Approved,

Inspector general

SCHEDULE TO CHECK THE QUALITY OF THE CONSTRUCTION WORKS

REHABILITATION OF THE RAILWAY LINE BUCUREŞTI – BRAŞOV, COMPONENT PART OF THE IV PAN – EUROPEAN CORRIDOR, FOR THE TRAINS CIRCULATION WITH MAXIMUM SPEED OF 160 KM/H

– ALBESTI TIRNAVA STATION –

As a beneficiary.....

- represented by.....

As a designer :**Italfer S.p.A – Scott Wilson – Obermayer – Tecnic – AREX LIDER COMPANY**

- represented by.....

As a contractor.....

- represented by.....

Complying with Law no. 10/1995, HG no. 766/1997, HG no. 272/1994, HG no. 273/1994 and the norms in force.

They agree togheter on this shedule to check the quality of the construction works.

Crt. No.	**Works to be inspected, checked or taken over from quality point of view, for which written documents must be drawn up**	**Written document to be concluded:** **PV** – Report **PVRC** – Report for acceptance the works quality **PVT** – Tracing report **CRM** – Register for material acceptance	**Document concluded and signed by:** **I** – inspection for constructions **B** – beneficiary **E** – contractor **P** – designer **G** –geotechnical engineer	No. and date of the concluded document
0	**1**	**2**	**3**	**4**
I	***DEVELOPMENT OF PASSENGER BUILDING***			
	Demolition works, repar works, infrastructure consolidations			
1.1	Strippings, necessary crushings and excavation for carrying out the consolidation of foundations and the slab over the basement	P.V.	B.E.	
1.2	Carrying out the appropiate proppings	P.V.	B.E.	
1.3	Evacuating the overloads comming	P.V.	B.E.	

	from the strippings			
1.4	Decisive phase – Checking the mounting of reinforcement in the case of the necessary for consolidating the foundations by structural coating - Checking the mounting of girders (IPN profiles) necessary for consolidating the slab over the basement	P.V.R.C.	I.B.E.P.	
1.5	Concreting (consolidation by widening the foundations according to the project)	P.V.	B.E.	
1.6	Reinforced plastering with jetcrete mortar (consolidation of the small vaults which form the slab over the basement according to the design)	P.V.	B.E.	
1.7	Checking the quality and the aspect of the consolidated elements of the foundations, slab over basement)	Conc book. + notes	B.E.	
	Demolition works, repair works, consolidations of superstructure			
1.8	The crushings necessary for mounting the beams, IPN profiles, necessary for supporting the existing loads	P.V.	B.E.	
1.9	Decisive phase - Checking the mounting of the reiforcement necessary for cladding the exterior walls	P.V.R.C.	I.B.E.P.	
1.10	Concreting (cladding the exterior reinfoirced concrete walls provided by the design)	P.V.	B.E.	
1.11	Checking the quality and the aspect of the consolidated elements	Conc. book + notes	B.E.	
1.12	Decisive phase Acceptance at the end of the works	P.V.R.C.	I.B.E.P.	
II	***TUNNEL***			
2.1	Tracing the pedestrian tunnel (acc. to the design)	P.V.T.	B.E.	
2.2	Carrying out the necessary excavations in open trench, partially with timbering and with metal sheet piles, partial in batter, with temporary bridges.	P.V.	B.E.	
2.3	Compacting the bottom of the excavation and casting the levelling concrete	P.V.	B.E.	
2.4	Waterproofing for the tunnel's foundation raft	P.V.	B.E.	
2.5	Checking the reinforcement and the formwork of the tunnel's foundation raft	P.V.	B.E.	
2.6	Concreting the tunnel's foundation raft	P.V.	B.E.	
2.7	Checking the reinforcement and the formwork for the tunnel's walls, – DECISIVE PHASE	P.V.R.C.	I.B.E.P.	

