

**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:**

**Preparation of the technical documentation, technical design review, and site supervision of works for the construction of the connection line (triangle) in the Bogojevo rail junction**

**Reference No. SER-SRSM-QCBS-CS-21-23-2**

For the purpose of financing Serbia Railway Sector Modernization Project, Phase 1 of the Multiphase Programmatic Approach (MPA), the International Bank for Reconstruction and Development (IBRD) 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. Republic of Serbia intends to apply part of the proceeds to payments for consulting services to be procured under this project.

**Scope of Work**

The Consultant shall carry out the specific tasks and activities as listed below and develop a well-functioning co-operation mechanism with MoCTI, the PIU and IZS/PIT on the basis of the following principles:

- a) Consultation and consent - the responsibilities for the general implementation of the Project are delegated to the PIU. MoCTI is the Client for this Contract. The PIU/MoCTI and the IZS through its nominated Project Implementation team (PIT) shall be involved in the decision-making processes regarding the Contract implementation and shall be kept informed in all stages related to contract(s) monitoring and implementation. IZS is the final beneficiary of the contract and they should be satisfied with all results and outputs. The cooperation with the final beneficiary will be sustained and managed by the PIU;
- b) The involvement of the IZS's PIT in the head office on the day-to-day activities together with the Consultant's staff is crucial;
- c) Efficiency - the cooperation with the IZS's PIT and PIU/MoCTI shall be designed to avoid any delay or discontinuity in the decision making process or any dilution of the Consultant's responsibility.

The Consultant is required to provide professional inputs, advices and support during execution of his tasks.

The Scope of Work is divided into two Phases:

- Phase 1 – Design Phase that includes activities relevant for the preparation of Detailed Regulation Plan, Preliminary Solution, Preliminary Design with Feasibility Study, Environmental Impact Assessment Study and Technical Specification for next stage, and

- Phase 2: Supervision and Works Contract administration during which the Consultant shall provide full supervisory services during construction of works in accordance with the WB Conditions of Contract Design and Build.

Phase 1 assumes the following activities:

- Activity 1.1: Inception period
- Activity 1.2: Preparation of the Detailed Regulation Plan
- Activity 1.3: Preparation of the Preliminary Solution
- Activity 1.4: Preparation of the Feasibility Study with Preliminary Design
- Activity 1.5: Preparation of the Environmental Impact Assessment Study
- Activity 1.6: Technical support to Contractor procurement

Phase 2 assumes the following activities:

- Activity 2.1: Pre-construction activities
- Activity 2.2: Supervision of Construction activities
- Activity 2.3: Installation activities
- Activity 2.4: Completion and hand-over activities

**Contract duration for both Phases: 20 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/cir/dokumenti/serbia-railway-sector-modernization-project-srsm-technical-documentation-bogojevo-rail>

The Central Fiduciary Unit (CFU) of the Ministry of Finance now invites eligible 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 Consultant firm 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).

The assignment will require a qualified consulting company or consortium that can demonstrate extensive experience in technical assistance service for the contract and which is registered in the appropriate register for the preparation of planning and technical documentation and possess the following:

- company ("large license") licenses for "designing (P)": P141G2, P141S1, and P141E4;
- for works supervision, company ("large license") licenses for "designing (P)" and/or "execution (I)": P141G2" or I141G2; P141S1; P141E4.

The following shortlisting criteria will be applied to all consulting firms that have submitted EoI:

- i) The Consultant must be a legal entity;
- ii) The Consultant must have at least 10 years of general professional experience in preparation of technical and/or spatial documentation and/or provision of supervision services;
- iii) The Consultant (individual company or joint venture altogether) must demonstrate extensive experience in delivering similar size scope work by presenting:
  - at least 2 projects successfully completed in the last 7 years in regards to the preparation of technical documentation for (re)construction/rehabilitation of railway infrastructure and
  - at least 1 project successfully completed in the last 7 years in regards to performing supervision services of works on modernization, construction/ reconstruction of railway or road

infrastructure, which was realized according to the FIDIC model contract worth at least 2 million euros;

iv) Experience in the Western Balkans region will be an advantage.

As proof, the Consultant firm shall prepare a table listing the following information: name of the relevant assignment, name of a firm that conducted the assignment, short explanation of scope of work, year of contract implementation, country/region, contact reference (name, e-mail, phone number).

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 (JV) 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. Furthermore, Expressions of interest of JVs will be evaluated based on the composition of JV submitted, whereas the experience of other firms not included in the JV will not be considered in the evaluation. The experience of any proposed sub-consultancy shall not be included in the evaluation.

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

- i. General Experience of the firm 40 points
- ii. Specific Experience of the firm relevant for the assignment 60 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 the English language must be delivered in a written form to the email below, by **September 26, 2022, 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 11000 Belgrade, Serbia Tel/Fax: (+381 11) 765 2587
Cc:	<a href="mailto:ljljana.dzuver@mfin.gov.rs">ljljana.dzuver@mfin.gov.rs</a> <a href="mailto:larisa.puzovic@mgsi.gov.rs">larisa.puzovic@mgsi.gov.rs</a>	



Ministry of Construction,  
Transport and Infrastructure



# **The Serbia Railway Sector Modernization (SRSM) Project Phase 1 of the Multi-Phase Programmatic Approach**

## **TERMS OF REFERENCE**

**for preparation of the technical documentation, technical design  
review and site supervision of works for the construction of the  
connection line (triangle) in the Bogojevo rail junction**

**September, 2022**

## Abbreviations

<b>Abbreviation</b>	<b>Meaning</b>
ADF	Agence Francaise de Développement
CBA	Cost-benefit analysis
EIA	Environmental Impact Assessment Study
GIIP	Good International Industry Practice
TSI	Technical Specifications for Interoperability
FIDIC	International Federation of Consulting Engineers
IBRD	International Bank for Reconstruction and Development
IZS	Serbian Railways Infrastructure
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
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

## Background information

### Beneficiary country: Republic of Serbia

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

**Final Beneficiary:** Infrastruktura železnica Srbije (Serbian Railway Infrastructure - IZS).

### Project Information

The International Bank for Reconstruction and Development (IBRD) 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 through providing financial support to Serbia Railway Sector Modernization Project as part of the Multiphase Programmatic Approach to be implemented in three overlapping phases over the ten-year period.

For the purpose of financing Serbia Railway Sector Modernization Project, Phase 1 of the MPA (the Project), IBRD 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. **Sub-Component 1.1, Reliable and Safe Railway Infrastructure, finances the Services object of these TORs.**
- 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 Ministry of Construction, Transport and Infrastructure (MoCTI) through the Project Implementation Unit (PIU) supplemented by the Project Implementation Teams (PITs) in Railway Directorate (RD) and in railway companies, respectively Serbian Railway Infrastructure (IZS), Serbia Voz (SV) and Serbia Cargo (SC). PITs will 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. Primary responsibility for Project execution lies on PIU which will ensure that the Project development objectives are met.

