## NOTA

Numar de elemente prefabricate

| | |
|---|---|
| –Cadre C2 : | 16buc |
| –Aripi prefabricate A2. | 4buc. |
| –Timpane prefabricate | 2buc |

## NOTE

Number of precast section

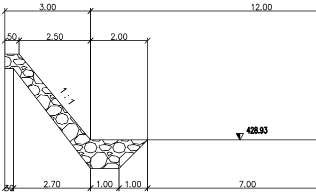
| | |
|---|---|
| –Prefabricated frames C2 | 16pcs. |
| –Prefabricated wings A2 | 4pcs. |
| –Head–wall | 2pcs. |

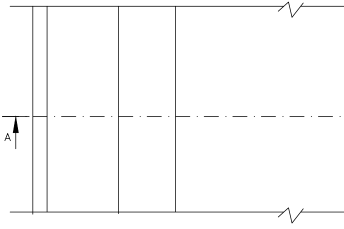
## DATE HIDRAULICE:

| | |
|---|---|
| –Inaltimea de apa: | h=0,86m |
| –Perimetrul udat: | P=3,72m |
| –Aria udata: | $A=1,72m^2$ |
| –Viteza de curgere a apei | V=2,90m/s |

## HIDRAULIC DATA:

| | |
|---|---|
| –Hydraulic height: | h=0,86m |
| –Perimeter: | P=3,72m |
| –surface: | $A=1,72m^2$ |
| –Water flow speed: | V=2,90m/s |


3.00
12.00
.50
2.50
2.00
1:1
428.93
.30
2.70
1.00
1.00
7.00



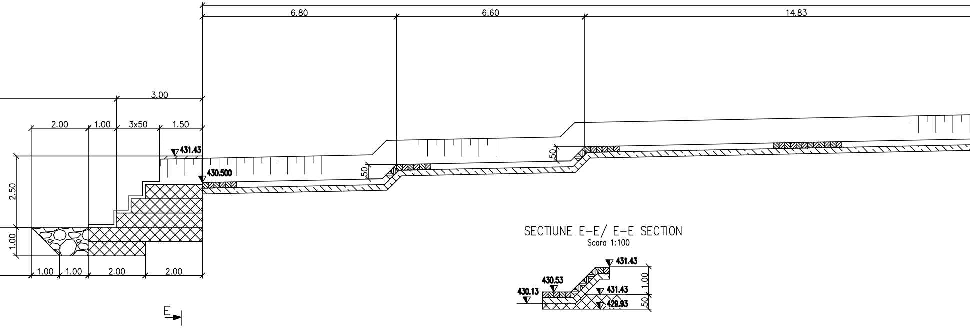
LEGENDA BETOANELOR
CONCRETE LIST

▨ –Beton în elemente prefabricate în general (cadre, aripi, timpane,):
–Concrete for prefabricated elements generally (frames,wings, tympana,
C 35/45 – CEM II/A – S 32,5 – (XC4+XF3+XA2) – A/C = 0,50 – Dmax22 – Cl 0,20

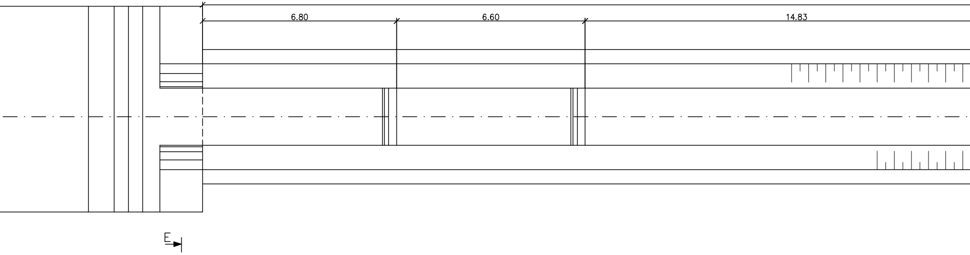
▨ –Beton în fundatiile podetelor, a elementelor de racordare (aripi, pinteni, camere de cadere, sferturi de con, etc), în elevatiile aripilor monolite si a camerelor de cadere, în pereu:
–Concrete for the foundations of culverts, of connecting elements (wings, breakwaters, water falling chambers, cone quarters etc), for the elevations of monolith wings and of water falling chambers, in revetment:
C 25/30 – CEM II/A – S 32,5 – (XF1) – A/C = 0,50 – Dmax32 – Cl 0,20

