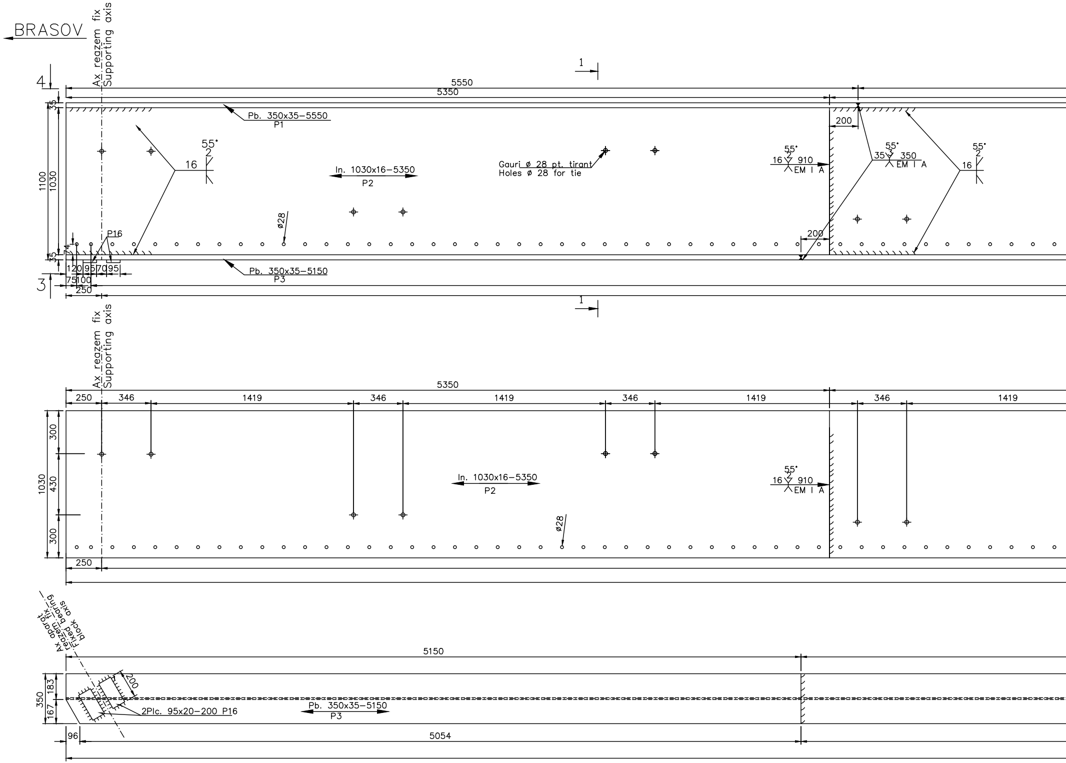
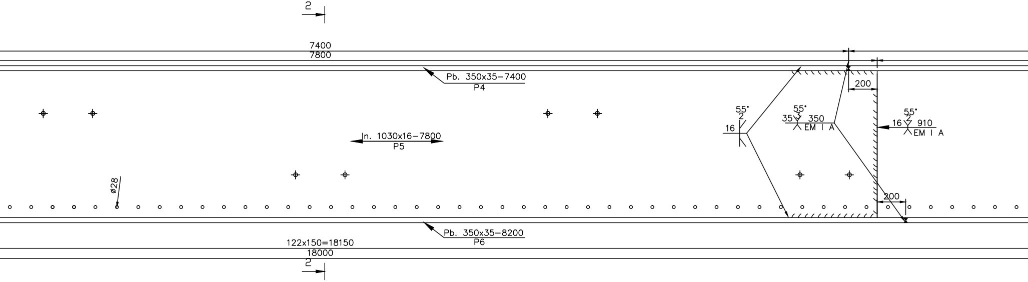

BRASOV
Ax reazem fix
Supporting axis
4
1
5550
5350
35
Pb. 350x35–5550
P1
200
55°
2
16
In. 1030x16–5350
P2
Gauri ø 28 pt. tirant
Holes ø 28 for tie
16 910
EM I A
35 350
3
1100
1030
ø28
P16
200
Pb. 350x35–5150
P3
120 95 70 95
75 100
250
3
346
1419
300
430
250
Ax reazem fix aparat
Reazem bearing
Fixed axis block
5150
183
167
350
2Plc. 95x20–200 P16
96
5054