### 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.

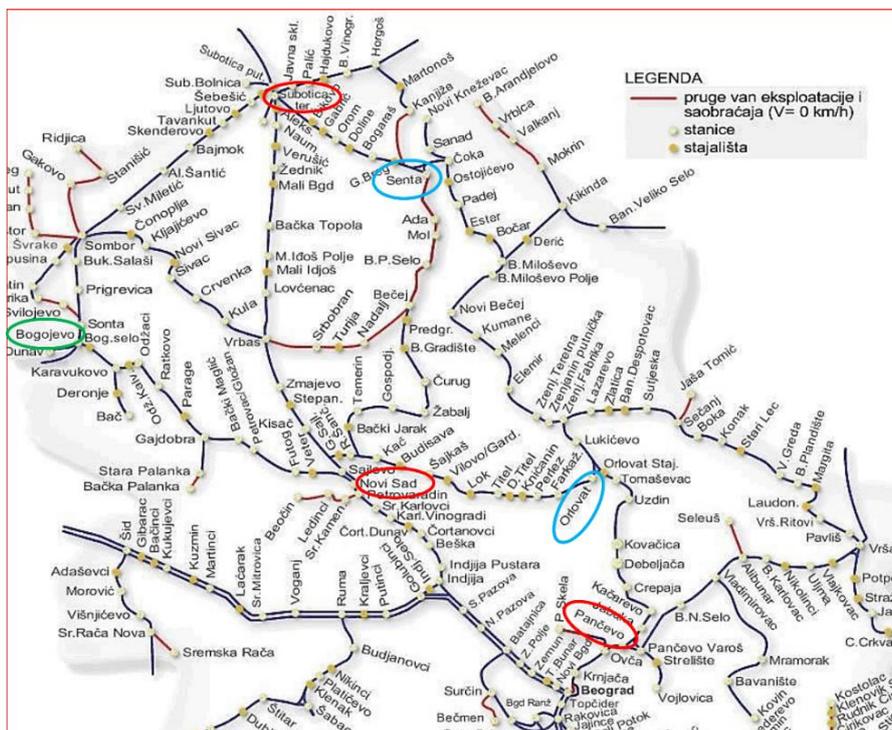
The Core Network extends for 1,414 km and it encompasses Corridor X (with branches Xb and Xc -770 km), Route 4 (421 km), Route 10 (84.5 km) and Route 11 (138 km). Except for one section on the Corridor Xc (Nis - Dimitrovgrad), Corridor X is electrified with 108 km of double track sections and 219 km 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. 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 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.

Works on the modernization of the railway and the construction of the second track on the railway Belgrade - Novi Sad - Subotica - border with Hungary in the part from Belgrade to Novi Sad began in 2017 and are planned to be completed in the first half of 2022. Works on the part from Novi Sad to the border with Hungary began in November 2021 and are planned to be completed by the end of 2024. As it was planned that the works would be performed in the regime of complete suspension of traffic, it was necessary to provide alternative transport routes for the realization of railway traffic on the following routes (Figure 1):

- 1) Subotica - Senta - Orlovat – Pancevo,
- 2) Subotica - Bogojevo - Novi Sad - Pancevo.

Figure 1 – Connections between Subotica and Pancevo through Bogojevo (marked with green) and Senta/Orlovat (marked with blue)



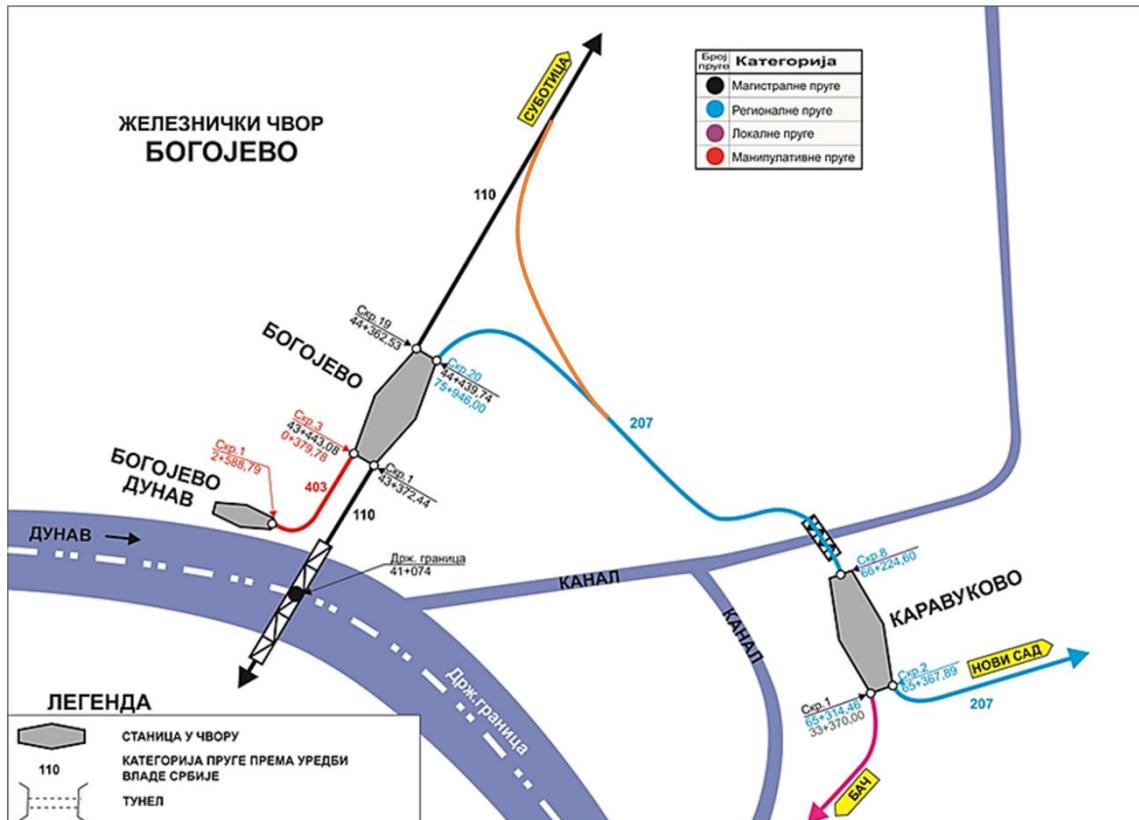
## The Bogojevo Junction

- 1) The alternative transport route through Bogojevo (Apatin Municipality) is 114 km longer than the main line, requiring the engagement of diesel locomotives in order to realize the transport requirements. Also, Bogojevo is a railway junction in which three railway lines are interconnected in layout in station Bogojevo (

Figure 2):

- 2) Main rail line: 110 Subotica - Bogojevo - state border with Croatia - (Erdut);
- 3) Regional rail line: 207 Novi Sad - Odzaci - Bogojevo;

Figure 2 - Bogojevo rail junction



- 1) The main line 110 Subotica - Bogojevo - state border with Croatia - (Erdut) is single non-electrified line open for freight and passenger traffic, with main characteristics as follow:

Table 1 Basic characteristics of rail line Subotica - Bogojevo - State Border with Croatia - (Erdut)

Length	88,1 km
Design speed	60 km/h
Axle load	D3 (225 kN, 72 kN/m)
Maximum vertical alignment gradient	6 ‰
Loading gauge	ŽS-I
Signaling System	Low levels of signaling systems (mechanical entry signals with pre-signals). Train operation is organized in station distance.

