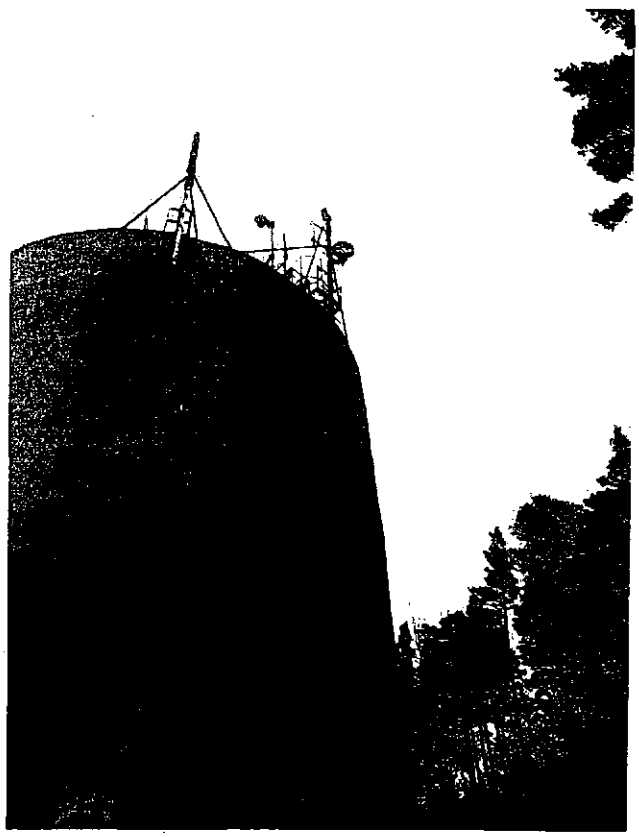
RAPORT DE EXPERTIZA TEHNICA

AMPLASARE STATIE FIXA DE TELEFONIE MOBILA SISTEM GSM
"BISCA" COD SITE BX_483
DEALUL ARSELOR-CASTEL SIRIU, NEHOIU, BUZAU



BENEFICIAR: COSMOTE

PROIECTANT : FAST DESIGN PROIECT

EXPERT TEHNIC ATESTAT MLPAT
Ing. Romulus Simion

- iunie 2009 -

MEMORIU TEHNIC DE EXPERTIZA

1. DATE GENERALE

Elaborarea prezentei documentatii se efectueaza in baza prevederilor Legii nr.10/1995 (art.18) privind calitatea in constructii si ale "Regulamentului privind urmarirea comportarii in exploatare, interventiile in timp si postutilizarea constructiilor" aprobat cu HGR nr. 766/1997, acte normative care stabilesc ca interventiile asupra constructiilor existente se pot face pe baza concluziilor unei expertize tehnice de specialitate.

Raportul de expertiza tehnica a fost elaborat cu scopul de a stabili in ce conditii tehnice se pot executa interventii locale in vederea instalarii unei statii fixe pentru telefonie mobila sistem GSM pentru COSMOTE, pe constructia casei de apa din Nehoiu, Dealul Arselor, astfel incat sa nu fie afectate rezistenta si stabilitatea acesteia.

Expertizarea constructiei la actiuni seismice nu face obiectul acestei documentatii.

Se vor instala urmatoarele echipamente COSMOTE :

- Un catarg de perete contravantuit avand inaltimea de 5,50 m si doua catarge de perete de 5m inaltime, pentru sustinerea a 2 antene RF si 2 antene MW-0,60m.De asemenea se va executa o platforma cu scara pentru accesul la antene ;greutate totala adaugata 800kg ;
- La sol, pe o platforma din beton armat, o baza dubla pentru echipamente RBS 2106

In prezent pe constructie sunt montate echipamente de telefonie mobila Vodafone si Orange.

Echipamentele au caracteristicile tehnice cuprinse in fisele tehnice si in planul de amplasare echipamente aferent acestui amplasament puse la dispozitia expertului pentru a fi avute in vedere la evaluarea posibilitatilor de amplasare pe cladire.

2. DATE PE CARE SE BAZEAZA EXPERTIZA TEHNICA

2.1. Legislatie

- Legea 10/1992 – Legea calitatii in constructii
- HGR nr.925/1995 – Regulamentul de verificare si expertizare tehnica de calitate a proiectelor, a executiei lucrarilor si a constructiilor
- HGR nr. 766/1997- Regulamentul privind urmarirea comportarii in exploatare, interventiile in timp si postutilizarea constructiilor

2.2. Reglementari tehnice

- STAS 10101/2A-87 - Incarcari tehnologice din exploatare
- STAS 10101/1-78 - Greutati tehnice si incarcari permanente
- NP 082/2004 – Incarcari din vant
- CR 1-1-3/2005 – Incarcari din zapada
- CR 0-2005 – Clasificarea si gruparea actiunilor
- STAS 10107/0-90 - Calculul si alcatuirea constructiilor din beton
- NE 012-99 – Cod de practica pentru lucrari din beton si beton armat
- P100-2006 – Cod de proiectare seismica a constructiilor, completat si modificat cu Ordinul MLPAT nr.71/N/1996 (in valabilitate pentru constructii existente)

2.3. Alte date:

- Examinarea constructiei la nivelul terasei
- Propunere de amplasare echipamente – FAST DESIGN PROIECT

- Date tehnice despre echipamente (greutate, dimensiuni)

3. AMPLASAMENT

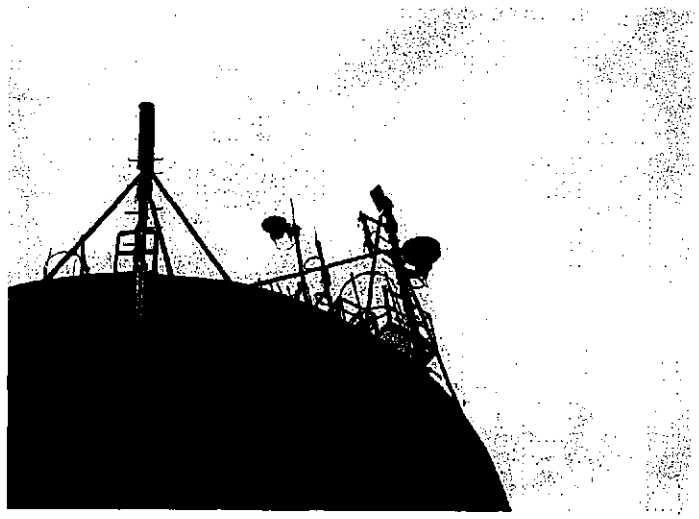
Potrivit normativului P100/1-2006, amplasamentul se afla in zona seismica cu acceleratia terenului a_g=0,32g si o perioada de colt Tc=1,0 secunde.
In ce priveste incarcarile din vant amplasamentul se situeaza in zona caracterizata printr-o presiune dinamica de baza de 0,50 Kpa la 10 m deasupra terenului, conform NP 082-2004.
In conformitate cu CR 1-1-3-2005 privind incarcarile cu zapada, amplasamentul se situeaza in zona caracterizata printr-o intensitate normata a incarcarii date de zapada (greutate de referinta) de 2 KN/mp.

4. DESCRIEREA CONSTRUCTIEI

Constructia este executata din beton armat turnat monolit si are o forma cilindrica .
Diametrul exterior la baza este de 9m, iar inaltimea fata de sol de 16m.
Accesul pe verticala se realizeaza pe scari metalice exterioare tip cos.

Constructia este in functiune si nu prezinta avarii sau degradari structurale vizibile pe zonele vizitate.

Constructia se incadreaza in categoria a III-a de importanta-normala, iar potrivit normativului P100/2006 face parte din clasa de importanta III- normala.



5. CONSIDERATII PRIVIND ACTIUNEA INCARCARILOR SUPLIMENTARE ASUPRA CONSTRUCTIEI

Greutatea echipamentelor care de amplaseaza pe constructie este de 0,80 tone, valoare nesemnificativa in raport cu masa constructiei si care practic nu afecteaza rezistenta si stabilitatea acesteia.

6. CONCLUZII

Din analiza documentatiei referitoare la amplasarea si montajul echipamentelor, precum si din examinarea constructiei si identificarea structurii de rezistenta a acesteia, urmare evaluarilor efectuate, a rezultat ca amplasarea constructiilor metalice specificate la cap.1 nu va afecta rezistenta si stabilitatea constructiei daca se respecta urmatoarele conditii tehnice:

- Catargele de sustinere a antenelor cat si contravantuirile acestora se vor prinde lateral cu ancore chimice sau mecanice .

Lucrarile de instalare a statiei nu vor influenta comportarea ansamblului structural la solicitari gravitationale si seismice.

In exploatare, beneficiarul va verifica periodic (urmarire curenta) starea elementelor de constructie pe care echipamentele sunt amplasate, luand operativ masuri de remediere dupa caz, cu respectarea legislatiei in vigoare referitoare la interventiile asupra constructiilor si urmarirea comportarii in timp a acestora.
Se vor semnala orice desprinderi, fisuri, deteriorari ce ar putea sa apara, ulterior instalarii echipamentelor in statie.

Proiectul cu detalii de executie va fi elaborat cu respectarea reglementarilor tehnice in vigoare si va fi verificat de un specialist verificator de proiecte atestat MLPAT.

iunie 2009

Expert tehnic atestat MLPAT
ing Romulus Simion

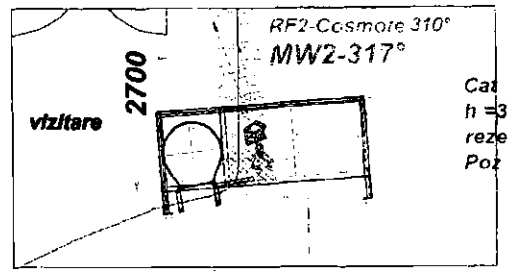
Vodafone \Antenna	Antenna type	Height	Azimuth
OMNI		17.00m	-
MW-V1	Ø 0.60m	16.50m	195°
MW-V2	Ø 0.30m	17.00m	195°
RF-V1	-	16.50m	175°
RF-V2	-	19.00m	310°

Orange \Antenna	Antenna type	Height	Azimuth
RFOA	-	19.00m	220°
RFOB	-	19.00m	310°
MWO1	Ø 0.30m	15.30m	310°
MWO2	Ø 0.30m	16.60m	310°

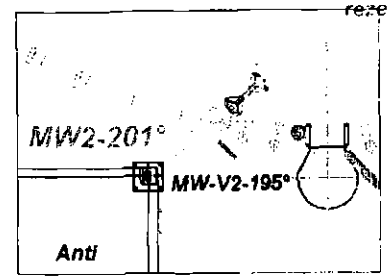
Cosmote \Antenna	Antenna type	Height	Azimuth
MW1	0.6m	17.00m	200°
MW2	0.6m	16.50m	317°
RF1	739 636	17.00m	200°
RF2	741 785	19.00m	315°

* inaltimea de la partea superioara a antenei RF si axul MW la sol

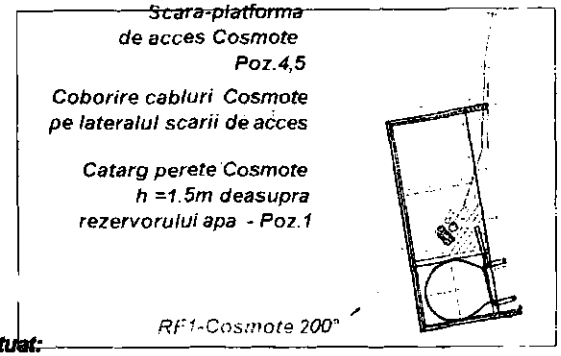
Detaliu Plan Instalare Echipamente COSMOTE

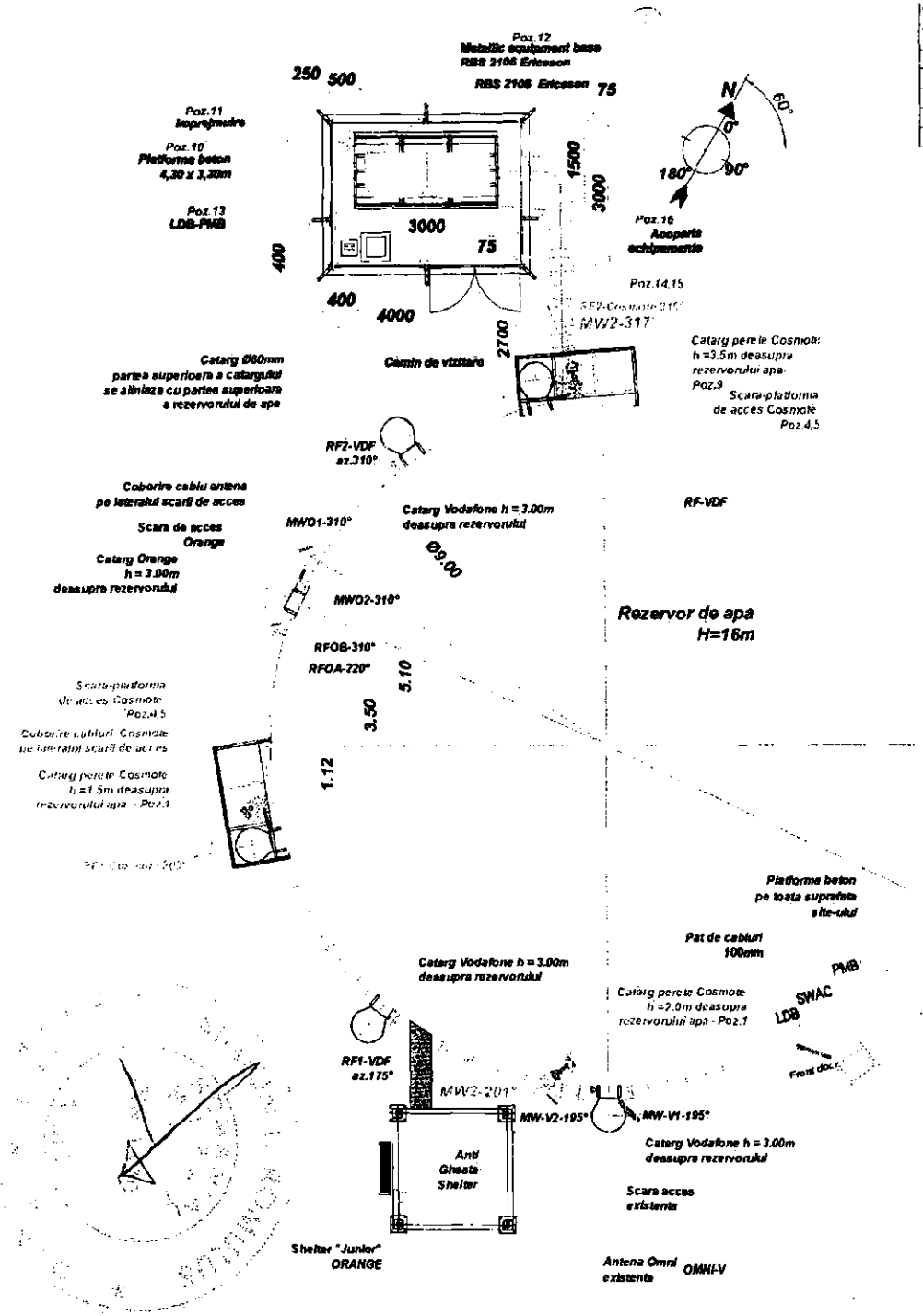


Detaliu Plan Instalare Echipamente COSMOTE



Detaliu Plan Instalare Echipamente COSMOTE





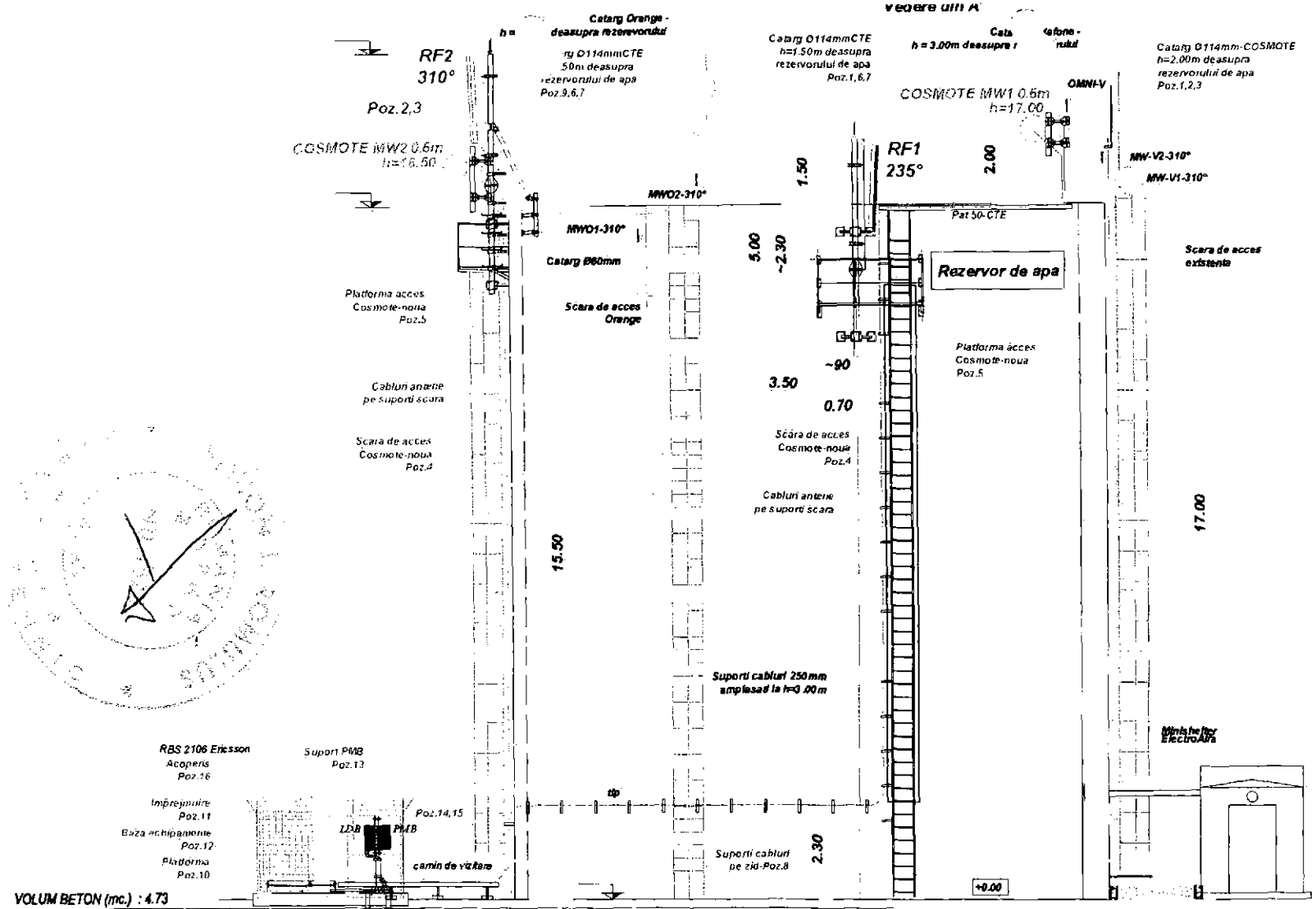
Lucrari de efectuat:

- Se vor monta trei catarge-suport (fixate pe peretele de beton) doua de 5m si unul de 5.5m, pentru antenele RF1,RF2, MW1 si MW2;
- Se vor monta doua antene MW Ø0,60m pe suport offset prinsi de catarg si doua antene RF1 tip 739 636 az.200°si RF2 tip 741 785 az.315°;
- Se vor monta doua scari-platforme de acces la noile catarge;
- Se vor monta suporti tip Omega pe peretele castelului, la H~2.30m, intre cele doua scari de acces la catarge.
- Se va instala un pat de cabluri L=5.00m, de la peretele castelului la echipamente .
- Se vor instala hangheri pentru coborare feederi pe scara de acces la catarg
- Se va va nivela platforma existenta si realiza o dala noua betonata(4.30x3.30m) pe care se va instala rama pt echipamente - 2x RBS 2106 si un acoperis echipamente.Se va imprejmui locatia CTE cu un gard tip 4.0x3.0m.
- Se vor instala tablourile PMB, LDB pe suport independent , pe platforma.

COSMOTE	BENEFICIAR	BX483_BISCA Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau	ANTREPRENOR GENERAL egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2006 1 Decembrie 1918 nr. 17, Bl. 640, Sc.1, Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar: S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr.: FD01
				Titlu proiect: BX483_BISCA	Faza: DDE-PAC
Specificatie	Nume	Semnatura	Scara	Titlu plansa: SITUATIE PROPUSA AMPLASARE ECHIPAMENTE-PLAN	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		1:100		
Proiectat	ing. A.Ionita		Data	Nr. desen: FD.01.BX_483.02.10	Rev.: 0
Desenat	ing. G.Ionita		05.04.09		



VOLUM BETON (mc.) : 4.73

MASA TOTALA METAL (Kg.) 3319

A/A	Description	Assembly Code	Quant.	Materials	Weight / Quantity	Total Quant.
16	Acoperis 2xRBS 2106	FD.01 Acoperis RBS.01.10	1	subans.	301.4	301.4
15	Pat de cablori orizontal 500mm	M3144PP01	2	subans.	lung.totala . 5m	
14	Col orizontal 500mm	M3148PP01	1	subans.		
13	PMB support	FD.01.PMB support1.01.01	1	subans.	59.30	59.30
12	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	1	subans.	750.6	750.6
11	Ansamblu gard	FD.01.Gard.01.01	1	subans.	313.92	313.92
10	Platforma betonata	FD.01.Platforma.01.01	1	subans.	324.844.20*	324.844.20*
9	Catarg perete 5.5m	FD.01-Catarg 5.5m - 01.00	1	subans.	198.00	198.00
8	Suport Cablori pe zid	FD-01.SUPORT CABLURI.01.01	12	subans.	0.80	9.60
7	Hexagon antenna poles support Ø114 TO Ø60	FD-01 HEXAGON.01.01	4	subans.	6,75	27,00
6	Teava Antena RF-Ø60-3000mm	FD.01-Teava RF 3m - 01.01	2	subans.	12,72	25.44
5	Platforma acces	FD.01.Platforma.01.01	2	subans.	137.00	274.00
4	Scara acces	FD.01.Scara Acces.01.01	2	subans.	275.65	551.3
3	Suport distanter antena MW	FD.01- Bracket MW 114-114 - 01.01	4	subans.	15.94	63.63
2	Teava suport antene MW Ø114mm - 1m	FD.01-Teava MW 1m - 01.01	2	subans.	12.72	25.44
1	Catarg 5m	FD.01-Catarg 5m - 01.00	2	subans.	148.00	296.00

BENEFICIAR: COSMOTE

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr.47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti,Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. : FD.01

Titlu proiect: **BX483_BISCA**
Faza : **DDE-PAC**

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:100
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		05.04.09

Titlu plansa: **SITUATIE PROPUSA**
AMPLASARE ECHIPAMENTE-ELEVATIE
Plansa nr.: 1/1

Nr. desen : **FD.01.BX_483.02.20**
Rev.: 0

DISPOZITIE DE SANTIER

(D.S. 5)

Site : BX 483 BISCA

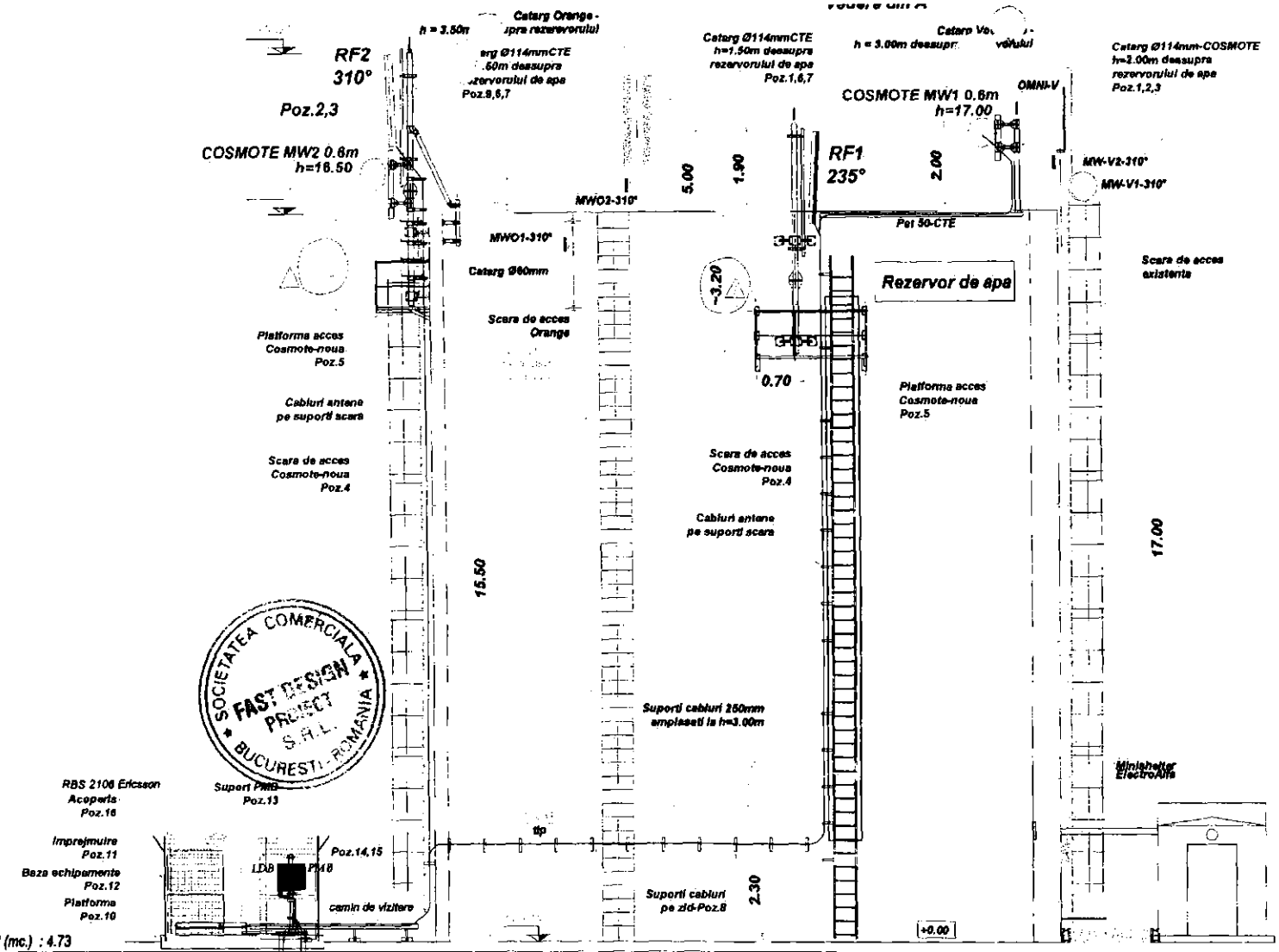
OBSERVATII :

La cererea beneficiarului, platformele de acces (Poz.5) la catargele antenelor RF se vor monta sub baza tevii catargului cu ~100mm.
Vor rezulta noi cote de montaj la baza platformei : ~2.15m si 3.20m fata de fata superioara a peretelui

Anexa :
1) Amplasare echipamente-elevatie (Situatie Propusa) - FD.01.BX_483.02.20

Intocmit: ing. A.Ionita
Verificat : ing. F.Balasoiu
Data : 25.06.09

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA



VOLUM BETON (mc.) : 4.73

A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total Quant.
		MASA TOTALA METAL (Kg.)				3319
16	Acoperis 2xRBS 2106	FD.01.Acoperis RBS.01.10	1	subans.	301.4	301.4
15	Pat de cabluri orizontal 500mm	M3144PP01	2	subans.	lung.totala . 5m	
14	Cot orizontal 500mm	M3148PP01	1	subans.		
13	PMB support	FD.01.PMB support.01.01	1	subans.	59.30	59.30
12	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	1	subans.	750.6	750.6
11	Ansamblu gard	FD.01.Gard 01.01	1	subans.	313.92	313.92
10	Platforma betonata	FD.01.Platforma beton.01.01	1	subans.	324.6/4.20*	324.6/4.20*
9	Catarg perete 5.5m	FD.01-Catarg 5.5m - 01.00	1	subans.	195.00	195.00
8	Suport Cabluri pe zid	FD-01.SUPORT CABLURI.01.01	12	subans.	0.80	9.60
7	Hexagon antenna poles support Ø114 TO Ø60	FD-01.HEXAGON.01.01	4	subans.	6,75	27,00
6	Teava Antena RF-Ø60-3000mm	FD.01-Teava RF 3m - 01.01	2	subans.	12.72	25.44
5	Platforma acces	FD.01.Platforma.01.01	2	subans.	137.00	274.00
4	Scara acces	FD.01.Scara Acces.01.01	2	subans.	275.65	551.3
3	Suport distantier antena MW	FD.01- Bracket MW 114-114 - 01.01	4	subans.	15.84	63.63
2	Teava suport antena MW Ø114mm - 1m	FD.01-Teava MW 1m - 01.01	2	subans.	12.72	25.44
1	Catarg 5m	FD.01-Catarg 5m - 01.00	2	subans.	148.00	296.00

COSMOTE — BENEFICIAR

BX483_BISCA

Dealul Arselor - Castel Sirlu, loc. Neholu, jud Buzau

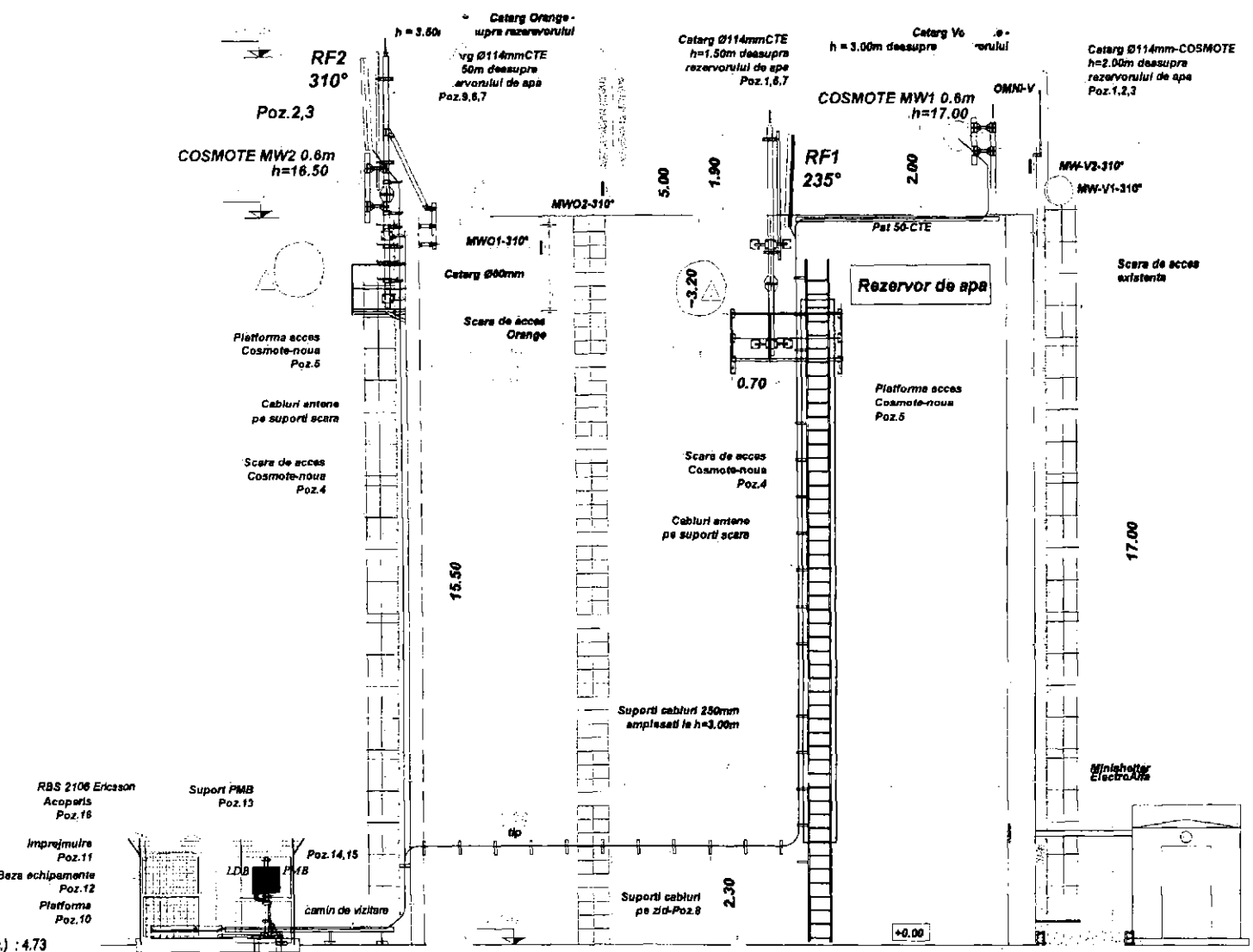
ANTREPRENOR GENERAL — egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:100
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		25.06.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. : FD.01
Titlu proiect : **BX483_BISCA**
Faza : **DDE-PAC**
Titlu plansa : **SITUATIE PROPUSA**
AMPLASARE ECHIPAMENTE-ELEVATIE
Plansa nr. : 1/1
Nr. desen : **FD.01.BX_483.02.20**
Rev. : 1



VOLUM BETON (mc.) : 4.73

A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total Quant.
		MASA TOTALA METAL (Kg.)				3319
16	Acoperis 2xRBS 2106	FD.01.Acoperis RBS.01.10	1	subans.	301.4	301.4
15	Pat de cablori orizontal 500mm	M3144PP01	2	subans.	lung.totala . 5m	
14	Cot orizontal 500mm	M3148PP01	1	subans.		
13	PMB support	FD.01.PMB support.01.01	1	subans.	59.30	59.30
12	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	1	subans.	750.6	750.6
11	Ansamblu gard	FD.01.Gard.01.01	1	subans.	313.92	313.92
10	Platforma betonata	FD.01.Platforma beton.01.01	1	subans.	324.6/4.20*	324.6/4.20*
9	Catarg perete 5.5m	FD.01-Catarg 5.5m - 01.00	1	subans.	195.00	195.00
8	Suport Cablori pe zid	FD-01.SUPORT CABLURI.01.01	12	subans.	0.80	9.60
7	Hexagon antenna poles support Ø114 TO Ø60	FD-01.HEXAGON.01.01	4	subans.	6.75	27.00
6	Teava Antana RF-Ø60-3000mm	FD.01-Teava RF 3m - 01.01	2	subans.	12.72	25.44
5	Platforma acces	FD.01.Platforma.01.01	2	subans.	137.00	274.00
4	Scara acces	FD.01.Scara Acces.01.01	2	subans.	275.65	551.3
3	Suport distantier antena MW	FD.01- Bracket MW 114-114 - 01.01	4	subans.	15.84	63.63
2	Teava suport antena MW Ø114mm - 1m	FD.01-Teava MW 1m - 01.01	2	subans.	12.72	25.44
1	Catarg 5m	FD.01-Catarg 5m - 01.00	2	subans.	148.00	296.00

COSMOTE — BENEFICIAR

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL — egnatia ROM

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI ROMANIA

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J49,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect **BX483_BISCA**

Faza : **DDE-PAC**

Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		1:100	**SITUATIE PROPUSA AMPLASARE ECHIPAMENTE-ELEVATIE**	1/1
Proiectat	ing. A.Ionita		Data	Nr. desen : **FD.01.BX_483.02.20**	Rev.: 1
Desenat	ing. G.Ionita		25.06.09		

egnatia ROM | | COSMOTE

STATII FIXE DESTINATE TELEFONIEI MOBILE

- SISTEM GSM -

FAZA D.D.E.

Cod Site: ***BX 483***

Nume Site: ***BISCA***

Adresa: ***Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau***

Coordonate site: Longitude 26° 18′ 23.1″
Latitude 45° 26′ 54″
Height 601m

Client: ***S.C. COSMOTE ROMANIAN MOBILE TELECOMMUNICATIONS S.A.***

Strada Nicolae Titulescu, nr. 4-8
Cladirea America House, Aripa de vest, Etajele 5 si 6
Bucuresti, Sector 1

Antreprenor General: ***S.C.EGNATIA ROM SRL***

Strada Aviator Theodor Iliescu nr.1
Bucuresti, Sector 1

Verificator tehnic atestat MLPAT
nr. 1471 ROMULUS SIMION
inginer constructor
A1 + A2

Nr. 298 din 15.06. / 2009

R E F E R A T

privind verificarea de calitate la cerinta rezistenta si stabilitate

a proiectului STATIE FIXA SISTEM GSM- BISCA

COD SITE BX_438

Faza DDE

1. Date de identificare:

- proiectant general: FAST DESIGN PROIECT
- proiectant de specialitate: FAST DESIGN PROIECT
- investitor: COSMOTE
-amplasament: SISIU, S.C. SERVCOM NEHOIU S.A., BUZAU
- data prezentarii proiectului spre verificare: IUNIE 2009

2. Caracteristicile principale ale proiectului si ale constructiei:

-continut proiect : 3 CATARGE DE PERETE (5,5 SI 2x5m) , PLATFORMA LA SOL, BAZA DUBLA ECHIPAMENTE(INCARCARE MAXIMA CU ANTENE 2RF+2MW-0,60m-3,5mp)

-constructie existenta...inaltime 16m .....functiune : CASA DE APA

- structuri metalice : SUPORTI ANTENE : TEVI OLT35 ZINCATE LA CALD ; SUPPORT ECHIPAMENTE :PROFILE METALICE ZINCATE LA CALD

-amplasamentul se situeaza in zona seismica cu acceleratia terenului a_g=0,32g si o perioada de colt Tc= 1,00 secunde ; zona climatica VANT 0,50Kpa

3. Documente ce se prezinta la verificare:

- Memoriu tehnic rezistenta
- Piese desenate conform borderoului din proiect

4. Concluzii asupra verificarii:

In urma verificarii, se considera proiectul corespunzator pentru aceasta etapa, semnandu-se si stampilandu-se conform Indrumatorului.Lista minimala de control cuprinzand criteriile verificate pentru satisfacerea cerintei este prezentata in ANEXA 1 la referat.

Verificator tehnic atestat
ing.Romulus Simion

ANEXA 1

La referatul nr. 298 / 2009

LISTA MINIMALA DE CONTROL

Cerinta "A" - rezistenta si stabilitate - proiectul de constructii

STATIE FIXA SISTEM GSM- BISCA

COD SITE BX_438

Faza DDE

Nr.crt.	Criterii pentru satisfacerea cerintei avute in vedere de verificator	Observatii
1	Incadrarea in zona seismica	NU SUNT
2	Stabilirea categoriei de importanta	NU SUNT
3	Stabilirea clasei de importanta	NU SUNT
4	Preluarea datelor din avizul geotehnic	NU ESTE CAZUL
5	Solutii de fundatii si infrastructura	NU ESTE CAZUL
6.	Solutii de protectie fata de agresivitatea solului, mediului si activitatii curente	NU SUNT
7	Conceptia ansamblului structural si stabilitatea elementelor de compartimentare	NU SUNT
8	Calculul ansamblului structural	NU SUNT
9	Calitatea materialelor structurale utilizate	NU SUNT
10	Rezolvarea la nivel de detalii	NU SUNT
11	Completitudinea pieselor scrise si desenate	NU SUNT

LISTA DE SEMNATURI

Inginer civile	ing. A Ionita	
Inginer electrice	ing. A.Cardos	
Sef Proiect	Ing. Florin Balasoiu	

SITE BX 483 Bisca

Nr.	Nume document	Cod document	Rev.	Pagini	Format	Obs.
A	**Parti scrise**					
1.	Memoriu tehnic civil	FD.01.BX_483_MTC	0	10	A4	
2.	Memoriu tehnic electric	FD.01. BX_483_MTE	0	10	A4	
3.	Lista materiale civile	FD.01. BX_483_LMC	0	1	A4	
4.	Lista materiale electrice	FD.01. BX_483_LME	0	1	A4	
5.	Jurnal de cabluri	FD.01. BX_483_JC	0	2	A4	
B	**Parti desenate - Planuri Generale**					
1.	Plan de situatie	FD.01. BX_483.01.00	0	1	A4	
2.	Plan echipamente si cabluri antene	FD.01. BX_483.01.10	0	1	A3	
3.	Elevatie echipamente si cabluri antene	FD.01. BX_483.01.20	0	1	A3	
4.	Plan echipamente si cabluri alimentare	FD.01. BX_483.02.10	0	1	A3	
5.	Elevatie echipamente si cabluri alimentare	FD.01. BX_483.02.20	0	1	A3	
6.	Plan echipamente si cabluri impamantare	FD.01. BX_483.02.30	0	1	A3	
7.	Elevatie echipamente si cabluri impamantare	FD.01. BX_483.02.40	0	1	A3	
C	**Parti desenate-Executie si Montaj**					
1	Catarg 5.5m - contravantuit	FD.01.Catarg 5.5m.01.00	0	9	A3/A4	
2	Catarg 5m	FD.01.Catarg 5m.01.00	0	5	A3/A4	
3	Platforma betonata	FD.01.Platforma beton.01.00	0	1	A3	
4	MW Support Brackets 114 to 114mm	FD.01.MW Bracket.01.01	0	1	A4	
5	Teava suport antena MW C114mm - 1m	FD.01.MW Pole.01.01	0	1	A4	
6	Ansamblu gard	FD.01.Gard.01.01	0	1	A3	
7	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	0	1	A3	
8	PMB support	FD.01.PMB support.01.01	0	1	A3	
9	Camin de vizitare + Capac	FD.01.Camin.01.10	0	2	A3	
10	Acoperis 2xRBS 2106	FD.01.Acoperis RBS.01.10	0	5	A3/A4	
11	Platforma acces	FD.01.Platforma.01.01	0	2	A3/A4	
12	Scara acces	FD.01.Scara Acces.01.01	0	4	A3/A4	
13	Suport cabluri pe zid	FD.01.Suport Cabluri.01.01	0	1	A4	

Project Name: **STATII FIXE DESTINATE TELEFONIEI MOBILE SISTEM GSM**
Client:
Site Code: **BX 483**

MEMORIU TEHNIC

DESIGN DESCRIPTION

BX_483_MTC

REVISIONS

Rev.	*Description*	*Date*	*Prepared*	*Checked*
0	First issue	-	-	-

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

PREPARED		CHECKED		APPROVED	
Date	*Name*	*Date*	*Name*	*Date*	*Name*
05.06.2009	G.Ionita	05.06.2009	A.Ionita	05.06.2009	R.Balasoiu

CUPRINS

CONTENT

1. SCOPUL LUCRARII

Prezenta lucrare stabileste conditiile tehnice de executie, montaj si receptie a unei statii de emisie receptie pentru telefonie mobila - sistem GSM 900-1800, ce se va amplasa pe Casa de Apa de pe Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau, jud Buzau conform celor reprezentate in desenul FD.01.BX_483.01. 10, 20.
Prezentul document va fi inaintat autoritatilor locale in vederea obtinerii "Certificatului de Urbanism" si /sau Autorizatia de Constructie.

1. SCOPE OF WORK

This document states the technical requirements for manufacturing, installation and acceptance of the new radio station for mobile phone GSM system, which will be placed on the terrace located on water tower from Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau, jud Buzau as represented in dwg. FD.01.BX_483.01. 10, 20.This document shall be submitted to local authorities in order to obtain the "Certificate for Urban civil work release" and/or Construction permit.

2. DESCRIEREA INVESTITIEI

Statia este alcatuita din :
- doua antene RF tip *739 636 si 741 785* si doua antene MW ø0,6m, amplasate pe un catarg 5.5m contravantuit, si doua catarge 5m fixate in peretele castelului de apa;
- doua echipamente RBS 2106, amplasate pe o platforma din beton turnata la baza castelului de apa, intr-un spatiu protejat cu un gard defensiv ;
-Instalatia de legare la pamant a echipamentelor.
- instalatia de alimentare cu energie electrica.

2. DESCRIPTION OF WORK PACKAGE

The radio station includes the following main; equipment:
- Two RF antennas and two ø0.6m MW antenna placed on three wall masts;
- Two cosmo Equipment's RBS 2106 will be placed on the concrete base close to tower's base.
- Electrical power supply installation
- Lighting road installation

3.STANDARDE SI NORMATIVE DE REFERINTA

- *STAS 10107/0-90* Calculul si alcatuirea elementelor din beton armat si beton precomprimat
- *STAS 10108 / 0-78* Constructii civile, industriale si agricole. Calculul elementelor din otel;
- *STAS 767/0-88* Constructii civile, industriale si agricole. Constructii din otel. Conditii tehnice si de calitate ;
- *STAS 10103 –76* Constructii din otel. Principii generale de calcul;
- *STAS 10100* Principii generale de verificare a sigurantei constructiilor.

3. STANDARDS AND REFERENCE RULES

- *STAS 10107/0-90* Design of the reinforced concrete elements and strained concrete elements
- *STAS 10108 / 0-78* Civil, industrial and rural buildings. Design of steel structures.
- STAS 767/0-88 Civil, industrial and rural buildings. Steel work. Technical and quality requirements.
- *STAS 10103 -76* Steel structures. General principles for the design.
- *STAS 10100* General principles for the verification of the safety structure.

- *C 150-99* Normativ privind calitatea imbinarilor sudate ale constructiilor din otel.
- *C139-87*, privind protectia constructiilor metalice.
- *C152-86*, referitoare la lucrarile de izolatie.
- *NE 012-99* Normativ pentru executarea lucrarilor de beton si beton armat.
- *CR 0-2005* Cod de proiectare. Clasificarea si gruparea incarcarilor.
- *NP 082-2004* Cod de proiectare. Actiunea vantului.
- *CR 1-1-3-2005* Cod de proiectare. Evaluarea actiunii zapezii asupra constructiilor.
- *P100-2006* – Cod de proiectare seismica-partea I. Prevederi de proiectare pentru cladiri.
- *Legea 10/1995*, privind asigurarea durabilitatii, sigurantei in exploatare, functionalitatii si calitatii lucrarilor.

