TERMS OF REFERENCE

for the preparation of the Spatial Plan, Feasibility Study with Preliminary Design, Environmental Impact Assessment Study and Environmental and Social Impact Assessment Study for the Reconstruction and Modernization of the Pančevo Bridge – Pančevo Main – Vršac – Romanian border Railway Line

Belgrade February 28, 2025

COMMON ABBREVIATIONS AND DEFINED TERMS

Abbreviation	Meaning
AFD	Agence Francaise de Développement
AGC	European Agreement on Main International Railway Lines
BoQ	Bill of Quantities
CBA	Cost-benefit analysis
Client	Ministry of Construction, Transport and Infrastructure through the Project Implementation Unit and with Serbian Railways Infrastructure as Beneficiary
Consultant	Specialized consultant (Company) which should carry out the scope of work detailed in this ToR
CWR	Continuous welded rail
EHSG	Environmental, Health and Safety Guidelines
EIA	Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESCP	Environmental and Social Community Plan
ESMP	Environmental and Social Management Plan
ERTMS	European Railway Traffic Management System
FS	Feasibility study
GSM-R	Global System for Mobile Communications – Railway
IBRD	International Bank for Reconstruction and Development
IPF	Investment Project Financing
JSC	Join Stock Company
MoCTI	Ministry of Construction, Transport, and Infrastructure
MPA	Multi-Phase Programmatic Approach
OCL	Overhead contact line
PD	Preliminary Design
PIU	Project Implementation Unit
PR	Performance Requirement
Program	Serbia Railway Sector Modernization (SRSM)
Project	Reconstruction and Modernization of the Pančevo Bridge – Pančevo Main – Vršac – Romanian border Railway Line
QCBS	Quality-and Cost-Based Selection
RD	Radio dispatching
RLC	Rail level crossing
RS	Republic of Serbia
SRI	Serbian Railways Infrastructure
SRMS	Serbia Railway Sector Modernization
TEN-T	Trans-European Networks - Transport
ToR	Terms of Reference

TS	Traction substations
TSI	Technical Specification for Interoperability
UIC	The International Union of Railways (French: Union Internationale des Chemins)
WB	World Bank

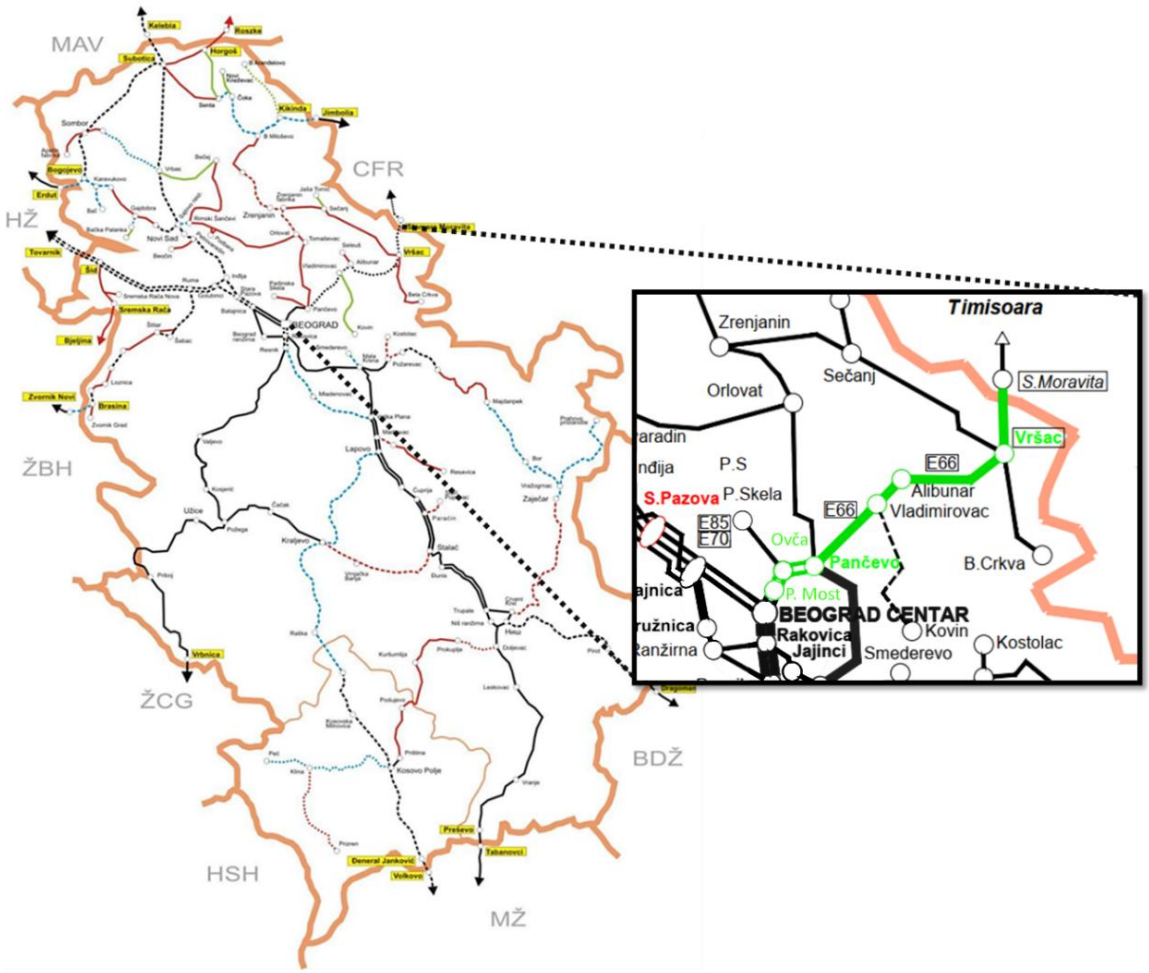
1. INTRODUCTION

1.1. Background

For the purpose of financing Serbia Railway Sector Modernization (SRMS) Program (the "Program"), Phase 1 of the Multi-phase Programmatic Approach (MPA), 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. The Program is managed by the Ministry of Construction, Transport and Infrastructure (MoCTI) in the role of the Client, through the Project Implementation Unit (PIU) and with Serbian Railways Infrastructure (SRI) as Beneficiary.

Phase 1 of the Program includes the preparation of spatial and technical documentation (Spatial Planning and Design Documentation) for the reconstruction and modernization of the **railway section Pančevo Bridge - Pančevo main – Vršac – Romanian border in total length of approx. 93 km (the "Project")**. This section is part of railway line No.107 Beograd Centar - Pančevo Main - Vršac – Romanian border - (Stamora Moravita) which is by the European Agreement one of the most important international railways (AGC) coded as E66 line. This line is classified among the main connecting lines of class A and is of great importance because it connects the pan-European transport corridors X and VII with the pan-European corridor IV in the part that passes through Romania. The rail line is presented on Figure 1. A full description of the Project and anticipated technical requirements is included in Section 1.5.

Figure 1. Geografic position of the railway section Pančevo Bridge - Pančevo Main - Vršac - Romanian border on railway network at Republic of Serbia



The present Terms of Reference (ToR) concern the preparation of the necessary Spatial Planning and Technical Documentation for the reconstruction and modernization of this railway line and its service points and shall result in the establishment of enhanced railway line parameters and increase in reliability, with possible

additional construction of infrastructure, aiming to increase the railway line safety, capacity and quality as well as the competitiveness of rail transport.

The Client is intending to procure the services of a specialized consultant (The "Consultant") to carry out the scope of work detailed in this ToR.

1.2. World Bank Environmental and Social Framework (ESF) for infrastructure interventions

The Environmental and Social Framework (ESF) of the World Bank is designed to help both the Bank and Borrowers manage environmental and social risks more effectively, thereby improving development outcomes. A key aspect of the ESF is the Borrower's commitment to adhering to the framework's standards and requirements. Borrower's commitment is by means of contractual obligation transferred to the Contractor, in case of this ToR – to the Consultant.

Borrowers are required to assess and manage environmental and social risks associated with their projects. This involves a thorough review of the country's policy, legal, and institutional frameworks, as well as the technical and institutional capacity of the Borrower and relevant agencies. The ESF consists of the World Bank E&S Policy and E&S Standards (ESSs) and mandatory use of World Bank Environmental Health and Safety Guidelines (WB EHSG) as well as Good International Industry Practice (GIIP). In summary, the Borrower's and Consultant's commitment under the ESF involves a comprehensive approach to managing environmental and social risks, supported by capacity building and adherence to detailed procedural requirements.

Since this Terms of Reference (ToR) is part of the SRMS Program activities funded by the World Bank, all activities and outputs under this ToR must align with the requirements and standards established by the World Bank Environmental and Social Framework (WB ESF). The sustainability of these activities will also be guided by the SRMS Phase 1 Project's due diligence documents, including the Labor Management Procedure (LMP), Environmental and Social Management Framework (ESMF), project-level Stakeholder Engagement Plan (SEP), and other Resettlement Policy Frameworks (RPF). Consultant's outputs will meet the objectives of material measures and actions to address the potential environmental and social risks and impacts of this project in accordance with the mitigation hierarchy and stay within the set definitions and boundaries. For instance, as per the ESMF (and ESCP), any activities identified as high risk, including specific technical solutions that could have significant downstream impacts, will not be financed through this Project.

It is the responsibility of the Project Implementation Unit (PIU), which operates under the Ministry of Construction, Transport and Infrastructure (MoCTI), to provide all the aforementioned documents to the Consultant.

