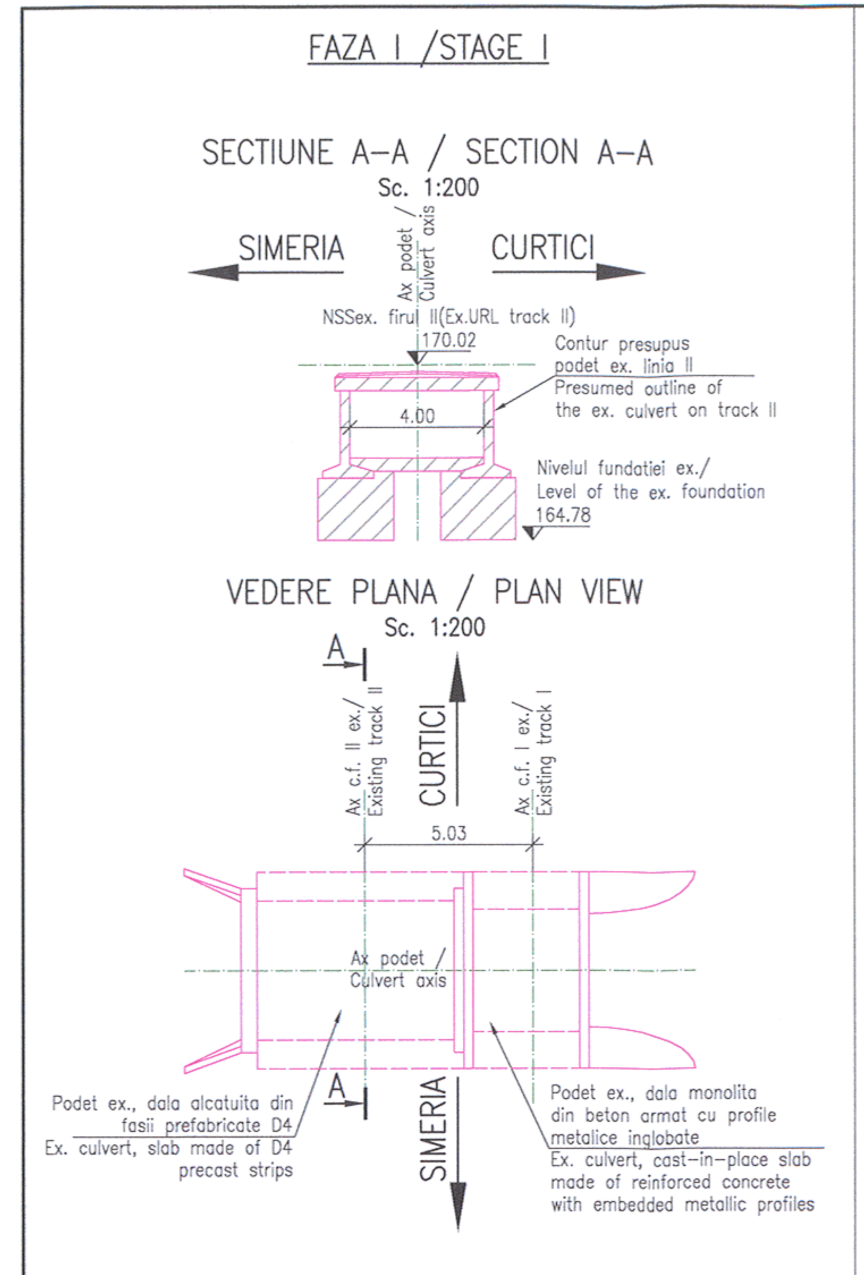
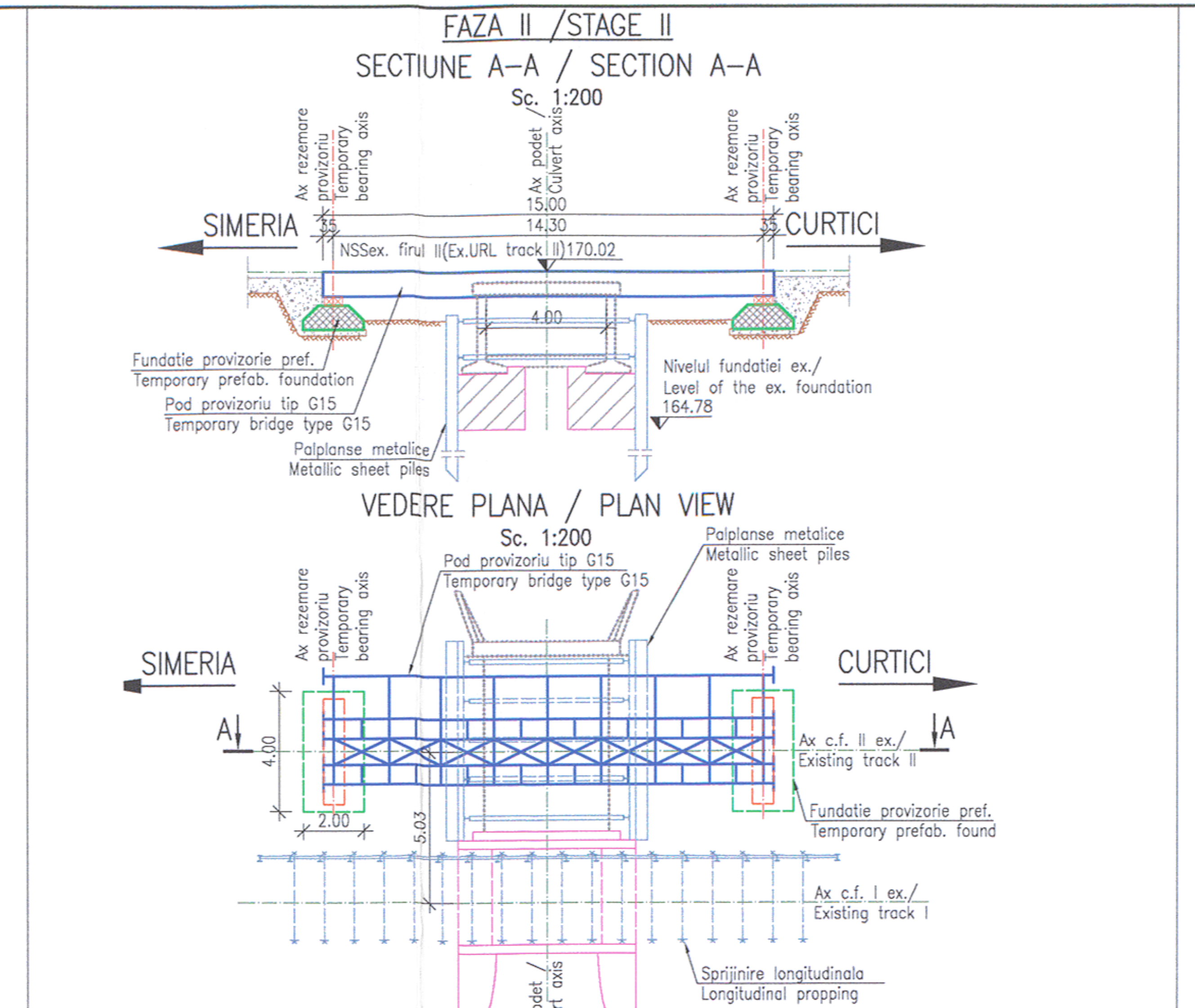


