C A R A C T E R I S T I C I

- **Categoria de importanţă:** Conform H.G. 766-oct 1997 - construcţie de importanţă normala (C).
- **Clasa de importanţă:** Conform Normativului P100 (proiectarea antiseismică), clasa de importanţă este III
- **Clasa de risc :** Conform OMT 290/2000 : clasa de risc 1A
- **Conditii seismice:** Conform Normativul P100-1/2006 : perioada de control (colţ) Tc=0,7s şi ag=0,12g

C O N D I T I I G E O T E H N I C E

Conform : **Foraje geotehnice FTE 101, FTE 102, FTE 103- statia ALBESTI-TARNAVA** (date tema : ASTALROM / ITALFER)

Forajele geotehnice au urmatoarea stratificatie :

FTE 101 - la suprafata s-a interceptat un strat de umplutura de 2.50 m grosime
- urmeaza, pana la adancimea de 8.15 m, un strat de argila prafoasa, galbui-cafenie, plastic consistenta
- pana la baza forajului (10.00 m), s-a interceptat un complex marnos format din marna argiloasa prafoasa, cenusie

FTE 102 - la suprafata s-a interceptat un strat de pamant vegetal de 0.90 m grosime
- urmeaza, pana in baza forajului (15.00 m), o alternanta de pamanturi slab coezive (nisip prafos, galbui)si coezive (praf argilos, cafeniu) cu pamanturi necoezive nisip prafos cu pietris
- pana la baza forajului (10.00 m), s-a interceptat un complex marnos format din marna argiloasa prafoasa, cenusie

FTE 103 - la suprafata s-a interceptat un strat de pamant vegetal de 0.30 m grosime
- urmeaza, pana la adancimea de 5.20m, un orizont coeziv alcatuit din argila prafoasa si argila prafoasa nisipoasa, galbui-cafenii, plastic vartoase
- pana la baza forajului (10.00 m), s-a interceptat un complex necoeziv format din nisip si nisip cu pietris, afanat

Adancime nivel apa subterana : FTE 103 : - 5.70 m

Pentru orizontul coeziv - argile prafoase (ap) si argile prafoase nisipoase (apn), galbui-cafenii - situat deasupra nivelului apei subterane, pamanturile interceptate se caracterizeaza astfel :
- cu plasticitate mare
- cu starea de consistenta plastic consistenta … plastic vartoasa
- cu gradul de umiditate foarte umed … practic saturat
- cu compresibilitate mare

Pentru orizontul slab coeziv - nisip prafos (np) si nisip prafos cu rar pietris (np+p), galbui - situat deasupra nivelul apei subterane, pamanturile interceptate se caracterizeaza astfel :
- cu gradul de umiditate umed … practic saturat
- cu compresibilitate mare

Se va realiza fundarea directa a COPERTINELOR (dupa caz); in stratul de umplutura (FTE 101) , in zona de pamanturi slab coezive (nisip prafos, galbui) si coezive (praf argilos, cafeniu) conform FTE 102, sau in orizontul coeziv alcatuit din argila prafoasa si argila prafoasa nisipoasa, galbui-cafenii, plastic vartoase (FTE 103), pe o perna din balast compactat de 30 cm grosime (cu grad de compactare D > 98% si asigurarea unei $p_{conv.}$ = 1.5 daN/cm²).

Este absolut necesara confirmarea caracteristicilor terenului de fundare si a gradului de compactare de catre proiectantul geotehnician, dupa executarea sapaturilor / umpluturilor (dupa caz).

La executarea sapaturilor /umpluturilor, se va realiza un foraj suplimentar, de verificare, în amplasamentul copertinei pentru a se verifica daca informatiile provenite din forajelele pentru proiectare sunt corecte. In cazul în care există eventuale diferente, lucrarile proiectate se vor adapta conform rezultatului acestor studii geotehnice de verificare.