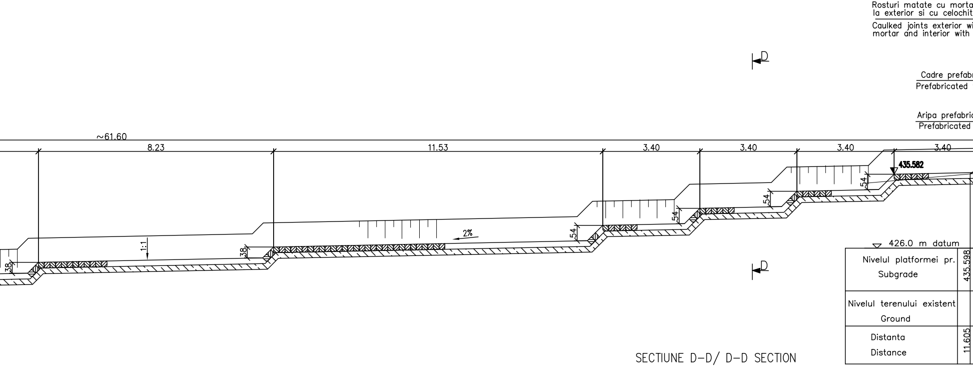
▨ –Beton în rigola drenurilor, fundatiile sferturilor de con si pentru realizarea stratului suport pentru pereu:
–Concrete for the drain gutters, for the foundations of cone quarters and for the support layer of revetment:
C 25/30 – CEM II/A – S 32,5 – (XC4+XF3+XA1) – A/C = 0,50 – Dmax32 – Cl 0,20

▩ –Beton în stratul de protectie a hidroizolatiei:
–Concrete for the waterproofing protection layer:
C 25/30 – CEM II/A – S 32,5 – (XC4+XF3) – A/C = 0,50 – Dmax16 – Cl 0,20


6.80
6.60
14.83
3.00
2.00
1.00
3x50
1.50
431.43
430.500
2.50
1.00
50
50
1.00
1.00
2.00
2.00
E
431.43
430.53
430.13
431.43
429.93
1.00
50

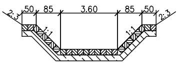
SECTIUNE E–E/ E–E SECTION
Scara 1:100

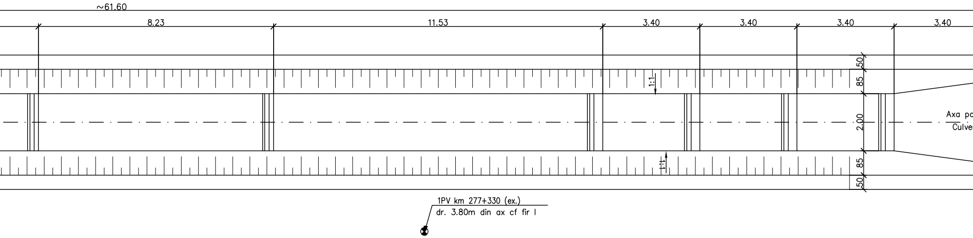

6.80
6.60
14.83
E


Rosturi matate cu morta
la exterior si cu celochit
Caulked joints exterior wi
mortar and interior with
D
Cadre prefabr
Prefabricated
Aripa prefabric
Prefabricated
~61.60
8.23
11.53
3.40
3.40
3.40
3.40
435.582
54
54
54
54
38
38
38
1:1
2%
D
426.0 m datum