	Bogojevo station is equipped electro relay signaling safety with devices complete centralization of switches, signals and driving paths. There are technical dependencies of switches and signals.
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- 2) The regional rail line 207 Novi Sad - Odžaci – Bogojevo is single non-electrified plain line open for freight and passenger traffic, with following main characteristics:

*Table 2 Basic characteristics of rail line Novi Sad - Odžaci – Bogojevo*

Length	76,5 km
Design speed	100 km/h
Axle load	A (160 kN, 50 kN/m), C3 (221A kN, 72 kN/m)
Maximum vertical alignment gradient	5,6 ‰
Loading gauge	ŽS-I
Signaling system	None. Train operation is organized in station distance. Bogojevo station is equipped electro relay signaling safety with devices complete centralization of switches, signals and driving paths. There are technical dependencies of switches and signals.

The current concept of the junction is such that it does not enable the realization of direct trains between Pancevo, Novi Sad and Subotica (marked in red on the Figure 1) and the reason why trains have to enter the Bogojevo station for shunting due to the change of train direction. The need of this shunting further increases the train travel time and requires additional engagement of staff of both IZS and freight operators, which increases transportation costs. In order to enable direct train traffic without entering the Bogojevo station, the Client intends to build a connection line between the lines Subotica - Bogojevo - state border - (Erdut) and Novi Sad - Odzaci - Bogojevo in order to form a so-called triangle in the junction (marked in orange on Figure 2). This new railway connection is estimated to be about 2,5 km.

## Objective, purpose and expected results

### Definitions

The “**Bogojevo junction**” is the railway section to be constructed, described in Section 1.4.

The “**Works Contract**” refers to the contract for design, supply, installation and construction that the Client intends to sign for the construction of the railway connection

line “Bogojevo junction”. The Client intends to award the Works Contract in a Design-and-Build format.

The “**Contractor**” refers to the firm/joint-venture to be selected for undertake the Works Contract.

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

The “**Services**” are described in Section 3.

## **Objective of the Services**

The objectives of the Services are:

- (i) Preparation of the spatial documentation – Detailed Regulation Plan for construction of the connection line in the Bogojevo Junction (necessary for obtaining location conditions,
- (ii) Development of required technical documentation, respectively Preliminary Solution, Feasibility Study with Preliminary Design and Environmental Impact Assessment according to the Serbian regulation for the construction of the connection line in the Bogojevo junction and Technical Specifications necessary for next steps (technical part of Tender Documents for procurement of works);
- (iii) Support of the Client to select the Contractor;
- (iv) Technical design review of the Design for Building Permit which will be prepared by the Contractor; and
- (v) Supervision services of execution of works.

## **Scope of the Services**

### **General**

The Consultant shall carry out the specific tasks and activities as listed below and develop a well-functioning co-operation mechanism with MoCTI, the PIU and IZS/PIT on the basis of the following principles:

- d) Consultation and consent - the responsibilities for the general implementation of the Project are delegated to the PIU. MoCTI is the Client for this Contract. The PIU/MoCTI and the IZS through its nominated Project Implementation team (PIT) shall be involved in the decision-making processes regarding the Contract implementation and shall be kept informed in all stages related to contract(s) monitoring and implementation. IZS is the final beneficiary of the contract and they should be satisfied with all results and outputs. The cooperation with the final beneficiary will be sustained and managed by the PIU;
- e) The involvement of the IZS's PIT in the head office on the day-to-day activities together with the Consultant's staff is crucial;
- f) Efficiency - the cooperation with the IZS's PIT and PIU/MoCTI shall be designed to avoid any delay or discontinuity in the decision making process or any dilution of the Consultant's responsibility.

The Consultant is required to provide professional inputs, advices and support during execution of his tasks.

## Specific activities

All the activities to be executed by the Consultant are divided into 2 phases as follow:

### Phase 1 – Design Phase

Includes activities relevant for preparation of Detailed Regulation Plan, Preliminary Solution, Preliminary Design with Feasibility Study, Environmental Impact Assessment Study and Technical Specification for next stage.

The **documentation basis** for the preparation of technical documentation for the construction of the railway line is:

- Spatial plan of the municipality of Apatin ("Official Gazette of the Municipality of Apatin", No. 6/13);
- General Regulation Plan of Apatin ("Official Gazette of the Municipality of Apatin", No. 2/16);
- Law on Railways ("Official Gazette of RS" No. 41/2018);
- Law on Safety in Railway Traffic ("Official Gazette of RS" No. 41/2018);
- Law on Interoperability of Railway System ("Official Gazette of RS" No. 41/2018);
- Law on Planning and Construction ("Official Gazette of RS", No. 72/221A9, 81/221A9 - corrigendum, 64/2010 - US decision, 24/2011, 121/2012, 42/2013 - US decision, 50/2013 - US decision, 98/2013 - US decision, 132/2014, 145/2014, 83/2018, 31/2019, 37/2019 - other law, 9/2020 and 52/2021); Law on Railways („Official Gazette of the Republic of Serbia“, no 41/2018)
- Law on Railway Safety („Official Gazette of the Republic of Serbia“, no. 41/2018)
- Rulebook on the content, manner and procedure of preparation and manner of control of technical documentation according to the classes and purposes of the objects ("Official Gazette of RS", No. 73/2019);
- Rulebook on the content, manner and procedure of preparation of spatial and urban planning documents ("Official Gazette of RS", No. 32 of May 3, 2019);
- Law on Safety and Health at Work ("Official Gazette of RS", No. 101/221A5, 91/2015 and 113/2017 - other law);
- Regulation on Health and Safety at Work on Temporary or Movable Construction Sites ("Official Gazette of RS", No. 14/221A9, 95/2010 and 98/2018);
- Network Statement for 2022;
- Law on Environmental Impact Assessment ("Official Gazette of RS", No. 135/221A4 and 36/221A9);
- Law on Environmental Protection ("Official Gazette of RS", No. 135/221A4 and 36/221A9 36/221A9 - other law 72/221A9 - other law, 43/2011 - decision US, 14/2016, 76 / 2018, 95/2018 - other law and 95/2018 - other law);
- Rulebook on the content of the Environmental Impact Assessment Study („Official Gazette of the Republic of Serbia“, no 69/2005);
- Rulebook on the content and scope of Preliminary works, Prefeasibility and Feasibility Study („Official Gazette of the Republic of Serbia“, no 1/2012).
- Rulebook on the Content of Requirements on the Need for Impact Assessment and the Content of the Requirements for Determining the Scope and Content

- of the Environmental Impact Assessment Study („Official Gazette of the Republic of Serbia “, no 69/2005)
- Law on Expropriation („Official Gazette of the Republic of Serbia “, no 53/1995, „Official Gazette of Federal Republic of Yugoslavia“ no 16/2001 decisions of the Federal Constitutional Court 23/2001 (CYC) и („Official Gazette of the Republic of Serbia“, no 20/2009 и 55/2013 – decision of the Constitutional Court 106/2016 – authentic interpretation)
  - Existing documentation of "Infrastructure of Serbian Railways" JSC on the construction of the railway line, measures and works on maintenance and rehabilitation, the existing condition of the railway line, recorded problems, etc.;
  - Data on underground installations of "Infrastructure of the Serbian Railways" JSC;
  - Existing documentation for capital repair and rehabilitation works;
  - WB Environmental and Social Framework, including relevant E&S Standards, WB EHSR and GIIP.
  - Project Environmental and Social Management Framework;
  - All other applicable laws, by-laws, standards and regulations related to the subject of the project, fire protection, regulations related to safety and protection at work.