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 3.348,1 km, of which 3.059,4 km are single-track and 288.7 km of double-track railway lines, of which 1.273,7 km are electrified. Railways within the Serbian railway network is categorized as main, regional, local and shunting lines.

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 Serbian rail network infrastructure, obsolescence of the rolling stock, and low rail service quality.

The railway line No.107 Belgrade center - Pančevo Main - Vršac – Romanian border - (Stamora Moravita) is also part of the indicative extension of TEN-T to the Western Balkans Core Network branded as Route 4. Romanian border/Vršac - Belgrade (Serbia) - Podgorica (Montenegro) - Bar (Montenegro). Having in mind that this railway line is part of the Core Network and that it connects two main railway corridors, the modernization of this line is one of the main goals that should be achieved in order to increase its capacity, primarily for the section subject of this ToR.

No less important as a closely related Project, the General urban plan of Belgrade and Pančevo envisages the construction of a new bypass railway line Beli Potok – Vinča – Pančevo Main across the Danube river, which

will provide a high-quality connection between Belgrade and Pančevo in the function of organizing railway traffic.The main task and goal of the construction of the bypass railway is to connect the facilities of the Belgrade railway node and central Serbia with the Pančevo - Vršac and Pančevo - Zrenjanin railway lines and with the facilities of the Pančevo railway node. The bypass railway Beli Potok – Vinča – Pančevo Main will be designed as electrified single-track line, and will primarily serve for the functioning of freight traffic, primarily for transport of dangerous goods outside the central areas of Belgrade and Pančevo. The bypass railway line is being implemented according to the special planning and technical documentation and its preparation is underway (not funded as a part of WB funded SRMS Program).

1.4. Existing condition of Pančevo Bridge – Pančevo Main – Vršac – Romanian border

The railway line No.107 Belgrade Center - Pančevo Main - Vršac – Romanian border - (Stamora Moravita) is a double-track line on section Belgrade Center - Pančevo Main (incl.), while it is a single-track railway line on section Pančevo Main (excl.) - Vršac - Romanian border. The rail line is of category D4 (permissible load: 225 kN per axle and 80 kN per meter) up to the station Pančevo Varoš, while from Pančevo Varoš station and onwards is categorized as D2 (permissible load: 200 kN per axle and 64 kN per meter).

Currently, the superstructure is constituted by rails anchored mainly on wooden sleepers and locked in the ballast. The rail line was built mostly on the flat terrain part, with an average longitudinal gradient of 4‰. Currently, the line has curves with radius ranging from a minimum of 300 m to a maximum of 10000 m.

There are no restrictions related to bridges in terms of specially determined conditions that are not a consequence of the structural parameters of the bridges. Exceptionally, until the installation of the fifth longitudinal girder in the construction of the "Pančevo Bridge" over the Danube River, between the halts Pancevački Bridge - Krnjača Bridge, it is forbidden for two freight trains to meet on the bridge.

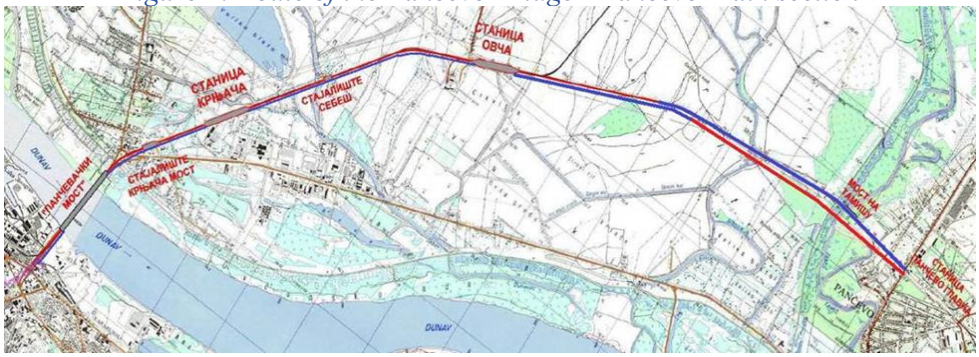
The line has UIC B type of loading gauge. The line has been designed for a maximum speed of 80-120 km/h. Along the line, there are 10 service points, which mainly do not provide adequate comfort and safety to passengers (e.g. platforms, underpasses) or service to other users (e.g. freight terminal equipment).

On section Belgrade Center - Pančevo Varoš (incl.), the rail line is electrified by the 25kV/50Hz electric traction system. Section Pančevo Varoš (excl.) – Vršac – Romanian border the rail line is non-electrified. On section Belgrade Center (incl.) - Pančevo Main (incl.), the rail line is equipped with automatic block signaling devices for mutual traffic with relay technology. Section Pančevo Main (excl.) - Vršac is not equipped with distant signals and it is not electrified.

Railway stations are equipped with different station interlocking devices, from completely electronic to mechanical devices without dependence on signals in the station. There are light and visual signals on line. Communication between stations takes place via copper cables and outdated telephone switchboards, and train traffic is organized in block spacing on the section Belgrade Center - Pančevo Main, and in station spacing on the section from the station Pančevo Main - Vršac.

The project for the construction of the second track on the section Pančevo Bridge - Pančevo Main (excl.) in the length of 14,9 km, was completed in 2017 through the loan provided by Russian Federation and with co-financing from the budget of the Republic of Serbia. Works were executed in the amount of $89.9 million. The works included constructing the second track, the right one from km 5 + 082.57 to km 15 + 882.72 and the left from km 15 + 309.59 to km 19 + 562.73, as it is marked in blue in Figure 2. below.

Figure 2: Route of the Pančevo Bridge - Pančevo Main section



As part of these works, new track and switch capacities in the stations Krnjača (3rd and 4th track) and Ovča (5th, 6th, and 7th track) were constructed, the existing Sebeš stop was renewed and a new Krnjača bridge stop was built, a new single-track railway bridge over the river Tamiš was built (upstream of the existing single-track railway bridge, 242 m long), 4 new bridges (span up to 8 m) and 5 culverts (span up to 2.2 m) were built and the existing catenary line was reconstructed within construction works on the new catenary line, telecommunication and signalling systems and devices were reconstructed.

The existing track from the former single-track line on part Pančevo Bridge – Pančevo Main and the Pančevo Main station tracks was not in the scope of those works finalized in 2017. Due to poor condition of the elements of the superstructure, especially wear of metal switch parts and switching devices, frequent disturbances on signalling and safety devices, low speed over switches (40 km/h for the passenger group of tracks and 20 km/h for the cargo group of tracks), it is necessary to repair the station tracks and upgrade the serviceability of this station.

Table 1. Parameters of the railway line according to the Timetable for 2025.

<table>
<tr><th rowspan="2">Chainage</th><th rowspan="2">Service point</th><th rowspan="2">Type of service point</th><th colspan="2">Maximum permitted speed in km/h</th></tr>
<tr><td>Left track</td><td>Right track</td></tr>
<tr><td>4,7</td><td>Pančevo Bridge</td><td>halt</td><td rowspan="3">50</td><td rowspan="6">100</td></tr>
<tr><td>7,1</td><td>Krnjača Bridge</td><td>halt</td></tr>
<tr><td>8,1</td><td>Krnjača</td><td>junction</td></tr>
<tr><td>10,0</td><td>Sebeš</td><td>halt</td><td rowspan="2">60</td></tr>
<tr><td>12,5</td><td>Ovča</td><td>station</td></tr>
<tr><td>20,02/16,1</td><td>Pančevo Main</td><td>station</td><td>100</td></tr>
<tr><td>18,2</td><td>Pančevo Varos</td><td>station</td><td colspan="2">50</td></tr>
<tr><td>34,0</td><td>Banatsko novo selo</td><td>station</td><td colspan="2" rowspan="8">100</td></tr>
<tr><td>45,9</td><td>Vladimirovac</td><td>station</td></tr>
<tr><td>53,5</td><td>Alibunar</td><td>station</td></tr>
<tr><td>59,0</td><td>Banatski Karlovac</td><td>station</td></tr>
<tr><td>63,0</td><td>Nikolinci</td><td>halt</td></tr>
<tr><td>70,3</td><td>Uljma</td><td>junction</td></tr>
<tr><td>75,3</td><td>Vlajkovac</td><td>halt</td></tr>
<tr><td>82,8</td><td>Vršac</td><td>station</td><td colspan="2">50</td></tr>
<tr><td>98,3/59,4</td><td>Border line</td><td>/</td><td colspan="2">60</td></tr>
</table>

Due to current condition of track and electrotechnical equipment on line, speeds are reduced from the designed ones at maximum speed from 20 km/h up to 80 km/h on some sections.

Railway line section Pančevo Bridge – Pančevo Main – Vršac – Romanian border is open for mixed traffic, for passenger and freight trains.