C H A R A C T E R I S T I C S

- ***Importance category :*** *According to H.G. 766-oct 1997 : normal importance construction (C).*
- ***Importance class :*** *According to Norm P100 (anti-seismic design) : importance class III*
- ***Risk class :*** *According to OMT 290/2000 : risk class 1A*
- ***Seismic conditions :*** *According to Norm P100-1/2006: control period (corner) Tc=0,7s and ag=0,12g*

G E O T E C H N I C A L C O N D I T I O N S

According to: ***Geo-technical drills FTE 101, FTE 102, FTE 103 -ALBESTI-TARNAVA station*** *(subject data: ASTALROM / ITALFER)*

The geo-technical drills have the following ground stratification:

FTE 101 - a 2.50 m thick filling layer was detected at the surface
- *a yellowish-brownish heavy-bodied silty clay layer was found up to 8.15 m depth*
- *a loamy complex was detected up to the base of drill (10.00 m), being made of grey silty clayey marl*

FTE 102 - a 0.90 m thick vegetal soil layer was found at the surface
- *then alternating slightly cohesive soils (yellowish silty sand) and cohesive soils (brownish clayey silt) with non-cohesive soils such as silty sand with gravel were found up to the base of drill (15.00 m),*
- *a loamy complex was detected up to the base of drill (10.00 m), being made of grey silty clayey marl*

FTE 103 - a 0.30 m thick vegetal soil layer was found at the surface
- *a cohesive horizon made of yellowish-brownish heavy-bodied silty clay and sandy silty clay was found up to 5.20m depth*
- *a non-cohesive complex made of loose sand and sand with gravel was found up to the base of drill (10.00 m),*

Depth of underground water level: FTE 103 : - 5.70 m

For the cohesive horizon - yellowish-brownish silty clays (ap) and sandy silty clays (apn) - placed above the underground water level, the soils are characterized as follows:
- *high plasticity*
- *heavy-bodied … hard consistency*
- *very humid … saturated*
- *high compressibility*

For the slightly cohesive horizon - yellowish silty sand (np) and silty sand with rare gravel (np+p) - placed above the underground water level, the soils are characterized as follows:
- *humid … saturated*
- *high compressibility*

The CANOPIES will be directly founded (depending on the case) in the filling layer (FTE 101), in the slightly cohesive soils (yellowish silty sand) and cohesive soils (brownish clayey silt) according to FTE 102, or in the cohesive horizon made of heavy-bodied yellowish-brownish silty clay and sandy silty clay (FTE 103), on a 30cm thick compacted ballast cushion (compaction degree D > 98% with $p_{conv.}$ = 1.5 daN/cm²).

It is absolutely necessary that the geo-technician designer confirms the characteristics of the foundation ground and compaction degree, after carrying out the excavations / fillings (depending on the case).

During the excavation / filling works, one supplementary cheking borehole will be made in the canopies location to see if the information from the borehole for the design stage are correct. In case there are any differences, the designed works shall be adapted based on the results of these checking geo-technical studies

NOTA - RECOMANDARI TEHNOLOGICE:

