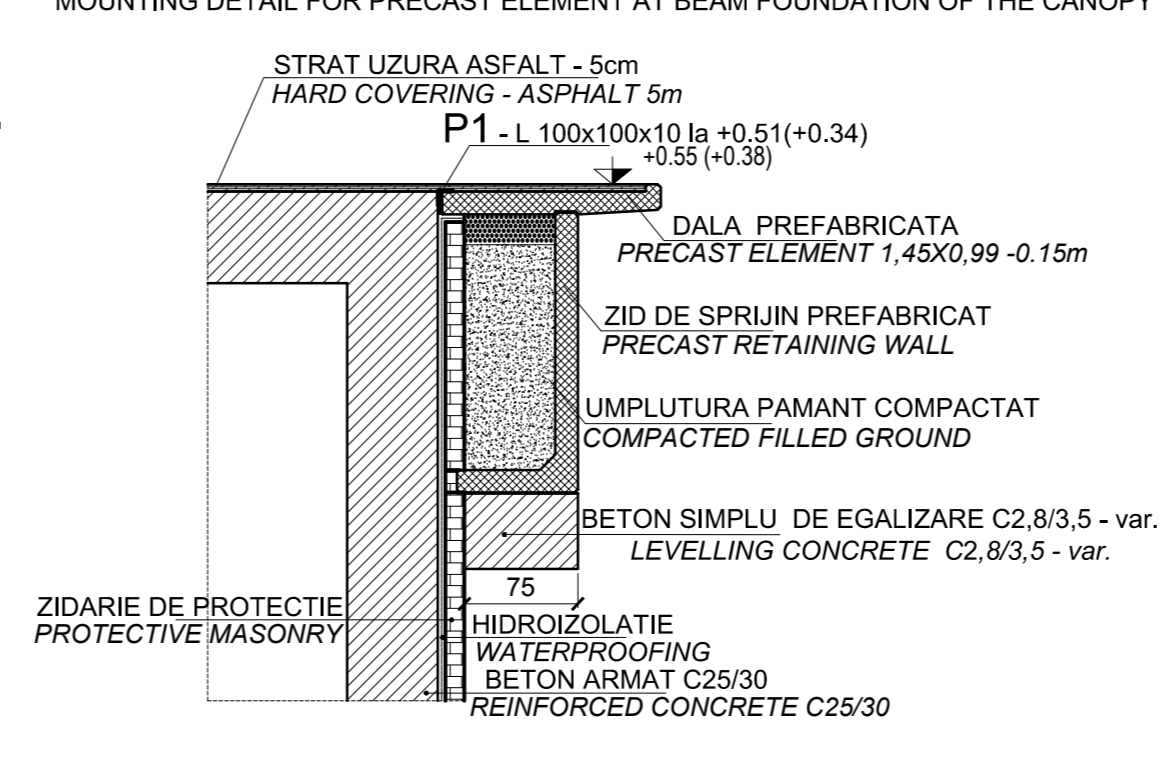
SECTIUNE : F'-F'  
SECTION : F'-F'



SECTIUNE : S-S  
SECTION : S-S



DETALIU MONTARE DALA PREFABRICATA IN ZONA GRINDA FUNDATIE COPERTINA



| EXTRAS LAMINATE                            |                       |              |             |              |  |          |          |                      |                 |
|--|-----------------------|--------------|-------------|--------------|--|----------|----------|----------------------|-----------------|
| Pozitia elementului                        | Denumirea elementului | Grosime (mm) | Lamine (mm) | Lungime (mm) | Greutate/m <sup>3</sup> (kg/m <sup>3</sup> ) | Tip Otel | Nr. Buc. | Gr. Pozitie (kg/buc) | Gr. Totala (kg) |
| P1   | Tabla grosa           | 10           | 100         | 750          | 7.85   | OL52     | 10       | 5.888                | 58.875          |
| TOTAL GREUTATE SUBANSAMBLA NETIPIZATE (kg) |                       |              |             |              |  |          |          |                      | 58.875          |
| GREUTATE ELECTROZI DE SUDURA 3% (kg)       |                       |              |             |              |  |          |          |                      | 1.766           |
| GREUTATE grund 0.4% (kg)                   |                       |              |             |              |  |          |          |                      | 0.236           |
| TOTAL GENERAL(kg)                          |                       |              |             |              |  |          |          |                      | 61              |