4. CONDITII TEHNICE DE EXECUTIE SI MONTAJ

4.1. Materiale

Materialele ce se vor folosi in realizarea investitiei – marcile si standardele de produs – sunt precizate in documentatia de executie. Toate materialele introduse in executie sau puse in opera vor fi noi si insotite de certificate de calitate emise de producator. Daca aceste certificate lipsesc sau sunt incomplete, executantul sau constructorul, dupa caz, va emite cerificate de conformitate bazate pe incercari si verificari efectuate in conformitate cu cerintele standardelor de material specifice. Utilizarea de materiale inlocuitoare sau echivalente va fi permisa numai cu acceptul proiectantului.

- *C 150-99* Rule for quality of welded joints of the steel structures
- *C139-87*, Rule refers to structures steel protection.
- *C152-86*, Rule refers to insulation works.
- *NE 012-99* Rules for concrete and reinforced concrete work.
- *CR 0-2005* Design code. Loads selection and graduation.
- *NP 082-2004* Design code. Wind's loads.
- *CR 1-1-3-2005* Design Code. Estimate's snow loads over the buildings.
- P100-2006 – Code of seismical design-part one. Rules of design for building.
- *Rule 10/1995*, refers to durability and security in work assurance, work quality.

4. TECHNICAL REQUIREMENTS FOR MANUFACTURING AND INSTALLATION

4.1. Materials

Materials to be used for the investment work - grades and product standards - are specifically indicated in the detail drawings. All material shall be new and accompanied by material certificates issued by the supplier. If these certificates are not available or some data are missing than the manufacturer or the contractor, by the case, shall issue certificates of compliance based on tests and checks done in accordance with the requirements of the specific material standards. Equivalent or replacement material shall be used only with the prior acceptance of the designer.

4.2. Lucrari civile

4.2.1. Lucrarile civile constau in executia si montarea urmatoarelor:

- platforma pentru echipamente ;
- gard imprejmuitor;
- suport PMB;
- acoperis 2xRBS 2106;
- catarg contravantuit ø114mm, h=5.5m;
- doua catarge H=5m;
- suporti antena MW.

4.2. Civil work

4.2.1. Civil work consist in execution and installation of:

- RBS 2106 concrete basement;
- Cosmote surface fence;
- PMB support;
- 2x RBS 2106 ice-bridge;
- Mast ø114mm – 5.5m (2 brace version);
- Two 5m height masts;
- MW poles support;

4.3. Constructii metalice

Toate constructiile metalice sunt zincate la cald pentru a fi protejate impotriva coroziunii.

4.3.1. Debitarea materialelor se va face prin mijloace mecanice sau termice. In cazul utilizarii taierii termice, suprafetele rezultate vor fi curatate prin mijloace mecanice (polizare) pentru eliminarea zonei influentate termic, a stropilor de sudura si a bavurilor. Rugozitatea admisa pe aceste suprafete este cca. Ra. 25.

4.3.2. Sudarea materialelor se va face folosind sudori atestati (calificati) in conformitate cu cerintele STAS 9532/1,2-74 si procedee de sudare omologate.

4.3.2.1. Materialele de adaos pentru sudare vor fi alese de executant astfel incat sa fie compatibile cu materialul de baza si cu tehnologia de sudare. Daca nu se specifica altfel in desenele de detaliu, vor fi aplicate urmatoarele reguli:

- cordoanele vor fi continue pe toata lungimea de contact a pieselor din imbinare;
- sudurile cap la cap vor fi cu penetratie totala;
- sudurile de colt vor avea dimensiunea nominala egala cu 0.7xgrosimea minima a pieselor din imbinare.

4.3.2.2. Toate sudurile vor fi controlate vizual 100%. Nu vor fi admise lipsa de patrundere

4.3. Steel structures

All steel structures shall be hot dipped zinc plated to ensure the corrosion protection.

4.3.1. Material cutting will be done using mechanical means or cut welding. When cut welding is used, the heat affected zone, weld spatter and burrs should be removed (cleaned) by mechanical means. Accepted roughness on these surfaces should be aprox. Ra 25.

4.3.2. For welding work the manufacturer will use only welders qualified in accordance with the provisions of STAS 9532/1,2-74 and qualified welding procedures.

4.3.2.1. Welding material will be chosen by the manufacturer and will comply with the base material and the welding procedure. If not otherwise indicated in detail drawings, the following rules shall be applied:

- all welds shall be continuous seams on the full contact length of the joining parts;
- all butt welds shall be full penetration;
- all fillet welds shall have a nominal thickness equal to 0.7 x minimum thickness of the joining parts.

4.3.2.2. All welds shall be 100% visually inspected. The following imperfections

sau cordoane incomplete, arderea materialului de baza sau fisuri, stropi de sudura.
Sudurile respinse vor fi reparate prin excavare mecanica si resudare urmata de repetarea controlului.
4.3.3. Tolerante de fabricatie pentru piesele si subansamblele ale caror desene nu contin prevederi privind abaterile limita vor fi stabilite astfel:
- piese prelucrate mecanic, clasa medie cf. STAS 2300-88;
- piese taiate si indoite din tabla, cf. STAS 11111 -86 clasa 2; - subansamble si ansamble sudate, clasa AE STAS 9101/1,3-91.

4.3.4. Protectii de suprafata.
4.3.4.1. Toate piesele si subansamblele, cu exceptia organelor de asamblare STAS si a pieselor protejate prin vopsire vor fi zincate termic in baie. Grosimea de acoperire va fi de min. 80 microni. Piesele cu cavitati interne inchise vor avea o gaura de 6 mm diametru, plasata pe o suprafata nefunctionala, pentru a le proteja la suprapresiune pe perioada zincarii.
4.3.4.2. Organele de asamblare STAS vor fi zincate sau cromate cf. cerintelor STAS 2700/8-82.

4.3.5. Montajul constructiilor metalice se va face in conformitate cu detaliile prezentate in desenul "Amplasare Echipamente si Cabluri Antene".
4.3.4.1. Constructorul va anunta proiectantul sau beneficiarul despre eventualele nepotriviri constatate intre situatia din teren si indicatiile din proiect (profilele din constructia existenta, starea acestora sau a parapetelor pe care se ancoreaza suportii, existenta unor elemente de obstructie, etc.).

4. DATE DE AMPLASAMENT

- Conform NP-082-04 (Actiunea vantului), presiune de referinta a vantului in zona de amplasare este : q_{ref} =0.5 KN/m^2;

will be rejected: cracks, lack of fusion, incomplete seams, burns on base material, weld spatters. Rejected weld shall be repaired by machining and welding and then inspected again as above.

4.3.3. Manufacturing Tolerances for dimensions within the detail drawings will be as follows:

- machined parts, medium class acc. STAS 2300-88;
- parts manufactured from plates by cutting and bending, class 2 STAS 11111-86;
- welded assemblies, class AE STAS 9101/1,3-91.

4.3.4. Surface Protection
4.3.4.1. All parts and subassembly, except STAS fasteners and painted parts shall be hot dipped zinc plated. Minimum thickness of zinc coating 80 μm. Hollow parts will have a 6 mm diameter hole to protect them against overpressure during zinc dipping.

4.3.4.2. STAS fasteners shall be zinc or chromium plated acc. to STAS 2700/8-82.

4.3.5. Installation of steel structures will be done in accordance with the details within "Equipment and Cable Tray Layout" drawing.
4.3.4.1. Contractor shall notify the client or the designer about any possible discrepancy between the design and the actual situation on site, (material or bad shape of walls and parapets, the existence of obstructing elements, etc.) to avoid nonconformity and rework.

5. SITE DATA

- According to NP-082-04 (Wind's loads), reference pressure of wind in the site location is: q_{ref} = 0.5 kN/m^2;

- Conform CR 1-1-3-2005 (Evaluarea actiunii zapezii asupra constructiilor) in zona amplasamentului valoarea caracteristica a incarcarii din zapada pe sol este: $s_{0,k} = 2.0$ kN/m^2.
- Conform P100-2006 (Cod de proiectare seismica), in zona amplasamentului acceleratia de varf a miscarii terenului este $a_g = 0,32g$, iar perioada de colt a spectrului de raspuns este T_c=1.6 secunde.

6. CATEGORIA SI CLASA DE IMPORTANTA

Constructiile ce fac obiectul investitiei descrise mai sus se incadreaza in categoria C "normala", clasa de importanta a constructiei fiind "III".

7. CERINTE DE VERIFICARE PROIECT

In concordanta cu categoria si clasa de importanta a constructiei, proiectul faza DDE va fi supus verificarii pentru exigentele "A1" si "A2". Cerintele de verificare se refera numai la elementele si prinderile ce fac obiectul proiectului nu si la structurile pe care se realizeaza montajul. Pentru acestea este necesar avizul proiectantului initial sau o expertiza tehnica care sa ateste ca elementele nou introduse nu pun in pericol rezistenta si stabilitatea constructiei.

9. CONTROLUL CALITATII

8.1. Controlul calitatii lucrarilor descrise in prezentul "Memoriu tehnic" va fi efectuat de executant /constructor prin personal calificat (CTC).

8.2. Se vor urmari in special urmatoarele:

- existenta certificatelor de material;
- respectarea cerintelor dimensionale si a abaterilor limita, a cerintelor de montaj si a criteriilor de acceptare stabilite in partea scrisa a proiectului;

8.3. Beneficiarul sau reprezentantul sau

- According to CR 1-1-3-2005 (Account of snow loads over the building) the reference snow load is: $s_{0,k} = 2.0$ kN/m^2.
- According to the Code P100-2006, (The code of seismical design) the site is placed in an area having acceleration of top greenfield move is $a_g = 0,32g$ and T_c=1.6 seconds

6. CATEGORY AND IMPORTANCE CLASS

The civil work within the scope of the above described investment package belongs to the C category "normal", the importance class of the construction being "III".

7. REQUIREMENT FOR DESIGN CHECKING

In accordance with the category and importance class of the civil work, the design in the phase DDE shall be checked for the requirements "A1", "A2". The objectives for checked details consist in parts and subassembly of this project not in the main structure, building, existing tower. For this parts is needed an expertise or initial pr. agreement.

9. QUALITY CONTROL

8.1. The quality control of the works specified in this document shall be done by the manufacturer/contractor using qualified personnel (CTC).

8.2. The following main issues will be checked:

- existence of Material Certificates
- Compliance with the requirements applicable to dimensions and tolerances, installation and acceptance criteria stated in the detail documentation.

8.3. The client or his representative will

autorizat are dreptul sa efectueze inspectii la executant/constructor pe toata perioada realizarii lucrarilor cu scopul de a verifica respectarea cerintelor de fabricatie, montaj si control.
8.4. Inspectiile si verificarile facute de acesta nu elimina raspunderea executantului/constructorului privind calitatea lucrarilor.

10. RECEPTIA LUCRARILOR

10.1. Receptia lucrarilor se va face de catre beneficiar, executant si proiectant, avand la baza Check List intocmit si difuzat in prealabil de catre beneficar.
10.2. In cazul in care se constata deficiente de executie, se vor propune masuri de remediere si se va proceda la o noua receptie.

11. PROTECTIA MUNCII

Pe tot timpul lucrarilor de constructii trebuie respectate prevederile normativelor indicate mai jos:
- Legea nr. 90/1996 si Normele metodologice de aplicare;
- Norme generale de protectia muncii/1996
- Regulamentul privind protectia si igiena muncii in constructii/1993, republicat in 1995 – MLPAT;
- Ordinul 58/1991 – Echipamentul individual de protectie;
- N.S.S.M. pentru lucrul la inaltime:
- N.S.P.M. pentru alpinism utilitar.

Unitatile de constructii montaj, exploatare, revizie, reparatii precum si beneficiarul vor elabora instructiuni proprii specifice punctului de lucru.
Pe tot parcursul executiei, constructorul va lua toate masurile de protectia muncii necesare evitarii oricarui accident de munca, in functie de situatia pe teren.

12. PROTECTIA MEDIULUI

Poluarea acustica produsa de echipamentele RBS 2106 este in limitele

have the right to perform inspection at the manufacturer/contractor during the execution of work in order to check that the requirements for manufacturing installation and control are met.
8.4. These inspections and checks will not exonerate the manufacturer/ contractor from his responsibilities regarding the quality of works.

10. COMMISSIONING

10.1. Commissioning shall be done by the client, contractor and designer based on a Check List prepared and distributed by the client.

10.2. If there are construction deficiencies, there repair measures are foreseen and another commissioning will take place.

11. SAFETY OF WORK

During the construction works there should be observed the following rules:
- Law no.90/1996 and Methodology Norms for Application;
- General Norms for Safety of Works/1996;
- Rules for Safety and Hygiene Construction Works/1993, republished in 1995 – MLPAT;
- Order no. 58/1991 –Individual Safety Outfit and Equipment;
- Specific Norms of Safety Works for height work;
- Specific Norms of Labor Protection for Utilitarian Mountaineering.

The construction and assembling, the usual operation or revision and repair society will be issue norms of safety works specific each of site.
During the site works the constructor will apply all the necessary means for safety of works acc. to site conditions.

12. ENVIRONMENT PROTECTION

The acoustic pollution from Cosmote

admise. Influenta radiatiilor electromagnetice produse de antenele RF si MW asupra calitatii atmosferei este nesemnificativa, acestea fiind in doze admise. Ca masura suplimentara de prevedere, antenele sunt puse la inaltime si catre exterior.

Reziduurile si deseurile rezultate in timpul executiei site-ului se vor colecta in locuri special amenajate si vor fi evacuate ritmic de intreprinderile executante (civil, electric, etc.), pentru evitarea poluarii zonei.

13. ORGANIZARE DE SANTIER

Avand in vedere amploarea relativ redusa a lucrarilor de amplasare echipamente, nu este necesar un proiect detaliat de organizare de santier pentru lucrari.
In scopul scurtarii duratei de executie a lucrarilor, cresterea productivitatii muncii si folosirea utilajelor la capacitatea maxima, executantul isi stabileste un grafic cu etapele de realizare a investitiei pe faze de executie.

14. PLAN DE CONTROL AL PROIECTANTULUI

Prezentul plan de control este propriu proiectantului. Acesta completeaza si nu exclude prevederile din normele si litigiile in vigoare, precum si din Programul de asigurare a calitatii intocmit de executant.
Natura si complexitatea lucrarilor din prezentul proiect nu necesita existenta fazelor determinante. Din acest motiv ele nu sunt incluse in Planul de control al proiectantului.

Executantul si beneficiarul (prin dirigintele de santier) vor trebui sa anunte proiectantul cu minimum 24 de ore inaintea datei la care urmeaza sa se faca verificarile respective.

Neconvocarea in timp util a proiectantului pe santier va reprezenta preluarea de catre acestia a atributiilor si raspunderilor privind calitatea executiei.

equipment is in accepted limits. Electromagnetic radiation from RF and MW antennas has non-significant influence toward environment quality because these are in accepted limits. As a supplementary foresight measure, the antennas will be positioned at the height and toward ext. of building.

The waste and offal occurred during the site execution will be gathered in arranged special places and will be rhythmically evacuated by the executor (civil, electrical, etc.), to obtain a clean area.

13. THE SITE STRUCTURE

Considering the reduced scope of placing equipment work is not necessary a detailed project for site structure.
With a purpose to short the execution time, to increase the work productivity and to use equipment at maximum, the executor establishes a graphic with accomplish stages of investment on execution phases.

14. DESIGNER CONTROL PLAN

The checking up design hereby belong entirely to the Designer. This is the complete the technical assessment and does not exclude its specifications as well as the norms and laws in force and the Quality guarantee Program set up the Builder.
Work nature and complexity as a constitute in the present design does not necessarily include the intermediary steps. This is the reason why they do not make the object in the Designer's check up plan. The Builder and the User's (through the site supervisor) are doing to let the designer know 24 hours in advance the exact day and month the proper check ups to be performed.
In case that Designer will be not announced in the meantime, for site

In afara punctelor obligatorii pentru verificare, proiectantul va fi solicitat, prin grija beneficiarului si executantului, in urmatoarele situatii:
-la nerespectarea calitatii materialelor de executie;
-cand certificatele de calitate ale lucrarii nu corespund prevederilor de proiect.
Beneficiarul si executantul au obligatia ca la solicitarea proiectantului sa puna la dispozitia acestuia documentele necesare desfasurarii activitatii, prevazute in legile si normele in vigoare.

assistance the other two will be subject to take over the whole responsibility regarding the building quality. Except compulsory check up points the Designer is subject to be called by either the user or the builder in the following situation:
-in case of scarce quality of materials;
-in case that the quality prove certificate.
The User and the Builder are compulsory to set at the designer's disposal any documents any time they are needed in the conformity with the laws and norms in force.

PLAN FAZE DETERMINANTE

Nr crt	Obiectul Verificarii	Documen-tul scris care se incheie	Cine participa si semneaza	Faza determinanta
1.	Trasarea pozitiei catarge si platforma shelter	PTV	E; B	Nu
2.	Receptia la terminarea lucrarilor	Referat*	P;E;B	Nu

Intocmit : Ing. A. Ionita

LISTA MATERIALE CIVILE ***SITE BX 483 Bisca***

1. CONSTRUCTII MECANICE

Ansambluri de suporti antene, aparataj, scari acces, ingradiri, alte constructii speciale *(cu exceptia celor pentru lucrarile electrice):*

Nr.	*Denumire*	*Referinta*	*Cant.*	*Masa Kg/buc*	*Observatii*
1.	Catarg 5m	FD.01-Catarg 5m - 01.00	2	148.0	
2.	Catarg percte 5.5m	FD.01-Catarg 5.5m - 01.00	1	195.0	
3.	Teava suport antena MW 114mm - 1m	FD.01.Teava MW 1m.01.01	2	12.72	
4.	Suport distantier antena MW	FD.01.MW Bracket.01.01	4	15.84	
5.	Platforma betonata	FD.01.Platforma.01.01	1	271.00	armatura
6.	Ansamblu gard	FD.01.Gard.01.01	1	313.92	
7.	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	1	750.6	
8.	PMB support	FD.01.PMB support.01.01	1	59.30	
9.	Camin de vizitare + Capac	FD.01.Camin.01.10	1	10.56	
10.	Acoperis 2xRBS 2106	FD.01.Acoperis RBS.01.10	1	301.4	
11.	Scara acces	FD.01.Scara Acces.01.01	2	275.65	
12.	Platforma acces	FD.01.Platforma.01.01	2	137	
13.	Teava Antena RF-%%C60-3000mm	FD.01-Teava RF 3m - 01.01	2	12.72	
14.	Hexagon antenna poles support \U+03A6114 TO \U+03A660	FD-01.HEXAGON.01.01	4	6.75	
15.	Suport Cabluri pe zid	FD-01.SUPORT CABLURI.01.01	12	0.80	

2. ALTE MATERIALE

Materiale necesare la constructii, hidroizolatii etc.:

Nr. crt.	Denumire	Referinta	Cant.	Masa Kg/buc.	Obs.
1.	Beton Cl. 16/20	mc	4.73		
2.	Balast 0mm-32mm	mc	1.50		
5.	Teava PVC 110mm	m	5		

PREPARED		CHECKED		APPROVED	
Date	*Name*	*Date*	*Name*	*Date*	*Name*
05.06.2009	G.Ionita	05.06.2009	A.Ionita	05.06.2009	F.Balasoiu

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

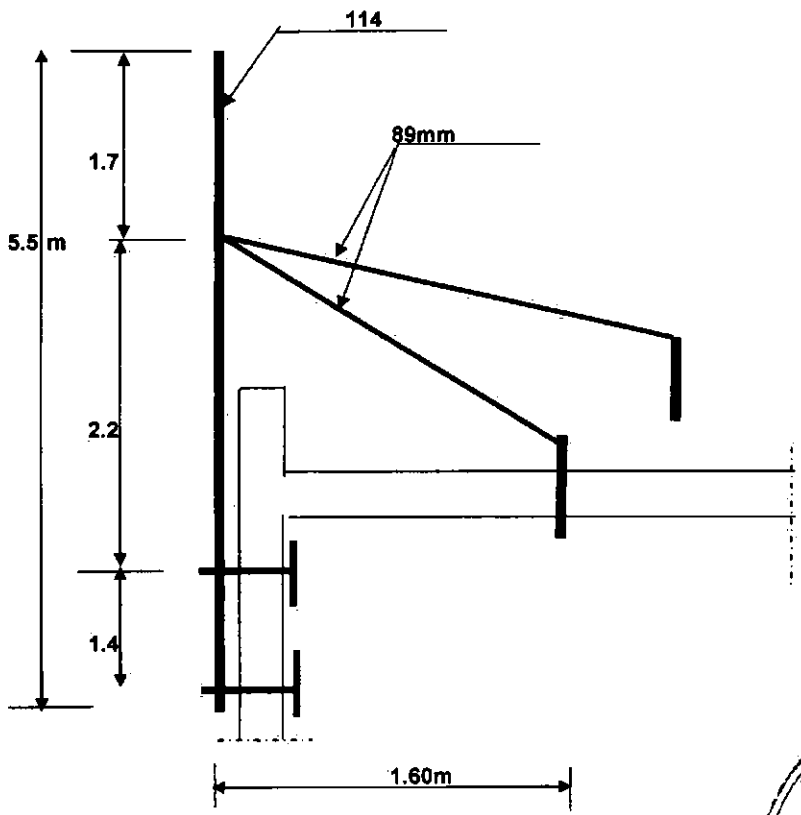
CALCULUL CATATGULUI DE 6 m PENTRU PERETE , CU CONTRAVINTUIRI

Pe CATARG se monteaza 3 antene RF cu suprafata vant 1,2mp 2 × 0.196
doua MW 1.2m 1.2
cu suprafata vant 2,3mp

CALCULUL DE REZISTENTA
CALCULUL LA STAREA LIMITA DE EXPLUATARE NORMALA

1) Schema statica

Φ 114



Evaluarea Incarcarilor

1) Din vint
Amplasament : ⟶ **Zona de expunere la vint (Buzau)**

- **Presiunea de referinta : Qref= 0.55 KN/m²**
- **Viteza mediata pe 2 min :** v_{2m} = **41 m/s**

Calculul intensitatii normate a fortei date de vint

$P_t^n = \beta\ c_t\ c_{h(hmed)}\ g_v\ A_t$

β - coeficient de rafala

β = 1.6 ⟶ Pentru perioade proprii < 0,2 s

c_t - coeficient aerodinamic al rezultantei

c_t= functie de geometria elementului

Tipul de amplasament I (amplasament deschis - terasa)

$c_{h(hmed)}$ - variatia cu inaltimea apresiunii dinamice de baza

$c_{h(hmed)}$= 1.54

A_t - aria proiectiei pe plan perpendicular directiei vintului
a suprafetei aferente rezultantei considerate

Calculul intensitatii normate(P_t^n) a fortei date de vint pe antena RF

β = 1.6

c_t= 1.5

$c_{h(hmed)}$= 1.54

A_t= 0.784 m^2

P_t^n= 1.593715 KN

Calculul intensitatii de calcul (P_t^c) a fortei date de vint pe antena RF

$P_t^c = P_t^n * \gamma_f$

γ_f= 1.5

P_t^c= 2.390573 KN

Calculul intensitatii normate(P_t^n) a fortei date de vint pe antena MW

β = 1.6

c_t= 1.3

$c_{h(hmed)}$= 1.54

$A_t=(3,14 * 1,2^2)/4$ = 1.1304 m^2

P_t^n = 1,6 * 1,3 * 1,54 * 0,55 * 0,07065 = 1.991494 KN

Calculul intensitatii de calcul (P_t^c) a fortei date de vint pe antene MW

$P_t^c = P_t^n * \gamma_f$

γ_f= 1.5

P_t^c = 1,5 *0,124468 = 2.98724 KN

Calculul intensitatii normate(P_t^n) a fortei date de vint pe catarg

β = 1.6

c_t= 0.9

$c_{h(hmed)}$= 1.54

A_t= 0.9234 m^2

P_t^n = 1.126253 KN

Calculul intensitatii de calcul (P_t^c) a fortei date de vint pe catarg

$P_t^c = P_t^n * \gamma_f$

γ_f= 1.5

P_t^c = 1.689379

Evaluarea incarcarilor din greutate proprie

1) Greutate antena RF + prinderile de catarg

G1 = 0.3 KN

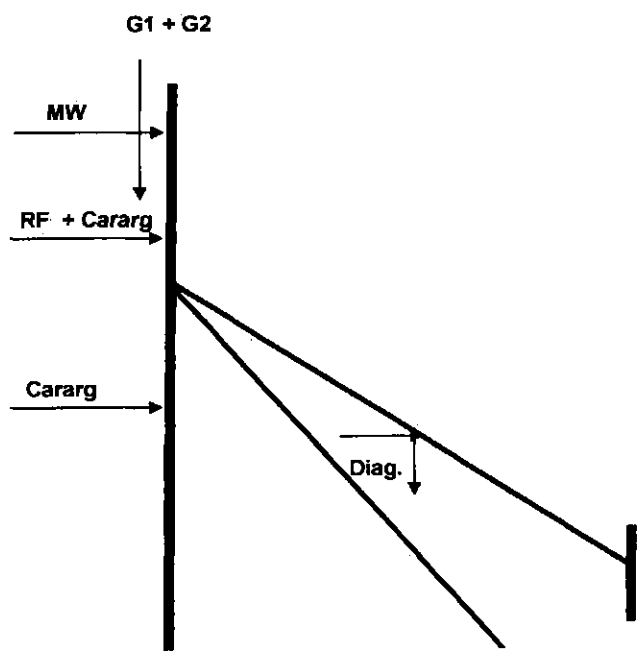
2) Greutate MW + prinderile de catarg

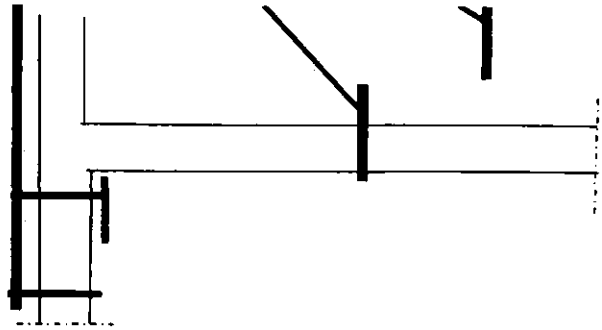
G2 = 1.1 KN

3) Greutate catarg + contravintuiri

G3 = 1.95 KN

Pozitia aplicarii rezultantelor incarcarii





CALCULUL CARACTERISTICILOR SECTIONALE

S1) **CATARGUL** $\phi 114*5$

d_{ext}= 11.5 cm

Gr = 0.5 cm

d_{inter}= d_{ext}- 2xGrosime= 10.5 cm

Aria sectionala : *A* (cm^2)

$A = (d_{ext}^2 - d_{int}^2)x\pi/4$ = 17.27 cm^2

Momentul de inertie : *I* (cm^4)

$\alpha = d_{int} / d_{ext}$ = 0.913043

$I = [(\pi x d_{ext}^4)/64]x(1-\alpha^4)$ = 261.74844 cm^4

Modul de rezistenra : *W* (cm^3)

$W=[(\pi x d_{ext}^3)/32]x(1-\alpha^4)$ = 45.521467 cm^3

Momentul de torsiune : I_t (cm^4)

$I_t=2xI$ = 523.4969 cm^4

Raza de inertie : *i* (cm)

$i = (I / A)^{0.5}$ = 3.893103 cm

S2) **CONTRAVINTUIRE** $\phi 89*3.5$

d_{ext}= 8.9 cm

Gr = 0.35 cm

d_{inter}= d_{ext}- 2xGrosime= 8.2 cm

Aria sectionala : A (cm^2)

$A = (d_{ext}^2 - d_{int}^2) \times \pi / 4 =$ 9.39645 cm^2

Momentul de inertie : I (cm^4)

$\alpha = d_{int} / d_{ext} =$ 0.921348

$I = [(\pi \times d_{ext}^4)/64] \times (1-\alpha^4) =$ 86.006881 cm^4

Modul de rezistenra : W (cm^3)

$W = [(\pi \times d_{ext}^3)/32] \times (1-\alpha^4) =$ 19.327389 cm^3

Momentul de torsiune : I_t (cm^4)

$I_t = 2 \times I =$ 172.0138 cm^4

Raza de inertie : i (cm)

$i = (I / A)^{0.5} =$ 3.025413 cm

Caracteristici sectionale

Sectiunea	I(cm^4)	W(cm^3)	A(cm^2)	i(cm)
Φ114 x 5	261.7484	45.52147	17.27	3.893103
Φ89 x 3.5	86.00688	19.32739	9.39645	3.025413

CALCULUL DE REZISTENTA

Calculul catargului :

Verificare de rezistenta :

$\sigma = N / \varphi A + M / W < R_{adm}$

N= 14 KN
M= 5 KNm
A= 17.27 cm^2
W= 45.52147 cm^3

OLT 35 R_{adm}= 210 N/mm^2

$\lambda = l_f / i$ **l_f= 350 cm**
i= 3.893103 cm

λ = 89.90258 $< \lambda_a$=100(pt.catarg)
φ = 0.69

σ= 121.5869 N/mm^2

Calculul contravintuirilor :

Verificare de rezistenta :

$\sigma = N / \varphi A + M / W < R_{adm}$

N= 13 KN
M= 1.4 KNm
A= 9.39645 cm^2

W= 19.32739 cm^3

OLT 35 R_{adm}= 210 N/mm^2

$\lambda = l_f / i$ l_f= 370 cm

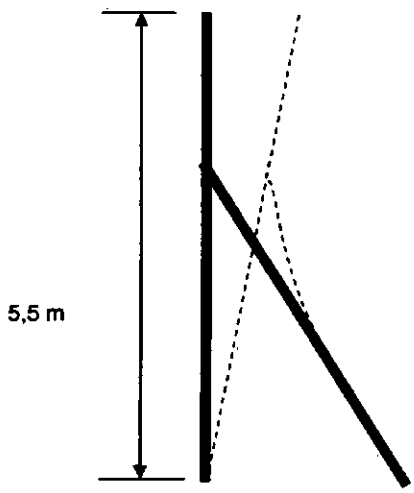
i= 3.025413 cm

λ = 122.2973 $<\lambda_a$=150(pt.diagonale)

φ = 0.28

σ = 121.8468 N/mm^2

CALCULUL LA STAREA LIMITA DE EXPLUATARE NORMALA
(verificarea sagetii)



Rotirea la Varf
δ = 0.73

Torsiunea la Varf
$\delta = 0.42^0$

VERIFICAREA SURUBURILOR DIAGONALELOR

Φ_{SURUB}= 12

SURUBURI M12, GR. 5.8.
Numar suruburi = 1
R_{forf}= 180 N/mm^2
R_{int}= 240 N/mm^2
R_{pg}= 480 N/mm^2
T^{MAX}= 13 kN
Efortul care solicita un surub :
F = T / nr.suruburi = 13000 N = 1.3 Tf
Efortul capabil al unui surub la forfecare
$N_{cap}^{forf} = n_f ((\pi d_0^2)/4) R_f$= 16117.02 N = 1.61 Tf

egnatia ROM

cosmote

Nume Proiect: **BX483_BISCA**
Nr Proiect: **BX 483**
Nume Proiect:

BREVIAR DE CALCUL

Catarg 5m-2.4m

REVISIONS				
Rev.	*Description*	*Date*	*Prepared*	*Checked*
0	First issue	-	-	-

PREPARED		CHECKED		APPROVED	
Date	*Name*	*Date*	*Name*	*Date*	*Name*
30.09.2007	ing. N.S.	30.09.2007	ing. F.B.	30.09.2007	ing. F.I.

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. PITESTI - ROMANIA

1. CONSIDERATII GENERALE

Prin prezenta lucrare se verifica un catarg de 5.0m cu distanta intre prinderi de 2.4m, amplasat pe peretele rezervorului de apa din Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

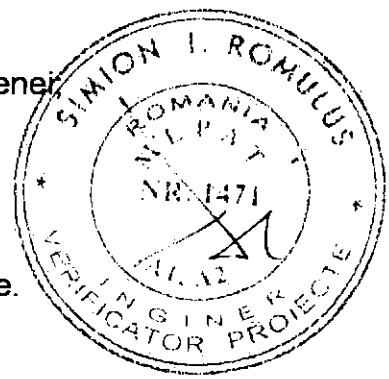
Catargul sustine urmatoarele antene :

-1 antena RF (2.58x0.26m), inaltime maxima +15.5m, baza antenei

-1 antena MW 0.6m, la h=+16.50m;

-1 antena MW 0.6m, la h=+17.0m;

Calculul structural al catargului s-a facut prin metoda elementelor finite.



2. CALCULUL STATIC

Modelul de calcul static cuprinde sistemul structural modelat prin elemente finite tip BEAM si sistemul de incarcari modelat ca forte concentrate in noduri.

Inaltimea rezervor H=16.0m, inaltime catarg 5.0m, distanta intre prinderi 2.4m.

Greutatea proprie a structurii s-a luat automat in calcul prin program, cunoscandu-se greutatea specifica a otelului introdusa in caracteristica de material mentionata anterior.

Ca incarcari orizontale s-au luat fortele din vant pe structura si cele corespunzatoare antenelor.

3. DETERMINAREA FORTELOR DIN VANT

Conform NP-082-04 (Actiunea vantului) avem:

$F_{wj} = q_{ref} * c_e(z) * c_d * c_{fj} * Aref$

Presiunea vantului conform zonei de amplasare este :

q_{ref} =~55 daN/m^2 (fig A.2)

Viteza medie din vant :

$v_m(z) = cr(z) * ct(z) * v_{ref}$

Coeficientul de expunere $c_e(z_j)$:

$c_e(17) = 2.14$

Coeficientul dinamic de raspuns:

$Cd=[1+2 * g * Iv(z_{equ}) * sqrt(Q^2+R^2)] / [1+7 * Iv(z_{equ})]$

Intensitatea de turbulenta :

$Iv(z_{equ})=k_R / \{cr(z) * ct(z)\} = 0.19 / [cr(z) * 1]$

$Cd=[1+2 * g * Iv(z_{equ}) * sqrt(Q^2+R^2)] / [1+7 * Iv(z_{equ})]= 1.23$

Coeficientul fortei c_f :

Pentru catarg :

$c_f= c_{f,0} * \Psi\lambda$

Numarul lui Reynolds Re :

$Re=b * v_m(z) / (15 * 10^{-6})$

$Re(0.114)=0.30 * 10^6$

Catargul este galvanizat, k=0.2

$c_{f,0} = 1.1$

$\Psi\lambda$

$\lambda = h / b$

$\lambda=22$

Opacitatea :

$\phi=A/Ac=1$

$c_f = c_{f,0} * \Psi\lambda = 1.1 * 0.8 = 0.88$

Pentru antena MW avem

$c_f = c_{f,0} * \Psi\lambda = 2.5 * 0.6 = 1.50$

Pentru antene RF avem

$c_f = c_{f,0} * \Psi\lambda = 2.5 * 0.68 = 1.70$

$F_{RF} = q_{ref} * c_e(17) * c_d * c_{fj} * A_{ant} = 55 * 2.14 * 1.23 * 1.70 * (2.58 * 0.26) = 165$ daN

$F_{MW06} = q_{ref} * c_e(17) * c_d * c_{fj} * A_{ant} = 55 * 2.14 * 1.23 * 1.5 * 0.29 = 63$ daN

$F_{catarg} = q_{ref} * c_e(17) * c_d * c_{fj} * A = 55 * 2.14 * 1.23 * 0.88 * 0.114 = 14.5$ daN/ml

Caracteristicile sectiunilor							
Denumire	A (cm²)	Iy Iz Iyz It (cm4)	Iw (cm6)	Welyinf Welysup Welzinf Welzsup (cm3)	Wply Wplz Wt (cm3)	Avy Avz (cm²)	Sy Sz (cm³)
D11.4/0.4	13.82	209.35 209.35 0.00 418.70	0.00	36.73 36.73 36.73 36.73	48.42 48.42 73.46	6.92 6.92	2.60 2.60

Descrierea materialelor

Materiale Izotrope						
Denumire	Rigiditate longitudinala E (kg/cm²)	Rigiditate transversala G (kg/cm²)	Coeficient Poisson ν	Densitate ρ (kg/cm3)	Dilatatie termica α (1/°C)	Amortizare %
OLT 35	2.14e+006	8.24e+005	0.30	0.01	1.20e-005	5.00

4. IPOTEZE DE INCARCARE

1. Greutate permanenta (structura+antene); (GP)
2. Vant pe antene si catarg

5. COMBINATII DE INCARCARI

γ_G=1.35

γ_Q=1.5

Descrierea combinatiilor

Descrierea combinatiilor		
Nr	Nume	Detalii
101	1.35x[1 PP]+1.5x[2 CP]	1.35*1 + 1.50*2
102	1x[1 PP]+1x[2 CP]	1.00*1 + 1.00*2

6. REZULTATE

Pentru fiecare ipoteza de incarcare si element al structurii (nod,bara) s-a obtinut cate o stare de eforturi si deplasari.Cu ajutorul coeficientilor de incarcare si gruparile prezentate anterior s-a efectuat un numar de combinatii de eforturi bazate pe principiul suprapunerii liniare .

Deplasari si rotatii maxime

Deplasarea maxima d=2.84 cm

Unghiul maxim la varf= 0.98^0

Verificare elemente

Teava 114x4

A = 13.8 cm^2 I = 209 cm^4

N_{max} = -150daN

M_{max}= 63800 daN x cm

$$i = \sqrt{\frac{I}{A}} = \sqrt{\frac{209}{13.8}} = 3.89cm$$

$$\lambda = \frac{300}{3.89} = 77.1 \Rightarrow \Phi = 0.79$$

$$\sigma = \frac{150}{0.79 \times 13.8} + \frac{(63800) \times 11.4}{0.9 \times 2 \times 209} = 1947daN/cm^2 < 2100x1.1daN/cm^2$$

Forta maxima orizontala care actioneaza asupra peretelui in reazemul superior este 750 daN.

Prinderea de perete s-a realizat cu placa -contraplaca (ptr. distribuirea eforturilor) si tije filetate M16.

Efortul la intindere pentru o tija filetata M16 este 1.57x2200 =3454 daN > 750 daN/numarul tije.

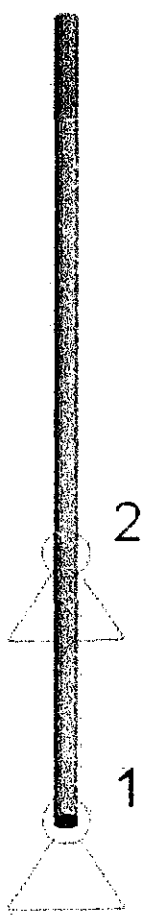
S-a adoptat constructiv solutia din desenul de executie (8 tije partea superioara si 8 partea inferioara) pentru evitarea deformatiilor locale ale peretelui.

7. CONCLUZII

Structura a fost supusa starilor de incarcari conform temei .

Ipotezele de incarcare si combinatiile lor corespund standardelor in vigoare .

In aceste conditii , catargul de 5.0m cu distanta intre prinderi 2.40m respecta conditiile de rezistenta si stabilitate continute in standardele aplicabile si a celor din tema .



Actiuni in reazeme

Reazeme punctuale

Reactiuni in reazemele punctuale dupa caz de incarcare - reper global							
Cazuri de incarcare	Nr.	FX(kg)	FY(kg)	FZ(kg)	MX(kg*m)	MY(kg*m)	MZ(kg*m)
101	1(R)	-266.06	0.00	-26.13	0.00	0.00	0.00
	2(R)	704.06	0.00	-177.24	0.00	0.00	0.00
Max(nr. element)		704.06(2(R))	0.00(1(R))	-26.13(1(R))	0.00(1(R))	0.00(1(R))	0.00(1(R))
Min(nr. element)		-266.06(1(R))	0.00(1(R))	-177.24(2(R))	0.00(1(R))	0.00(1(R))	0.00(1(R))
Suma		438.00	0.00	-203.37	0.00	0.00	0.00

Reactiuni in reazemele punctuale dupa element - reper global							
Nr.	Cazuri de incarcare	FX(kg)	FY(kg)	FZ(kg)	MX(kg*m)	MY(kg*m)	MZ(kg*m)
1(R)	101	-266.06	0.00	-26.13	0.00	0.00	0.00
2(R)	101	704.06	0.00	-177.24	0.00	0.00	0.00

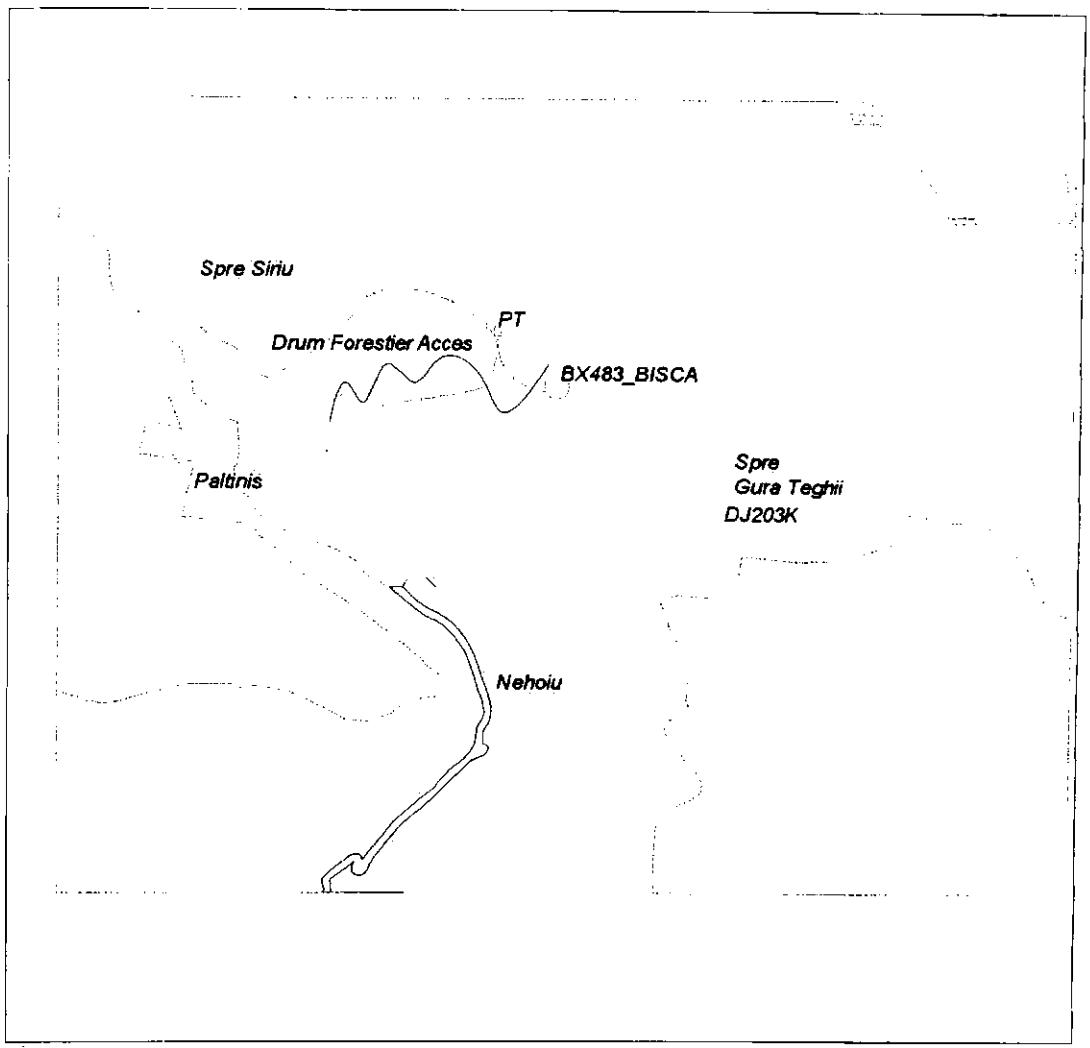
Fz forta axiala " + " intindere

" – " compresiune

Originea sistemului de coordonate este la baza catargului.