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

Following the Kick-off Meeting to be held with the MoCTI/PIU representative(s) and IZS/PIT, the Consultant’s first task shall be to visit the site, to be familiar with the specific area, meet with the relevant stakeholders, and gather the necessary data. The IZS will supply the Consultant with the existing background documentation. Gathered information, data, and collected documents shall be included in the **Inception Report**, with a detailed description and assessment of the current situation.

The outline of the Inception Report shall be proposed by the Consultant. The Inception Report shall be the specific output of the Inception Period and present an overall approach and detailed program work plan and completion schedule for the services. It should discuss constraints and challenges identified by the Consultant and ways to address them in order to timely and effectively deliver the assignment.

### **Activity 1.2: Preparation of the Detailed Regulation Plan**

Pursuant to the Spatial plan of the municipality of Apatin, construction of a new railway line on the territory of this municipality, requires adoption of Detailed Regulation Plan by the Municipality, where the precondition for its preparation is adoption of a decision on preparation of the Detailed Regulation Plan by Apatin Municipality.

The Consultant shall prepare a Detailed Regulation Plan, subject to adoption by the Municipality Apatin, for the construction of a reversing triangle in the area of the railway station Bogojevo in accordance with the national legislation, in an appropriate scale and with requirements and guidelines from IZS and PIU/MoCTI. The scope of the Detailed Regulation Plan shall be defined after the approval of the technical solution of the alignment of the reversing triangle track in the area of Bogojevo station, by the IZS and MoCTI/PIU. It should be emphasized that according to article 27 of the Law on Planning and Construction, exceptionally for Linear Infrastructure Structures, a detailed regulation

plan can be prepared simultaneously with the development of a preliminary design that contains all the necessary technical data. Further, considering that the cadastral parcel, which are all in the cadastral municipality of Sonta, are mostly agricultural land, and that they are in the rural consolidation process, the Consultant must prepare a Parcelling design for the formation of a construction plot for the construction of a reversing triangle.

Close cooperation with representatives of Apatin Municipality is required from the Consultant during execution of this Activity.

### **Activity 1.3: Preparation of the Preliminary Solution**

The Preliminary Solution shall contain an overview of the planned concept of the railway line infrastructure capacities, with a presentation and indication of all the data necessary to determine the location conditions. The Preliminary Solution shall be developed in such manner as to satisfy in all respect requirements for obtaining location conditions as per national legislation.

Preliminary Solution should be prepared according to the Rulebook on the content, manner and procedure of preparation and manner of control of technical documentation according to the classes and purposes of the objects ("Official Gazette of RS", No. 73/2019).

IZS shall be responsible for obtaining location conditions on the basis of the Detailed Regulation Plan of the connection line (triangle) in the Bogojevo rail junction adopted by the Apatin Municipality and the Preliminary solution previously prepared by the Consultant and approved by the IZS and MoCTI.

### **Activity 1.4: Preparation of the Feasibility Study with Preliminary Design**

**A. Preliminary Design** to be prepared shall select the optimal route considering the specific conditions and restrictions, and shall include:

- General documentation,
- Text documentation,
- Numerical documentation and
- Graphic documentation.

To develop a Preliminary Design, the Consultant shall carry out the following;

#### **I. Surveys and investigations work**

**Geodetic works** shall include, but should not be limited to:

- establishing of geodetic network for a part of the envisaged future connecting line (reversing triangle),
- performing of geodetic survey for the construction of the rail line and electro-technical infrastructure in the zone of the future reversing triangle and the required part of the station area of Bogojevo station, which includes the substructure and superstructure of open track and other facilities on the track, signaling and interlocking facilities and facilities on the track, railway equipment, and other facilities which are in the function of regulating railway traffic and railway infrastructure maintenance,
- performing all other geodetic surveys for the purposes of preparing technical documentation,

- entering the border of the railway land on the geodetic bases on which the technical documentation is prepared,
- making digital geodetic bases of recorded infrastructure and field,
- preparing geodetic elaborate analysis and execution of field geodetic works for the needs of implementing changes in the real estate cadaster in the process of expropriation.

**Geotechnical works** for obtaining detailed and reliable geotechnical conditions and parameters for the construction of the future connecting line (reversing triangle) shall include, but should not be limited to:

- Exploratory drilling,
- Engineering-geological mapping of exploration wells,
- Excavation of exploration pits,
- Engineering-geological mapping of the core of exploration pits,
- Laboratory geotechnical research,
- Preparation of geotechnical documentation

The Program of geotechnical works shall be subject of approval by IZS.

## **II. Preparation of Preliminary Design**

The Consultant will adhere to the following general and special design conditions when preparing this Preliminary Design:

### **1) General design conditions:**

- Design part of railway line as single, non-electrified track, with a track width of 1435mm,
- Design the maximum possible speed on the new part of the alignment of the connecting line (reversing triangle) in accordance with the existing elements of the alignment, characteristics and category of the lines that connects;
- Design a new part of the track for category D3 (225kN, 72 kN/m);
- On the new part of the track alignment the loading gauge GC should be envisaged;
- The operation of switch management and signals on the connecting line (reversing triangle) from Bogojevo station should be envisaged.
- Designs must be developed and consider the relevant national environmental, occupational and community health and safety regulations, labor management procedures and, WB EHSG where the stricter ones prevailing. Also, WB recommendations on Climate Change impact minimization need to be accounted for in designs as well as construction's resistance to natural disasters and impacts attributable to Climate Change. Resulting design must be in line and take into account, measures and recommendations documented in the national EIA and WB ESIA, which will be prepared in parallel with Preliminary Design.

### **2) Specific design condition:**

#### ***Substructure and superstructure***

- According to geodetic bases, analytically define the axis of the alignment and the vertical alignment for the maximum allowed train speed in accordance with the existing geometric elements on the railway line;

- Solve the drainage of the track bed and facilities in Bogojevo station and on the open track;
- Predict the prescribed transverse gradient of the track formation;
- For culverts, a detailed static calculation should be done in accordance with the applicable regulations and standards;
- Adopt the designed elements of the superstructure for speeds up to 100 km/h;
- Superstructure on the open track and the railway part of the station tracks should be envisaged with the appropriate type of rail pre-stressed concrete sleepers, elastic fastenings and ballast of crushed stone of the category, i.e. the superstructure should be adjusted to the existing condition of the superstructure;
- Welding of rails in CWR should be envisaged;
- Design switches in accordance with the present situation and proposed solutions, in accordance with relevant standards and rulebooks, to enable the most suitable functioning.
- Provide the replacement of the track panel of all existing tracks in Bogojevo station with the replacement of defective switches.