NOTA:  
Este absolut necesara confirmarea caracteristicilor terenului de fundare (de catre proiectantul geotehnician), dupa executarea sapaturilor/umpluturilor (dupa caz). La executarea sapaturilor / umpluturilor, se va realiza un foraj suplimentar, de verificare, in amplasamentul tunelului pentru a se verifica daca informatiile din forajele pentru proiectare sunt corecte. In cazul in care existat eventuale diferente, lucrarile proiectate se vor adapta conform rezultatului acestor studii geotehnice de verificare.

NOTE:  
It is absolutely necessary that the geo-technician designer confirms characteristics of the foundation ground after carrying out the excavations / fillings (depending on the case). During the excavation / filling works, one supplementary checking borehole will be made in the tunnels location to see if the information from the borehole for the design stage are correct.

RECOMANDARI TEHNOLOGICE SPECIFICE PENTRU FUNDATII STALPI COPERTINE PE TUNEL

Pentru pozitionarea carcasei cu buloanele de ancoraj in grinda tunelului se vor realiza urmatoarele:  
**In plan orizontal:**  
 Se materializeaza axa copertinei (din dreptul grinzii), pe cofraj.  
 Se introduce carcasa in cofraj si se asigura verticalitatea buloanelor pe cele doua directii rectangulare.  
 Se aliniaza axa carcasei cu axa copertinei, prin deplasarea carcasei in lungul grinzii.  
**OBSERVATIE 1 :** Axa longitudinala a copertinei (trasata intodeauna fata de axele c.f. ale linilor adiacente), nu coincide cu axa scarii de acces in tunel, sau axa peronului (cazul copertinelor in curba). Axa carcasei se aliniaza INTOTDEAUNA cu axa copertinei (in consecinta, axa stalpului copertinei nu va mai fi la jumateata lungimii grinzii tunelului).  
**In plan vertical:**  
 Cota superioara a grinzii tunelului (C.S.G.) trebuie sa fie la -0,12 m fata de N.S.S. proiectat (din dreptul grinzii) ; vezi : Sectiuni longitudinale prin scari acces tunel.  
**OBSERVATIE 2 :** In statiile in care niveleta este orizontala, C.S.G.stanga este identica cu C.S.G.dreapta. In statiile in care niveleta are panta ascendenta sau descendenta (dupa caz), C.S.G.stanga difera de C.S.G.dreapta, dar sunt intodeauna la -0,12 m fata de N.S.S. proiectat (conf. punctului 2 - recomandari tehnologice generale) **Armare, betonare:**  
 Se armeaza grinda  
 Partea superioara a carcasei buloanelor de ancoraj se va asigura obligatoriu intr-un tipar pentru a se evita deplasari accidentale la turnarea betonului.  
 Se betoneaza grinda.