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

PLAN DE SITUATIE

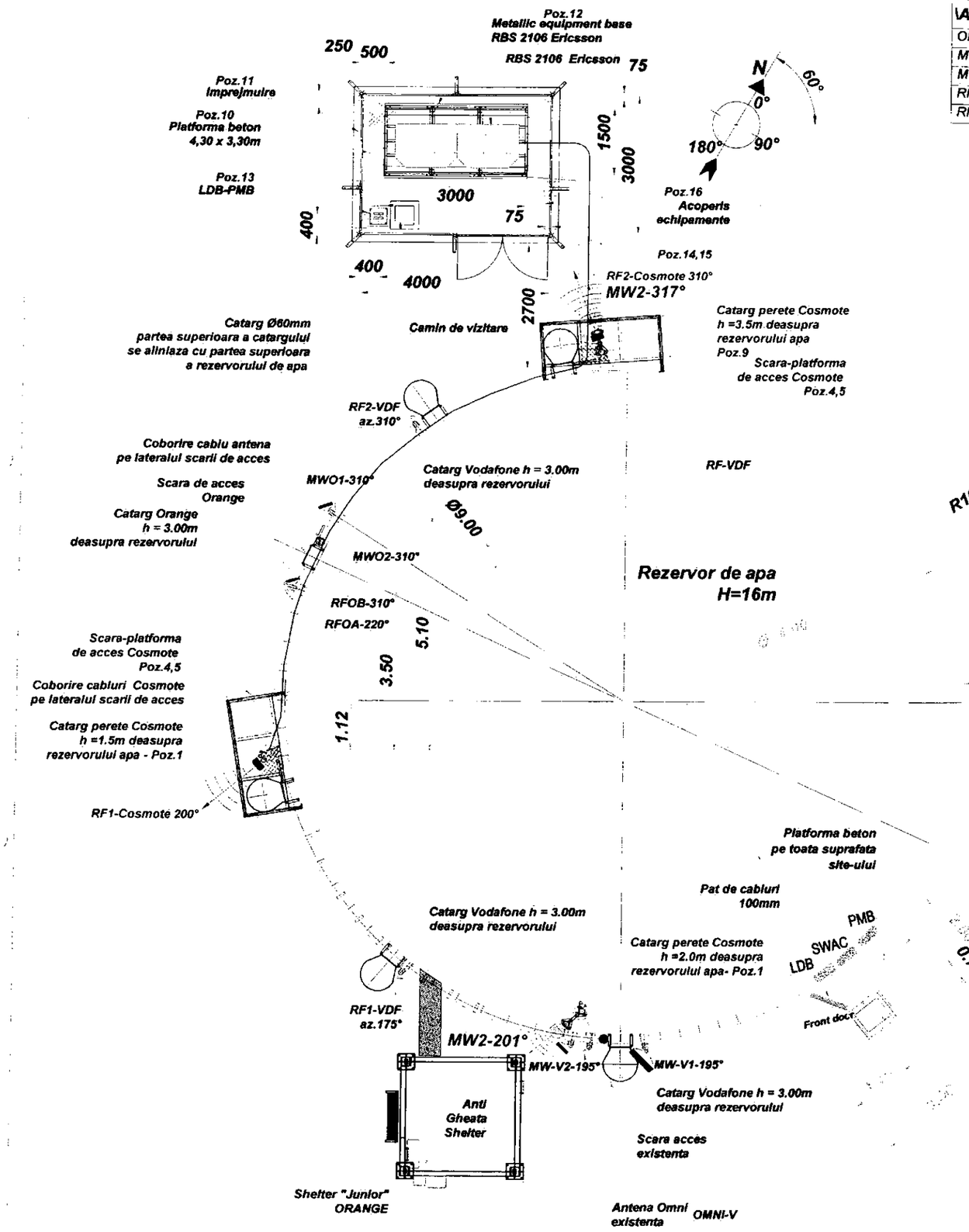


cosmote	BENEFICIAR	**BX483_BISCA** ***Dealul Arselor, Castel Siriu, loc. Nehoiu, jud Buzau***	ANTREPRENOR GENERAL egnatia ROM

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI-ROMANIA

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD01
				Titlu proiect ***BX483_BISCA***	Faza : ***DDE-PAC***
Specificatie	Nume	Semnatura	Scara -	Titlu plansa ***PLAN DE SITUATIE***	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu				
Proiectat	ing. A.Ionita		Data ***05.04.09***	Nr. desen : ***FD.01.BX_483.01.00***	Rev.: 0
Desenat	ing. G.Ionita				



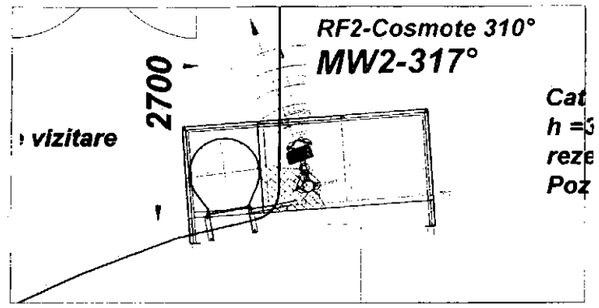
Vodafone \Antenna	Antenna type	Height	Azimuth
OMNI		17.00m	-
MW-V1	Ø 0.60m	16.50m	195°
MW-V2	Ø 0.30m	17.00m	195°
RF-V1	-	16.50m	175°
RF-V2	-	19.00m	310°

Orange \Antenna	Antenna type	Height	Azimuth
RFOA		19.00m	220°
RFOB		19.00m	310°
MWO1	Ø 0.30m	15.30m	310°
MWO2	Ø 0.30m	16.60m	310°

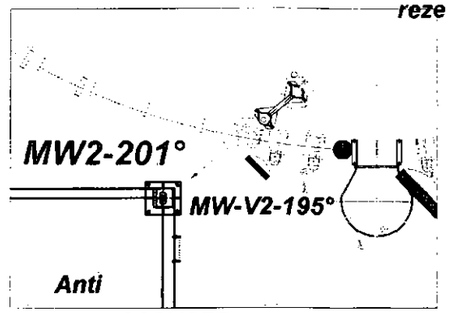
Cosmote \Antenna	Antenna type	Height	Azim
MW1	0.6m	17.00m	2(
MW2	0.6m	16.50m	31
RF1	739 636	17.00m	2(
RF2	741 785	19.00m	31

** inaltimea de la partea superioara a antenei RF si axul MW la sol*

Detaliu Plan Instalare Echipamente COSMOTE



Detaliu Plan Instalare Echipamente COSMOTE



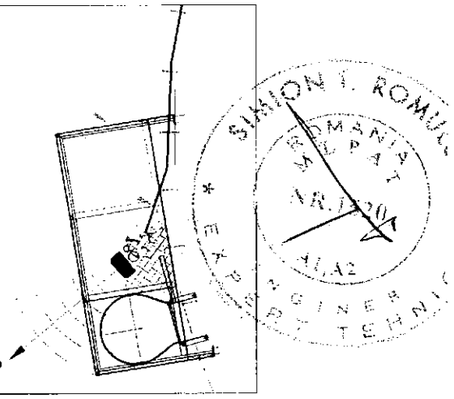
Detaliu Plan Instalare Echipamente COSMOTE

R10.00

Scara-platforma
de acces Cosmote
Poz.4,5

Coborire cabluri Cosmote
pe lateralul scarii de acces

Catarg perete Cosmote
h =1.5m deasupra
rezervorului apa - Poz.1



Lucrari de efectuat:

- Se vor monta trei catarge-suport (fixate pe peretele de beton) doua de 5m si unul de 5.5m, pentru antenele RF1,RF2, MW1 si MW2;
- Se vor monta doua antene MW Ø0,60m pe suport offset prinsi de catarg si doua antene RF1 tip 739 636 az.200°si RF2 tip 741 785 az.315°;
- Se vor monta doua scari-platforme de acces la noile catarge;
- Se vor monta suporti tip Omega pe peretele castelului, la H~2.30m, intre cele doua scari de acces la catarg
- Se va instala un pat de cabluri L=5.00m, de la peretele castelului la echipamente .
- Se vor instala hangheri pentru coborare feederi pe scara de acces la catarg.
- Se va va nivela platforma existenta si realiza o dala noua betonata(4.30x3.30m) pe care se va instala rama echipamente - 2x RBS 2106 si un acoperis echipamente.Se va imprejmui locatia CTE cu un gard tip 4.0x3.0m
- Se vor instala tablourile PMB, LDB pe suport independent , pe platforma.

COSMOTE | BENEFICIAR | **BX483_BISCA** | **Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau** | ANTREPRENOR GENERAL | egnati RC

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143; J40/16004/2008
1 Decembrie 19[illegible] nr. 47, Bl. J40, Sc. 1, Ap.130
Localitatea Bu[illegible]

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect: FD

Titlu proiect: **BX483_BISCA**

Faza: **DDE-**

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:100
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		05.04.09

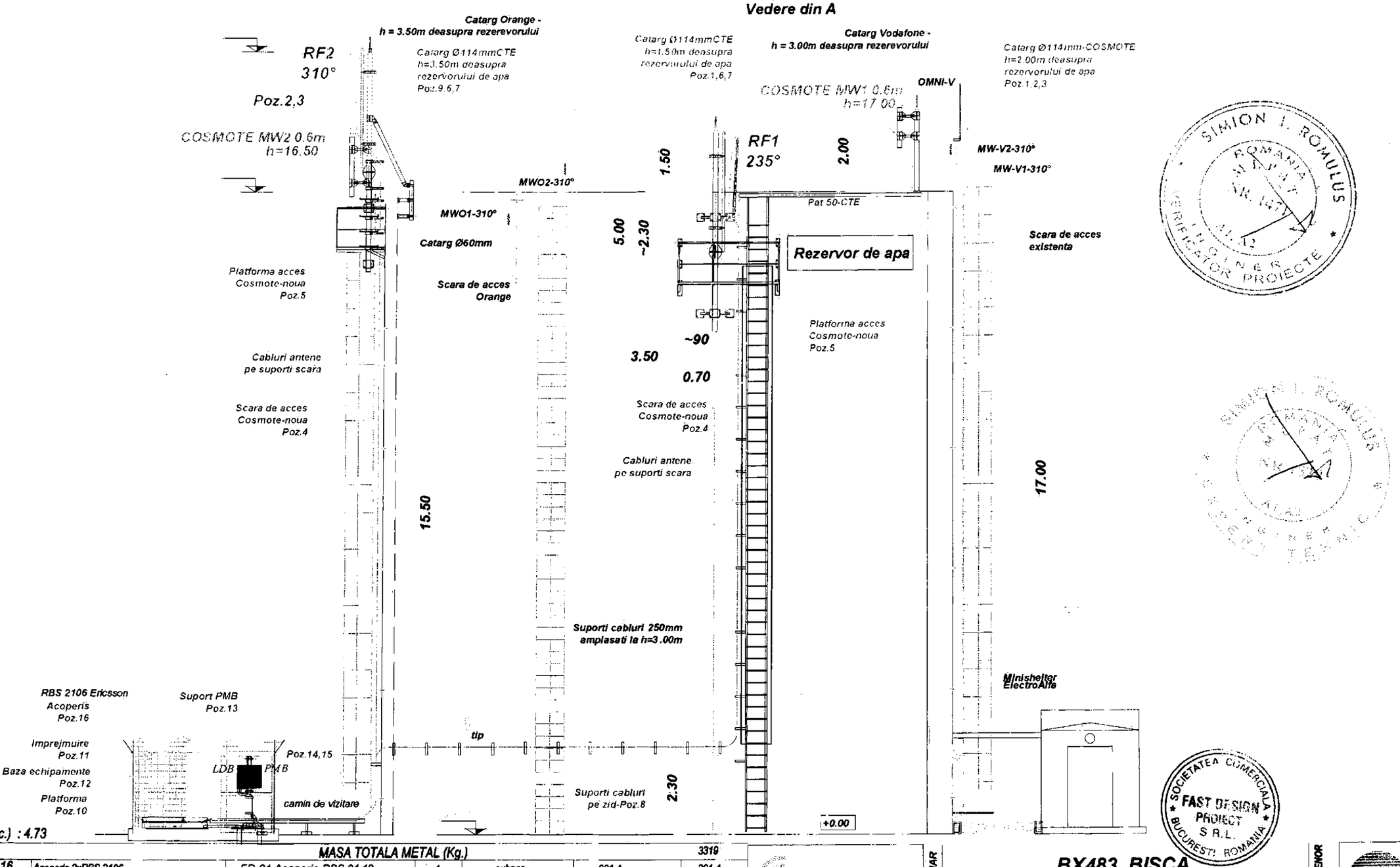
Titlu plansa: **SITUATIE PROPUSA**
AMPLASARE ECHIPAMENTE-PLAN

Plansa

Nr. desen: **FD.01.BX_483.02.10**

Rev.:

Vedere din A



VOLUM BETON (mc.) : 4.73

A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total Quant
	MASA TOTALA METAL (Kg.)					3319
16	Acoperis 2xRBS 2106	FD.01.Acoperis RBS.01.10	1	subans.	301.4	301.4
15	Pat de cabluri orizontal 500mm	M3144PP01	2	subans.	lung.totala . 5m	
14	Cot orizontal 500mm	M3148PP01	1	subans.		
13	PMB support	FD.01.PMB support.01.01	1	subans.	59.30	59.30
12	Base for outdoor equipment 3.0x1.5m	FD.01.Base RBS 2106.01.00	1	subans.	750.6	750.6
11	Ansamblu gard	FD.01.Gard.01.01	1	subans.	313.92	313.92
10	Platforma betoneta	FD.01.Platforma.01.01	1	subans.	324.6/4.20*	324.6/4.20*
9	Catarg perete 5.5m	FD.01-Catarg 5.5m - 01.00	1	subans.	195.00	296.00
8	Suport Cabluri pe zid	FD-01.SUPORT CABLURI.01.01	12	subans.	0.80	9.60
7	Hexagon antenna poles support Φ114 TO Φ60	FD-01.HEXAGON.01.01	4	subans.	6,75	27,00
6	Teava Antena RF-Ø60-3000mm	FD.01-Teava RF 3m - 01.01	2	subans.	12,72	25.44
5	Platforma acces	FD.01.Platforma.01.01	2	subans.	137.00	274.00
4	Scara acces	FD.01.Scara Acces.01.01	2	subans.	275.65	551.3
3	Suport distantier antena MW	FD.01- Bracket MW 114-114 - 01.01	4	subans.	15.84	63.63
2	Teava suport antena MW Ø114mm - 1m	FD.01-Teava MW 1m - 01.01	2	subans.	12.72	25.44
1	Catarg 5m	FD.01-Catarg 5m - 01.00	2	subans.	148.00	296.00

BENEFICIAR: COSMOTE

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: egnati RC

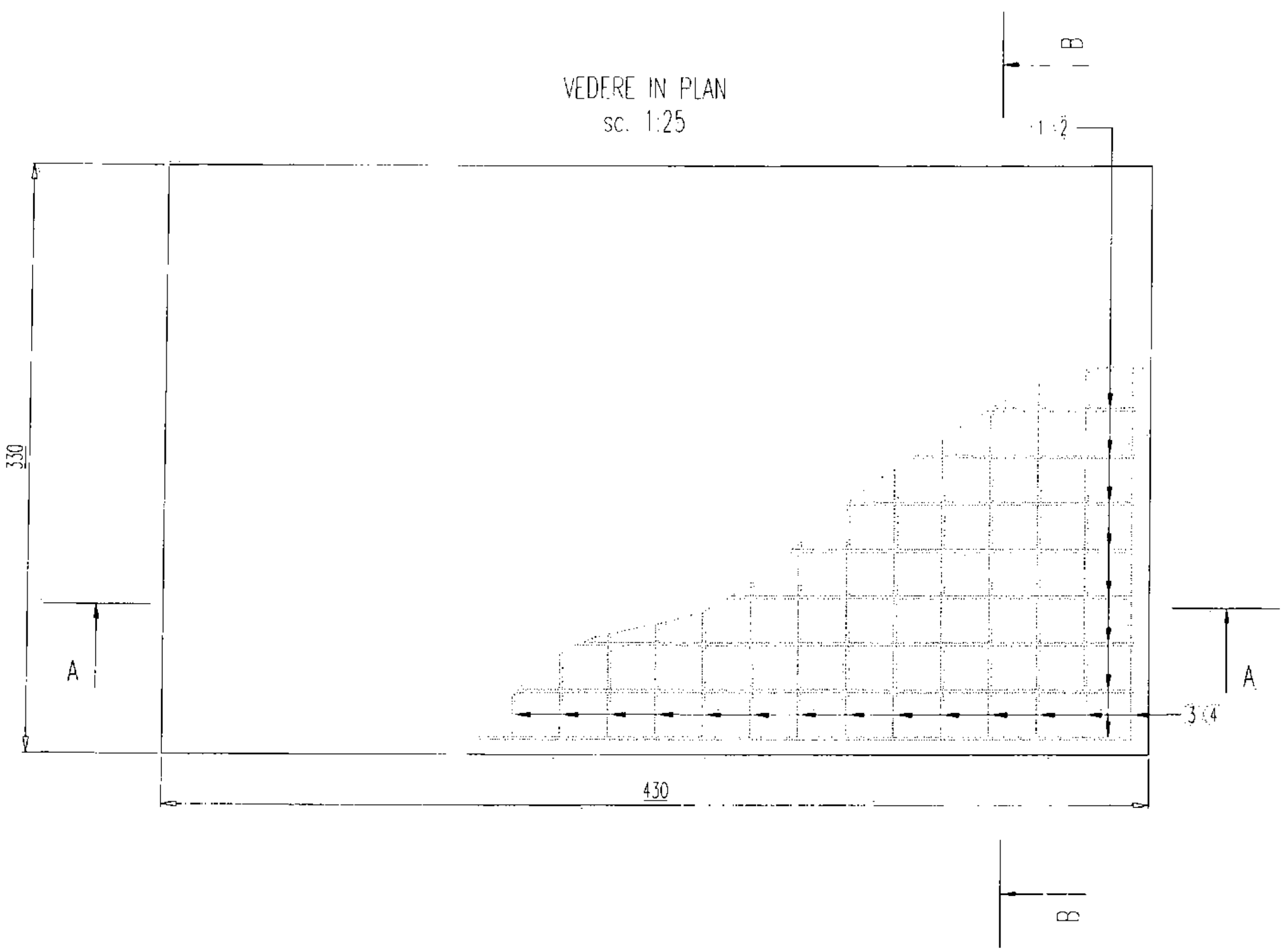
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

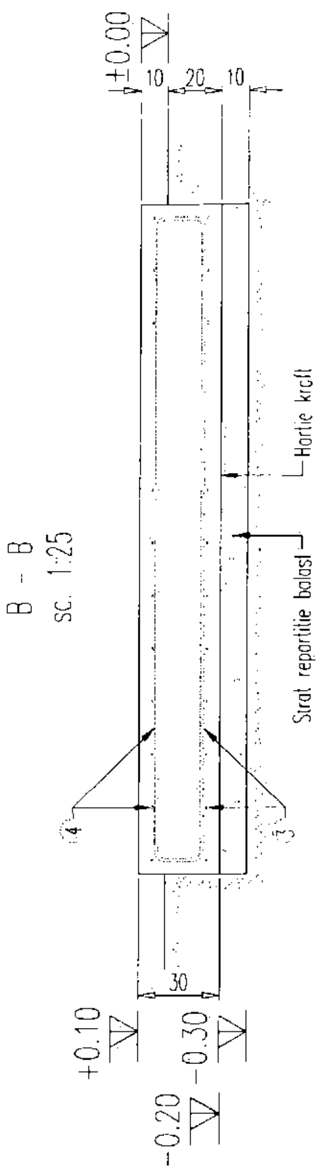
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

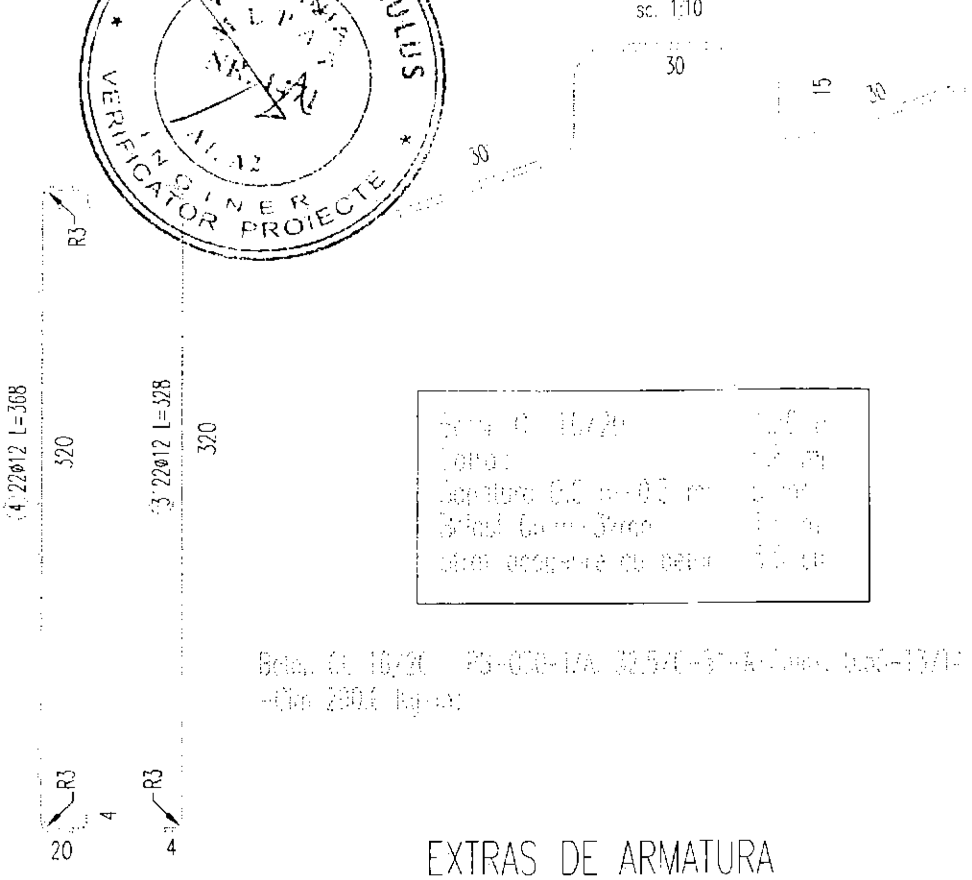
Specificatie	Nume	Semnatura
Sef Proiect	ing. F.Balasoiu	
Proiectat	ing. A.Ionita	
Desenat	ing. G.Ionita	

Scara: 1:100
Data: 05.04.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect: FD.
Titlu proiect: BX483_BISCA
Faza: DDE-
Titlu plansa: SITUATIE PROPUSA
AMPLASARE ECHIPAMENTE-ELEVATIE
Plansa
Nr. desen : FD.01.BX_483.02.20
Rev.:



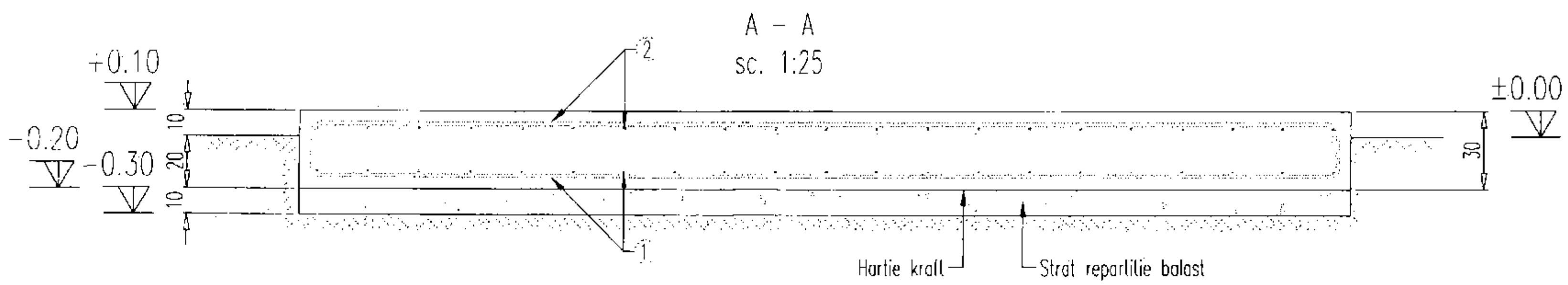


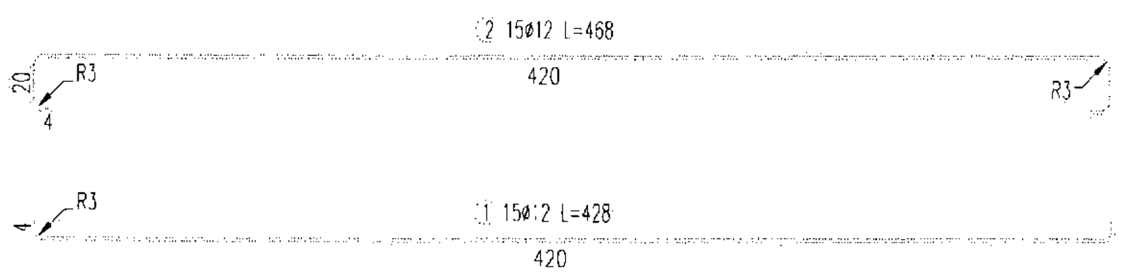


Beton C 16/20 - PS-CEM-I/A 32.5R-1-A-...

EXTRAS DE ARMATURA

MARCA	ø (mm)	NUMAR BUCATI	L (m)	LUNGIMI / ø (m) PC52 ø12
1	12	15	4.28	67.5
2	12	15	4.68	70.2
3	12	22	3.28	72.16
4	12	22	3.68	80.96
5	12	12	1.20	14.40
LUNGIMI TOTALE / ø (m)				305.22
GREUTATEA / ml / ø (Kg/ml)				0.888
GREUTATEA / ø (Kg)				271
GREUTATEA TOTALA (Kg)				271





COSMOTE | BENEFICIAR | **BX483_BISCA** | ANTREPRENOR GENERAL | egnati

Dealul Arselor - Castel Siriu, loc. Neholu, jud Buzau

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40, Sc.J, Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:25
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		14.04.09

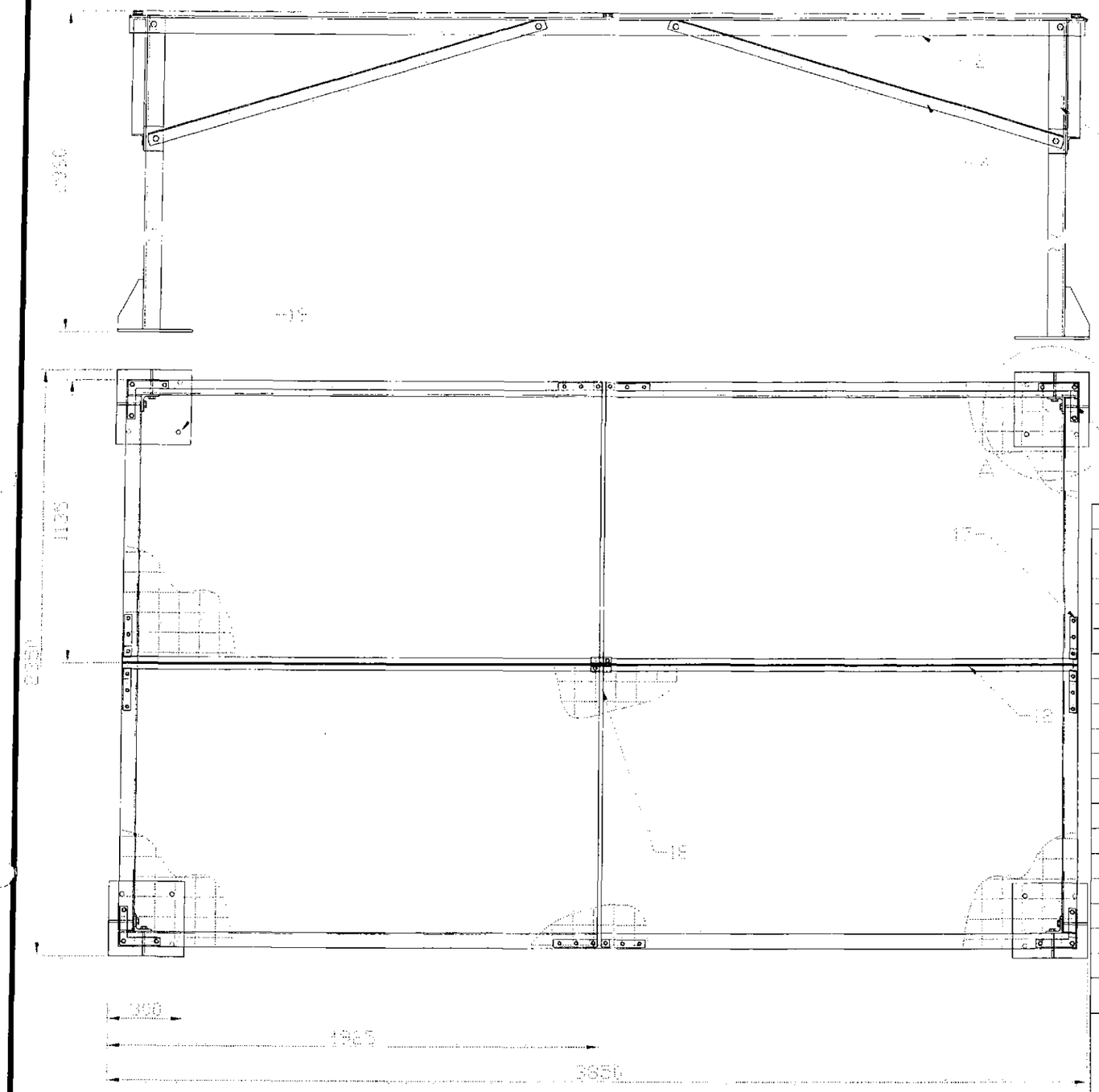
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

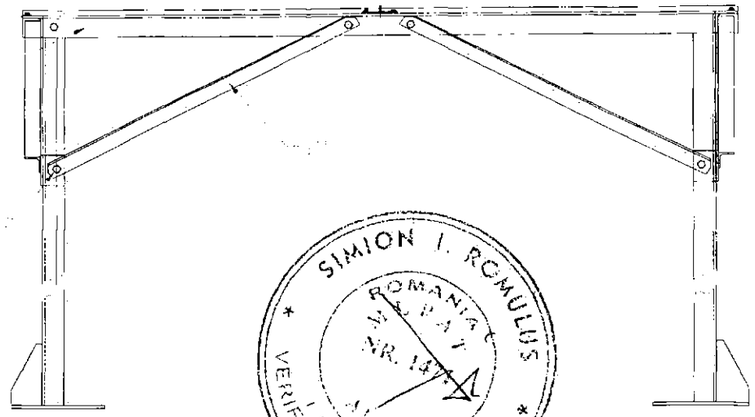
Titlu proiect **BX483_BISCA**

Titlu plansa **PLATFORMA ECHIPAMENTE**

Nr. desen : **FD-01.PLATFORMA.01.10**

Proiec FD
Faza : DDE-
Plansa
Rev.:





SIMION I. ROMULUS
ROMANIA
NR. 1
INGINER
VERIFICATOR PROIECTE

Masa metal : 301.4Kg

19	Conexpand M16x140	–	16			0,21
18	Intaritor de mijloc	KPI-BX378-02-05.3	2	OL 37	subansamblu	2.08
17	Tb. 3x30x170	SR EN 10029	8	OL 37	-	0.125
16	Piulita M8	STAS 4071-89	38	gr.6		0.005
15	Saiba A 8	STAS 5200-87	38	OL 34		0.004
14	Saiba Grower N 8	SR 7666/2-94	38	OLC 55A		0.001
13	Surub M8x45	SR ISO 4017-94	38	gr. 8.8		0.040
12	Intaritor	KPI-BX378-02-05.2	1	-	subansamblu	3.82
11	Tb. 3x160x160	SR EN 10029	4	OL 37	3x160x160	0.209
10	L 50x50x5 - A	STAS 424-91	4	OL 37	L=1096	4.25
9	Piulita M12	STAS 4071-89	24	gr.6		0.012
8	Saiba A 12	STAS 5200-87	24	OL 34		0.009
7	Saiba Grower N 12	SR 7666/2-94	24	OLC 55A		0.017
6	Surub M12x45	SR ISO 4017-94	24	gr. 8.8		0.058
5	L 60x60x6 - A	STAS 424-91	2	OL 37	L=2150	11.9
4	L 50x50x5 - A	STAS 424-91	4	OL 37	L=1644	6.37
3	Picior sprijin	KPI-BX378-02-05.1	4	-	subansamblu	30,39
2	L 60x60x6 - A	STAS 424-91	2	OL 37	L=3770	21.04
1	Plasa 4x50x50	-	1	tip GEANOMET	1200x3770	27.8
A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total C

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

NOTE:

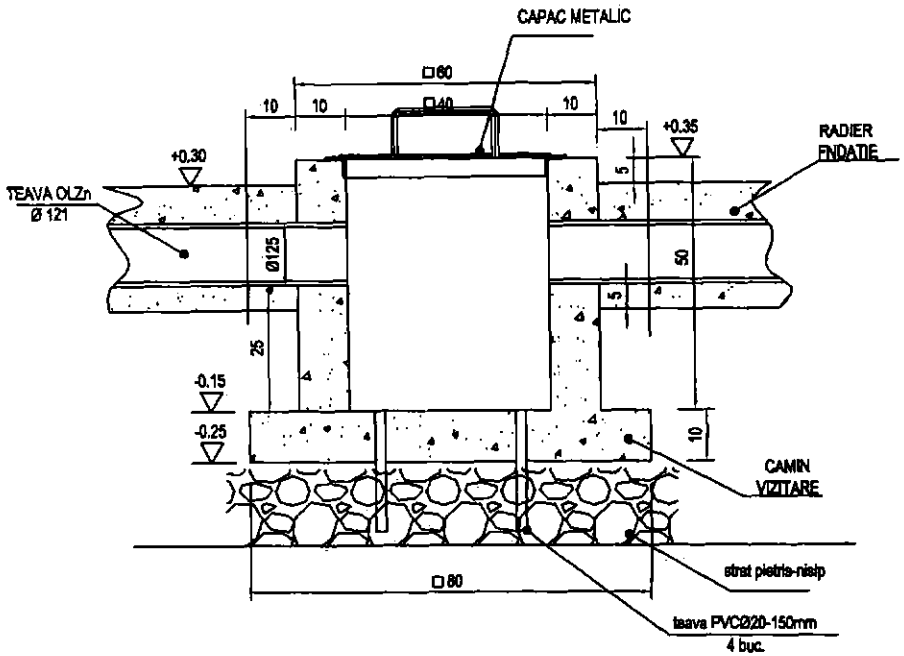
1. Abaterile limita pentru prelucrari mecanice conform SR EN 22768-1:95, clasa m.
2. Abateri limita pentru constructii sudate conform SR EN ISO 13920:1998 clasa F.
3. Abateri limita pentru prelucrari prin deformare plastica conform STAS 11111-86, clasa 2.
4. Dupa sudura, subansamblul se va detensiona.
5. Subansamblul sudat se va zinca la cald conform STAS 7221-90.
6. Stratul de zinc este minim 80mm.
7. Organele de asamblare se vor zinca la cald conform STAS 2700/8-82. Stratul minim este de 12mm.

BENEFICIAR	COSMOTE		
	BX483_BISCA		
	Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau		
ANTREPRENOR GENERAL	egnatia RO		

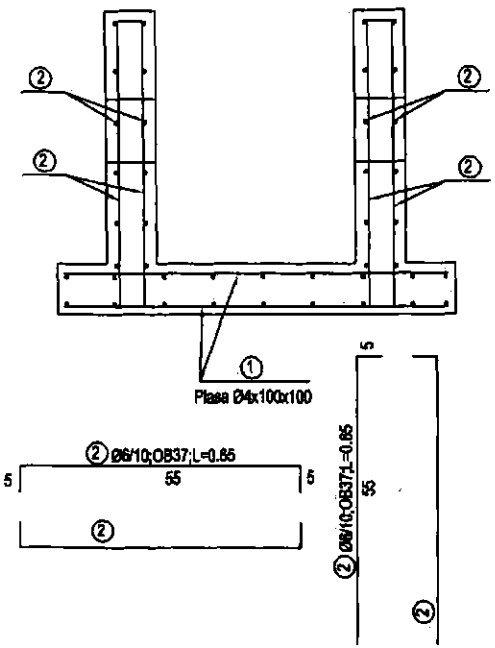
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect FD.I
				Titlu proiect **BX483_BISCA**	Faza : **DDE-I**
Specificatie	Nume	Semnatura	Scara	Titlu plansa **ACOPERIS 2xRBS 2106**	Plansa 1
Sef Proiect	ing. F.Balasoiu		**1:75**		
Proiectat	ing. A.Ionita		Data **13.04.09**	Nr. desen : **FD.01.Acoperis RBS.01.10**	Rev.:
Desenat	arh. G .Ionita				

PLAN COFRAJ
SC. 1:10



PLAN ARMARE
SC. 1:10



MARCA	ø (mm)	Nr. buc.	Lungime bara (m)	TOTAL LUNGIMI PE DIAMETRE	
				OB 37	Plasa sudata(grp)
				Ø6	Ø4x100x100
1	4	2	0.6mp		1.2
2	6	96	0.65	62.4	
Lungimi totale pe diametru (m):				62.4	1.2
Greutate/ 1 ml / diametru (kg/ m):				0.222	4.74 Kg/mp
Greutate pe diametru (kg):				13.86	5.7
Greutate totala armatura (kg):				19.56	

SIMION I. ROMULUS
VERIFICATOR PROIECTE
NR. 14714
A.I.12

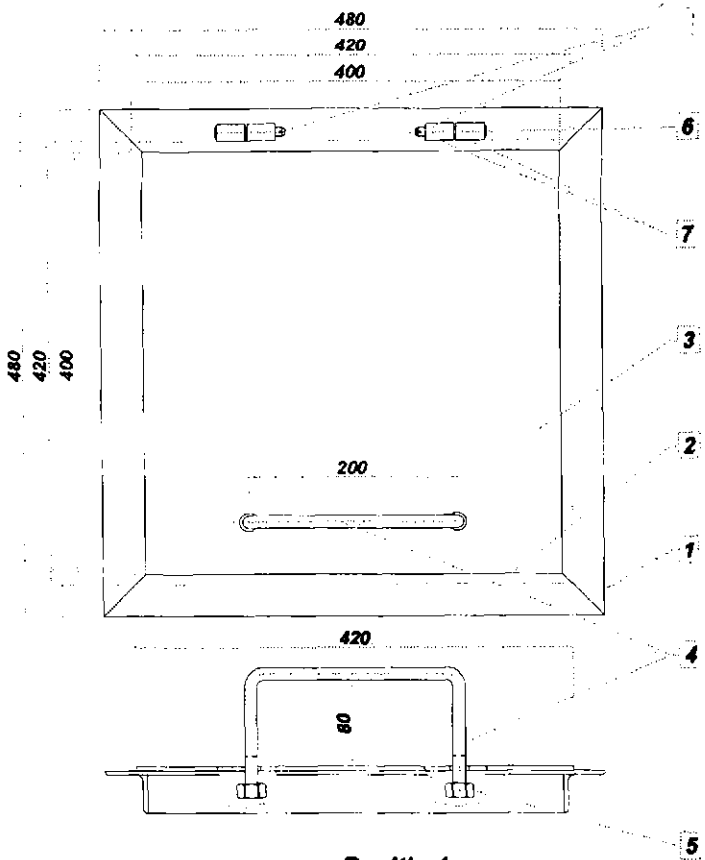
SOCIETATEA FAST DESIGN PROIECT S.R.L. BUCUREȘTI - ROMÂNIA

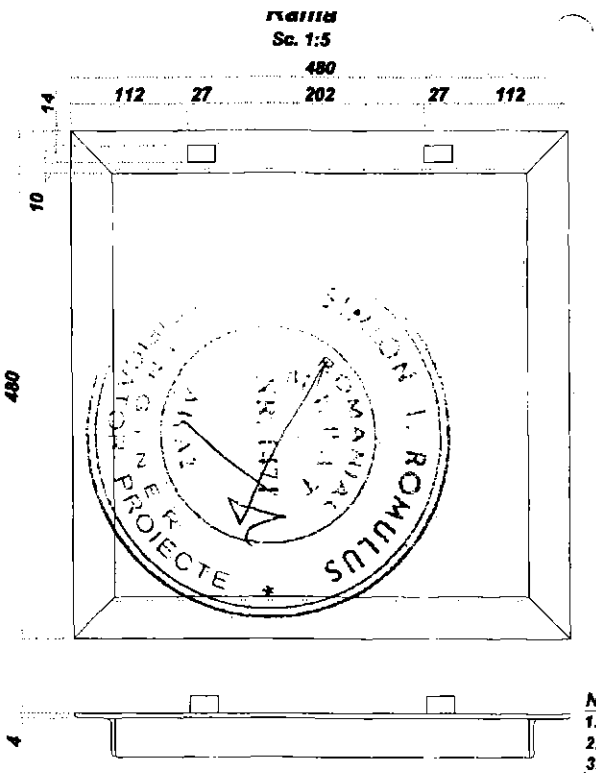
BENEFICIAR				ANTREPRENOR GENERAL
cosmote				egnatia ROM
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr. Data

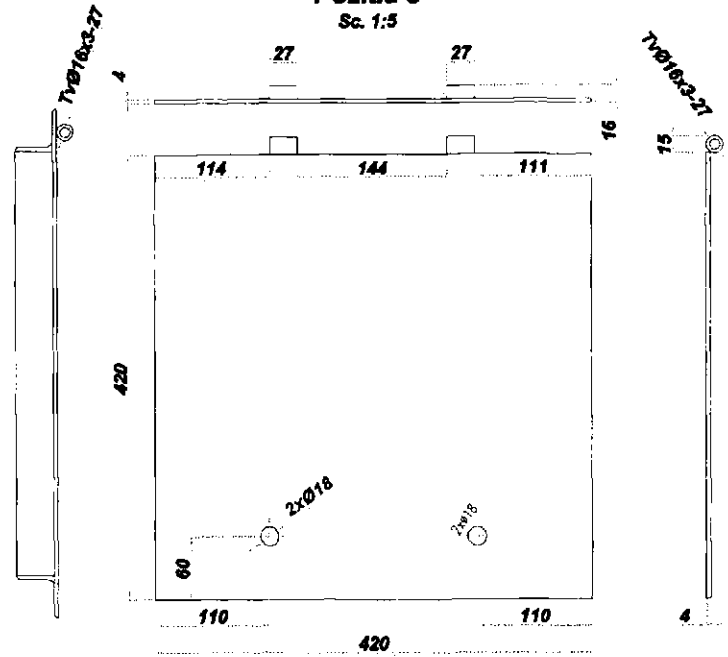
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:50
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		06.01.09

Beneficiar: S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr.: FD-01
Titlu proiect: SITE GSM	Faza: DDE-PAC
Titlu plansa: **CAMIN VIZITARE**	Plansa nr.: 1/1
Nr. desen: FD-01.CAMIN.01.10	Rev.: 0







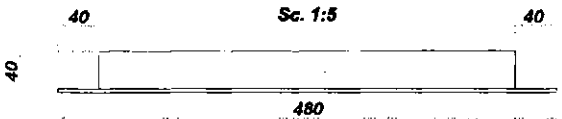
NOTA:

1. *Abaterile limita pentru prelucrari mecanice conform SR EN 22768-1:95, clasa m.*
2. *Abateri limita pentru constructii sudate conform SR EN ISO 13920:1998 clasa F.*
3. *Abateri limita pentru prelucrari prin deformare plastica conform STAS 11111-86, clasa 2.*
4. *Dupa sudura, subansamblul se va detensiona.*
5. *Subansamblul sudat se va zinca termic conform STAS 7221-90. Stratul de zinc este minim 80mm.*
6. *Organele de asamblare se vor zinca electrolitic conf. STAS 2700/8-82. Stratul este de 12mm.*

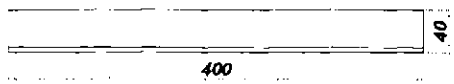
Masa totala metal = 10.40kg

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
8	Splint 2x14	STAS 1991-89	2			0.002
7	Teava Ø16x3-27	Tv. 16x3 STAS 530/1-87	4	OLT 35 STAS 8183-80	L=27mm	0.003
6	Bolt B 8x65	STAS 5754/2-80	2	OL 50 STAS 500/2-87		0.003
5	Piulita hexagonala M12	STAS 4071-88	2	cl. 5.8 STAS 2700/3-89		0.016
4	Maner	TS12 - h11 STAS 1800-87	1	OL 37.2 STAS 500/2-87	Ldesf.=422mm	0.380
3	Capac	Tb. 4 STAS 437-87	1	OL 37.2 STAS 500/2-87	480x420x4	5.540
2	Rama II	L40x40x4 SR EN 10056-1:2000	2	OL 37.2 STAS 500/2-87	L = 400mm	0.990
1	Rama I	L40x40x4 SR EN 10056-1:2000	2	OL 37.2 STAS 500/2-87	L = 480mm	1.190

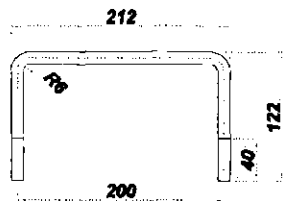
Pozitia 1
Sc. 1:5



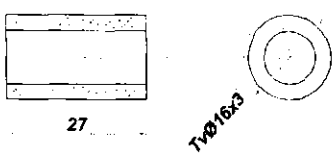
Pozitia 2
Sc. 1:5



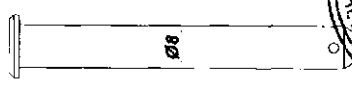
Pozitia 4
Sc. 1:5



Pozitia 7
Sc. 1:1



Pozitia 6
Sc. 1:5



BENEFICIAR: COSMOTE

ANTREPRENOR GENERAL: egmatic ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2006
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:5
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		06.01.09

Beneficiar: S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr.: FD.01

Titlu proiect: SITE GSM

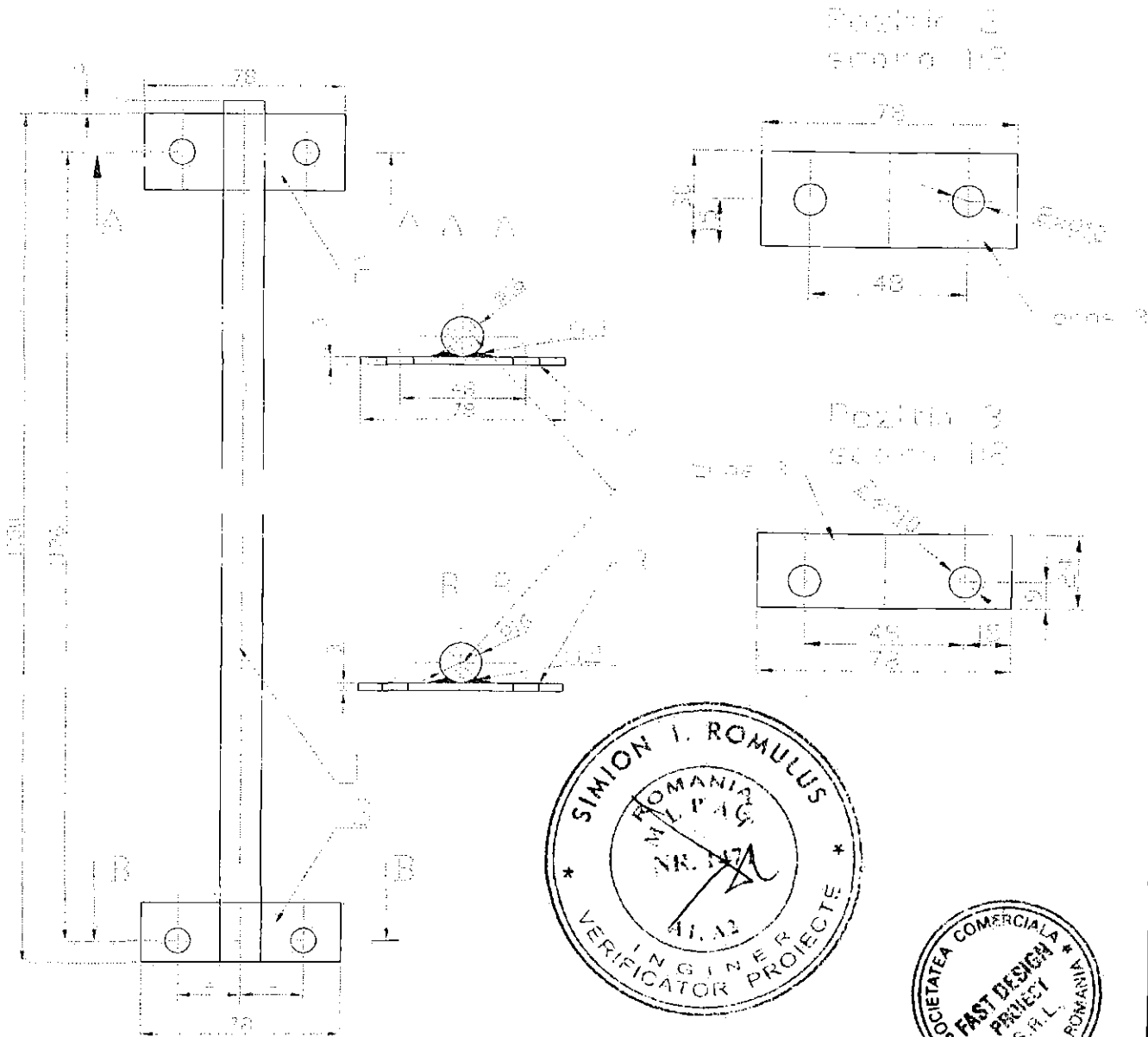
Faza: DDE-PAC

Titlu plansa: CAPAC GURA VIZITARE

Plansa nr.: 1/1

Nr. desen: FD-01.Capac vizit 01.01

Rev.: 0



Masa totala (3% zinc, 2% suduri) =2.08 kg.