FAZA I: LUCRARI PREGATITOARE
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza normala;

1. Se amenajeaza drumul de acces si platforma tehnologica.
2. Se realizeaza organizarea de santier.
3. Se identifica, se picheteaza si se pun in siguranta instalatiile de pe zona lucrarilor (cabluri SCB, TTR, BLA).
4. Se executa lucrari de protectie si/sau deviere instalatii de semnalizare si telecomunicatii.
5. Se executa lucrari temporare pentru asigurarea scurgerii apelor pe zona podetului.

STAGE I: PRELIMINARY WORKS
Line I – normal speed traffic;
Line II – normal speed traffic;

1. Arranging the access road and the technological platform.
2. Executing the site organization.
3. Identifying, pegging-out and securing the installations on the works' area (SCB, TTR, BLA cables).
4. Executing works for protecting and/or deflecting the signalling and telecommunication installations.
5. Executing temporary works for insuring the water discharge in the culvert area.

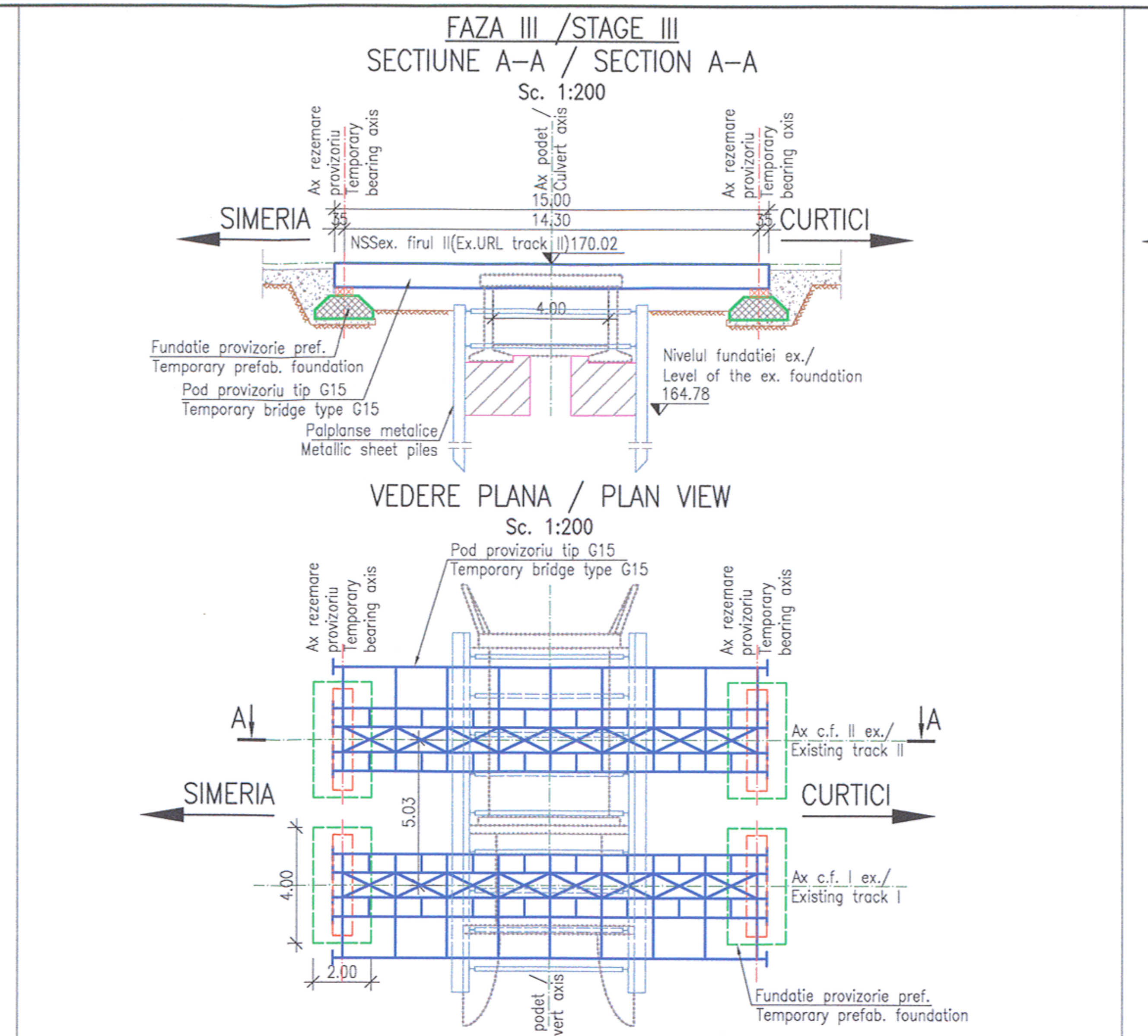


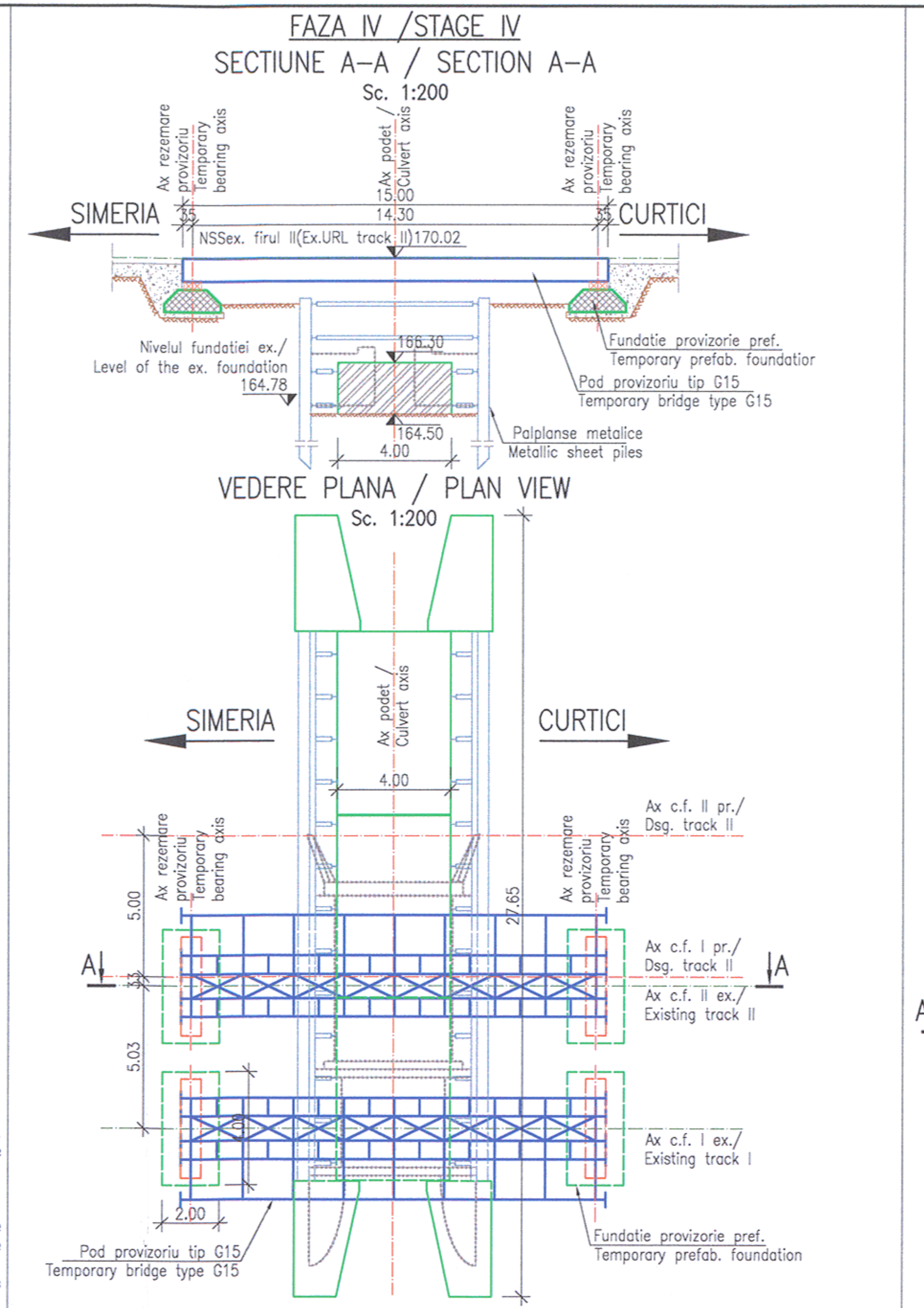
FAZA II: INTRODUCERE POD PROVIZORIU PE LINIA II
Linia I – restrictie de viteza de 50km/h;
Linia II – inchidere de circulatie feroviara;