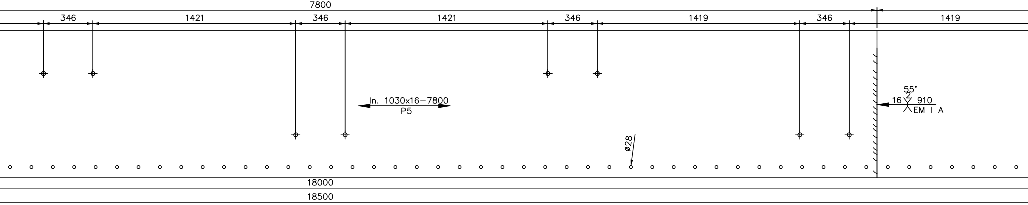
ELEVATIE GRINDA METALICA TIP 1
ELEVATION OF THE METALLIC GIRDER TYPE 1

Sc.1:20


2
7400
7800
Pb. 350x35–7400
P4
200
55°
2
16
55°
3
35
350
EM I A
55°
2
16
910
EM I A
In. 1030x16–7800
P5
ø28
200
Pb. 350x35–8200
P6
122x150=18150
18000
2

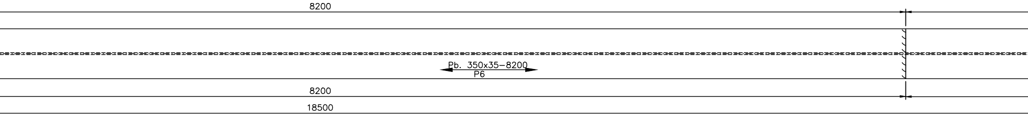
DETALII PENTRU INIMA GRINZII METALICE TIP 1
DETAILS FOR THE METALLIC GIRDER WEB TYPE 1

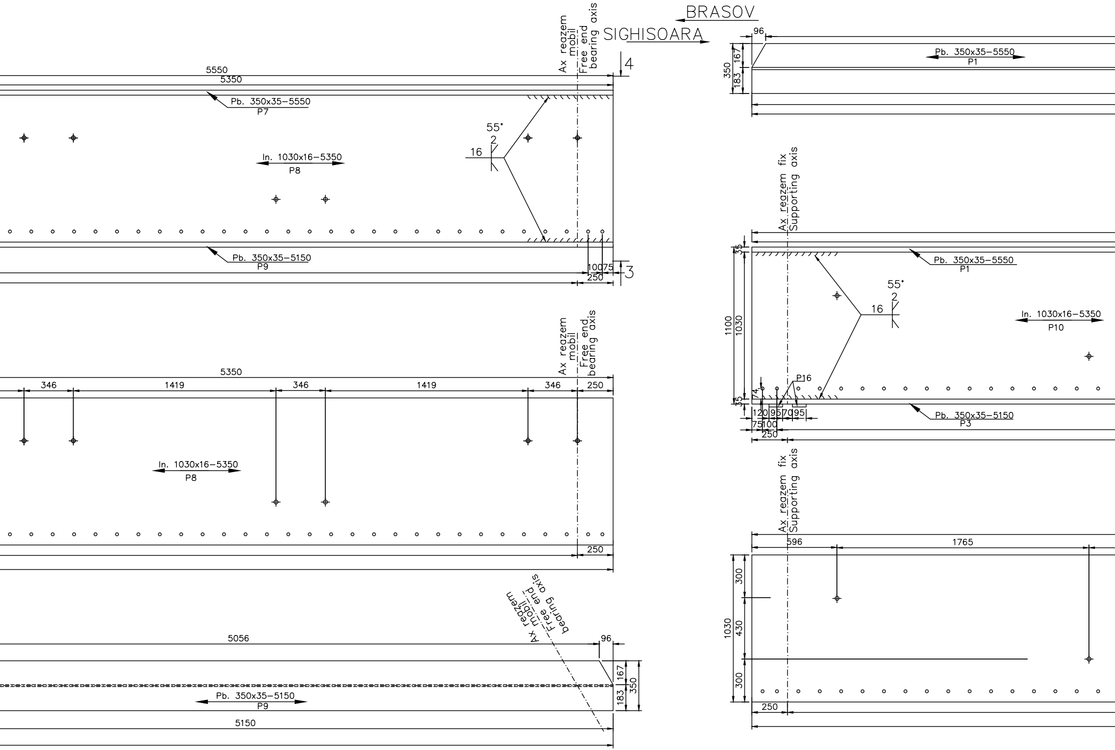
Sc.1:20


7800
346
1421
346
1421
346
1419
346
1419
In. 1030x16–7800
P5
55°
2
16
910
EM I A
ø28
18000
18500