#### ***Signaling-interlocking facilities***

- Envisage that the switches and signals on the reversing triangle will be controlled from the station device of Bogojevo station;
- In accordance with the defined technology of traffic flow through the future reversing triangle, envisage new signals on the reversing triangle.

#### ***Technology and organization of traffic***

- Technical description and analysis of the current condition of the infrastructural capacities of Bogojevo station and the neighboring service points on the terminating lines;
- Technology of railway line operation and service points;
- Analysis of existing works technology;
- Technological requirements and definition of a new plan and gradient profile;
- Functional requirements and technical-technological solutions of service points;
- Functional requirements for equipping the railway line and service points with electro-technical infrastructure (signaling-interlocking, telecommunication facilities, and electric power plants and devices);
- Envisaged work technology of service points;
- Technology and organization of traffic during the execution of works;
- Graphic attachments in the appropriate scale, as well as the line situation of the designed solution of the railway line, the scheme of the station in the existing and designed condition, the designed road route plan.

**B. Feasibility Study** shall be made on the basis of the Preliminary Design, previously approved by the IZS and MoCTI, and in accordance with the Rulebook on the content and scope of previous works, previous Feasibility study and feasibility studies ("Official Gazette of RS", No. 1/2012) and shall determine, in particular, the spatial, environmental, social, financial, market and economic justification of the investment for the selected solution, developed by the Preliminary design.

**Feasibility study with Preliminary design** is subject to audit (expert control) of the Republic Commission for Expert Control of technical documentation and other

competent and state bodies. Thus, the Consultant shall be obliged to, in a timely manner and at own costs, eliminate all deficiencies in the Preliminary Design with Feasibility Study, according to the findings of the Republic Commission for Expert Control of technical documentation and other competent and state bodies, and the authorized representative of the IZS and MoCTI/PIU in order to obtain required approvals.

The Preliminary Design with Feasibility Study shall be prepared in four (4) printed copies and four (4) copies on a CD and submitted to IZS and MoCTI/PIU on Serbian and English language. The documentation on the CD must be identical to the printed copies in terms of presentation, content and order of data. All drawings, textual and graphic attachments submitted on the CD must be submitted in \*.pdf format and in open files (\*.doc, \*.xls, \*.dwg, \*.mpp, ...) where at all situation models in the DWG format must be in the National (Spatial) Reference System.

### **Activity 1.5: Preparation of the Environmental Impact Assessment Study**

The Consultant is obliged to prepare the Environmental Impact Assessment study according to the Serbian regulation which will outline the main procedures and responsibilities to manage environmental and social risks associated with the implementation of the Project activities.

This shall include:

- Preparing the **Request for determination of the scope and content**, in accordance with the Rulebook on the content of the request on the need for impact assessment and the content of the request for determination of the scope and content of the Environmental Impact Assessment Study ("Official Gazette of RS", No. 69/05) and Law on Environmental Impact Assessment ("Official Gazette of RS", No. 135/04 and 36/09);
- Preparation of Environmental Impact Assessment Study;
- Participation in the procedure of adoption of the **Environmental Impact Assessment Study**, in accordance with the Law on Environmental Impact Assessment ("Official Gazette of RS", No. 135/04 and 36/09), Rulebook on the content of the Environmental Impact Assessment Study ("Official Gazette of RS", No. 69/05) and the Decision on determining the scope and content of the Environmental Impact Assessment Study issued by the competent body for Environmental protection.

The Environmental Impact Assessment will be carried out in compliance with both the Serbian legislation and the World Bank Environmental and Social instruments<sup>1</sup> prepared for this Project, as well as the WB ESF .

The Consultant is obliged to, timely and at its own expense, to eliminate all deficiencies in the Study on Environmental Impact Assessment, according to the findings of the competent authority that issues the consent to the subject study.

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<sup>1</sup> <https://www.worldbank.org/en/projects-operations/environmental-and-social-framework>

### **Activity 1.6: Technical support to Contractor procurement**

In this phase, the Client will undertake a procurement process to hire a Contractor able to carry out the Bogojevo Junction works. Supporting the Client in this effort, the Consultant will:

- Draft the Employers Requirements and Technical Specifications for the bidding documents, based on a template to be provided by the Client, to contract the Contractor for the execution of works;
- Tender documentation must be developed and consider the relevant national environmental, occupational, and community health and safety regulations, labor management procedures and, WB EHSG where the stricter ones prevail. Also, WB recommendations on Climate Change impact minimization need to be accounted for in designs as well as construction's resistance to natural disasters and impacts attributable to Climate Change. The resulting tender documents must be in line and take into account, measures and recommendations documented in the national EIA and WB ESIA, which will be prepared in parallel with Preliminary Design.
- Support the Client to respond to questions received from prospective bidders during the procurement process;
- Support Client during the evaluation of the technical and financial proposals received from bidders to the Bogojevo Junction works. The support will include analysis of: conformity to the technical specifications, analysis of method statements, analysis of implementation schedule, team proposed, assessment of proposed unit prices, comparison to benchmarks.

### **Phase 2 - Supervision and Works Contract administration**

The Consultant shall provide full supervisory services during construction of works in accordance with the WB Conditions of Contract Design and Build.

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 works to completion within the approved time, quality and budget in accordance with the requirements of the works contract. The Consultant shall provide services to the IZS and MoCTI/PIU with respect to the scope of this Contract and shall establish, with the consent of the MoCTI/PIU 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 and budget and to the quality standards and environmental provisions stipulated in that contract.

The Consultant shall perform his duties or act:

- proactively, where the initiative lies with the Consultant in administering the Works Contract;
- reactively, in response to the Contractor's or the IZS and MoCTI/PIU requests and

- passively, in observing the requirements of 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 IZS and MoCTI/PIU.

The Consultant will comply 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).

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 fulfilment of its obligations, responsibilities and actions taken in relation to the performance of Works Contract obligations and timely completion of the same. Also, supervision has to be carried out in line with WB ESIA and the Provisions of the ESF, including already prepared instruments (ESMF, project level SEP, project level LMP) and site-specific instruments that will be prepared for this subproject: ESIA, subproject level LMP, subproject level SEP and RAP;
- Issuing of Commencement Order for works;
- Daily supervision of works, checking whether works are performed according to technical documentation, specifications and standards. The control includes monitoring the Contractor's activities on and off the construction site, as well as inspecting the environment, which may, directly or indirectly, be endangered by the contractor's activities. Also, the inspection includes the Contractor's equipment for performance of works, safety of works, property, personnel and third parties;
- Control of the Contractor regarding the implementation of environmental protection measures, occupational, health and safety measures, as well as ensuring compliance with recommendations and requirements of traffic safety during the contract;
- Preparation of all documents, especially technical and financial documents, relevant for the execution of the contract or decision-making, for the needs of the PIU/MoCTI and IZS;
- If any disputes arise during the term of the Works Contract, providing the necessary evidence, analysis and testimony to represent the interests of the PIU/MoCTI and IZS;
- Check the status of implementation of environmental protection measures in accordance with the requirements defined by the Construction Permit Design and the Construction Design;
- Pre-approval of the interim payment application and sending it to the IZS and PIU for the final approval;
- Attend the taking over and final taking over committee;
- And other activities necessary for successfully execution of the works.

