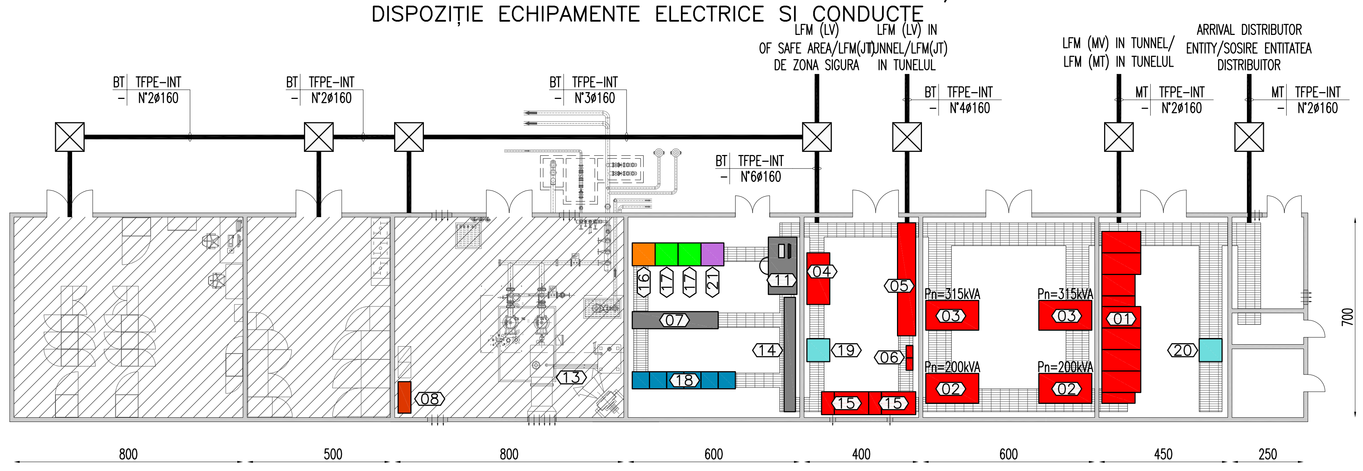
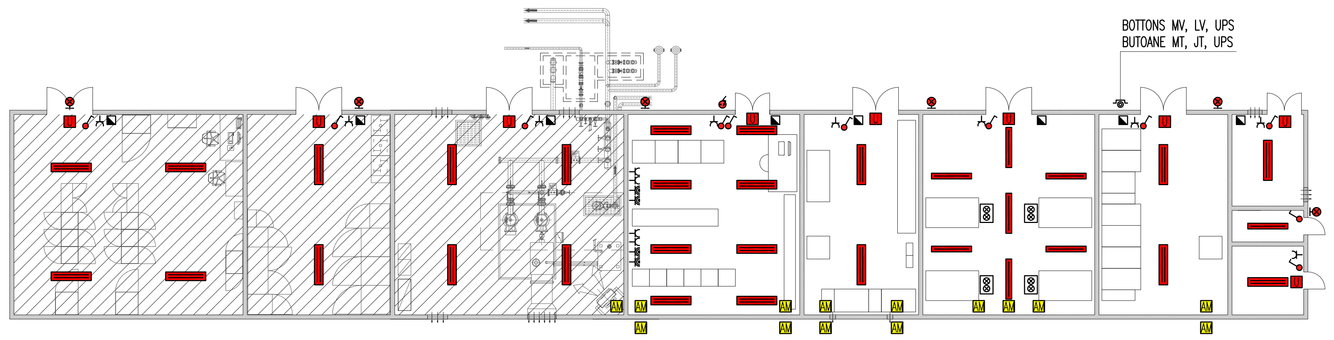
DISPOSAL OF ELECTRICAL EQUIPMENTS AND DUCTWORK/ DISPOZIȚIE ECHIPAMENTE ELECTRICE SI CONDUCTE