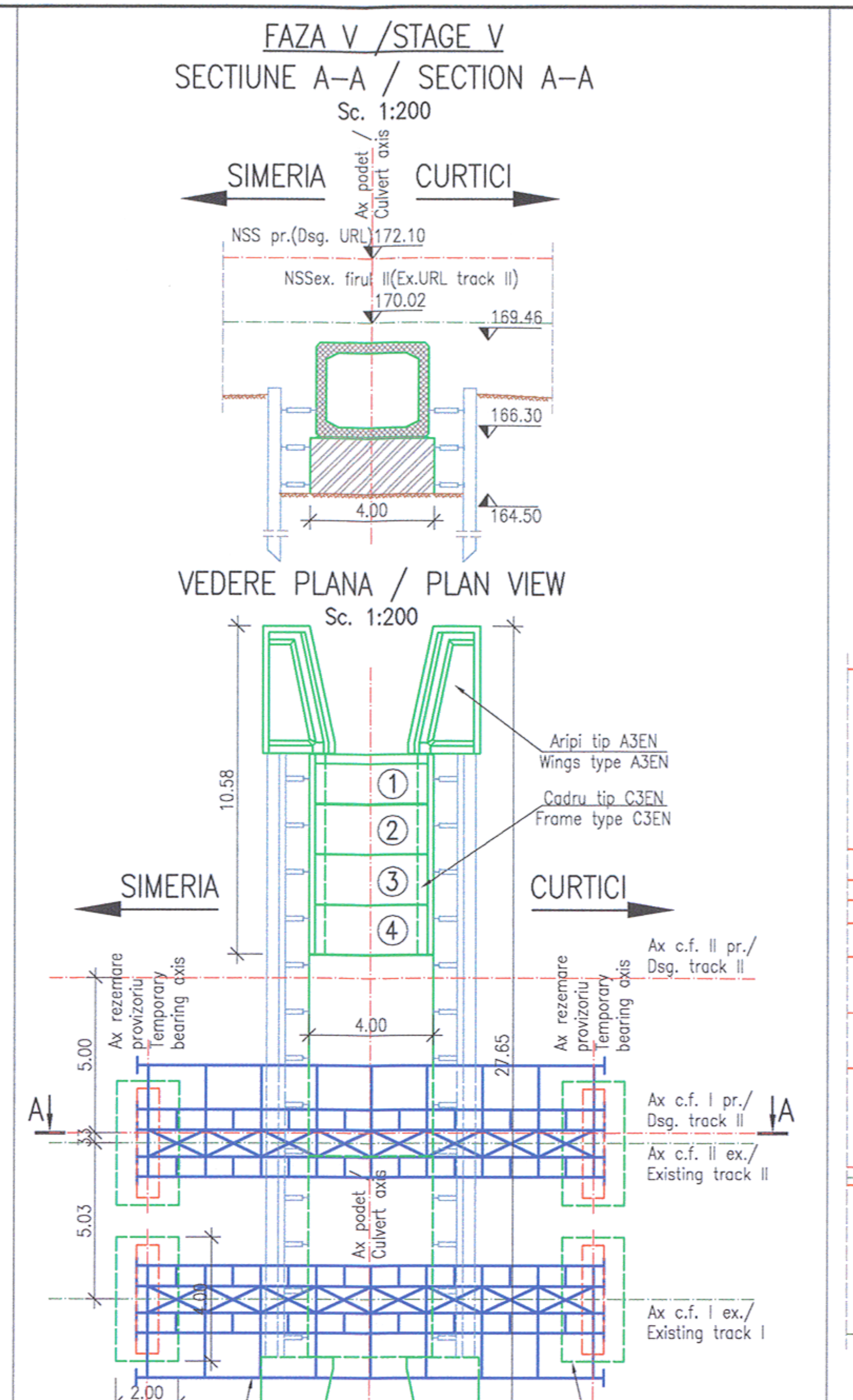
1. Se scoate de sub tensiune linia II si se asigura protectia electrica.
2. Se sectioneaza si se detensioneaza linia, se demonteaza suprastructura c.f. pe zona podetului, pe linia II.
3. Se bat pereti de palplanse pe zona podetului de pe linia II existenta.
4. Se monteaza sprijiniri longitudinale in lungul liniei I in pauze de circulatie feroviara si scoatere de sub tensiune.
5. Se decapeaza terasamentul pe zona liniei II.
6. Se executa lucrarile necesare dezafectarii dalei si suprastructurii podetului de pe linia II. Pe masura ce avanseaza lucrarile, se vor monta spraituri intre peretii de palplanse.
7. Se executa sapaturi pentru introducerea in cale a fundatiilor prefabricate si a podurilor provizorii tip G15 pe linia II.
8. Se introduc in cale fundatiile prefabricate si podurile provizorii tip G15 pe linia II.
9. Se monteaza suprastructura c.f. pe podul provizoriu si se racordeaza la capete in plan orizontal si in plan vertical la situatia existenta.
10. Se asigura continuitatea circuitelor de cale, se asigura electroizolarea sinelor si protectia electrica a podurilor provizorii.
11. Se repune sub tensiune linia de contact si se redeschide circulatia, cu restrictie de viteza de 30 km/h conform instructiilor c.f. in vigoare.
12. Se tine sub observatie podul provizoriu pe toata durata de exploatare, cu remedierea eventualelor defecte si aducerea lor in limita admisa de tolerante.