VEDERE 3–3 / VIEW 3–3

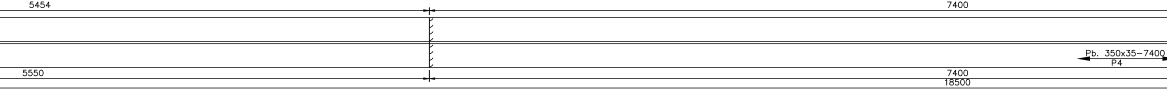
Sc.1:20


8200
Pb. 350x35–8200
P6
8200
18500


BRASOV
SIGHISOARA
Ax reazem mobil
Free end bearing axis
5550
5350
4
Pb. 350x35–5550
P7
55°
2
16
In. 1030x16–5350
P8
Pb. 350x35–5150
P9
100
75
250
3
5350
346
1419
346
1419
346
250
In. 1030x16–5350
P8
250
Ax reazem mobil
Free end bearing axis
5056
96
167
350
183
Pb. 350x35–5150
P9
5150
96
Pb. 350x35–5550
P1
350
167
183
Ax reazem fix
Supporting axis
35
Pb. 350x35–5550
P1
55°
2
16
In. 1030x16–5350
P10
1100
1030
P16
74
35
120
95
70
95
75
100
250
Pb. 350x35–5150
P3
Ax reazem fix
Supporting axis
596
1765
300
1030
430
300
250