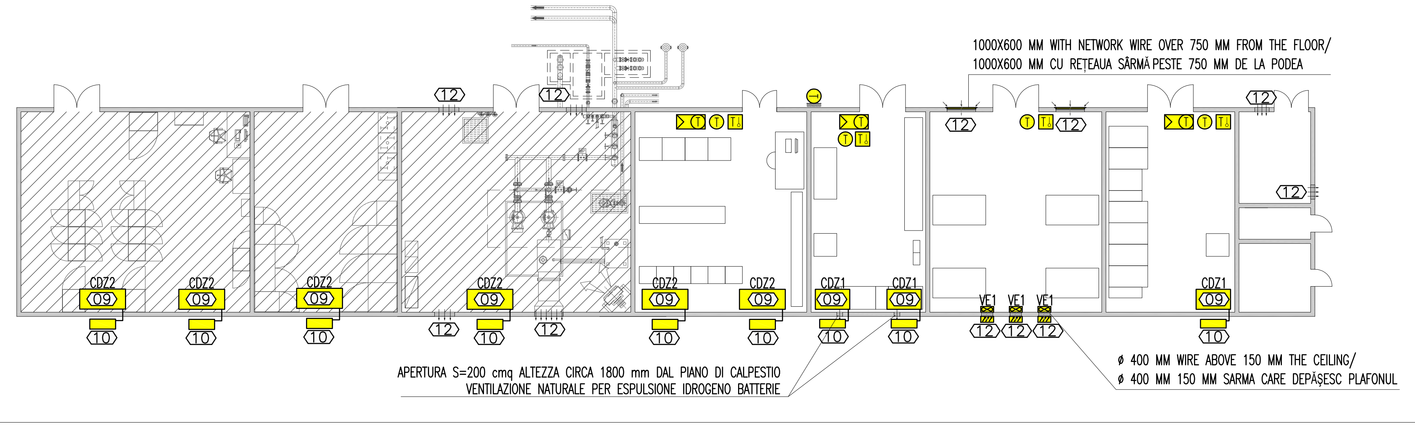


DISPOSAL OF LIGHTING DRIVING FORCE SYSTEMS/ DISPOZIȚIE DE SISTEMUL DE LUMINA FORTA MOTRICE

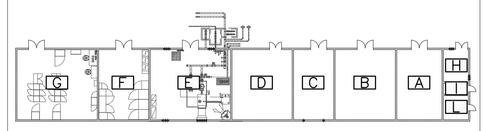


DISPOSAL OF GROUNDING SYSTEM/ DISPOZIȚIE DE SISTEM PAMANT

DISPOSAL OF CONDITIONING AND VENTILATION SYSTEMS/ DISPOZIȚIE DE SISTEMUL DE CONDITIONARE SI VENTILATIE



CABIN LOCAL LEGEND/LEGENDA LOCAL CABINA



A	MV LOCAL/LOCAL MT
B	TRANSFORMERS LOCAL/LOCAL TRANSFORMATOARE
C	LV LOCAL/LOCAL JT
D	TELECOMMUNICATIONS LOCAL/LOCAL TELECOMUNICAȚII
E	PREVENTION FIRE LOCAL/LOCAL LA FOC
F	CONTROL EQUIPMENTS LOCAL/LOCALE DE CONTROL ECHIPAMENTE
G	EQUIPMENTS LOCAL/LOCAL ECHIPAMENTE
H	PROVIDER ENTITY LOCAL/LOCALE ENTITATEA FORNITOR
	MEASURES LOCAL/LOCALE MĂSURI
L	WAREHOUSE LOCAL/LOCAL DEPOZIT

indicator cable ducts/cablu indicator

A | B-C
D | E

A – LEGEND NETWORKS / LEGENDA REȚELE

MT	MEDIUM TENSION / MEDIE TENSIUNE
BT	LOW TENSION / JOASĂ TENSIUNE
IE	OUTDOOR LIGHTING / ILUMINAT EXTERIOR
IL	TUNNEL LIGHTING / ILUMINAT TUNELURI
TT	TELECOMMUNICATIONS SYSTEMS / SISTEME DE TELECOMUNICAȚII
R	RESERVE / REZERVĂ