Poz.	Denumirea	Nr desen sau STAS	Buc.	Material	Observatii	Masa neta kg/buc
3	Tb. 3x24x78	SR EN 10029	1	OL 37	78x24x3	0.044
2	Tb. 3x30x78	SR EN 10029	1	OL 37	78x30x3	0.055
1	Otel rotund Ø16	STAS 333	1	OL 50	L=1150	1.9

BENEFICIAR: **BX438_SIRIU**

Casa Apa S.C. Servcom Nehoiu S.A., Siriu, jud Buzau

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Data
Sef Proiect	ing. F.Balasoiu		1:75	13.04.09
Proiectat	ing. A.Ionita			
Desenat	arh. G .Ionita			

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **BX438_SIRIU**

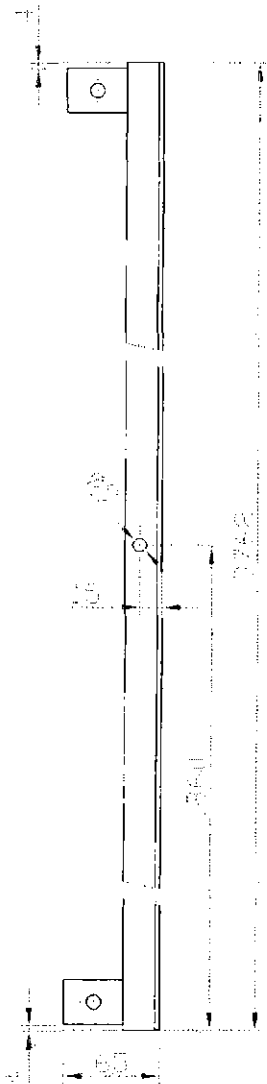
Faza : **DDE-PAC**

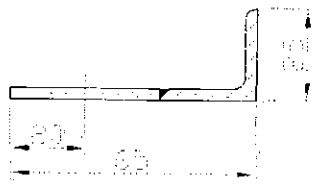
Titlu plansa: **ACOPERIS 2xRBS 2106**

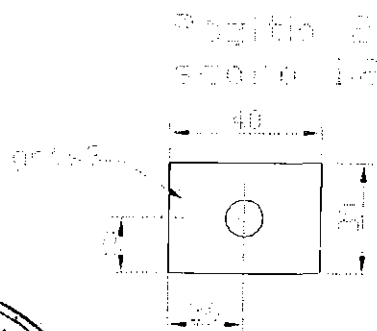
Plansa nr.: 5/5

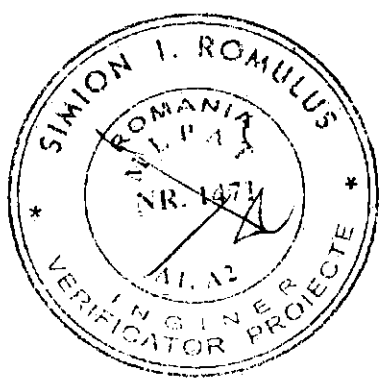
Nr. desen : **FD.01.Acoperis RBS.01.50**

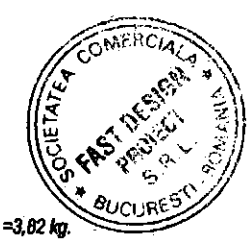
Rev.: 0











Masa totala (3% zinc) =3,82 kg.

Poz.	Denumire	Nr desen sau STAS	Buc.	Material	Observatii	Masa neta kg/buc
2	Tb. 3x30x40	SR EN 10029	2	OL 37	40x30x3	0.028
1	L 25x25x3 - A	STAS 424	1	OL 37	L=3768	3,68

BENEFICIAR: ***BX438_SIRIU***
Casa Apa S.C. Servcom Nehoiu S.A., Siriu, jud Buzau

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

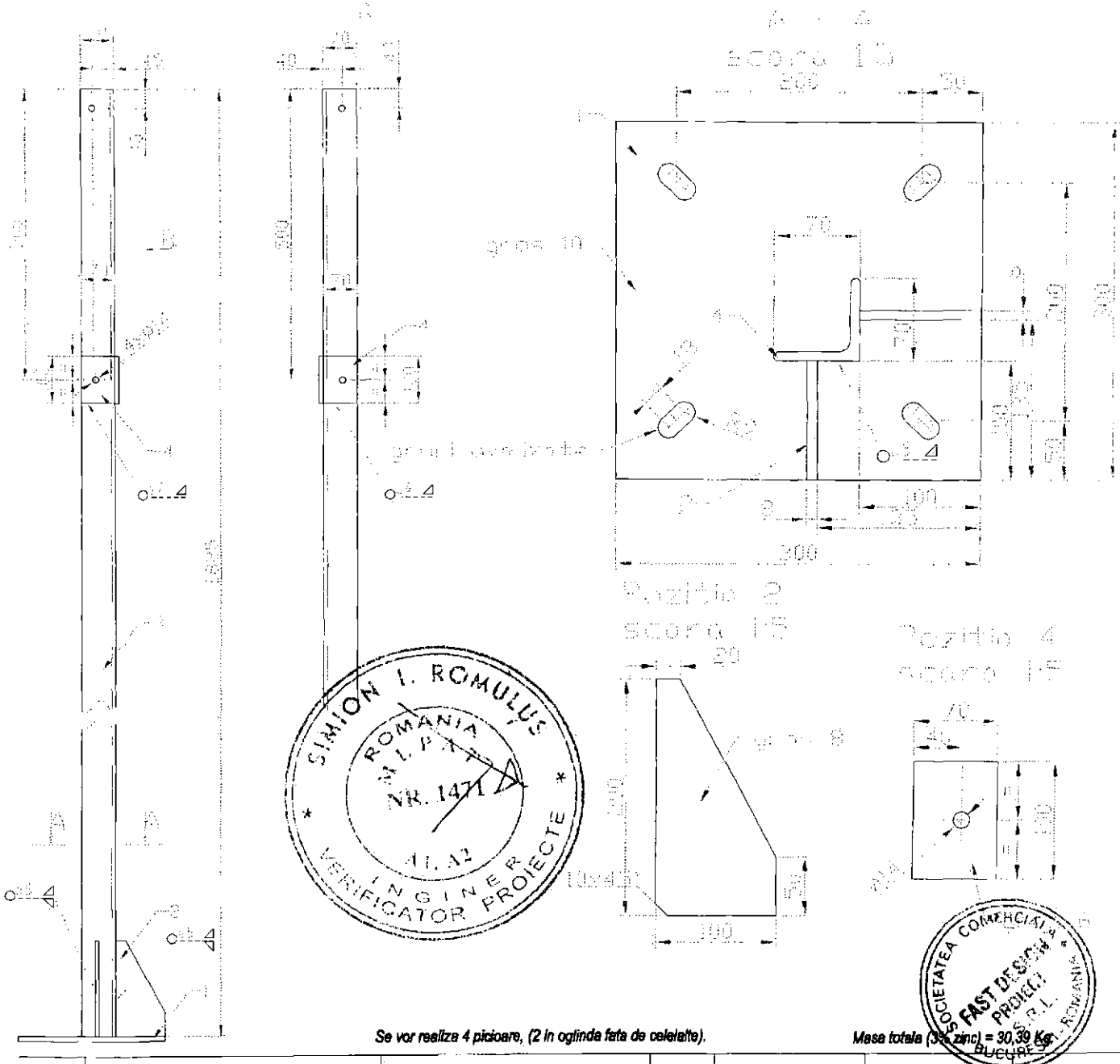
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: ***BX438_SIRIU***

Faza : ***DDE-PAC***

Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		*1:75*	***ACOPERIS 2xRBS 2106***	4/5
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	arh. G .Ionita		*13.04.09*	***FD.01.Acoperis RBS.01.40***	0



Se vor realiza 4 picioare, (2 in oglinda fata de celelalte).

Masa totala (3% zinc) = 30,39 Kg

Poz.	Denumirea	Nr desen sau STAS	Buc.	Material	Observatii	Masa neta kg/buc
4	Tb. 6x70x100	SR EN 10029	2	OL 37	6x70x100	0.3297
3	L 70x70x7 - A	STAS 424-91	1	OL 37	L=2825	20.85
2	Tb. 8x100x200	SR EN 10029	2	OL 37	8x100x200	1.2560
1	Tb. 10x300x300	SR EN 10029	1	OL 37	10x300x300	7.0650

BENEFICIAR: **BX438_SIRIU**

Casa Apa S.C. Servcom Nehoiu S.A., Siriu, jud Buzau

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Data
Sef Proiect	ing. F.Balasoiu		1:75	13.04.09
Proiectat	ing. A.Ionita			
Desenat	arh. G .Ionita			

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **BX438_SIRIU**

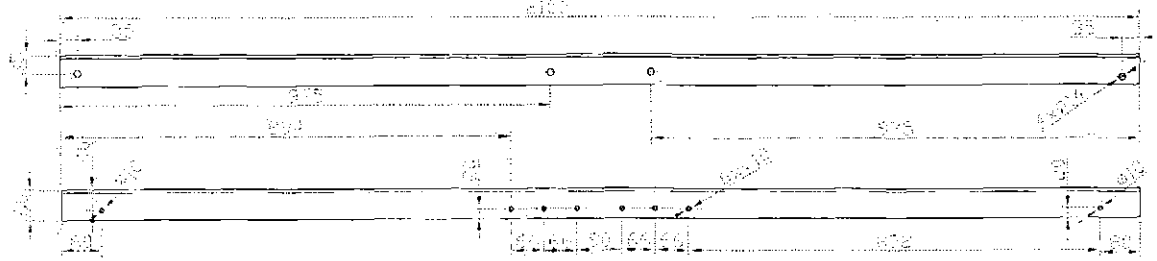
Faza : **DDE-PAC**

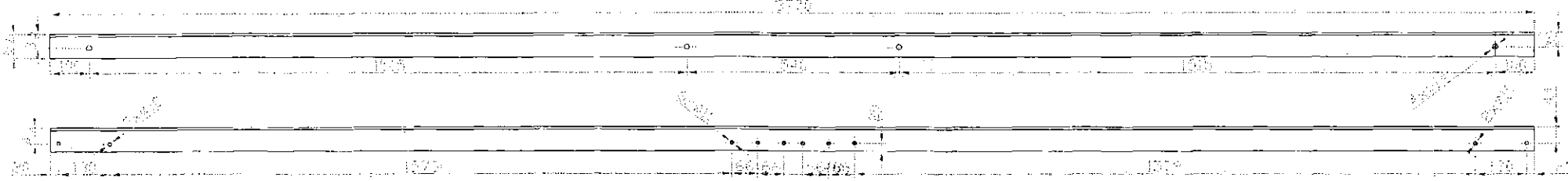
Titlu plansa: **ACOPERIS 2xRBS 2106**

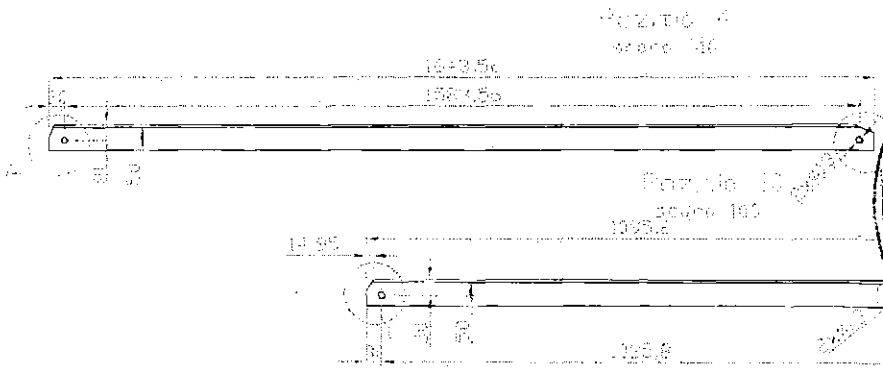
Plansa nr.: 3/5

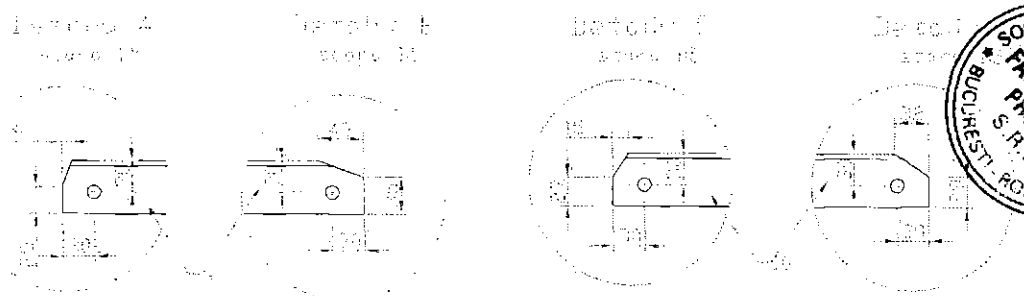
Nr. desen : **FD.01.Acoperis RBS.01.30**

Rev.: 0





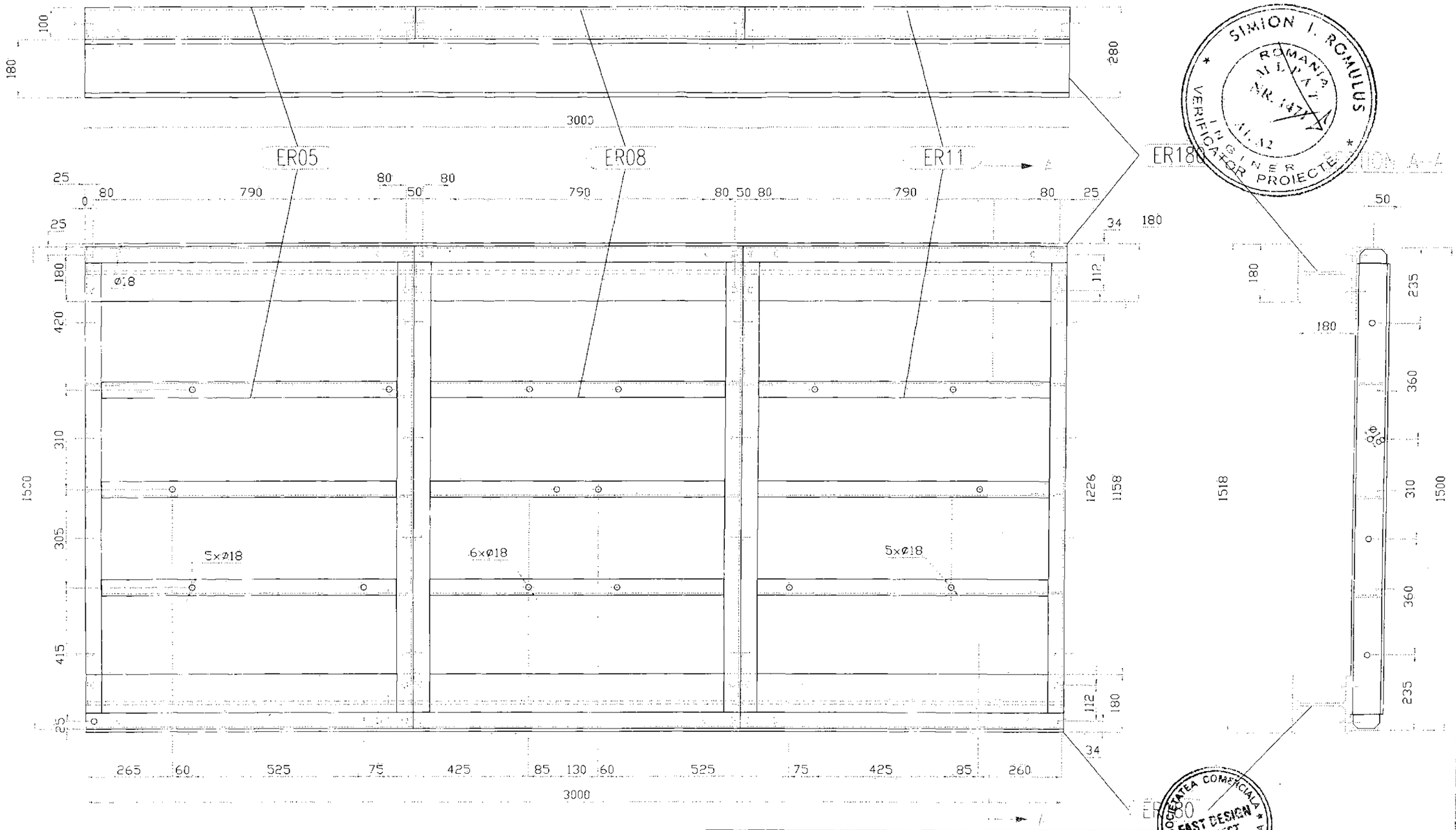




VERIFICATOR PROIECTE * SIMION I. ROMULUS * ROMANIA NR. 1471 A.I.A.I.2

SOCIETATEA COMERCIALA * FAST DESIGN PROIECT S.R.L. * BUCUREST - ROMANIA

Cosmote	BENEFICIAR	BX438_SIRIU Casa Apa S.C. Servcom Nehoiu S.A., Siriu, jud Buzau	ANTREPRENOR GENERAL	egemia ROM			
Verificator Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data		
SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr.47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.		Proiect nr. : FD.01	
				Titlu proiect BX438_SIRIU		Faza : DDE-PAC	
Specificatie	Nume	Semnatura	Scara	Titlu plansa ACOPERIS 2xRBS 2106		Plansa nr.: 2/5	
Sef Proiect	ing. F.Balasoiu		1:75				
Proiectat	ing. A.Ionita		Data	Nr. desen : FD.01.Acoperis RBS.01.20		Rev.: 0	
Desenat	arh. G .Ionita		13.04.09				



	TOTAL (Kg.)					750.6
4	HEB180 LG.3000	ER180	2	subansambly	249.00	498.00
3	FRAME 3 1,00x1,50	ER11	1	subansambly	84.20	84.20
2	FRAME 2 1,00x1,50	ER08	1	subansambly	84.20	84.20
1	FRAME 1 1,00x1,50	ER05	1	subansambly	84.20	84.20
A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total Quant.

BENEFICIAR: cosmote

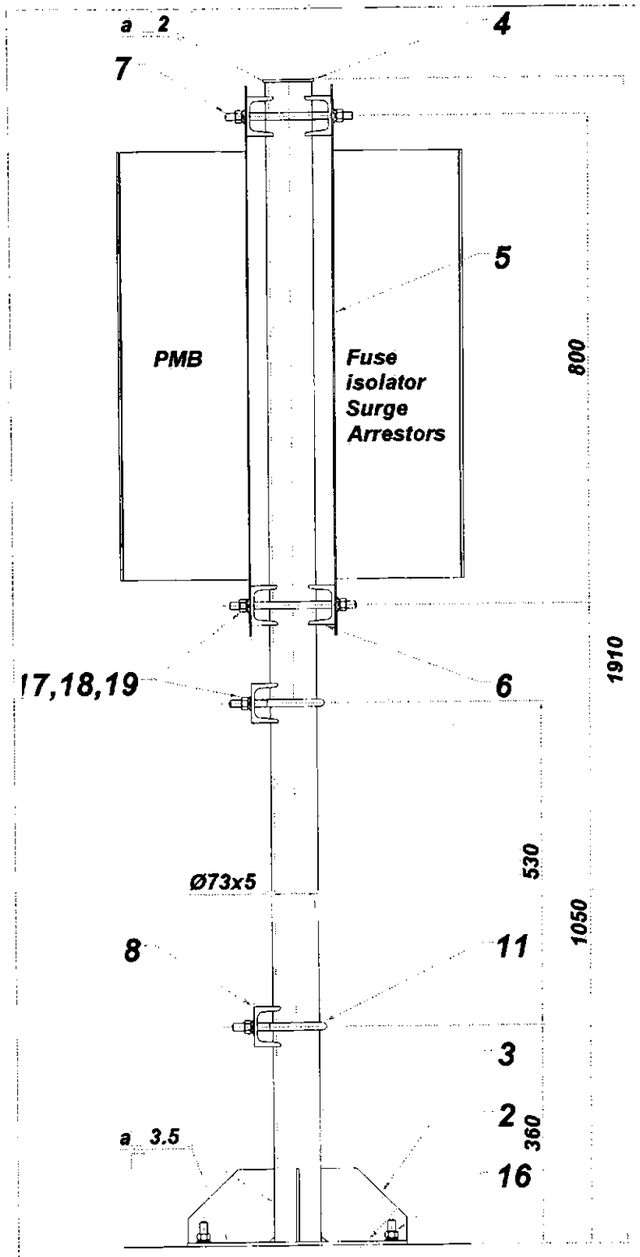
ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

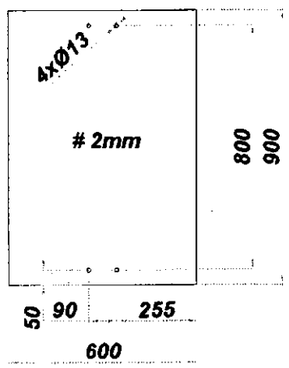
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Data
Sef Proiect	ing. F.Balasoiu		1:10	14.04.09
Proiectat	ing. A.Ionita			
Desenat	ing. G.Ionita			

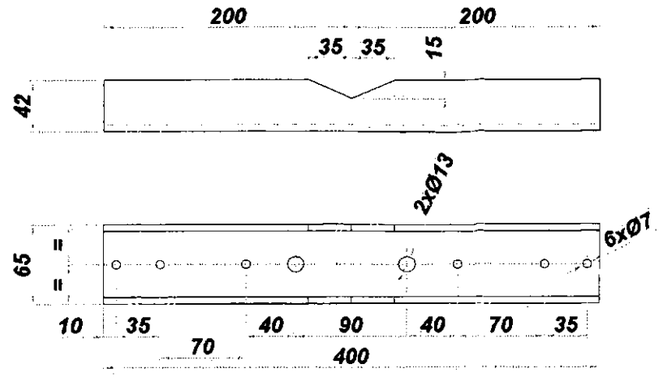
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. : FD.01
Titlu proiect: SITE GSM 900-1800
Faza : DDE-PAC
Titlu plansa: ANSAMBLY
BASE FOR OUTDOOR EQUIPMENT 3.0x1.5m
Plansa nr.: 1/1
Nr. desen : FD.01.Base RBS 2106.01.00
Rev.: 0



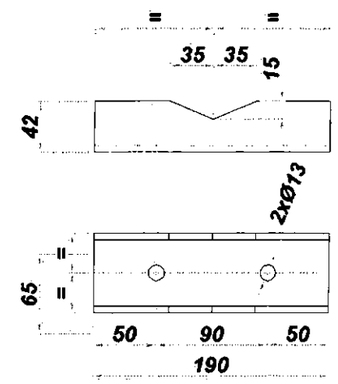
Pozitia 5
Sc. 1:20



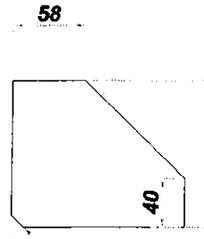
Pozitia 8
Sc. 1:5



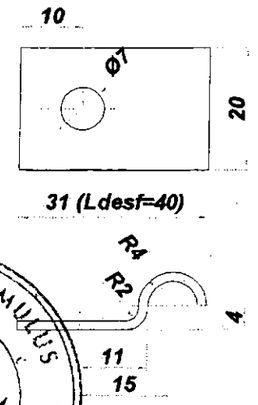
Pozitia 6
Sc. 1:5



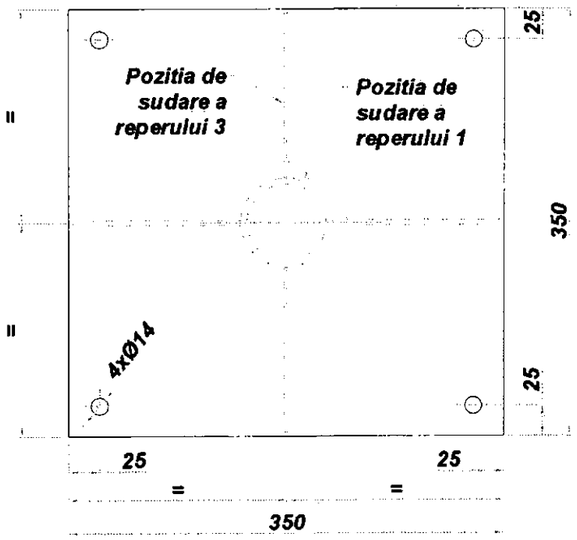
Pozitia 3
Sc. 1:5



Pozitia 9
Sc. 1:2.5



Pozitia 2
Sc. 1:5

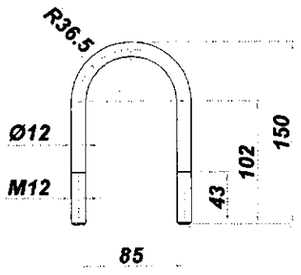


NOTA:
1. Abaterile limita pentru prelucrari mecanice conform SR EN 22768-1:95, clasa m.
2. Abateri limita pentru constructii sudate conform SR EN ISO 13920:1998 clasa F.
3. Abateri limita pentru prelucrari prin deformare plastica conform STAS 11111-88, clasa 2.
4. Dupa sudura, subansamblul se va detensiona.
5. Subansamblul sudat se va zinca termic conform STAS 7221-90. Stratul de zinc este minim 80µm.
6. Organele de asamblare se vor zinca electrolitic conf. STAS 2700/8-82. Stratul este de 12µm.

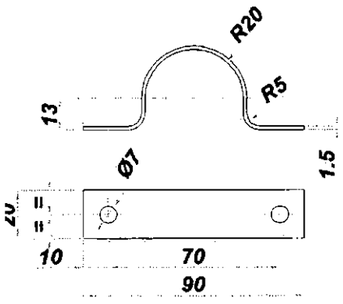
Masa totala metal = 59.30kg

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
19	Piulita hexagonala M12	STAS 4071-88	12	gr. 5.8 STAS 2700/3-89		0.016
18	Saiba Grower N12	STAS 7666/2-80	12	OLC 55A STAS 880-88		0.003
17	Saiba plata normala A12	STAS 5200/4-91	12	OL 34 STAS 500/2-87		0.006
16	Ancora conespand MS12x120		4			0.128
15	Piulita hexagonala M6	STAS 4071-88	6	gr. 5.8 STAS 2700/3-89		0.003
14	Saiba Grower N6	STAS 7666/2-80	6	OLC 55A STAS 880-88		0.001
13	Saiba plata normala A6	STAS 5200/4-91	6	OL 34 STAS 500/2-87		0.001
12	Surub M6x20	STAS 4845-89	6	gr. 5.8 STAS 2700/3-89		0.006
11	Brida U M12x73-336	TS12 - h11 STAS 1800-87	2	OL 37.2 STAS 500/2-87	Ldesf.=336mm	0.300
10	Placuta fixare copex	Bd. otel N 20x1.5 STAS 1945-90	2	OL 37.2 STAS 500/2-87	20x130x1.5	0.034
9	Placuta fixare cablu impamantare	Bd. otel N 20x1.5 STAS 1945-90	2	OL 37.2 STAS 500/2-87	20x40x1.5	0.009
8	Suport sustinere cabluri	U6.5 STAS 564-86	2	OL 37.2 STAS 500/2-87	L=400mm	2.879
7	Tija filetata M12x200	-	4	OL 37.2 STAS 500/2-87	L=200mm	2.282
6	Suport sustinere echipamente	U6.5 STAS 564-86	4	OL 37.2 STAS 500/2-87	L=190mm	1.368
5	Tabla suport echipamente	Tb. 2 STAS 901-90	2	OL 37.2 STAS 500/2-87	600x900x2	6.824
4	Capac Ø80x4	Tb. 4 STAS 437-87	1	OL 37.2 STAS 500/2-87	Ø80x4	0.164
3	Guseu	Tb. 4 STAS 437-87	4	OL 37.2 STAS 500/2-87	120x138x4	0.434
2	Talpa	Tb. 6 STAS 437-87	1	OL 37.2 STAS 500/2-87	350x350x6	5.914
1	Teava Ø76x5-1900	Tv. 73x5 STAS 530/1-87	1	OLT 35 STAS 8183-80	L=1900mm	15.922

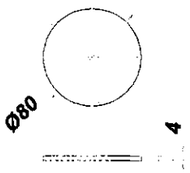
Pozitia 11
Sc. 1:5



Pozitia 10
Sc. 1:2.5

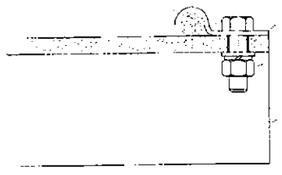


Pozitia 4
Sc. 1:2



Detaliu montaj placuta fixare cablu impamantare

cablu impamantare



9

12,13,14,15

8

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **SITE GSM**

Faza : DDE-PAC

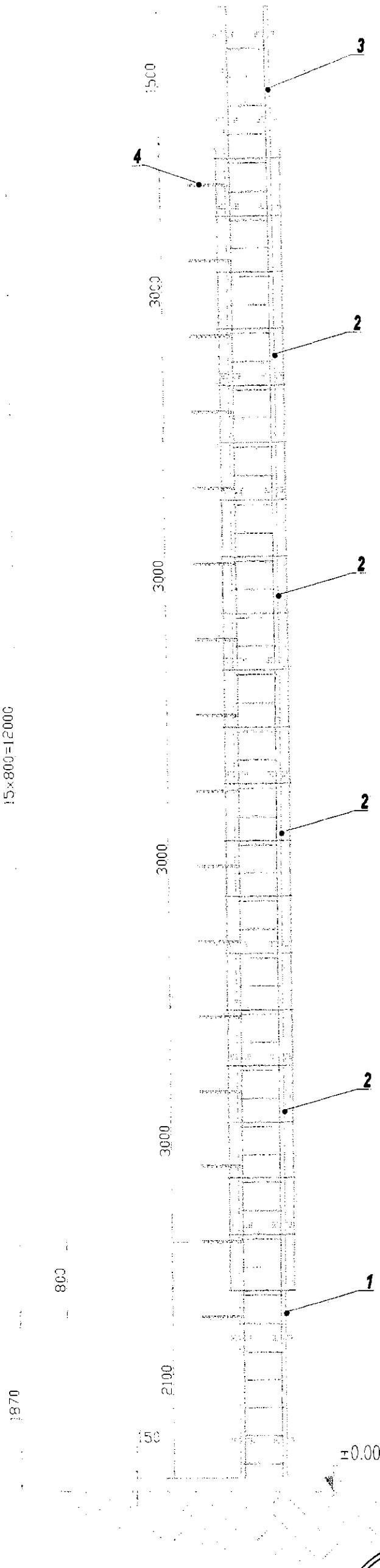
Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		1:100	**PMB Support**	1/1
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	ing. G.Ionita		06.01.09	**FD.01.PMB support 01.01**	0

BENEFICIAR

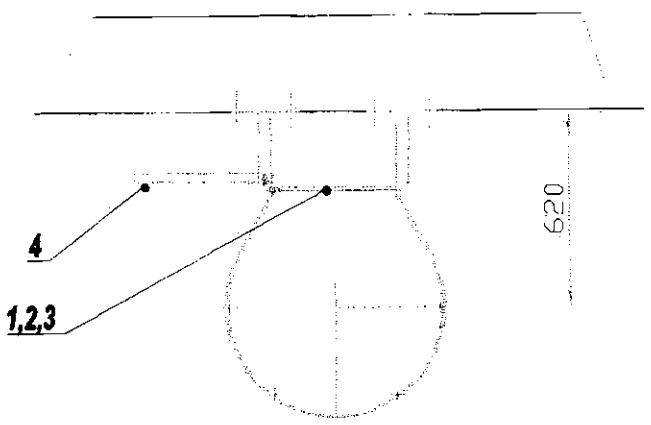
ANTREPRENOR GENERAL

Egnatia ROM

nivel sup.castel



AMPLASARE SCARA
1:50



		MASA TOTALA METAL (Kg.)				275.65
4	Scara - Suport cabluri	FD.01-Scara - 01.05	16	subans.	0.95	15.20
3	Scara - Tronson superior	FD.01-Scara - 01.04	1	subans.	25.90	25.90
2	Scara - Tronson intermediar	FD.01-Scara - 01.03	4	subans.	51.20	204.80
1	Scara - Tronson inferior	FD.01-Scara - 01.02	1	subans.	29.75	29.75
A/A	Description	Ansembly Code	Quant.	Materials	Weight / Quantity	Total Quant.

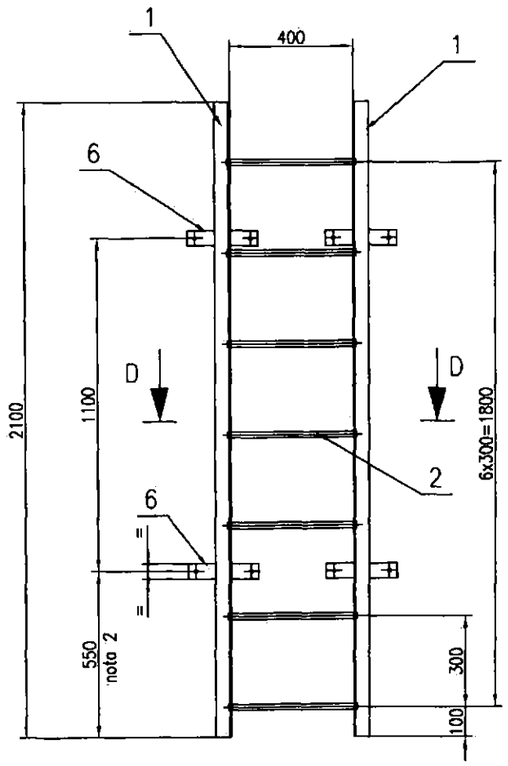
BENEFICIAR: BX483_BISCA
Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau
ANTREPRENOR GENERAL: egnatia ROM

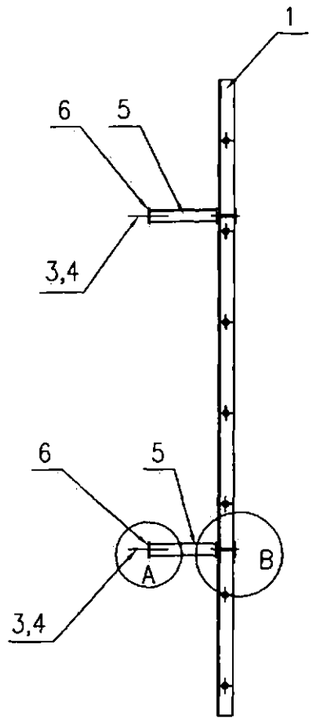
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

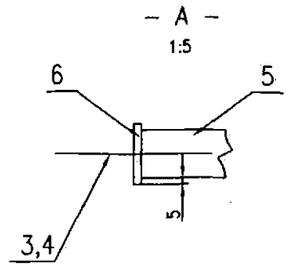
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

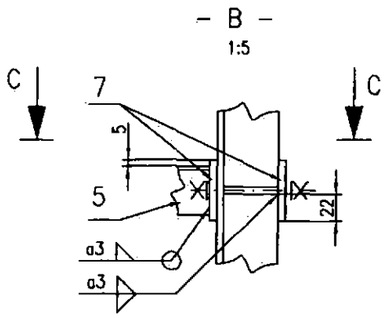
Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:50
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		

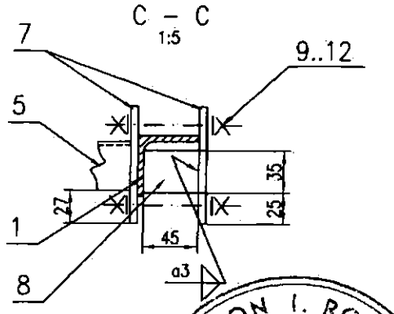
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
Titlu proiect : BX483_BISCA	Faza : DDE-PAC
Titlu plansa : SCARA ACCES	Plansa nr.: 1/1
Nr. desen : FD.01.Scara Acces.01.01	Rev.: 0











NOTA:

1. Conditii tehnice de executie si montaj conf. "Memoriu tehnic".
2. Cota se va stabili la montaj functie de amplasarea elementelor de beton ale structurii pe care se amplaseaza scara.
3. Cele 2 poz. 18 se asigura cu lacat.
4. Plasa poz. 16 se va suda in puncte de inelul poz.15, inainte de zincare.

Masa metal : 29,75Kg.

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
12	Piulita M8	STAS 4071	16	Gr. 5		0.005
11	Saiba Grower N8	SR 7666	16	OLC 55A		0.001
10	Saiba 8	STAS 5200	16	OL 37.2		0.002
9	Tija filetata M8x100	–	8	OL 50		0.040
8	Placa 6x35x45	–	4	OL 37.2		0.074
7	Placa 6x50x95	–	8	OL 37.2		0.22
6	Placa 6x50x230	–	4	OL 37.2		0.56
5	L40x40x3–220	STAS 424	4	OL 37.2		0.96
4	Saiba N10	SR 7666–2	8	OLC 55A		0.002
3	Ancora W–FA M10–15	–	8	–	WURTH cod 90411015	0.20
2	Tv. ø20x3–420	STAS 530	7	OLT 35		0.53
1	L50x50x5–2100	STAS 424	2	OL 37.2		7.92

BENEFICIAR: cosmote — ANTREPRENOR GENERAL: egnatia ROM

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

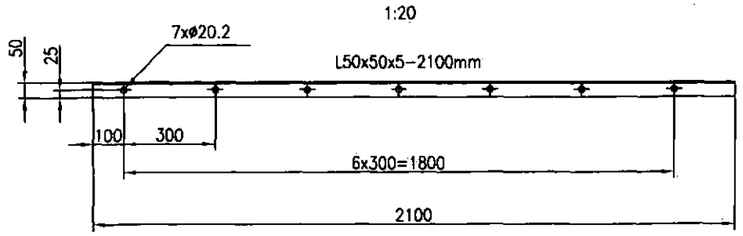
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
Sef Proiect	ing. F.Balasoiu		1:20	Titlu proiect: BX483_BISCA	Faza : DDE-PAC
Proiectat	ing. A.Ionita		Data 05.04.09	Titlu plansa: SCARA ACCES TRONSON INFERIOR	Plansa nr.: 1/1
Desenat	ing. G.Ionita			Nr. desen : FD.01.SCARA.01.02	Rev.: 0

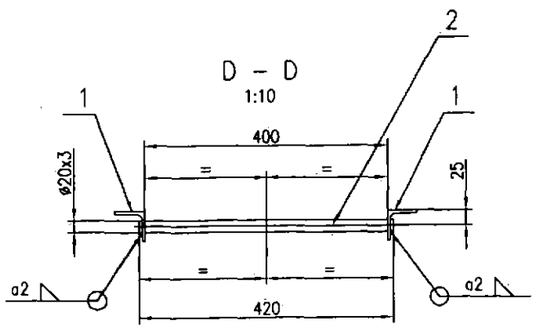
SIMION I. ROMULUS ROMANIA MLPAT NR. 1471 AL.42 INGINER VERIFICATOR PROIECTE

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCUREST-ROMANIA

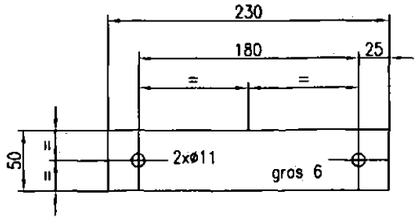
Poz. 1
1:20



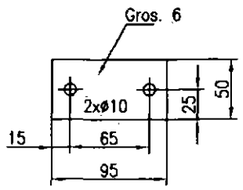
D – D
1:10

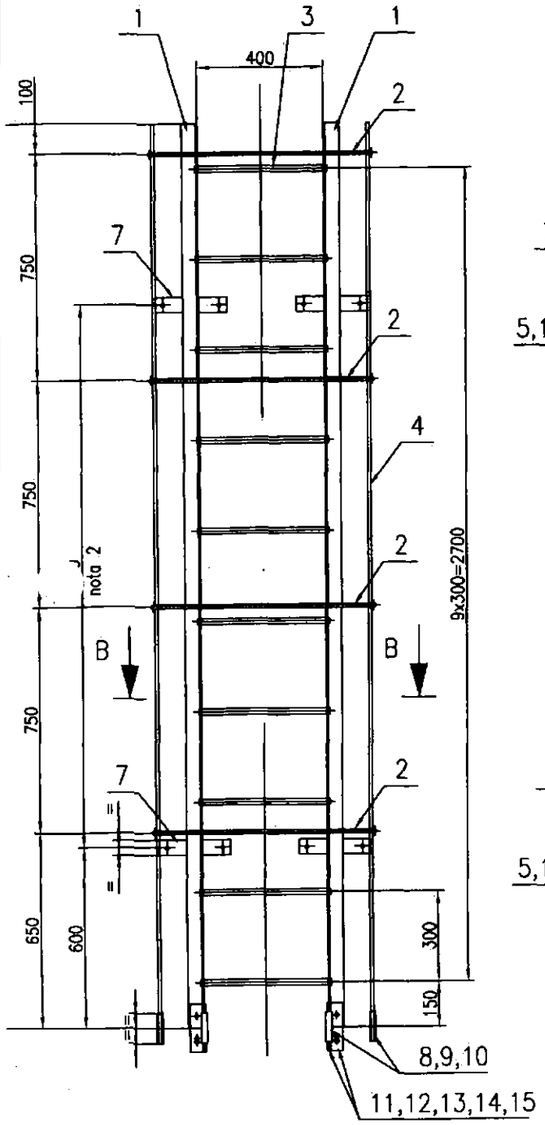


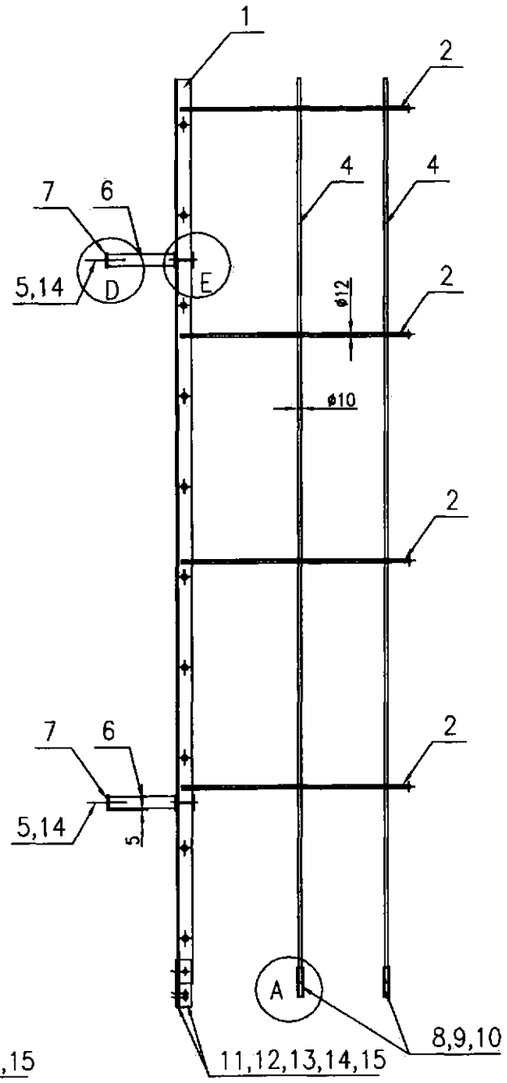
Poz. 6
1:5



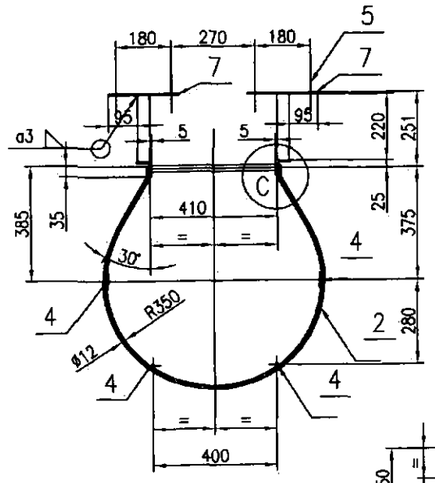
Poz. 7
1:5

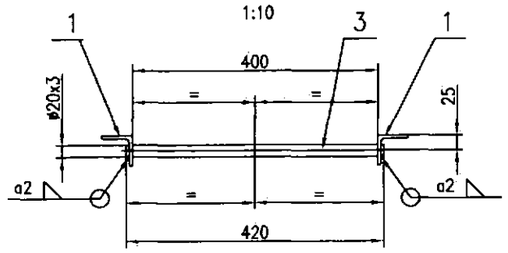




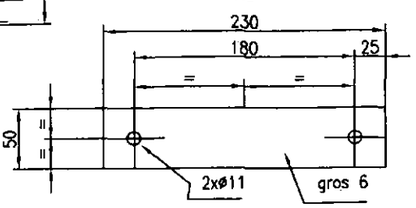


B – B
1:10



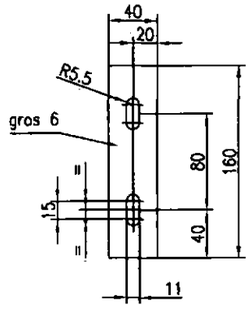


Poz. 7
1:5

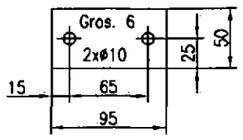


NOTE:
1. Conditii tehnice de executie si montaj conf. "Memoriu tehnic".
2. Cota se va stabili la montaj functie de amplasarea elementelor de beton ale structurii pe care se amplaseaza scara.

