

**REQUEST FOR EXPRESSIONS OF INTEREST  
CONSULTING SERVICES – FIRMS SELECTION**

**Republic of Serbia**

**The Serbia Railway Sector Modernization Project (SRSM)**

**Project ID No. P170868**

**Assignment Title:**

**Technical Design Review and Site Supervision on Rail Level Crossings Improvement**

**Reference No. SER-SRSM-QCBS-CS-22-28**

The Republic of Serbia has received a Loan from the International Bank for Reconstruction and Development (IBRD) in the amount of EURO 51 million and from the Agence Francaise de Développement (AFD) in the amount of EURO 51 million, toward the cost of the Serbia Railway Sector Modernization Project, Phase 1 of the Multiphase Programmatic Approach (MPA) and intends to apply part of the proceeds to payments for consulting services for Technical Design Review and Site Supervision on Rail Level Crossings Improvement.

The consulting services (“the Services”) include provision of services for technical design review and supervision of works on supply and installation of RLC safety equipment and reconstruction of railway and road superstructure, drainage, pedestrian walkways and other related to modernization of level crossing solutions (i.e. rubber panels, labyrinth gates, etc.), all in accordance with designs prepared by the Contractor and reviewed by the Consultant.

Site supervision of works on the RLCs will cover supervision of all related works on deployment of the automatic safety and interlocking devices, boom barriers, installation of appropriate traffic signs and road equipment on all existing level crossings, deployment of rubber panels and road works, as well as works on pedestrian walkways in the area of the RLC. Works are divided into three major groups of works:

1. Traffic works refer to the development of the traffic flow operation during the execution of works on the RLC and temporary regulation of the road traffic during the execution of works, installation of temporary and/or permanent vertical and horizontal road signs and railway signals, and all other traffic related equipment;

2. Civil works refer to changes in structural RLC elements (widening of the roadway, extension of pedestrian paths in the crossing zone, correction of the road level), changes in the type of roadway structure in the RLC (i.e. rubber panels and other road works) with prior arrangement of the substructure and superstructure of rail track in RLC area, including eventual drainage works, installation of labyrinth gates, eventual concrete and foundation works and all other related civil engineering works;

3. Electrical works include the installation of an automatic RLC safety device(s) that contain a block house, indoor and outdoor equipment, boom barriers, half-boom barriers, road crossing signals, on-off elements, lighting and the appropriate cable network for connection; provision of constant power supply of the RLC, eventual video surveillance, and lighting of the RLCs.

The Consultant will be contracted for the provision of services for technical design review and supervision of works on reconstruction of Railway Level Crossings contracted for RLC groups 1 and 2 as described in the ToR.

The Consultant is expected to perform the following activities within its contract, which are grouped into two phases: (i) Design Review Phase; and (ii) Supervision and Works Contract Administration:

- **Phase 1 – Design Review Phase (Lump-sum portion of the contract)** that includes activities relevant to the Technical design review of the Preliminary Design(s), and,

- **Phase 2 - Supervision and Works Contract Administration (Time-based portion of the Contract)** that includes full supervisory services during construction of works.

Contract duration for Phase 1 – Design Review Phase and Phase 2 – Supervision and Works Contract Administration for RLC groups 1: 25 months starting from the commencement date, and

Contract duration for Phase 1 – Design Review Phase and Phase 2 – Supervision and Works Contract Administration for RLC groups 2: 26 months starting from the commencement date

The detailed Terms of Reference for the above referenced consulting services is posted on the website of the Ministry of Construction, Transport and Infrastructure (MoCTI)

<https://www.mgsi.gov.rs/lat/dokumenti/serbia-railway-sector-modernization-project-srsm-rail-level-crossings-reconstruction-works>

The Central Fiduciary Unit (CFU) of the Ministry of Finance now invites eligible consulting firms (“Consultants”) to indicate their interest in providing the Services. Interested Consultants should provide information demonstrating that they have the required qualifications and relevant experience to perform the Services.

The Consultants will be selected in accordance with QCBS (Quality and Cost-Based Selection) method set out in the World Bank’s Procurement Regulations for IPF Borrowers (July 2016, revised November 2017, August 2018 and November 2020).

Consultants may associate with other firms to enhance their qualifications, but should indicate clearly whether the association is in the form of a joint venture and/or a sub-consultancy. In the case of a joint venture, all the partners in the joint venture shall be jointly and severally liable for the entire contract, if selected.

To be **shortlisted**, the Firm or joint venture submitting the EoI must meet the following requirements:

As a precondition for being considered for shortlisting, a firm or joint venture submitting the EoI must be a legal entity. It must possess valid company licenses issued by RoS, in accordance with the Serbian law (Law on Planning and Construction - Article 126), namely:

- For technical design review: P141G2, P141S1, P141E4 and
- for works supervision: P141G2 or I141G2, P141E4 or I141E3.

*As proof, a firm shall submit the Decision on fulfilling conditions for stated licences issued by the Ministry in charge.*

Alternatively, proof of intent to obtain the company licenses shall be accepted. The acceptable proof must be a declaration issued and signed by the company or joint venture stating that the named company licenses shall be obtained and available at the time of contract signing. The declaration must identify the engineering staff and all other resources and requirements by which the conditions for obtaining the licenses shall be fulfilled. The conditions for obtaining company licenses can be found on the website of the Ministry of construction, transport and infrastructure of the Republic of Serbia on the following URL:

<https://www.mgsi.gov.rs/lat/dokumenti/pravilnik-o-nacinu-postupku-i-sadrzini-podataka-za-utvrdivanje-ispunjenosti-uslova-za>

Company or JV that doesn’t submit the company licenses or stated proof of intent for obtaining the named licenses shall not be shortlisted.

The consulting firms/JV that will submit EoI shall possess the following experience and qualifications:

## **1. Experience in Railway Level Crossing designs**

- Minimum three (3) fully completed contracts in designs of construction/reconstruction of level crossings on railway infrastructure. The reference designs must include the electrotechnical design for installing automatic safety equipment (boom barrier, signalization, axle counters, interlocking, etc.) and a civil engineering design to install rubber panel systems (three references each). The reference designs must have been completed in the last seven (7) years.

*The acceptable levels of designs are Preliminary and Design for a building permit, while concept /general/preliminary solutions (or equivalent) design references shall not be considered as relevant experience. The design references shall be accepted if in the scope of a larger project (i.e. reconstruction of a railway section) as long as it includes all stated projects.*

## **2. Experience in railway infrastructure works supervision:**

- Minimum two (2) supervision of works contracts on public/main railway infrastructure, including civil engineering works and signaling/interlocking electrotechnical works where each works contract amount is a minimum of ten million euros. The reference supervision contracts must have been completed in the last seven (7) years.

## **3. Availability of qualified experts within the company/joint venture**

As proof of availability of qualified experts within their firm/JV listed in 5.1. Term of references, the bidder shall prepare an organization chart and a list of experts conforming to requested conditions within the company who are relevant to the assignment. The list should contain short-form table information for the available experts and their fulfilment of stated conditions (i.e. name and surname of the expert, years of experience, names of reference projects, and owned licenses issued by RoS chamber of engineers).