B – LEGEND TYPE / CHEIE DE TIP

TFPE	FLEXIBLE TUBE, POLYETHYLENE / FURTUN POLIETILENA
CAIP	FULL STAINLESS STEEL CHANNEL WITH COVER / CANAL FULL INOX CU INTENTIE
CAIF	EMPTY STAINLESS STEEL CHANNEL WITH COVER / CANAL GOL INOX CU INTENTIE
CAZSP	FULL CHANNEL STEEL GALVANIZED SENDZIMIR WITH COVER / OTEL U FULL ZINCATE SENDZIMIR CU INTENTIE
CAZSF	HOLE CHANNEL GALVANIZED SENDZIMIR / HOLE CHANNEL ZINCATE SENDZIMIR
TAI	STAINLESS STEEL TUBE / TUB INOX

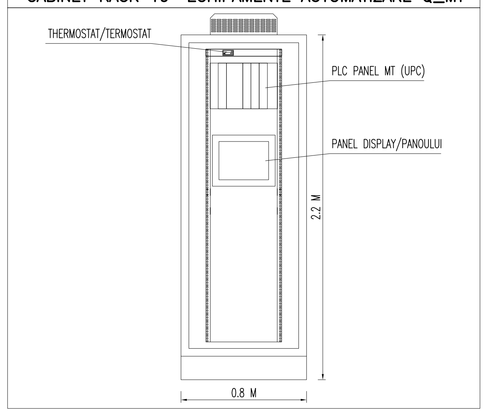
C – LEGEND PLACEMENT / CHEIE DE INSTALARE

INT	UNDERGROUND / SUBTERANE
SPS	MOUNT VIEW / MOUNT VEDEREA
CUN	WITHIN BURROWS OR UNDER TECHNICIAN FLOOR / IN CADRUL BURROWS TEHNICIAN PODEA SAU SUB

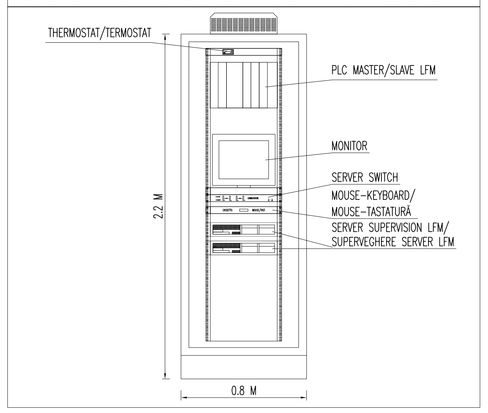
D – SEPTA NUMEBER / NUMĂRUL SEPTURI

E – NUMBERS AND DIMENSIONS (mm) / NUMĂRUL DIMENSIUNI (mm)

CABINET RACK 19" AUTOMATION EQUIPMENT Q_MT CABINET RACK 19" ECHIPAMENTE AUTOMATIZARE Q_MT



CABINET RACK 19" WITH FRONT-END EQUIPMENT LFM CABINET RACK 19" CU ECHIPAMENT FRONT-END LFM



LEGENDA SIMBOLI IMPIANTO DI TERRA

	SECONDARY NODE OF GROUND-INTERMEDIATE/NOD SECUNDAR DE PAMANTULUI-INTERMEDIAR
	ELECTROWELDED NETWORK DROWNING IN FLOOR/REȚEA ELECTROSUDATE ÎNEC ÎN PODEA
	COCKPIT OF GROUND 600X600 MM INSPECT, COMPLETE Puntazza W = 2000 MM AND MANHOLE DRIVE-OVER CARLINGA MM 600X600 LAND INSPECT, COMPLET PUNTAZZA W = 2000 MM SI CAMINE DRIVE-OVER
•	CONNECTION WITH BRASS TERMINAL BETWEEN THE EQUIPOTENTIAL RING AND NETWORK ELECTROWELLEDE-SINK/CONEXIUNEA CU TERMINALUL ALAMA DINTRE RING EGALIZARE SI REȚEAUA ELECTROSUDATE-SINK
·	GROUND CONNECTION EQUIPMENT/CONEXIUNE IMPAMANTAREA ECHIPAMENTE
	EQUIPOTENTIAL RING FOR MASSES AND EXTRANEOUS MASSES OF CABIN IN BARE COPPER FLAT 60X5 MM MOUNTED WALL ON INSULATION SUPPORT/ RING EGALIZARE PENTRU MASE ȘI MASE AFARA DE CABINĂ ÎN PLATĂ CUPRU BARE 60X5 MM MONTAT PEREȚI PE SUPORT IZOLAȚIE
	CONDUCTOR PROTECTION-MAIN LINK EQUIPOTENTIAL/PROTECȚIA CONDUCTORULUI-LINK-UL PRINCIPAL ECHIPOTENȚIALĂ
	GROUND CONDUCTOR/CONDUCTORULUI SOL
	BURIED SINK 0.5M IN ROPE BARE COPPER S = 35MMQ CHIUVETA ÎNGROPAT ÎNTR-O 0,5 M CUPRU ROPE BARE S = 35MMQ