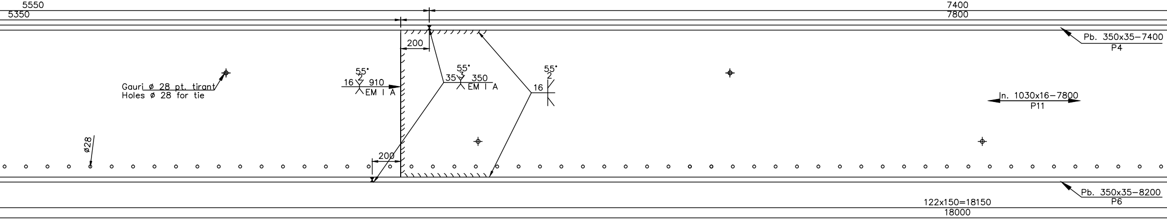
VEDERE 4–4/ VIEW 4–4

Sc.1:20


5454
7400
Pb. 350x35–7400
P4
5550
7400
18500

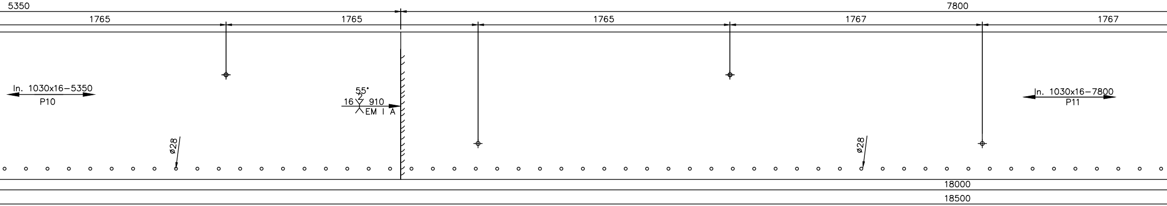
ELEVATIE GRINDA METALICA TIP
ELEVATION OF THE METALLIC GIRDER

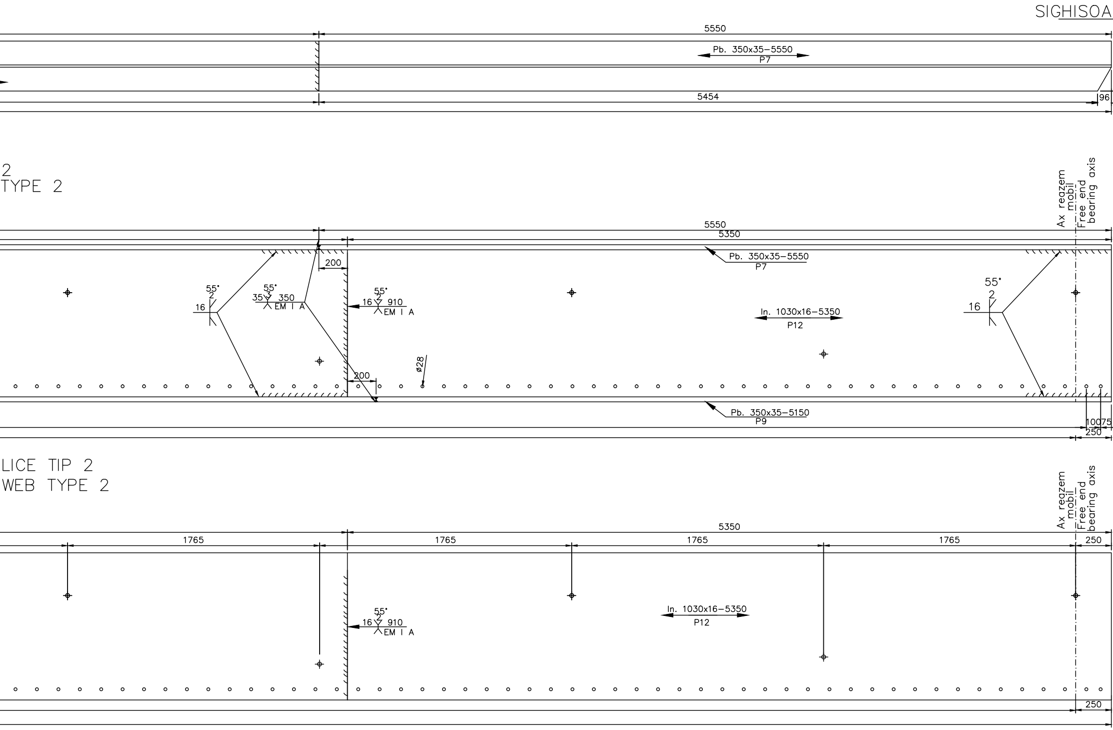
Sc.1:20

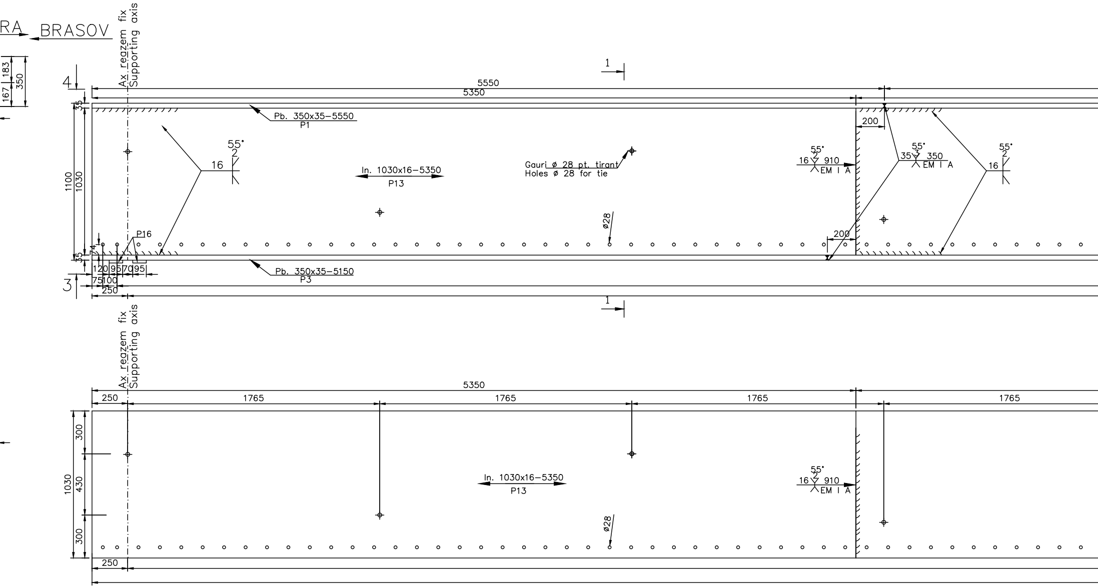

5550
5350
7400
7800
200
Pb. 350x35–7400
P4
Gauri ø 28 pt. tirant
Holes ø 28 for tie
55°
2
16
910
EM I A
55°
3
35
350
EM I A
55°
2
16
In. 1030x16–7800
P11
ø28
200
Pb. 350x35–8200
P6
122x150=18150
18000

DETALII PENTRU INIMA GRINZII META
DETAILS FOR THE METALLIC GIRDER

Sc.1:20


5350
7800
1765
1765
1765
1767
1767
In. 1030x16–5350
P10
55°
2
16
910
EM I A
In. 1030x16–7800
P11
ø28
ø28
18000
18500


SIGHISOA
5550
Pb. 350x35–5550
P7
5454
96
2
TYPE 2
Ax reazem mobil
Free end bearing axis
5550
5350
200
Pb. 350x35–5550
P7
55°
2
16
55°
35 3 350
EM I A
55°
2
16 910
EM I A
In. 1030x16–5350
P12
55°
2
16
ø28
200
Pb. 350x35–5150
P9
100
75
250
LICE TIP 2
WEB TYPE 2
Ax reazem mobil
Free end bearing axis
5350
1765
1765
1765
1765
250
55°
2
16 910
EM I A
In. 1030x16–5350
P12
250