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

- 1) Agreeing or determining any matter, which will change the price of the Works Contract;
- 2) Giving consent to a Sub-contractor for which a different sub-contractor is named in the Works Contract;
- 3) Agreeing or determining an extension of time for the Works Contract;
- 4) Instructing an Administrative Order which is expected to change the price of the 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 MoCTI regardless of whether it will change the price or not (including the change of materials and design);
- 5) Issuing an Administrative Order for the use of the provisional sums/contingencies/dayworks;
- 6) Issuing a Suspension Order.

The supervision of works shall be implemented in compliance with the requirements of the relevant legislation and World Bank environmental and social requirements.

Within this Phase, the Consultant shall be responsible for:

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

These activities will initiate with the award of Works Contract and ceases with the commencement of the implementation.

Based on the above-listed technical documentation developed by the Consultant and approved by the relevant authority(ies) the future Contractor for the execution of works, to be selected, shall prepare a Design for Building Permit. This Design would be subject to technical design review by the Consultant.

Technical design review of the Design for Building Permit 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 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 undertake to apply legal and other regulations, technical norms and standards that regulate the subject services during the technical design review of the Construction Permit Design, as well as to perform the services in accordance with the quality norms.

Most of the pre-construction activities (reviews, time and activity planning etc.) will be performed in the main office in Belgrade.

### **Sub-activity 1: 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 Consultant for acceptance. The design packages must relate to the significant and clearly identifiable parts of the Construction

Permit Design and shall address the design requirements as described herein. The design packages shall facilitate the review and understanding of the Construction Permit Design as a whole and shall be produced and submitted in an orderly, sequential and progressive manner.

During the Supervision of preparation of Performing Design<sup>2</sup>, the Consultant shall carry out the following activities but not limited to:

- Monitoring the preparation and control of compliance of the Performing Design with the construction permit, the Design for Building Permit and all relevant laws, standards, regulations, and other documents that define the content and scope of the project. In addition, for the purpose of obtaining consent, review all the work and construction drawings prepared by the Contractor, double-checking their conformity to the OHS, environment and other relevant legislation, WB policies (including ESF and Climate Change), WB EHSG, GIIP, and plans/procedures for ESIA, LMP and SEP;
- Control that all parts of the designs are mutually harmonized 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 whether the requirements regarding traffic safety are met;
- Control of the characteristics of the materials proposed within the projects from the aspect of justification and adequacy;
- Check whether the technical conditions for the executions of works for each item contain a description of the quality control methods of applied materials and work performed, which clearly and precisely states the tests to be performed and the criteria to be met;
- Approve Performing Designs in written and inform the Contractor

The Consultant shall complete this activity in duration of one month from receiving the final and finished version of the Performing Design from the Contractor.

### **Sub-activity 2: Other Pre-construction activities**

Within this, the Consultant shall:

- Ensure that all Consultant's Representatives in the sites are prepared to act with a common approach and performing the activities in the same manner and in accordance with the rules and procedures of the Project;
- Prepare detailed time and activity schedule (supervision plan), for easy monthly (minimum) updating throughout the duration of the contract and with reference to reporting requirements;
- Assess the site conditions, related legislation, related technical standards and institutional state of the key stakeholders;
- Evaluate and scrutinize the relevant documentation;

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<sup>2</sup> Performing Design (srb. Projekat za izvođenje) - contains detailed technical solutions elaborating the details and technical solutions within the boundaries of the construction area, specified by the construction permit design. Performing Design can be drafted in phases, i.e. by segments, in line with the schedule of construction, i.e. execution of works.

- Mobilize and set-up the site offices at the premises to be provided by the Contractor as indicated in the works contract;
- Ensure proper introduction and training of all relevant staff;
- Ensure compliance with WB LMP;
- Confirm the responsibilities and duties of the supervisory staff with the MoCTI, IZS and the contractor;
- For works contract signed or taken-over mobilize the supervision staff to the site;
- Ensure/check that all activities/formalities and in particular all Supervisor's responsibilities are fulfilled prior to 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;
- Hold kick-off meeting with the IZS, PIU and the contractor and keep the minutes of the meeting;
- Agree to regular site meetings, weekly, monthly meeting formats and attendance,
- Agree on timing and commencement of the works;
- Supervise the implementation of environmental, occupational, health and safety (OHS) and community safety related activities as outlined in the ESMF of the Project and further defined in the Environmental and Social Management Plan (ESMP), required by the WB Safeguards Policies and the relevant national regulation.

### **Activity 2.2: Supervision of Construction activities**

The Consultant shall provide full supervision services during construction of the works on behalf of the IZS and MoCTI/PIU.

This phase will commence at the Commencement Date of the work contract and will continue until the temporary acceptance.

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 and related activities;
- Organization of the bi-weekly site meetings, and ad hoc site meetings, whenever necessary, with the contractor and other related parties (IZS, PIU/MoCTI, Municipality, 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 of 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.;
- 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, issuing the certificates of payment, variation orders, taking-over certificates, payment certificates, performance certificates etc.;
- Follow-up on cash flows and monthly progress time schedules;
- Control the contractor's setting out of the works, review and approve the as-built drawings by the contractor post-construction activities;
- Review and approve the testing plans, performance test and commissioning plans in accordance with the conditions of the works contract;
- Settlement of disputes amicably;
- Cooperation in work with representatives of government bodies and other authorized persons, who are responsible for affairs related to the construction in question;
- Cooperation with representatives of the owners of installations that need to be protected, relocated or cancelled during the execution of works;
- Prepare and submit Progress Reports (weekly, monthly) which includes progress reporting, photos, physical and financial progress schedules, minutes of meetings related to the reporting period;
- Supervise implementation of and monitor Contractor's compliance with environmental, OHS, labour management and community safety related activities as outlined in the ESMF of the Project and further defined in the ESIA, required by the WB Safeguards Policies and the relevant national regulation;
- Report in a timely manner to the Client on possible incompliances;

### **Activity 2.3: Installation activities**

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 installation performed,
- 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 foundation (bottom) for mounting of equipment,
- Control of the quality of installation,
- Visual inspection of assembly and check-up of the whole equipment,
- 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 integration of new, installed equipment into existing system,
- Supervise 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.

## **Activity 2.4: Completion and hand-over activities**

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

- Carry-out the technical inspections, tests and verifications prior to 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 handover of works; preparation of documentation and participation in the work of the Commission for final settlement;
- Supervision the works on elimination of deficiencies according to the remarks of the Commission for technical inspection of works.

## **Location and timing**

### **Location**

During Phase 1, the Consultant is obliged to establish an operational base on his premises.

During Phase 2, once established, the site offices of the Contractors will provide additional premises for the staff of the Consultant.

### **Commencement date and period of implementation**

The intended commencement date is December 2022, but the actual commencement date will be defined with the signature of the Contract. The period of implementation of the Contract will be **20 months** starting from the commencement date.

Duration of Phase 1 – Design phase – is envisaged to be 11 months starting from the Commencement Date. The duration of Phase 2 is estimated to be 9 months which is the estimated time for the planned construction.