EQUIPMENTS LEGEND/LEGENDA ECHIPAMENTE

01	MEDIUM VOLTAGE/MEDIA TENSIUNE Q_MT
02	TRANSFORMER MT/BT 20kV/1kV
03	TRANSFORMER MT/BT 20kV/0.4kV
04	SAFE AREA PANEL/CADRU DE ZONA SIGURA (QdP)
05	LOW VOLTAGE PANEL/CADRU DE JOASA TENSIUNE (Q_BT)
06	POWER FACTOR CORRECTION/CADRU DE FACTOR Q_RIF
07	CABINET FOR SYSTEM GSM-R, SDH, SPVI,
08	FIRE PUMPS PANEL/CADRU POMPELE DE INCENDIU(Q_AI)
09	INDOOR UNIT OF AIR CONDITIONING CEILING/UNITATEA INTERIOARĂ DIN PLAFONUL CLIMATIZARE
10	OUTER UNIT OF AIR CONDITIONING/UNITATEA EXTERIOARĂ DE CLIMATIZARE
11	OPERATOR'S STATION/STATIE DE OPERATORUL
12	OPENING FOR VENTILATION/DESCHIDERE PENTRU VENTILATIE
13	ELECTRIC HEATER FAN/FAN TERMO-ELECTRICE
14	EQUIPMENTS STSI AND CABLE CABINET/ECHIPAMENTE STSI SI CABINET CABLU
15	UPS
16	CABINET RACK 19" EQUIPMENTS IPBX EMERGENCY TELEPHONE AND SOUND DIFFUSION/CABINET RACK 19" ECHIPAMENTE IPBX TELEFON DE URGENTA SI DIFUZARE DE SUNET
17	CABINET RACK 19" OPTICAL CONVERTER-COPPER AND DATA NETWORK EQUIPMENTS/CABINET RACK 19" CONVERTOR OPTICE-CUPRU SI ECHIPAMENTE RETEA DATA
18	CABINET RACK 19" WITH RADIO UMTS/GSM EQUIPMENTS CABINET RACK 19" CU RADIO UMTS/GSM ECHIPAMENTE
19	CABINET RACK 19" WITH FRONT-END LFM EQUIPMENTS CABINET RACK 19" CU ECHIPAMENTE FRONT-END LFM
20	CABINET RACK 19" WITH AUTOMATION EQUIPMENTS Q_MT CABINET RACK 19" CU ECHIPAMENTE AUTOMATIZARI Q_MT
21	CABINET RACK 19" WITH SECURITY EQUIPMENTS CABINET RACK 19" CU ECHIPAMENTE DE SECURITATE