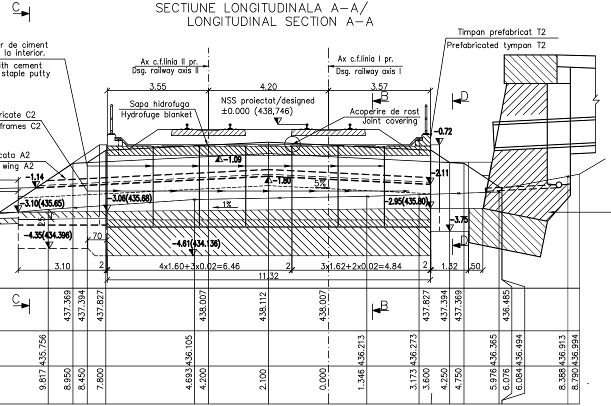
|  |  |
|---|---|
| Nivelul platformei pr.<br>Subgrade | 435.598 |
| Nivelul terenului existent<br>Ground |  |
| Distanta<br>Distance | 11.605 |

SECTIUNE D-D/ D-D SECTION
Scara 1:100

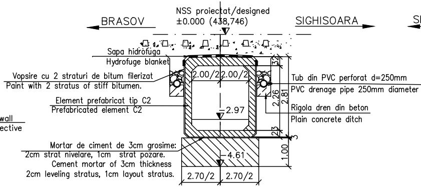

2:3
50
85
3.60
85
50
2:3
1:1
1:1


~61.60
8.23
11.53
3.40
3.40
3.40
3.40
.50
85
2.00
85
.50
1:1
1:1
Axa pa
Culve
1PV km 277+330 (ex.)
dr. 3.80m din ax cf fir I

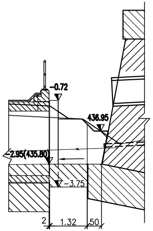
## SECTIUNE LONGITUDINALA A–A/ LONGITUDINAL SECTION A–A


C
r de ciment
la interior.
ith cement
staple putty
ricate C2
frames C2
cata A2
wing A2
Ax c.f.linia II pr.
Dsg. railway axis II
Ax c.f.linia I pr.
Dsg. railway axis I
Timpan prefabricat T2
Prefabricated tympan T2
Sapa hidrofuga
Hydrofuge blanket
NSS proiectat/designed
±0.000 (438,746)
Acoperire de rost
Joint covering
B
D
3.55
4.20
3.57
-0.72
-1.09
-1.80
-2.11
-1.14
5%
1%
-3.10(435.65)
-3.06(435.68)
-2.95(435.80)
-3.75
-4.35(434.396)
-4.61(434.136)
25
70
3.10
2
4x1.60+3x0.02=6.46
3x1.62+2x0.02=4.84
1.32
50
11.32
Zid de sprijin/Retaining wall
Consolidation under collective
437.369
437.394
437.827
438.007
438.112
438.007
437.827
437.394
437.369
436.485
435.756
436.105
436.213
436.273
436.365
436.494
436.913
436.994
9.817
8.950
8.450
7.800
4.693
4.200
2.100
0.000
1.346
3.173
3.600
4.250
4.750
5.976
6.076
6.084
8.388
8.790

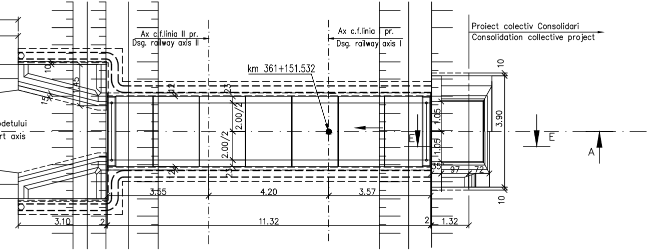
## SECTIUNE TRANSVERSALA B–B
## CROSS SECTION B–B