1. Toate cotele de trasare longitudinale, transversale si verticale ale copertinelor au ca elemente de referinta : axele liniilor C.F., axa tunelului pietonal si cota ±0.00=NSS proiectata a fiecarei linii:
   a. axele longitudinale ale fundatiilor stalpilor copertinelor sunt la jumatatea distantei dintre axele de cale ferata ale liniilor 1 - II respectiv III - 4 proiectate;
   b. transversal, trasarea axelor pentru fundatiile stalpilor copertinelor se va face avand ca reper axa tunelului pietonal ; trasarea se va face 6 m stanga, 6 m dreapta fata de aceasta axa;
   c. cota de fundare, este data fata de ±0.00=NSS proiectat al fiecarei linii in parte , respectiv : pentru copertina la linia 1 cota de referinta este ±0.00=NSS linia 1, pentru copertina la liniile 1-II cota de referinta este ±0.00=NSS linia II, pentru copertina la liniile III-4 cota de referinta este ±0.00=NSS linia III .
2. Trebuie avut in vedere ca atit copertinele (cu fundatiile aferente), cit si peroanele nou proiectate , urmaresc profilul longitudinal al liniilor cu panta ascendenta (~ 1,967 ‰) , dinspre capatul X spre capatul Y.
3. Acest plan se va citi corelat cu: planul de situatie (amplasment), planurile de suprastructura c.f. ale statiei si planurile de structura ale tunelului si ale peroanelor.
4. Este importanta corelarea cotelor verticale intre stalpii care se pozitioneaza pe grinzile tunelului (din axele 7 si 8) si stalpii si fundatiile adiacente ale copertinei; astfel incat sa se asigure continuitatea la nivelul superior al grinzilor transversale si panelor, cat si realizarea gabaritului pe intreaga lungime a copertinei.
5. Nu se vor prinde de elementele structurale ale copertinei alte echipamente sau dispozitive in afara celor prevazute in proiect (pentru orice modificare se va cere avizul proiectantului).
6. Pentru pozitionare si detalii stalpi linia de contact , vezi : PLAN DE SITUATIE MONTARI LC, aferent statiei.
7. Stalpii liniei de contact strapung copertina in zona invelitorii de policarbonat (se va face decuparea si etansarea policarbonatului dupa sectiunea stalpului LC).

MATERIALE

Beton de egalizare : C4/5 - T2/T3 - I 32,5 R/0 - 31
Beton simplu : C8/10 - T2/T3 - I 32,5 R/0 - 31
Beton armat : C18/22.5 , C16/20- T3/T4 - I 32,5 R/0 - 16
Otel beton : PC 52 , OB 37
Laminate : S235J2G3 (OL 37.3n), S275J2G3 (OL44.3n)
Buloane de ancorare M30-grupa 6.6

NOTE - TECHNOLOGICAL RECOMMENDATIONS :

1. *All longitudinal, transversal and vertical levels of the canopy have as a reference: the railway axis, the axis of the pedestrian tunnel and the RUL designed = ± 0.00 level of the rail (for each one):*
   a. the longitudinal axis of the canopy poles is at the half distance between the railway axis of designed lines 1 - II , respectively III - 4;
   b. the axis of the passengers tunnel shall be used as a guide mark when lining the transversal axis of the canopy poles; the lining shall be made from 6 m left and 6 m to right given the above-mentioned axis;
   c. the foundation level refers to ±0.00=RUL designed for each one, respectively : for canopy to line 1, the reference level is ±0.00=RUL line 1, for canopy to lines 1-II, the reference level is ±0.00=RUL line II, for canopy to lines III- 4, the reference level is ±0.00=RUL line III .
2. *It is important that both the three canopy (with coresponding foundations) as well as new platforms , follow the longitudinal profile of the new designed lines with upward slope (~1,967 ‰) from the X end towards the Y end of the station.*
3. *This plan shall be read in correlation with: site layout plan , the drawings for railway station superstructure , and the structural drawings of the tunnel , and of the platforms.*
4. *It is important to ensure the complience of the vertical levels between the canopy poles resting on the tunnel beams (axis 7 and 8) and the adjacent poles (and corsponding foundations) of the canopy. So, it will be ensured the continued level of transversal beams and purlins , and of the clearance for the entire canopy.*
5. *No other equipment or device, apart those foreseen in the project, shall be attached to the structural elements of the canopy .*
6. *For positioning and details of contact line poles, see : LAYOUT MOUNTING PLAN LC afferent to the station.*
7. *The contact line poles pierce through the canopy in the central area of the polycarbonate covering (the polycarbonate will be cut off and sealed around the LC pole section).*

MATERIALS

Leveling concrete : C4/5 - T2/T3 - I 32,5 R / 0 - 31
Plain concrete : C8/10 - T2/T3 - I 32,5 R / 0 - 31
Reinforced concrete : C18/22.5 , C16/20- T3/T4 - I 32,5 R / 0 - 16
Steel concrete : PC 52 , OB 37
Laminated : S235J2G3 (OL 37.3n), S275J2G3 (OL44.3n)
Anchoring bolts M30 , resistance group 6.6