1.5. Documentary basis

The documentary basis for the preparation of technical documentation for the modernization of the railway line is:

- Law on Railways ("Official Gazette of RS" No. 41/2018 and 62/2023);

- Law on Safety in Railway Traffic ("Official Gazette of RS" No. 41/2018);
- Law on Interoperability of Railway System ("Official Gazette of RS" No. 41/2018and 16/2022 - authentic interpretation);
- 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 ,52/2021 and 62/2023);
- 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. 96/2023);
- 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);
- SRI Network Statement for 2025;
- Rulebook on technical conditions for subsystem infrastructure („Official Gazette of RS“, no. 39/2023);
- Rulebook on amendments to the Rulebook on technical conditions for subsystem infrastructure (“Official Gazette of RS”, No. 17/2024)
- Rulebook on maintenance of railway superstructure and substructure („Official Gazette of RS“, no. 39/2023);
- Rulebook on the technical requirements for signalling and safety devices („Official Gazette of RS“, no. 118/2021);
- Rulebook on the maintenance of signalling and safety devices (“Official Gazette of RS”, No. 136/2020);
- Rulebook on the technical requirements and maintenance of the railway telecommunication network („Official Gazette of RS“, no. 68/2021);
- Rulebook on the technical requirements that must be fulfilled by the energy subsystem („Official Gazette of RS“, no. 6/2020);
- Rulebook on the maintenance of energy subsystem (“Official Gazette of RS”, No. 117/2021);
- Commission Regulation (EU) No. 1299/2014 of November 18, 2014, on the technical specifications for interoperability relating to the "infrastructure" subsystem of the European Union's railway system.
- Commission Regulation (EU) No. 1300/2014 of November 18, 2014, on the technical specifications for interoperability relating to the accessibility of the Union's railway system for persons with disabilities and reduced mobility;
- Commission Regulation (EU) No. 1301/2014 of November 18, 2014, on the technical specifications for interoperability relating to the "energy" subsystem of the Union's railway system;
- Commission Implementing Regulation (EU) 2023/1695 of 10 August 2023 on the technical specification for interoperability relating to the control-command and signalling subsystems of the rail system in the European Union and repealing Regulation (EU) 2016/919;
- Commission Regulation (EU) No. 776/2019 of June 16, 2019, amending the technical specifications for interoperability relating to the subsystems INF, CCS, and ENE of the European Union's railway system;
- Law on Environmental Impact Assessment ("Official Gazette of RS", No. 94/2024);
- Law on Environmental Protection ("Official Gazette of RS", No. 135/2004 and 36/2009 36/2009 - other law 72/2009 - other law, 43/2011 - decision US, 14/2016, 76/2018, 95/2018 - other law and 95/2018 - other law, 94/2024-other law);
- Rulebook on the content of the Environmental Impact Assessment Study („Official Gazette of RS“, no 69/2005);

- Rulebook on the content and scope of previous works, Pre-Feasibility study and Feasibility studies ("Official Gazette of RS", 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 (SUS) и („Official Gazette of the Republic of Serbia“, no 20/2009 и 55/2013 – decision of the Constitutional Court 106/2016 DD– authentic interpretation);
- Concept of Pancevo Nod – 2005 SI CIP;
- Existing documentation of "Serbian Railways Infrastructure" 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 " Serbian Railways Infrastructure " JSC and other relevant infrastructure owners in scope of project;
- Existing documentation for capital repair and rehabilitation works;
- WB Environmental and Social Framework, including relevant E&S Standards, WB EHSG and GIIP;
- Programs Environmental and Social Management Framework (ESMF)
- Programs Resettlement Policy Framework (RPF);
- Programs Environmental and Social Commitment Plan (ESCP);
- 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.

1.6. Project Description and Objectives

Under the scope of Project for the reconstruction and modernization of the Pančevo Bridge – Pančevo Main – Vršac – Romanian border railway line (the “Project”) it is anticipated that following requirements will be included:

- Reconstruction and modernization of the railway track from Pančevo Bridge at start of switch no. 11. in km 5+145 to the Romanian border in km 98+314, including the improvement of elements of the alignment for the speed up to 160 km/h and permissible axle load on the railway line of 225 kN and permissible load per linear meter of 80 kN/m (category D4). Modernized line should be double track line up to new station Pančevo Banat, and single-track line form Pančevo Banat up to state border with Romania;
- Construction of the new Pančevo Banat station after the junction where the bypass railway line Beli Potok – Vinča – Pančevo Glavna connects to the line towards Vršac. Considering that the Pančevo Banat station is being introduced to meet the needs of the local industry, its station layout must be defined in accordance with the demand and requirements of the industry;
- Construction of an additional track from Pančevo Main to new station Pančevo Banat in order to form a double track line on this section;
- Reconstruction of tracks and platforms in all service points (stations and halts) along the line according to new station layouts that should be defined based on the forecasted future demand and traffic forecasts, with the proposal of cancellation of certain halts that should be agreed with the Client;
- Reconstruction of the triangle toward Zrenjanin;
- Reconstruction, rehabilitation and replacement of bridges and culverts, as needed;
- On the Pančevo bridge (over Danube river), provide adequate lighting for the signalling of waterways, with the associated distribution (reconstruction of Pancevo Bridge over Danube river is not part of this project);

- Reconstruction and construction of fixed electric traction installations (electrification with the 25 kV/50 Hz system);
- Fitting the open track and station tracks capacities with modern signalling and interlocking facilities in stations including ERTMS L2 for Belgrade Center – Pančevo – Vršac – Romanian border railway line;
- Digitalization of telecommunications on the entire railway line;
- Increasing the level of protection at level crossings, reconstruction and eventual redesign of existing level crossings and/or potential deleveling of the most critical level crossings on the railway line as needed;
- Meet the terms for use of the loading gauge GC for electrified lines and enabling of the use of all intermodal transport technologies without restrictions;
- Renovation of architectural buildings along the railway line, primarily the station buildings and ancillary buildings including the station ancillary areas (e.g. the access, parking areas, bus stops, etc., as applicable);
- Implementation of the TSIs, provided that the economic feasibility of railway line reconstruction and modernization is preserved. Where the particular TSI cannot be fulfilled due to technical reasons, it is necessary to provide an explanation due to what reason it cannot be fulfilled. Likewise, where it is not economically feasible to implement the particular TSI, it is necessary to provide the explanation, in accordance with the Law on Interoperability of Railway System, justifying the deviation from the particular TSI;
- In accordance with the technological needs, for reconstruction of tracks at particular service points, analysis of alternatives shall be considered in order to ensure the useful track length of 740 m if possible due to local conditions (on approximately 20km of line avoiding significant demolition of existing buildings and land acquisition), according to AGCT as well as construction of passenger platforms at the height of 0.55m, separated passenger access to platforms and construction of elevators in railway stations in larger settlements along the railway line in order to enable access to stations and passenger platforms to disabled persons and persons with reduced mobility;
- Improvement of accessibility of the rail system for persons with disabilities and persons with reduced mobility in all railway stations.

The reconstruction and modernization of the Pančevo Bridge – Pančevo Main – Vršac – Romanian border railway line aims achieving the following objectives:

- Increasing the safety and efficiency of railway traffic;
- Increasing the running speed and at the same time reduce the train running time in passenger and freight services;
- Raising the railway line capacity;
- Reducing greenhouse gas emissions through the electrification of the line and replacing diesel traction with electric traction;
- Implementing the Technical Specifications for Interoperability (TSIs) unless the technical and economic analysis show that implementation of particular TSI is not feasible.

2. OBJECTIVE

The objective of the consulting assigment is the preparation of all necessary documentation for the full scope of modernization and electrification of the line Pančevo Bridge – Pančevo main – Vršac – Romanian border, which consist of the necessary Spatial Planning and Technical Documentation and includes the following:

- Feasibility study with Preliminary design and the Environmental Impact Assessment Study;
- Environmental and Social Impact Assessment Study. This Study should provide impact assessment not only on environment but also shall also cover the full spectrum of social impacts, including land acquisition and resettlement, in accordance with the WB ESF. As a result, the preliminary design measures to avoid and minimize impacts as much as possible should be introduced through multiple E&S instruments compliant to World Bank ESF and include a Draft Resettlement/ Livelihood Restoration Action Plan as per ESS5, and Environmental and Social Management Plan (ESMP);
- Spatial plan of special purpose area for railway infrastructure corridor for part Ovča - Pančevo main – Vršac – Romanian border;
- General plan of regulation with detailed use of land for Pancevo Bridge - Ovča and other necessary appropriate low-level plans in accordance with design solutions and existing effective plans documentation.

The sequence, structure and content of these documents should reflect the planning and designing process following Serbian Law and requirements of responsible authorities for permitting and approval of technical documentation including World Bank.

3. SCOPE OF SERVICES

The Consultant is required to carry out the following tasks:

3.1. Kick off Meeting

The Consultant will have a first meeting with the Client to confirm the tasks and objectives of the assignment and gather any additional instructions. During this kick-off Meeting, the Consultant will present an outline of the Inception Report (as described in 3.2) for comments from the Client.

3.2. Preparation of Inception Report

Following the Kick-off Meeting to be held with the representatives from MoCTI/PIU and SRI/PIT, the Consultant's first task shall be to meet with the relevant stakeholders and to gather the necessary data. Based on its technical proposal and the feedback from the meetings, the Consultant will develop an Inception Report that 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. The Report should discuss constraints and challenges identified by the Consultant and ways to address them in order to timely and effectively deliver the assignment. Gathered information, data and collected documents shall be included in the Inception Report, with a detailed description and assessment of the current situation. The minimum content requirement for the Inception Report is as follows:

- Introduction
- Project planning and mobilization of design team
- Data collection and site visit
- Analysis of pre-studies and existing technical documentation
- Description of current situation
- Scope and Methodology for each document to be prepared
- Work plan and schedule
- Assumption, risks and mitigation measures
- Conclusion

3.3. Preparation of the Spatial Plans

Planning, use, arrangement and protection of the railway corridor should be based on the principles of arrangement and use of space established by the Law on Planning and Construction ("Official Gazette of RS", No. 72/09, 81/09 - correction, 64/10 - US, 24 / 11, 121/12, 42/13 - US, 50/13 - US, 98/13 - US, 132/14, 145/14, 83/18 and 31/19 other law,9/2020, 52/2021 and 62/2023), Law on Railways ("Official Gazette of RS", No. 41/18, 63/2023), Law on Spatial Plan of the Republic of Serbia from 2020 to 20351, Law on Environmental Protection ("Official Gazette of RS", No. 135/04, 36/09, 36/09-other law, 72/09-other law, 43/11-decision US, 14/16, 78/18 and 95 / 18-other law), Law on Strategic Environmental Assessment ("Official Gazette of RS", No. 135/04 and 88/10), Rulebook on Elements of Railway Infrastructure ("Official Gazette of RS", No. 10/14), Rulebook on the content, manner and procedure of drafting spatial and urban planning documents ("Official Gazette of RS", No. 32/19) and other laws and bylaws, acts of the Republic of Serbia which define and determine the conditions, manner and content of preparation of planning and technical documentation.