BRASOV
NSS proiectat/designed
±0.000 (438,746)
SIGHISOARA
SI
Sapa hidrofuga
Hydrofuge blanket
Vopsire cu 2 straturi de bitum filerizat
Paint with 2 stratus of stiff bitumen.
Element prefabricat tip C2
Prefabricated element C2
Mortar de ciment de 3cm grosime:
2cm strat nivelare, 1cm strat pozare.
Cement mortar of 3cm thickness
2cm leveling stratus, 1cm layout stratus.
2.00/2
2.00/2
-2.97
-4.61
32
2.26
2.81
23
3
1.00
2.70/2
2.70/2
Tub din PVC perforat d=250mm
PVC drenage pipe 250mm diameter
Rigola dren din beton
Plain concrete ditch

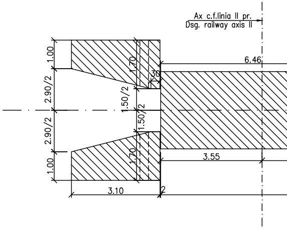
## SECTIUNE LONGITUDINALA E–E/ LONGITUDINAL SECTION E–E


-0.72
436.95
-2.95(435.80)
-3.75
2
1.32
50

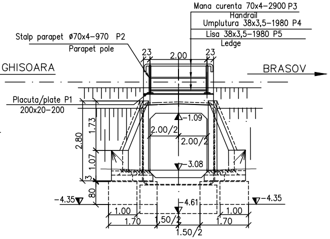
## VEDERE PLANA
## PLAN VIEW


odetului
rt axis
Ax c.f.linia II pr.
Dsg. railway axis II
Ax c.f.linia I pr.
Dsg. railway axis I
km 361+151.532
Proiect colectiv Consolidari
Consolidation collective project
10
45
15
12
23
2.00/2
2.00/2
23
12
3.55
4.20
3.57
3.10
2
11.32
2
1.32
1.05
1.05
35
97
72
3.90
10
10
E
E
A

## PLANUL
## FUN

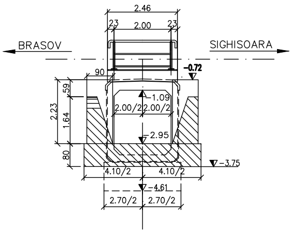

Ax c.f.linia II pr.
Dsg. railway axis II
6.46
1.00
2.90/2
2.90/2
1.00
1.70
30
1.50/2
1.50/2
1.70
3.55
3.10
2

## SECTIUNE C–C
## C–C SECTION



Mana curenta 70x4–2900 P3
Handrail
Umplutura 38x3,5–1980 P4
Lisa 38x3,5–1980 P5
Ledge
Stalp parapet ø70x4–970 P2
Parapet pole
23
2.00
23
GHISOARA
BRASOV
Placuta/plate P1
200x20–200
–1.09
2.00/2
2.00/2
2.80
1.73
1.07
3
80
–3.08
–4.35
–4.61
–4.35
1.00
1.70
1.50/2
1.50/2
1.00
1.70

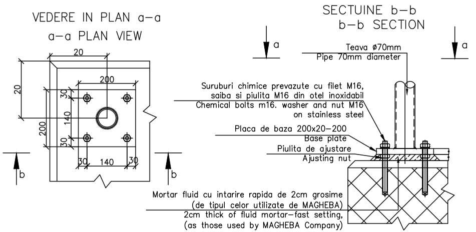
## SECTIUNE D–D
## D–D SECTION



2.46
23
2.00
23
BRASOV
SIGHISOARA
90
–0.72
–1.09
2.00/2
2.00/2
–2.95
2.23
.59
1.64
80
–3.75
4.10/2
4.10/2
–4.61
2.70/2
2.70/2

