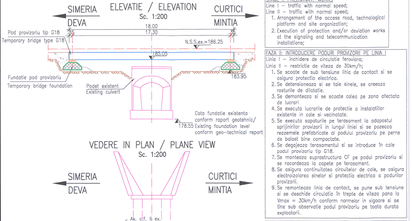
FAZA I – LUCRARI PREGATITOARE
STAGE I – PRELIMINARY WORKS
FAZA II – INTRODUCERE POD PROVIZORIU PE LINIA I
STAGE II – INTRODUCING TEMPORARY BRIDGE ON LINE I




FAZA I – LUCRARI PREGATITOARE
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza redusa;
1. Se amenajeaza drumul de acces, platforma tehnologica si organizarea de santier;
2. Se executa lucrari de protectie si/sau devieri de retele existente si/sau provizorii;

STAGE I – PRELIMINARY WORKS
Line I – circulation at normal speed;
Line II – traffic with normal speed;
1. Arrangement of the access road, technological platform and site organization;
2. Execution of protection and/or deviation works of the signaling and telecommunication installations;

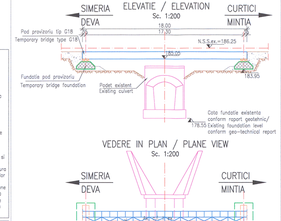
FAZA II – INTRODUCERE PODURI PROVIZORII PE LINIA I
Linia I – Inchidere de circulatie feroviara;
Linia II – restrictie de viteza de 30km/h;
1. Se scoate de sub tensiune linia de contact si se asigura protectia electrica.
2. Se dezafectaseaza si se taie kinela, se creeaza zona de disloca.
3. Se demontaza si se scoate calea pe zona afectata de viitor pod.
4. Se executa lucrarile de protectie si inaintarilor existente in calea si vecinatate.
5. Se executa sapaturile pe terasamenti la adaposteal sprijinirilor provizorii in lungul liniei si se pozeaza resemnele prefabricate si podul provizoriu pe perne de balast bine compactate.
6. Se montaza suprastructura si se introduce in cale podul provizoriu tip C18.
7. Se montaza suprastructura CF pe podul provizoriu si se racordeaza la ceasta si terasament.
8. Se asigura continuitatea circulatiei de cale, se asigura electrificarea aleator si protectia electrica a podului provizoriu.
9. Se reactiveaza linia de contact, se pune sub tensiune si se deschide circulatia in trepte de viteza pana la Vmax = 30km/h conform normativ in vigoare si se ine sub observatie podul provizoriu pe toate durdile exploatarii.

STAGE II – INTRODUCTION OF TEMPORARY BRIDGES ON LINE I
Line I – closure of railway traffic;
Line II – speed limit of 30km/h;
1. Switch off the voltage on the contact line and provision of electric protection.
2. Cut-off of the voltage and cut of the rails, execution of expansion joints.
3. Lifting the level on the bridge as the Designed NSS (top of the rail) and connection on each 60m of the end of each bridge.
4. Execution of protection works at the existing track and nearby installations.
5. Execution of the embankment excavations at the protection of the temporary propping along the railway and lay-down of precast bearing of the temporary bridge on well-compacted ballast beds.
6. Placing the embankment and placing the temporary bridge type C18 into the track.
7. Montage of the railway superstructure on the embankment bridge and connection to the ends on the embankment.
8. Provision of track circuits' continuity, of rails' electric insulation and electric protection of the temporary bridges.
9. Mounting back the contact line, restoring the voltage and opening the traffic with speed limits Vmax = 30km/h according to the norms in force and keeping under surveillance the temporary bridge during the entire operation.

NOTA:
PENTRU CALCULUL DE CALDA PENTRU PODURILE PROVIZORII: D.9TB.5
2. Podurile provizorii se aprobea Beneficiarul si ed. Pe la dispozitia Constructorului
3. Circulatia pe podurile provizorii se face cu maxim 30 km/h.