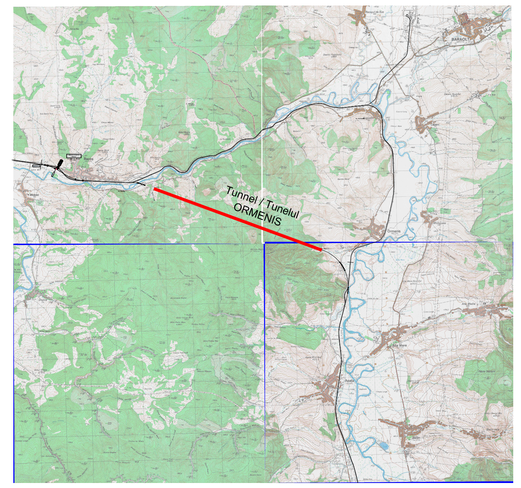
LEGENDA SIMBOLI IMPIANTI LFM IN CABINA

	POLE SWITCH/POLE SWITCH
	BUTTON TO ACCESS SECURE (WITH SAFETY GLASS) BUTON PENTRU SECURE ACCESS (CU STICLĂ DE SIGURANȚĂ)
	CIVIL SOCKET 10/16 A WITH PROTECTION LEAD (NETWORK STANDARD) PRIZA CIVILĂ 10/16 CU PLUMB DE PROTECȚIE (STANDARD DE REȚEA)
	CIVIL SOCKET P30 UNIVERSAL 16 A WITH PROTECTION CONDUCTOR (CONTINUITY NETWORK "ABSOLUTE) PRIZA P30 CIVILE UNIVERSALE 16 A CU CONDUCTOR DE PROTECȚIE (CONTINUITATE REȚEA "ABSOLUTE)
	DRIVING FORCE SOCKETS PANEL/CADRU PRIZE DE FORTA MOTRICE (N°1 3P+N+T 16 A + N°1 1P+N+T 16 A)
	ILLUMINATING DEVICE WITH LINEAR FLUORESCENT LAMPS FOR MOUNTING SURFACE- 1x36 W DISPOZITIV DE ILUMINAT CU LĂMPI FLUORESCENTE LINIARE PENTRU SUPRAFATA DE MONTAJ- 1x36 W
	ILLUMINATING DEVICE WITH LINEAR FLUORESCENT LAMPS FOR MOUNTING SURFACE- 2x36 W DISPOZITIV DE ILUMINAT CU LĂMPI FLUORESCENTE LINIARE PENTRU SUPRAFATA DE MONTAJ- 2x36 W
	ILLUMINATING DEVICE WITH COMPACT FLUORESCENT LINEAR WALL MOUNT-1x18 W DISPOZITIV DE ILUMINARE CU FLUORESCENTE COMPACTE LINEAR MONTARE DE PERETE-1x18 W
	APPARATUS SINGLE FOR SIGNAL OUTPUT OF SAFETY WITH PICTOGRAM/ APARAT SINGLE PENTRU SEMNALUL DE IEȘIRE AL SIGURANȚĂ CU PICTOGRAME
	STATE SIGNAL OF TRANSFORMER/SEMNAL STAT DE PROCESOR
	TWILIGHT
	WELL WITH MANHOLE IN CLS 1000x1000 MM/BINE CU MANHOLE IN CLS 1000x1000 MM
	POINT POWER PLANT MECHANICAL UTILITIES (VENTILATION, AIR CONDITIONING, HEATERS)
	GRID TO RECOVERY WING INCLINED TO VERTICAL INSTALLATION/ GRILA DE RECUPERARE UNGHIULUI ARIPI INSTALAREA VERTICALĂ
	AIR EXTRACTOR/EXTRACTOR DE AER
	TEMPERATURE PROBE/SONDA DE TEMPERATURA
	EXTERNAL TEMPERATURE PROBE/SONDA DE TEMPERATURA EXTERNE
	THERMOSTAT/TERMOSTAT
	CONDITIONER REGULATOR WITH INCORPORATED PROBE/ REGULATOR CONDITIONER CU PROBE INCORPORATE
	PRESSURIZED DAMPER/AMORTIZOR PRESURIZATE