For the railway section located in the territory of the city of Belgrade, i.e. the section between the stations Pančevački most and Ovča, according to the General regulation plan of the construction area of the seat of the local self-government unit - the city of Belgrade (units I-XIX) and General Regulation Plan of Belgrade's rail systems, it is necessary to prepare a Detailed Regulation plan or, other relevant planning documentation with elements of detailed elaboration in accordance with the Preliminary Solution prepared by the Consultant.

[1]Preparation of Spatial Plan of the Republic of Serbia from 2021 to 2035 is currently under preparation.

For the section of the railway line that is outside the territory of the City of Belgrade, that is from the border of the municipality of Pančevo to the border with Romania, it is necessary to prepare a Spatial Plan of the special purpose area of the railway infrastructure. According to Law on Planning and Construction an integral part of this Spatial Plan is the Report on the Strategic Environmental Assessment of the Spatial Plan.

For electrification, implementation of ERTMS L2 and design of GSM-R, in the case of the need for the installation of special equipment in certain locations or the installation of cables, it is possible to create Urban Plans of lower level where applicable.

In order to ensure that the implementation of all defined activities that precede the adoption of the all foreseen spatial planning documentation are carried out in optimal time frames (collaboration in the preparation of the proposal for the Decision on the preparation of the Plan, preparation of the Elaborate for Early Public Inspection, collection of documents and conditions from holders of public authorities, preparation of the draft Plan for public insight, all necessary corrections at the request of the Expert Commission for Plans), the Consultant is obliged on permanent and active cooperation with all relevant stakeholders (MoCTI, City of Belgrade, SRI etc).

Table 2. Process of preparation of Spatial plan for the special-purpose area

No	Activity	Relevant Institutions	Expected Activity Duration
1.	Adoption of the Decision on the development of the Spatial Plan by the Government of the Republic of Serbia and Decisions on the development of the Strategic Environmental Assessment of the Spatial Plan	Department of Urbanism and Spatial Planning-MoCTI	2 months
2.	Preparation of documents for early public insight	Consultant	2 months
3.	Early public insight	Department of Urbanism and Spatial Planning-MoCTI	15 days
4.	Obtaining conditions from the holder of public authorizations for the development of a spatial plan	Department of Urbanism and Spatial Planning-MoCTI	1 months
5.	Preparation of the Draft Spatial Plan	Consultant	3 months
6.	Expert control of the Draft Spatial Plan	Department of Urbanism and Spatial Planning-MoCTI	5 days
7.	Amendments to the Draft Spatial Plan in accordance with the Expert Control Report	Consultant	1 month
8.	Public insight	Department of Urbanism and Spatial Planning-MoCTI	1 month
9.	Public session and preparation of Report on the performed public insight into the Draft Spatial Plan	Department of Urbanism and Spatial Planning-MoCTI	5 days
10.	Amendments to the Draft Spatial Plan in accordance with the Report on the performed public insight	Consultant	1 month
11.	Procedure of adoption and publication of Spatial Plan	Department of Urbanism and Spatial Planning-MoCTI	2 months

The same procedure is also applied to lower-level plans, with the fact that instead of the Department of Urbanism and Spatial Planning-MoCTI, the Secretariat of the City of Belgrade is responsible, given that the plans are on the territory of the City of Belgrade

3.4. Preliminary Solution

The Preliminary Solution shall be prepared to define all technical and functional specifications per chosen track alignment, that is most feasible and cost acceptable. The technical and functional specifications include, but are not limited to: track centreline(s), general vertical alignment, normal profiles for the open track and stations, general bridge disposition(s) and planned work(s), power supply and overhead contact line details, signalisation and safety details and cable infrastructure general position, general drainage solution(s) with planned recipients, level crossings layouts and details on raising the safety levels, general positions of eventual engineering structures (walls, substructure protections, etc), stations and station building reconstruction layouts and all other details necessary for definition and issuing of location conditions and for further development of the design through the preliminary design.

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. 96/2023) and Rulebook on the procedure for implementing the unified procedure by electronic means ("Official Gazette of RS", no. 96/2023)

SRI shall be responsible for obtaining Location conditions based on the Spatial plans and the Preliminary Solution previously prepared by the Consultant and approved by the Client.

3.5. Feasibility Study with Preliminary Design

The Consultant shall prepare the Feasibility study with the Preliminary design, following all parameters and conditions defined by the Location conditions issued by the relevant authority per submitted Preliminary solution.

Preliminary Design to be prepared shall be designed as a detailed follow up to the Preliminary solution, considering all specific conditions and restrictions, and shall include all documentation per 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. 96/2023) specifically relating to purpose and contents of the preliminary designs for linear infrastructure objects.

The Preliminary Design will provide the precise position, functional characteristics and technical and technological solutions for reconstruction and modernization of subject railway section, overhead line and electric power facilities, reconstruction and modernisation of telecommunications and the interlocking system and service points, as well as reconstruction and construction of new bridges and culverts, water protection and drainage, removal and reconstruction of road level crossings, in conformity with the requirements for the railway line infrastructural capacities and adopted international standards.

Contents of the textual and numeric documentation, graphic documentation scale and general level of detail prepared shall be done per laws, by-laws, standards and good engineering practices for preliminary designs of linear infrastructure objects.

All designs shall be developed considering the relevant national environmental, occupational and community health and safety regulations, labour management procedures and, WB ESF (E&S Policy and E&S Standards), WB EHSG, Good International Industry Practice (GIIP) and E&S Project documents (Environmental and Social Management Framework, Stakeholders Engagement Plan, Labor Management Procedures, and Resettlement Policy Framework) where the stricter ones shall prevail. Also, WB requirement on stakeholder engagement should be adhered too. The WB recommendations on Climate Change impact minimisation need to be accounted for, as well as structures' stability and safety as well as resistance to natural disasters and impacts attributable to Climate Change. Resulting design must be in line with measures and recommendations documented in the EIA and WB ESIA, which will be prepared in parallel with Preliminary Design.

The following sections outline the requirements for surveys, design requirements categorized by groups of works, and the requirements for the preparation of the Feasibility Study

3.5.1. Survey works

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

- establishing the geodetic base for surveying as an operational polygon, which will serve for initial and updated surveying, marking of temporary and permanent (fixed) points,
- surveying and digitally recording existing terrain data, positions of all existing railway and nearby infrastructure, buildings, structures, visible installations and all other relevant objects,
- transfer of surveyed data into detailed geodetic survey maps with all surveyed points represented on a digital cadastre-topographic base,
- survey point coordinates aligned with the national coordinate grid,
- preparation of geodesy marking project and operational polygon as an integral part of the preliminary design,
- cadastre-topographic bases with established an up-to-date borders of land owned by RS managed by SRI (railway land area) in service points where the reconstruction is planned, as well as on the railway line where expropriation is required,
- performing of all other geodetic surveys for the purposes of preparing technical documentation,
- preparing geodetic elaborate analysis with the project for expropriation including field geodetic works for the purpose of implementing changes in the real estate cadastre in the process of expropriation.

Geotechnical survey works for obtaining detailed and reliable geotechnical data on conditions and parameters required for the design of the reconstruction and modernization of subject railway section, but should not be limited to:

- exploratory drilling and sample collection
- engineering - geological mapping of exploration wells,
- excavation of exploration pits,
- geophysics geoelectric surveys where needed
- detailed geotechnical core mapping
- laboratory geomechanically research,
- preparation of geotechnical bases and documentation

The number and depth of excavation pits, collected samples and other geotechnical works shall be defined in the Program of geotechnical works per all laws, by-laws, standards and good engineering practices.

The program of geotechnical works shall be subject to approval by Client.

The program shall include the sufficient number of samples for all engineering objects, track substructure, buildings and borrow pits.

Geotechnical elaborates shall include, but not be limited to:

- Detailed collected sample profiles
- Longitudinal geotechnical terrain cross sections
- Relevant underground water levels presented in profiles and sections
- Laboratory results
- Conditions for structure foundations
- Hydro-geological conditions
- Conclusion with suggestions for substructure/soil replacement

Additional geotechnical surveys and/or laboratory research shall be done by the Consultant on request by the Client.

For these services, the consultant shall prepare OHS plan compliant to ESF, WB EHSG and national legislation before exploration/survey activity commences, subject to PIU and WB approval.