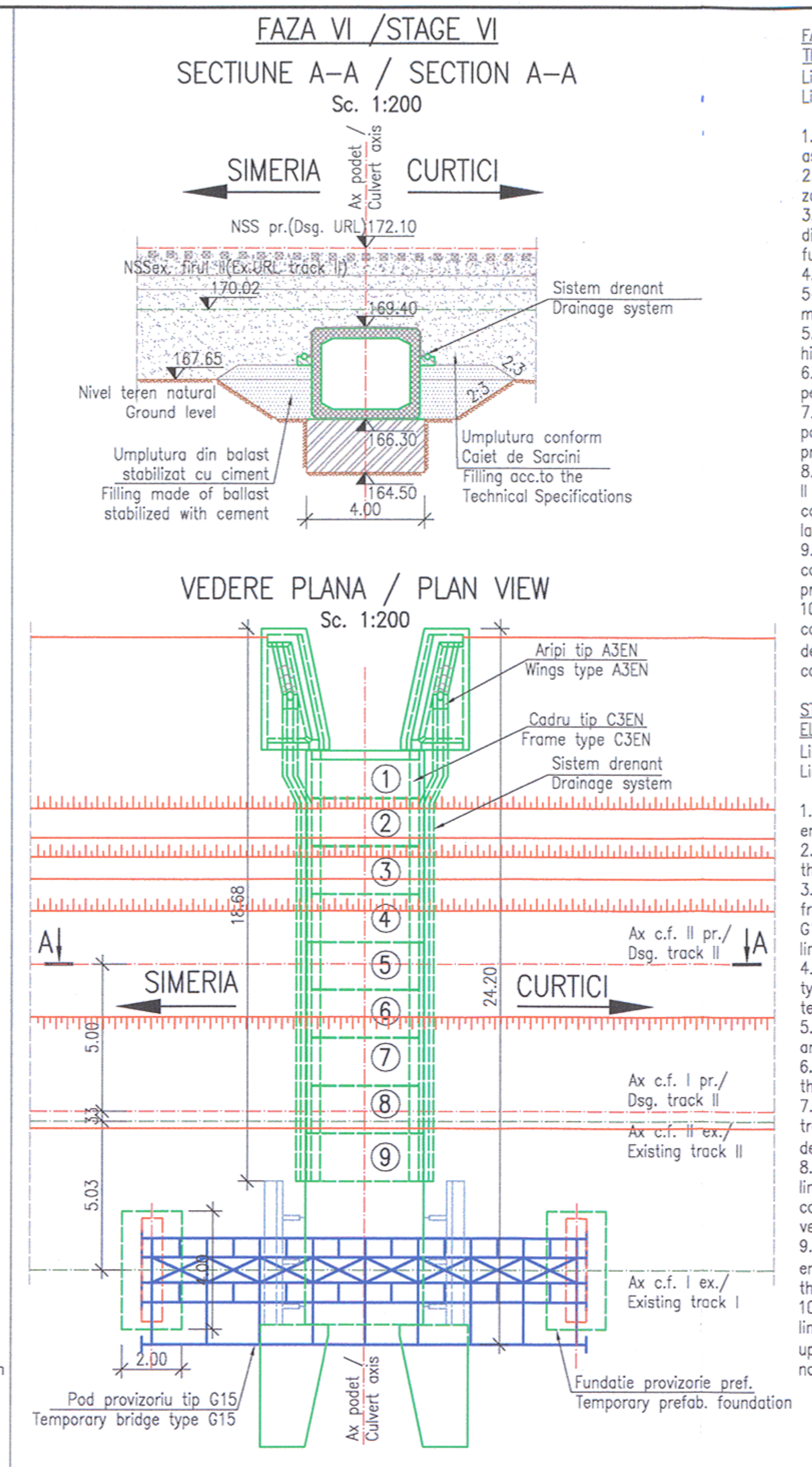
STAGE II: PLACEMENT OF THE TEMPORARY BRIDGE ON LINE II
Line I – speed limit of 50 km/h
Line II – railway traffic closure