NOTA:
1. CALCULATION CONVOY FOR THE TEMPORARY BRIDGES: D.9TB.5
2. Temporary bridges are in the endowment of the Beneficiary and can be made available to the Contractor
3. Traffic on the temporary bridges takes place with maximum 30 km/h

FAZA III – INTRODUCERE POD PROVIZORIU PE LINIA II
STAGE III – INTRODUCING TEMPORARY BRIDGE ON LINE II



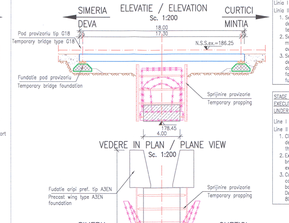

FAZA III – INTRODUCERE PODURI PROVIZORII PE LINIA II
Linia I – restrictie de viteza de 30km/h;
Linia II – Inchidere de circulatie feroviara;
1. Se repeta toate operatiile prevazute la FAZA II pe linia II.

STAGE III- INTRODUCTION OF TEMPORARY BRIDGES ON LINE II
Line I – speed limit of 30km/h;
Line II – closure of railway traffic;
1. Repeating all the operations from STAGE II on line II.

NOTA:
Prezentul plan w-a intocmit in baza urmatoarelor date:
- ridicarea topografica,
- diagrama geologica,
- Calea cuteze pe teren.

NOTA:
This plan has been drawn up on the basis of the following data:
- topo layout;
- general layout;
- acquisition of data to area.

FAZA IV – DEMOLARE PODETUL EXISTENT SI EXECUTIE FUNDATII NOI
STAGE IV – DEMOLITION OF THE EXSITING CULVERT AND EXECUTION OF THE NEW FOUNDATION




FAZA IV – DEMOLARE PODETULUI EXISTENT SI EXECUTIA FUNDATIEI PODETULUI NOU PE LA VIITORUL PODURILOR PROVIZORII:

Linia I – restrictie de viteza de 30km/h;
Linia II – restrictie de viteza de 30km/h;
1. Se degajeaza terasamentul din jurul podetului, se demoleaza podetul existent si racordarea la terasamentul, inclusiv fundatiile aceiasta.
2. Se executa sapaturile pentru fundatia podetului nou, montarea elementele de sprijinire pe masurare cu sprijinirile provizorii.
3. Se betoneaza fundatiile podetului, stratul de camasi de colectare, iar in restulde dintre fundatii se introduc doua foi de carton bitumat. Demontarea sprijinirilor se face dupa cangerea a 80% din clasa betonului din fundatie.

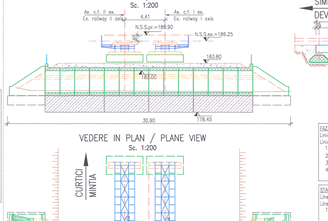
STAGE IV – DEMOLISH OF THE EXISTING CULVERT AND EXECUTION OF THE FOUNDATIONS FROM THE NEW CULVERT UNDER THE PROTECTION OF TEMPORARY BRIDGES.

Line I – speed limit of 30km/h;
Line II – speed limit of 30km/h;
1. Clearing the embankment around the culvert, demolishment of the existing culvert and connections to the embankment, including their foundations.
2. Execution of excavations for the foundation of the new culvert, placing the propping-up elements as the excavation is carried on.
3. Concreting the foundations of the culvert, wings and collecting chamber and placing two sheets of bitumen boards into the joints between the foundations. Demolishment of propping-ups is done after obtaining 80% of the class of the foundation concrete.

NOTA:
1. Ordinea de sisteare a lucrarilor pe linia I sau II rezulta din considerente constructivitate.
2. Lucrarile la pod vor fi executate obligatoriu inainte de lucrarile la linie.
3. Detaliile prezentate in acest plan nu sunt obligatorii si pot fi modificate sau adaptate in functie de datelor constructivitati cu respectarea conditiilor de realizare a lucrarilor definitiei prevazute in caietele de sarcini si cu aprobarea proiectantului.
4. Orice neconformitate intre elementele din vederi si elaborarea proiectului si lerari va fi anunttata proiectantului pentru adaptarea la situatia existenta.

THE NOTE:
1. The work's execution sequence on line I or II is up to the constructor to decide.
2. The bridge works will be carried-out obligatorily before the line works.
3. The details presented in this plan are not compulsory and can be modified or adapted depending on the constructor's endowments by observing the execution conditions of the field works provided in the Technical Specifications and the designer's approval.
4. Any incongruity between the elements taken into account when preparing the design and the site will be announced to the designer so that he can adapt to the existing situation.