3.5.2. Civil works

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

- the maximum speed on the railway is up to 160km/h;
- station layouts will be defined through traffic study;
- Keep the existing positions of service points (stations and halts), any change in the position of the service points should be technically, technologically and economically justified;
- railway gauge shall be standard 1435mm with UIC60 rail;
- the railway shall meet the GC loading gauge;
- Switches in the stations and on the passing points shall be designed in accordance with regulations and standards for this railway category and all other conditions, in good engineering practices;
- In the stations, track alignment distance of minimum 4.75m shall be provided;
- In accordance with the technological needs, standards, TSIs and local conditions, construction of platforms in the service points shall be envisaged;
- Construction of noise barriers shall be provided where the position shall be defined after the adequate measurements and analyses are conducted;
- define the centreline, vertical alignment and all other track geometry parameters for the maximum allowed train speeds in accordance with approved route of railway line;
- subgrade/foundation and substructure shall be designed per parameters defined in the geotechnical survey elaborates for loads of a D4 category railway track (225 kN, 80 kN/m);
- substructure formation shape shall be designed with typical cross-section dimensions for D4 category main railway line, including widening of formation in curves, cable gutters and other needed installations;
- subgrade/foundation and substructure formation materials shall be planned economically justifiable and from nearby borrow pits, quarries and other sources as to avoid unnecessary transportation costs. As much as possible, no new borrow pits, quarries and similar exploitations of mineral resources will be opened for the purposes of the project. Still, existing ones with valid licenses and concessions can be used;
- substructure and track bed drainage shall be designed to fully conform with standards and good engineering practices for soil and water level parameters presented in the geotechnical survey elaborates;
- detailed static calculations shall be done in accordance with the applicable regulations and standards for all engineering and substructure objects such as culverts, bridges, retaining walls and other similar structures to, first and foremost, ensure stability and safety of the infrastructure;
- inspection and examination of all bridges, retaining walls, culverts and all other engineering objects and structures that are planned for reconstruction shall be done and results presented in the design;
- superstructure on the open track and the railway part of the station tracks should be designed with the appropriate type of rail pre-stressed concrete sleepers, and elastic fastenings in category 1 crushed stone ballast;
- tracks will be designed as CWR track on the full length of the subject railway section;
- switches shall be designed per relevant standards and rulebooks to enable the most suitable functioning of the stations, specifically using simple switches and switch track connections.
- switches shall be designed as welded in CWR track,

- RLC that remain in operation shall be designed to meet the minimum 60° angle parameter, constructed with modern rubber panel systems and in widths to accommodate common local cycling and pedestrian traffic;
- Design of level crossings will, in addition to signalization (required by the national legislation, WB EHSG and GIIP), include safe crossings for pedestrians and cyclists.
- existing industrial track capacities in private sector ownership connected to stations in this project's scope shall be accounted for and their connection to the public railway designed and kept operational within the design unless specifically stated otherwise;

3.5.3. Station buildings and facilities

Design for station buildings and facilities must foresee:

- For all existing buildings (stations and others), the structural conditions shall be inspected, and the load bearing capacity testing and evaluation of the results shall be performed. Measures and design for the reconstruction or replacement shall be provided for each building, according to the obtained testing results, in order to meet the new design requirements;
- Station buildings with railway commercial facilities for market rental, which complement the functions of the railway in passenger and freight transport (such as freight forwarding, agencies, shops, etc.) shall be reconstructed and new facilities constructed to accommodate the new railway parameters and modern services,
- For exploitation services the design shall check and update the existing office premises in stations to meet the new requirements of the railway,
- Passenger platforms shall be designed as 550 mm height with canopies in adequate lengths,
- Passenger platforms shall be connected to station buildings via pedestrian underground passages.

3.5.4. Electric traction system and facilities

3.5.4.1 Overhead contact line

The design for electrification of the overhead contact line (OCL) shall be in accordance with all Laws, bylaws and applicable standards for 25kV 50Hz electrified railways of maximum speed up to 160 km/h.

On section from Pančevo Bridge to Pančevo Main, design renewal of OCL and all its corresponding elements to be compliant with the new OCL on the Pančevo main - Vršac - Romanian border section.

The electrification of the section of the Pančevo main - Vršac - Romanian border railway shall include all objects, plants, structures and facilities of the catenary line in service points and on open railway tracks. The existing catenary line extension to Pančevo varoš station shall be included under works for reconstruction following all conditions of the final beneficiary.

The OCL on the Pančevo main – Vršac – Romanian border railway line shall be designed as a simple compensated train line with Y rope. The OCL design shall follow all relevant all laws, bylaws and relevant standards, and technical requirements of the SRI.

The design shall include the construction of a new facility for the accommodation of a heavy motor vehicle (HMV) - a garage with a concrete channel for inspection and repair of the HMV, warehouse space and a facility purposed as headquarters of the OCL maintenance section/crew within the Pančevo railway node (proposal at the Pančevo Main station) and at Vršac station;

The design shall also include requirements for inspection and testing of the OCL, the functional settings of traction system devices and equipment, and necessary testing and commissioning of OCL.

3.5.4.2 Traction substations and neutral section facilities

The design shall include the construction of stable electric traction facilities, reconstruction of existing power facilities and/or construction of new ones (transformer stations, lightning protection installations, platform lighting, internal electrical installations and lighting with the installation of new distribution cabinets).

The construction of the connection line (if necessary, the 110 kV transmission line and the 110 kV transmission line field) Connection-distributor facility (PRP) for powering electric traction facilities, shall be carried out based on the technical conditions of the "Elektromreže Srbije" (EMS) and the Distribution System Operator.

Construction of the catenary powered column substations (TS 25/0,23kV) is allowed only in the station area.

All switches in substations should be mechanically operated and capable for remote control.

The design shall include the construction of minimum two traction substations (TS) (i.e. Pančevo and Vršac, to be eventually coordinated with the Pančevo-Vinca-Beli Potok Railway Project). The design shall also include:

- new neutral section brake facilities between the supply area of TS Zemun -TS Pančevo,
- and TS Pančevo-TS Vršac and TS Vršac-state border with the Republic of Romania (PSN Vatin),

The Design for substations and post-sectioning shall include, but not be limited to, the following for each deliverable:

- Details of connection to the 110kV public utility network;
- Location and disposition of the substation;
- Location of the post sectioning's;
- 110 kV switch yard;
- Cross sections of 110 kV switch yard;
- Main circuit scheme (schematic);
- Layout and cross sections of SS 25 kV part;
- Switch gear 25 kV;
- Equipment distribution in 25 kV room;
- Details of current connections in the 25 kV part of SS;
- Insulated strings;
- 25 kV equipment supports;
- Earthing of equipment;
- Schematics of connection of remote-control equipment in substations/post-sectioning facilities and in the Remote Control Centre;
- Situation plans of access roads.

The preparation of the Design of electrification (catenary, substations and post sectioning) shall include preparation of the corresponding drawings, calculations, technical reports and technical specifications for equipment and works, corresponding bills of quantities and cost estimate.

During the preparation of the Design, it is necessary to establish a close collaboration between this and the other two activities (signalling-interlocking and telecommunications teams) to enable prompt updates of all designs according to the actually produced layouts.

3.5.5. Signalling and interlocking

The design must include the following:

- ETCS-Level 2 for facilities and the railway line from Belgrade Center to Romanian border and conventional electronic signal-safety devices with visual signals and point-of-view devices for

punctual train speed control, enabling train speeds equipped with the locomotive onboard system (I-60 system) up to 160 km/h;

- Newly built devices must be connected to the adjacent stations by an appropriate interface.

All devices must meet the following basic requirements:

- SIL 4 security integrity level according to SRPS EN 50126-1, SRPS EN 50128 and SRPS EN 50129;
- Security principle (computer architecture) of at least 2 of 3 or 2x2 of 2;
- Complete electronic control of all external elements;
- Interface for ETCS L2.

A workstation for the operator must be foreseen, equipped with computers and peripheral devices (monitor, keyboard, mouse with cable). The workstation must include an active, spare workplace, and service post for authorised maintenance workers. The workstation must have enough monitors with clear indications and a large screen to show the complete condition of security elements. The presentation on the monitors shall be according to the approved graphic of SRI and the latest enclosed symbol catalogue.

In addition, the following shall be foreseen:

- New light signals equipped with LED technology lamps and new signal cabinets;
- In all service points, provide the installation of devices for electric heating of switches with power supply from the catenary line. The heating system should be under a SCADA system with a central dispatch terminal, station terminals and control cabinets per station;
- Occupancy control in all stations and inter-station sections via axle counter;
- Polyethylene (PE) insulated cables to connect exterior security elements in stations and at inter-station distances;
- Special cable networks and special signal dividers, for switchgear, axle counters for auto-stop devices, and switch heating monitoring and control;
- Transmission of information, commands and controls for inter-station dependencies via optic cable;
- Construction of new facilities or adaptation of existing facilities for signalling-safety equipment where possible, in accordance with relevant technical conditions and standards on accommodation and installation such equipment;
- All level crossings must be provided with electronic technology in 2 of 2 configuration as minimum;
- Replacement of existing level crossing devices with modern electronic devices, and complete replacement of the existing cable network connecting external road crossing elements to the internal device;
- Level crossing devices with an interface for ETCS-Level 2;
- Reflector lighting and video surveillance at all level crossings with a minimum of three cameras per crossing and remote access to the video surveillance device;
- Power supply devices at facilities and system for continuous power supply of the equipment installed;
- Necessary voltages from static converters and rectifiers with a redundant 1 of 2 design and static switch;
- Public power distribution network 3x400V, 50 Hz as primary power source;
- 25kV, 50Hz OCL network as a backup power source;
- Stationary rechargeable battery for static converters for 3 hours as an auxiliary power source;
- Powering of red bulbs on the main signals and the shaft counter system for an additional 8 hours after switching off other sources;
- Connection for a 3x380V, 50Hz mobile diesel engine.