The Consultant will carry out the Services in line with a detailed time schedule to be submitted as part of his proposal.

## **Requirements and evaluation criteria**

### **Qualifications and experience of the firm**

The Consultant firm 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).

The assignment will require a qualified consulting company or consortium that can demonstrate extensive experience in technical assistance service for the contract and which is registered in the appropriate register for the preparation of planning and technical documentation and possess the following:

- company ("large license") licenses for "designing (P)": P141G2, P141S1 and P141E4;
- for works supervision, company ("large license") licenses for "designing (P)" and/or "execution (I)": P141G2" or I141G2; P141S1; P141E4.

The following shortlisting criteria will be applied to all consulting firms that have submitted EoI:

- i) The Consultant must be a legal entity;
- ii) The Consultant must have at least 10 years of general professional experience in preparation of technical and/or spatial documentation and/or provision of supervision services;
- iii) The Consultant (individual company or joint venture altogether) must demonstrate extensive experience in delivering similar size scope work by presenting:
  - at least 2 projects successfully completed in the last 7 years in regards to the preparation of technical documentation for (re)construction/rehabilitation of railway infrastructure and
  - at least 1 project successfully completed in the last 7 years in regards to performing supervision services of works on modernization, construction/reconstruction of railway or road infrastructure, which was realized according to the FIDIC model contract worth at least 2 million euros;
- iv) Experience in Western Balkans region will be an advantage.

As proof, the Consultant firm shall prepare a table listing the following information: name of the relevant assignment, name of a firm that conducted the assignment, short explanation of the scope of work, year of contract implementation, country/region, contact reference (name, e-mail, phone number).

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 (JV) 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. Furthermore, Expressions of interest of JVs will be evaluated based on the composition of JV submitted, whereas the experience of other firms not included in the JV will not be considered in the evaluation. The experience of any proposed sub-consultancy shall not be included in the evaluation.

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

- i. General Experience of the firm 40 points
- ii. Specific Experience of the firm relevant for the assignment 60 points

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

**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 the Table 3, 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 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.

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

The Project language is English. All the team members assigned by the Consultant must be able to communicate effectively in English. A sufficient number of the Consultant's team should be fluent in Serbian language.

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

### Key experts

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

*Table 3 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 preparing technical documentation for the railway sector; Experience as a team leader/project manager /in successfully implementing at least 2 railway projects related to the designing of for (re) construction/rehabilitation of railway track which were realized according to the FIDIC model contract in the amount of at least 2.5 million euros.	Excellent command of the English language. Computer literacy. Knowledge of Serbian language will be an advantage <b>FIDIC Engineer</b>
<b>Phase 1 – Design Phase</b>		
Railway Civil Engineer	<u>Education:</u> Have as a minimum MSc Degree in civil engineering or another relevant field. <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 2 projects in the last 7 years for railway infrastructure design for (re) construction / rehabilitation of railway track. Valid license: 343I or 344I	Communication skills, fluency in English. Knowledge of Serbian language will be an advantage

<p>Signaling and telecommunication expert</p>	<p><u>Education:</u> Have as a minimum MSc Degree in electrical engineering or another relevant field.</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 2 projects in the last 7 years for railway infrastructure design for (re)construction/rehabilitation of railway as a signaling and telecom expert r.</p> <p>Valid license: 351I or 353I</p>	<p>Communication skills, fluency in English. Knowledge of Serbian language will be an advantage</p>
<p>Environmental Expert</p>	<p><u>Education:</u> Have as a MSc Degree in an environmental discipline or equivalent.</p> <p><u>Relevant Professional Experience:</u> Minimum 7 years of professional experience in the environmental protection sector. Previous experience in the preparation of ESIA/EIA for transport infrastructure projects. Participation in the preparation of at least 1 ESIA/EIA studies for transport infrastructure-related projects. Knowledge of World Bank Safeguard practices will be considered as advantage</p>	<p>Communication skills, fluency in English. Knowledge of Serbian language will be an advantage</p>
<p><b>Phase 2 - Supervision and works contract administration</b></p>		
<p><b>Supervision Engineer for rail substructure and superstructure</b></p>	<p><u>Education:</u> Have as a MSc Degree in civil engineering or another relevant field.</p> <p><u>Relevant Professional Experience:</u> Minimum 10 years of experience in the profession, of which 7 years in the railway sector Work experience as a supervisor on at least 1 project of modernization, construction/reconstruction of railway infrastructure completed in the last 10 years, contract in the amount of at least 2.5 million euros.</p> <p>Valid license: 344I or 343I or 443M</p>	<p>Communication skills, fluency in English. Knowledge of Serbian language will be an advantage</p>
<p><b>Supervision engineer for signal-safety systems</b></p>	<p><u>Education:</u> Have as a minimum MSc Degree in electrical engineering or another relevant field.</p> <p><u>Relevant Professional Experience:</u> Minimum 10 years of experience in the profession, of which 7 years in the railway sector Work experience as a supervisor on at least 1 project of modernization, construction/reconstruction of railway infrastructure completed in the last 10 years, in the amount of at least 2.5 million euros.</p> <p>Valid license: 351I or 451M or 353I or 453M</p>	<p>Communication skills, fluency in English. Knowledge of Serbian language will be an advantage</p>

<b>Environmental Expert</b>	<u>Education:</u> Have as a minimum MSc (or equivalent) in an environmental, engineering, biosciences discipline or equivalent; <u>Relevant Professional Experience:</u> Minimum 7 years of professional experience in the environmental protection sector. Previous experience in the conducting activities of supervision of implementation of ESIA/EIA measures for mitigation impacts on environmental within executions of transport infrastructure-related projects	
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If the key experts proposed for Phase 1 - Design Phase meet the qualifications and relevant professional experience and for Phase 2 - Supervision and works contract administration, the Consultant may propose them for performing activities within this phase.

### **Non - Key experts**

Non-key experts for Phase 1 - Design Phase from the following areas of expertise are foreseen: Transport planner/Transport economist, Financial and Economic Expert, Railways Traffic Operations engineer, Structures engineers, Architectural engineer, Geological engineer; Geodetic engineer; Electrical engineers, Reliability, Availability, Maintainability and Safety (RAMS) expert, Environmental and social engagement specialists, pool of Experts for Detailed Regulation Plan.

Non-key experts for Phase 2 - Supervision of works from the following areas of expertise are foreseen (but not limited to): FIDIC Claim expert, Contract Claim, Railway Telecommunication Expert, Railways Traffic Operations Engineers, Materials Engineers - Geotechnics, Geodetic Engineers - Geodetic Works, Environmental Specialist, and Coordinator for safety and health at work during the execution of works.

The Consultant 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 the responsibilities they take on.

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

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

### **Office accommodation**

Office accommodation for Phase 1 – Design phase each expert working on the Contract is to be provided by the Consultant. Office accommodation for Phase 2 – Supervision and works contract administration will be provided by the Contractor.

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

No equipment is to be purchased on behalf of neither Client (MoCTI), PIU nor Beneficiary (IZS) as part of this service contract or transferred to the Client or beneficiaries at the end of this Contract.

## Outputs

### Outputs requirements

The Consultant shall prepare, as a minimum, the below listed documents during the period of execution of the Contract.