## DETALIU PENTRU PRINDEREA PLACUTELOR P1 DE TIMPAN
## DETAIL TO JOIN THE SLABS P1 AT THE TYMPANUM

Scara 1:5



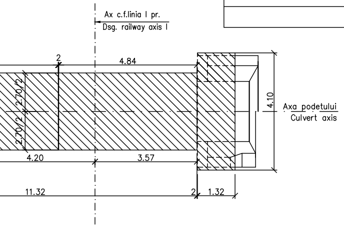
VEDERE IN PLAN a–a
a–a PLAN VIEW
20
200
20
200
30
140
30
30
140
30
b
b
SECTUINE b–b
b–b SECTION
a
a
Teava ø70mm
Pipe 70mm diameter
Suruburi chimice prevazute cu filet M16, saiba si piulita M16 din otel inoxidabil
Chemical bolts m16. washer and nut M16 on stainless steel
Placa de baza 200x20–200
Base plate
Piulita de ajustare
Ajusting nut
Mortar fluid cu intarire rapida de 2cm grosime (de tipul celor utilizate de MAGHEBA)
2cm thick of fluid mortar–fast setting, (as those used by MAGHEBA Company)

## MATERIAL METALIC PENTRU CONFECTIONAREA PARAPETULUI PODETULUI
## THE METALLIC MATERIAL TO BUILD PARAPET OF CULVERT

| Poz.<br>Piece | Denumirea materialului<br>The denomination of the material<br>OL EN 10025 – S235 JR | Buc. | Sectiune<br>Section | Lung.<br>Long.<br>(mm) | Sectiune/Section | | |
|---|---|---|---|---|---|---|---|
| | | | | | kg/ml | kg/buc | kg |
| P1 | Placuta prindere<br>Clamping plate | 4 | 200x20 | 200 | 31.40 | 6.28 | 25.12 |
| P2 | Stalp parapet EN 10297 – E275<br>Parapet pole | 4 | 70x4 | 970 | 6.51 | 6.32 | 25.26 |
| P3 | Mana curenta EN 10297 – E275<br>Handrail | 2 | 70x4 | 2900 | 6.51 | 18.88 | 37.76 |
| P4 | Umplutura EN 10058<br>Filling | 2 | 38x3,5 | 1980 | 2.98 | 5.90 | 11.80 |
| P5 | Lisa EN 10058<br>Ledge | 2 | 38x3,5 | 1980 | 2.98 | 5.90 | 11.80 |
| Total partial<br>Partially total | | | | | | | 111.74 |
| Sudura 2%<br>Welding 2% | | | | | | | 2.24 |
| TOTAL kg | | | | | | | 115 |

FUNDATIILOR

DATION PLAN



Ax c.f.linia I pr.
Dsg. railway axis I
2
4.84
2.70/2
2.70/2
4.10
Axa podetului
Culvert axis
4.20
3.57
11.32
2
1.32

## NOTA:

1. Prezentul plan s–a intocmit pe baza urmatoarelor date:
–plan de situatie
–profil in lung
–profil transversal
–fisa podului
–calcul hidraulic
–date culese pe teren
2. Podetul corespunde la convoaiele de calcul UIC (LM71 si SW/2)
3. La executie se vor respecta cu strictete prevederile din "Normativ pentru producerea betonului si executarea lucrarilor din beton, beton armat si beton precomprimat. Partea 1: Producerea betonului", indicativ NE 012/1–2007 si "Normativ pentru producerea betonului si executarea lucrarilor din beton, beton armat si beton precomprimat. Partea 2: Executarea lucrarilor din beton", indicativ NE 012/2–2010, iar verificarea calitatii lucrarilor si receptionarea lor se va face conform normativului C56–1985.
4. Daca la executie se vor constata neconcordante intre situatia existenta pe teren si cea din proiect se va anunta proiectantul.
5. Constructia se incadreaza in categoria de importanta B (constructii de importanta deosebita), modelul 1 de asigurare a calitatii si clasa de importanta B, conform HG 766/1997.
6. Proiectul va fi verificat la exigentele A4.2; B2.2; D2.2.
7. Se atrage in mod deosebit atentia asupra obligativitatii rezemarii elevatiilor prefabricate pe blocul de fundatie prin intermediul unui strat de mortar de ciment pentru a se realiza un contact perfect pe toata suprafata intre talpa prefabricatului si fundatie. Se interzice rezemarea directa fara strat de moratar de ciment.

