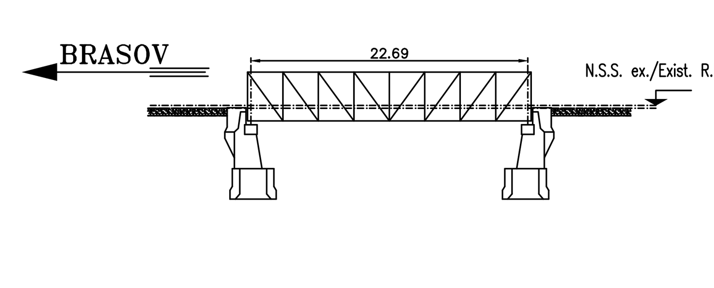
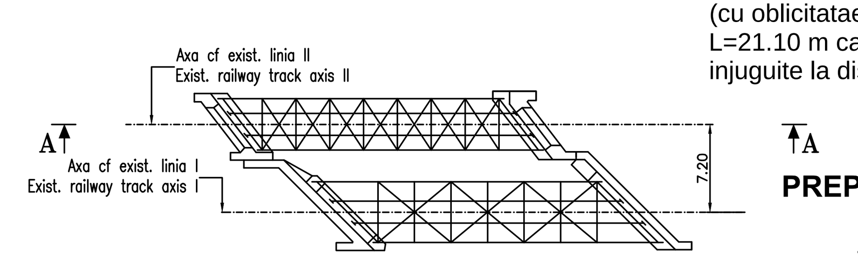
SECTIUNE A-A / A-A SECTION



VEDERE IN PLAN



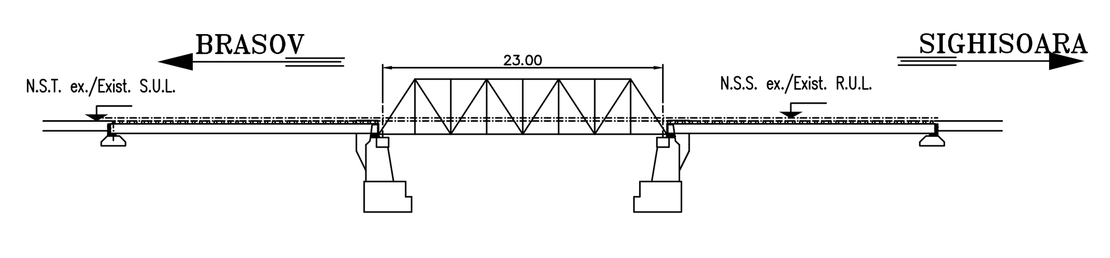
LUCRARI PRGATITOARE

- in amonte si aval de podul existent, la cca 20.00 de axa liniei I existente, se realizeaza doua diguri transversale din pamant, strabatute de min 4 tuburi metalice Ø 1000 mm, ce vor conduce debitul de apa in afara zonei de lucru;
- se evacueaza apa din incinta astfel creata, prin epuismente;
- in pauze de circulatie, la adapostul a 2 podete U5, se executa in terasamentul liniei I, inainte si dupa pod, sapaturile necesare pentru realizarea blocurilor de fundatie pentru doua poduri provizorii;
- se confectioneaza doua poduri provizorii oblice (cu oblicitataea culeilor liniei I) din grinzi Peine 80 L=21.10 m cate 6 grinzi pentru fiecare pod, bine injuguite la distanta de max 1.00 m;

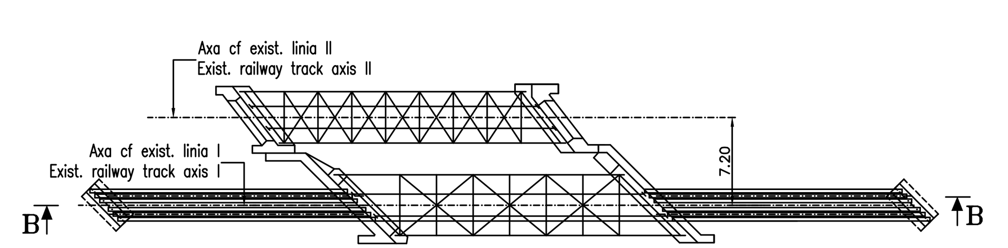
PREPARATORY WORKS

- upstream and downstream from the existing bridge, at about 20.00 from the axis of existing line I, two transversal earth dikes will be built, through which min 4 metallic tubes Ø 1000 mm will pass, leading the water flow outside the work area;
- the enclosure thus obtained will be dewatered;
- during traffic breaks, being protected by two U5 culverts, on the embankment of line I, in front and behind the bridge, the required excavations will be carried out for the foundation blocks for two provisory bridges;
- two oblique provisory bridges will be built (obliqueness of abutments on line I) out of Peine girders 80 L=21.10 m, 6 girders for each bridge, well fixed at the distance of max 1.00 m;