As proof of experience, the bidder shall prepare reference forms, naming **ten (10) references maximum** for each stated requirement, clearly stating the following:

- Reference #
- Start date and completion date (mm/yy)
- Brief description of the design (10 sentences each maximum)
- Country of assignment with client name and address, and client reference contact
- Contract value
- Role on project

Submitted expressions of interest should be no larger than 30 pages of text, including reference forms.

### **Shortlisting of firms will be based on the following of points:**

1. Experience in railway-level crossing designs 40 points
2. Experience in railway infrastructure works supervision 40 points
3. Availability of qualified experts within the company/joint venture 20 points

### **Key Experts' CV are not required and will not be evaluated at the shortlisting stage.**

The attention of interested Consultants is drawn to paragraphs 3.14, 3.16 and 3.17 of the World Bank's Procurement Regulations for IPF Borrowers – Procurement in Investment Project Financing Goods, Works, Non-Consulting and Consulting Services (July 2016, revised November 2017, August 2018 and November 2020) (“the Regulations”) setting forth the World Bank's policy on conflict of interest.

Further information can be obtained at the address below during office hours 09:00 to 15:00 hours.

Expressions of interest in English language must be delivered in a written form to the email below, by **June 19, 2023, 12:00 hours, noon, local time.**

Contact:	E-mail:	Address:
To:	<a href="mailto:zorica.petrovic@mfin.gov.rs">zorica.petrovic@mfin.gov.rs</a> Ms. Zorica Petrovic Procurement Specialist	Ministry of Finance Central Fiduciary Unit 3-5 Sremska St
Cc:	<a href="mailto:lilijana.dzuver@mfin.gov.rs">lilijana.dzuver@mfin.gov.rs</a> <a href="mailto:larisa.puzovic@mgsi.gov.rs">larisa.puzovic@mgsi.gov.rs</a>	11000 Belgrade, Serbia Tel/Fax: (+381 11) 765 2587

**TERMS OF REFERENCE**  
**for Technical Design Review and Site Supervision**  
**on Rail Level Crossings Improvement**

**May, 2023**

<b>Abbreviation</b>	<b>Meaning</b>
AFD	Agence Francaise de Développement
CBA	Cost-benefit analysis
EIA	Environmental Impact Assessment Study
GIIP	Good International Industry Practice
FIDIC	International Federation of Consulting Engineers
IBRD	International Bank for Reconstruction and Development
IZS	Serbian Railways Infrastructure
MPA	
MoCTI	Ministry of Construction, Transport, and Infrastructure
PIU	Project Implementation Unit
PIT	Project Implementation Teams
PD	Preliminary Design
Project	Serbia Railway Sector Modernization (SRSM) Project
RAP	Resettlement Action Plan
RAMS	Reliability, availability, maintainability and safety
RLCs	Rail Level Crossings
TA	Technical Assistance
TEN-T	Trans-European Networks - Transport
ToR	Terms of Reference
WB	World Bank
WB ESIA	World Bank Environmental and Social Impact Assessment
WB EHSG	World Bank Environmental, Health, and Safety Guidelines
WB ESMF	World Bank Environmental and Social Management Framework
WB ESF	World Bank Environmental and Social Framework
WB LMP	World Bank Labour Management Procedure
WB OHS	World Bank Occupational Health and Safety

## 1. Background information

### 1.1 Beneficiary country: Republic of Serbia

**Client:** Ministry of Construction, Transport, and Infrastructure of Republic of Serbia (MoCTI), for Infrastructure Serbian Railways (IZS).

### 1.2 Project Information

The World Bank launched the Multiphase Programmatic Approach (MPA) to support the Government of Serbia in the continuation of institutional, physical, and operational modernization of the railway sector in an integrated manner by providing financial support to Serbia Railway Sector Modernization Project as part of the MPA to be implemented in three overlapping phases over the ten-year period.

For the purpose of financing the Serbia Railway Sector Modernization Project, Phase 1 of the MPA (the Project), the International Bank for Reconstruction and Development (IBRD), as part of the World Bank Group, and the Agence Francaise de Développement (AFD), jointly, granted to the Republic of Serbia EUR 102 million loan to support enhancing the efficiency and safety of existing railway assets and improving governance and institutional capacity of the railway sector. The Project includes the following Components:

- Component 1: Infrastructure Investments and Asset Management. This component focuses on improving the quality and safety of railway infrastructure and enhancing rail asset management practices. **This assignment is part of the Sub-Component 1.1 Reliable and Safe Railway Infrastructure.**
- Component 2: Institutional Strengthening and Project Management. This component focuses on strengthening rail policies and institutions to deepen and sustain recent reforms.
- Component 3: Railway Modernization Enablers. This component will finance measures to protect the vulnerable and poor and strengthen sectoral enablers for sustainable business growth and job creation.

The Project is managed by the MCTI through the Project Implementation Unit (PIU) supplemented by the Project Implementation Teams (PITs) in Railway Directorate (RD) and in railway companies, respectively IZS, SV, and SC. PITs act as subordinate implementing agencies and provide technical support for specific Project subcomponents or activities of the MPA that pertain to their area of expertise. The Central Fiduciary Unit (CFU) in the Ministry of Finance provides procurement and financial services for the project. Primary responsibility for Project execution lies on PIU which will ensure that the Project development objectives are met.

### 1.3 General Railways Sector Information

The position of Serbia in the European railway network is such that it forms part of the shortest traffic line between West and South-East Europe and as such is often referred to as a gateway of Europe. The length of the railway lines in the Republic of Serbia is 3 736 km, of which 3 441 km are single-track and 295 km of double-track railway lines, of which 1,546 km are electrified.

The Core Network extends for 1,414 km and it encompasses Corridor X (with branches Xb and Xc -770 km), Route 4 (421 km), Route 10 (84.5 km) and Route 11 (138 km). Except for one section on Corridor Xc (Nis - Dimitrovgrad), Corridor X is electrified with 108 km of

double-track sections and 219 km of single-track sections. As for Route 4, connecting RoS with Montenegro and Romania, approximately 157 km is in very good and good condition, major part of route 4 (212km) is in medium condition, single track, electrified except for the section Pančevo - Vršac with diesel traction. The largest part of Route 10 traversing RoS is in good condition, and Route 11 section from Požega to Kraljevo is in very good condition.

Infrastructure modernization is essential to address various cross-cutting performance issues like safety, resilience, inclusion, and digitalization. Decades of low and non-strategic investments, outdated management structures and practices, and neglect of maintenance have led to serious deterioration of the network infrastructure, obsolescence of the rolling stock, and low service quality.

According to the EU legal classification (a reference to Directive (EU) 2016/798 on railway safety of 11 May 2016), the protection of LCs are divided into “Active” and “Passive” (where “Passive” are those where roads cross the railway without any form of a warning system or protection activated when it is unsafe for the user to use the crossing, whereas “Active” are those where the crossing users are protected from or warned of the approaching train by the devices activated when it is unsafe for the user to traverse the crossing). In EU MS, 45% of LCs are “Passive”, i.e. 55% “Active”, while the related averages in the Western Balkans are much worse, i.e. in favour of the less safe “Passive” LCs. (24% of “Active” and 76% of “Passive”)¹.

The total number of accidents and the number of accidents on LCs in the entire Western Balkans region are presented in the table below.