OBSERVATIE

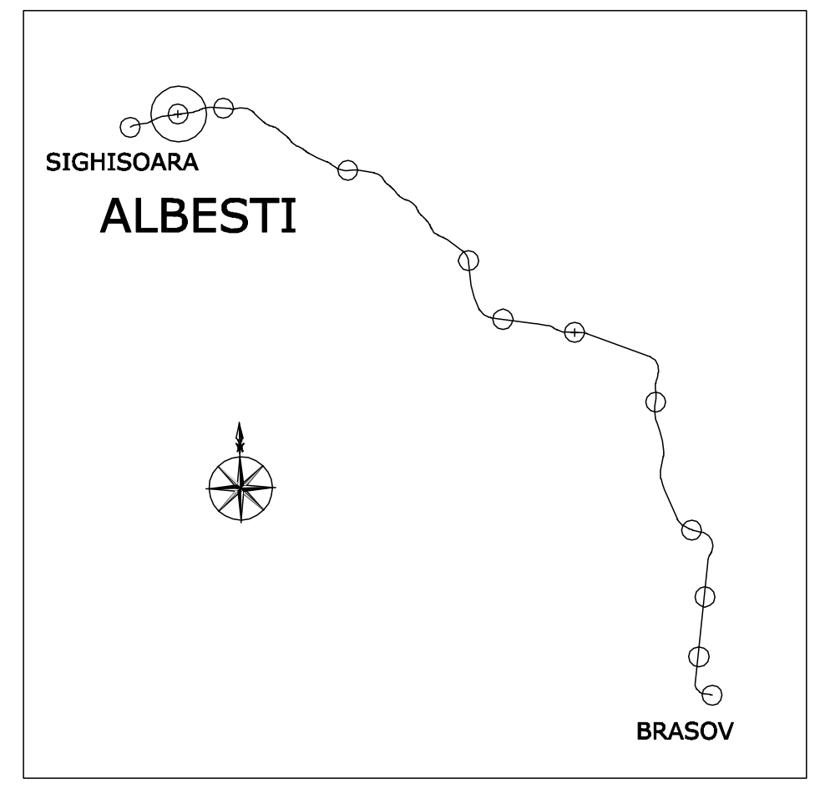
Pozitionarea copertinelor in amplasamentul statiei se va face conform PLAN DE SITUATIE PROPUS statia ALBESTI-TARNAVA, avand ca reper kilometrajul firului I proiectat.

OBSERVATION

The canopies will be positioned in the station location according to PROPOSED LAYOUT PLAN station ALBESTI-TARNAVA, *having the kilometer positions of designed track I as reference*

PLAN FUNDATII COPERTINE scara 1:250

CANOPY FOUNDATION PLAN scale 1:250



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

GUVERNUL ROMANIEI
ROMANIAN GOVERNMENT

PROIECT FINANŢAT DE UNIUNEA EUROPEANĂ
EUROPEAN UNION FINANCED PROJECT

CLIENT / CLIENT

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

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	Şef proiect Project manager	R. Liuzza	12.2011	
Aprobat Approved	Coordonator Secţiune 1 Section 1 Coordinator	C. Gambelli	12.2011	
Verificat Checked	Verificator Verifier	Giuseppe Fioravanti	12.2011	

SUBCONTRACTANT / SUBCONTRACTOR

AREX COMPANY

Aprobat Approved	Responsabil Subconsultant Subconsultant Responsible	A.Stanciu - Dinulescu	12.2011	
Întocmit Elaborated	Proiectant Designer	ing. / eng. Tudor ALMALEH	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 :

COPERTINE STATIA ALBESTI-TARNAVA - PLAN FUNDATII COPERTINE
CANOPY ALBESTI-TARNAVA STATION - FOUNDATION PLAN

Codificare / Codification System	Scara / Scale 1 : 250	LOT / LOT	Nr. / No 01 / 01

E A 5 1 | 0 1 | C | 1 9 | P Z | C C | 0 1 | 0 | 3 | 0 0 3 | 1

3 A2 594 x 1260 = 0.75 m²