3.5.6. Telecommunication, information and communication plant

General conditions for the accommodation of telecommunication, information and communication equipment:

- Accommodation arrangements must satisfy the climatic-mechanical characteristics of the equipment;
- Provide all necessary technical solutions for power supply and grounding of telecommunication system devices, in accordance with the applicable regulations in this field;

General requirements for cable infrastructure:

- For concrete bridges in need of rehabilitation, provide for the replacement of concrete ducts housing cables;
- Provide for the replacement of ducts housing cables (tin, concrete, etc) on all bridges if covers or ducts are damaged;
- Provide for installation and replacement of ducts and covers in stations;

The designs should consider the following infrastructure:

- Cable infrastructure for laying optical tubes from Beograd Centar station;
- Existing cables should be removed and/or protected to be completely safe from construction works;
- Placement of rail optic cables along the entire length of the reconstructed line, on either side of the underground line, alternatively one per OCL. Plan for rail optic cable in all stations according to the needs and purpose of that optical fibre;
- In stations, dismantling of existing dispatching telephone devices and phones at input and output signals. Dismantling of all telephones on the open line. Dismantling of rendering and dispatching devices to align them with the technology of the construction works and establish necessary temporary connections for communications;
- Installation of new integrated station digital telephone dispatching devices (central devices with TK desk and anti-vandal phones) in all stations. On the open track, installation of phones in anti-vandal enclosures with a selective transmitter for block signalling (version at APB box or near separate signal and phones at road crossings. Replacement of phones and selective transmitters in electric traction units. The devices must be interoperable with the dispatching devices on the Belgrade Center – Pancevo Main – Vršac – Romanian border railway line;
- The radio dispatching system remains operational and must be adapted to the new track line, track situation, newly constructed infrastructure facilities, technology and traffic management centres for speeds up to 160 km/h. The number and location of additional radio stations must be estimated in relation to the current situation for their inclusion in the investment costs. The exact number and location of radio stations based on EM field measurements must be determined;
- Activities and related costs for measuring the EM field and modifying and supplementing the EM Tracking Measurement Report for the field of the existing radio-dispatching system and other necessary technical documentation required by the regulatory bodies for this type of device;
- Replacement of existing analogue radio stations and RD switchboards with modern technology devices, in accordance with the recommendation UIC 751-3, while ensuring interoperability with the devices on the Belgrade Center – Pancevo Main – Vršac – Romanian border railway line;
- Design of the GSM-R system as an information transfer platform for ETCS Level 2 (primary) and a platform for voice communication and other services for the railway staff. The system must be interoperable with the European rail traffic management system;
- Design of the GSM-R system to provide the optimum configuration for the required level of redundancy for ETCS level 2, in accordance with EIRENE/MORANE technical specifications, ERTMS, EU directives and relevant national and railway standards;
- The GSM-R system must be easily expandable and support upgrades to the FRMCS (5G) technology systems;

- Measurements of the electromagnetic field along the track, as verification of selected locations determined by radio wave propagation prediction models;
- Activities and related costs for measuring the EM field and developing the EM field track measurement report and other necessary technical documentation required by the regulatory bodies for this type of device;
- The GSM-R central equipment and the monitoring and control equipment for the Pančevo Bridge – Pančevo main – Vršac – Romanian border railway line must be located in two geo-redundant centres unless it is developed in a different project;
- The technical solution for the power supply of the GSM-R system must be redundant and have backup power autonomy, as required for ETCS Level 2 and provided for in the energy design. It must consider the consumption of all telecommunication and supporting devices on the open track;
- All the stations will be equipped with telecommunication systems. Station telecommunication systems must be incorporated in the SRI Intranet network, in accordance with the General Design of Integrated Systems;
- Telephone and computers installation must follow the principle of structural cabling within a common communication network. This means that all computer and telephone sockets are type RJ-45 minimum cat. 6. The layout of RJ-45 slot locations must be adjusted to needs;
- Centralised VoIP telephony system for railway staff communication must be installed for the entire railway line. The central device of VoIP telephony must be integrated into the central device at the Belgrade Centre ŽAT. Redundant connection to the central VoIP telephony device must be provided for in adequate stations and local VoIP telephony devices at ŽAT central station. The system must be connected with the existing ŽAT network through the ŽAT power plant in Belgrade, Nemanjina Street. The existing numbering used in the ŽAT network must be maintained. Each station must have interface devices with adequate capacity for connecting analogue phones to the VoIP system. A monitoring system for the control of the proper functioning of the VoIP system and all its elements must be considered;
- A state-of-the-art digital sound system operating locally and centrally must be installed. The local mode must enable train dispatchers to notify passengers via a microphone console. The central regime involves the integrating the system into the central information system at the Belgrade Centre. The announcement system should be connected to the AVIS system. All premises and rooms where passengers are allowed to are equipped with speakers. The sound system and all its elements must be provided with a monitoring system;
- A visual information system for passengers based on IP technology must be installed. IP dashboards must be provided for in all the facilities equipped with this system. The Passenger Visual Information System should be connected to AVIS. The information board system and all its elements must have a monitoring/control system for its sound operation;
- A clock system based on IP technology and equipment should be installed, including secondary IP clocks in all its locations and a monitoring system. The central equipment of the clock system is the main clock and GPS receiver at the Belgrade Centre;
- AVIS system for the harmonised publication of predefined messages via a notification system and dashboard systems should be provided for. It must be integrated into the AVIS system at the Belgrade Centre and be connected to the central railway database for monitoring train operation;
- Within the business information system, provide for three adequate centres to accommodate the server structure. IT premises must be directly connected with the centres at Nemanjina 6 and Prokop station via L3VPN or a separate VRF server structure. All workstations in the local computer network must be members of the information system (domain structure of the LMS). The business information system must be part of the Intranet of SRI.

The railway line must be equipped with systems consisting of:

- SDH high reliability and availability system for transmission of critical telecommunication and signalling systems services for ETCS Level 2 and remote control of fixed electro-traction facilities,

with traffic protection for very fast response (faster than 50 ms) in the event of network element failure or interruption of the fibre-optic cable;

- DWDM systems for the transfer of non-critical services based on IP/MPLS solutions in accordance with the General Design of Integrated Telecommunication Systems;
- The system of non-critical systems must be integrated into the Intranet HMS. The active equipment of non-critical systems (L2, L3, MPLS) must be housed on existing IT premises in stations;
- Synchronization networks (with primary and secondary sources of synchronization);
- The management and control system (NMS) of the transportation systems, i.e. all network elements of this system must be geo-redundant and unique for the entire Pančevo Bridge – Pančevo main – Vršac – Romanian border railway line. The system must support E2E configuration, management and monitoring, and be expandable to allow management and monitoring of other network elements, such as: microwave, xDSL, routers, switches, etc. The NMS must have a graphical interface for displaying the topology and structure of the network and enable its viewing and management in real-time. This systemmmust allow the expansion or addition of new network elements in line with the development of the transportation system of the Serbian Infrastructure Railways;
- The management and control system must be capable of defining access authority, configuration and monitoring at the user account level, in accordance with the users' authority and responsibility for maintaining the system;
- The power supply technical solution for the equipment of the transmission system must be redundant and have appropriate autonomy under backup power supply, as required for ETCS Level 2 for the critical service transmission network.

3.5.7. Technical protection system

Video surveillance shall include the following:

- IP system of video surveillance for the protection of critical locations (level crossings, SPEV, relay rooms, station space, passenger movement and other);
- Surveillance in real time, recording in continuity and on parameters, surveillance and reviewing of the recorded material. Recordings from cameras should be stored for 30 days;
- Monitoring system for the video surveillance system and all its elements.

3.5.8. Mechanical installations in station structures

The design shall envisage the required mechanical installations in the structures (thermodynamic, water supply, air condition, etc.) in accordance with the structure purpose and the required technical and technological properties.

3.5.9. Operation and organization of traffic

Within the Design, the following shall be processed for the above stated line section:

- Volume of passenger and freight services for the previous period of 10 years;
- Forecast of perspective volume of passenger and freight services of 20 years;
- Technical description and Analysis of current condition of railway line and service points' infrastructure capacities;
- Analysis of the current operational technology;
- Principles for organization of passenger and freight train operations on line after modernization;
- Analysis of travelling duration, throughput and capacity of railway line and service points necessary for organization of train movement, transport of passengers and freight, based on the prospective volume of service, as well as the analysis of track capacities and occupation degree;

- Results and analyses from the above item shall be presented by using the modern software for railway simulation with a valid confirmation for commercial use;
- Analysis of the required number of halts and platforms in the service points in relation to the expected volume of service and number of passengers as well as in relation to the population numbers in the catchment area;
- Planned technology of operation at the service points with taking in to account new lines and connections to future railway bypass lines in Pančevo node;
- Defining of use of premises by services and station facilities;
- Defining of movement of passengers, users and accompanying persons and directing towards the contents at service points with clearly marked information displays;
- New Traffic technology and organization of transport on line after modernization;
- Technology and organization of traffic during the execution of works which shall be reconciled with the proposed time schedule for the execution of works. Proposed time schedule and intervals for the execution of works must be approved by "Serbian Railways Infrastructure" JSC;
- Summary of designed solutions for the civil engineering and electrotechnical infrastructure of railway line and service posts;
- Graphical attachments in adequate scales, as well as linear layout of the designed railway line solution with signals and signal markings, station schemes in the existing and designed condition, designed train path plan, designed sectioning scheme and section (axle counter) plan;
- Analysis of the need to change the service point status in accordance with the future volume of transport as well as proposal for closing or opening of new service points;
- The required track capacities in stations and intersections, required number and length of platforms, required warehouse ramps in freight stations, service premises and passenger premises as well as the required passenger information equipment shall be determined from the traffic functioning aspect;

3.5.10. Technology and organization of the execution of works

In addition to the basic content of this book, the Design shall envisage the locations of construction plateaus, if allowed by space conditions, access shall be provided by the existing railway line and road. Construction plateaus shall enable deployment, storing and passing of construction machinery whose use is envisaged in accordance with the Contract for the execution of works, for the entire duration of works.