*Table 1: Total numbers of accidents and the number of accidents on LCs in the Western Balkans*

Western Balkan - total	2014	2015	2016	2017	2018	2019	2020	2021	Total
<b>Total number of railway accidents</b>	722	831	633	824	786	752	488	671	5707
<b>Accidents on LCRs</b>	98	91	114	114	117	77	59	80	750
<b>Percentage of accidents on LCs</b>	13.6	11.0	18.0	13.8	14.9	7.8	11.5	13.4	12.9

Across the Serbian railway network, there are 2138 RLCs in total, out of which:

- 75% level crossings, secured with traffic signs on the road and the zone of necessary visibility;
- 1% level crossings, secured with light traffic signs and traffic signs on the road;
- 13% level crossings, secured with automatic half-barriers with light traffic signs and traffic signs on the road;
- 11% level crossings, secured with barriers and traffic signs on the road;
- 0% level crossing, secured with direct traffic regulation at a level crossing and special measures;
- 0.05% level crossing, secured with a protective fence and traffic signs or passing places and traffic signs at the crossings for pedestrians and cyclists.

¹ Source: Permanent Secretariat of the Transport Community, *Level Crossings Safety Improvement Project Report 2022*.



Level crossings are becoming a national problem having in mind that the number of motor vehicles is increasing every year. Respectively, because of increased traffic capacity (especially road traffic), the intersection of road traffic lines with railway lines, i.e. level crossings, represents dangerous places with frequent irregular events.

Analysis of these accidents primarily identifies human factors as the primary cause, while other conditions such as the current state of pavement, driving vehicles or equipment are often disregarded. In the Annual Safety Report for 2020 published by the Directorate for Railways, it is concluded that level crossing accidents are still a major problem for railway traffic safety. On the public railway network, after the downward trend started in 2019, the relative number of indicators increased again in 2020 by 13.94%. Despite the lower volume of traffic, in 2021 there were 10 more accidents at road crossings (53) than in 2019 (43).

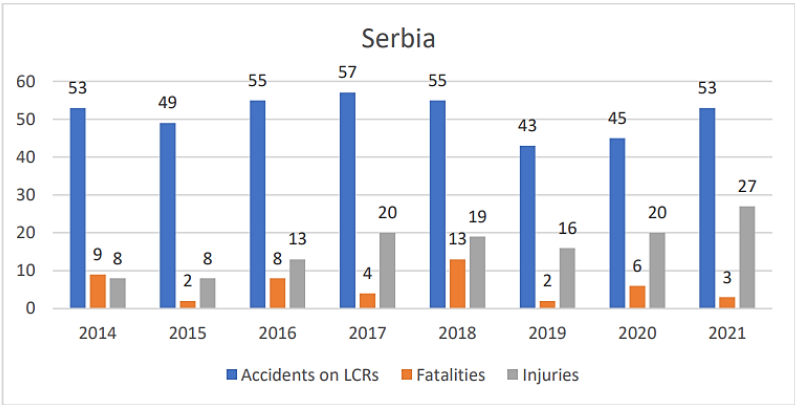


Figure 1. Number of fatalities and injuries in accidents happened on RLCs in Serbia

Figure 2 shows the relative values (number of accidents per train-kilometers) of the common safety indicator - accidents at RLCs for the period 2016 - 2020.

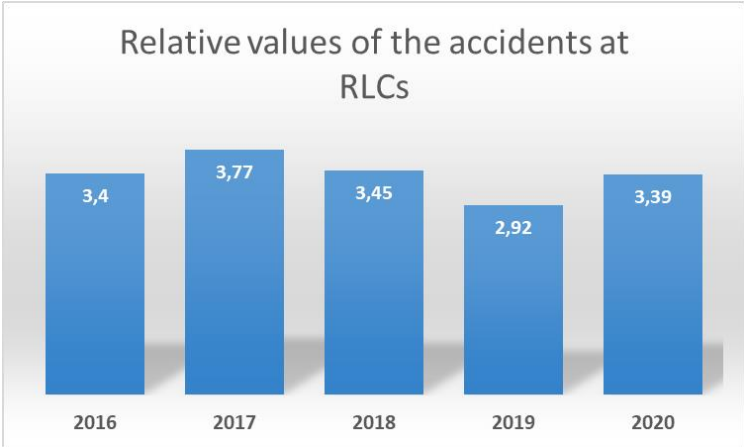


Figure 2. Relative values of the common safety indicator - accidents at RLCs for the period 2016 - 2020.

One of the priorities of the GoS is the improvement of the RLCs safety level, so as part of the reconstruction and modernization projects of the rail lines, the reconstruction of RLCs and the raising of the safety level is also envisaged, and in addition, tailor-made projects have been launched which include specific works on RLCs with the application of relevant measures for increasing the safety and interlocking system and devices on it. The improvement of existing

rail infrastructure, respectively RLCs will have mitigation co-benefits by making this mode more efficient, reliable, and attractive. This helps to shift freight and passenger transport from road to rail. Therefore, reconstruction of level crossing in sense of scope and quantity of predicted works is a very specific process, having in mind that disturbing both railway and road traffic must be minimized and at the same time performances of level crossing (construction and interlocking) must be optimized.

Within this Project, approximately 130 RLCs are identified for improvement and will be covered in 3 RLC groups defined according to the criteria of locations on the railway network:

- Group 1: 40 RLCs – Located in Central Serbia and Autonomous Province Vojvodina
- Group 2: 45 RLCs – Located in AP Vojvodina
- Group 3: 45 RLCs – Located in Central and South Serbia

The Consultant will be assigned to perform technical design review of Preliminary Design(s) prepared by Contractor to be selected for supply and installation of safety and interlocking system and necessary civil work on each RLCs over and review and give consent on Performing Designs and supervision of activities on supply, installation and commissioning of RLCs in line with relevant national regulations and engineering practices.

## **2. Definitions and objectives**

### **2.1 Definitions**

The term “**RLCs**” refers to rail level crossings on the railway network that are identified for improving the safety and interlocking system.

The term “**Works Contract**” refers to a contract for design, supply and installation of equipment for RLCs to be signed with the selected contractor(s). The Contractor shall be engaged in accordance with WB Request for Bids without prequalification procurement method, through WB Plant Design, Supply and Installation standard procurement document.

The “**Contractor**” refers to the firm/joint-venture selected for undertaking the Works Contract. The responsibility of the Contractor, to be selected, will be to prepare designs and technical documentation in compliance with national legislation (preliminary solutions required for obtaining location conditions (“Idejno Rešenje” – IDR), preliminary designs (“Idejni projekat” – IDP) and performing designs (“Projekat za izvođenje” – PZI), with procurement and installation of equipment, and execution of civil works.

The “**Approval of work**” refers to the decision on approval of works that is passed to approve the execution of works defined in Article 145 of the Law of the Republic of Serbia on Planning and Construction. Approval of Works is issued based on the Preliminary design that presents the planned works, which must comply with the previously issued location conditions.

The “**Consultant**” refers to the consulting firm/joint-venture to be selected through the present procurement process to undertake the Services.

The “**Project Manager**” refers to the person appointed by the Consultant to perform duties delegated by the Client within Works Contract.

### **2.2 Objectives of the Services**

- Technical design review of the Preliminary Designs which will be prepared by the Contractor to be selected and,
- Supervision services of supply and installation of Railway Level Crossings, approval of Design for Works Execution, and Works Contract administration.