1. Cutting-off the voltage of line II and ensuring the electric protection.
2. Sectioning and removing the voltage of the line, dismantling the railway superstructure on the culvert area, on line II.
3. Driving sheet-pile walls on the culvert area from existing line II.
4. Mounting longitudinal propping+ups along line I during railwaz traffic breaks and while the voltage is cut-off.
4. Scraping the embankment on the area of line II.
5. Making the works needed for dismantling the slab and the culvert superstructure on line II. Mounting spurs between the sheet-pile walls as the works progress.
6. Making excavations for placing in the track the precast foundations and the temporary bridges type G15 on line II.
7. Placing in the track the precast foundation and the temporary bridges type G15 on line II.
8. Mounting the railway superstructure on the temporary bridge and connecting at the ends in horizontal and vertical plan to the existing situation.
9. Ensuring the continuity of track circuits, ensuring the rails' electric insulation and the electric protection of the temporary bridges.
10. Restoring the voltage of the contact line and opening the traffic, with speed limit of 30 km according to the railway instructions in force.
11. Monitoring the temporary bridge during the entire operating period, by remedying the eventual defects and bringing them into the admitted tolerance level.







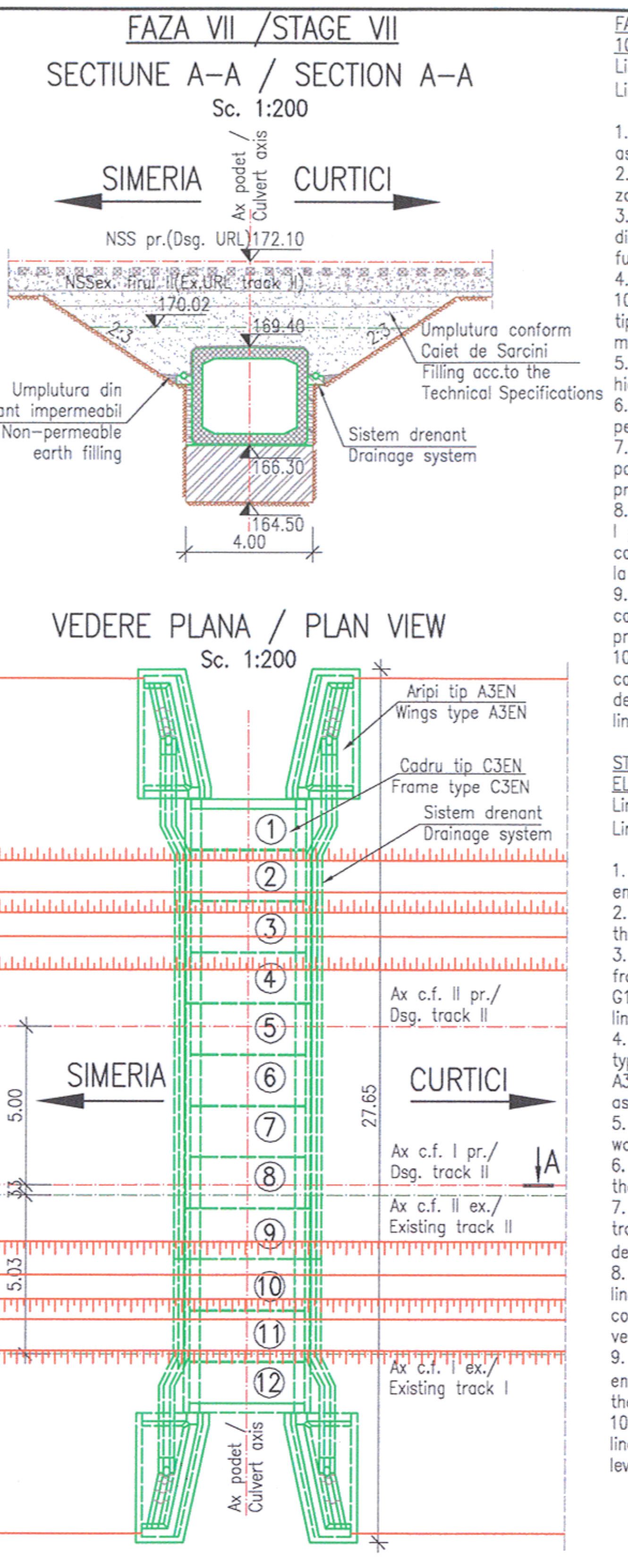


FAZA VI: MONTAREA PREFABRICATELOR 5–9, TIP C3EN
Linia I – restrictie de viteza de 30km/h;
Linia II – inchidere de circulatie feroviara;

1. Se scoate de sub tensiune linia II si se asigura protectia electrica.
2. Se demonteaza si se scoate calea pe zona podului provizoriu de le pe linia II.
3. Se executa lucrarile necesare scoaterii din cale a podul provizoriu tip G15 si a fundatiilor provizorii de pe linia II.
4. Se monteaza elementele prefabricate 5–9 tip C3EN conform tehnologiei de montare.
5. Se executa partial sistemul drenant si hidroizolatia.
6. Se executa lucrarile necesare extragerii peretilor de palplanse de pe lilina II.
7. Se refac terasamentul si calea în zona podetului pana la cota finala NSS proiectat.
8. Se monteaza suprastructura CF pe linia II pe pozitia proiectata si se racordeaza la capete in plan orizontal si in plan vertical la situatia existenta.
9. Se asigura continuitatea circuitelor de cale, se asigura electroizolarea sinelor si protectia catodica.
10. Se repune sub tensiune linia de contact si se deschide circulatia în trepte de viteza pana la Vmax = 30km/h conform normelor in vigoare.