RA
BRASOV
Ax reazem fix
Supporting axis
183
167
350
4
1
5550
5350
35
Pb. 350x35–5550
P1
200
55°
2
16
In. 1030x16–5350
P13
Gauri ø 28 pt. tirant
Holes ø 28 for tie
55°
2
16
910
EM I A
55°
3
35
350
EM I A
55°
2
16
1100
1030
ø28
P16
200
74
35
120
95
70
95
75
100
250
Pb. 350x35–5150
P3
3
1
Ax reazem fix
Supporting axis
5350
250
1765
1765
1765
1765
300
430
300
1030
In. 1030x16–5350
P13
55°
2
16
910
EM I A
ø28
250

MATERIALE
(– OL37 EP STAS 12187–88 elementele grinzilor metalice.)
– $S275J_3G_3$ EN 10025/2004

ELEMENTE DE ASAMBLARE
–Piulita M24 STAS 4971–88 Clasa de precizie 'C'
–Saiba STAS 5200/4–91–24–OL 34

ASSEMBLY ELEMENTS
–Nut M24 STAS 4971–88 Precision class 'C'
–Washer STAS 5200/4–91–24–OL 34

NOTA

Placutele de la aparatele de reazem se vor samfrena cu un unghi de 60°.
Gaurile din inima pentru armatura de rezistenta vor fi alezate.

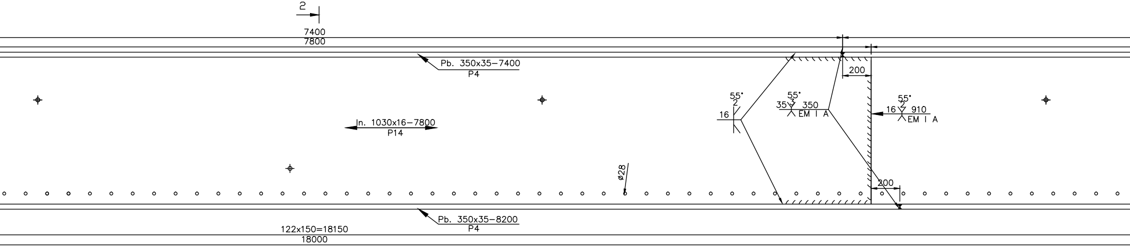
NOTE

The plates of the bearing blocks will be chamfered at an angle of 60°.
The web holes for the strong reinforcements will be bored.

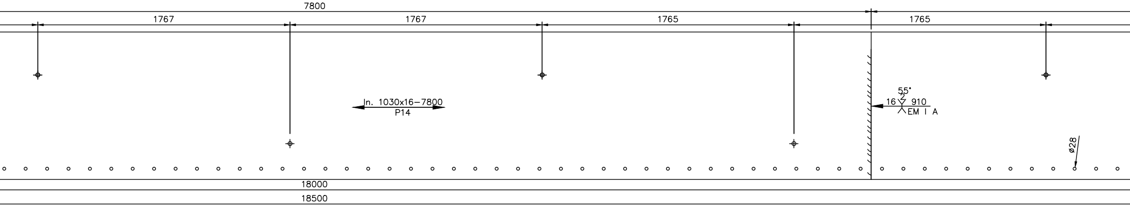
NOTA

1.La executia in uzina a grinzilor metalice
prevederile STAS 9407–75.
2.In uzina se va aplica o protectie anticor
treime din inima grinzilor metalice.
3.Protectia anticoroziva se va executa din
pelicula de zinc de 80µm grosime si doua
fiecare de 85µm.
Stratul de baza si un invelis poliuretanic
ultimul strat poliuretanic sa fie aplicat pe
suprastructura.