Where local roads are used for access to construction site, the design shall check the carrying capacity of roads in question (in relation to heavy duty road traffic to be accepted by the road), required maintenance during the execution of works shall be envisaged as well as returning of road into the original condition after the completion of works on reconstruction of railway line.

The Design shall envisage connections to power sources (providing the necessary output) required for the execution of works. If the connection is not possible, use of diesel aggregates shall be envisaged.

The Design shall envisage temporary and permanent stockpiles for the material of all types obtained during the execution of works (permanent way and substructure materials, crushed stone, excavation material, etc.) on the local stockpiles located at the distance of up to 20 km from the location of works, with obtaining of local municipalities approval for the use of the required surfaces. Furthermore, temporary storages for storing of new materials of all types required for the execution of works shall be also envisaged.

3.5.11. Feasibility Study

Feasibility Study shall be made on the basis of the solutions from Preliminary Design and cost estimates from BoQ, previously approved by the Client, and in accordance with the Rulebook on the content and scope of previous works, Pre-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.

3.6. 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. 94/2024);
- 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. 94/2024), 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 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.

3.7. Environmental and Social Impact Assessment Study

The objectives of the task are to prepare Environmental and Social Impact Assessment Study (ESIA) for the Project, which will include guidance for developing specific mitigation, management, and action plans by the selected Contractor as per the requirements of the World Bank Environmental and Social Framework (ESF). The approved EIA will be basis for development of ESIA.

During project implementation, the final Design-Build contractor selected to undertake the Project will be responsible to implement ESMPs in line with the ESF requirements provided in the ESIA

The preparation and processing of the ESIA will involve developing the required E&S instruments and may include as needed: site-specific/sub-project ESIAs, Environmental and Social Management Plans (ESMPs), Resettlement or livelihoods restoration plans, and Stakeholder Engagement Plans. Detailed ESMPs will be developed and implemented by the Contractor.

When Serbian regulations differ from the environmental protection standards of the World Bank ESF, WB EHSG, and GIIP (including European Union applicable regulation, directives and standards such as REACH, waste-related Directives and Guidelines e.g. for construction and demolition waste, nature protection related regulation, etc.) as well as Phase 1-level E&S documents guiding the overall project implementation (ESMF, LMP, SEP and RPF), the E&S instruments shall include and (ultimately) meet those that are stricter. These standards are listed in the links below:

- Environmental and Social Framework (ESF) - https://www.worldbank.org/en/projects-operations/environmental-and-social-framework
- WB EHSG - https://www.ifc.org/en/insights-reports/2000/general-environmental-health-and-safety-guidelines
- GIIP WB Good Practice Notes - https://www.worldbank.org/en/projects-operations/environmental-and-social-framework/brief/environmental-and-social-framework-resources#guidancenotes
- REACH – https://environment.ec.europa.eu/topics/chemicals/reach-regulation_en
- EU Waste protocols and Guidelines - https://single-market-economy.ec.europa.eu/news/eu-construction-and-demolition-waste-protocol-2018-09-18_en

The Consultant is expected to have a proficient understanding of the SRSM Phase 1 Project-level instruments. The final versions of these instruments, including the ESMF, Labor Management Procedure (LMP), Stakeholder Engagement Plan (SEP), and Resettlement Policy Framework (RPF), will be provided to the Consultant by the Client.

The ESIA and design outputs will inform each other within the defined boundaries of the SRSM Phase 1-level ESMF, and be otherwise aligned with the WB ESF. This includes, but is not limited to, excluding any designs that pose high environmental and social risks at any stage of the Project or that are not described in the Project description of this TOR.

The structure and templates of the site-specific E&S instruments are available in Annexes of the project ESMF (Provided by the MoCTI). Link to these is below:

https://www.mgsi.gov.rs/cir/dokumenti/public-consultation-enviromental-and-social-management-framework-project-level-stakeholder

3.8. Preparation of technical part of tender documentation for works contract documents

Within this task, the Consultant will prepare technical scope of Employers requirements and schedule of prices based on a template to be provided by the Client that will be part of the tender document.

4. CONTENT OF TECHNICAL DOCUMENTATION

Technical documents scope and volume shall be reconciled with the 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 and 62/2023); 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), Law on Safety in Railway Traffic (Official Gazette of RS No 41/2018, 63/2023), Law on Railway System Interoperability (Official Gazette of RS No 41/2018, 16/2022) and other valid laws, regulations, rulebooks, instructions and standards concerning the subject matter of the given design.

The prepared technical documents shall consist of:

- General documents
- Textual documents
- Numerical documents and
- Graphic documents.

For the purposes of reconstruction and modernization of railway line the following content of technical documents shall be envisaged, but not limited to the following:

- Preliminary Solution for obtaining of Location Conditions;
- Geodetic documents;
- Geotechnical documents;
- Design for railway line and service points alignment – substructure and permanent way;
- Design for bridges (bridges, viaducts, underpasses and overpasses);
- Design for upgrading of tracks on bridges;
- Design for openings' structures up to 5,00 m (culverts, etc.);
- Design for retaining, protective and other constructions;
- Design for hydrotechnical structures;
- Design for roads;
- Design for architecture;
- Design for equipment for passenger informing and guidence;
- Design for protection and relocation of the existing technical and utility infrastructure;
- Designs for electrification;
- Design for signaling and interlocking facilities;
- Design for telecommunication and IT systems;
- Design for traffic technology and organization;
- Design for technology and organization of the execution of works;
- Design for traffic organization during the execution of works;
- Design for expropriation;
- Design for land subdivision;
- Design for technical environmental protection measures;
- Elaborate for fire protection;

- Synchronous plan (textual and graphic attachments);
- Feasibility Study;
- Environmental Impact Assessment Study;
- Environmental and Social Impact Assessment Study.

5. LOCATION AND TIMING

5.1. Location

During the project timeline, the Consultant is obliged to establish an operational base on his own premises. Regular meetings between the Client's and the Consultant's representatives shall be held on agreed locations.

5.2. Commencement date and period of implementation

The intended commencement date is May, 2025, but the actual commencement date will be defined with the signature of the Contract. The period of implementation of the Contract will be 18 months starting from the commencement date, but no later than 31 December 2026, as Project completion date.

6. CONSULTANT STAFF REQUIREMENTS

6.1. Personnel

The Consultant shall establish his Team in accordance with the needs and requirements of these ToR. The Team shall consist of a core team made of key experts with the qualifications and skills defined in the Table 2, below and non-key experts.

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 Project language is English.

6.1.1. Key experts

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

Table 3: Key experts for the assignment

Title	Qualifications/Experience	Skills
Team Leader	Education: Have as a minimum MSc Degree in civil engineering or another relevant field; Relevant professional experience: At least 15 years of general experience; at least 7 years of relevant experience in preparation technical documentation for the railway sector; Experience as a team leader/project manager /in successfully implemented at least 2 railway projects related to the designing of for (re) construction / rehabilitation of railway track.	Good knowledge of English language Knowledge of Serbian language will be an advantage
Railway Civil Engineer	Education: Have as a minimum MSc Degree in Civil engineering. Relevant Professional Experience: Experience: at least 10 years of general experience; at least 7 years of relevant 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 public railway infrastructure. Valid license: 315 (or new licence number equivalent)	Knowledge of English. Knowledge of Serbian language will be an advantage
Railway electrical engineer – OCL expert	Education: Have as a minimum MSc Degree in electrotechnical engineering; Relevant Professional Experience: Experience: at least 10 years of general experience; at least 7 years of relevant 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 overhead contact line construction/reconstruction Valid license: 350 or 351 (or new licence number equivalent)	Knowledge of English. Knowledge of Serbian language will be an advantage

Railway electrical engineer – Signalling and interlocking / telecommunication expert	Education: Have as a minimum MSc Degree in electrotechnical engineering; Relevant Professional Experience: Experience: at least 10 years of general experience; at least 7 years of relevant 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 signalling, interlocking or telecommunication system installation or modernisation. Valid license: 352 or 353 (or new licence number equivalent)	Knowledge of English. Knowledge of Serbian language will be an advantage
Railway operation expert	Education: Have as a minimum MSc Degree in traffic and transport; Relevant Professional Experience: Experience: at least 10 years of general experience; at least 7 years of relevant 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 traffic expert and /or responsible designer. Valid license: 368 (or new licence number equivalent)	Knowledge of English. Knowledge of Serbian language will be an advantage
Spatial plans expert	Education: Have as a minimum MSc Degree in spatial planning, engineering or equivalent; Relevant Professional Experience: Experience: at least 10 years of general experience; at least 7 years of relevant experience in preparation of spatial planning and urbanistic documentation. Valid license: valid licence for responsible spatial and urbanistic planning	
Environmental Expert	Education: Have as a MSc Degree in an environmental discipline or equivalent; Relevant Professional Experience: Minimum 10 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 2 ESIA/EIA studies for transport infrastructure-related projects. Knowledge of World Bank Safeguard/ESF practices will be considered as advantage	Working knowledge of English. Knowledge of Serbian language will be an advantage

6.1.2. Non - Key experts

Non-key experts for Design in the following areas of expertise are foreseen, but not limited to: Transport planner/Transport economist, Financial and Economic Expert, Structural and other Civil engineers, Architectural engineer, Geotechnical engineer; Geodetic engineer; Electrical engineers, Mechanical engineer,

Environmental specialists, Occupational Health and Safety Expert, Fire-protection Expert, Social Development and Safeguards Specialist, Land acquisition, Community consultation/stakeholder engagement, pool of Experts for the Spatial plans.