STAGE VI: MOUNTING THE PRECAST ELEMENTS 5–9, TYPE C3EN
Line I – speed limit of 30 km/h
Line II – railway traffic closure

1. Cutting-off the voltage of line II and ensuring the electric protection.
2. Dismantling and removing the track on the temporary bridge area on line II.
3. Making the works needed for removing from the track the temporary bridge type G15 and the temporary foundations on line II.
4. Mounting the precast elements 5–9 type C3EN according to the assembly technology.
5. Partially making the draining system and the waterproofing.
6. Making the works needed for removing the sheet-pile from line II.
7. Restoring the embankment and the track on the culvert area up to the final designed NSS (top of rail level).
8. Mounting the railway superstructure on line II on the designed position and connecting at the ends in horizontal and vertical plan to the existing situation.
9. Ensuring the continuity of track circuits, ensuring the rails' electric insulation and the cathode protection.
10. Restoring the voltage to the contact line and opening the traffic in speed levels up to Vmax = 30 km/h according to the norms in force.



FAZA VII – MONTAREA PREFABRICATELOR 10–12, TIP C3EN
Linia I – inchidere de circulatie feroviara;
Linia II – restrictie de viteza de 30km/h;

1. Se scoate de sub tensiune linia I si se asigura protectia electrica.
2. Se demonteaza si se scoate calea pe zona podului provizoriu de le pe linia I.
3. Se executa lucrarile necesare scoaterii din cale a podul provizoriu tip G15 si a fundatiilor provizorii de pe linia I.
4. Se monteaza elementele prefabricate 10–12 tip C3EN si a aripilor de racordare tip A3EN din aval, conform tehnologiei de montare.
5. Se finalizeaza sitemul drenant si hidroizolatia.
6. Se executa lucrarile necesare extragerii peretilor de palplanse de pe lilina II.
7. Se refac terasamentul si calea în zona podetului pana la cota finala NSS proiectat.
8. Se monteaza suprastructura CF pe linia I pe pozitia proiectata si se racordeaza la capete in plan orizontal si in plan vertical la situatia existenta.
9. Se asigura continuitatea circuitelor de cale, se asigura electroizolarea sinelor si protectia catodica.
10. Se repune sub tensiune linia de contact si se deschide circulatia în trepte de viteza, cu viteza normala pe ambele linii.

STAGE VII – MOUNTING THE PRECAST ELEMENTS 10–12, TYPE C3EN
Line I – railway traffic closure
Line II – speed limit of 30 km/h

1. Cutting-off the voltage of line I and ensuring the electric protection.
2. Dismantling and removing the track on the temporary bridge area de le on line I.
3. Making the works needed for removing from the track the temporary bridge type G15 and the temporary foundations on line I.
4. Mounting the precast elements 10–12 type C3EN and the connection wings type A3EN from downstream, according to the assembly technology.
5. Finishing the draining system and the waterproofing.
6. Making the works needed for removing the sheet-pile from line II.
7. Restoring the embankment and the track on the culvert area up to the final designed NSS (top of rail level).
8. Mounting the railway superstructure on line I on the designed position and connecting at the ends in horizontal and vertical plan to the existing situation.
9. Ensuring the continuity of track circuits, ensuring the rails' electric insulation and the cathode protection.
10. Restoring the voltage to the contact line and opening the traffic in speed levels, with normal speed on both lines.

FAZA VIII – ALTE TIPURI LUCRARI
Linia I – circulatie cu viteza normala;
Linia II – circulatie cu viteza normala;

1. Se executa pereul in podet si intre aripi.
2. Se executa saltelele din anrocamente in aval si amonte si se calibreaza albia aval si amonte, asigurandu-se racordarea la situatia existenta.
3. Se monteaza parapetul pe podet si scarile de acces pe terasament.
4. Se dezafecteaza platformele, accesele din zona de lucru si organizarea de santier.

STAGE VIII – OTHER TYPES OF WORKS
Line I – normal speed traffic
Line II – normal speed traffic

1. Making the pitching in the culvert and between wings.
2. Making the riprap mattresses downstream and upstream and calibrating the riverbed downstream and upstream, ensuring the connection to the existing situation.
3. Mounting the handrail on the culvert and the access stairs on the embankment.
4. Dismantling the platforms, the accesses from the work area and the site organization.

NOTA:
1. CONVOIUL DE CALCUL PENTRU PODURILE PROVIZORII: 0.9T8.5
2. Podurile provizorii se gasesc in dotarea Beneficiarului si pot fi puse la dispozitia Constructorului
3. Circulatia pe podurile provizori se face cu maxim 30 km/h

NOTE:
1. CALCULATION CONVOY FOR THE TEMPORARY BRIDGES: 09T8.5
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

DESCHIDEREA CIRCULATIEI FEROVIARE PE PODURILE PROVIZORII SE VA FACE ASTFEL:
– in primele 24h se ridica viteza in trepte de 5km/h, se tine sub observatie permanenta si se rectifica niveleta si tasarile aparute in exploatare; pe durata exploatarii podului provizoriu in cale acesta se tine sub observatie permanenta, iar eventualele deficiente aparute se remediaza imediat.
– dupa 24h de la darea in exploatare a podului provizoriu se va circula cu restrictie de viteza de 30 km/h.