ELEVATIE GRINDA METALICA TIP 3
ELEVATION OF THE METALLIC GIRDER TYPE 3
Sc.1:20


2
7400
7800
Pb. 350x35-7400
P4
55°
2
16
55°
35 3 350
EM I A
55°
16 2 910
EM I A
200
In. 1030x16-7800
P14
ø28
200
Pb. 350x35-8200
P4
122x150=18150
18000
2

DETALII PENTRU INIMA GRINZII METALICE TIP 1
DETAILS FOR THE METALLIC GIRDER WEB TYPE 1
Sc.1:20


7800
1767
1767
1765
1765
In. 1030x16-7800
P14
55°
16 2 910
EM I A
ø28
18000
18500

sudate se vor respecta cu strictete

roziva pe talpile inferioare si pe o

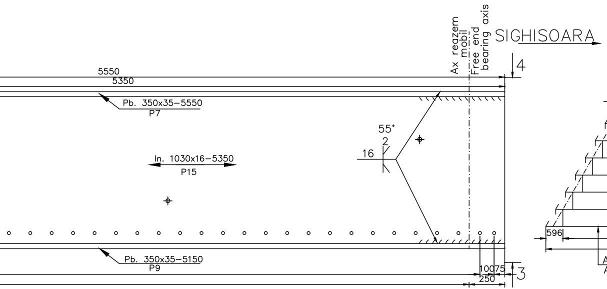
tr-un strat de baza alcatuit dintr-o
straturi de invelis poliuretanic,

se vor aplica in uzina, urmand ca
santier dupa finalizarea lucrarilor la

4.Pregatirea suprafetelor metalice in vederea aplicarii procedeelor de protectie anticoroziva se face prin:
- Perierea de rugina cu ajutorul unor perii de sarma.
- Spalarea suprafetelor metalice.
- Degresarea cu solventi organici prin stergere sau cu emulsii.
- Dupa degresare se spala cu jet de apa pentru indepartarea urmelor de detergent. Solutia pentru degresare va fi aleasa astfel incat sa nu afecteze mediul.

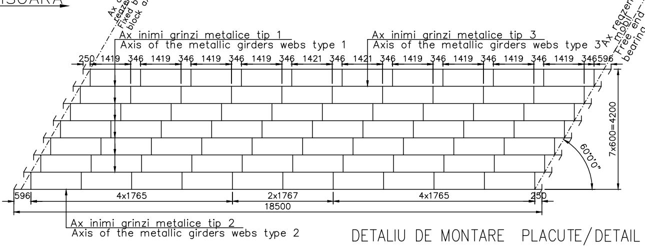
Curatirea suprafetelor se va face conform gradului SA 1 1/2.

NOTE
1.The prvisions STAS 9407-75 will be strictly observed when the welded metallic girders are manufactered in the factory.
2.In the plant, corrosion protection will be applied on the lower flanges and on one third of the web of metallic girders.
3.The protection against corrosion will consist in a primary layer made of a zinc membrane (80μm thickness) and two polyurethane covering layer, each of 85μm thickness. The primary layer and the first polyurethane covering layer will be applied in the factory and the second polyurethane layer will be applied on site, after completing the superstructure works.
finalizarea lucrarilor la suprastructura.


Ax reazem mobil
Free end bearing axis
SIGHISOARA
5550
5350
4
Pb. 350x35-5550
P7
55°
2
16
In. 1030x16-5350
P15
Pb. 350x35-5150
P9
100
75
250
3

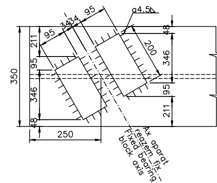
SCHEMA AMPLASARII DISTANTIERILOR
SKETCH FOR THE DISTANCE PIECES LOCATION

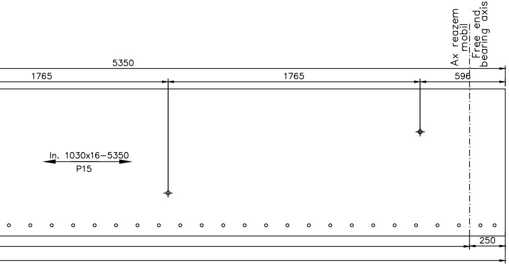
SC.1:100


Ax aparat reazem fix
Fixed bearing block axis
Ax inimi grinzi metalice tip 1
Axis of the metallic girders webs type 1
Ax inimi grinzi metalice tip 3
Axis of the metallic girders webs type 3
Ax reazem mobil
Free end bearing
250 1419 346 1419 346 1419 346 1419 346 1421 346 1421 346 1419 346 1419 346 1419 346 1419 346 596
7x600=4200
60°0'0"
596
4x1765
2x1767
4x1765
250
18500
Ax inimi grinzi metalice tip 2
Axis of the metallic girders webs type 2

DETALIU DE MONTARE PLACUTE/DETAIL
APARAT DE REAZEM FIX/ BEARING

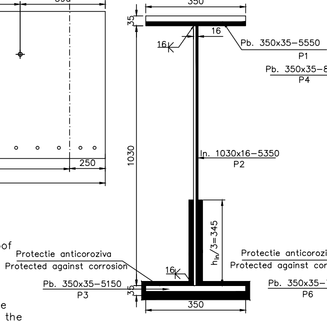
sc. 1:10


95
34
34
95
a4.5
211
95
346
48
350
48
346
95
211
200
250
Ax aparat reazem fix
Fixed bearing block axis