INDICATORS LEGEND TO GROUND CONNECTIONS/ LEGENDA INDICATORII AI CONEXIUNI SOL

1	GROUND CONNECTION OF NEUTRAL (CENTER TRANSFORMERS STAR) WITH CABLE YELLOW-GREEN N07G9-K D = 35 MMQ/ CONEXIUNE SOL NEUTRE (CENTER TRANSFORMATOARE STEA) CU CABLE GALBEN-VERDE N07G9-K D = 35 MMQ
2	GROUND CONNECTION OF THE CARCASS OF TRANSFORMER CABLE YELLOW-GREEN N07G9-K S = 35 MMQ/CONEXIUNE SOL CARCASĂ A TRANSFORMATOR CABLE GALBEN-VERDE N07G9-K S = 35 MMQ
3	GROUND CONNECTION OF THE BOX OR GRID TRANSFORMER PROTECTION WITH CABLE YELLOW-GREEN N07G9-K D = 35 MMQ/CONEXIUNE SOL BOX SAU GRILA PROTECTIE TRANSFORMATOR CU CABLE GALBEN-VERDE N07G9-K D = 35 MMQ
4	GROUND CONNECTION OF SCREEN CABLE MV CABLE YELLOW-GREEN N07G9-K S = 35 MMQ/CONEXIUNE SOL DE ECRAN CABLU MT CABLU galben-verde N07G9-K S = 35 MMQ
5	PROTECTION CONDUCTORS FOR USERS PANEL POWERED BY LV CONDUCTORI DE PROTECTIE PENTRU UTILIZATORII CADRU ALIMENTATE JT
6	GROUND CONNECTION OF BAR-COLLECTOR OF LV PANEL/ CONEXIUNE SOL PANOU DE BARA-CULEGATOR DE JT CĂDRU
7	GROUND SINK/SINK SOL
8	GROUND CONNECTION OF CARCASS OF MV PANEL CABLE YELLOW-GREEN N07G9-K S=35 MMQ/CONEXIUNE SOL DE LOCUINTE DE CADRU MT CABLU GALBEN-VERDE N07G9-K S = 35 MMQ
9	GROUND CONNECTION OF THE OVERVOLTAGE PROTECTORS WITH CABLE 35 MMQ = KS-N07G9/CONEXIUNE SOL DE DESCARCATOARE SUPRATENSIUNE CU CABLU N07G9-K S = 35 MMQ
10	GROUND CONDUCTOR TO MAIN MANIFOLD WITH CABLE/CONDUCTORULUI SOL LA COLECTORUL DE PRINCIPAL CU CABLU N07G9-GALBEN-VERDE K D=35MMQ N07G9-YELLOW-GREEN K D=35 MMQ
11	PROTECTION CONDUCTOR TO PANELS BT OF LFM UTILITIES IN TUNNEL/ CONDUCTORI DE PROTECTIE CADRU JT DE UTILITĂȚI LFM IN TUNELUL
12	GROUND CONNECTION TO ELECTRONIC DEVICES WITH CABLE N07G9 MMQ-S = 10 K (PER IEC 64/8-707)/CONEXIUNE SOL DISPOZITIVELOR ELECTRONICE, CU CABLU N07G9 MMQ-S = 10 K (DE IEC 64/8-707)

GENERAL PLAN / PLANUL GENERAL



COLORS LEGEND/COLOR CHEIE

	LIGHT DRIVING FORSE SYSTEM/SISTEMUL DE LUMINA FORTA MOTRICE(LFM)
	SUPERVISION SYSTEM/SISTEMUL DE SUPERVEGHERE (LFM)
	EMERGENCY TELEPHONE AND SOUN DIFFUSION SYSTEM/SISTEME DE TELEFON DE URGENTA SI DUFUZARE DE SUNET (TEM_DS)
	INTRUSION, ACCESS CONTROL AND VIDEO SURVEILLANCE SYSTEMS/ SISTEMUL DE EFRACTIE, CONTROL ACCES SI SUPERVEGHERE
	FIRE DETECTION SYSTEM/SISTEMUL DE DETECTIE INCENDIU
	GSM/UMTS RADIO SYSTEM/SISTEMUL DE RADIO GSM/UMTS
	FIRE PROTECTION SYSTEM/SISTEMUL DE INCENDIU
	VENTILATION SYSTEM/SISTEMUL DE VENTILATIE
	EMERGENCY DATA NETWORK SYSTEM/SISTEMUL DE RETEA DE DATE DE URGENTA