SECTIUNE B-B / B-B SECTION



VEDERE IN PLAN



FAZA I

Circulatie cu restrictie de viteza de 30 km/h pe linia II, circulatia inchisa pe linia I existenta

- se betoneaza blocurile de fundatie ale podurilor provizorii din terasament;
- se scoate de sub tensiune linia de contact aferenta liniei I;
- se demonteaza suprastructura caii intre pod si blocurile de fundatie;
- se indeparteaza prisma de piatra sparta si partea superioara a terasamentului pe tronsoanele respective, pentru a putea introduce in cale podurile provizorii;
- se demoleaza partial zidurile de garda ale culeilor liniei I, pana la nivelul banchetei cuzinetilor, pentru a permite rezemarea pe acestea a podurilor provizorii;
- se executa in spatele culeilor liniei I, pe traseul viitoarei sapaturi, cate un perete de palplanse cu L= min 12.0 m, introduse in teren prin vibroinfigere,
- se introduc in cale, pe linia I, cu macaraua, podurile provizorii, care reazema cu un capat pe culeile existente si cu celalalt capat pe blocurile de fundatie executate in terasament;
- se repune sub tensiune linia de contact;

- se deschide circulatia pe linia I existenta, cu restrictie de viteza de 30 km/h

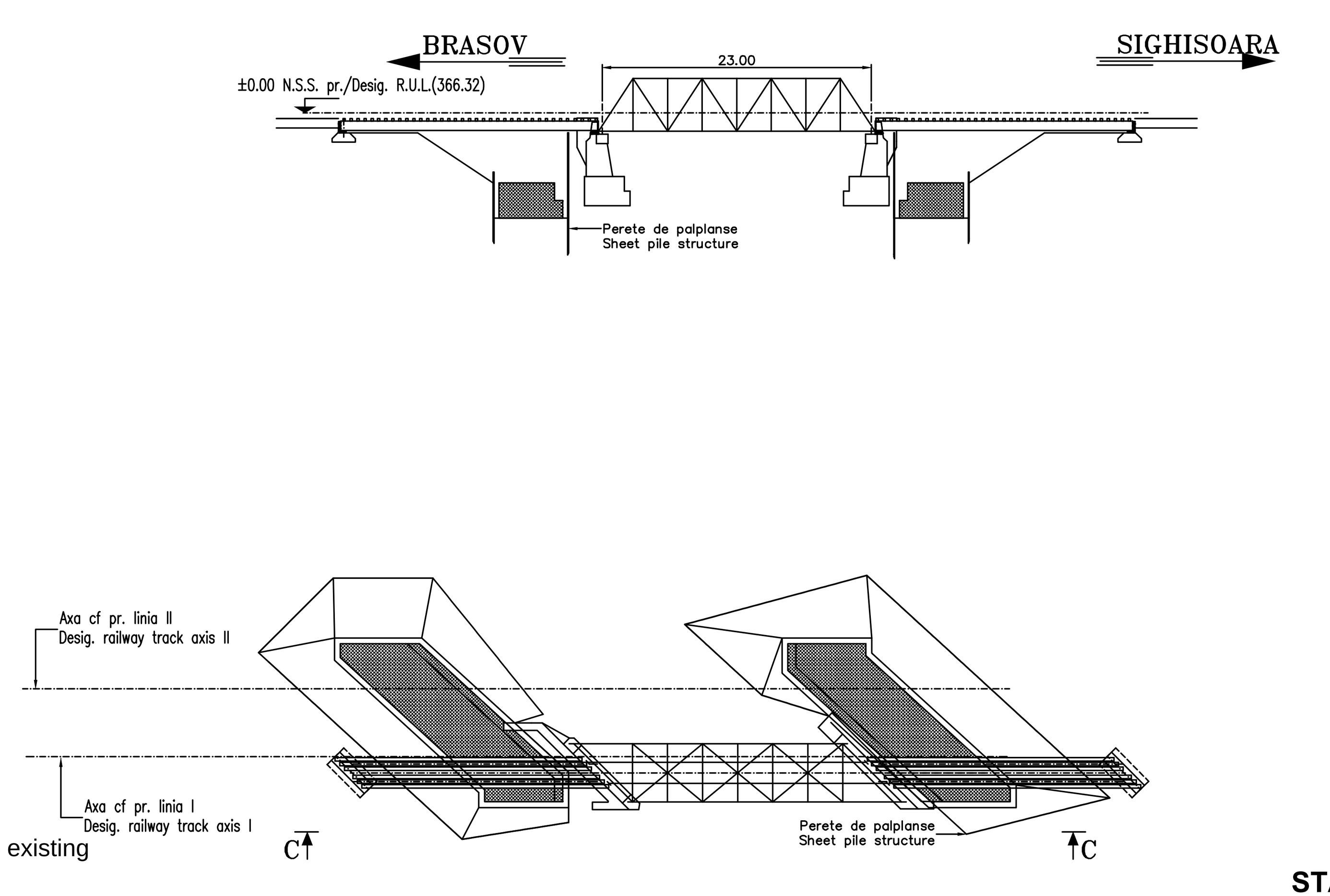
STAGE I

Traffic with 30km/h speed restriction on line II and traffic closure on the existing line I

- the foundation blocks of the provisory bridges on the embankment will be concreted;
- the contact line related to line I will be de-energized;
- the track superstructure will be demounted between the bridge and the foundation blocks;