### 3. Scope of the work

The Scope of work for the Consultant is to provide the stated services for technical design review and supervision of works on supply and installation of RLC safety equipment and reconstruction of railway and road superstructure, drainage, pedestrian walkways and other related to modernisation of level crossing solutions (i.e. rubber panels, labyrinth gates, etc.), all in accordance with designs prepared by the Contractor and reviewed by the Consultant.

Site supervision of works on the RLCs will cover supervision of all related works on deployment of the automatic safety and interlocking devices, boom barriers, installation of appropriate traffic signs and road equipment on all existing level crossings, deployment of rubber panels and road works, as well as works on pedestrian walkways in the area of the RLC. Works are divided into three major groups of works:

1. Traffic works refer to the development of the traffic flow operation during the execution of works on the RLC and temporary regulation of the road traffic during the execution of works, installation of temporary and/or permanent vertical and horizontal road signs and railway signals, and all other traffic related equipment;

2. Civil works refer to changes in structural RLC elements (widening of the roadway, extension of pedestrian paths in the crossing zone, correction of the road level), changes in the type of roadway structure in the RLC (i.e. rubber panels and other road works) with prior arrangement of the substructure and superstructure of rail track in RLC area, including eventual drainage works, installation of labyrinth gates, eventual concrete and foundation works and all other related civil engineering works;

3. Electrical works include the installation of an automatic RLC safety device(s) that contain a block house, indoor and outdoor equipment, boom barriers, half-boom barriers, road crossing signals, on-off elements, lighting and the appropriate cable network for connection; provision of constant power supply of the RLC, eventual video surveillance, and lighting of the RLCs.

#### 3.1 RLC information and contracting

The Consultant shall be contracted for the provision of services described in this ToR for technical design review and supervision of works on reconstruction of Railway Level Crossings contracted for RLC groups 1 and 2, as follows:

Railway Level Crossings Group I				
No.	Id No.	Railway	Chainage	Location
1	70678	113 Beograd Ranžirna "A" - Rasputnica "B" - Rasputnica "K/K1" - Resnik	10+154	PP Cvetni breg

2	71138	216 Smederevo - Rasputnica Jezava - Radinac - Mala Krsna	0+529	PP Heroj Srba (Želvoz)
3	71140	216 Smederevo - Rasputnica Jezava - Radinac - Mala Krsna	2+684	Smederevo
4	71141	216 Smederevo - Rasputnica Jezava - Radinac - Mala Krsna	3+281	Smederevo
5	71145	216 Smederevo - Rasputnica Jezava - Radinac - Mala Krsna	5+077	PP Lipski
6	71147	216 Smederevo - Rasputnica Jezava - Radinac - Mala Krsna	9+455	PP Vranovo
7	70748	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica (Jimbolia)	44+136	Debeljača
8	70750	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica (Jimbolia)	46+442	PP Blok 2 Kovačica
9	70755	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica (Jimbolia)	56+116	PP Uzdin
10	70735	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica (Jimbolia)	26+593	PP Blok 1 Kačarevo
11	70736	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica (Jimbolia)	27+313	PP Blok 2 Kačarevo
12	70436	107 Beograd Centar - Pančevo Glavna - Vršac - državna granica (Stamora Moravita)	21+398	Pančevo Varoš
13	70444	107 Beograd Centar - Pančevo Glavna - Vršac - državna granica (Stamora Moravita)	34+863	PP Banatsko Novo Selo
14	70464	107 Beograd Centar - Pančevo Glavna - Vršac - državna granica (Stamora Moravita)	53+380	PP Alibunar Blok 1
15	70489	107 Beograd Centar - Pančevo Glavna - Vršac - državna granica (Stamora Moravita)	83+813	PP Stražara 419
16	70987	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	26+574	open line
17	70989	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	28+173	open line
18	71000	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	8+151	PP Štitar
19	71007	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	15+689	open line
20	71010	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	20+647	open line
21	71013	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	24+598	open line
22	71021	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	32+533	open line
23	71026	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	38+874	open line
24	71031	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	49+004	open line
25	71034	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica (Zvornik Novi)	50+734	PP-2

26	71035	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica - (Zvornik Novi)	51+769	PP-3
27	71038	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica - (Zvornik Novi)	54+417	open line
28	71039	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica - (Zvornik Novi)	55+312	open line
29	71040	211 Ruma - Šabac - Rasputnica Donja Borina - državna granica - (Zvornik Novi)	58+801	PP-1 Koviljača
30	70277	103 (Beograd Centar) - Rakovica - Jajinci - Mala Krsna - Velika Plana	72+600	Slobalj
31	70278	103 (Beograd Centar) - Rakovica - Jajinci - Mala Krsna - Velika Plana	75+497	Osipaonica
32	70281	103 (Beograd Centar) - Rakovica - Jajinci - Mala Krsna - Velika Plana	78+766	Lozovik-Saraorci
33	71161	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	80+094	Osipaonica,zbeg
34	71163	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	82+385	PP Moravski Most
35	71178	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	97+450	Stig
36	71190	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	122+117	Češljeva bara
37	71197	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	131+766	Zvižd
38	71223	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	152+204	Kučevo
39	71225	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	154+371	Kučevo
40	71228	218 Mala Krsna - Bor - Rasputnica 2 - (Vražognac)	156+950	Kučevo

<b>Railway Level Crossings Group II</b>				
<b>No.</b>	<b>Id No.</b>	<b>Railway</b>	<b>Chainage</b>	<b>Location</b>
1	70630	110 Subotica - Bogojevo - državna granica - (Erdut)	49+794	PP-1 Sončanski
2	70631	110 Subotica - Bogojevo - državna granica - (Erdut)	50+593	PP-2
3	70651	110 Subotica - Bogojevo - državna granica - (Erdut)	83+570	PP-1
4	70656	110 Subotica - Bogojevo - državna granica - (Erdut)	97+266	PP Aleksa Šantić
5	70661	110 Subotica - Bogojevo - državna granica - (Erdut)	111+828	PP Skenderevo
6	70662	110 Subotica - Bogojevo - državna granica - (Erdut)	115+163	PP Tavankut
7	70663	110 Subotica - Bogojevo - državna granica - (Erdut)	118+541	PP Ljutovo
8	70664	110 Subotica - Bogojevo - državna granica - (Erdut)	123+487	PP Šebešić
9	70636	110 Subotica - Bogojevo - državna granica - (Erdut)	58+406	PP Prigrevica