NOTES:
- PARTITIONS REI120
- LOCAL HIGH NET H = 3 M
- THE LINKS BETWEEN THE VARIOUS CABIN EQUIPMENT WILL BE REALIZED THROUGH FLOOR BURROWS RUN AT 200 MM FROM THE WALLS AND COVERED WITH CHECKERED PLATE 8 MM THICK
- IN THE WALLS CROSSINGS,THE FEATURE REI 120 WILL BE GUARANTEED BY FIRE BARRIERS
- ALL BURROWS HAVE A DEPTH OF 800 MM ABOVE THE FLOOR
- CONDUCTORS FOR ELECTRICAL SYSTEMS OF DIFFERENT CATEGORY (MT, BT, SP), INSIDE OF THE BURROWS, WILL BE NECESSARY SEGREGATED BY SEPARATORS

NOTE:
- PERETI DESPARTITORI REI120
- LOCAL HIGH NET H = 3 M
- LEGĂTURI ÎNTRE DIVERSE ECHIPAMENTE SE VA FACE PRIN PODEA MĂNĂ BURROWS PORNEȘTE DE LA 200 MM DE PE PERETI ȘI ACOPERITE CU PLACĂ DE 8 MM GROSIME ÎN CAROURI
- PUNCTELOR DE TRECERE A PERETILOR 120 VA BENEFICIA DE "REI SĂ FIE GARANTATĂ DE BARIERELE FOC
- TOATE SĂ AIBĂ O ADÂNCIME BURROWS "DE 800 MM DEASUPRA PODELEI
- CONDUCTORI DE SISTEME ELECTRICE DIN CATEGORIA DIFERITE (MT, BT, SP), ÎN INTERIORUL VIZUINI, VA FI NECESARĂ SEPARATOARE SEGREGATE

Indice Index	Data Date	Modificare Modification/Revision	Proiectant Designer	Aprobat Consultant Approved Consultant	Aprobat CFR Approved CFR
D					
C					
B					
A					

GUVERNUL ROMANIEI ROMANIAN GOVERNMENT

PROIECT FINANȚAT DE UNIUNEA EUROPEANĂ EUROPEAN UNION FINANCED PROJECT

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

CLIENT / CLIENT

ITALFERR GRUPPO FERROVIE DELLO STATO Joint Venture leader — Scott Wilson — OBERMEYER PLANEN + BERATEN GmbH — TECNIC Consulting Engineers

CONSULTANT / CONSULTANT

			Data Date	Semnătură Signature
Aprobat Approved	Șef proiect Project manager	R. Liuzza		
Aprobat Approved	Coordonator Secțiune 1 Section 1 Coordinator	C. Gambelli		
Verificat Checked	Tunel Expert Tunnel Expert	C. Gambelli		
Întocmit Elaborated	Proiectant Designer	P. Amodio		

SUBCONSULTANT / SUBCONSULTANT

Aprobat Approved	Responsabilă Subconsultant Subconsultant Responsible			
Întocmit Elaborated	Proiectant Designer			

Reabilitarea liniei de cale ferata Brașov - Simeria, parte componentă a coridorului IV Pan European, pentru circulația trenurilor cu viteza maximă de 160 km/h. Secțiune 1 Brasov - Sighisoara

Rehabilitation of the railway line Brașov - Simeria, component Part of the IV Pan-European Corridor, for the trains circulation with maximum speed of 160 km/h. Section 1 Brasov - Sighisoara

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

Faza / Phase: P.Th. / T.D.

Denumire desen / Drawing Title : **TUNNEL/TUNELUL ORMENIS**

ORMENIS SIDE/INSPRE ORMENIS

Safety Tunnel Power Supply system /Sistem de alimentare de siguranță a tunelul
Local technological Layout LFM system/Plan de situație tehnologice sistem LFM

Codificare / Codification System															Scara / Scale	LOT	Nr. / No
E	A	5	1	0	1	C	1	0	L	X	T	S	1	0	3	6	0 0 5	0