SPECIFIED TECHNOLOGICAL RECOMMENDATIONS FOR CANOPY FOUNDATION ABOVE TUNNEL

To place the the anchoring bolts case in the tunnel beam, the following will be carried out:  
**Horizontal alignment:**  
 The axis of the canopy (nearby the beam) will be marked on the shuttering.  
 The case will be introduced into the shuttering and the verticality of bolts will be provided on the two rectangular directions.  
 The case axis will be lined up with the canopy axis, by moving the case along the beam.  
**REMARK 1 :** The longitudinal axis of the canopy (always traced in relation to the railway axis of adjacent lines) does not coincide to the axis of tunnel access stairs or the platform axis (case of canopies in curve). In this situation, the case axis will be ALWAYS lined up with the canopy axis (consequently, the canopy pole axis will not be placed at half of the length of tunnel beam).  
**Vertical level alignment:**  
 The tunnel beam upper level (C.S.G.) shall be placed at -0,12 m from the designed rail upper level, R.U.L. (nearby the beam); see: Longitudinal sections through the tunnel access stairs.  
**REMARK 2 :** In the stations where the level is horizontal, C.S.G.left is identical to C.S.G.right. In the stations where the level follows the upward / downward slope (depending on the case), C.S.G.left is different from C.S.G.right, but they are always placed at -0,12 m from the designed rail upper level R.U.L. ; (conf. conditions mentioning at point 2 - general technological recommendations).  
**Reinforcing, concreting:**  
 The beam will be reinforced (according to the Tunnel beams reinforcing details)  
 The upper part of the anchoring bolt case will be compulsorily secured with a frame to avoid accidental shifting during concrete casting.  
 The beam will be concreted.

PENTRU EXTRASUL DE ARMATURA VEZI PLAN TUNEL FOR THE REINFORCEMENT TABLE SEE THE TUNNEL PLAN

Beton simplu Plain concrete - C8/10 - P4 - T3 - IA - 132,5 (R)  
 Beton armat Reinforcing concrete - C25/30 - P4 - T3 - IA - 142,5 (R)  
 Armaturi Reinforcements - PC 52  
 Armaturi Reinforcements - Ø 37

| D | C | B | A |
|---|---|---|---|
|   |   |   |   |
|   |   |   |   |
|   |   |   |   |

GUVERNUL ROMANIEI ROMANIAN GOVERNMENT

PROIECT FINANTAT DE UNIUNEA EUROPEANA EUROPEAN UNION FINANCED PROJECT

C.F.R. C.N.C.F. "C.F.R." - S.A.

CLIENT / CLIENT

ITALFER GRUPPO FERRARIE DELLA STATA Scot Wilson OBERMEYER PLANEN + BERATEN GmbH TECNIC Consulting Engineers

| Approbat / Approved | Spil proiect / Project manager | R. Liuzza | Data / Date | Semnatura / Signature |
|---------------------|--------------------------------|-----------|-------------|-----------------------|
|                     |                                |           | 12.2011     |                       |
|                     |                                |           | 12.2011     |                       |
|                     |                                |           | 12.2011     |                       |

SUBCONTRACTANT / SUBCONTRACTOR

Responsabil Subcontractant / Subcontractant Responsible: A. Stancu - Dinulescu

Proiectant / Designer: Catalin Alexandrescu

Reabilitarea liniei de cale ferata Brasov - Sibiu, parte componenta a coridorului IV Pan European, pentru circulatia trenurilor cu viteza maxima de 160 km/h, Tronsoani - Brasov - Sighisoara

Rehabilitation of the railway line Brasov - Sibiu, Component Part of the IV Pan-European Corridor, for the trans circulation with maximum speed of 160 km/h, Section : Brasov - Sighisoara

| Denumire desen / Drawing Title   |  | Nr. / No. |  |
|--|--|-----------|--|
| STATA RACOS TUNEL PIETONAL DETALII ARMARE SECTIUNI TRANSVERSALE E-E; F-F; F'-F'; G-G; H-H. DETALII ARMARE GRINZI PE TUNEL            |  | 1/0       |  |
| RACOS STATION PEDESTRIAN TUNNEL REINFORCEMENT DETAILS - CROSS SECTIONS E-E; F-F; F'-F'; G-G; H-H. TUNNEL BEAMS REINFORCEMENT DETAILS |  | 01/01     |  |

| Lot / LOT | Scale / Scala | LOT / LOT | No. / No. |
|-----------|---------------|-----------|-----------|
|           |               |           |           |