10	70659	110 Subotica - Bogojevo - državna granica - (Erdut)	105+412	PP Bajmok
11	70792	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	112+454	PP Kumane
12	70796	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	121+412	PP Novi Bečej
13	70803	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	137+361	PP Banatsko Miloševo Polje
14	70810	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	153+239	PP Stražara 56
15	70725	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	10+863	PP Banatsko Veliko Selo
16	70761	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	63+037	PP-1 Tomaševac most
17	70762	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	63+178	PP-2 Tomaševac most
18	70781	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	90+877	open line
19	70805	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	140+635	PP Blok 1 Banatsko Miloševo
20	70815	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	160+525	PP Kikinda Blok 2
21	70763	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	63+774	PP Orlovat stajalište
22	70806	202 Pančevo Glavna - Zrenjanin - Kikinda - državna granica - (Jimbolia)	141+624	PP Blok 2 Banatsko Miloševo
23	70827	205 Banatsko Miloševo - Senta - Subotica	18+231	PP Padej
24	70831	205 Banatsko Miloševo - Senta - Subotica	24+708	Ostojićevo stajalište
25	70836	205 Banatsko Miloševo - Senta - Subotica	31+069	PP Čoka
26	70842	205 Banatsko Miloševo - Senta - Subotica	49+367	PP Bogaraš
27	70869	207 Novi Sad - Odžaci - Bogojevo	12+694	PP Futog
28	70879	207 Novi Sad - Odžaci - Bogojevo	29+628	PP Bački Maglič
29	70893	207 Novi Sad - Odžaci - Bogojevo	50+336	PP Ratkovo
30	70876	207 Novi Sad - Odžaci - Bogojevo	25+278	PP Bački Petrovac
31	70900	207 Novi Sad - Odžaci - Bogojevo	59+299	PP Odžaci
32	70905	207 Novi Sad - Odžaci - Bogojevo	62+814	Odžaci 5
33	70883	207 Novi Sad - Odžaci - Bogojevo	36+499	PP Gajdobra
34	70903	207 Novi Sad - Odžaci - Bogojevo	61+334	PP Odžaci Kalvarija
35	70926	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat	11+870	PP Rimski Šančevi

		Stajalište		
36	70950	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	43+708	PP Lok
37	70943	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	32+380	PP Šajkaš
38	70945	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	34+211	Šajkaš - Vilovo
39	70953	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	48+865	Titel 4
40	70941	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	27+816	Budisava - Šajkaš
41	70949	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	43+338	Titel 2
42	70968	208 (Novi Sad) - Rasputnica Sajlovo - Rimski Šančevi - Orlovat Stajalište	75+770	Orlovat
43	71558	307 Vrbas-Sombor	47+789	PP Kula
44	71589	307 Vrbas-Sombor	74+929	Stadion
45	71665	402 Kikinda - Metanolsko sirćetni kompleks (km 6 + 413)	6+163	Kikinda

Subject to the satisfactory performance by the Consultant, the Contract may be modified on mutually agreed terms and conditions, to include additional RLCs into the scope of the technical design review and supervision services, RLC group III respectively, as well as other RLC locations.

RLC Group III RLC locations are based is located in the area of central and south Serbia, and includes approximately 45 RLCs with similar scopes of work as groups I and II.

The list of RLC is descriptive, and throughout project implementation The Client may change RLC locations or remove RLCs entirely from the scope of works.

All the activities to be executed by the Consultant are divided into two phases as follows:

### **3.2 Phase 1 – Design Review Phase (Lump-sum contract)**

#### **Activity 1.1: Inception period**

Following the Kick-off Meeting with the Client representative(s), The Client will supply the Consultant with background documentation and data if available. The supplied documents shall be included in the Inception Report, with a detailed description and assessment of the current situation.

The Consultant shall propose the outline of the Inception Report, and submit it to the Client through PIU for review and acceptance. The Inception Report shall be the specific output of the Inception Period and present an overall approach and a program work plan with a timeline for the completion of the services. It should discuss constraints and challenges identified by the Consultant and how to address them to timely andl effectively deliver the assignment.

## **Activity 1.2: Technical Design Review**

Technical design review of the Preliminary Design(s) shall be conducted in all respects in accordance with the Law on Planning and Construction Official Gazette of RS No. 72/221A9, 81/221A9 - corrigendum, 64/2010 - decision US, 24/2011, 121/2012, 42/2013 - decision US 50/2013 - decision US, 98/2013-US, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019, 9/2020 and 52/2021) and in accordance with Rulebook on Content, Method and Manner of Development and Performing Review of the Technical Documentation According to Class and Intended Use of the Structure ("Official Gazette of RS" No. 73/2019).

The Consultant shall apply legal and other regulations, technical norms, and standards that regulate the subject services during the technical design review of the Preliminary Design, as well as perform the service in accordance with the quality norms.

### **3.3 Phase 2 - Supervision and Works Contract Administration (Time-based contract)**

The Consultant shall provide full supervisory services during construction and installation works by the Contractor who will be engaged in accordance with the WB Conditions of Contract Plant design, supply and installation.

For this purpose, the Consultant shall set up an adequate organization, including monitoring systems, to meet requirements for efficient construction supervision and administration. In the performance of duties, the Consultant shall ensure that the works contract brings the construction and installation works to completion within the approved time, quality and budget in accordance with the Clients requirements for the project and design implementation. The Consultant shall provide services to Client with respect to the scope of this Contract and shall establish, with the consent of the Client the implementation program for the facilities and be generally responsible for the coordination and administration of all works contract's issues.

The Consultant shall be required to establish and follow detailed supervision procedures based on sound international practice to monitor the completion of the works contract within the agreed program, budget, quality standards, and environmental provisions stipulated in the works contract.

Wherever appropriate and not in conflict with the works contract, the Consultant shall exercise every reasonable care to protect the interests of the Client.

The Consultant will comply with his activities with the provisions of both the Law on Planning and Construction (Official Gazette of RS No. 72/221A9, 81/221A9 - corrigendum, 64/2010 - decision US, 24/2011, 121/2012, 42/2013 - decision US 50/2013 - decision US, 98/2013-US, 132/2014, 145 / 2014, 83/2018, 31/2019, 37/2019, 9/2020 and 52/2021) and the Rulebook on the content and method of conducting the site supervision ("Official Gazette of RS", No. 22/2015 and 24/2017) as well as with provisions of the World Bank Environmental and Social Standards provisions. Taking that into account, the Consultant should have a license indicating the eligibility to act as a Supervisor in RoS for civil and electro works.

Generally, the scope of services shall include, but should not be limited to, the following:



- Supervision of all activities of the Contractor in all aspects of the fulfilment of its obligations, responsibilities, and actions taken in relation to the performance of contractual obligations and timely completion of the contract;
- Issuing of Commencement Order for works;
- Daily supervision of works with checking the performance of works according to technical documentation, specifications, and applicable standards. The control includes monitoring the Contractor's activities on and off the construction site and work environmental & social impacts that may happen during the contractor's activities. Also, the obligations include supervision of the applicability of contractor's equipment for the performance of works, the safety of works, property, personnel and third parties;
- Supervision and control of the Contractor regarding the implementation of environmental protection measures, occupational, health and safety measures for Contractors' personnel as well as for third parties, as well as ensuring compliance with recommendations and requirements of traffic safety during the contract implementation;
- Supervision and control of the application of WB environmental and social standards during the execution of works;
- Supervision and control of implementation of environmental protection measures in accordance with the requirements defined by the Preliminary Design and the Performing design;
- Preparation of all documents, especially technical and financial documents, relevant for the execution of this contract or decision-making, for the needs of the PIU/MoCTI and IZS;
- Preparation and provision of necessary evidence, analysis and testimonies that represent the interests of PIU/MoCTI and IZS in all disputes that may arise during the term of the Works Contract;
- Pre-approval of the interim payment application and sending it for final approval;
- Verification of compliance of equipment and devices received;
- Review of technical and attest documentation for devices and equipment;
- Attend and supervise the preliminary taking over and final taking over committee;

The Consultant shall obtain the specific approval of the Client in the performance of his duties before taking the following actions:

- 1) Agreeing or determining any matter, which will change the Contract Price of the Works contract;
- 2) Final approval of Performing Design;
- 3) Giving consent to a Sub-contractor for which a different sub-contractor is named in the Works contract;
- 4) Agreeing or determining a time extension for the Works Contract;
- 5) Instructing an Administrative Order which is expected to change the Contract Price for Works Contract or in any change in the scope, character or quality of the works. No Administrative Order shall be given by the Consultant without the consent of the Client regardless of whether it will change the price or not (including the change of materials and design);
- 6) Issuing an Administrative Order for the use of the provisional sums/ contingencies/ day works;
- 7) Issuing a Suspension Order.