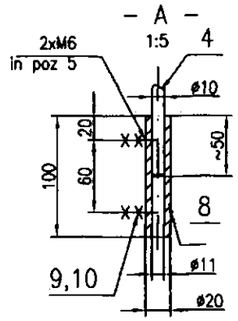
Poz. 11
1:5



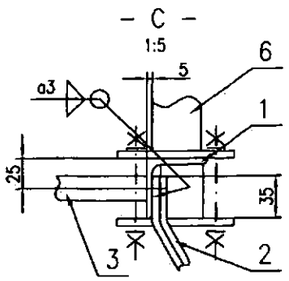
Poz.16
1:5



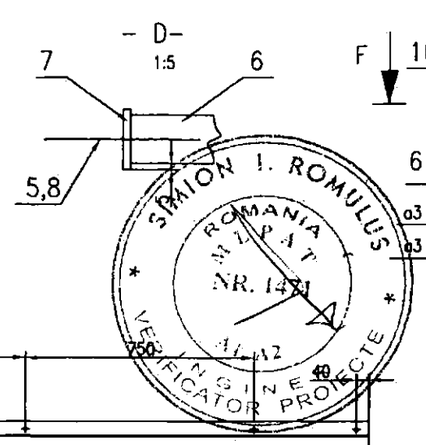
– A –
1:5



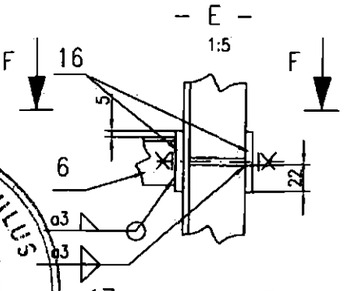
– C –
1:5



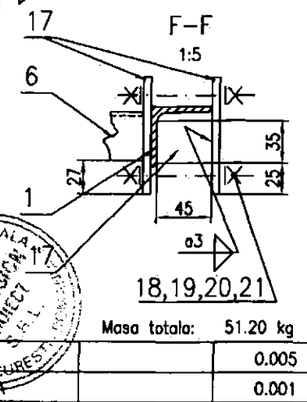
– D –
1:5

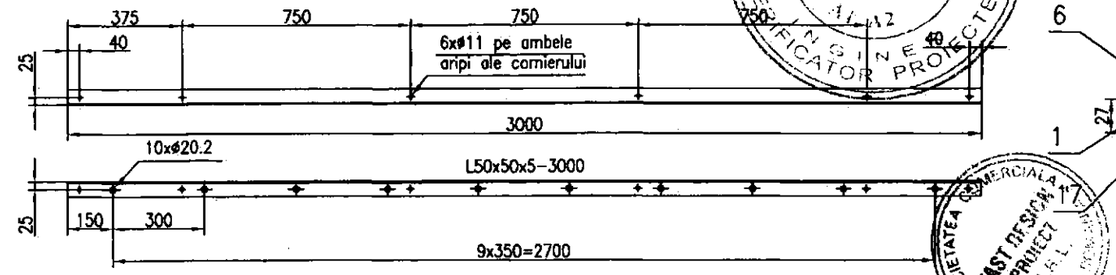


– E –
1:5



F–F
1:5





Masa totala: 51.20 kg

21	Piulita M8	STAS 4071	16	Gr. 5		0.005
20	Saiba Grower N8	SR 7666	16	OLC 55A		0.001
19	Saiba 8	STAS 5200	16	OL 37.2		0.002
18	Tija filetata M8x100	–	8	OL 50		0.040
17	Placa 6x35x45	–	4	OL 37.2		0.074
16	Placa 6x50x95	–	8	OL 37.2		0.22
15	Piulita M10	STAS 4071	8	Gr. 5		0.011
14	Saiba N10	SR 7666–2	16	OLC 55A		0.002
13	Saiba 10	STAS 5200/4	8	OL 34		0.003
12	Surub M10x30	SR ISO 4017	8	Gr. 5.6		0.025
11	Eclisa 5x40x160	–	4	OL 37.2		0.25
10	Piulita M6	STAS 4071	4	Gr. 5		0.0025
9	Surub M6x16	SR ISO 4017	4	Gr. 5.6		0.0053
8	Tv. ø20x4.5–100	STAS 530	4	OL 37.2		0.2
7	Placa 6x50x230	–	4	OL 37.2		0.56
6	L 40x40x3–220	STAS 424	4	OLT 35		0.96
5	Ancora Ms 10x140	–	8	–		0.1
4	Bara ø10–3000	–	4	OL 37.2		1.85
3	Tv. ø20x3–420	STAS 530	10	OLT 35		0.53
2	Bara ø12–1955	–	4	OL 37.2		1.71
1	L50x50x5–3000	STAS 424	2	OL 37.2		11.31
	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.

BENEFICIAR: COSMOTE

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: Egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:20
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		05.04.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Titlu proiect: **BX483_BISCA**

Titlu plansa: **SCARA ACCES TRONSON MEDIU**

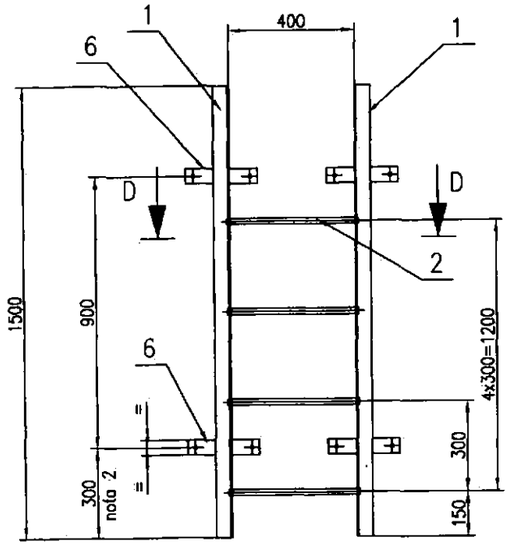
Nr. desen : **FD.01.SCARA.01.03**

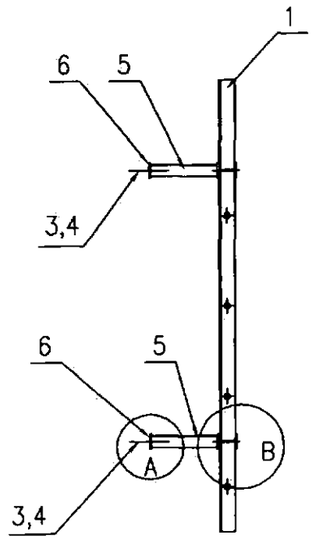
Proiect nr. : FD.01

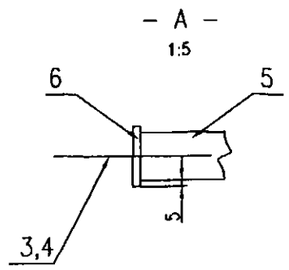
Faza : **DDE-PAC**

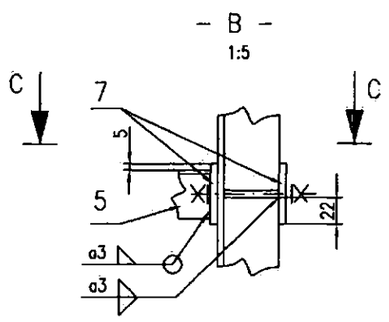
Plansa nr.: 1/1

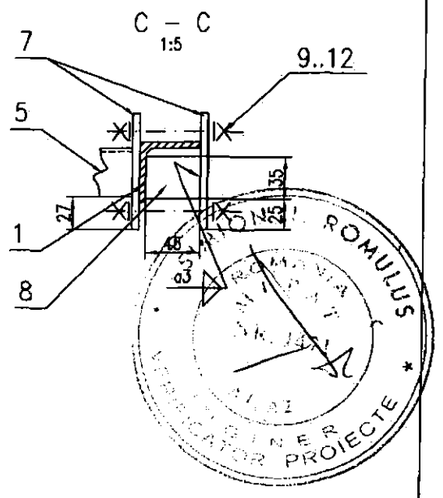
Rev.: 0











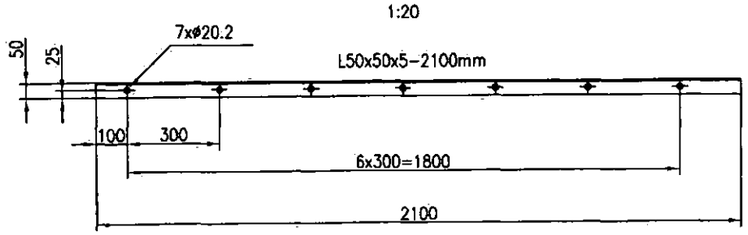
NOTA:

1. Conditii tehnice de executie si montaj conf. "Memoriu tehnic".
2. Cota se va stabili la montaj functie de amplasarea elementelor de beton ale structurii pe care se amplaseaza scara.
3. Cele 2 poz. 18 se asigura cu lacat.
4. Plasa poz. 16 se va suda in puncte de inelul poz.15, inainte de zincare.

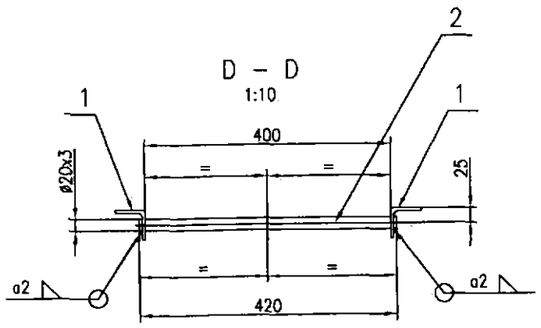
Masa metal : 25.90Kg.

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
12	Piulita M8	STAS 4071	16	Gr. 5		0.005
11	Saiba Grower N8	SR 7666	16	OLC 55A		0.001
10	Saiba 8	STAS 5200	16	OL 37.2		0.002
9	Tija filetata M8x100	–	8	OL 50		0.040
8	Placa 6x35x45	–	4	OL 37.2		0.074
7	Placa 6x50x95	–	8	OL 37.2		0.22
6	Placa 6x50x230	–	4	OL 37.2		0.56
5	L40x40x3–220	STAS 424	4	OL 37.2		0.96
4	Saiba N10	SR 7666–2	8	OLC 55A		0.002
3	Ancora W–FA M10–15	–	8	–	WURTH cod 90411015	0.20
2	Tv. ø20x3–420	STAS 530	4	OLT 35		0.53
1	L50x50x5–1500	STAS 424	2	OL 37.2		5.66

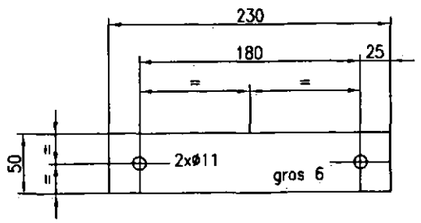
Poz. 1
1:20



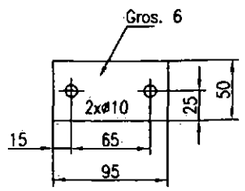
D – D
1:10



Poz. 6
1:5



Poz. 7
1:5



BENEFICIAR: Cosmote

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: Egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl., J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:20
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		05.04.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **BX483_BISCA**

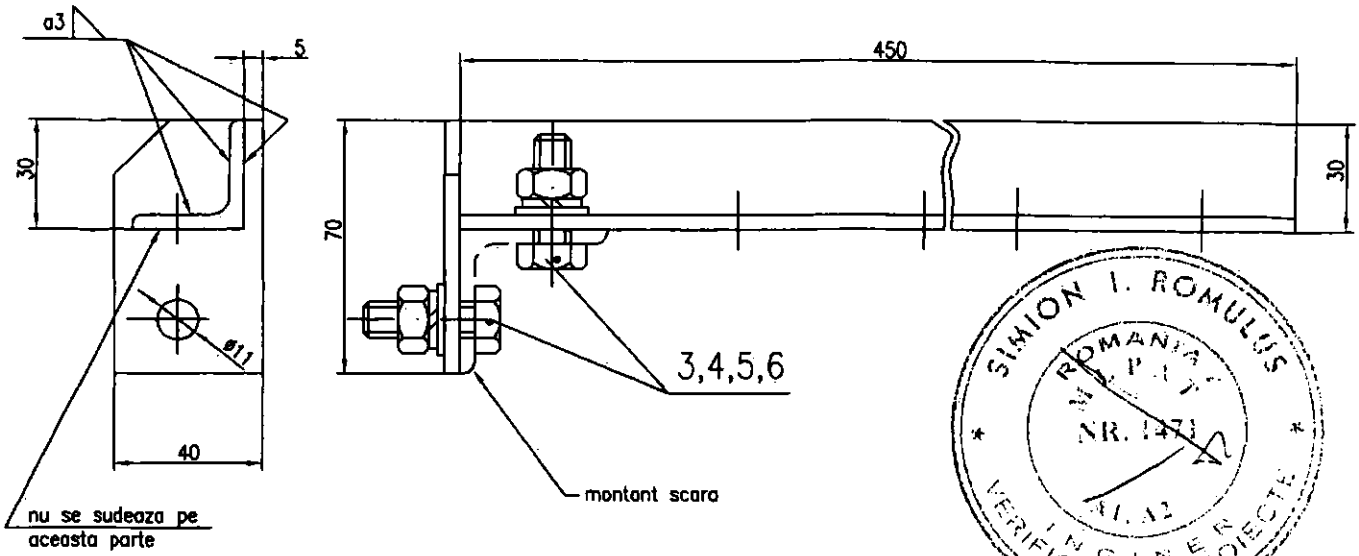
Faza : **DDE-PAC**

Titlu planso: **SCARA ACCES TRONSON SUPERIOR**

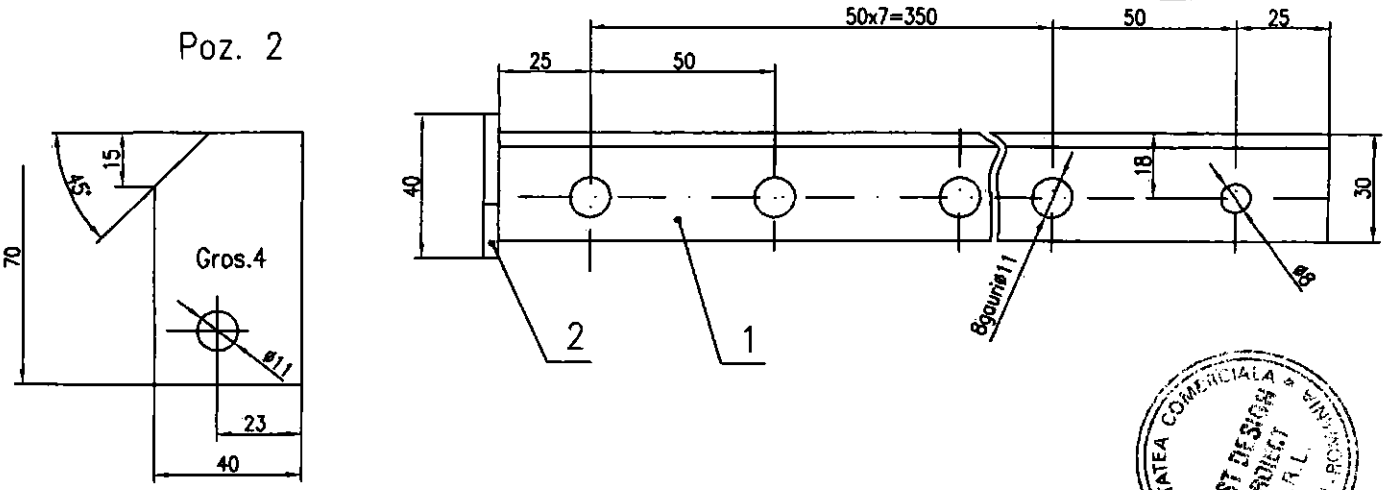
Plansa nr.: 1/1

Nr. desen : **FD.01.SCARA.01.04**

Rev.: 0



Poz. 2



Nota:

1. Executie si montaj conf. doc. "Memoriu tehnic".

Masa: 0.95 Kg

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
6	Piulita M10	STAS 4071	2	Gr. 5		0.01
5	Saiba Grower N10	SR 7666/2	2	OLC 55A		0.001
4	Saiba 10	STAS 5200/4	2	OL 34		0.002
3	Surub M10x30	SR ISO 4017	2	Gr. 5.8		0.016
2	Tabla 70x40x4	-	1	OL 37.2		0.09
1	L 30x30x4-450	-	1	OL 37.2		0.80

BENEFICIAR: cosmote

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

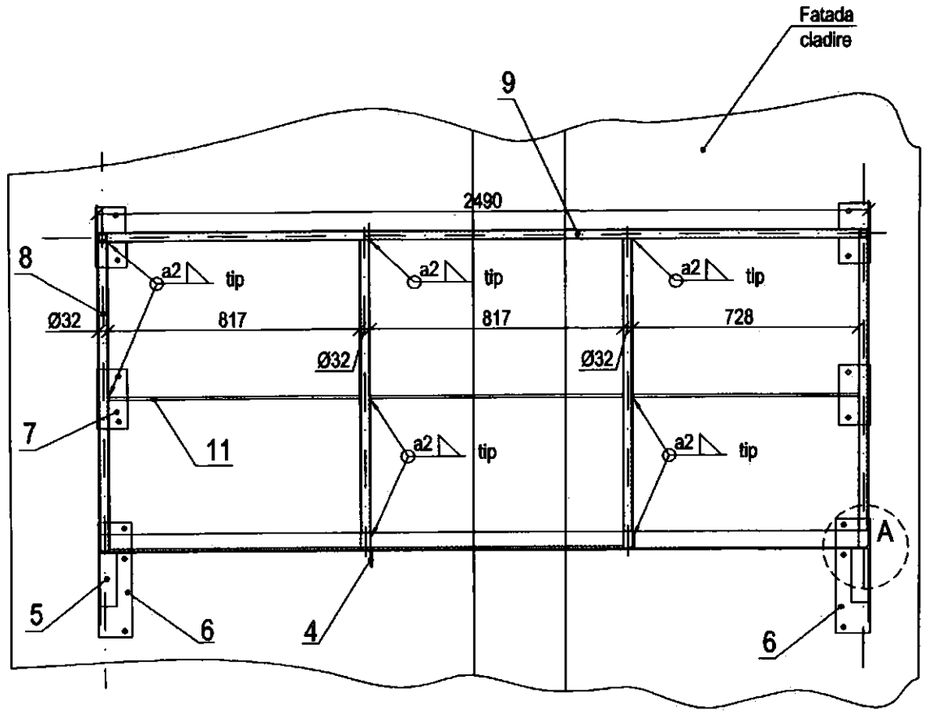
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

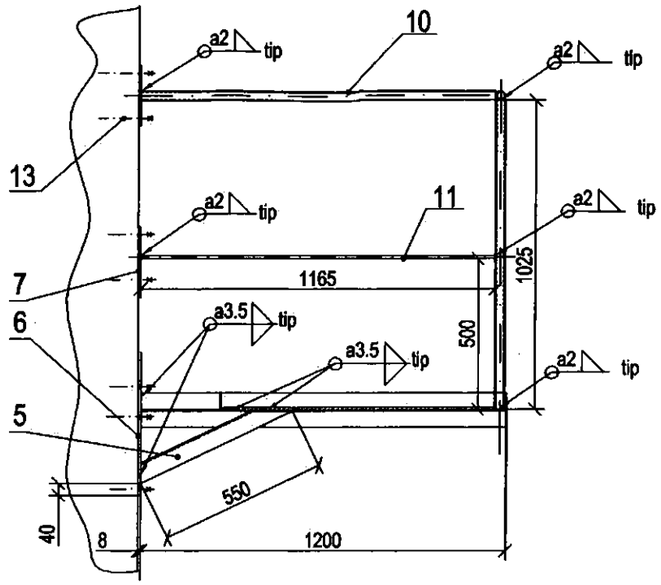
Proiect nr. : FD.01

Titlu proiect: **BX483_BISCA**

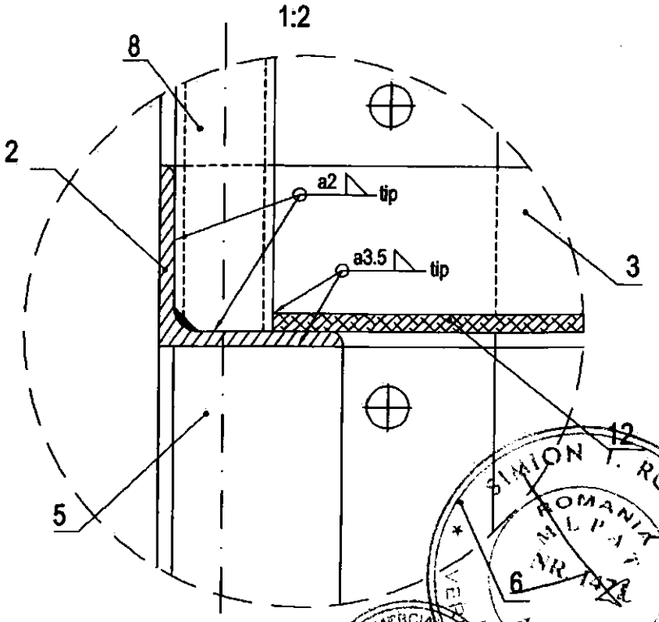
Faza : **DDE-PAC**

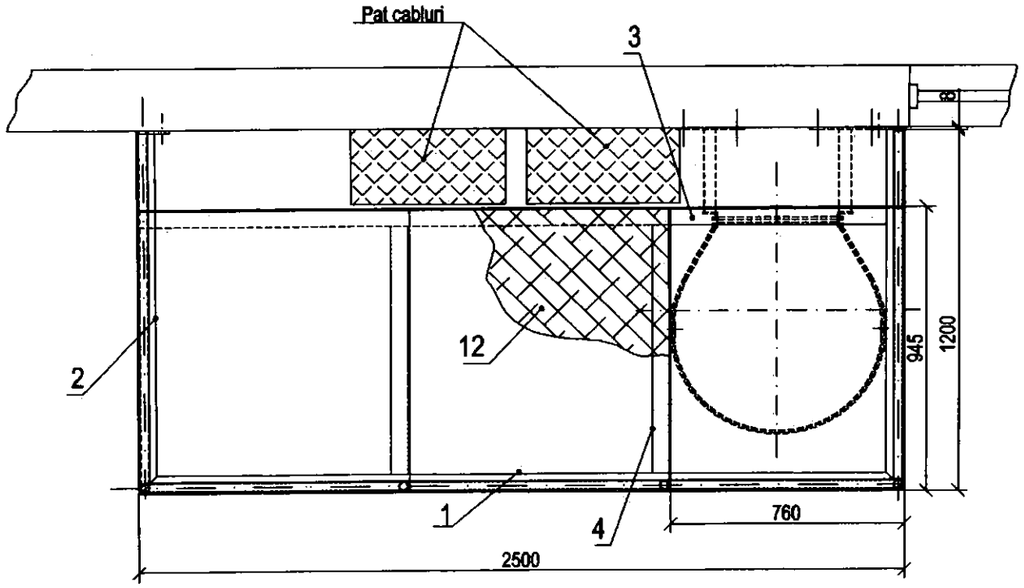
Specificatie	Nume	Semnatura	Scara	Titlu plansa	Planse nr.:
Sef Proiect	ing. F.Balasoiu		1:5	**SCARA ACCES SUPORT FEEDERI**	1/1
Proiectat	ing. A.Ionita		Data 05.04.09	Nr. desen : **FD.01.SCARA.01.05**	Rev.: 0
Desenat	ing. G.Ionita				





Detaliu A
1:2





Masa totala metal: 137kg

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa
13	Ancora conexpand M12x130	Catalog SEA	14	subans.	COD 214.63.02	0.32
12	Gratar tabla expandata (TE 306)	Pr. tip IPCT 5127-82	1	OL37.2	1710x920=1.54mp	22.17
11	Otel rotund Ø 12 R	STAS 1800-87	1	OL37	L=4950	4.36
10	Teava Ø32x4 L=1165	STAS 404/3-87	2	OL37.2		3.27
9	Teava Ø32x4 L=2490	STAS 404/3-87	1	OL37.2		6.9
8	Teava Ø32x4 L=1025	STAS 404/3-87	4	OL37.2		2.83
7	Placa 200x100x6	-	4	OL 37.2		0.95
6	Placa 380x110x8	-	2	OL 37.2		2.63
5	L 60x60x5-550	STAS 424-91	2	OL 37.2	1 buc. in oglinda	2.52
4	L 60x60x5-935	STAS 424-91	2	OL 37.2		4.33
3	L 60x60x5-2490	STAS 424-91	1	OL 37.2		11.5
2	L 60x60x5-1200	STAS 424-91	2	OL 37.2	1 buc. in oglinda	5.4
1	L 60x60x5-2500	STAS 424-91	1	OL 37.2		11.5

BENEFICIAR: Cosmote

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL: Egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasaiu		1:20
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		05.04.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **BX483_BISCA**

Faza : **DDE-PAC**

Titlu plansa: **PLATFORMA ACCES**

Plansa nr.: 1/2

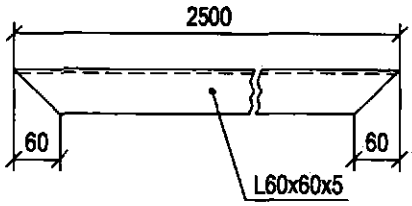
Nr. desen : **FD.01.PLATFORMA.01.01**

Rev.: 0

NOTE:

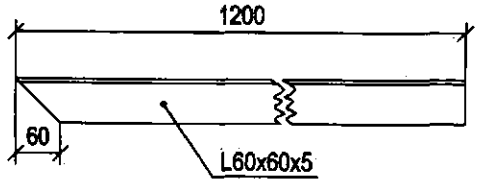
1. Executie, montaj si conditii tehnice conform "Memoriu tehnic constructii civile".
2. Capetele tevilor poz. 8,9,10 se vor ajusta corespunzator inainte de sudura.
3 Placile poz. 6, 7 se fixeaza pe fatada cladirii cu ancore conexpand M12x130 - catalog SEA, cod 214.63.
Aceasta solutie este provizorie pentru pozitia 8, urmand a se definitiva la montaj in functie de natura peretelui.
4. Pozitia 11 se va taia la dimensiunile necesare pentru sudare intre stalpi pozitia 8.

Poz. 1

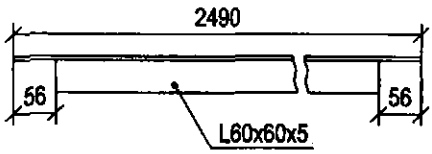


Poz. 2

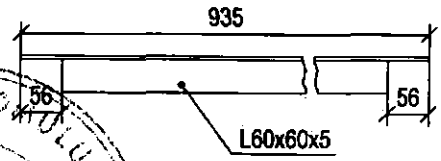
1 buc. + 1 buc. in oglinda



Poz. 3

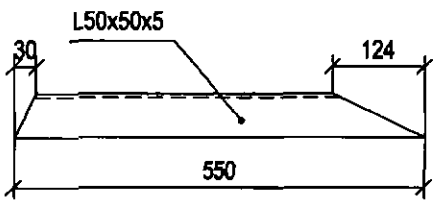


Poz. 4



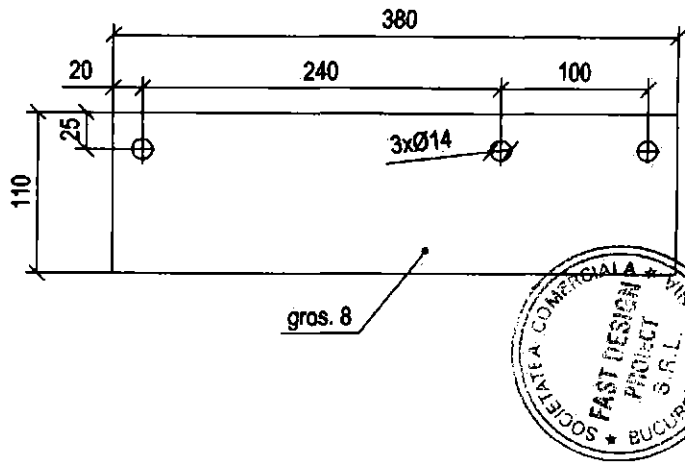
Poz. 5

1 buc. + 1 buc. in oglinda



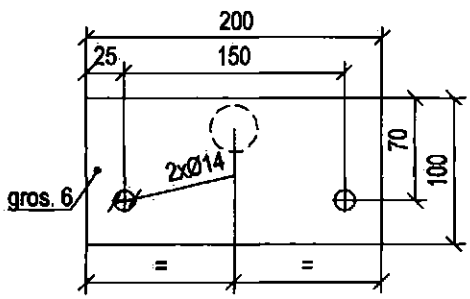
Poz. 6

1:5

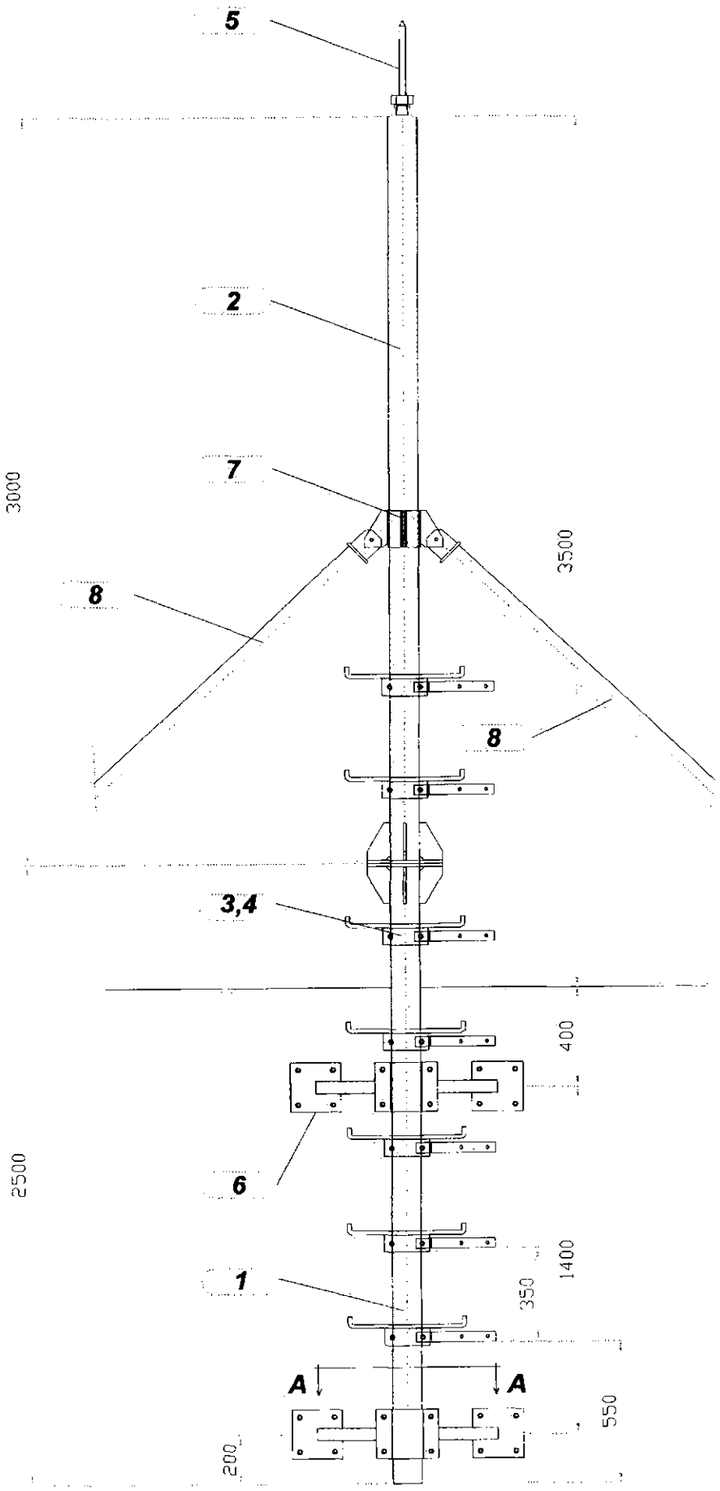


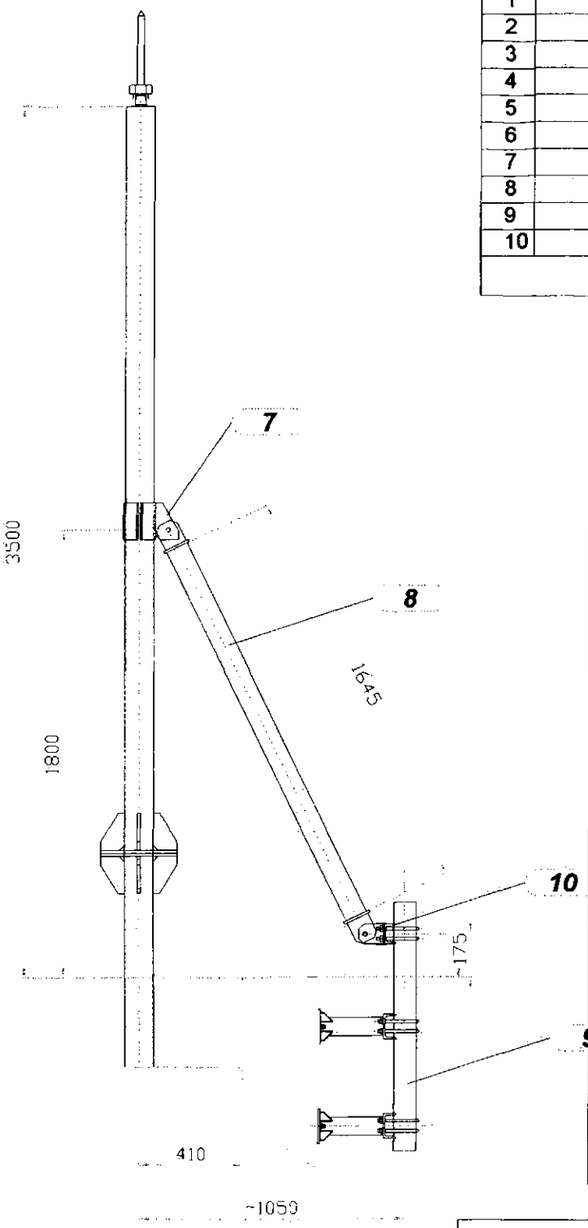
Poz. 7

1:5



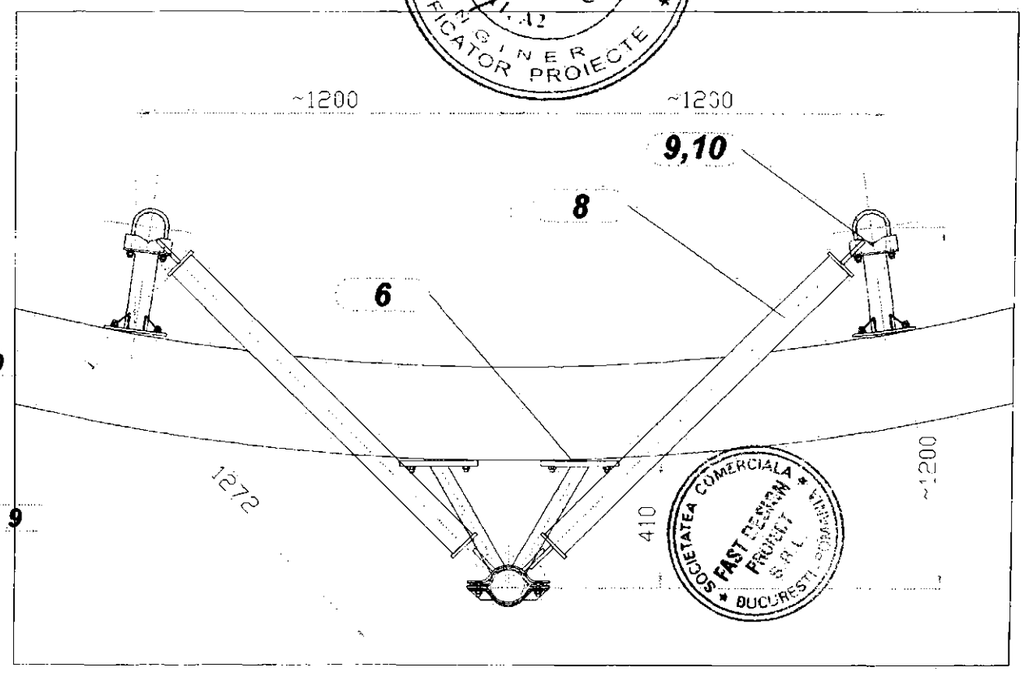
COSMOTE	BENEFICIAR	**BX483_BISCA** *Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau*	ANTREPRENOR GENERAL	egnatia ROM	
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data
SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect **BX483_BISCA**	Faza : **DDE-PAC**
Specificatie	Nume	Semnatura	Scara	Titlu plansa **PLATFORMA ACCES**	Plansa nr.: 2/2
Sef Proiect	ing. F.Balasoiu		1:10		
Proiectat	ing. A.Ionita		Data 05.04.09	Nr. desen : **FD.01.PLATFORMA.01.02**	Rev.: 0
Desenat	ing. G.Ionita				





A/A	ASSEMBLY CODE	DESCRIPTION	QUANTITY	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	1	MAST Φ114 - BASE - LG.2500mm	1	44,12	44.12
2	2	MAST Φ114 - TOP - LG.3000mm	1	41.40	41.40
3	3	STEPS F114	7	1.85	12.95
4	4	CABLE SUPPORT	7	0.96	6.72
5	5	LIGHTNING CONDUCTOR	1	0.96	0.96
6	6	MAST COLLAR Φ114	2	31.64	63.28
7	7	BRACKET Φ114 - 90 degrees	1	6,27	6,27
8	8	BRACE Φ89 LG.2000mm	2	15,72	31,44
9	9	PRINDERE PERETE	2	21,50	21,50
10	10	PRINDERE CONTRAVANTUIRE	2	3,20	6,40
		TOTAL	27		195.00

SIMION I. ROMULUS
ROMANIA
M.I.P.A.T.
137
INGINER VERIFICATOR PROIECTE



Note:

1. Conditii tehnice de executie si montaj conform "Memoriu tehnic".

COSMOTE — BENEFICIAR

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL — Egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:10
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		26.05.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: ***BX483_BISCA***

Faza : DDE-PAC

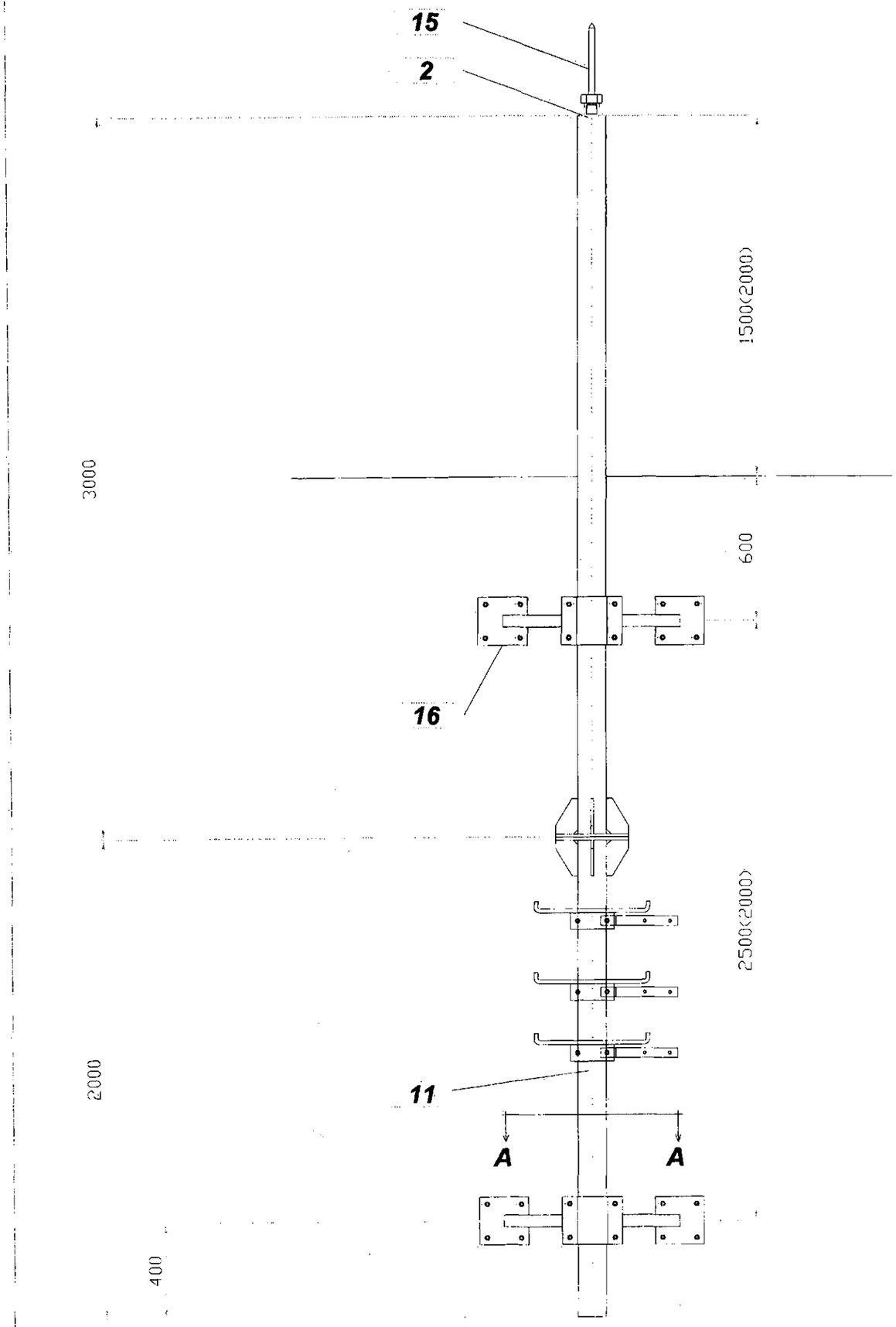
Titlu plansa: CATARG PERETE 5.50m

Plansa nr.: 1/1

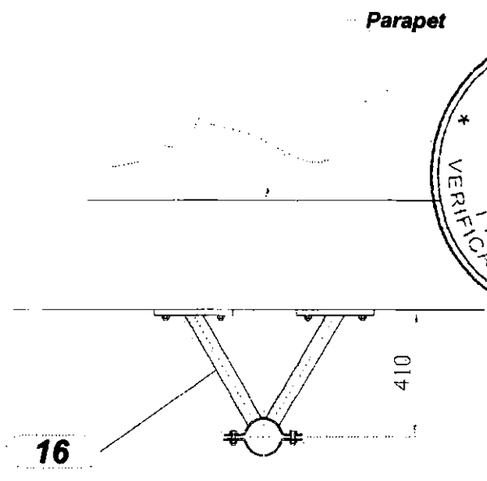
Nr. desen : FD.01.Catarg 5.5m.01.01

Rev.: 0

A/A	ASSEMBLY CODE	DESCRIPTION	QUANTITY	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	11	MAST Φ114 - BASE - LG.2000mm	1	33.04	33.04
2	2	MAST Φ114 - TOP - LG.3000mm	1	41.40	41.40
3	13	STEPS F114	3	1.850	5.550
4	14	CABLE SUPPORT	3	0.960	2.880
5	15	LIGHTNING CONDUCTOR	1	0.960	0.960
6	16	MAST COLLAR Φ114	2	31.646	63.292
7		TOTAL	11		148.00



A - A



SIMION I. ROMULUS
ROMANIA
INGINER VERIFICATOR PROIECTE
AUTORIZAT
NR.
AIA2

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCUREȘTI, ROMÂNIA

cosmote — BENEFICIAR

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL — egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **BX483_BISCA**

Faza : DDE-PAC

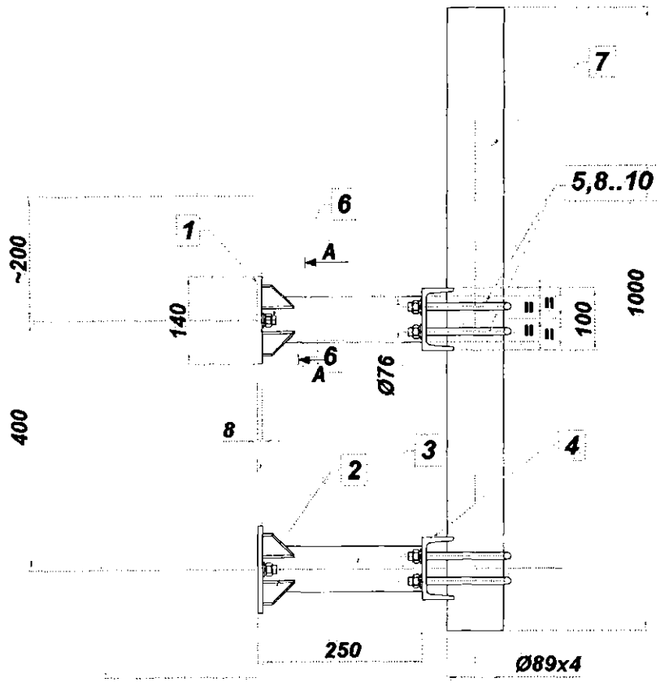
Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:10
Proiectat	ing. A.Ionita		Data 05.04.09
Desenat	ing. G.Ionita		

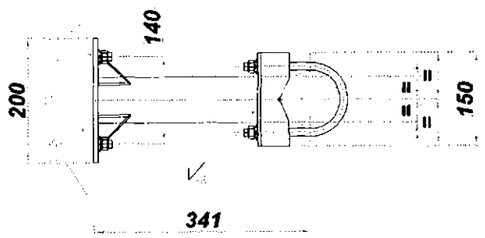
Titlu plansa: CATARG PERETE 5.00m

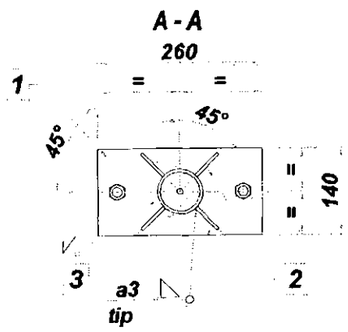
Plansa nr.: 1/1

Nr. desen : FD.01.Catarg 5m.01.01

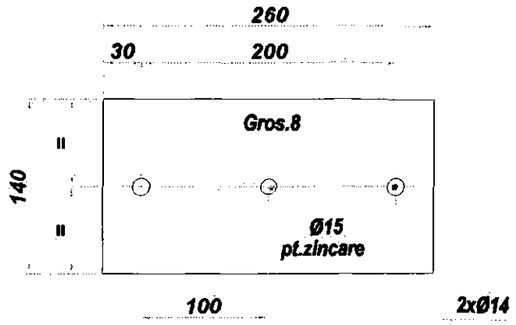
Rev.: 0



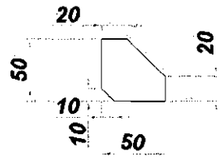




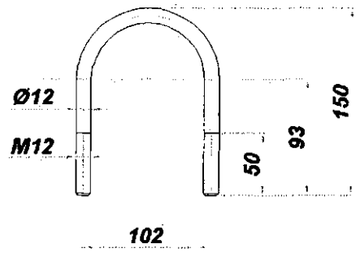
Poz. 1
sc. 1:5



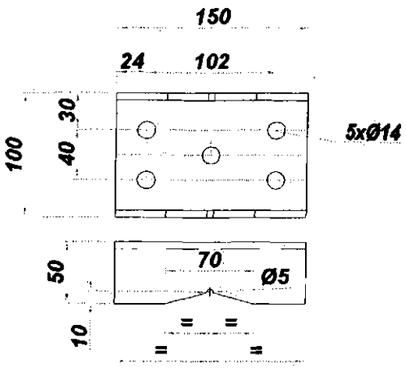
Poz. 2
sc. 1:5



Poz. 5
sc. 1:5



Poz. 4
sc. 1:2



Masa totala = 21.50 kg

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
10	Piulita M12	STAS 4071	12	Gr. 6		0.0173
9	Saiba 12	STAS 5200/4	12	OL 34		0.0063
8	Saiba N12	SR 7666/2	12	OLC 55A		0.0020
7	Brat prindere contravantuire	Tv Ø89x4 STAS 404/3-87	1		L = 1000mm	8.40
6	Ancora W-FA M12-30	Catalog Wurth	2	subans.	Cod 904 112 30	0.15
5	Surub U M12x089-110	TW1-CV-002	4	subans.		0.35
4	Profil U10-150mm	STAS 564	2	OL 37.2		1.82
3	Teava Ø76x5 - 250mm	STAS 404/1	2	OLT 35		2.5
2	Nervura 4x50x50	-	8	OL 37.2		0.05
1	Placa 8x140x260	-	2	OL 37.2		1.76

BENEFICIAR: COSMOTE

ANTREPRENOR GENERAL: egnatia ROM

NOTA:

1. ***Abaterile limita pentru prelucrari mecanice conform SR EN 22768-1:95, clasa m.***
2. ***Abateri limita pentru constructii sudate conform SR EN ISO 13920:1998 clasa F.***
3. ***Abateri limita pentru prelucrari prin deformare plastica conform STAS 11111-86, clasa 2.***
4. ***Dupa sudura, subansamblul se va detensiona.***
5. ***Subansamblul sudat se va zinca termic conform STAS 7221-90.*** Stratul de zinc este minim 80µm.
6. Organele de asamblare se vor zinca electrolitic conf. STAS 2700/8-82. Stratul este de 12µm.