FAZA V – EXECUTIE PODET NOU
STAGE V – EXECUTION OF THE NEW CULVERT




FAZA V – EXECUTIA PODETULUI NOU:
Linia I – restrictie de viteza de 30km/h;
Linia II – restrictie de viteza de 30km/h;
1. Se montaza elementele prefabricate conform tehnologiei de montare.
2. Se executa racordarile cu terasamentul (prin amonte si aval).
3. Se executa sistemul de drenaj si hidroizolatii.
4. Se executa umplutura, conform celdiului de santiri, pana la limita permisa de gabaritul podurilor provizorii.

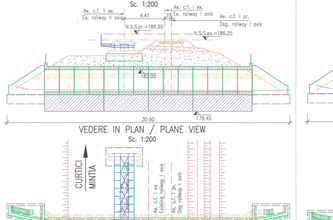
STAGE V – EXECUTION OF THE NEW CULVERT:
Line I – speed limit of 30km/h;
Line II – speed limit of 30km/h;
1. Mounting the precast elements according to the montage technology.
2. Executing the connection to the embankment (downstream and upstream wings).
3. Execution of the drainage system and the waterproofing.
4. Executing the filling, according to the technical specifications, under the temporary bridges.

DETALIU DE REZEMARE A PODULUI PROVIZORIU
DETAIL FOR TEMPORARY BRIDGE SUPPORTING
Sc. 1:50

Tehnologia de pozare a prefabricatelor:
- Inainte de turnarea betonului se cetern 2cm de mortar de cimenti pentru nivelarea si fixm pantei podului.
-prefabricatele se aseaza in ampilasament, dupa care se rasca si se observa urma lasata pe stratul de mortar proaspat. In cazul in care nu s-a realizat aezarea pe toata suprafata, se completeaza cu mortar de ciment de paza.
Operatia se repeta pana cand se obtine rezemarea pe toata suprafata.

Prefabricated elements laying technology:
-2cm cement mortar for levelling and 1cm for laying are placed on the hardened foundation concrete.
-the prefabricated elements are placed on site, after than there are risking and the track leaved on the fresh mortar layer is observed. If the laying is not done on the whole surface, cement mortar is cast on.
The operation is repeated till the whole supporting surface is obtained.

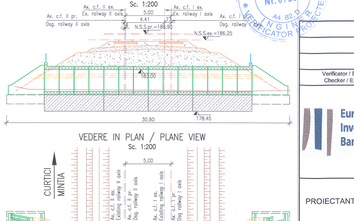
FAZA VI – EXECUTIE CALE LINIA I
STAGE VI – EXECUTION OF THE NEW RAILWAY ON LINE I




FAZA VI – EXECUTIE CALE LINIA I:
Linia I – restrictie de viteza de 30km/h;
Linia II – restrictie de viteza de 30km/h;
1. Se scoate de sub tensiune si se demontaza linia de contact.
2. Se demoleaza si se scoate calea pe zona podului de viitor.
3. Se executa lucrarile de protectie si/sau de inaintare.
4. Se executa umplutura, conform celdiului de santiri, se reface terasamentul si calea in zona podului pana la cota finala NSS proiectat.
5. Se montaza superstructura CF si se ridica la cota NSS existenta si se racordeaza la ceasta si terasament existent.
6. Se asigura continuitatea circulatiei de cale, se asigura electrificarea liniei si protectia electrica.
7. Se reinstaleaza linia de contact, se pune sub tensiune si se deschide circulatia in trepte de viteza pana la Vmax = 30km/h conform normativ in vigoare.

STAGE VI – EXECUTION OF RAILWAY ON TRACK I
Line I – closure of railway traffic;
Line II – speed limit of 30km/h;
1. Switch-off the voltage and dismantling the contact line.
2. Dismantling and removing the track on the area of the temporary bridge.
3. Removing the track the temporary bridge type C18.
4. Executing the filling, according to the technical specifications, reviewing the embankment and the track in the area of the culvert until at the final level of the existing NSS (top of the rail).
5. Montage of the railway superstructure on line I and connection to the ends on the existing railway.
6. Provision of track circuits' continuity, of rails' electric insulation and cathode protection.
7. Mounting back the contact line, restoring the voltage and opening the traffic with speed limits Vmax = 30km/h according to the norms in force.