- the crushed stone prism and the upper part of embankment on the respective sections will be removed to be able to introduce the provisory bridges on the track;
- the guard walls of the abutments on line I will be partially demolished up to the level of the bearing box berm to support the provisory bridges;
- behind the abutments of line I along the route of the future excavations, a sheet piling wall will be built, L= min 12.0 m, vibro-driven into the earth,
- the provisory bridges will be placed on line I by crane; one of the ends will rest on the existing abutments while the other one will rest on the foundation blocks in the embankment;
- the contact line will be put again under voltage;

- the traffic will be opened on the existing line I, with 30km/h speed restriction

SECTIUNE C-C / C-C SECTION



FAZA II

Circulatie cu restrictie de viteza de 30 km/h pe linia I, circulatia inchisa pe linia II existenta

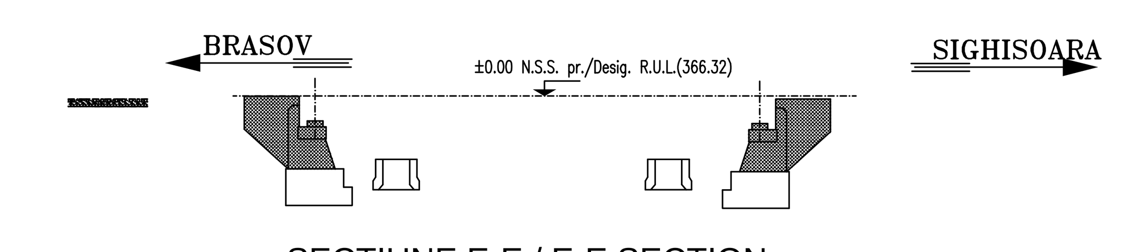
- se scoate de sub tensiune linia de contact aferenta liniei II;
- se demonteaza suprastructura caii pe pod si zonele adiacente;
- se scoate din cale tablierul de pe linia II si se transporta la depozit;
- se demoleaza elevatiile culeilor existente pe linia II pana la rostul elevatie-fundatie;
- se executa sapatura pentru noile fundatii, acordandu-se o atentie deosebita zonei din spatele culeilor aferente liniei I, unde s-au executat peretii de palplanse; pana la cota -6.00 sapatura se executa cu sprijiniri din dulapi metalici si spraituri, iar de la -6.00 la terenul natural sapatura deschisa;
- se betoneaza fundatiile culeilor noi;