THE REOPENING OF THE TRAFFIC ON THE TEMPORARY BRIDGES WILL BE CARRIED AS FOLLOWING:
– in the first 24 hours the speed is raised in stages of 5 km/h, the level is permanently kept under surveillance and there are rectified the level and settlings that occur during the operations. While the temporary bridge is in operation on the rail it is kept under permanent surveillance and the eventual deficiencies are instantly remedied
–after 24 hours since the temporary bridge is in operation the traffic will be under speed restriction of 30 km/h;

NOTA:
1. Prezentul plan s-a intocmit in baza urmatoarelor date:
– ridicarea topografica;
– studiu hidraulic;
– studiu geotehnic;
– fisa podetelor
– date culese pe teren.
2. Pentru trasarea lucrarilor se vor folosi ca repere in plan axele liniilor c.f. iar ca repere de nivel cota NSS(Pr.) 172.10m.
3. Orice neconcordanta intre elementele avute in vedere la elaborarea proiectului si teren va fi anuntata proiectantului pentru adaptare la situatia existenta.
4. Elementele prefabricatele trebuie sa corespunda cerintelor din SREN 206-1/2002.
5. Pe toate suprafetele din beton in contact cu pamantul se vor aplica 2 straturi de emulsie din bitum filerizat.
6. Detaliile prezentate in acest plan nu sunt obligatorii si pot fi modificate sau adaptate in functie de dotarile constructorului cu respectarea conditiilor de realizare a lucrarilor definitive prevazute in caietele de sarcini si cu acordul proiectantului.
7. Lucrarile la podet se vor corela cu lucrarile de suprastructura c.f. si cu lucrarile de linie de contact.
8. Restrictia de viteza se va ridica dupa executia lucrarilor de ridicare a niveletei si aducerea liniilor la pozitia proiectata.

NOTE:
1. This plan has been drawn up on the basis of the following data:
– topo layout;
– the hydraulic study;
– the geotechnical study;
– the culvert's sheet
– acquisition of data to area.
2. For setting out the works, the axes of the railway lines will be utilised as reference marks in plan and the NSS(Dsg.)(top of the rail) of 172.10m.
3. Any incongruity between the elements considered when preparing the design and the site will be announced to the designer for adaptation to the existent situation.
4. The precast elements have to observe the requirements specified in SREN 206-1/2002
5. All concrete surfaces in contact with soil will be coated with 2 bituminuous layers.
6. 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 final works provided in the Technical Specifications and the designer's approval.
7. The culvert works will be correlated with the railway superstructure works and with the contact line works.
8. The speed limit will be removed after the level lifting works and after bringing the lines to the designed position.

TEHNOLOGIA DE POZARE A PREFABRICATELOR:
–pe betonul de fundatie intarit se astern 2cm de mortar de ciment pentru nivelare si 1cm pentru pozare;
–prefabricatele se aseaza in amplasament, dupa care se ridica si se observa urma lasata pe stratul de mortar proaspat. In cazul in care nu s-a realizat asezarea pe toata suprafata, se completeaza cu mortar de ciment de poza.
Operatia se repeta pana cand se obtine rezemarea pe toata suprafata.

PREFABRICATED ELEMENTS LAYING TEHNOLOGY:
–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 rising 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.

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

Verificator / Expert Checker / Expert	Cerinta Requirement	Semnatura Signature	Referat / Expertiza Report / Expertise

European Investment Bank

MINISTERUL TRANSPORTURILOR

BENEFICIAR / BENEFICIARY :
COMPANIA NAȚIONALĂ 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. Tudorașcu	01.2013	
Subcontractant / Subcontractor: VIOTOP				
Aprobat Approved	Adjunct Sef de echipa Deputy Team leader	A.M. Baicu	01.2013	
Proiectat Designed	Inginer Engineer	R. Tănăsescu	01.2013	

"Reabilitarea liniei c.f. Frontieră - Curtici - Simeria, parte componentă a coridorului IV Pan - European pentru circulaţia trenurilor cu viteză maximă de 160 km/h"
Tronsonul 2-C : cap Y Ilteu - cap Y Gurasada
"Rehabilitation of the Railway Line Border - Curtici - Simeria, component Part of the IV Pan - European Corridor for the Trains Circulation with maximum speed of 160 km/h"
Section 2-C : end Y Ilteu - end Y Gurasada

Project 9i 35311.1

Faza / Phase: PTH+CS / TD+TS

Denumire desen / Drawing name:
TEHNOLOGIE DE EXECUTIE / TECHNOLOGICAL PROCESS
PODET / CULVERT
KM.PR.(DSG) 511+808.80 / KM.EX.(EX.) 512+886.00

Scara / Scale	Revizia / Revision	Cod desen / Drawing Code	Nr / No
1:200	1 / 04.2013	PT.02.02.19.PO.02.04	04