Ax reazem mobil
Free end bearing axis
5350
1765
1765
596
In. 1030x16-5350
P15
250

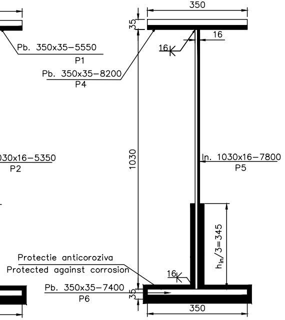
SECTIIUNE 1-1
1-1 SECTION

SC. 1:10


350
35
16
16
Pb. 350x35-5550
P1
1030
In. 1030x16-5350
P2
$h_{in}/3=345$
Protectie anticoroziva
Protected against corrosion
16
Pb. 350x35-5150
P3
35
350

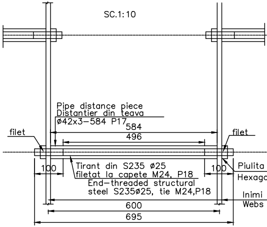
SECTIIUNE 2-2
2-2 SECTION

SC. 1:10


350
35
16
16
Pb. 350x35-8200
P4
1030
In. 1030x16-7800
P5
$h_{in}/3=345$
Protectie anticoroziva
Protected against corrosion
16
Pb. 350x35-7400
P6
35
350

DETALIU DE PRINDERE A GRINZILOR METALICE
DETAIL FOR METALLIC GIRDERS FASTENING

SC.1:10


Pipe distance piece
Distantier din teava
ø42x3-584 P17
584
496
filet
filet
100
100
Tirant din S235 ø25
filetat la capete M24, P18
End-threaded structural
steel S235ø25, tie M24,P18
Piulita
Hexago
Inimi
Webs
600
695

4.Preparing the metallic surfaces in order to apply the corrosion-proof procedures shall be made by:
- Rust removal using wire brushes.
- Washing the metallic surfaces.
- Organic solvent degreasing by wiping or using emulsions.
- After degreasing, the surface is washed by water jet to eliminate the detergent stains. The solution selected for degreasing shall not affect the environment. Cleaning the surfaces is made according to the SA 1 1/2.

axis

EXTRAS DE MATERIAL PENTRU SOLIDARIZAREA GRINZILOR METALICE PENTRU UN TABLIER DE CALE FERATA SIMPLA
TABLE OF MATERIALS TO JOIN THE METALLIC GIRDERS FOR SINGLE TRACK RAILWAY BRIDGE DECK

Poz. Pos.	Denumire Name	Dimensiuni Dimension	Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3 kg/ml	kg/buc.	Total(kg)
P17	Distantier teava	ø42x3–584	77	2.88	1.68	129.50
P18	Tirant S235	ø25, L=695	77	3.85	2.68	206.10
P19	Piulite	M24	154	–	0.10	15.40
P20	Saibe	M24	154	–	0.023	3.60
					Total (kg)	360.00

TOTAL POD (2 TABLIERE): 2 x 360.00kg=720.00kg
TOTAL BRIDGE (2 DECKS): 2 x 360.00kg=720.00kg

TO MOUNT THE FIXED
BLOCK PLATES

EXTRAS DE MATERIAL PENTRU O GRINDA METALICA TIP 1
MEASURING MATERIAL FOR UNE METALLIC GIRDERS TYPE 1

Poz. Pos.	Denumire Name	Dimensiuni Dimension	Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3 kg/ml	kg/buc.	Total(kg)
P1	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P2	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P3	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P4	Pb. superioara Upper band steel	350x35–7400	1	96.163	711.610	711.61
P5	Inima Web	1030x16–7800	1	129.37	1009.10	1009.10
P6	Pb. inferioara Lower band steel	350x35–8200	1	96.163	788.540	788.540
P7	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P8	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P9	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P16	Placute ap.fix	95x20–200	2	14.915	2.983	6.00
					Total partial	5957.45
					Spor 3% pt. sudura	178.70
					Total pt. 1buc. grinda	6150.00

430

hexagonala M24, P19
on nut M24, P19

grinzi metalice
metallic girders

TOTAL PENTRU UN TABLIER: 6 grinzi x 6150kg=36900kg
TOTAL PENTRU 2 TABLIERE: 2 x 6 grinzi x 6150kg=73800kg
TOTAL FOR 1 DECK: 6 girders x 6150kg=36900kg
TOTAL FOR 2 DECKS: 2 x 6 girders x 6150kg=73800kg