STAGE II

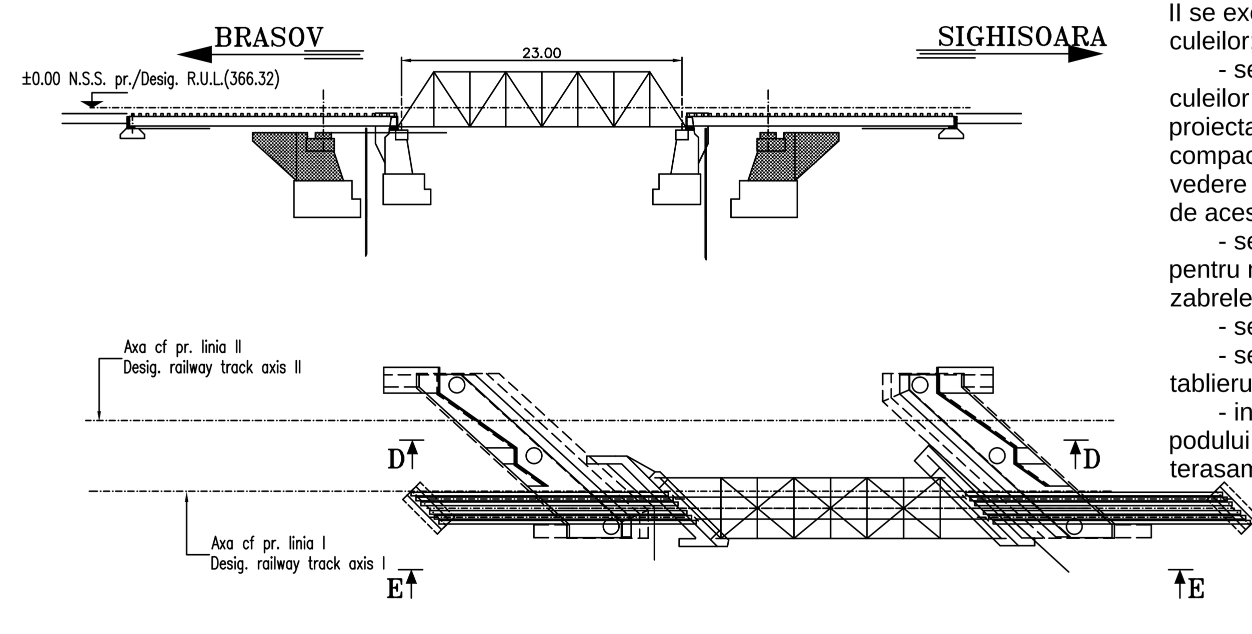
Traffic with 30km/h speed restriction on line I and traffic closure on the existing line II

- the contact line related to line II will be de-energized;
- the track superstructure on the bridge and adjacent areas will be demounted;
- the deck will be taken out from line II and will be transported to the storage place;
- the elevations of existing abutments on line II will be demolished up to the elevation-foundation joint;
- excavations will be carried out for the new foundations, giving special consideration to the area behind the abutments of line I where sheet pile walls are built; the excavations will be carried out with metallic piling and propping up to level -6.00 and open excavations from -6.00 to the natural ground;
- the foundations of the new abutments will be concreted;