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1 : 10
Proiectat	ing. A.Ionita		Data
Desenat	arh. G.Ionita		25.05.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : EI01

Titlu proiect: SITE GSM

Faza : DDE+PAC

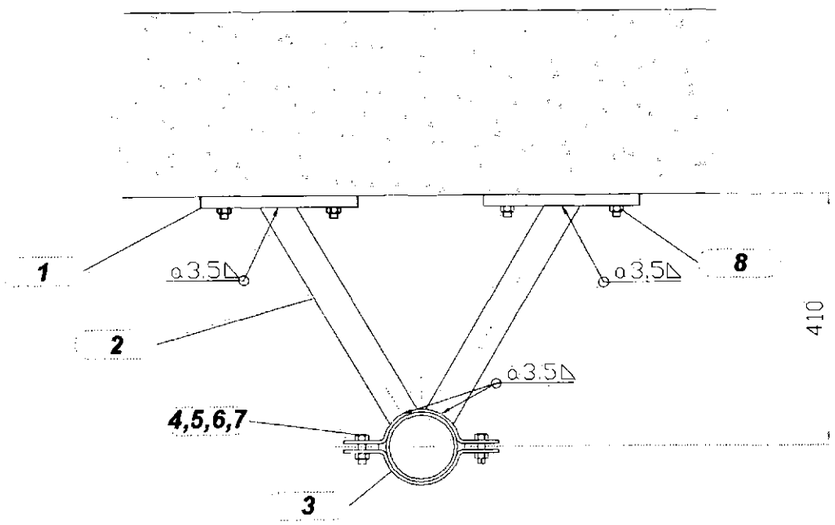
Titlu plansa: ***CATARG 5.5m PRINDERE PERETE***

Plansa nr.: 1/1

Nr. desen : ***FD-01.PR PERETE.01.01***

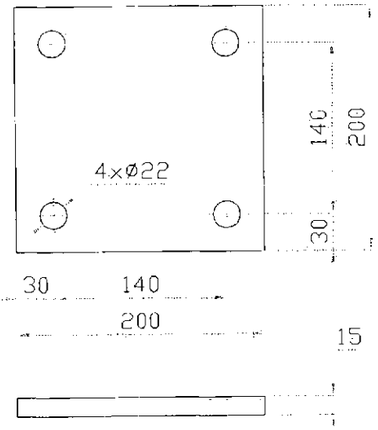
Rev.: 0

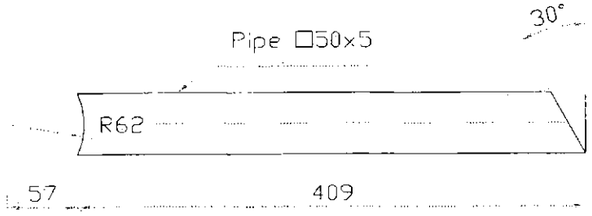
A/A	ASSEMBLY CODE	DESCRIPTION	QUANTITY	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	1	PLATE	4	4.710	18.840
2	2	BRACE FOR WALL	2	2.890	5.780
3	3	MAST COLLAR Φ114	2	2.355	4.710
4	4	BOLT M12x40 DIN 7990	4	0.049	0.196
5	5	NUT M12 DIN 934	4	0.011	0.044
6	6	WASHER Φ12 DIN 125A	4	0.006	0.024
7	7	GROVER B12 DIN 127B	4	0.003	0.012
8	8	Chemical anchor M20 – 120	8	0.240	1.920
		TOTAL	80		31.64

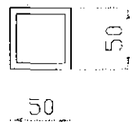


Pos. 1
Sc. 1:5

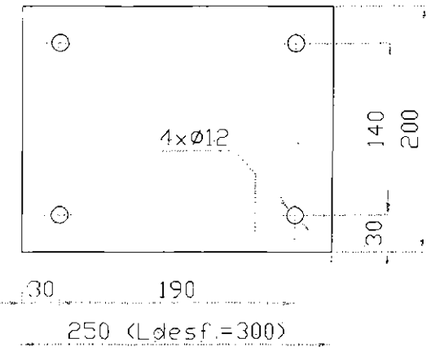
Pos. 2
Sc. 1:5

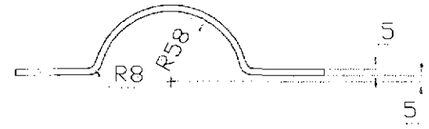


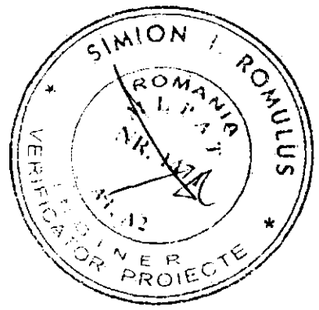




Pos. 3
Sc. 1:5







BENEFICIAR: cosmote

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD01

Titlu proiect : SITE GSM 900-1800

Faza : DDE-PAC

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:10
Proiectat	ing. F.Balasoiu		Data 10.03.09
Desenat	ing. A.Tane		

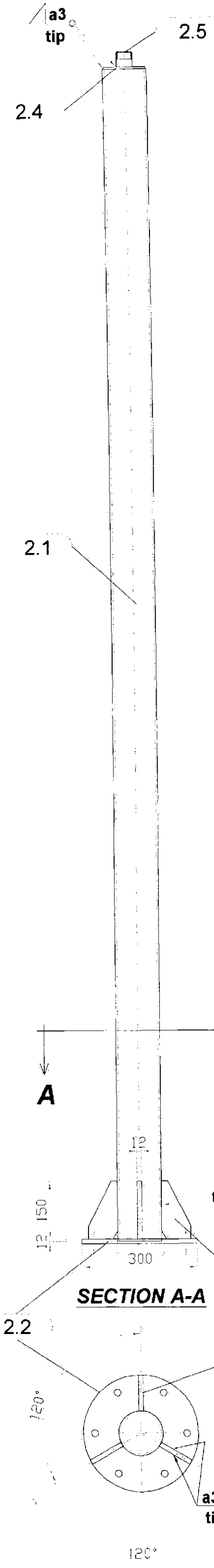
Titlu plansa : Wall support

Plansa nr.: 1/1

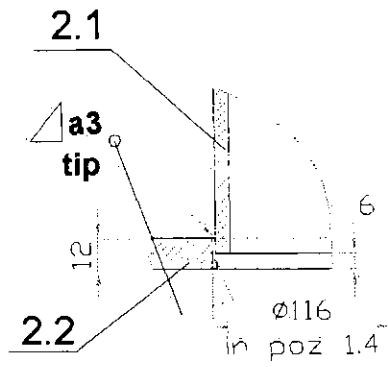
Nr. desen : FD-01.Wall support.01.01

Rev.: 0

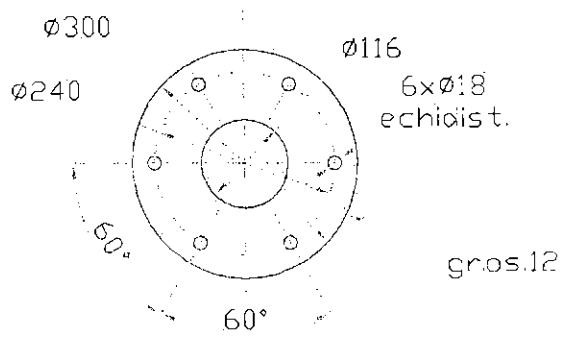
A/A	CODE	QUANTITY	PROF...	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	2.1	1	Φ114x4		3000	OLT 35	32,64	32,64
2	2.2	1	Tb.12	300	300	OL 37.2	5,70	5,70
3	2.3	3	Tb.12	75	150	OL 37.2	0,92	2,76
4	2.4	1	Tb.5-Ø110	110	110	OL 37.2	0,30	0,30
5	2.5	1	NIPEL 1 1/4"			OL 37.2		
6	2.6	6	BOLT M16					
7	2.7	6	NUT M16					
8	2.8	6	WASHER Φ16					
9	2.9	6	GROVER B16					
TOTAL								41,40



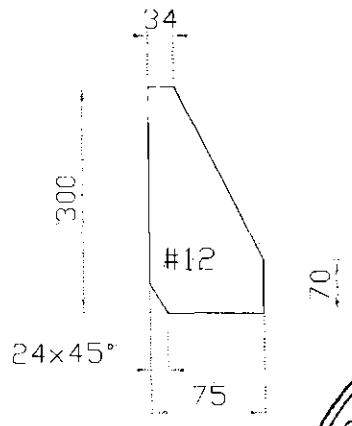
Detaliu asamblare poz. 2.1 cu poz. 2.2

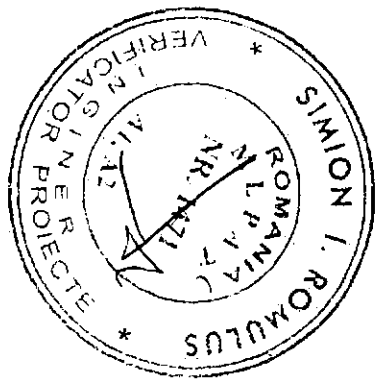


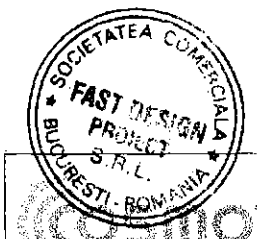
Poz.2.2



Poz.2.3



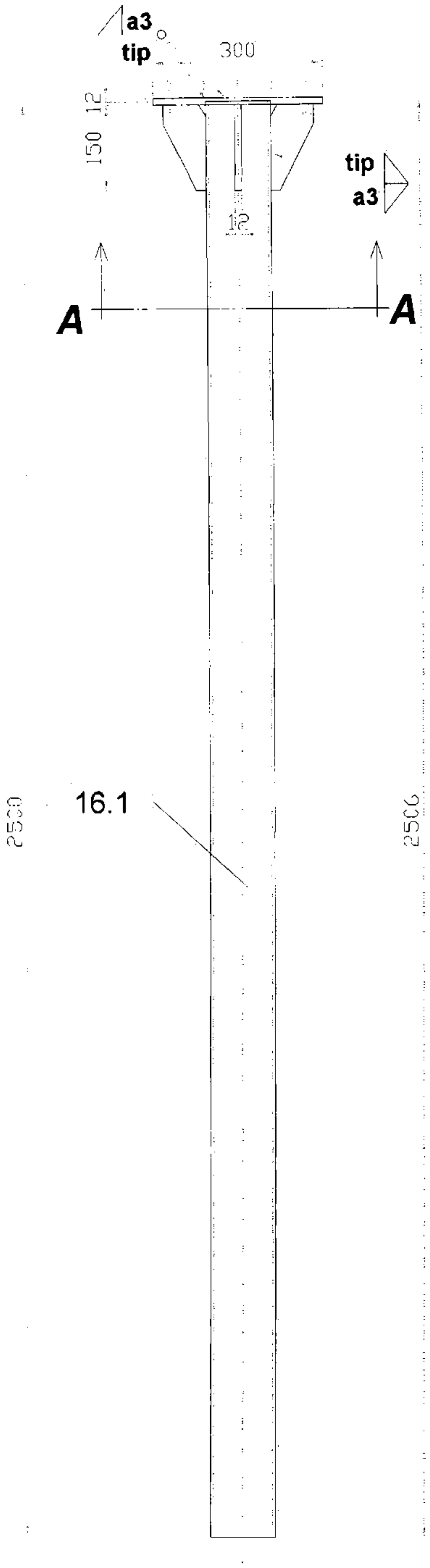




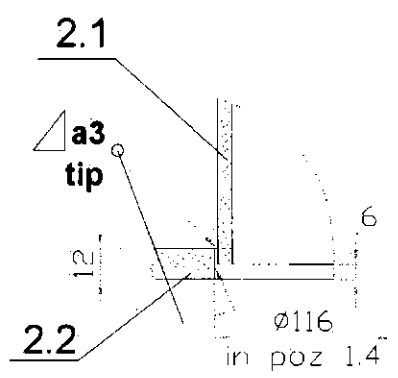
	BENEFICIAR			ANTREPRENOR GENERAL	egnatia ROM
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect: *SITE GSM 900-1800*	Faza : *DDE-PAC*
Specificatie	Nume	Semnatura	Scara	Titlu plansa: *Top lg.3000*	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		*1:10*		
Proiectat	ing. A.Ionita		Data	Nr. desen : *FD.01.Top 3000.01.10*	Rev.: 0
Desenat	arh. G .Ionita		*26.01.09*		

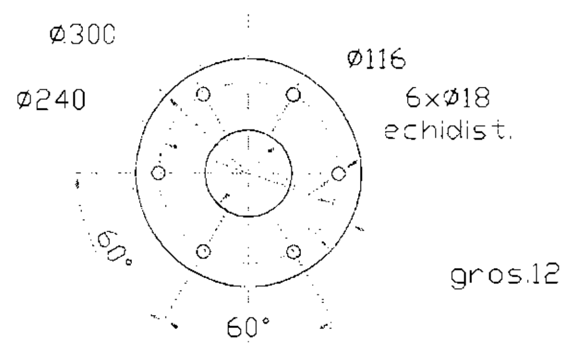
A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**16.1**	**1**	Φ114x4		2500	OLT 35	27,20	27,20
2	**16.2**	**2**	Tb.12	300	300	OL 37.2	5,70	11,40
3	**16.3**	**6**	Tb.12	75	150	OL 37.2	0,92	5,52
4	**16.4**	**6**	BOLT M16					
5	**16.5**	**6**	NUT M16					
6	**16.6**	**6**	WASHER Φ16					
7	**16.7**	**6**	GROVER B16					
			TOTAL					**44,12**



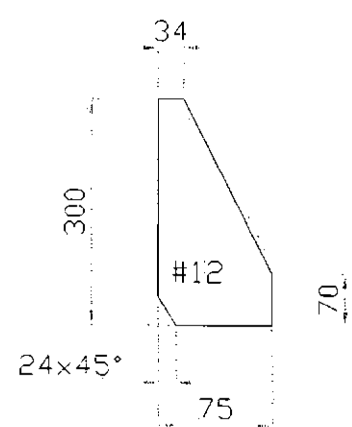
Detaliu asamblare
poz. 2.1 cu poz. 2.2



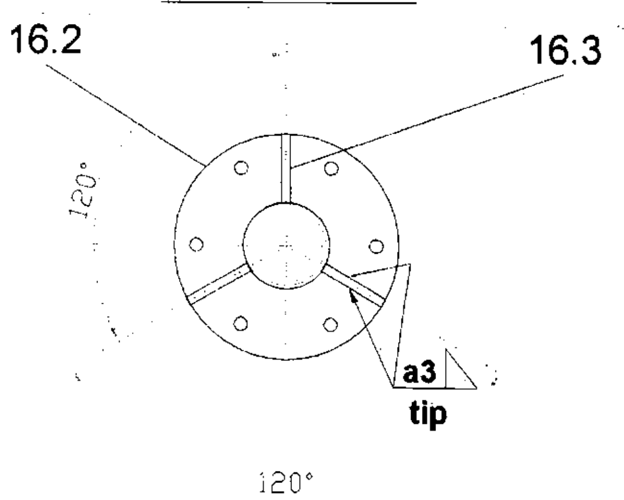
Poz.2.2



Poz.2.3



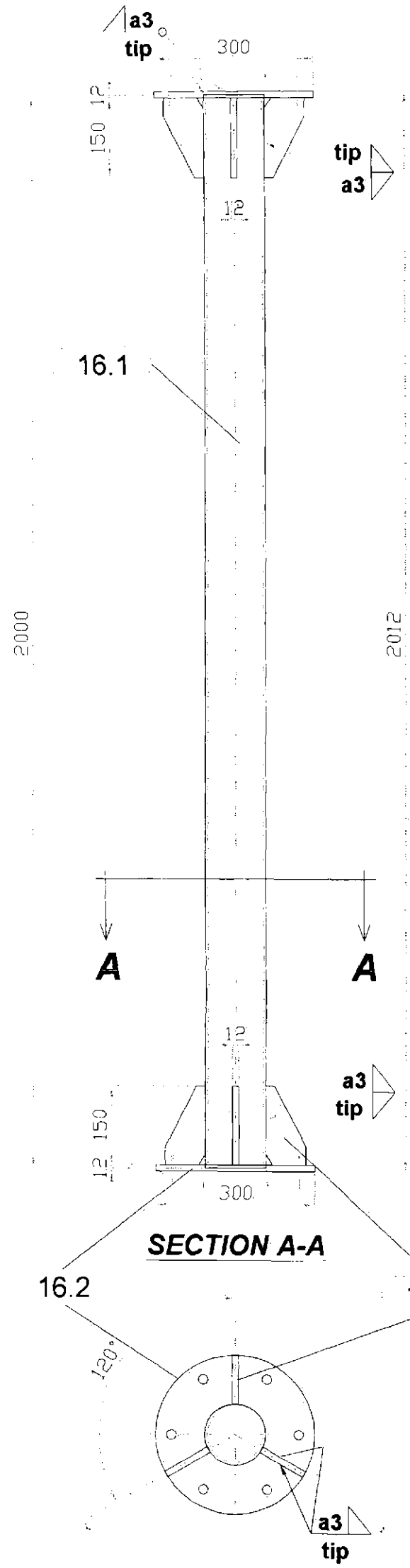
SECTION A-A



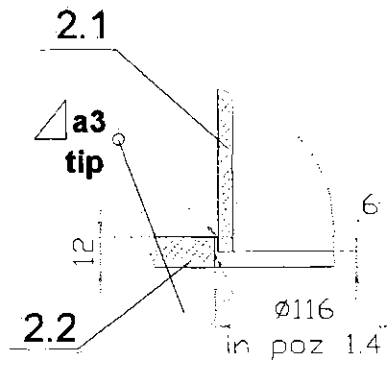
BENEFICIAR			ANTREPRENOR GENERAL	egnatia ROM
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr. — Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3		Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
		Titlu proiect SITE GSM 900-1800	Faza : DDE-PAC
Specificatie / Nume / Semnatura	Scara 1:10	Titlu plansa ***CATARG 5.5m Middle LG2500***	Plansa nr.: 1/1
Sef Proiect: ing. F.Balasoiu Proiectat: ing. A.Ionita Desenat: ing. G.Ionita	Data 01.04.09	Nr. desen : ***FD-01.MIDDLE 2500.01.01***	Rev.: 0

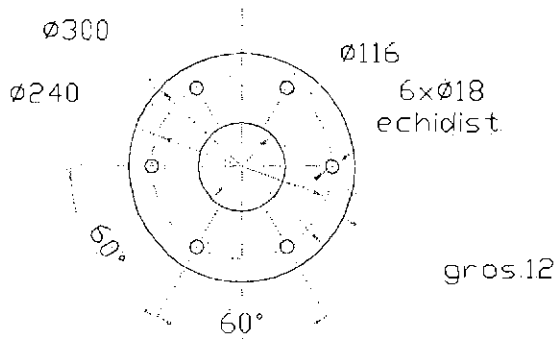
A/A	CODE	QUANTITY	PROF.	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**16.1**	**1**	Φ114x4		2000	OLT 35	21,42	32,64
2	**16.2**	**2**	Tb.12	300	300	OL 37.2	5,70	11,40
3	**16.3**	**6**	Tb.12	75	150	OL 37.2	0,92	5,52
4	**16.4**	**6**	BOLT M16					
5	**16.5**	**6**	NUT M16					
6	**16.6**	**6**	WASHER Φ16					
7	**16.7**	**6**	GROVER B16					
TOTAL								**49,56**



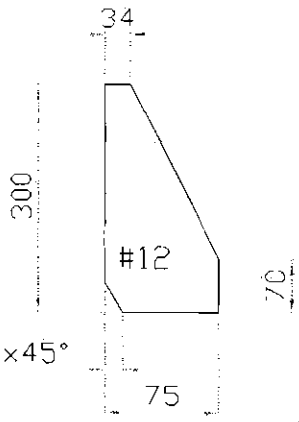
Detaliu asamblare poz. 2.1 cu poz. 2.2

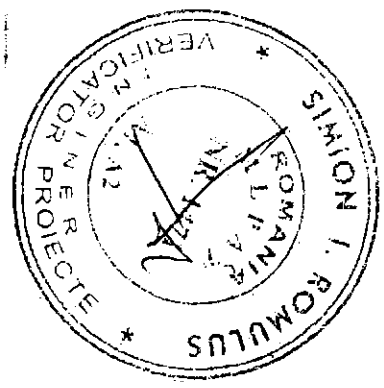


Poz.2.2



Poz.2.3





cosmote

ANTREPRENOR GENERAL

egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

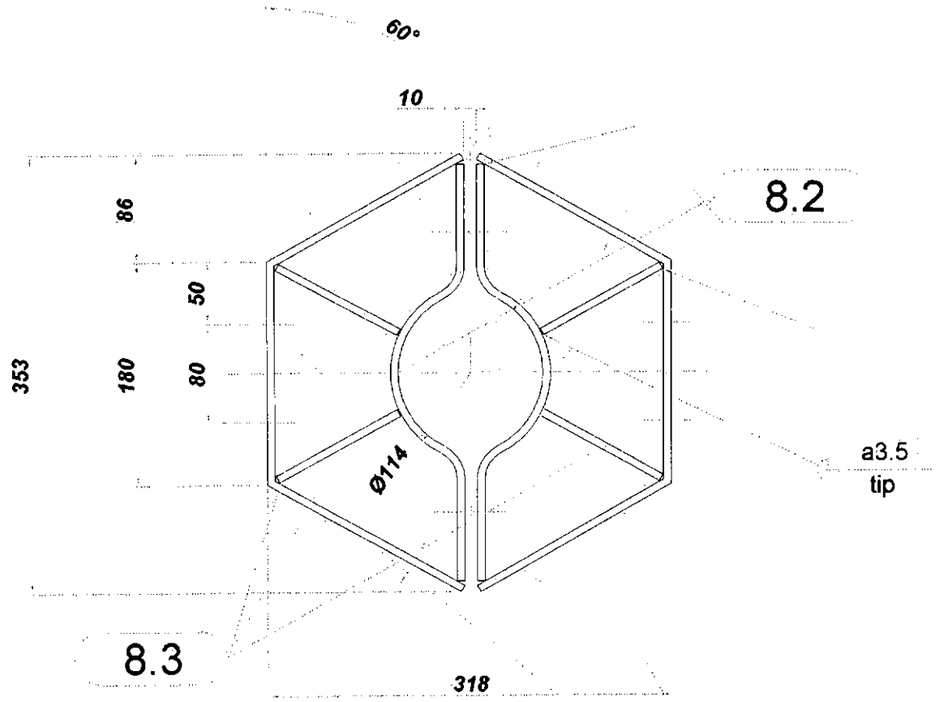
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura
Sef Proiect	ing. F.Balasoiu	
Proiectat	ing. A.Tane	
Desenat	ing. A.Balaban	

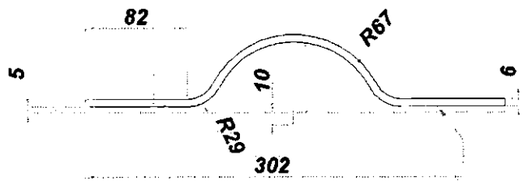
Scara 1:10
Data 01.03.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. : FD01
Titlu proiect : SITE GSM 900-1800
Faza : DDE-PAC
Titlu plansa : ***CATARG 11m MIDDLE LG2000***
Plansa nr.: 1/1
Nr. desen : ***FD-01.Middle 2000.01.01***
Rev.: 0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**8.1**	**2**	Tb.6	60	528	OI 37.2	1,49	2,98
2	**8.2**	**2**	Tb.6	60	375	OI 37.2	1,06	2,12
3	**8.3**	**4**	Tb.6	60	108	OI 37.2	0,31	1,22
4	**8.4**	**3**	Brida U-M10		230	OI 37.2	0,14	0,43
5	**8.5**	**2**	Surub M12		40			
6	**8.6**	**2**	Piulita M12					
7	**8.7**	**2**	Saiba plata Φ12					
8	**8.8**	**2**	Grover N12					
TOTAL								**6,75**

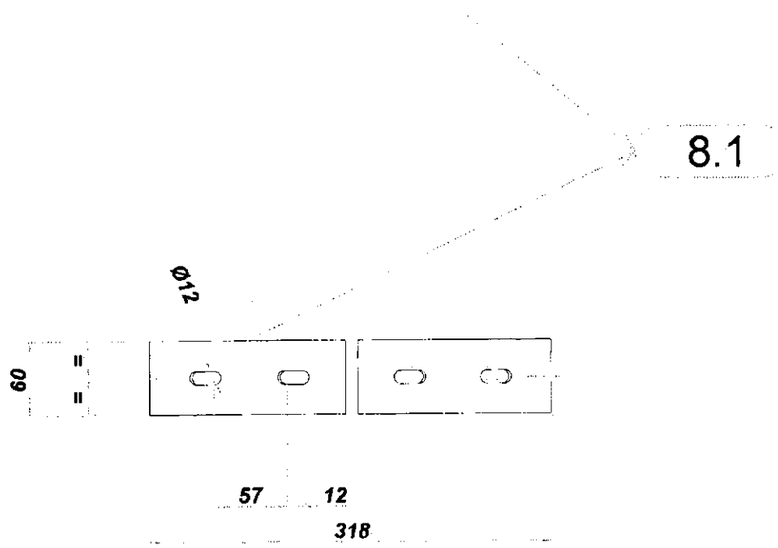


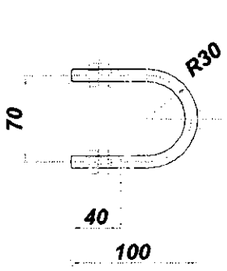
Poz.8.2



2xØ14

8.4





BENEFICIAR | ANTREPRENOR GENERAL

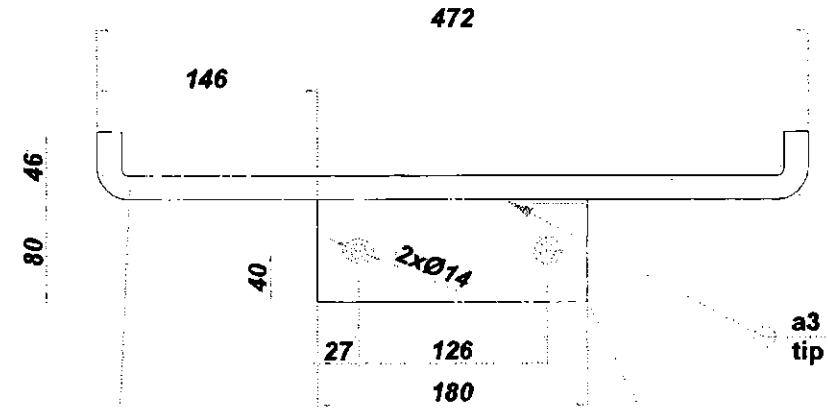
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

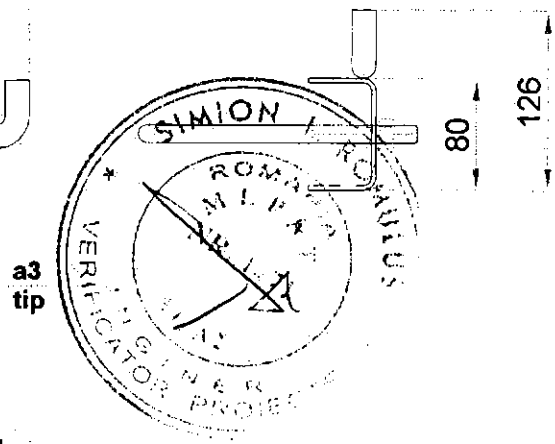
SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:5
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		01.04.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. : FD.01
Titlu proiect : SITE GSM 900-1800
Faza : DDE-PAC
Titlu plansa : MAST 11m - Hexagon antenna pole support
Plansa nr.: 1/1
Nr. desen : FD-01.HEXAGON.01.01
Rev.: 0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	13.1	1	Profil U8		180	STAS 524	0,68	0,68
2	13.2	1	Rotund.16		500	OL 37.2	0,79	0,79
3	13.3	1	Brida U-M12		430	OL 37.2	0,38	0,38
4	13.4	2	Piulita M12					
5	13.5	4	Saiba plata Φ12					
TOTAL								1,85



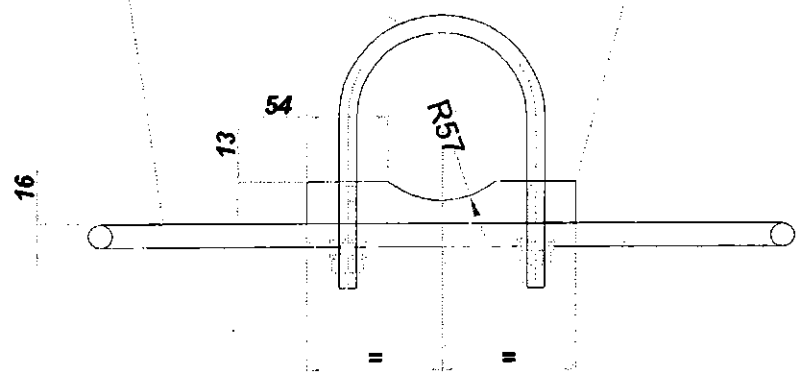


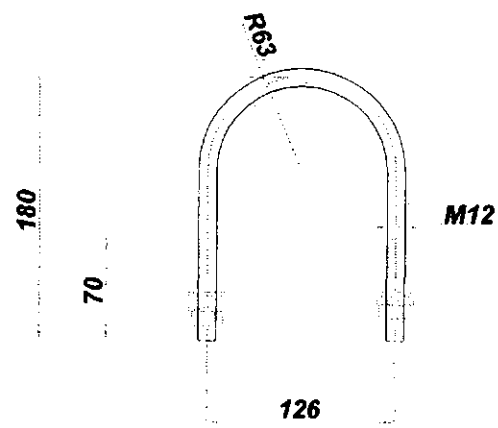
13.2

13.1

Poz.13.3

13.3





BENEFICIAR

ANTREPRENOR GENERAL

ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:10
Proiectat	ing. A.Ionita		Data
Desenat	arh. G .Ionita		26.01.09

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect: **SITE GSM 900-1800**

Faza : **DDE-PAC**

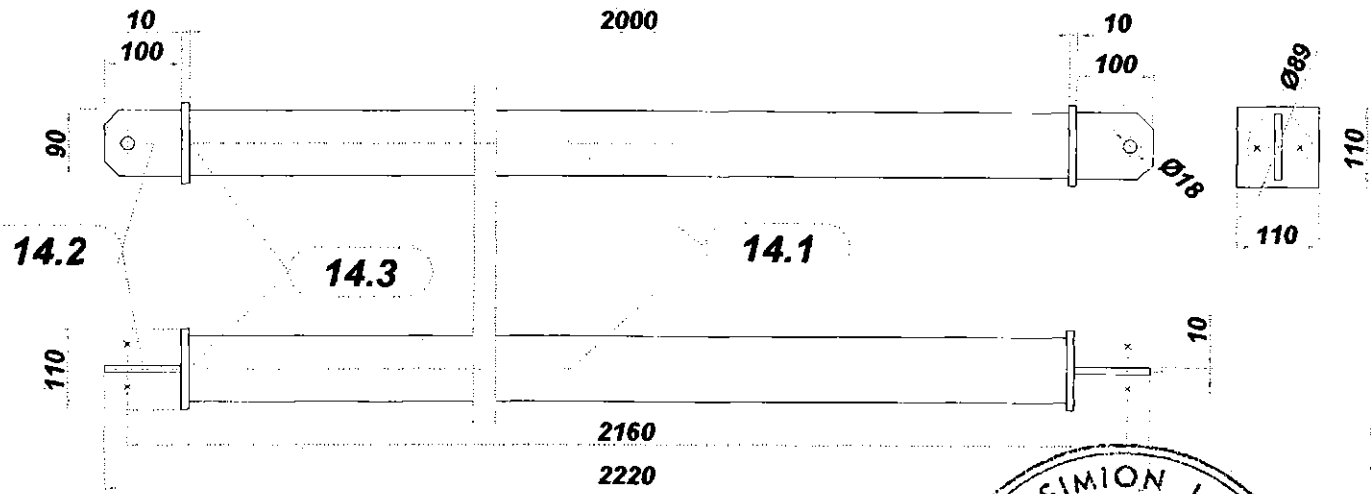
Titlu plansa: **Step Ø114mm**

Plansa nr.: 1/1

Nr. desen : **FD.01.Step Support.01.10**

Rev.: 0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**14.1**	**1**	Φ88,9x3		2000	St37.2	12,72	12,72
2	**14.2**	**2**	PL.10	90	100	St37.2	0,71	1,41
3	**14.3**	**2**	PL.10	110	110	St37.2	0,95	1,90
4	**14.4**	**2**	BOLT M16		50	DIN 7990		
5	**14.5**	**2**	NUT M16			DIN 934		
6	**14.6**	**2**	WASHER Φ16			DIN 125A		
7	**14.7**	**2**	GROVER B16			DIN 127B		
TOTAL								**15,72**



SIMION I. ROMULUS
ROMANA
NR. 14
AL. 12
INGINER VERIFICATOR PROIECTE

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

BENEFICIAR

ANTREPRENOR GENERAL

egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD01

Titlu proiect: SITE GSM 900-1800

Faza : DDE-PAC

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F.Balasoiu		1:10
Proiectat	ing. A.Ionita		Data
Desenat	ing. G.Ionita		10.03.09

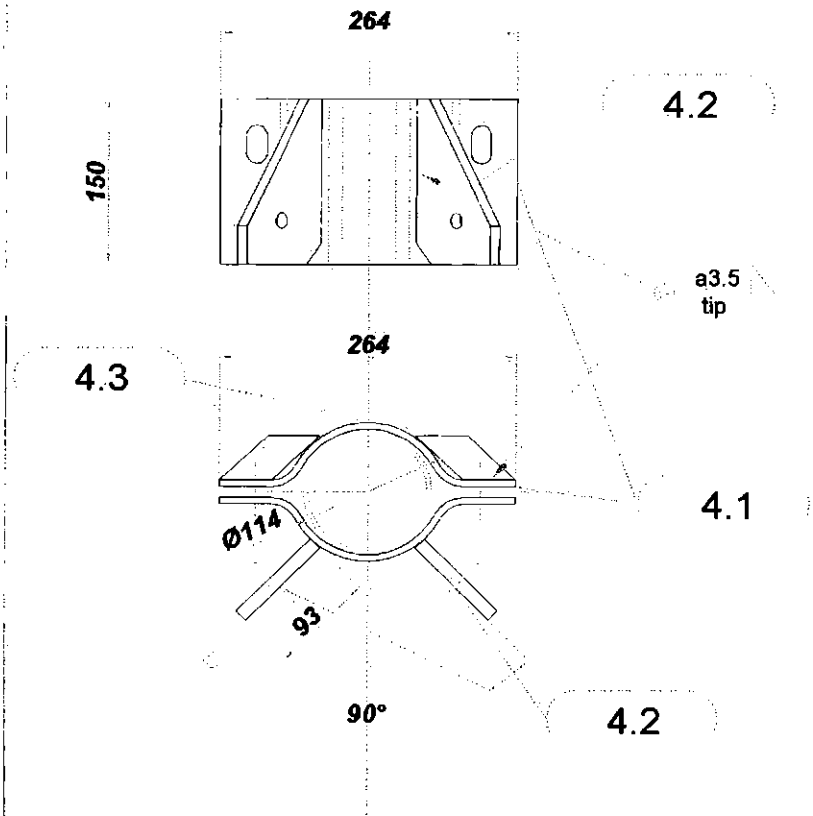
Titlu plansa: Bracing Ø89mm LG 2000mm

Plansa nr.: 1/1

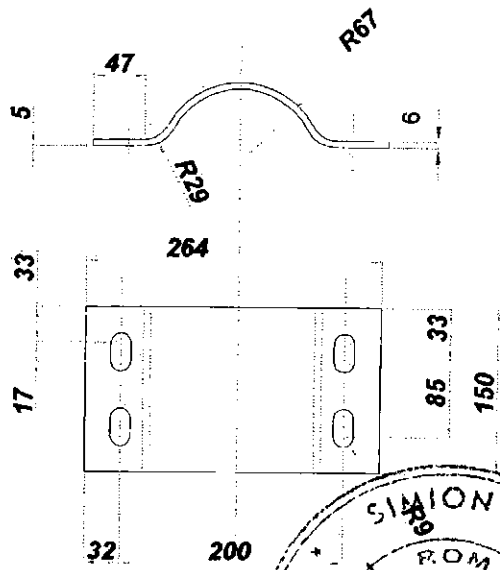
Nr. desen : FD-01.BRACE 2000m.01.01

Rev.: 0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**4.1**	**2**	Tb.6	150	300	OL 37.2	2,12	4,24
2	**4.2**	**2**	Tb.12	93	150	OI 37.2	0,92	1,84
3	**4.3**	**2**	Tb.5	40	46.5	OI 37.2	0,09	0,19
4	**4.4**	**4**	Surub M16		50			
5	**4.5**	**4**	Piulita M16					
6	**4.6**	**4**	Saiba plata Φ16					
7	**4.7**	**4**	GROVER N16					
TOTAL								**6,27**

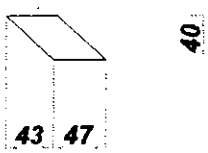


Poz.4.1



Poz.4.2

Poz.4.3



COSMOTE — BENEFICIAR

ANTREPRENOR GENERAL — egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

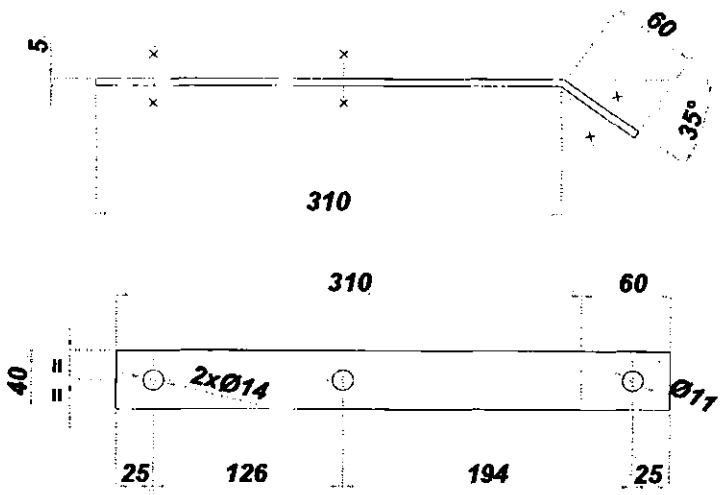
Proiect nr. : FD.01

Titlu proiect: **SITE GSM 900-1800**

Faza : **DDE-PAC**

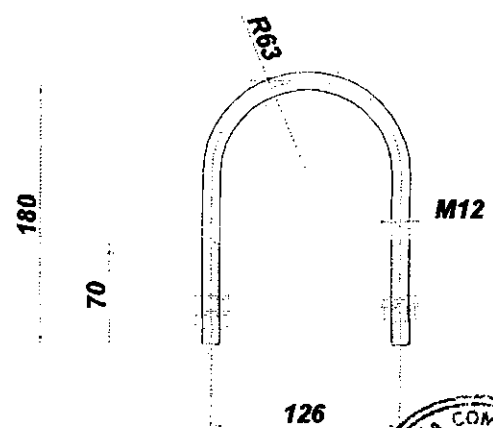
Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		**1:10**	**BRACKET 90°**	1/1
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	arh. G .Ionita		**26.01.09**	**FD.01.Bracket 90.01.10**	0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**14.1**	1	Tb.5	40	370	OL 37.2	0,58	0,58
2	**14.2**	1	Brida U-M12		430		0,38	0,38
TOTAL								**0,96**



14.1

Poz.14.2



SIMION I. ROMULUS ROMANIA INGINER VERIFICATOR PROIECTE

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCUREȘTI - ROMANIA

BENEFICIAR

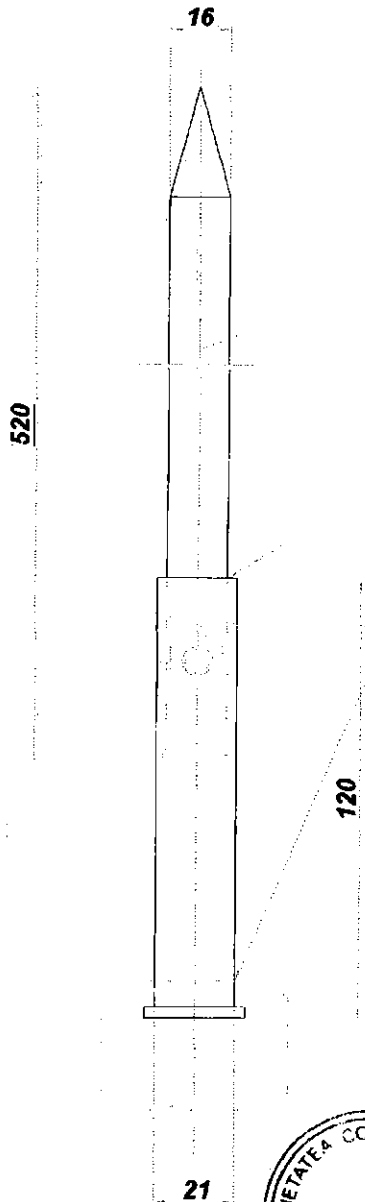
ANTREPRENOR GENERAL

egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect ***SITE GSM 900-1800***	Faza : ***DDE-PAC***
Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		*1:10*	***Cable support Ø114mm***	1/1
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	arh. G .Ionita		*26.01.09*	***FD.01.Cable Support.01.10***	0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	**15.1**	**1**	Rotund.16		520	OI 37.2	0,82	0,82
2	**15.2**	**1**	Φ21x2		120	OI 37.2	0,14	0,14
3	**15.3**	**1**	Surub M8					
4	**15.4**	**1**	Piulita M48					
TOTAL								**0,96**



SIMION I. ROMULUS ROMANIAN NR. 12 INGINER VERIFICATOR PROIECTE

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI ROMANIA

BENEFICIAR

ANTREPRENOR GENERAL

egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Data
Sef Proiect	ing. F.Balasoiu		1:10	26.01.09
Proiectat	ing. A.Ionita			
Desenat	arh. G .Ionita			

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr.: FD.01

Titlu proiect: ***SITE GSM 900-1800***

Faza: ***DDE-PAC***

Titlu plansa: ***LIGHTINING CONDUCTOR***

Plansa nr.: 1/1

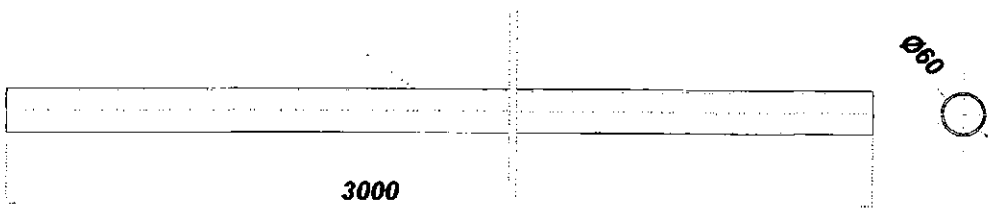
Nr. desen : ***FD.01.Lightining.01.10***

Rev.: 0

A/A	CODE	QUANTITY	PROFILE	WIDTH (mm)	LENGTH (mm)	MATERIAL	WEIGHT PER QUANTITY [Kg]	TOTAL WEIGHT [Kg]
1	9.1	1	Φ60x3		3000	St37.2	12,72	12.72
TOTAL								12.72

SIMION I. ROMULUS ROMANIA NR. AI.A2 INGINER VERIFICATOR PROIECTE

9.1



SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

BENEFICIAR cosmote

ANTREPRENOR GENERAL egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

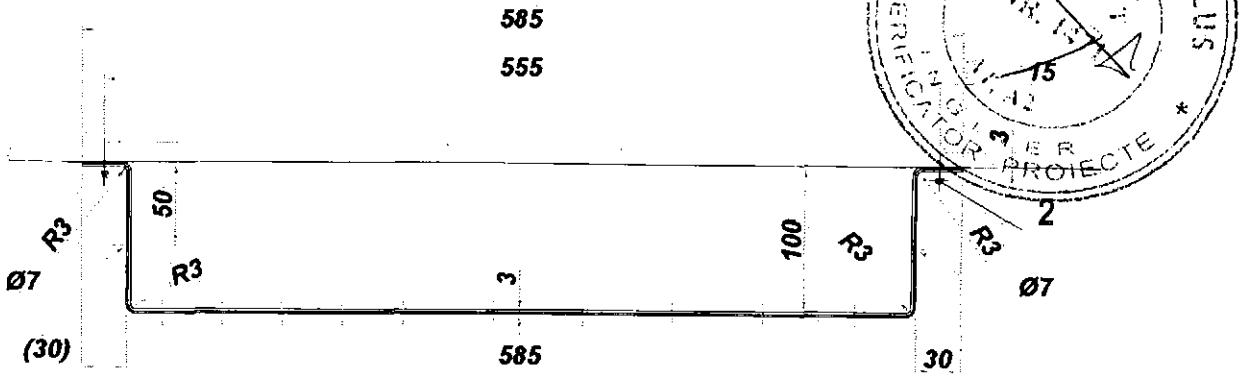
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

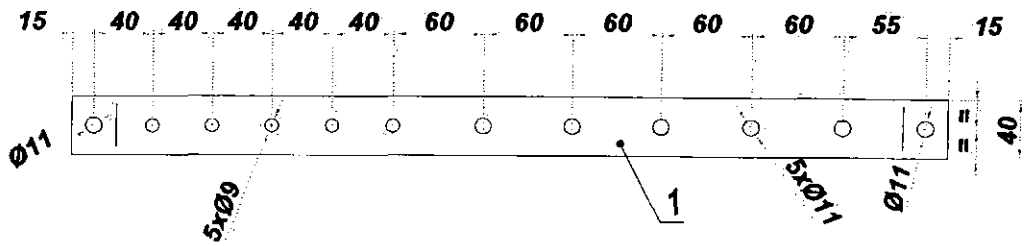
Proiect nr. : FD.01

Titlu proiect: ***SITE GSM 900-1800***

Faza : ***DDE-PAC***

Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		*1:10*	***RF Pole Ø60mm - 3m***	1/1
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	arh. G .Ionita		*27.01.09*	***FD-01.RF Pole.01.01***	0





NOTA:
1. Abaterile limita pentru prelucrari mecanice conform SR EN 22768-1:95, clasa m.
3. Abateri limita pentru prelucrari prin deformare plastica conform STAS 11111-86, clasa 2.
5. Subansamblul se va zinca termic conform STAS 7221-90. Stratul de zinc este minim 80µm.
6. Organele de asamblare se vor zinca electrolitic conf. STAS 2700/8-82. Stratul este de 12µm.