Within this phase of the Contract, the Consultant shall be responsible for:

### **Activity 2.1: Pre-construction activities**

These activities will initiate with the Works Contract award and ceases with the commencement of the implementation. Most of the pre-construction activities (reviews, time and activity planning etc.) will be performed in the main office (premises of the Consultant).

#### **a) Supervision of Performing designs preparation**

The Contractor may subdivide the Performing design of the structure into design packages in accordance with the type and schedule of works. Every design package or whole Performing design will be submitted in advance to the Consultant for acceptance. The design packages must relate to the significant and clearly identifiable parts of the Preliminary Designs and address the design requirements described herein. The design packages shall facilitate the review and understanding of the Preliminary Designs as a whole and shall be produced and submitted in an orderly, sequential and progressive manner. During the Supervision of preparation of Performing designs, the Consultant shall carry out the following but not limited to:

- Monitoring the preparation and control of compliance of the Performing design with the Approval of Works, the Preliminary Designs, and with all relevant laws, standards, regulations, and other documents that define the content and scope of the project;
- Control that all parts of the designs are mutually harmonised and whether designs solutions can be implemented on the site;
- Control whether the project specifies technical measures for environmental protection and prevention of harmful effects on land and facilities in the environment during the implementation of the projected works and later during the exploitation phase;
- Control of the characteristics of the materials proposed within the projects from the aspect of justification and adequacy;
- Control definitions of the technical conditions for the executions of works for each item, specific descriptions of the quality control methods of applied materials and work performed, which clearly and precisely must present the tests to be performed and the criteria to be met;
- Consent on Performing designs in writing and informing the Contractor.

#### **b) Other Pre-construction activities**

Within this, the Consultant shall:

- Ensure that all Consultant's Representatives on the sites are prepared to act with a common approach and perform the activities in the same manner and accordance with the rules and procedures of the Project;
- Prepare a detailed time and activity schedule (supervision plan), for easy monthly (minimum) updating throughout the duration of the contract and with reference to reporting requirements;
- Mobilize and set up in the on-site offices at the premises, which will be provided by the Contractor as indicated in the Works contract;
- Confirm the responsibilities and duties of the supervisory staff with the MoCTI, IZS, and the contractor;
- Mobilize the supervision staff to the site per the Works contract signature and demobilize supervision staff per work completion;

- Ensure/check that all activities/formalities and in particular all Supervisor’s responsibilities are fulfilled before the works are carried out or started up for works contract signed or taken-over, such as insurance of works, detailed Implementation Program, Notice of Commencement Order, approval of contractors representative and other staff, approval of sub-contractors, suppliers (of works contract), supply of documents of contractors, data for setting-out, safety on site, machinery and equipment used in the construction works, approval of means and format of the communication and reporting;
- Review, validation and approval of E&S instruments and their implementation;
- Hold kick-off meeting with the IZS, PIU, and the Contractor and keep the minutes of the meeting;
- Agree on timing and commencement of the works;

### **Activity 2.2: Construction supervision activities**

The Consultant shall provide full supervision services during the construction works on behalf of the Client.

This phase will commence at the Commencement Date of the Work contract and will continue until the temporary acceptance and issuing of the taking-over certificate.

The Consultant’s services will include but not be limited to:

- Overall day-to-day supervision, including, but not limited to, management and planning, cost and quality control, reporting and monitoring physical and financial progress of the works contract(s) and related activities;
- Organization of the bi-weekly site meetings, and ad hoc site meetings, whenever necessary, with the contractor(s) and other related parties (IZS, PIU/MoCTI, Municipalities, etc.), if any, to monitor the progress of works to ensure sound and timely completion of the works in the desired quality;
- Carry out quantity surveys to verify the progress of the works;
- Checking and approving the quality of executed works, quality of built-in materials and installed equipment, all test runs of completed works along with the tests proving the achievement of guaranteed parameters set out in the works contract(s), and all related activities taken by the contractor(s), checking quality certificates, approvals, statement of compliance, certificates, guarantees etc.;
- Follow-up on cash flows and monthly progress time schedules;
- Control the contractor's hand-over of completed works, review and approve the as-built drawings and Operation and Maintenance Manuals prepared by the contractor(s) post-construction activities;
- Review and approve the testing plans, performance test, and commissioning plans in accordance with the conditions of the works contract(s);
- Carry out the take-over inspections;
- Control the trial operating periods, performance tests and the handing-over of the works to the Client;
- Engage the supervision side in settlement of disputes;
- Prepare and submit Progress Reports (weekly, monthly) which include progress reporting, photos, physical and financial progress schedules, and minutes of meetings related to the reporting period;

- Supervise the implementation of environmental, OHS and community safety-related activities as outlined in the ESMF of the Project and further defined in the ESMP, required by the WB Environmental and Social Standards and the relevant national regulation;
- Prepare post-contract documentation, checking the contractor's invoice(es), that amounts claimed have actually been incurred in accordance with the requirements of the works contract(s), issuing the certificates of payment, take-over certificates, payment certificates, performance certificates etc.

Within this phase, the Consultant's services include a check of designers' methodology proposal of works execution together with the time schedule, which has to be harmonised to the Contractors' obligations regarding the contracted time schedule and cost of works. The Consultant will be responsible for controlling if all required elements are executed in accordance with the approved design.

### **Activity 2.3: Equipment control and testing services**

The Consultant's services will include but not be limited to:

- Monitoring and ensuring timely purchase and delivery of the equipment at the specific installation site,
- Acceptance of equipment delivered from the plant to the specific installation site,
- Quality control of installations and performed works on installations,
- Check-up of documents availability,
- Check-up of completeness of equipment in accordance with packing lists,
- Check-up of completeness of spare parts and accessories in accordance with documents,
- Check-up of components, assembly parts and materials,
- Check-up of delivered equipment integrity,
- Compliance of foundations equipment mounting,
- Visual inspection of assembly and check-up of equipment as a whole assembly,
- Applicable testing of the equipment,
- Set out basic principles for the safe and reliable operation of equipment as a reference for the Contractor(s) to prepare his O&M manual,
- Check-up the integration and compatibility of newly installed equipment into the existing system(s),
- Supervise the implementation of environmental, OHS and community safety-related activities as outlined in the ESMF of the Project, further defined in ESMP of the sub-project, required by the WB Safeguards Policies and the relevant national regulation;
- Supervision of training to be provided by the Contractors.

### **Activity 2.4: Completion, commissioning and handover activities**

The Consultant's Services during commissioning and handover of the performed works will include but not be limited to:

- Carry out and/or supervise the technical inspections, tests, and verifications before Works Contract milestones and Client acceptance;
- Carry out the taking-over inspections;
- Control, approve and compile the As-Built documents prepared by the Contractor;

- Providing assistance in the work of the Commission for the handover of works; preparation of documentation and participation in the work of the Commission for final settlement;
- Supervision of works on the elimination of deficiencies according to the remarks of the Commission for technical inspection of works.