The Consultant must provide a detailed team structure that clearly indicates the profiles of the proposed experts.The pool of non-key experts is expected to support/complement all the activities of the key experts. Possession of relevant Serbian design license by the experts would be required, as applicable.

The Consultant is expected to include other positions considered necessary for the assignment in their proposals.

6.2. Office accommodation

Office accommodation for each expert working on the Contract is to be provided by the Consultant. The Consultant shall ensure that all key and non key experts are adequately supported and equipped.

7. DELIVERABLES AND OUTPUTS

7.1. Deliverable and Outputs requirements

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

Table 4: List of deliverables

Deliverables	Description	Due date	Format
Inception Report	Describe the initial findings, progress in collecting data, any difficulties encountered or expected, 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 completion of activities with Preliminary Program of geotechnical works. If there are any proposed modifications to the original ToR due to changed circumstances through information gathering activities, these are to be discussed and agreed in principle with the Client before the submission of the Report (up to 50 pages) Subject to approval by the Client.	No later than 1 month after the commencement date	Digital and 4 hard copies in Serbian and English language
Draft Preliminary Solution	The analysis will identify main technical parameters to be reviewed and accepted by the Client, to serve as base parameters for subsequent design phase(s) and planning documents. The document will provide clear technical and technological solutions for the modernization of the railway line at an appropriate technical level. Subject to approval of the Client.	No later than 3 months after the inception report	Digital in Serbian and English language
Program of geotechnical works	The program shall identify the locations, number and depth of excavation pits, collected samples and other geotechnical works per all laws, by-laws, standards and good engineering practices for this scope of designs. The program shall include the sufficient number of samples and tests for all engineering structures, track substructure, buildings and borrow pits. Subject to approval by the Client.	No later than 1 month after approval of Draft Preliminary Solution	Digital in Serbian and English language
Spatial plans (Detailed Regulation Plans, Urbanistic Designs) outside of area covered by Spatial plan for the special-purpose area	Planning documents prepared in accordance with current regulations and the need to obtain Location Conditions on a certain section of the railway line. Subject to pre-approval by the Client and official adoption by the Secretariat in City of Belgrade.	No later than 12 months after approval of Draft Preliminary Solution	Digital and 2 hard copies in Serbian language
Spatial plan for the special-purpose area	The Spatial plan for the special-purpose area of Infrastructure Corridor Pančevo Main – Vršac – Romanian border 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) and the need to	No later than 12 months from the date of the Decision on the preparation of the Spatial plan for the special-purpose area	Digital and 2 hard copies in Serbian language

	obtain Location Conditions on a certain section of the railway line. Subject to approval by Client.	issued by AP Vojvodina	
Preliminary Solution	Preliminary Solution in terms of scope and content should be done in accordance with applicable laws, regulations, codes, instructions and standards that for subject of design. Subject to approval of the Client	No later than 1 month from the adoption of Spatial plan for the special-purpose area	4 printed copies in Serbian and 6 digital copies on a USB in Serbian and English
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 of the Client and approval of State Review Committee	No later than 3 months from the date of submission of the Location Conditions to the Consultant.	4 printed copies in Serbian and 6 digital copies on a USB in Serbian and English
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 Client and approval of the Ministry for Environmental Protection.	No later than 7 months from the date of issuance of the Location Conditions.	3 printed copies and 3 digital copies on a USB in Serbian and English
ESIA	The Environmental and Social Impact Assessment Study will be prepared in accordance with WB E&S standards, WB EHSG, GIIP, and compliant to all ESF Project instruments (Projects ESMF, LMP, SEP, RPF). Subject to approval by the WB	No later than 1 month from the date of the approval of the EIA by Ministry	Digital Serbian and English
ESMP and RAP	Documents will be prepared in accordance with WB E&S standards, WB EHSG, GIIP, and compliant to all ESF Project instruments (Projects ESMF, LMP, SEP, RPF)	No later than 1 month from the date of the delivery of the ESIA	Digital Serbian and English
Employers Requirements for bidding documents	Preparation of Employers Requirements that will be part of the design and build biding documents. Subject to approval of the Client.	No later than 1 months from the date of the approval of the Preliminary Design by State Review Committee	Digital, Serbian and English

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

Table 5: List of reporting documents

Minutes of meeting	The minutes of each meeting that was held between the Consultant and the Client's representative, with the main topics and conclusions of the meeting	Not later than 1 week after the end of meeting	Digital, Serbian and English
Quarterly Reports	Description of the level of completed documentation, possible problems and proposals for their solution, review of adopted designs and explained proposal for change. Monthly reports must also contain an overview of all receivables submitted by the Contractor since the beginning of the Contract. This overview should be made in	Not later than 1 week after the end of month	Digital, Serbian and English

	a convenient form that allows consideration of requests, previous activities and key deadlines for resolving requests. (up to 20 pages).		
Final report	On completion of design and procurement documentation, the Consultant shall submit the final design report to Client. The final report contains: – An overview/timeline of the actual progress of the contract/design detailing reasons for design delays and/or extensions of time – All relevant conditions, approvals and permits presented in the design timeline – Details of design/technical difficulties encountered and how these were overcome. – Details of administrative difficulties encountered and how these were overcome An appraisal of the strengths and weaknesses in the contract documents (including but not limited to the, technical specifications, schedules, deadlines and design details) with recommendations on how improvements could be made for future contracts.	No later than 30 days after approval of drafted procurement documents.	Digital, Serbian and English

7.2. Requirements for drawings and reports

The Consultant shall prepare and submit technical documents for the Client's approval, adhering to the requirements specified in the ToR and complying with all relevant laws, by-laws, standards, and good engineering practices. The Client reserves the right to reject any documents and designs deemed non-compliant.

The documents and drawings to be submitted by the Consultant shall take their final form after approval by the Client.

Design Documents and drawings shall be numbered systematically and the Consultant shall maintain an electronic register of all reports, documents and drawings to be used under the Contract.

Amendment and revision to any document shall be recorded and only the latest approved version shall be considered valid.

7.3. Submission and approval of outputs

All reports and other outputs shall be prepared and written bilingually, in Serbian and in English. The draft version of the reports (electronic copy, fully editable) shall be submitted to PIU for distribution to the MoCTI and SRI. The commenting period for the outputs is up to 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.

Feasibility study with Preliminary design is subject to audit (expert control) of the State Review Committee 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 State Review Committee and other competent and state bodies, and the authorized representative of the Client in order to obtain required approvals.

Environmental Impact Assessment Study is subject to audit (expert control) of the Ministy of Enviromental Protection. Consequently, the Consultant shall be obliged to, in a timely manner and at own costs, eliminate

all deficiencies in the Environmental Impact Assessment Study according to findings of the Ministy of Enviromental Protection in order to obtain required approvals.

ESIA is subject of the review by the World Bank and Consultant shall be responsible for addressing all corrections in a timely manner and at the Consultant's own expense to obtain the necessary approval.

The estimated review periods for the above-mentioned relevant authorities are as follows:

- Receiving a positive report of the State Review Committee: up to **3 months**,
- Approval for the Environmental Impact Assessment Study: up to **3 months**,
- Approval for the ESIA by the World Bank: up to **3 months**,

These timelines are indicative and may vary depending on the complexity of the documentation and the review process.

All deliverables will be sent as electronic copies to PIU.

The Preliminary Design with Feasibility Study shall be prepared in both hard copies and electronic form, stored on a USB drive. The documentation on the USB 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 USB 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.

Hard copies will be send to the following address PIU/MoCTI, Uzun Mirkova 3, 11000 Beograd, Republic of Serbia

The Consultant will, in order to successfully complete the project:

- For the purposes of obtaining Location conditions, in accordance with the applicable regulations and the Laws will act according to the orders of the competent institutions;
- For the purposes of obtaining a positive opinion of the State Review Committee for the expert control of technical documentation on the feasibility study with the Preliminary Design, in accordance with the applicable laws and regulations, will act according to the orders of the committee;
- In order to obtain a Decision on the acceptance of the Environmental Impact Assessment Study by the Ministry of Environmental Protection, it will act according to the orders of the Ministry;
- In order to obtain a Decision on the acceptance of the Environmental and Social Impact Assessment Study by the World Bank, it will act according to the orders of the World Bank.

8. TYPE OF CONTRACT

The Consultant should note that the proposed contract for this assignment will be as Lump Sum payments with milestones against submission of deliverables per Section 7, item 7.1. table 4