SECTIUNE D-D / D-D SECTION



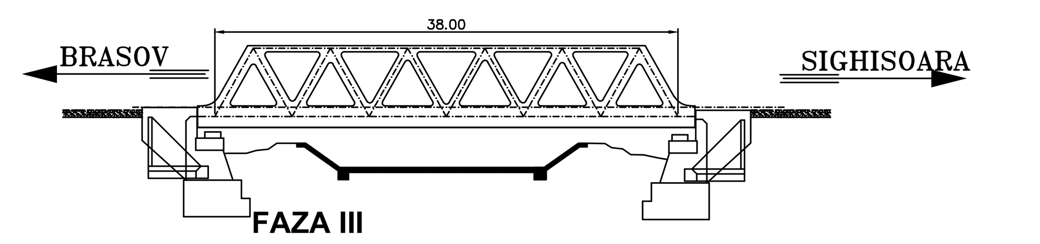
SECTIUNE E-E / E-E SECTION



- se realizeaza umplutura in jurul fundatiilor;
- se executa elevatiile culeilor noului pod, bancheta cuzinetilor si cuzinetii. Zidul de garda se executa integral numai cat este posibil, avandu-se in vedere prezenta podurilor provizorii. De asemenea, si zidurile intoarse ale culeilor aferente liniei I.La culeile de la linia II se executa inclusiv trotuarele si parapetele aferente culeilor;
- se realizeaza umplutura din spatele si in jurul culeilor noi, corespunzator profilului terasamentului proiectat in zona podului (in straturi succesive, bine compactate, conform caietului de sarcini), avandu-se in vedere cota corectiei albiei sub pod si in amonte si aval de acesta;
- se executa in aval de culeile noului pod, o schela pentru montarea si riparea tablierului metalic, grinzi cu zabrele;
- se executa montarea tablierului g.z.;
- se cofreaza, se armeaza si se betoneaza cuvele tablierului;
- in paralel, se executa lucrarile necesare racordarii podului la teren si, pana la pod, lucrarile de terasamente, suprastructura a caii si linie de contact;

- the filling will be carried out around the foundations;
- the elevations of abutments for the new bridge, the bearing boxes and the berm of bearing boxes will be built. The guard wall will be built entirely to the extent possible, taking into consideration the provisory bridges. The same for the reverted walls of abutments for line I. The sidewalks and the parapets afferent to the abutments will be built for line II;
- the filling will be made behind and around the new abutments according to the designed embankment profile in the bridge area (in well compacted successive layers according to the Technical Specifications), taking into consideration the riverbed correction level under the bridge and upstream and downstream from it;
- downstream from the abutments of the new bridge, a scaffold will be erected to mount and shift the metallic deck, the lattice girders;
- the lattice girder deck will be mounted;
- the decks boxes will be molded, reinforced and concreted;
- at the same time, the works required to link the bridge to the ground will be carried out, and up to the bridge, the embankment, the track superstructure and the contact line works;

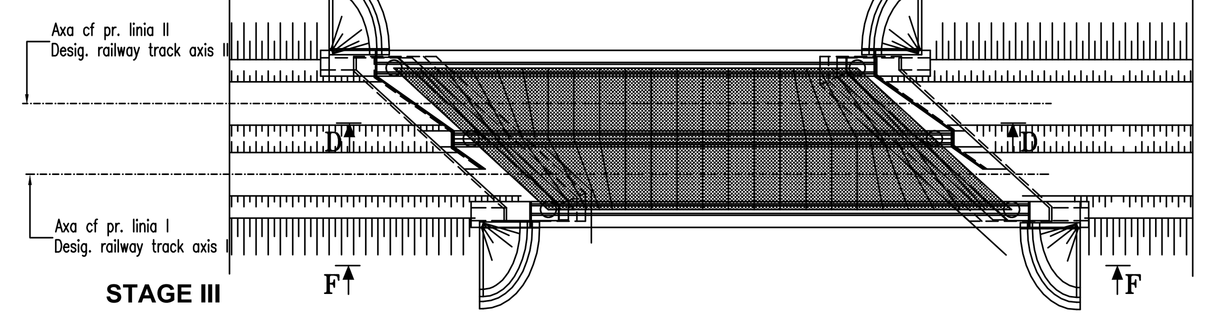
SECTIUNE F-F / F-F SECTION



FAZA III

Inchidere de circulatie pe ambele linii

- se scoate de sub tensiune linia de contact aferenta liniei I;
- se scot din cale podurile provizorii;
- se scoate din cale tablierul existent pe linia I;
- se demoleaza partea superioara a elevatiilor culeilor existente, pentru a permite riparea tablierului nou;
- se extrag palplansele din peretii executati in spatele vechilor culei de la linia I;
- se completeaza terasamentul din spatele si in jurul culeilor noi, corespunzator profilului terasamentului proiectat in zona podului;
- se ripeaza noul tablier in axa caii si se aseaza pe calaje din lemn;
- se demonteaza calea de ripare si schela de montaj;



STAGE III

Traffic closure on both lines

- the contact line afferent to line I will be de-energized;
- the provisory bridges will be taken out of track;
- the existing deck on line I will be removed from the track;
- the upper part of elevations of the existing abutments will be demolished to shift the new deck;
- the sheet piling walls will be pulled out behind the old abutments at line I;
- the embankment will be built behind and around the new abutments according to the designed embankment profile in the bridge area;
- the new deck will be shifted in the track axis and will be placed on wood wedges;
- the shifting track and the mounting scaffold will be demounted;