## 4. Location and timing

### 4.1 Location

The operational base and main office of the Consultant will be established on his premises. Once established, the site offices of the Contractors will provide additional premises for the staff of the Consultant.

### 4.2 Commencement date and period of implementation

#### RLC Group I

The intended commencement date for services for RLC group I is August 2023 but the actual commencement date will be defined with the signature of the Contract. The contract's implementation period will be 25 months from the commencement date.

#### RLC Group II

The intended commencement date for services for RLC group II is November 2023 but the actual commencement date will be defined with the signature of the Contract. The contract's implementation period will be 26 months from the commencement date.

The Consultant will carry out the services in line with a detailed time schedule to be submitted as part of his proposal, which could be changed during the negotiations to reflect the comments and/or requirements by the parties.

## 5. Consultant requirements

### 5.1 Personnel

The Consultant shall establish his Team in accordance with the needs and requirements of this ToR. The Team shall consist of a core team made of key experts with the qualifications and skills defined in **Error! Reference source not found.**, below and non-key experts, as needed.

The Consultant is obliged to ensure adequate staff in terms of expertise and time allocation, as well as needed equipment in order to complete the activities required under the scope of work and to achieve the objectives of this Contract in terms of time, costs, and quality. The Consultant is expected to be flexible in terms of travelling.

All experts shall be independent and free from any conflicts of interest in the responsibilities. The experts should have appropriate design licenses issued by the MoCTI or a declaration stating that they shall apply for and receive the license in no more than 1 month after the announcement of the award.

The Consultant shall secure that the construction sites are adequately staffed with the relevant experts during the construction/installation phase.

It is expected and planned that the services for RLC groups I and II will overlap and it is the Consultant's obligation to have an adequate number of KE and NKE staff, as stated in sections 5.1.1. and 5.1.2., provided for the timely and competent provision of services on both RLC groups.

The same conditions apply if the Consultant's contract is extended to include services for design review and supervision of works on RLC group III.

Note that staff of the public administration of the beneficiary country (Republic of Serbia) cannot be proposed as experts.

The Project language is English. The communication (written and oral) will be bilingual (Serbian and English). A sufficient number of the Consultant's team should be fluent in Serbian, especially the staff assigned to be on site.

The Consultant shall provide adequate administrative staff (secretary, translators, drivers accountant) needed to support the expert team.

### 5.1.1. Key experts

The team should include key experts with the qualifications and experience listed below, as well as non-key experts, if necessary. As a minimum, the Consultant shall provide the following experts:

*Table 2. Key experts for the assignment*

Title	Qualifications/Experience	Skills
<b>Team Leader</b>	<u>Education:</u> Have as a minimum MSc Degree in civil engineering or another relevant field; <u>Relevant professional experience:</u> At least 15 years of general experience; at least 7 years of relevant experience in project management/supervision in the railway sector; Experience as a team leader/project manager in the successful implementation of at least 2 contracts for railway supervision which were realized according to the FIDIC or similar model contract (i.e. WB model) in the investment value amount of at least 10 million euros each.	Excellent command of the English language. Computer literacy. Knowledge of Serbian language will be an advantage
<b>Phase 1 – Technical Design Review</b>		
Electrotechnical Engineer	<u>Education:</u> Have as a minimum MSc. Degree in Electrotechnical Engineering <u>Relevant professional experience:</u> At least 10 years of general professional experience, of which at least 7 of relevant experience in preparation of technical documentation in the railway sector. Participation in at least 2 projects in the last 7 years for railway electrotechnical infrastructure design for safety and/or interlocking equipment, each including at least 1 design of automatic railway level crossing	Excellent command of the English language. Computer literacy. Knowledge of the Serbian language will be an advantage

	<p>devices</p> <p><u>Valid license 353 or 352 (or new licence number equivalent)</u></p>	
Civil Engineer	<p><u>Education:</u> Have as a minimum MSc. Degree in Civil Engineering</p> <p><u>Relevant professional experience:</u> At least ten (10) years of general professional experience, of which at least 7 of relevant experience in preparation of technical documentation in the railway sector. Participation in at least 2 projects in the last seven (7) years for railway infrastructure including at least one (1) design of railway level crossing.</p> <p><u>Valid license 315 (or new licence number equivalent)</u></p>	<p>Excellent command of the English language. Computer literacy. Knowledge of the Serbian language will be an advantage</p>
Railway traffic engineer	<p><u>Education:</u> Have as a minimum MSc Degree in traffic and transport engineering;</p> <p><u>Relevant Professional Experience:</u> Experience: at least 10 years of general experience; at least 7 years of relevant experience in preparation of technical documentation; experience in preparation of technical documentation for the railway sector. Participation in at least 1 project for railway infrastructure design for (re)construction/rehabilitation of railway as a traffic expert.</p> <p><u>Valid license: 368 (or new licence number equivalent)</u></p>	<p>Communication skills, fluency in English. Knowledge of Serbian language will be an advantage</p>
<b>Title</b>	<b>Qualifications/Experience</b>	<b>Skills</b>
<b>Phase 2 - Supervision and works contract administration</b>		
Electrotechnical Engineer for the rail signalling/interlocking and telecommunication systems supervision	<p><u>Education:</u> Have as a minimum M. Sc. Degree in Electrotechnical Engineering</p> <p><u>Relevant professional experience:</u> At least 10 years of general professional experience, of which at least 7 in the rail sector design and/or supervision of safety or interlocking systems. Participation as a key expert or supervisor in at least one (1) successfully completed supervision contract for installing automatic railway level crossing devices (can be in the scope of a larger project).</p> <p><u>Valid license 353 or 352 or 453 (or new licence number equivalent)</u></p>	<p>Excellent command of the English language. Computer literacy. Knowledge of the Serbian language will be an advantage</p>

Civil Engineer for civil works supervision	<u>Education:</u> Have as a minimum MSc. Degree in Civil Engineering <u>Relevant professional experience:</u> At least 10 years of general professional experience, of which at least 7 in the rail sector design and/or supervision of safety or interlocking systems. Participation as a key expert or supervisor in at least one (1) successfully completed supervision contract for construction or reconstruction of a RLC (can be in the scope of a larger project).  <u>Valid license 315 or 412 or 415 (or new licence number equivalent)</u>	Excellent command of the English language. Computer literacy. Knowledge of the Serbian language will be an advantage
Environmental & Social expert	<u>Education:</u> Have as a minimum University. Degree or equivalent <u>Relevant professional experience:</u> At least 7 years of general professional experience, of which at least 5 in environmental or social field. Participation as a key expert or supervisor in at least one (1) successfully completed contract for project financed by IFI.	Excellent command of the English language. Computer literacy. Knowledge of the Serbian language will be an advantage

If the key experts proposed for **Phase 1 – Technical Design Review** meet the qualifications and relevant professional experience also for **Phase 2 - Supervision and works contract administration**, the Consultant may propose them for performing activities within both phases.