EXTRAS DE MATERIAL PENTRU O GRINDA METALICA TIP 2
MEASURING MATERIAL FOR UNE METALLIC GIRDERS TYPE 2

Poz. Pos.	Denumire Name	Dimensiuni Dimension	Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3 kg/ml	kg/buc.	Total(kg)
P1	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P10	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P3	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P4	Pb. superioara Upper band steel	350x35–7400	1	96.163	711.610	711.61
P11	Inima Web	1030x16–7800	1	129.37	1009.10	1009.10
P6	Pb. inferioara Lower band steel	350x35–8200	1	96.163	788.540	788.540
P7	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P12	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P9	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P16	Placute ap.fix	95x20–200	2	14.915	2.983	6.00
					Total partial	5957.45
					Spor 3% pt. sudura	178.70
					Total pt. 1buc. grinda	6150.00

TOTAL PENTRU UN TABLIER: 1 grinzi x 6150kg=6150kg/ TOTAL FOR 1 DECK: 1 girders x 6150kg=6150kg
TOTAL PENTRU 2 TABLIERE: 2 x 1 grinzi x 6150kg=12300kg/ TOTAL FOR 2 DECKS: 2 x 1 girders x 6150kg=12300kg

EXTRAS DE MATERIAL PENTRU O GRINDA METALICA TIP 3
MEASURING MATERIAL FOR UNE METALLIC GIRDERS TYPE 3

Poz. Pos.	Denumire Name	Dimensiuni Dimension	Nr. buc. asemenea Pieces	Greutate,Weight S 245 J_3 G_3 kg/ml	kg/buc.	Total(kg)
P1	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P13	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P3	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P4	Pb. superioara Upper band steel	350x35–7400	1	96.163	711.610	711.61
P14	Inima Web	1030x16–7800	1	129.37	1009.10	1009.10
P6	Pb. inferioara Lower band steel	350x35–8200	1	96.163	788.540	788.540
P7	Pb. superioara Upper band steel	350x35–5550	1	96.163	533.705	533.70
P15	Inima Web	1030x16–5350	1	129.37	692.15	692.15
P9	Pb. inferioara Lower band steel	350x35–5150	1	96.163	495.240	495.25
P16	Placute ap.fix	95x20–200	2	14.915	2.983	6.00
					Total partial	5957.45
					Spor 3% pt. sudura	178.70
					Total pt. 1buc. grinda	6150.00

TOTAL PENTRU UN TABLIER: 1 grinzi x 6150kg=6150kg/ TOTAL FOR 1 DECK: 1 girders x 6150kg=6150kg
TOTAL PENTRU 2 TABLIERE: 2 x 1 grinzi x 6150kg=12300kg/ TOTAL FOR 2 DECKS: 2 x 1 girders x 6150kg=12300kg

(TOTAL OL37–EP=98400kg)
TOTAL S275$J_3$$G_3$=98400kg

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Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR
D					
C					
B					
A	12.2011	Revizia 1 1 Revision	Campan Maria		

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

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

ITALFERR
GRUPPO FERROVIE DELLO STATO
Joint Venture leader

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Şef proiect Project manager	R. Liuzza		
Aprobat Approved	Coordonator Secțiune 1 Section 1 Coordinator	C. Gambelli		
Verificat Checked	Expert Cheie Checking Expert	V. Kallidromitis		

SUBCONTRACTANT / SUBCONTRACTOR

AREX Lider COMPANY

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A. Dinulescu Stanciu	10.2011	
Întocmit Elaborated	Proiectant Designer	Campan Maria	10.2011	

Reabilitarea liniei de cale ferata Braşov - Simeria, parte componentă a coridorului IV Pan European, pentru circulaţia trenurilor cu viteza maximă de 160 km/h,
Tronsonul : Braşov - Sighişoara
Rehabilitation of the railway line Braşov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h,
Section : Braşov - Sighişoara

Proiect/Project
2004/RO/16/P/PA/003

Faza / Phase:
D.E. / E.D.

Denumire desen / Drawing Title :

STATIA / STATION RACOS

POD / BRIDGE Km 223+203.050 D=18.00m

GRINZI METALICE / METALLIC GIRDERS

Codificare / Codification System	Scara / Scale	LOT / LOT	Nr. / No
EA51 01 E 11 BC PV 02 3 3 005 1	1:20;1:10;1:100		01 / 01

297X3640