- se coboara tablierul pe reazemele definitive;
- se realizeaza prisma din piatra sparta in cuvele din beton ale tablierului. La linia II se face racordarea acesteia la cea de pe terasamentul din spatele culeilor;
- se executa suprastructura caii pe pod pentru linia II;
- la linia II, se racordează calea de pe pod cu calea de pe terasamentul nou proiectat si se monteaza contrasinele;
- se executa scara de acces pe terasament;
- se definitiveaza montarea liniei de contact pentru linia II;
- se pune sub tensiune linia de contact pe linia II;

- se deschide circulaţia cu restrictie de viteza de 30 Km/h, pe linia II, în trepte de viteză, conform instrucţiilor de cale ferată în vigoare;

- the deck will be lowered on the final supports;
- the crushed stone prism will be carried out in the concrete boxes of the deck. For line II, it will be linked to the embankment behind the abutments;
- the track superstructure on the bridge will be built for line II;
- for line II, the track on the bridge will be linked to the track on the new designed embankment and the guard rails will be mounted;
- the access stair will be built on the embankment;
- the contact line will be permanently mounted for line II;
- the contact line will be put under voltage on line II;

- the traffic will be opened with 30km/h speed restriction on line II, with speed steps according to the railway instructions in force;

FAZA IV

Circulatie inchisa pe linia I, circulatie cu restrictie de viteza de 30km/h pe linia II

- se finalizeaza executia culeiei in zona liniei I, lucrari ce nu s-au putut executa datorita prezentei podurilor provizorii;
- se definitiveaza demolarea culeilor vechi, pana la rostul elevatie fundatie, in zona aferenta liniei I;
- se executa suprastructura caii pe pod pentru linia I;
- la linia I, se racordează calea de pe pod cu calea de pe terasamentul nou proiectat si se monteaza contrasinele;
- se executa scara de acces pe terasament;
- se definitiveaza montarea liniei de contact pentru linia I;
- se pune sub tensiune linia de contact pe linia I;

- se deschide circulaţia si pe linia I, în trepte de viteză, conform instrucţiilor de cale ferată în vigoare;
- se ridica restrictia de viteza de pe linia II;

- se finalizeaza lucrarile de terasamente sub pod;
- se executa lucrarile de corectie si protectie a albiei sub pod si in zonele adiacente;
- se dezafecteaza digurile de pamant ce au asigurat incinta de lucru si se indeparteaza tuburile metalice care au asigurat tranzitarea apei prin incinta.

STAGE IV

Under traffic closure on line I and traffic with 30km/h speed restriction on line II

- the final works for the abutment will be performed in the area of line I, works that could not be completed due to the provisory bridges;
- the old abutments will be demolished up to the elevation - foundation joint in the area of line I;
- the track superstructure on the bridge will be built for line I;
- for line I, the track on the bridge will be linked to the track on the new designed embankment and the guard rails will be mounted;
- the access stair will be built on the embankment;
- the contact line will be permanently mounted for line I;
- the contact line will be put under voltage on line I;

- the traffic will be opened on line I, with speed steps according to the railway instructions in force;
- the speed restriction on line II will be removed;

- the earthworks will be finalized under the bridge;
- riverbed correction and protection works will be carried out under the bridge and in the adjacent areas;
- the earth dikes ensuring the protection of the work area will be demolished and the metallic tubes ensuring the water flow transit through the work area will be also removed.

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

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANŢAT DE UNIUNEA EURO
EUROPEAN UNION FINANCED PR

CLIENT / CLIENT

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

ITALFERR GRUPPO FERROVIE DELLO STATO *Joint Venture leader*

CONSULTANT / CONSULTANT

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

SUBCONTRACTANT / SUBCONTRACTOR

Aprobat / Approved	Responsabil Subconsultant / Subconsultant Responsible	A. Dinulescu Stanciu	12.2011	
Întocmit / Elaborated	Proiectant / Designer	Vasile Stirbu	12.2011	

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

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

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

Denumire desen / Drawing Title : **Interval Statia Albesti**

POD - KM 277+798.279 / BRIDGE KM 277+798.279

PROCES TEHNOLOGIC / SEQUENCE OF OPERATIONS

Codificare / Codification System	Scara / Scale 1:500	LOT / LOT	Nr. / No 01 / 01
EA51 01 C 19 DX PV 044 0 003 1			

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