### 5.1.2. Non-key experts

The Consultant is expected to select and hire other experts, including but not limited to civil engineers, rail signalling engineers, electrical engineers, architectural engineers, RAMS, environmental, social and OHS specialists or any other engineers relevant to the assignment. They must indicate clearly which profile they have so it is clear which fee rate in the budget breakdown will apply. All experts must be independent and free from conflicts of interest in their responsibilities.

The pool of non-key experts is expected to support/complement all the activities of the key experts. Possession of a relevant Serbian license for design/construction will be required, as applicable.

The Consultant is expected to include other positions they consider necessary for the assignment in their proposals. CVs for non-key experts should be submitted in the proposal, however, they would not be subject to evaluation.

## 5.2 Office accommodation

Operational base for Phase 1 will be in Consultant main office. Office accommodation for each expert working on the Contract is to be provided by the Contractor.



Once established, the site offices of the Contractors will provide additional premises for the staff of the Consultant.

The Consultant shall ensure that experts are adequately supported and equipped. In particular, it shall ensure sufficient administrative, secretarial, and interpreting provisions to enable experts to concentrate on their primary responsibilities.

No equipment is to be purchased on behalf of neither Client (MoCTI), PIU or Beneficiaries (IZS) as part of this service contract or transferred to the Client or beneficiaries at the end of this Contract.

## 6. Outputs

### 6.1 Outputs requirements

The Consultant shall prepare, at minimum, the below-listed reports during the period of execution of the Contract.

All deliverables (draft and final versions) shall be prepared in both, English and Serbian language.

The deliverables should be delivered in accordance with the following timetable:

Deliverables	Description	Due date	Format
<b>Phase 1 – Design Review Phase</b>			
Inception Report	Describe the initial findings, progress in collecting data, any difficulties encountered or expected, and the proposed approach, considering the situation at the starting date of the assignment. It will also set out a detailed work plan to complete the activities. If there are any proposed modifications to the original Terms of Reference due to changed circumstances after arrival on the site, these are to be discussed and agreed upon in principle with the Client before the submission of the Report (up to 20 pages) <b>Subject to the approval of the Client</b>	No later than 1 month after the commencement date	Digital in English and Serbian language and 2 hard copies in English
Technical Design Review Report	Findings, guidelines and recommendations for changes/supplements for reviewed Preliminary designs and conclusions of technical design review. <b>Subject to the approval of the Client</b>	No later than 1 month from receiving the Preliminary Design from the Contractor	Digital and 4 hard copies in Serbian and 2 hard copies in the English language
<b>Phase 2 - Supervision and works contract administration</b>			
Supervise Basis Report	The Supervise basis report shall summarise all data accessed and be used as input to the construction. It shall include a section on the validation of data and lack of data if any. (up to 10 pages) <b>Subject to approval of the Client.</b>	No later than 1 month after the commencement of supervision	Digital
Monthly Reports	Description of the level of implementation of the contractor's dynamic plan, possible problems and proposals for their solution, review of adopted works by variations and explained proposal for change/variation, plan for engagement of supervision	Not later than 1 week after the end of the month	Digital

Deliverables	Description	Due date	Format
	<p>for the next period, data on inspections, data on incidents during works, E&amp;S compliance and monitoring data and others important events. Monthly reports must cover all aspect described in Section 3. Of this ToR and also contain an overview of all receivables submitted by the Contractor since the beginning of the implementation of the construction contract. This report should be made in a convenient form that allows consideration of requests, previous activities, and key deadlines for resolving requests. The monthly report should also contain photo documentation (up to 20 pages).</p>		
<p>Works Contract Completion Report</p>	<p>On completion of the works contract, upon the issue of the Taking-Over Certificate, within 15 days the Consultant shall submit a Completion Report for each defined group of RLCs to the Client,. The main report must contain:</p> <ul style="list-style-type: none"> <li>– Copies of the Taking-Over Certificate(s)</li> <li>– Verified "as-built" drawings showing all revisions to the design of the works.</li> <li>– A complete analysis of the complete cost of the works.</li> <li>– An overview of the actual progress of the works detailing reasons for delays and/or extensions of time</li> <li>– Commissioning report for the various mechanical and electrical components of the works</li> <li>– Details of all permits required for the operation of the works</li> <li>– An overview of site safety procedures, any problems in this regard, and recommendations for improvement.</li> <li>– An overview of the Consultant's working practices and resources.</li> <li>– An assessment of the quality of materials and workmanship any problems in this regard and recommendations for improvement.</li> <li>– Details of technical difficulties encountered and how these were overcome.</li> <li>– Details of administrative difficulties encountered and how these were overcome</li> </ul> <p>An appraisal of the strengths and weaknesses in the contract documents and in the design of the works (including but not limited to the Special Conditions of the works contract, technical specifications, price schedules, design details, and drawings) with recommendations on how improvements could be made for future contracts.</p>	<p>No later than 15 days after issue of Taking-Over Certificate of works contract.</p>	<p>Digital and 4 hard copies in Serbian and 2 hard copies in English language</p>
<p>Quality Assurance (QA) Dossiers</p>	<p>In addition to the Completion Report, the Consultant shall submit a comprehensive QA Dossier containing all original requests for inspection, approval, test forms, and certificates relating to the construction of the works, materials and equipment incorporated into</p>	<p>The QA Dossier will be compiled during the course of the works contract and it must be</p>	<p>Digital and 4 hard copies in Serbian and 2 hard copies in the English</p>

<b>Deliverables</b>	<b>Description</b>	<b>Due date</b>	<b>Format</b>
	<p>the works. Documentation in the QA Dossier must include but not necessarily be restricted to:</p> <ul style="list-style-type: none"> <li>– All manufacturer's test certificates for materials, if any</li> <li>– Performance test certificates and warranty agreements where applicable for mechanical and electrical equipment.</li> </ul> <p>Requests for inspection (if any), approvals and test results</p>	available for inspection by the MoCTI at any reasonable time.	language

## **6.2 Submission and approval of outputs**

All reports and other outputs, if any must be written in English and Serbian language. The draft version of the reports (electronic copy) shall be submitted to PIU for distribution to the Client. The commenting period for the outputs is 2 weeks. In case of no reaction to the submitted outputs, such status will be interpreted as “no objection” and shall be deemed approved.

The Consultant shall prepare the Minutes of Meetings (MoM) for the site meetings and monthly progress meetings. All Meetings must be ensured to lead to clear decisions, persons in charge, and deadlines. Minutes of Meetings will be distributed by the Consultant. MoM of the site meetings must be commenced within 7 calendar days by participants. MoM for the monthly progress meetings will be always on the agenda of the next monthly meeting to be approved and followed up.

All deliverables will be sent as electronic copies to Client.

Hard copies will be sent to the following addresses:

- Serbia Railway Sector modernization project – Project Implementation Unit  
Uzun Mirkova street No. 3, office 31-36, 11000 Belgrade, Republic of Serbia.

## **7. Terms of Payment**

The Consultant should note that the Terms of payment for this assignment shall be defined in detail and finalized within the Contract upon negotiations, where the proposed payment framework would be as follows:

- For Phase 1 – Technical Design Review – Lump Sum payments per milestones against submission of deliverables, for each delivered final technical design review report for subsets/groups of RLC designs and,
- For Phase 2 - Supervision and works contract administration – Time Based with periodic payments against time spent on the services covering all deliverables to be submitted to the Client within Phase 2 of the services.