Deliverables	Description	Due date	Format	Payments
<b>Phase 1 – Design Phase</b>				<b>as a percentage of Lump sum amount</b>
Inception Report	Describe the initial findings, progress in collecting data, any difficulties encountered or expected, and the proposed approach, taking into consideration the situation at the starting date of the assignment. It will also set out a detailed work plan for the completion of 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 in principle with the Client and IZS before the submission of the Report (up to 20 pages) Subject to approval of the MoCTI	No later than 1 month after the commencement date	Digital and 4 hard copies in English and Serbian language	10%
Detailed Regulation Plan	Detailed Regulation Plan for the construction of a reversing triangle in the area of the railway station Bogojevo should be prepared in accordance with the Rulebook on the content, manner and procedure of preparation of spatial and urban planning documents ("Official Gazette of RS", No. 32 of May 3, 2019), in appropriate scale. Subject to pre-approval of Apatin Municipality and approval of the MoCTI	No later than 45 calendar days from the date of the Decision on the preparation of the Detailed Regulation Plan adopted by the Municipality of Apatin.	Digital and 4 hard copies in Serbian language	15%
Preliminary Solution	Preliminary Solution in terms of scope and content should be done in accordance with applicable laws, regulations, codes, instructions and standards that are the subject of designing. Subject to pre-approval of IZC and approval of the MoCTI.	No later than 1 month from the adoption of Detailed Regulation Plan.	4 printed copies and 4 digital copies on a CD on Serbian	10%

Preliminary Design with Feasibility Study	Preliminary Design with Feasibility Study in terms of scope and content should be done in accordance with applicable laws, regulations, codes, instructions and standards that are the subject of designing. Subject to pre-approval IZS and MoCTI and approval of Republic Commission for experts' control of technical documentation	No later than 3 months from the date of submission of the Location Conditions to the Consultant.	4 printed copies and 4 digital copies on a CD on Serbian	35%
Environmental Impact Assessment Study	Environmental Impact Assessment Study should be done in accordance with Decision on determining the scope and content of the Environmental Impact Assessment Study issued by the competent body for Environmental protection and in accordance with applicable laws and regulations. Subject to pre-approval of the Ministry for Environment Protection and approval of the MoCTI	No later than 2 months from the date of submission of the Location Conditions to the Consultant.	3 printed copies and 3 digital copies on a CD on Serbian and English	15%
Employers Requirements and Technical Specifications for bidding documents	Preparation of Employers Requirements and Technical Specifications that will be part of the design and build bidding documents.	No later than 6 months from the date of the approval of the Preliminary Design by Republic Audit Commission	Digital, Serbian and English	15%
<b>Phase 2 - Supervision and works contract administration</b>				
Technical Design Review Report	Findings, guidelines and recommendations for changes/supplements for reviewed designs and conclusions of technical design review. Subject to pre-approval of IZS and approval of the MoCTI	No later than 1 month from receiving the Construction Design from the Contractor	Digital and 4 hard copies in Serbian and 2 hard copies in English language	Monthly payments according to the actual working days spent and fixed daily fee rate for the experts
Supervision Basis Report	The Supervise basis report shall summarize all data accessed and to be used as an input to the construction. It shall include a section on the validation of data and lack of data, if any.(up to 10 pages) Subject to pre-approval of IZS and approval of the MoCTI.	No later than 1 month after the commencement of supervision	Digital, Serbian and English	
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 for the next period, data on inspections, data on incidents during works, and others important events.	Not later than 1 week after the end of month	Digital, Serbian and English	

	<p>Monthly reports must also contain an overview of all receivables submitted by the Contractor since the beginning of the implementation of the construction contract. This review 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>			
Quarterly Progress Reports	<p>Description of progress (technical and financial) including problems encountered; planned activities for the next 3 months (up to 30 pages)</p> <p>The report must include a summary of the progress of the services defined under Section 4, item 4.2.2 of this ToR, with particular reference to major activities and those on the critical path for completion of the works. The report must detail delays and difficulties encountered and proposed mitigation measures to alleviate them and provide future projections for implementation of the activities (up to 20 pages)</p>	No later than 2 weeks after the end of each 3 month implementation period	Digital, Serbian and English	
E&S Compliance Reporting	<p>Supervising engineer at the work site will prepare and submit to PIU ESIA Implementation Report on monthly basis.</p> <p>Supervision engineer is also responsible for immediate reporting of accidents and incidents in accordance with procedures in the case of accidents which will be by the PIU.</p>	<p>Regular E&amp;S reports will be submitted monthly</p> <p>Accidents will be reported immediately (within 48 hours) and more detailed report will follow this one according to</p>	<p>Regular reports – Digital in Serbian or English</p> <p>Accidents report - Digital in English language</p>	
Works Contract Completion Report	<p>On completion of works contract, upon issue of the Taking-Over Certificate, within 15 days the Consultant shall submit a Completion Report to the IZS and PIU/MoCTI. 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 revision to the design of the works.</li> <li>– A complete analysis of the completion 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> </ul>	No later than 15 days after issue of Taking-Over Certificate of works contract.	Digital and 4 hard copies in Serbian and 2 hard copies in English language	

	<ul style="list-style-type: none"> <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 works contract, technical specifications, price schedules, design details and drawings) with recommendations on how improvements could be made for future contracts.</p>			
Quality Assurance (QA) Dossiers	<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 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>	The QA Dossier will be compiled during the course of the works contract and it must be available for inspection by the MoCTI at any reasonable time.	Digital and 4 hard copies in Serbian and 2 hard copies in English language	

## **Submission and approval of outputs**

All reports and other outputs, if any must be written in English and translated into Serbian language. The draft version of the reports (electronic copy) shall be submitted to PIU for distribution to the MoCTI and IZS. The commenting period for the outputs is 3 weeks. In case of no-reaction to the submitted outputs such status will be interpreted as “no objection” and shall be deemed as approved.

During implementation of Phase 1 – Design phase, the Review period of the relevant authorities, such as Republic Commission for Expert Control of technical documentation and other competent and state bodies, shall not be part of the consultant time. Such approvals are estimated to be as follow:

- for the adoption of the Detailed Regulation Plan: 30 calendar days,
- for issuance of location conditions: 45 calendar days,
- for receiving a positive report of the Republic Audit Commission: 30 calendar days,
- for obtaining approval for the national Environmental Impact Assessment Study: 60 calendar days.

During Phase 2 - Supervision and works contract administration 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 commented within 7 calendar days by participants. MoM for the monthly progress meetings will be always in the agenda of the next monthly meeting to be approved and followed up.

All deliverables will be sent as electronic copies to PIU.

Hard copies will be sent to the following addresses:

- PIU, 22-26, Nemanjina street, office 16, 11000 Savski Venac, Republic of Serbia

## **Terms of Payment**

The Consultant should note that the proposed contract for this assignment will be as follows:

- For Phase 1 - Design phase – Lump Sum payments with milestones against submission of deliverables and,
- For Phase 2 Supervision and works contract administration – Time Based with monthly payments against time actually spent on the services.

## **Conflict of Interest**

The engaged Consultant firm must not be involved in any other related activity to this Project.