FAZA VII – EXECUTIE CALE LINIA II
STAGE VII – EXECUTION OF THE NEW RAILWAY ON LINE II




FAZA VII- EXECUTIE CALE LINIA II:
Linia I – restrictie de viteza de 30km/h;
Linia II – restrictie de circulatie feroviara;
1. Se repeta toate operatiile prevazute la FAZA VI pe linia II.

STAGE VII- EXECUTION OF RAILWAY ON TRACK II
Line I – speed limit of 30km/h;
Line II – closure of railway traffic;
1. Repeating all the operations from STAGE VI on line II.

FAZA VIII – ALTE TIPURI LUCRARI:
STAGE VIII – OTHER TYPES OF WORKS:

FAZA VIII – ALTE TIPURI LUCRARI:
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza normala;
1. Se executa pervaz in pietre, intre stalpii scolile de acces pe terasament.
2. Se executa asfalturi pe suprafata drumului in oval si amonte si se colibreaza ulile in oval.
3. Se dezafectezaza platformele, accesele si se scoate de lucru, organizarea de santier.

STAGE VIII – OTHER TYPES OF WORKS:
Line I – traffic with normal speed;
Line II – traffic with normal speed;
1. Executing the pitching in stones of the culvert, between the wings and the access stairs on the embankment.
2. Executing the riprap mattresses in the downstream and upstream wings and riverbed calibration in downstream.
3. Closing-down the platforms, accesses to the work area, the site organization.

NOTA:
In urma lucrarilor la podet linia o fost deteriorata o cale NSS existenta. Reducerea la cota finala NSS proiectat, se va relata in cadrul lucrarilor de linii.

NOTE:
After the works at the culvert, the line was left at the existing NSS (top of rail) level.
The lifting at the final designed NSS (top of rail) level will be carried-out during the line works.

**Prezentul plan anuleaza si inlocuieste versiunea anterioara**
**This plan cancels and replaces previous version**

ICMAST S.A. CLUJ-NAPOCA
Nr. 07230
ROMANIA
INGINER ICANAEL I. IONUT BADU
Nr. 07230
ATESTAT DE ARHITECT

| | | | |
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| Verificator / Expert Checker / Expert | Cerinta Requirement | Semnatura Signature | |
| European Investment Bank | MINISTERUL TRANSPORTURILOR<br>BENEFICIAR / BENEFICIARY:<br>CFR<br>COMPANIA NATIONALA DE CĂI FERATE "CFR" SA | | |
| PROIECTANT / DESIGNER: | PÖYRY | Data Date | Semnatura Signature |
| Aprobat Approved | Sef de echipa Team leader | C. Teodorescu | 01.2013 |
| Verificat Checked | Expert Cheie Key Expert | R. Tudoraşcu | 01.2013 |
| Subcontractant / Subcontractor | VIOTOP | | |
| Aprobat Approved | Adjunct Sef de echipa Deputy Team leader | A.M. Baicu | 01.2013 |
| Proiectat Designed | Inginer Engineer | I. Pâunescu | 01.2013 |

**"Reabilitarea liniei c.f. Frontiera – Curtici - Simeria, parte componentă a Coridorului IV Pan - European pentru circula ţia trenurilor cu viteză maximă de 160 km/h"**
**Tronsonul 3: Gurasada - Simeria**

**"Rehabilitation of the Railway Line Border - Curtici - Simeria, component Part of the IV Pan - European Corridor for the Traina Circulation with maximum speed of 160 km/h"**
**Section 3: Gurasada - Simeria**

Denumire desen / Drawing name:
TEHNOLOGIE DE EXECUTIE / TECHNOLOGICAL PROCESS
PODET / CULVERT KM.PR.(DSG.) 485+973.400 KM.E. 485+984

| Scara / Scale | Revizia / Revision | Cod desen / Drawing Code | Nr / No |
|---|---|---|---|
| 1:200 ; 1:50 | 1 / 04.2013 | PT.03.02.24.PO.01.04 | 04 |

Project Nr 35311.1
Faza / Phase: PTH+CS / TD+TS