2.8	Concreting the walls of the tunnel	P.V.	B.E.	
2.9	Waterproofing the walls of the tunnel	P.V.	B.E.	
2.10	Reinforcing and formworks for the slab of the tunnel	P.V.	B.E.	
2.11	Betonarea planseului tunelului	P.V.	B.E.	
2.12	Waterproofing the slab of the tunnel	P.V.	B.E.	
2.13	Carrying out the excavation in steps, necessary for building the access stairs in the tunnel	P.V.	B.E.	
2.14	Compacting the bottom of the excavation and casting the levelling layer in steps	P.V.	B.E.	
2.15	Waterproofing the foundation raft for stairs	P.V.	B.E.	
2.16	Checking the reinforcement and formwork for the foundation rafts of the tunnel's access staircases	P.V.	B.E.	
2.17	Concreting the foundation rafts of the access stairs	P.V.	B.E.	
2.18	Reinforcing and formworks for the staircases' walls	P.V.	B.E.	
2.19	Concreting the walls of the staircases	P.V.	B.E.	
2.20	Waterproofing the walls of the staircases	P.V.	B.E.	
2.21	Decisive phase Acceptance at the end of the works	P.V.R.C.	I.B.E.P.	
III	***PLATFORMS***			
3.1	Survey for passages for the existing TCF, IE, TTR cables in order not to be destroyed and in front of them the precast elements shall be executed cast-in-place in order to be emdedded	PV	B.E.	
3.2	Site delivery - tracing the new platforms, according to the design	P.V.T.	B.E.P.	
3.3	Carrying out the necessary excavation in trenches	P.V.	B.E.G.	
3.4	Compacting the bottom of the excavation, laying the levelling layer necessary the component elements	P.V.	B.E.	
3.5	Tracing and mounting the retaining wall type elements	P.V.T.	B.E.	
3.6	Constructing the installation networks, foundations for the lighting poles, for the torchère etc.	P.V.	B.E.	
3.7	Carrying out the compacted filling and laying the gravel layer and the polyethylene film	P.V.	B.E.	
3.8	Checking the mounting of the prefabricated slabs on the retaining wall-type elements, of the reinforcement	P.V.	B.E.	

	in order for concreting between them for completing the cast-in-place zones and the level crossings			
3.9	Concreting the platform slabs	P.V.	B.E.	
3.10	Acceptance at the end of the works – **Decisive phase**	P.V.	B.E.P.I.	
IV	***NEW CANOPIES***			
4.1	Site Rendering – Reception	P.V.	B.E.P	
4.2	Tracing the new canopies according to the design	P.V.T.	B.E	
4.3	Carrying out excavations / fillings, according to the design	P.V.	B.E.G	
4.4	Constructing the installation networks, CED AND TTR underpassings, manholes etc.associated to the platform and the canopy	P.V.	B.E	
4.5	Compacting the bottom of the excavation, construction of the compacted ballast cushion (checking the thickness, compaction degree, smoothness), checking the foundation elevation, according to the design	P.V.L.A.	B.E.G	
4.6	Casting of simple concrete (levelling layer)	P.V.	B.E	
4.7	Checking the longitudinal and transversal axis networks for the canopy foundations, according to the design	P.V.T	B.E	
4.8	Formwork and reinforcement for the foundations of the canopy columns, including the anchorage bolt cage, checking the dimensions, elevations - DECISIVE PHASE	P.V.L.A.- F.D.	B.E.P.I	
4.9	Concreting the foundations of the canopy columns (checking the material qaulity certificate)	P.V.R.C.	B.E	
4.10	Checking the quality, the aspect, the shape, the dimensions and the protection coats, the metal works at the site reception	C.R.M.	B.E	
4.11	Checking the electrical unloading of the contact line in the zone where the columns of the canopy columns (according to the work standards for the electric railway zone)	P.V.	B.E	
4.12	Mounting the canopy columns, the transversal beams associated to the position demanded by the design (in association with the columns of the canopy over the pedestrian tunnel)	P.V.	B.E	
4.13	Checking the gauge at the canopy structure (plane and vertical on the axis	P.V.R.C.	B.E.(P)	

	of every column)			
1.14	Casting the undercasting mortar for the canopy columns	P.V.	B.E	
4.15	Carrying out the compacted filling up to the superior level of the foundations of the canopy columns (in association with the platform works)	P.V.	B.E	
4.16	Concreting the base of the columns (bolt head protection), connecting the drain network to the installations network and completing the filling up to the level in the design, compacting it (in association with the platform works)	P.V.	B.E	
4.17	Mounting the other subassemblies of the canopy (chock, bracing, roof covering etc.)	P.V.R.C.	B.E	
4.18	Checking the execution of the roof covering as a surface, joints, smoothness, color, draining slopes, gutters and buckets	P.V.R.C.	B.E	
4.19	Checking the overall gauge of the canopy (in plane and on a vertical direction)	P.V.	B.E	
4.20	Acceptance at the end of the works - DECISIVE PHASE	P.V.R.C.- F.D.	B.E.P.I	
V	***TUNNEL CANOPIES***			
	Dismantling works, reparations and consolidations			
5.1	The necessary dismantlings and crushings in order to achieve the wanted geometry in the case on the reinforced concrete socle	P.V.	B.E.	
5.2	Checking the mounting of the clamping system and of the reinforcement in the case of the concrete socles necessary for supporting the canopy	P.V.	B.E.P.	
5.3	Concreting the concrete socle necessary for the canopy	P.V.	B.E.	
5.4	Checking the mounting of frameworks from the metallic structure of the canopy	P.V.	B.E.P.	
5.5	Checking the quality and the aspect of teh rebuilt elements	Conc. book + notes	B.E.	
5.6	Decisive phase Reception at the end of works	P.V.R.C.	I.B.E.P.	
VI	***CONSTRUCTIONS ASSOCIATED TO INSTALLATIONS***			
6.1	Site delivery, checking the correct tracing as indicated by the plans	P.V.R.C	B.E.	
6.2	Checking the dimensions of the dimensions of the performed	P.V.R.C	B.E.	