Masa totala : 0.80 Kg.

Poz.	Denumire	Referinta	Cant.	Material	Observatii	Masa kg/buc.
2	Conespand Ø12		2			0.011
1	Consola 3x40x837		1	OL37.2		0.778

BENEFICIAR

BX483_BISCA

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

ANTREPRENOR GENERAL

egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Scara	Titlu plansa	Plansa nr.:
Sef Proiect	ing. F.Balasoiu		1:20	**SUPORT CABLURI PE ZID**	1
Proiectat	ing. A.Ionita		Data	Nr. desen :	Rev.:
Desenat	ing. G.Ionita		05.04.09	FD.01.Suport cabluri.01.01	0

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Proiect nr. : FD.01

Titlu proiect **BX483_BISCA**

Faza : DDE_PAC

Project Name:**STATII FIXE DESTINATE TELEFONIEI MOBILE SISTEM GSM**
Client: **EGNATIA ROM**
Site Code: **BX 483**

Document Name:

MEMORIU TEHNIC / DESIGN DESCRIPTION

- Electrical Works -

Code:

FD.01.BX_483_MTE

REVISIONS

Rev.	*Description*	*Date*	*Prepared*	*Checked*
0	First issue	-	-	-

PREPARED		CHECKED		APPROVED	
Date	*Name*	*Date*	*Name*	*Date*	*Name*
06.05.2009	A.Cardos	06.05.2009	A.Ionita	06.05.2009	F.Balasoiu

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

CUPRINS

CONTENT

1. DATE GENERALE

1.1 DENUMIREA LUCRARII

Instalatii electrice aferente statiei fixe de emisie -receptie pentru telefonia mobila– sistem GSM.

1.2 AMPLASAMENT

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

1.3 BENEFICIAR

SC COSMOTE SA

2. SCOPUL LUCRARII

Prezentul proiect stabileste conditiile tehnice de executie, montaj si receptie pentru realizarea obiectivului si anume instalarea de echipament pentru statii fixe destinate telefoniei mobile - sistem GSM 900-1800.

3. DATE TEHNICE ALE LUCRARII

Proiectarea instalatiei electrice pentru alimentare cu energie electrica a consumatorului s-a facut conform cerintelor beneficiarului.

Statia este formata din:

- echipament de emisie – receptie : antene radio si microunde exterioare amplasate pe catarge de perete H=5.5m si 5m;
- doua RBS 2106 Ericsson;
- instalatia de alimentare cu energie electrica;
- instalatia de paratraznet si de legare la pamant.

3.1 CARACTERISTICILE ELECTRICE ALE OBIECTIVULUI

- Putere instalata: P_i = 10 kW
- Putere simultan absorbita: P_{sma}= 8 W

1. GENERAL DATA

1.1 NAME OF WORK

Electrical installations for the base station for GSM mobile telecommunication system.

1.2 LOCATION

Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau

1.3 CLIENT

SC COSMOTE SA

2. SCOPE OF WORK

This project sets the technical manufacturing, assemblage and reception requirements for the objective's achievement, namely the equipment installation for fixed stations for mobile radio communication networks - GSM system.

3. TECHNICAL INFORMATION

The design of the electric installation for the consumer's electric power supply, has been made according with the client's requirements.

The station consists of:

- emission – reception equipment: outdoor RF antennas, outdoor microwave antennas placed on 5m and 5.5m height braced masts;
- Two RBS 2106 Ericsson;
- the equipment for the electric power supply;
- the equipment for the connection to the ground, the lightning-protection equipment.

3.1 ELECTRIC CHARACTERISTICS OF THE SITE

- Installed power: P_i = 10 kW
- Absorbed power: P_{sma}= 8 kW

- Factorul de putere: cos φ = 0,9
- Tensiunea de utilizare: 380/220Vca
- Frecventa : 50Hz
- Regim de lucru: continuu
- Rezistenta prizei de pamant: max 1Ω

- Power factor: cos φ = 0,9
- Use voltage: 380/220V, 50Hz
- Working mode: continuous
- Dispersion resistance of the grounding: max 1Ω

3.2. CARACTERISTICILE CONSTRUCTIVE ALE OBIECTIVULUI – LOCUL DE AMPLASARE A ECHIPAMENTELOR

Echipamentele noi sunt instalate dupa cum urmeaza:

- doua echipamente RBS 2106 amplasate la baza casei de apa ;
- antene RF si antene MW ø0,6m pe catarge de perete ;

3.2 SITE'S BUILDING FEATURES – PLACEMENT OF THE EQUIPMENT

The new equipment is installed as follows:

- Two RBS 2106 close to water house;
- RF and MW antennas on the penthouse wall terrace, placed on wall braced masts;

3.2. CARACTERISTICI DE MEDIU

Caracteristicile generale ale mediului ambiant:

- Altitudinea peste nivelul marii: 1 - 1500 m;
- Temperaturi ambiante: maxim/minim: 40°C/-30 °C;
- indice isokeraunic: 35 zile.

3.2ENVIRONMENTALCHARACTERISTICS

General features of the environment:

- Altitude above the sea level: 1 - 1500 m
- Temperatures: maximum/ minim: 40°C/-30°C;
- isokeraunic factor: 35 days.

4. DESCRIEREA SOLUTIEI

In alegerea solutiei s-a urmarit obtinerea unui consum minim de material si de asemenea a unui consum propriu tehnologic minim.

Alimentarea cu energie electrica a echipamentului, este realizata de la postul trafo aflat la ~3.1km fata de locatie, prin cablu CYY 3x25 mm^2 ingropat.

4.SOLUTION DESCRIPTION

When choosing the solution we have considered a minimum consumption of material and technology.

The is supplied with electric power from the existing TRAFO at ~3.1km, connected by an undergrounded CYA 3x25 mm^2.

5 DESCRIEREA INSTALATIILOR SI A ELEMENTELOR COMPONENTE

5 DESCRIPTION OF THE INSTALLATIONS AND OF THE COMPONENT ELEMENTS

5.1 INSTALATIA DE ALIMENTARE CU ENERGIE ELECTRICA

Instalatia de alimentare cu energie electrica este realizata conform aviz Electrica SA.

5.1. POWER SUPPLY INSTALLATION

The power supply installation is manufactured in accordance with Electrica SA solutions.

Dimensionarea echipamentului

Alegerea caracteristicilor materialelor, aparatelor si echipamentelor electrice s-a facut tinand cont de:

- parametrii regimului de functionare (tensiune, curent, putere, frecventa, etc.);
- categoria sau categoriile in care se incadreaza incaperea, spatiul sau zona respectiva din punct de vedere al pericolului de incendiu si din punct de vedere al pericolului de electrocutare;
- destinatia obiectivului si conditiile specifice de utilizare si montare;
- caracterul specific al instalatiei electrice respective.

Dimensioning of the equipment

The material's characteristics, devices and electrical equipment have been chosen considering the following:

- the parameters of the functioning system (voltage, current, power, frequency, etc.);
- the fire and electrocution danger category the room, space or area are framed in;
- the site's destination and the specific use and assemblage conditions;
- the specific character of the respective electric installation.

5.2 ANTENE SI CABLURI

Cablurile dintre RBS 2106 si antenele RF-MW se monteaza pe pat 500mm,pe suporti de perete-Omega respectiv suporti de cabluri pe lateral scara. Traseul cablurilor pentru antene este conform des. FD.01.BX_483_.01.01.02.

Toate elementele metalice ale patului de cabluri se vor conecta la instalatia de impamantare.

5.2 ANTENNAS AND FEEDERS

The antenna cables between BTS Shelter and RF and MW antennas are installed on the horizontal cable 500mm and cable support on the side ladder. The route of the antenna cable is according to drawings FD.01.BX_4383_.01.01,02.

All the metallic parts of the cable tray will be connected to the grounding.

5.3 INSTALATIA DE PARATRASNET SI LEGARE LA PAMANT

Instalatia de paratrasnet si legare la pamant ete formata din urmatoarele elemente:

- cablul de coborare la priza de pamant ;
- Impamantare echipamente;
- Impamantare suporti perete;
- priza de pamant.

Se va realiza o priza de pamant, in spatiul verde de langa castel pentru catarg si un inel de egalizare al platformei cu platbanda si electrozi zincati sau cu plasa cuprata amplasate sub platforma. Conectarea intre elementele instalatiei de impamantare se va realiza cu conectoare de compresie, papuci stanati cu surub, piulita.

Instalatia de impamantare a echipamentelor

5.3 LIGHTNING PROTECTION AND GROUNDING INSTALLATION

The lightning protection and grounding installation is made of the following:

- Down lead cable to the ground-plug;
- Grounding for wall mast;
- Earthening of RBS equipments;
- Ground-plug.

Will be maded one new groun-plug near the building, and one equipotential ring from platform or one Cu frame places under concrete base. The connecting between grounding elements will be made with compression connectors, terminal shrink fit (screw, nut).

The earthing installation of equipment will be

este realizata din conductor de cupru torsadat VLPY, izolat, cu sectiunea de 25 mm^2. Conectarea intre elementele instalatiei de impamantare se va realiza cu conectoare de compresie si papuci stanati.

Instalatia de paratrasnet si legare la pamint a catargului va fi realizata din conductor de otel zincat 10mm diametru. Conectarea intre elementele instalatiei de impamantare mast si baza se va realiza cu paftale speciale pentru 10mm

5.3.1 Paratraznetele antenelor

Sunt instalate in partea superioara a suportilor antenelor.

5.3.2 Centura de egalizare potential

Nu se realizeaza o centura de egalizare pe terasa .

5.3.3 Priza de pamant

Se va executa o priza de pamant noua de forma triunghiulara, in zona neconnstruita de langa castel. Aceasta va fi de forma unui triunghi cu latura de minim 2.50m intre electrozi.

In fiecare gura de vizitare se va monta un electrod de 20mm diametru si 2.50m lungime. Acestia se vor lega intre ei cu o platbanda zincata 30mm.

Executantul va emite un "Buletin de incercare" al prizei de pamant prin care sa certifice ca rezistenta interna a prizei are o valoare de $\leq 1\Omega$ ($R_i \leq 1\Omega$).

maded of insulated twisted copper conductor VLPY 1x25mm^2. The connections between grounding elements will be made with compression connectors and tinned shrink lugs.

The grounding installation of metallic base and mast will be maded of metallic conductor 10mm diameter. The connections between grounding elements will be made with special 10mm connectors.

5.3.1 Lightning-rod

Are installed in the upper part of the antennas supports.

5.3.2 Potential equalizing ring

No one terrace equalizing potential ring will be maded.

5.3.3 Ground-plug

A new triunghiular ground plug will be made at the unbuilding area around the site building. There shall be equilateral triangles, with a side of 2.5m minimum between electrods.At the bottom of each shaft a grounding electrode, 20mm diameter, shall be driven, 2.5m long. The grunding electrodes will be interconnected with a 30mm St/Zn plat, in upright arrangement, using suitable clamps.

The manufacturer will issue a "Testing bulletin" of the ground-plug, to certify that the internal resistance of the plug is less or equal to 1Ω ($R_i \leq 1\Omega$).

6. PROTECTIA INSTALATIILOR ELECTRICE

6.1 PROTECTIA CIRCUITELOR ELECTRICE IMPOTRIVA SUPRACURENTILOR SI SCURCIRCUITELOR

Aceasta protectie se realizeaza prin alegerea unor sigurante si intreruptoare corespunzatoare.

6.2 MASURI DE PROTECTIE IMPOTRIVA TENSIUNILOR DE ATINGERE SI DE PAS

6. THE PROTECTION OF THE ELECTRIC INSTALLATION

6.1 PROTECTION OF THE ELECTRIC CIRCUITS AGAINST OVERCURRENTS AND OVERLOADS

This protection is ensured by the use of proper safety devices and switches

6.2 PROTECTION AGAINST THE TOUCH AND STEP VOLTAGES

Masurile de protectie impotriva tensiunilor de atingere si de pas prevazute sunt in conformitate cu normativele si standardele in vigoare.

The protection against the touch and step voltages is according to the valid norms and standards.

Pentru instalatia electrica proiectata in cadrul acestei documentatii se va realiza protectia prin legare la nulul de protectie, cu respectarea prevederilor STAS 12604/5.

For the electric installation designed within this documentation the protection by connection to zero will be ensured, abiding by the provisions of the STAS 12604/5 standard.

Pentru protectia impotriva electrocutarii prin atingere directa trebuie sa se aplice mijloace tehnice si dupa caz organizatorice.

For the protection against electrocution by direct touch, technical and organizational measures must be applied.

6.2.1. Mijloace tehnice

- inchideri in carcase sau acoperiri cu invelisuri exterioare;
- protectia prin amplasare (asigurarea distantelor minime de protectie);
- legarea la pamant si in scurtcircuit direct sau prin dispozitive speciale (conf. STAS 6670-83).

6.2.1. Technical means

- enclosures in hulls or protection with coverings;
- protection by placement (the minimum protection distance being ensured);
- grounding connection and by direct short-circuit or by special devices (as per STAS 6670-83);

6.2.2. Masuri organizatorice

- scoaterea de sub tensiune a instalatiilor sau echipamentelor la care urmeaza a se efectua lucrari si verificarea lipsei tensiunii;
- folosirea mijloacelor de protectie electroizolante (clesti electroizo-lanti, indicatoare de tensiune, indicatoare de corespondenta a fazelor, placi si folii electroizolante, teci electroizolante, cizme elec-troizolante, manusi electroizolante, platforme si scule cu manere electroizolante);
- inscriptionarea de avertizare a instalatiilor si echipamentelor (tensiunea nominala, curentul nominal) sau prevederea unor placi avertizoare pentru indicarea prezentei tensiunii;

6.2.2. Organizational means

- power disconnection of the installations or equipment which are going to be repaired and check of the lack of voltage;
- use of electroinsulating protection (electroinsulating pincers, voltage pointers, phase correspondence pointers, electroinsulating plates and sheets, electroinsulating sheaths, electroinsulating boots, gloves, platforms and tools);
- warning inscriptions on the installations and equipment (nominal voltage, nominal current) or warning plates to indicate that voltage is present;

6.3 Protectia la supratensiuni accidentale tranzitorii

Datorita sensibilitatii crescute a echipamentului electric folosit este necesara protectia acestuia impotriva perturbatiilor

6.3 Protection against accidental transitory overvoltages

Because of its great sensibility, the electric equipment must be protected against disturbances from the outside, disturbances

exterioare, perturbatii generate de supratensiunile tranzitorii, care pot duce la defectarea prematura, distrugerea sau proasta functionare a echipamentului.

Protectia echipamentelor la aparitia unor supratensiuni accidentale (descarcari atmosferice indirecte, supratensiunilor injectate in retea prin punerea in functiune a motoarelor si masinilor electrice, comutari in reteua furnizorului de energie electrica - comutare de transformatoare, contacte accidentale intre liniile aeriene, etc.) se realizeaza cu dispozitivul "surge arrestor".

generated by transitory overvoltages, which may lead to a premature damage, shortcoming or malfunction of the equipment.

The protection of the equipment against accidental overvoltages (indirect atmospheric discharge, overvoltages occurring in the network due to the start up of electric engines and machines, switches in the network of the electric energy supplier - switch of transformers, accidental contact between the air wires, etc.) is ensured by the "surge arrestor" device.

7. TEHNOLOGIA DE EXECUTIE A LUCRARILOR

Trecerile cablurilor electrice prin pereti sa vor realiza prin tuburi de protectie cu diametrul interior mai mare sau cel putin egal cu 20 mm fata de diametrul exterior al cablului. Spatiul dintre ecran si cablu se va umple cu material electroizolant (vata minerala, materiale plastice expandabile).

In santier, materialele vor fi depozitate corespunzator evitandu-se afectarea lor. Responsabilitatea protejarii lucrarilor executate si depozitarii materialelor pe santier pana la punerea in functiune a obiectivului revine executantului.

7. TECHNOLOGY OF THE WORK ACHIEVEMENT

The passing of the electric cables through the walls will be through protection screens with an inner diameter with at least 20-mm longer than the external diameter of the cable. The space between the screen and the cable will be filled with electro insulating material (mineral cotton wool, expanding plastic material).

On the site the materials will be properly stored, thus avoiding their damage. The building contractor is responsible for the protection of the carried out work and for the on site storage of the materials until the objective's commissioning.

8. VERIFICAREA INSTALATIEI IN VEDEREA RECEPTIEI

Pentru echipamentele din furnitura executantul va realiza cu utilaje specifice toate probele conform PE 116.

In vederea receptiei si darii in exploatare a instalatiilor de legare la pamant, executantul trebuie sa intocmeasca si sa predea beneficiarului documentatia tehnica respectiva, procesul verbal de lucrari ascunse pentru elementele ingropate si pentru continuitatea electrica a legaturilor, buletine de incercare si procesul verbal de receptie.

8. CHECK OF THE INSTALLATION FOR COMMISSIONING

For the equipment lot the contractor will perform all tests with specific devices, as per PE 116.

In order to receive and commission the installations for the grounding connection, the contractor must work out the technical documentation, the report for hidden works for the embedded elements and for the electric continuity of the connections, the check bulletins and the receiving report and hand them over to the client.

9. PROTECTIA MUNCII SI PROTECTIA CONTRA INCENDIILOR

Protectia impotriva supracurentilor si scurtcircuitelor se realizeaza prin alegerea unor sigurante si intreruptoare corespunzatoare.

Pentru instalatia electrica proiectata in cadrul acestei documentatii se va realiza protectia prin legare la nul de protectie si la pamant cu respectarea prevederilor standardului STAS 12604.

Prezenta documentatie a fost intocmita in conformitate cu PE 119 "Norme de protectia muncii pentru instalatii electrice".
De asemenea s-au respectat prevederile din reglementarile in vigoare privind protectia muncii.

Lucrarile in instalatiile electrice in exploatare se pot executa numai in baza unei autorizatii de lucru scrise si cu scoaterea de sub tensiune a instalatiei.

9. WORK SAFETY AND FIRE PROTECTION

The protection against over currents and short-circuits is ensured by the use of proper safety devices and switches.

For the electric installation designed within this documentation the protection by connection to zero will be ensured, also to grounding , abiding by the provisions of the standard STAS 12604.

The present documentation has been worked out according to PE 119 "Work protection norms for electric installations"
The provisions of the valid regulations regarding the work protection have been observed.

The work concerning the operating electric installations can be performed only based on a written authorization and while putting the installation off voltage.

10. STANDARDE SI NORMATIVE DE REFERINTA

STAS 12604: Protectia impotriva electrocutarilor

I7-91: Normativ pentru proiectarea si executia instalatiilor electrice la consumatori cu tensiuni pana la 1000V

I 18 – 82: Normativ pentru proiectarea si executia instalatiilor interioare de telecomunicatii din cladirile civile si industriale

PE 107 – 95: Normativ pentru proiectarea si executia retelelor de cabluri electrice;

I 20-94: Normativ privind protectia constructiilor impotriva traznetului.

I 18-82 - Normativ pentru proiectarea si executia instalatiilor interioare de telecomunicatii din cladirile civile si industriale

PE 119 – Norme de protectia muncii pentru instalatii electrice.

10. REFERENCE STANDARDS AND RULES

STAS 12604: Protection against electric shocks

Intocmit : Ing. A.Cardos

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

SITE BX 483 Bisca

TRASEE DE CABLURI ALIMENTARE

Nr. crt.	Denumire si caracteristici	UM	Cantitate	
1.	PMB Outdoor	buc	1	
2.	LDB Outdoor	buc	1	
3.	Ansamblu jgheab 50mm, l=2.5m	buc	8	Lung.total=20m
4.	Suport de pat 50 mm	buc	24	OBO
5.	Cablu CYA3x25 mm² +16/16Cu	m	3100	
6.	Cablu CYY 5x16 mm²	m	3	
7.	Cablu CYY 5x6 mm²	m	15	
8.	Surub M6x20 +2S + P	buc	10	Rocast
9.	Bride de plastic cu autoblocare	buc	10	GEWISS
10.	Bride standard 32 mm	buc	5	Cod ABS 116020
11.	Bride standard 50 mm	buc	5	Cod ABS 116020
12.	Teava PVC 110mm	m	5	

TRASEE DE CABLURI ANTENE

Nr. crt.	Denumire si caracteristici	UM	Cantitate	
1.	Pat de cabluri orizontal 500mm	buc	2	Lung.tot.=5m
2.	Cot orizontal 500mm	buc	1	

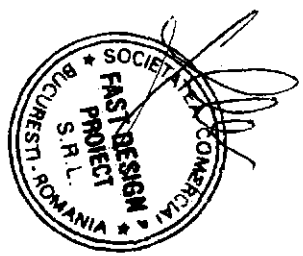
IPT SI LEGARE LA PAMANT

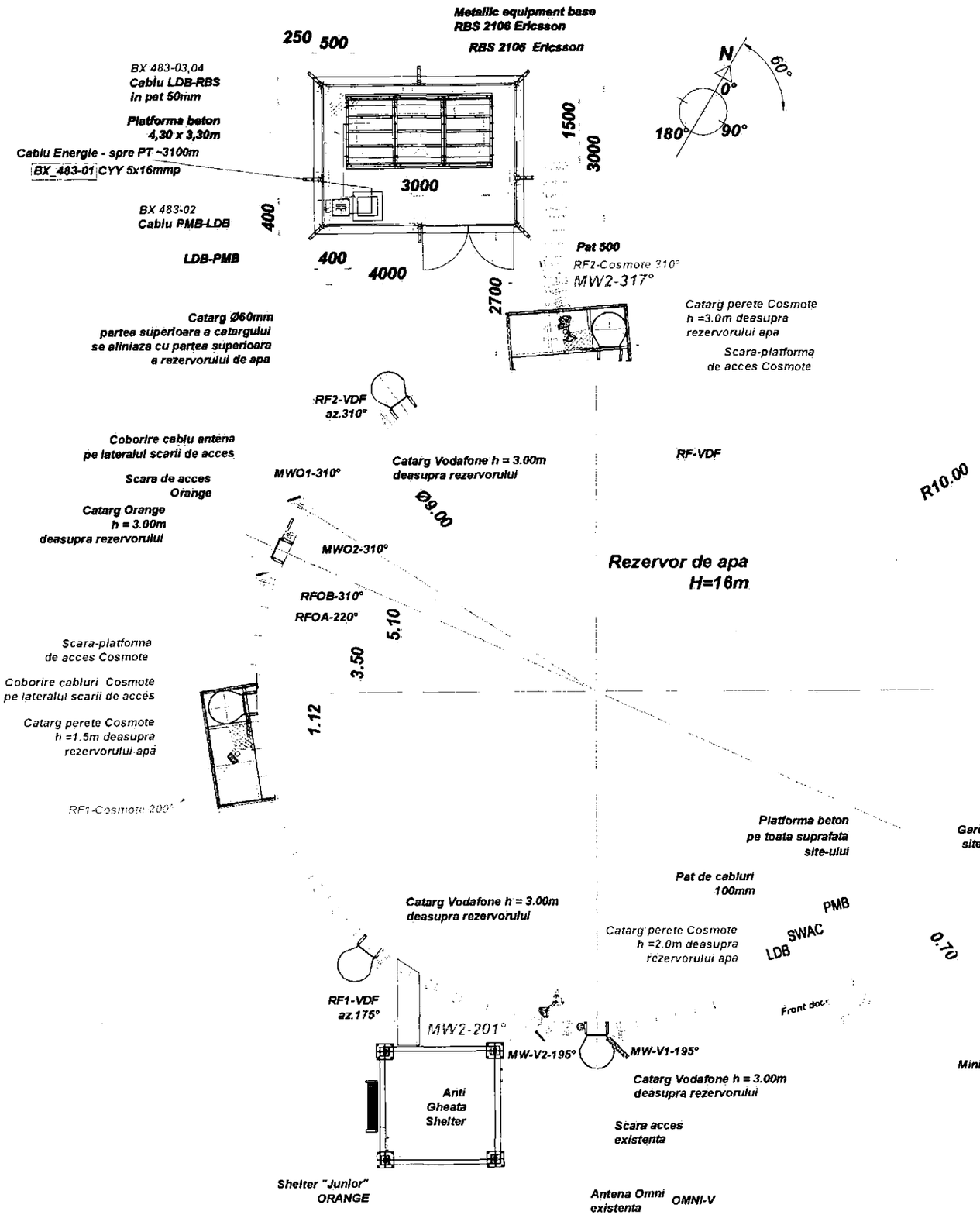
Nr. crt.	Denumire si caracteristici	UM	Cantitate	
1.	NYA conductor 1x50mm	m	20	
2.	Grounding conductor 10mm	m	80	
3.	Papuci stanati Ø50, pentru surub M10	buc	20	cod 46R/10 Gerkkon
4.	Surub M10x35 + S + P	buc	20	Rocast
5.	Bride Ø8-10mm	buc	60	Furnitura Egnatia
6.	Conectori compresie tip C, stanate	buc	10	Gerkkon cod CK 50
7.	Brida metalica tip Petit Jean 574/03/VA	m	20	OBO Bettermann
8.	Surub M6x20 +2S + P	buc	120	Rocast
9.	Electrozi OLZn 20mm , l=2.50m	buc	8	
10.	Cutie de separatie	buc	1	
11.	Platbanda OLZn 30x3,5mmp	m	50	Laromet
12.	Ground bar	buc	4	
13.				

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

JURNAL DE CABLURI ***SITE BX 483 Bisca***

Nr. Crt.	Marca	Punct plecare	Panou	Punct sosire	Panou	Tip/Sectiune cablu	L.(m)	Observatii
1.	BX 483-01	LEA medie	PT	Incinta CTE	PMB	CYY 3x25mm^2	~3100	Conf. Aviz racord
2.	BX 483-02	Incinta CTE	PMB	Incinta CTE	LDB	CYY-F 5x16 mm^2	3	
3.	BX 483-03	Incinta CTE	LDB	Incinta CTE	RBS 2106-1	CYY-F 5x6 mm^2	8	
4.	BX 483-04	Incinta CTE	LDB	Incinta CTE	RBS 2106-2	CYY-F 5x6 mm^2	7	





Lucrari de efectuat:

- Alimentare electrica se va face din PT ~3100m, conform solutie Electrica S.A. Traseu ingropat pana la platforma si apoi in teava Ø110mm inglobata in platforma pana la caminul de vizitare.

- Se vor amplasa un PMB si un LDB pe suport independent fixat pe platforma , in incinta site.

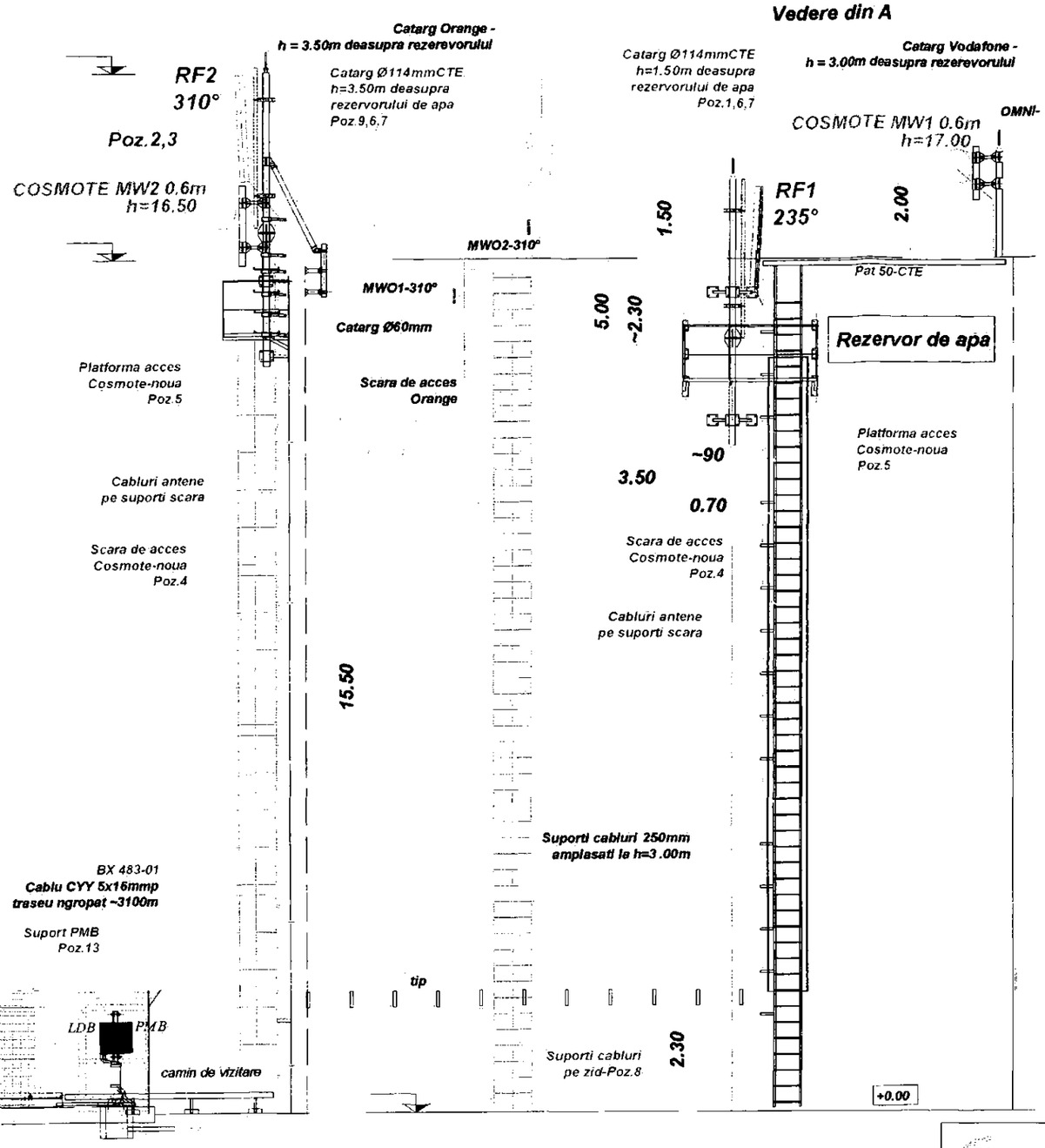
- Se va instala pat de cabluri pentru cablul de alimentare (50mm), de la LDB pana la echipamente.

COSMOTE	BENEFICIAR	**BX483_BISCA**	ANTREPRENOR GENERAL	egnatia	ROM
		Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau			

Verificator/Expert	Nume	Semnatura	Calitate	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3	Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.		Proiect nr. : FD.01
	Titlul proiect **BX483_BISCA**		Faza : **DDE_PAC**
Specificatie / Nume / Semnatura	Scara **1:100**	Titlu plansa **SITUATIE PROPUSA** **PLAN CABLURI ALIMENTARE**	Plansa nr.: 1/1
Sef Proiect ing. F.Balasoiu Proiectat ing. A.Cardos Desenat ing. G.Ionita	Data **05.04.09**	Nr. desen : **FD.01.BX_483.03.01**	Rev.: 0

Vedere din A

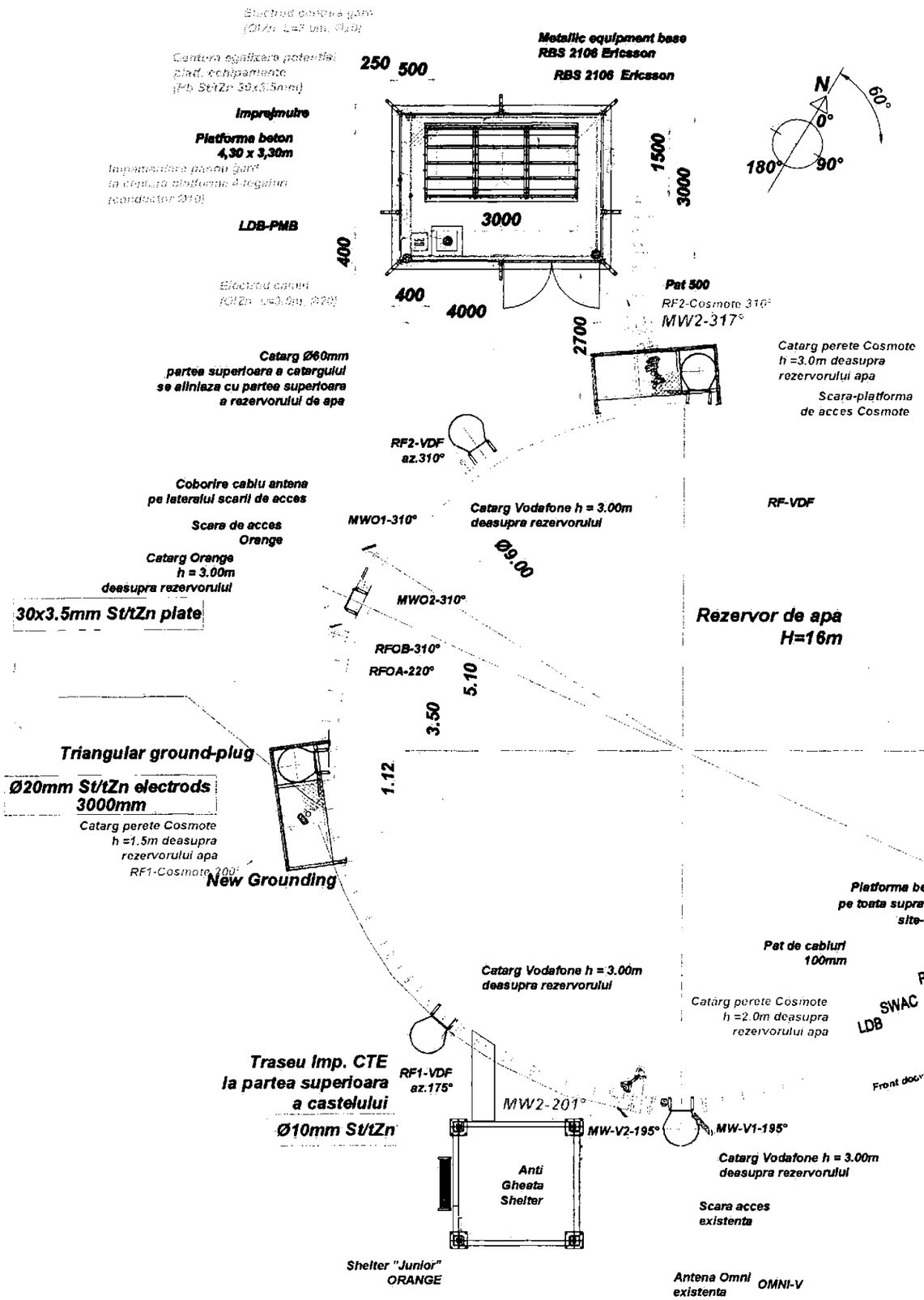


COSMOTE	BENEFICIAR	**BX483_BISCA** — Dealul Arselor - Castel Stil, loc. Nehoiu, jud Buzau	ANTREPRENOR GENERAL	egnatia ROM	

FAST DESIGN PROIECT S.R.L.

Verificator/Expert	Nume	Semnatura	Calitate	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect **BX483_BISCA**	Faza : **DDE_PAC**
Specificatie	Nume	Semnatura	Scara	Titlu plansa **SITUATIE PROPUSA ELEVATIE CABLURI ALIMENTARE**	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		**1:100**		
Proiectat	ing. A.Cardos		Data	Nr. desen : **FD.01.BX_483.03.02**	Rev.: 0
Desenat	ing. G.Ionita		**05.04.09**		



NOTE :

- Se va realiza o priza noua de pamant-triunghiulara (cf.cu Memoriu Tehnic), in spatiul verde de langa castel. Se vor folosi trei electrozi Ø20-3000mm, legati cu platbanda 30x3.5mm.

- Paratrasnetul catargelor se vor conecta la priza de pamant cu un conductor Ø10mm sau platbanda 30x3.5mm, care se va monta pozata pe peretele castelui in bride speciale tip Z.

- Se va amplasa o cutie de separatie pe vangul scarii, la ~2.50m fata de sol. Legaturi la noua p.p. si la coborarea de la catarge.

- Se va realiza un traseu de coborare penru feederi , fixat pe suportii de cabluri si legati de p.p.noua, prin cutia de separatie de pe vangul scarii.

- Se va realiza un inel de egalizare in jurul platformei betonate (~30cm sub nivelul solului), din platbanda 30x3.5mm si patru electrozi imapamantare in colturile plaformei.Se vor lega la inel, gardul, rama echipamentelor , acoperisul, suportul PMB si echipamentele.

- Se vor amplasa trei placi ground-bar, sub antenele RF, sub cele MW si la trecerea catre RBS 2106.

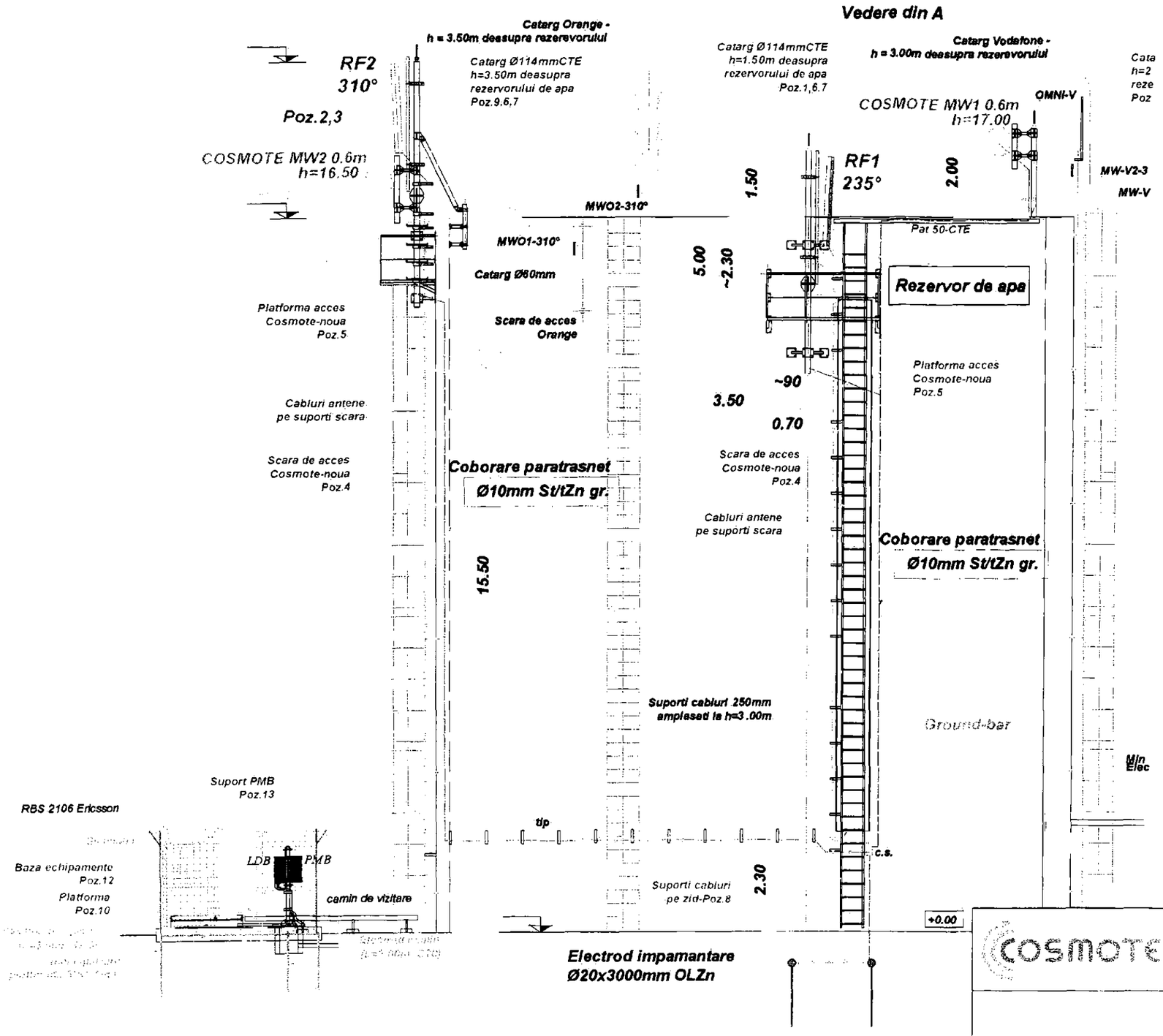
- Se va amplasa un electrod de impamantare in caminul de vizitare. Surge arrestors tabloului LDB se vor conecta la acesta .