## NOTE:

1. This plan has been drawn up based on the following data:
–Lay–out Plan
–Longitudinal Profile
–Cross–section Profile
–Bridge's File
–Hydraulic determination
–Field Data
2. The culvert corresponds to the UIC determination convoys (LM71 and SW/2).
3. The execution will strictly comply with the provisions of "Practice code for the concrete production and works execution, reinforced and pre–stressed concrete – Part 1: Practice code for concrete production" NE 012/1–2007 and "Practice code for the concrete production and works execution, reinforced and pre–stressed concrete – Part 2: The execution of concrete works." NE 012/2–2010, and the quality and the reception of the works shall be made accordingly to Norm C 56–1985.
4. If during the execution, discrepancies are found between the existing situation on site and the situation stated in the project, the designer will be noticed.
5. The construction has been classified in B category of importance (high important constructions), model 1–ensuring the quality and class of importance B according to G.O. 766/97.
6. The project will be checked in order to comply with the A4.2; B2.2; D2.2 requirements.
7. Particular attention is drawn on binding prefabricated elevations settlement on block foundation through a layer of cement mortar to achieve a perfect contact over the entire surface between precast and foundation base.Propping is prohibited without direct layer of cement mortar.

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| | | | | | |
|---|---|---|---|---|---|
| D | | | | | |
| C | | | | | |
| B | | | | | |
| A | 12.2011 | REVIZIA 1 | Th.Elena Radu | | |
| Indice<br>Index | Data<br>Date | Modificare<br>Modification/Revision | Proiectant<br>Designer | Aprobat Consultant<br>Approved Consultant | Aprobat CFR<br>Approved CFR |

**GUVERNUL ROMANIEI**
**ROMANIAN GOVERNMENT**

**PROIECT FINANŢAT DE UNIUNEA EURO**
**EUROPEAN UNION FINANCED PR**

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

## CLIENT / CLIENT

ITALFERR
GRUPPO FERROVIE DELLO STATO
*Joint Venture leader*

Scott Wilson

OBERMEYER
PLANEN + BERATEN GmbH

TECNIC
Consulting Engineers

## CONSULTANT / CONSULTANT

| | | | Data<br>Date | SemnŁturŁ<br>Signature |
|---|---|---|---|---|
| Aprobat<br>Approved | ķef proiect<br>Project manager | R. Liuzza | | |
| Aprobat<br>Approved | Coordonator SecŞune 1<br>Section 1 Coordinator | C. Gambelli | | |
| Verificat<br>Checked | Expert Cheie<br>Checking Expert | V.Kallidromitis | | VK |

## SUBCONTRACTANT / SUBCONTRACTOR

AREX COMPANY

| | | | | |
|---|---|---|---|---|
| Aprobat<br>Approved | Responsabil Subconsultant<br>Subconsultant Responsible | A. Dinulescu Stanciu | 07.2011 | |
| Ġtocmit<br>Elaborated | Proiectant<br>Designer | Elena Radu | 07.2011 | |

Reabilitarea liniei de cale ferata Brakov - Simeria, parte componentŁ a coridorului IV Pan European, pentru circulaŞa trenurilor cu viteza maximŁ 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:
P.Th. / T.D.

Denumire desen / Drawing Title :

**INTERVAL / SECTION: ARCHITA - VANATORI**
**PODET - KM 261+151,532 / KM 261+151,532 - CULVERT**
**DISPOZITIE GENERALA / GENERAL DISPOSITION**

| Codificare / Codification System | Scara / Scale<br>1:100; 1:5 | LOT / LOT | Nr. / No<br>01 / 01 |
|---|---|---|---|

E A 5 1 | 0 1 | C | 1 6 | P A | P O | 0 7 | 7 | 1 | 0 0 2 | 1