	excavations			
6.3	Checking the quality of the materials on the site reception	C.R.M	B.E.	
6.4	Checking the dimensions and the correct mounting of the formworks	P.V.R.C	B.E.	
6.5	Checking the quality and the positioning of the reinforcement in the walls	P.V.R.C.	I.B.E.	
6.6	Checking the quality and the aspect of the reinforced concrete casted in the walls	P.V.R.C	B.E.	
6.7	Checking the quality and the positioning of the reinforcement and of the metal works embedded in the concrete	P.V.R.C	I.B.E.	
6.8	Checking the quality and the aspect of the reinforced concrete casted in the slabs	P.V.R.C	B.E.	
VII	***GSM-R ANTENNA***			
7.1	Site Rendering – Reception	P.V.	B.E. P.	
7.2	Performing the excavation	P.V.	B.E.	
7.3	Checking the terrain stratification at the end of the excavation	P.V.	B.E.G.	
7.4	Decisive phase – Checking the mounting of the micropiles before injecting the mortar for concreting the micropiles - Checking the mounting of the micropile head	P.V.R.C.	I.B.E.P.	
7.5	Injection of mortar for concreting the micropiles	P.V.	B.E.	
7.6	Checking the foundation raft reinforcement before casting the concrete	P.V.	B.E.P.	
7.7	Checking the anchoring system from the rafter before casting the concrete	P.V.	B.E.P.	
7.8	Concreting the foundation raft	P.V.	B.E.	
7.9	Checking the quality and the aspect of the foundation	Conc. book + notes	B.E.	
7.10	Decisive phase Reception at the end of the works	P.V.R.C.	I.B.E.P.	
VIII	***PROTECTION FENCE BETWEEN TRACKS***			
8.1	Introducing the fence poles in the soil	P.V.	B.E.	
8.2	Mounting the fence panels	P.V.	B.E.	
8.3	Checking the correct mounting, the embedding of the fence in the soil, of their verticality and linearity	P.V.	B.E.	
IX	**LOADING/UNLOADING RAMP**			
9.1	Tracing the new ramp, according to the design	P.V.T.	B.E.	
9.2	Execution of the necessary excavation	P.V.	B.E.	

9.3	Compaction of the bottom of the excavation, laying the ballast bed and casting the levelling layer necessary for positioning the component elements	P.V.	B.E.	
9.4	Mounting the retaining wall-type elements, checking the correct mounting – DECISIVE PHASE	P.V. R.C.	I.B.E.P.	
9.5	Carrying out the filling up to the superior level in the design, compacting it, laying the ballast layer and the polyetylene film	P.V.	B.E.	
9.6	Construction of the staicase	P.V.	B.E.	
9.7	Concreting the slab of the flight	P.V.	B.E.	
9.8	Mounting the handrail	P.V.	B.E.	
IX	**SHELTER BUILDING**			
10.1	Site Rendering – Reception	P.V.	B.E. P.	
10.2	Performing the excavation	P.V.	B.E.	
10.3	Checking the terrain stratification at the end of the excavation	P.V.	B.E.G.	
10.4	Decisive phase – Checking the geometry of the excavation - Checking the reinforcement before casting the concrete	P.V.R.C.	I.B.E.P.	
10.5	Checking the anchorage system of the containers in the foundation before casting the concrete	P.V.	B.E.P.	
9.6	Concreting the foundation	P.V.	B.E.	
9.7	Checking the quality and the aspect of the foundation	Conc. book + notes	B.E.	
9.8	Decisive phase Reception at the end of works	P.V.R.C.	I.B.E.P.	

NOTE:

1. Column 4 is to be filled on the date when the document foreseen at column 2 was concluded.
2. The contractor will inform in writing all the other concerned participants with minimum 10 days before the date when the checking is to take place.
3. At the taking over an objective, one copy of this completed schedule will be annexed to the Construction Book.

BENEFICIARY: DESIGNER: CONTRACTOR:

AREX LIDER COMPANY