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCUREST, ROMANIA

COSMOTE — BENEFICIAR — **BX483_BISCA** — **Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau** — ANTREPRENOR GENERAL — egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect **BX483_BISCA**	Faza : DDE_PAC
Specificatie	Nume	Semnatura	Scara	Titlu plansa **SITUATIE PROPUSA PLAN CABLURI IMPAMANTARE**	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		1:100		
Proiectat	ing. A.Cardos		Data	Nr. desen : **FD.01.BX_483.03.03**	Rev.: 0
Desenat	ing. G.Ionita		05.04.09		

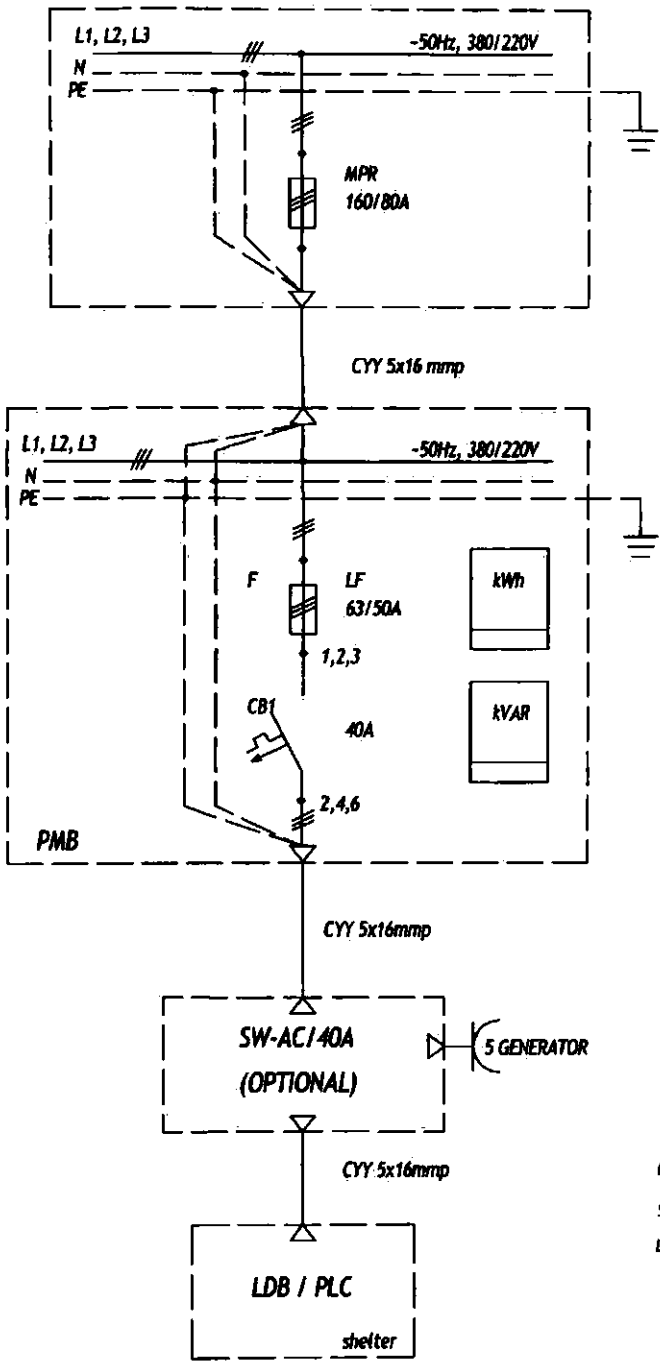


COSMOTE	BENEFICIAR	BX483_BISCA Dealul Arselor - Castel Siriu, loc. Nehoiu, jud Buzau	ANTREPRENOR GENERAL	egnatia ROM	

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J40,Sc.J,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect BX483_BISCA	Faza : DDE_PAC
Specificatie	Nume	Semnatura	Scara	Titlu plansa SITUATIE PROPUSA ELEVATIE CABLURI IMPAMANTARE	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		1:100		
Proiectat	ing. A.Cardos		Data 05.04.09	Nr. desen : FD.01.BX_483.03.04	Rev.: 0
Desenat	ing. G.Ionita				

TABLOUL DE JOASA TENSIUNE (existent)



NOTE :

1. *Valorile protectiilor sunt valabile pentru alimentarea a 2 RBS-uri 2106.*
2. *Pentru alimentarea a 4 RBS-uri 2106, se vor instala PMB si SW-AC de 63A.*
3. *Tabloul SW-AC se va monta la cererea beneficiarului.*

PMB	- Bloc de Masura si Protectie
SW-AC	- Comutator pe Alimentare Rezerva
LDB OUTDOOR / PLC BOARD	- Tablou Local Distributie

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

BENEFICIAR: cosmote

ANTREPRENOR GENERAL: egnatia ROM

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/18004/2008
1 Decembrie 1918 nr. 47, Bl. 90, Sc.1, Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura	Data
Sef Proiect	ing. F.Balasoiu		
Proiectat	ing. A.Ionita		
Desenat	ing. G.Ionita		

Scara: 1:200

Beneficiar: S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.

Titlu proiect: SITE GSM 900-1800

Titlu plansa: SCHEMA ELECTRICA GENERALA

Nr. desen: FD-01.DDE_E.01.01

Proiect nr. :	Faza :	Plansa nr.:	Rev.:
FD.01	DDE-PAC	1/1	0

Nr. crt	Simbol	Denumire	Caracteristici tehnice	Tip / Cod	Furnizor	Buc.	Observatii
1.	RCCB	Intrerupator diferential	Tetrapolar, In=63A, Un=415V c.a., 50Hz diferential 300mA	ID 23203	Merlin-Gerin (echivalent)	1	
2.	PFR	Surge arrester	Tetrapolar, Un=440V c.a., 50Hz Imax=15kA, In=5kA	PF15-3P+N 15693	Merlin-Gerin (echivalent)	1	
3.	CB1	Siguranta automata	Tetrapolar, Un=440V c.a., 50Hz In=10A, Irup=10kA, curba C	C60N-4P 24228	Merlin-Gerin (echivalent)	1	
4.	CB2	Siguranta automata	Tetrapolar, Un=400V c.a., 50Hz In=2A, Irup=10kA, curba C	C60N-1P	Merlin-Gerin (echivalent)	3	
5.	CB3;CB4 CB5;CB6	Siguranta automata	Tetrapolar, Un=400V c.a., 50Hz In=25A, Irup=10kA, curba C	C60N-4P 24230	Merlin-Gerin (echivalent)	4	vezi nota
6.	CB7	Siguranta automata	Bipolar, Un=400V c.a., 50Hz In=10A, Irup=10kA, curba C	C60N-2P 24201	Merlin-Gerin (echivalent)	1	
7.	CB8	Siguranta automata	Bipolar, Un=400V c.a., 50Hz In=16A, Irup=10kA, curba C	C60N-2P 24202	Merlin-Gerin (echivalent)	1	
8.	CB9;CB10	Siguranta automata	Bipolar, Un=400V c.a., 50Hz In=6A, Irup=10kA, curba C	C60N-2P 24200	Merlin-Gerin (echivalent)	2	
9.	LS 1-3	Lampa semnalizare	Echipata cu lampa 230 V c.a., 50Hz 1.2W, cu ecran rosu	tip V 15107	Merlin-Gerin (echivalent)	3	

NOTA:
In cazul 2xRBS outdoor+shelter/camera, CB4 va fi de 32A, cod 24231

COSMOTE | BENEFICIAR | egnatia ROM

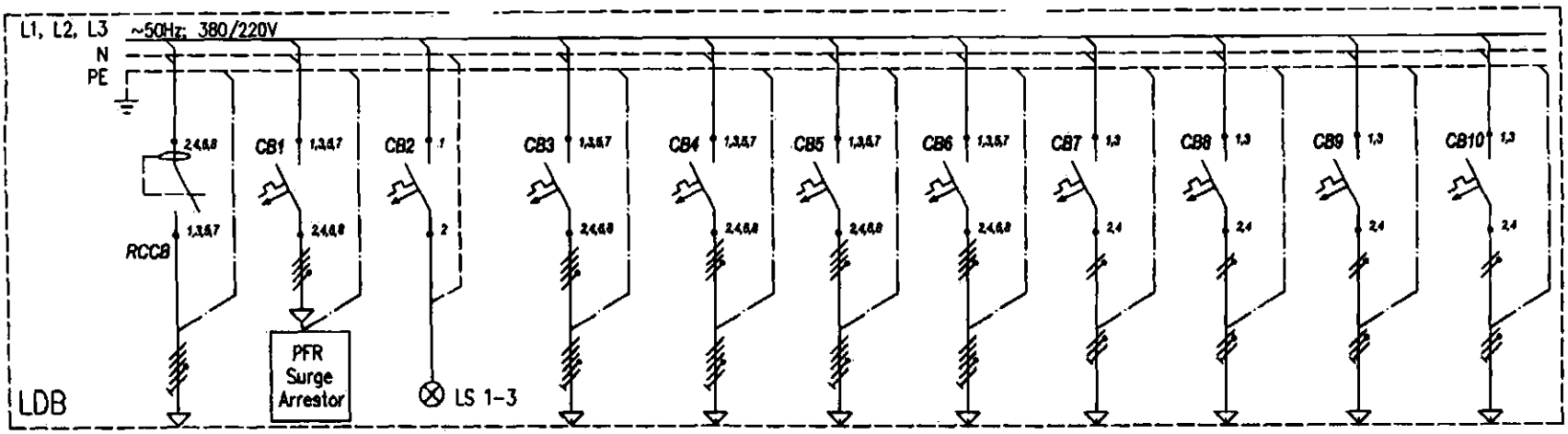
Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

SC FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16084/2008
1 Decembrie 1918 nr. 47, BL J40,Sc.J,Ap.130
Localitatea Bucuresti, Sector 3

Specificatie	Nume	Semnatura
Sef Proiect	ing. F.Balasoiu	
Proiectat	ing. A.Cardos	
Desenat	ing. G.Ionita	

Scara: -
Data: 08.06.08

Beneficiar: S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr.: FD.01
Titlu proiect: SITE GSM
Faza: DDE-PAC
Titlu plansa: LDB-OUTDOOR SPECIFICATIE DE APARATAJ
Plansa nr.: 1/1
Nr. desen: FD.01.GSM_E.11.00
Rev.: 0



Nr. circuit	1	2	3	4	7	8	9	10	11	12	13
Destinatie	ALIMENTARE LDB	PFR	Semnalizare prezenta tensiune	RBS1	RBS2	RBS3 / LDB INDOOR (**)	RBS4/BBS ANTRICE (*)	REPETOR/UPS (*)	MINISHELTER (*)	BALIZAJ (*)	MINILINK MICROCELL (*)
Putere instalata/absorbita (kW)		-	-	6/2	6/2	(6/2)	(6/2)	0.9/0.2	2/1	0.3/0.3	0.1
Curent nominal (A)		-	-	11/4	11/4	11/4	11/4	4/0.9	10/5	1.3	0.5
Siguranta automata (A)	63	10	2	25	25	25	25	10	16	6	6
Tip/sectiune cablu (mmp)	CYAbY-F 5x16	FY 10	FY 1.5	CYY-F 5x6	CYY-F 5x6	CYY-F 5x6	CYY-F 5x6	CYY 3x2.5	CYY 3x2.5	CYY 3x1.5	CYY 3x1.5
Mod de fazare	L1,L2,L3+N+PE	L1,L2,L3+N+PE	L1,L2,L3+N	L1,L2,L3+N+PE	L1,L2,L3+N+PE	L1,L2,L3+N+PE	L1,L2,L3+N+PE	L1+N+PE	L2+N+PE	L3+N+PE	L3+N+PE

2xRBS 2102:
Pi = 15.3 kW
Kc = 0.4
Pa= 5.6 kW

4xRBS 2102:
Pi = 27.3 kW
Kc = 0.4
Pa= 9.6 kW

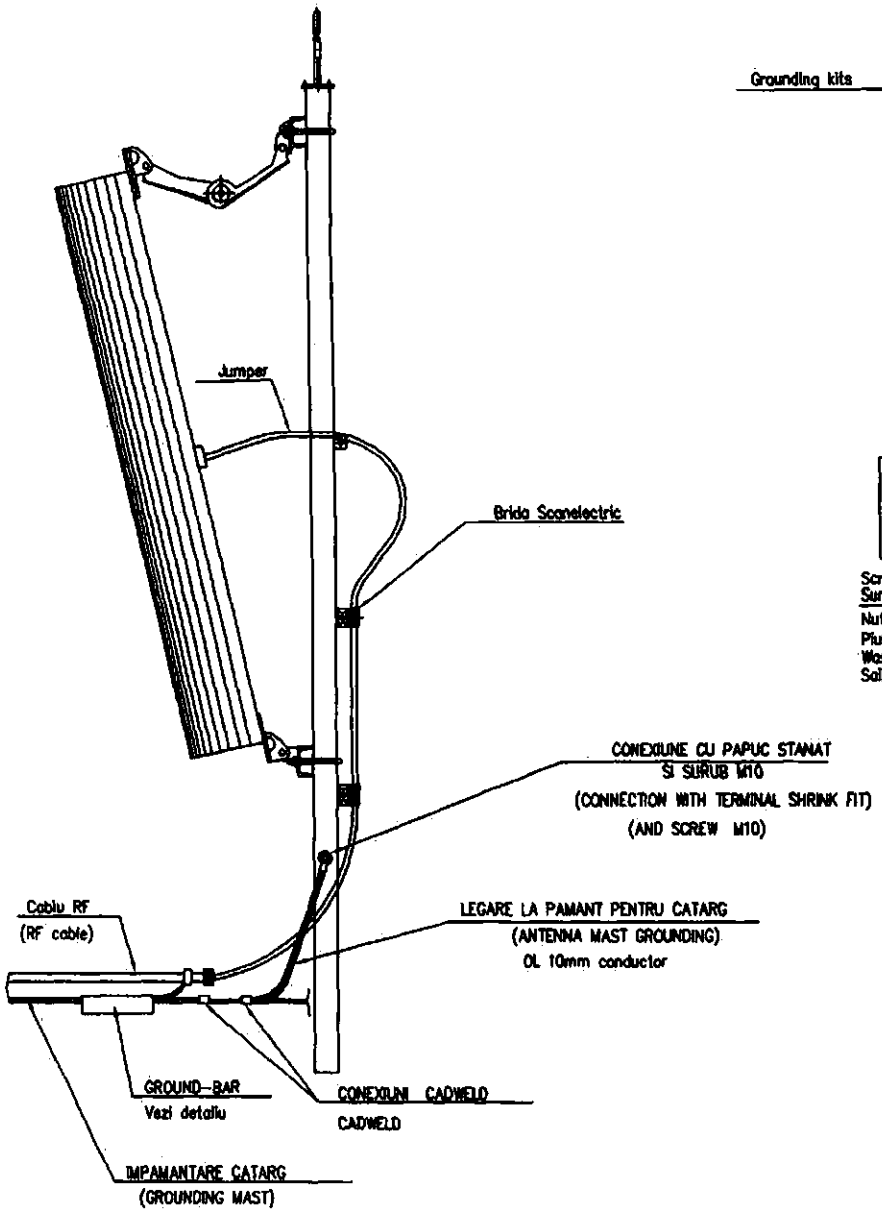
NOTE:

**) Sigurantele pentru circuitele notate cu (*) se vor monta in tablou in functie de configuratia site-ului.*

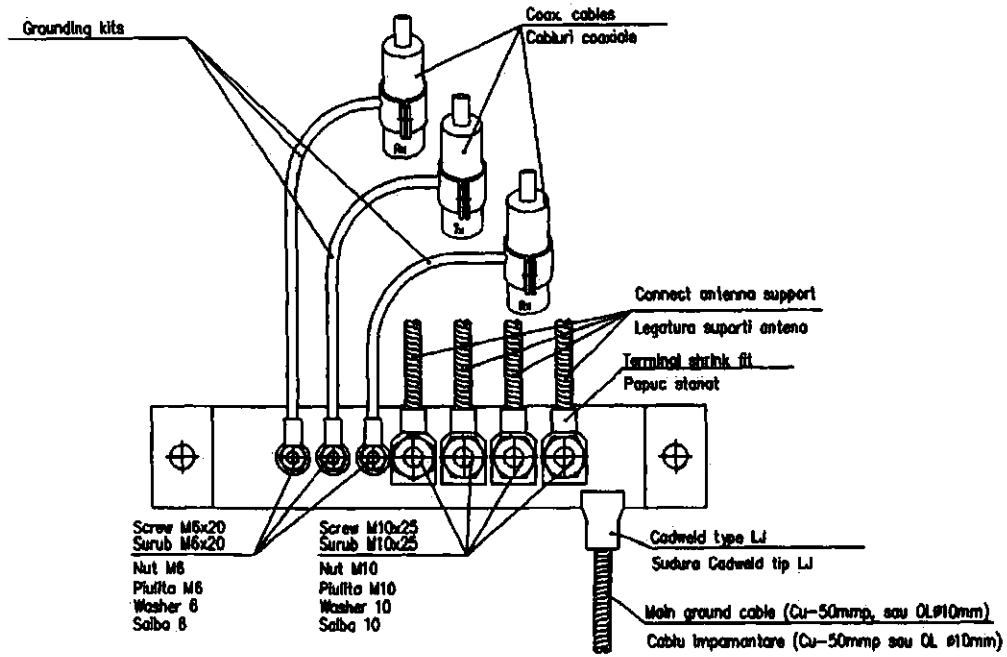
***) In cazul configuratiei 2xRBS outdoor+shelter/camera, siguranta CB4 va fi de 32A.*

SOCIETATE A COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data
SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16004/2008 1 Decembrie 1918 nr. 47, Bl. J49,Sc.1,Ap.130 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. : FD.01
				Titlu proiect : SITE GSM	Faza : DDE-PAC
Specificatie	Nume	Semnatura	Scara	Titlu plansa : LDB-OUTDOOR SCHEMA MONOFILARA	Plansa nr.: 1/1
Sef Proiect	ing. F.Balasoiu		-		
Proiectat	ing. A.Cardos		Data 08.06.09	Nr. desen : FD.01.GSM_E.10.00	Rev.: 0
Desenat	ing. G.Ionita				

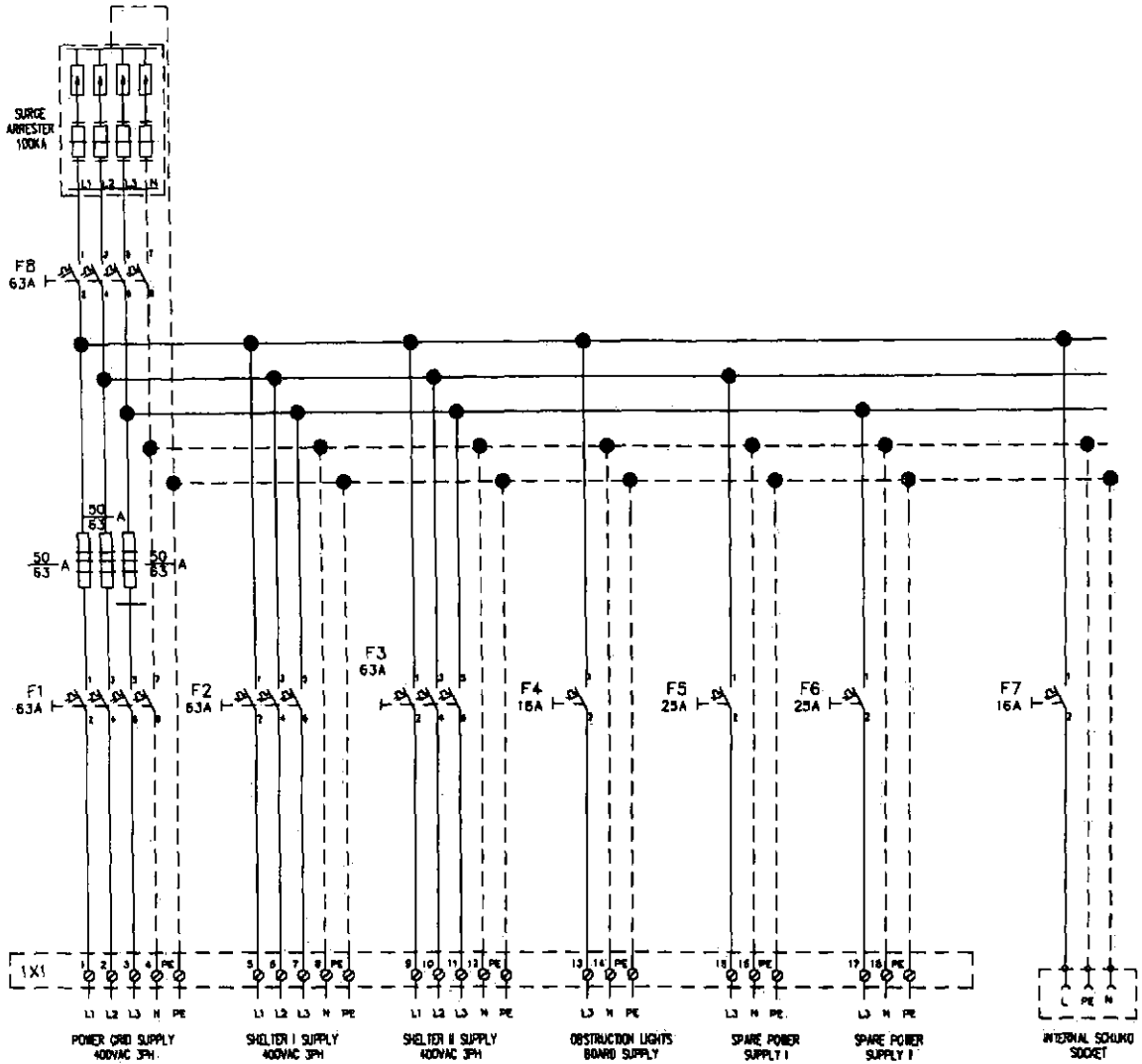


CONNECTING TO GROUNDBAR DETAIL



SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI-ROMANIA

Verificator/Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data
SC FAST DESIGN PROIECT SRL RO 24493143 ; J40/16094/2008 1 Decembrie 1918 nr.47, Et. M0,Sc.I,Ap.139 Localitatea Bucuresti, Sector 3				Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. EI.01
				Titlu proiect SITE GSM 900-1800	Faza : DDE-PAt
Specificatia	Nume	Semnatura	Scara	Titlu planse DETALIU IMPAMANTARE FEEDERI	Planse nr.: 1/1
Sef Proiect	Ing. F.Balasoiu		1:200		
Proiectat	Ing. A.Ionita		Data	Nr. desen : SG-01.DDE_E.03.01	Rev.: 0
Desenat	Ing. G.Ionita		25.11.08		



CLIENT : COSMOTE ROMANIAN MOBILE TELECOMMUNICATION	**PROJECT :** PROJECT NO. :		
CONTRACTOR :	**Material :**	Site name : Site location :	
Designed : Checked : Approved :	Masa neta : Scale :	Drawing Title : **Power Distribution Boards For Greenfield**	Site Code :
DESIGNER : COSMOTE ROMANIAN MOBILE TELECOMMUNICATION	Drawing file name : Date :	Drawing No : Inlocuieste desen nr. :	Sheet 1 / Rev. 0 / A4

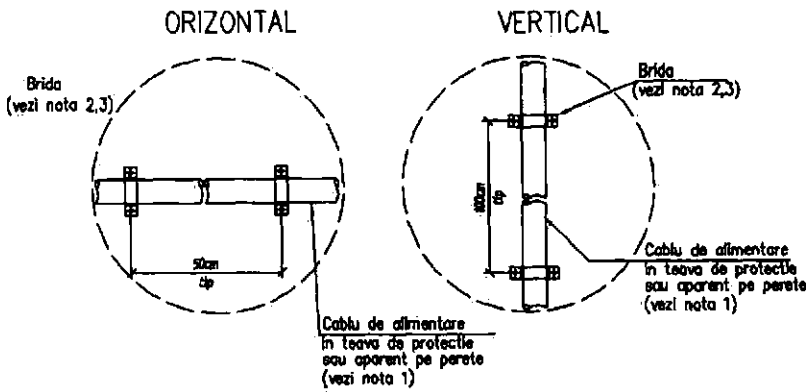
General connections

	MATERIAL DESCRIPTION	Connection		QTY
1	Grounding cable 16mm^2	Groundings Power Board, Sunlight, RBS	m	30
2	End sleeves (without plastic) with hole 8mm for the grounding cable 16 mm^2	Groundings Power Board, Sunlight, RBS	pcs	8
3	Power Cable flexible AC 5x6 mm^2	PLC-Sunlight	m	10
4	End sleeves (Yellow) with hole 8mm for power cable 5x6 mm^2	PLC-Sunlight	pcs	7
5	End sleeves (Green) with pin termination 6/12 for power cable 5x6 mm^2	PLC-Sunlight	pcs	7
6	End sleeves (Brown) with pin termination 10/12 for power cable 10 mm^2	RBS power-RBS	pcs	10
7	End sleeves (without plastic) with hole 6,5mm for the 10 mm^2	RBS power - Sunlight	pcs	10
8	Power cable 2x4 mm^2	(RL-Sunlight)	m	14
9	End sleeves (Yellow) with Y termination and hole 4,5mm for power cable 4 mm^2	RL power - PDU	pcs	6
10	End sleeves (Yellow) with hole 8mm for power cable 4 mm^2	RL power - Sunlight	pcs	6
11	Alarm cable 10x2x0,4mm	Alarm cable RL-Sunlight, RL-PLC	m	20
12	Power cable flexible DC 2x1,5 mm^2	Power DC Sunlight - PLC	m	9
13	End sleeves (Red) with hole 8mm for power cable 1,5 mm^2	Power DC Sunlight - PLC	pcs	4
14	Thermo contract (Φ9)		m	1
15	Thermo contract (Φ12)		m	1
16	Thermo contract (Φ30 or Φ25 or Φ 40)		m	0,5
17	Plastic Spiral (tube) 15mm	Outside Sensors	m	7
18	Nylon cable backed mounts (28x28mm) for the fixing of cables inside the canals		pcs	10
19	Flexible power cable 5 x 16 sqmm	Additional	m	2,3

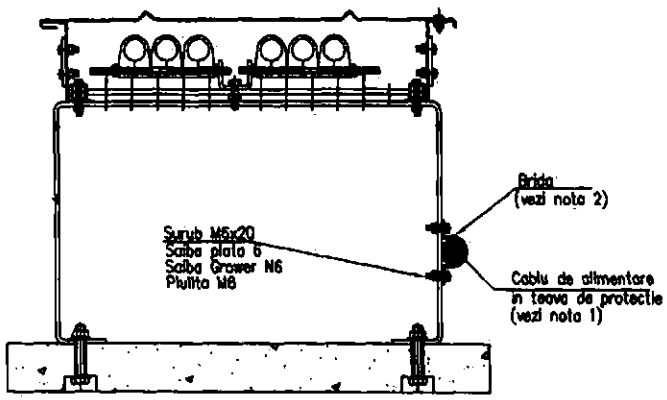
PLC CONNECTIONS

	MATERIAL DESCRIPTION	Connection		QTY
1	Power cable flexible white 2x0,75 (NYLHY)	According to manual	m	100
2	Power cable flexible white 3x0,75 (NYLHY)	According to manual	m	85
3	Power cable flexible white 3x2,5 (NYMHY)	According to manual	m	25
4	Power cable flexible white 4x1,5 (NYMHY)	According to manual	m	11
5	Power cable flexible white 7x1 JZ	According to manual	m	31
6	end sleeves 0,75 (Grey-pin)	According to manual	pcs	100
7	end sleeves 2.5 (Blue-pin)	According to manual	pcs	20
8	end sleeves 1,5 (Black-pin)	According to manual	pcs	10
9	end sleeves 1 (red-pin)	According to manual	pcs	20
10	End sleeves (Red) with hole 4mm for power cable 0,75 mm^2	According to manual	pcs	6
11	Plastic connection kit (4 mm^2) (x10)	According to manual	κλέμμα	1
12	Tie Wraps 160 x 2,5 (100 pieces)	According to manual	pcs	2
13	Tie Wraps 200 x 4,8 (100 pieces)	According to manual	pcs	1

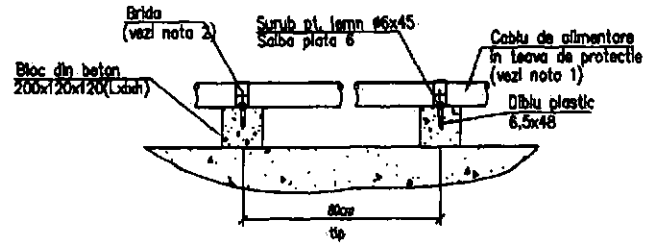
DETALIU DE FIXARE CABLU DE ALIMENTARE PE PERETE



DETALIU DE FIXARE CABLU DE ALIMENTARE PE SUPORT PAT CABLURI



DETALIU DE FIXARE CABLU DE ALIMENTARE PE BLOCURI DIN BETON



NOTE:

1. Cablul de alimentare se va proteja in functie de tip astfel:
   - cablul CYABY 5x16mmp in tub PVC ø63 sau Tv OLZn 2"
   - cablul CYY 5x6mmp in tub PVC ø32 sau Tv OLZn 1"
   Necesitatea si tipul de protectie se vor stabili in DDE-electric.
2. Bridele de fixare se vor alege astfel:
   - pentru cablu protejat in tub PVC ø63 sau Tv OLZn 2": brida ø65
   - pentru cablu protejat in tub PVC ø32sau Tv OLZn 1": brida ø35
   - pentru cablu CYABY 5x16mmp aparent pe perete: brida ø35
   - pentru cablu CYY 5x6mmp aparent pe perete: brida ø20
4. Blocurile din beton se vor fixa de terasa cu mastic bituminos.

SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

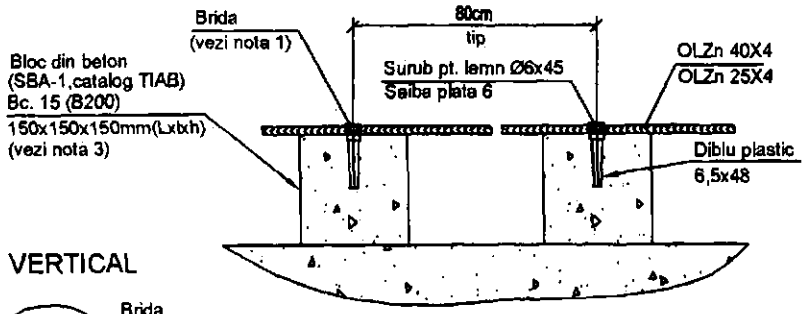
Verificat	Semn.	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data	

FAST DESIGN PROIECT SRL
RO 24483143 ; J40/18004/2008
1 Decembrie 1918 nr. 43, Bl. J40_BC1, Ap.130
Localitatea Bucuresti, Sector 2

Specificatie	Nume	Semnatura	Scara
Sef Proiect	ing. F. Balasoiu		
Proiectat	ing. A.Cardos		
Desenat	ing. G.Ionita		Data 06.02.08

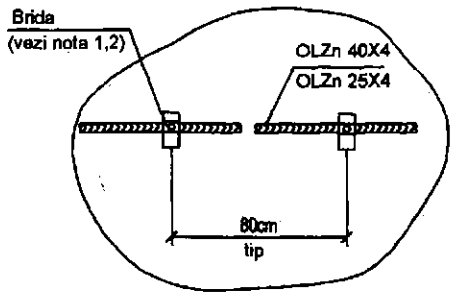
Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.	Proiect nr. FD.01
Titlu proiect: SITE GSM 900-1800	Faza : DDE
Titlu plansa: POZARE CABLURI ALIMENTARE	Plansa nr.: 1/1
Nr. desen : FD.01.DDE_E.02.05	Rev.: 0

DETALIU DE FIXARE CABLU DE IMPAMINTARE PE BLOCURI DIN BETON

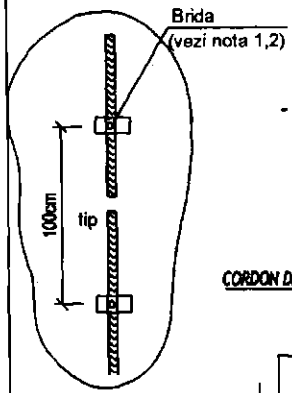


PE PERETE

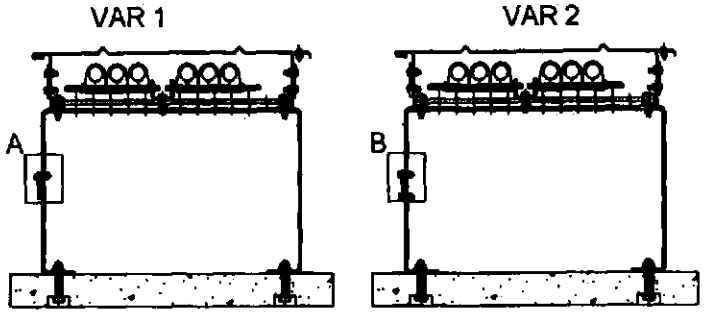
ORIZONTAL



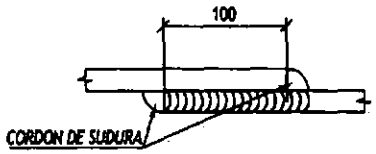
VERTICAL



DETALIU DE FIXARE CABLU DE IMPAMINTARE PE SUPORT PAT CABLURI

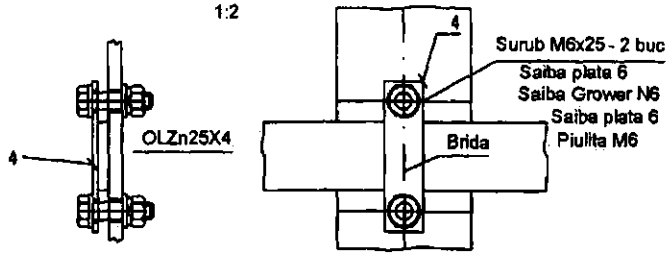


- DETALIU SUDURA PLATBANDA -



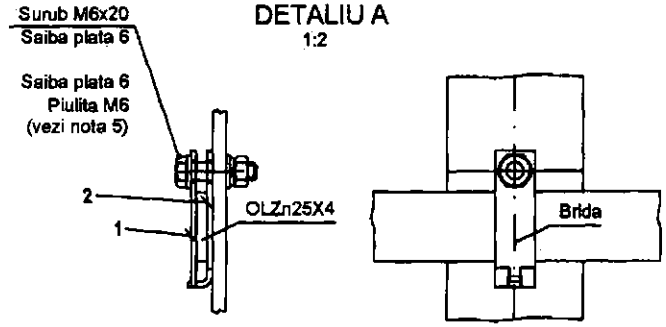
DETALIU B

1:2

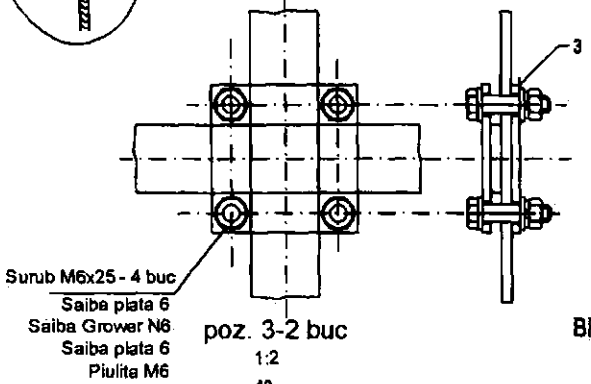


DETALIU A

1:2

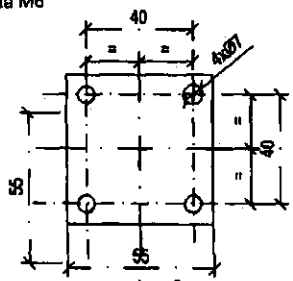


CONECTOR IN CRUCE



poz. 3-2 buc

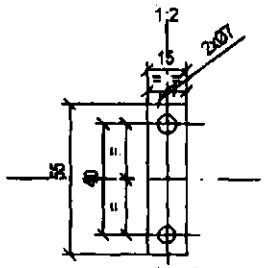
1:2



BRIDA-VAR.2

poz. 4

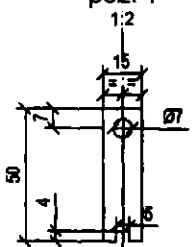
1:2



BRIDA-VAR.1

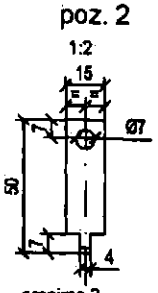
poz. 1

1:2



poz. 2

1:2



Ldesf=55

NOTE:

1. Se vor folosi bride tip SPZ, T.I.A.B. sau similare
2. Fixarea bridei se va realiza in functie de tipul peretelui astfel:
   - perete din beton: cu diblu din plastic 6,5x48 si surub pt. lemn Ø6x45
   - perete din caramida: cu diblu din plastic cu aripioare L7 si surub pt. lemn Ø6x55
3. Blocurile din beton se vor fixa de terasa cu mastic bituminos.
4. Piesele se vor zinca la cald.Grosimea stratului de zinc va fi de 80um.
5. Elementele de asamblare vor fi zincate sau cromate electrochimic conform STAS 2700/8-82.

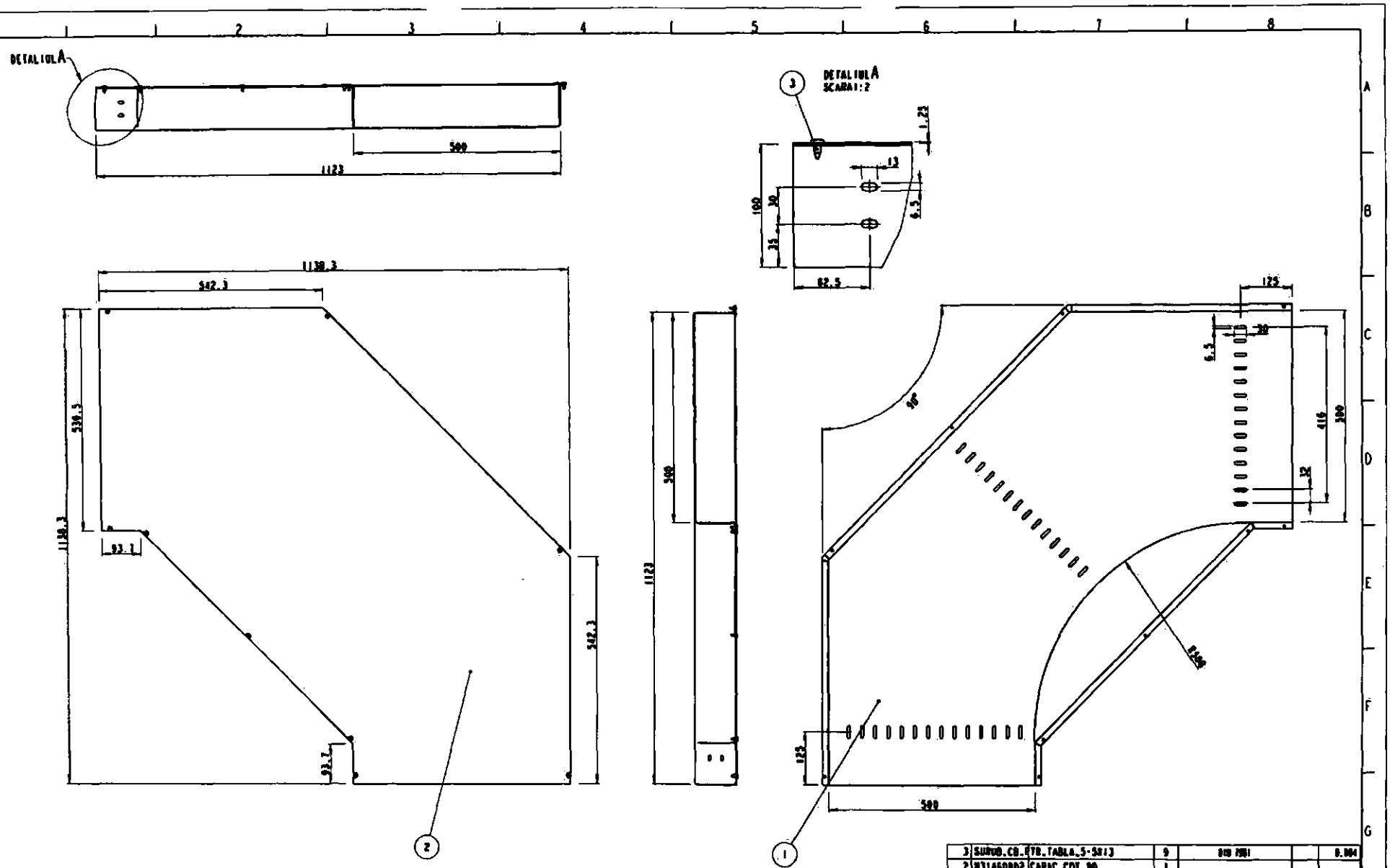
SOCIETATEA COMERCIALA FAST DESIGN PROIECT S.R.L. BUCURESTI - ROMANIA

Verificator	Expert	Nume	Semnatura	Cerinta	Referat / Expertiza nr.	Data

S.C. FAST DESIGN PROIECT SRL
RO 24493143 ; J40/16004/2008
1 Decembrie 1918 nr. 47, Bl. J40, Sc. 2, Ap.130
Localitatea Bucuresti, Sector 3

Specificatia	Nume	Semnatura	Scara	Titlu planse	Planse nr.:
Sef Proiect	Ing. F.Balasoiu			POZARE CABLURI IMPAMANTARE	1/1
Proiectat	Ing. A.Cardos		Data	Nr. desen : FD-01.DDE_E.02.06	Rev.: 0
Desenat	Ing. G.Ionita		06.02.06		

Beneficiar : S.C. COSMOTE ROMANIAN MOBILE TELECOMUNICATIONS S.A.
Proiect nr. FD01
Titlu proiect SITE GSM 900-1800
Faza : DDE



Poz	Cod	Denumire	Buc	Material	Rev.	Masa cu/la 1 [kg]
3	SURUB.CB.FTR.TABLA.5-5X13		9	STAS 7981		0.004
2	M3146DD02	CAPAC.COT.90	1			
1	M3146DD01	COT.JGHEAB.500	1	OL37 STAS 500/2-80	BRA	11.200

REV.	DATA	NUME	P.N.	DESCRIERE MODIFICARE

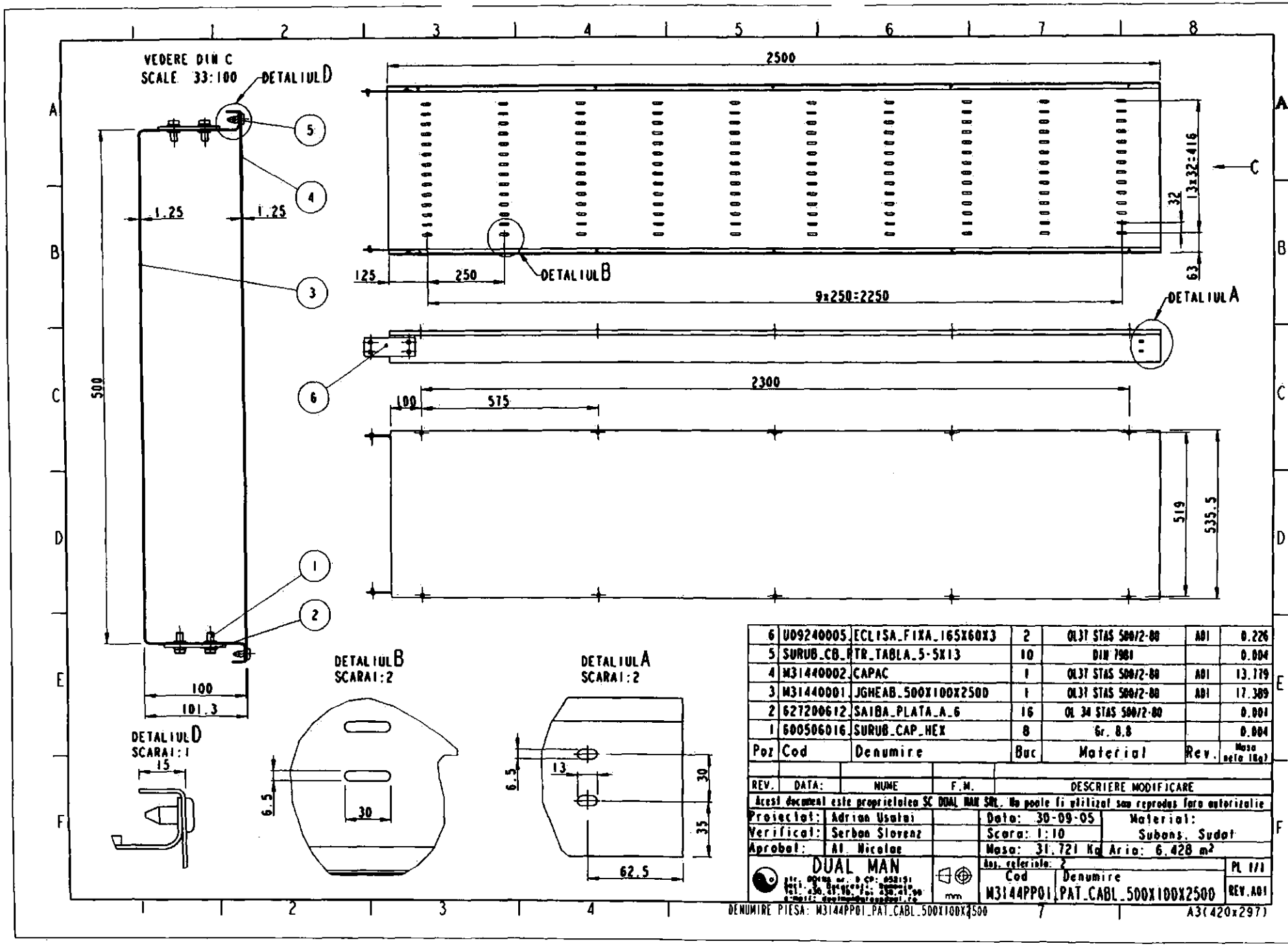
Proiectat:	Adrian Ghetau	Data: 30-09-05	Material:
Verificat:	Serban Stanescu	Scara: 1:1.00	Subans. Sudat
Aprobat:	Al. Nicolae	Masa: 30.105 Kg	Arie: 2.224 m²

DUAL MAN

Cod	Denumire	
M3146PP01	COT.500	DES.001

DENUMIRE PIESA: M3146PP01.COT.ORIZONTAL.500

A2(594x420)



Poz	Cod	Denumire	Buc	Material	Rev.	Masa pe set (Kg)
6	U09240005	ECLISA_FIXA_165X60X3	2	OL37 STAS 500/2-80	A01	0.226
5	SURUB_CB_PTR_TABLA_5-5X13		10	DIN 7981		0.004
4	M31440002	CAPAC	1	OL37 STAS 500/2-80	A01	13.779
3	M31440001	JGHEAB_500X100X2500	1	OL37 STAS 500/2-80	A01	17.389
2	627200612	SAIBA_PLATA_A_6	16	OL 34 STAS 500/2-80		0.001
1	600506016	SURUB_CAP_HEX	8	Gr. 8.8		0.004

REV.	DATA:	NUME	F.M.	DESCRIERE MODIFICARE

Proiectat:	Adrian Usatai		Data: 30-09-05	Material: Subans. Sudat	
Verificat:	Serban Slorenz		Scara: 1:10		
Aprobat:	Al. Nicolae		Masa: 31.721 Kg	Aria: 6.428 m²	
DUAL MAN		mm	Dim. referinta: 2		PL 1/1
			Cod: M3144PP01	Denumire: PAT_CABL_500X100X2500	REV.A01

DENUMIRE PIESA: M3144PP01_PAT_CABL_500X100X2500

A3(420x297)